

MONTROSE REDEVELOPMENT AUTHORITY/ TIRZ 27

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

WBS No. N-T27000-0005-7

ON BEHALF OF TAX INCREMENT REINVESTMENT ZONE NO. 27

100% SUBMITTAL

FEBRUARY 2024

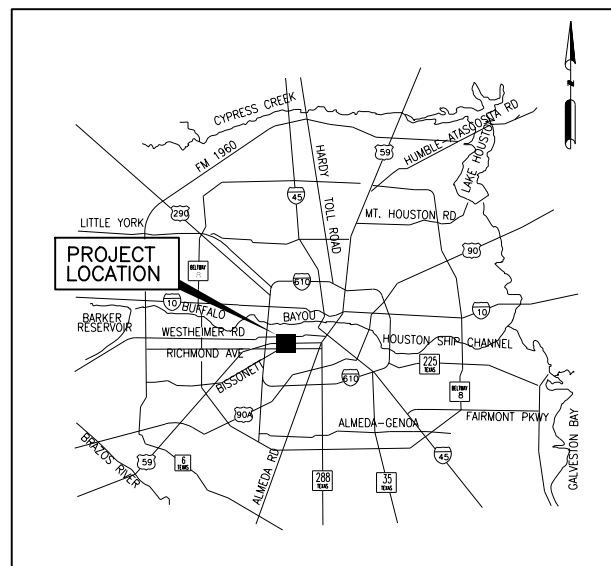
MAYOR
JOHN WHITMIRE
CONTROLLER
CHRIS HOLLINS

COUNCIL MEMBERS
AT-LARGE

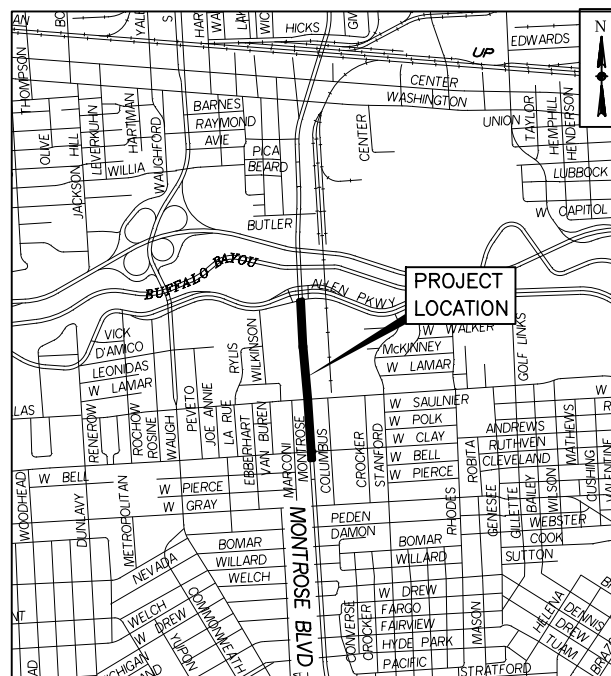
JULIAN RAMIREZ WILLIE DAVIS
POSITION 1 POSITION 2
TAWILA CARTER LETITIA PLUMMER
POSITION 3 POSITION 4
SALLIE ALCORN
POSITION 5

DISTRICT
COUNCIL MEMBERS

AMY PECK TARSHA JACKSON ABBIE KAMIN CAROLYN EVANS--SHABAZZ
DISTRICT A DISTRICT B DISTRICT C DISTRICT D
FRED FLICKINGER TIFFANY D. THOMAS MARY NAN HUFFMAN MARIO CASTILLO
DISTRICT E DISTRICT F DISTRICT G DISTRICT H
JOAQUIN MARTINEZ EDWARD POLLARD MARTHA CASTEX--TATUM
DISTRICT I DISTRICT J DISTRICT K





VICINITY MAP
N.T.S.



LOCATION MAP

KEY MAP No. 493N, 493J
GIMS MAP No. 5357C, 5357A

TDLR EABPR TABS2024000472


NO.	DATE	REVISION	APP.
		MONTROSE REDEVELOPMENT AUTHORITY TIRZ 27	
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11750 Katy Freeway, Suite 400 Houston, TX 77079 www.GaugeEngineering.com Texas PE Firm Reg. #F-20017		SURVEYED BY: KUO & ASSOCIATES	
NOTE: CITY SIGNATURE VALID FOR ONE YEAR ONLY, AFTER DATE OF SIGNATURE			
_____ DIRECTOR OF HOUSTON PUBLIC WORKS		_____ DATE:	


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No.	DATE	REVISIONS	APP.

**MONTROSE**
TAX INCREMENT REINVESTMENT ZONE 27



Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

INTERIM REVIEW ONLY

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DAVID G. CHEANEY
125563
2/21/2024

SURVEYED BY:
KUO & ASSOCIATES, INC.

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GAUGE ENGINEERING
Texas Registered Engineering Firm F-20017

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

INDEX OF SHEETS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 2 OF 355	

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GENERAL CONSTRUCTION NOTES (WITHIN CITY OF HOUSTON ROW)

- UNLESS OTHERWISE NOTED AND APPROVED ON DRAWINGS, CONSTRUCT CIVIL INFRASTRUCTURE IN ACCORDANCE WITH THE EFFECTIVE EDITION OF THE HOUSTON PUBLIC WORKS STANDARD CONSTRUCTION SPECIFICATIONS, STANDARD CONSTRUCTION DETAILS, AND SUPPLEMENTS, ADDENDA AND AMENDMENTS THERETO. THE LATEST EDITION OF THE ABOVE PUBLICATIONS CAN BE FOUND AT:
[HTTP://WWW.HOUSTONPERMITTINGCENTER.ORG/OFFICE-CITY-ENGINEER/DESIGN-AND-CONSTRUCTION-STANDARDS.](http://www.houstonpermittingcenter.org/offic-city-engineer/design-and-construction-standards)
- THE DESIGN MUST BE CONSISTENT WITH THE EFFECTIVE EDITION OF HOUSTON PUBLIC WORKS INFRASTRUCTURE DESIGN MANUAL AND TCEQ (TEXAS COMMISSION ON ENVIRONMENTAL QUALITY) REQUIREMENTS.
- THE GEOTECHNICAL INVESTIGATION FOR THIS PROJECT WAS CONDUCTED IN ACCORDANCE WITH CHAPTER 11 OF THE LATEST EDITION OF THE PUBLICATION INFRASTRUCTURE DESIGN MANUAL, PUBLISHED BY HOUSTON PUBLIC WORKS. SOILS REPORT WAS PREPARED BY AVILES ENGINEERING CORPOATION REPORT NO. g152-21g, DATED JULY 2023.
- 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 AND LONE STAR NOTIFICATION CENTER AT 800-669-8344 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.
- 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 EFFECTIVE EDITION OF HOUSTON PUBLIC WORKS, STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEM, WATER LINES, STORM DRAINAGE, STREET PAVING, AND TRAFFIC AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE, STREET PAVING AND TRAFFIC, REFERENCED ABOVE AND SUPPLEMENTS, ADDENDA AND AMENDMENTS THERETO, AT NO ADDITIONAL COST TO THE CITY OF HOUSTON.
- CONTRACTOR SHALL NOTIFY THE OFFICE OF THE CITY ENGINEER, HOUSTON PUBLIC WORKS @ 832-394-9098 OR VIA FAX AT 832-395-4424 FOR INSPECTION AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- 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 AND TO THE SATISFACTION OF THE OWNING AUTHORITY.
- CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG THE AREA OF EXCAVATION.
- CONTRACTOR SHALL COMPLY WITH LATEST EDITION OF OSHA REGULATIONS AND THE STATE OF TEXAS LAWS CONCERNING EXCAVATION.
- CONTRACTOR SHALL MAINTAIN A SET OF REDLINE DRAWINGS AND RECORD AS-BUILT CONDITIONS DURING CONSTRUCTION. THESE AS-BUILT 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.

SANITARY SEWER NOTES

- ALL SEWERS SHALL BE SUBJECT TO A STANDARD EXFILTRATION TEST. TESTS ARE TO BE PERFORMED ON THE TOTAL FOOTAGE OF SEWER LINE INCLUDED IN THE PROJECT. REQUIREMENTS OF TEXAS ADMINISTRATIVE CODE, TITLE 30 CHAPTER 217, "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEMS" SHALL GOVERN WHERE CONFLICTS EXIST EXCEPT WHERE CITY REQUIREMENTS ARE MORE STRINGENT.
- ALL MANHOLES ARE TO BE PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBERS 02082-01, 02082-02, 02082N-02, 02082-03, AND 02082N-03 UNLESS OTHERWISE NOTED. USE THE LATEST VERSION AS APPLICABLE.
- SANITARY SEWER MANHOLES WILL HAVE BEDDING AND BACKFILL PER CITY OF HOUSTON STANDARD DETAILS DRAWING NO. 02317-08 UNLESS OTHERWISE NOTED.
- THE SANITARY SEWER PVC PIPE SHALL BE ASTM D 3034 TYPE PSM SDR 26 GRAVITY SEWER PIPE, ASTM D2241 SDR 26 PRESSURE RATED SEWER PIPE OR AWWA C-900 DR-18 GREEN PVC PRESSURE RATED SEWER PIPE BASED ON CONSTRUCTION CONDITION REQUIREMENT AND CONFORMING TO ASTM D1784 AND CITY OF HOUSTON STANDARD SPECIFICATION SECTION 02506 POLYVINYL CHLORIDE PIPE.
- WHEN SS PRESSURE RATED PVC PIPE IS USED ON WATERLINE (WL) CROSSING UNDER CONDITION 1 OF COH IDM TABLE 7.3, THE SAME TYPE OF D2241 SDR 26 PVC PIPE OR C-900 GREEN DR-18 PVC GREEN PRESSURED TO BE UTILIZING IN-BETWEEN TWO SS MH'S. OR TO UTILIZE A DI TRANSITION ADAPTER FOR THE CONNECTING OF ASTM D-3034 PVC GRAVITY PIPE TO DI-OD AWWA C-900 PVC PIPE CENTERED AT WL WHEN CONNECTING TWO DIFFERENT TYPES OF PVC PIPES FOR SEWER CONSTRUCTION.
- AWWA C-900 DR-18 PVC PIPE USES EITHER AWWA C900 DR-18 PVC FITTINGS OR DIP FITTINGS.
- ALL SANITARY SEWER LINES UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL HAVE BEDDING PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBERS 02317-01, 02317-02, OR 02317-03 AS APPLICABLE, WITH 1 1/2 SACK CEMENT/CY STABILIZED SAND BACKFILL UP TO THE BOTTOM OF THE PAVEMENT SUBGRADE. 100 PSI PERFORMANCE RESULTS ARE STILL REQUIRED.
- ALL NEW SANITARY SEWERS CROSSING WATER LINES WITH A CLEARANCE BETWEEN 12 INCHES AND 9 FEET SHALL HAVE A MINIMUM OF ONE 18" JOINT OF DUCTILE IRON OR (GREEN) C900 PVC PIPE MEETING ASTM SPECIFICATION D2241 CENTERED ON WATER LINE. WHEN WATER LINE IS BELOW SANITARY SEWER, PROVIDE MINIMUM 2 FOOT SEPARATION.
- CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL CLEARANCE OF 9' FEET BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES.
- SANITARY SEWER MANHOLE RIMS OUTSIDE OF PROPOSED PAVING WILL BE SET 3" - 6" ABOVE THE SURROUNDING LEVEL FINISHED GRADE AFTER PAVING WITH SLOPED BACKFILL ADDED FOR STORM WATER TO DRAIN AWAY FROM MANHOLE RIM.
- IN WET STABLE TRENCH AREAS USE BEDDING PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBER 02317-02.

- DEFLECTION TEST: DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE AND SEMI-RIGID SEWER PIPE. THE TEST SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS. NO PIPE SHALL EXCEED A DEFLECTION OF 5% IF THE DEFLECTION TEST IS TO BE RUN USING A RIGID MANDREL, IT SHALL HAVE A DIAMETER EQUAL TO 95% OF THE INSIDE DIAMETER OF THE PIPE. THE TEST SHALL BE PERFORMED AS PER 30 TAC 217.57 LATEST AMENDMENT AND WITHOUT MECHANICAL PULLING DEVICES. NO BALL-TYPE MANDREL IS ALLOWED.
- INFILTRATION, EXFILTRATION OR LOW-PRESSURE AIR TEST: EITHER OF THE FOLLOWING TESTS SHALL BE PERFORMED AS PER TAC, TITLE 30 217.57 WITHIN THE SPECIFIED TOLERANCES ON ALL GRAVITY SEWERS.
A. INFILTRATION OR EXFILTRATION TEST: TOTAL LEAKAGE AS DETERMINED BY A HYDROSTATIC HEAD TEST SHALL NOT EXCEED 50 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOURS AT A MINIMUM TEST HEAD OF TWO (2) FEET.
B. LOW-PRESSURE AIR TEST: PERFORM TEST ACCORDING TO UNI-B-6-90 OR OTHER APPROPRIATE PROCEDURES. FOR SECTIONS OF PIPE LESS THAN 36" (INCH) AVERAGE INSIDE DIAMETER, THE MINIMUM ALLOWABLE TIME FOR PRESSURE DROP FROM 3.5 P.S.I.G. TO 2.5 P.S.I.G. SHALL BE AS FOLLOWS:
6" 340 SECONDS OR 0.855(L) FOR TEST LENGTHS GREATER THAN 398'
8" 454 SECONDS OR 1.520(L) FOR TEST LENGTHS GREATER THAN 298'
10" 567 SECONDS OR 2.374(L) FOR TEST LENGTHS GREATER THAN 239'
12" 680 SECONDS OR 3.419(L) FOR TEST LENGTHS GREATER THAN 199'
15" 850 SECONDS OR 5.342(L) FOR TEST LENGTHS GREATER THAN 159'
18" 1020 SECONDS OR 7.693(L) FOR TEST LENGTHS GREATER THAN 133'
WHERE L = LENGTH OF LINE OF SAME PIPE SIZE IN FEET.
- "SAN. S. E." INDICATES "SANITARY SEWER EASEMENT"
- FOR SANITARY MANHOLE (MH) RIMS SET INSIDE OF OR @ CURB & GUTTER PAVEMENT AND/OR BELOW T.C., MH RIMS WILL BE SET FLUSHED WITH AN ABUTTING PAVED SURFACE. THE (VALCUN, NEENAH OR EQUAL) HEAVY DUTY BOLTED SOLID MH COVER SHALL BE PROPERLY (AND SECURELY) ATTACHED AND SEALED TO ITS COMPATIBLE GASKETED FRAME BY USING BOTH A NEOPRENE GASKET AND (AT LEAST) 4 COUNTER-SUNK HEXHEAD COARSE THREADED 1/2"-13 UNC STAINLESS STEEL BOLTS. THE HEAVY DUTY FRAME MH COVER SHALL BE SOLID (NO AIR HOLES). SAID FRAME SHALL BE BOTH EMBEDDED INTO THE MH'S TOP ALSO SECURELY ANCHORED TO THE UNDERLYING MH STRUCTURE WITH EITHER SECURELY ATTACHED EMBEDDED ANCHOR BOLTS OR THE CONCRETE MH'S EXPOSED REBARS WELDED TO THE FRAME OR OTHER EQUALLY SECURED METHODS TO PREVENT MH COVER/FRAME BLOW-OFFS/EJECTIONS.

STORM NOTES

- STORM SEWER SHALL BE REINFORCED CONCRETE PIPE (C-76, CLASS III), AND SHALL BE INSTALLED, BEDDED, AND BACK FILLED IN ACCORDANCE WITH THE CITY OF HOUSTON DRAWING NOS. 2317-02, 02317-3, 02317-05, 02317-06, AND 02317-07 (JULY 2019) AS APPLICABLE UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- ALL STORM SEWER CONSTRUCTED IN SIDELOT EASMENT SHALL BE R.C.P (C-76, CLASSIII) AND SHALL BE EMBEDDED IN ACCORDANCE WITH THE CITY OF HOUSTON DRAWING NOS. 02317-02, 02317-03, 02317-05, 02317-06, AND 02317-07 AS APPLICABLE.
- ALL SEWER UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1-1/2 SACK CEMENT/C.Y. STABILIZED SAND TO WITHIN ONE (1) FOOT OF SUBGRADE. THE REMAINING DEPTH OF TRENCH SHALL BE BACKFILLED WITH SUITABLE EARTH MATERIAL.
- ALL TRENCH BACKFILL SHALL BE IN 8" LIFTS, WITH TESTS TAKEN AT 100 FOOT INTERVALS IN EACH LIFT, AND MECHNICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMACTION TEST (ASTM D-698/AASHTO 199).
- CIRCULAR AND ELLIPTICAL REINFORCED CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINT CONFORMING TO ASTM C443 AND ASTM C877 RESPECTIVELY.
- ALL STORM SEWER PIPES AND INLET LEADS SHALL BE 24" AND LARGER R.C.P. (C-76, CLASSIII).
- ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES AND INLET LEADS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.
- MINIMUM HORIZONTAL CLEARANCE BETWEEN ANY STORM PIPE AND BOX SHALL BE AT LEAST 48-INCHES FROM EXTERIOR OF THE STORM PIPE OR BOX TO THE EXTERIOR OF THE EXISTING OR PROPOSED PUBLIC OR PRIVATE UTILITY AND OTHER APPURTENANCES. MINIMUM VERTICAL CLEARANCE BETWEEN ANY STORM PIPE AND BOX SHALL BE AT LEAST 24-INCHES FROM EXTERIOR OF THE STORM PIPE OR BOX TO THE EXTERIOR OF THE EXISTING OR PROPOSED PUBLIC OR PRIVATE UTILITY AND OTHER APPURTENANCES.
- ADJUST MANHOLE COVERS TO GRADE CONFORMING TO REQUIREMENTS OF SECTION 02086-ADJUSTING MANHOLES, INLETS, AND VALAVE BOXES TO GRADE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY BACK SLOPE DRAINAGE SYSTEM DISTURBED AS A RESULT OF THIS WORK.
- ALL DITCHES SHALL BE GRADED TO PROPOSED ELEVATIONS TO INSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE PROPERLY BACKFILLED AND COMPACTED. ALL DISTURBED AREA SHALL BE REGRADED, SEEDED, AND FERTILIZED.
- ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.

STREET AND BRIDGE NOTES



- FILL AREAS ON PLANS SHALL BE FILLED IN LAYERS NOT EXCEEDING 8" IN DEPTH AND EACH COMPACTED TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY PRIOR TO INSTALLATION OF WATER LINE AND FILL AREA SHALL BE SEEDED AND FERTILIZED WITHIN 10 WORKING DAYS.
- UTILITY CONTRACTOR SHALL PROVIDE TEMPORARY SILT BARRIER FENCE ON ALL NON-CURBED INLETS WHICH WILL REMAIN IN PLACE AFTER UNDERGROUND CONTRACT IS COMPLETE.
- CONTRACTOR SHALL PROVIDE SILT BARRIER FENCE ON ALL STAGE 1 CURB INLETS.
- EXISTING PAVEMENTS, CURBS, DRIVEWAYS, AND SIDEWALKS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF HOUSTON STANDARDS, WITH LATEST ADDENDA AND AMENDMENTS THERETO.
- CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY UPON COMPLETION OF JOB SHALL BE AS GOOD AS OR BETTER THAN PRIOR TO STARTING WORK.
- EXPOSED 15"OF REINFORCING STEEL AT PROPOSED SAWED JOINT IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BARS 24"LONG 24"C-C DRILLED AND EMBEDDED 8"INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC" OR EQUAL.
- WHEELCHAIR RAMPS SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF HOUSTON STANDARDS AT ALL INTERSECTIONS WHERE SIDEWALKS EXIST AND THE EXISTING CURB OR SIDEWALK IS DAMAGED OR REMOVED DURING CONSTRUCTION.
- PRIOR TO STREET CONSTRUCTION, THE CONTRACTOR SHALL CONTACT HOUSTON PUBLIC WORKS AT (PHONE) 832-394-9578 AND COMPLY WITH ALL REQUIREMENTS FOR THE ISSUANCE OF NECESSARY PERMITS/WORK ORDERS FOR STREET CONSTRUCTION.
- DOUBLE REFLECTORIZED BLUE TRAFFIC MARKERS SHALL BE PLACED 6-INCHES OFFSET OF THE CENTERLINE OF ALL FIRE HYDRANT LOCATIONS BY THE PAVING CONTRACTOR. HYDRANTS LOCATED AT INTERSECTIONS SHALL HAVE A BUTTON PLACED ON EACH STREET.

SWPPP CONSTRUCTION NOTES

- CONTRACTOR SHALL IMPLEMENT INLET PROTECTION DEVICES AND REINFORCED FILTER FABRIC BARRIER ALONG ROAD AND SIDE DITCHES AT LOCATIONS SHOWN ON THE TYPICAL STORM WATER POLLUTION PREVENTION (SWPP) PLANS TO KEEP SILT AND OR EXCAVATED MATERIALS FROM ENTERING INTO THE STORM WATER INLETS AND DITCHES EVENTUALLY POLLUTING THE RECEIVING STORM.
- DURING THE EXCAVATION PHASE OF THE PROJECT, CONTRACTOR SHALL SCHEDULE THE WORK IN SHORT SEGMENTS SO THAT EXCAVATION MATERIAL CAN BE QUICKLY HAULED AWAY FROM THE SITE AND TO PREVENT IT FROM STAYING UNCOLLECTED ON THE EXISTING PAVEMENT. ANY LOOSE EXCAVATED MATERIAL WHICH FALLS ON PAVEMENTS OR DRIVEWAYS SHALL BE SWEEPED BACK INTO THE EXCAVATED AREA.
- CONTRACTOR SHALL CLEAN UP THE EXISTING STREET INTERSECTIONS AND DRIVEWAYS DAILY, AS NECESSARY, TO REMOVE ANY EXCESS MUD, SILT OR ROCK TRACKED FORM THE EXCAVATED AREA.
- CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT, ALWAYS CLEANING UP DIRT AND LOOSE MATERIAL AS CONSTRUCTION PROGRESSES.
- CONTRACTOR TO INSPECT AND MAINTAIN THE AREAS LISTED BELOW AT LEAST ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER.
 - DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
 - AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
 - STRUCTURAL CONTROL MEASURES.
 - LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.
- CONTRACTOR TO BE RESPONSIBLE TO MAINTAIN EXISTING DITCHES AND OR CULVERTS FOR UNOBSTRUCTED DRAINAGE AT ALL TIMES. WHERE SODDING IS DISTURBED BY EXCAVATION ON BACKFILLING OPERATIONS, SUCH AREAS SHALL BE REPLACED BY SEEDING OR SODDING. SLOPES 4:1 OR STEEPER SHALL BE REPLACED BY BLOCK SODDING.

TRAFFIC NOTES

- CONTRACTOR OR OWNER SHALL SUBMIT TRAFFIC CONTROL PLANS WITH THE MOBILITY PERMIT APPLICATION. THE PLANS SHALL BE DRAWN TO SCALE AND SEALED BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS.
- THE GENERAL NOTES THAT SHALL BE INCLUDED ON THE TRAFFIC CONTROL PLAN CAN BE FOUND IN CHAPTER 15 (15.12 TRAFFIC CONTROL PLAN) OF THE CITY OF HOUSTON'S (CITY) INFRASTRUCTURE DESIGN MANUAL (IDM). BELOW ARE SEVERAL KEY NOTES FROM THE IDM TO BE AWARE OF:
- THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) LATEST EDITION WITH REVISIONS DURING THE ENTIRE CONSTRUCTION PERIOD.
 - NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00PM TO 7:00AM.
 - CONTRACTOR SHALL MAINTAIN APPROVED NUMBER OF LANES OF TRAFFIC IN EACH DIRECTION DURING CONSTRUCTION WORKING HOURS. TRAFFIC CONTROL PLANS SHALL INCLUDE ONE-WAY AND/OR DETOUR PLANS. CONTRACTOR SHALL MAINTAIN ADA COMPLAINT PEDESTRIAN ACCESS TO BUS STOPS AND ADEQUATE BUS ACCESS TO THE BUS STOP.
 - CONTRACTOR SHALL COVER OPEN PAVEMENT EXCAVATIONS FOR MINOR UTILITY WORK WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS, OPEN LANES FOR NORMAL TRAFFIC FLOW WHEN FEASIBLE.
 - CONTRACTOR SHALL SECURE ROADWAY/SIDEWALK/STREET/BICYCLE FACILITY PERMITS AS DESCRIBED IN CITY OF HOUSTON ORDINANCE, CHAPTER 40 STREETS & SIDEWALKS, SECTION 40-361 FROM HOUSTON PERMITTING CENTER (MOBILITY PERMIT SECTION AT [HTTPS://GEOHUB.HOUSTONTX.GOV](https://geohub.houstontx.gov)) BEFORE IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE APPLICATION MUST BE SUBMITTED AT LEAST TEN BUSINESS DAYS PRIOR TO THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN AND/OR BEGINNING CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS, CONSTRUCTION SEQUENCING, AND CONSTRUCTION SCHEDULE WITH THE APPLICATION.
 - CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES
 - ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL CONES AND/OR DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAY, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM THE CITY OF HOUSTON.
- ADDITIONAL OFF DUTY POLICE OFFICERS/FLAGGERS MAY BE REQUESTED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED AT THE DIRECTION OF THE CITY EVEN IF THEY ARE NOT SPECIFICALLY IDENTIFIED ON THE PROJECT PLANS.

	
 GAUGE ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction. Bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> DAVID G. CHEANEY 172563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1	
GENERAL CONSTRUCTION NOTES	
SHEET 1 OF 2	
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SHEET NO. 3 OF 355	

TRAFFIC SIGNAL NOTES

1. ALL EQUIPMENT / MATERIALS AND CONSTRUCTION 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.
2. ALL ELECTRICAL WORK SHALL BE IN CONFORMANCE WITH THE PROVISIONS AND REQUIREMENTS OF THE CITY ELECTRICAL CODE.
3. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
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.
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.
6. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REPRESENTATIVE TO ARRANGE FOR METER AND ELECTRICAL SERVICE CONNECTION FROM THE POWER COMPANY.
7. ALL PEDESTRIAN PUSH BUTTON ASSEMBLIES SHALL MEET ADA REQUIREMENTS. THE SIGNS THAT SHALL BE USED ARE IDENTIFIED IN THE TMUTCD AS R10-3E. CITY OF HOUSTON STANDARDS FOR PEDESTRIAN FACILITIES SHALL BE MET IN ADDITION TO ANY TEXAS ACCESSIBILITY STANDARDS BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR).
8. PEDESTRIANS PUSH BUTTONS SHALL BE SEPARATED BY A MINIMUM OF 10 FEET. EXCEPTIONS ONLY AS SPECIFIED BY THE ENGINEER WITH AUTHORIZATION FROM THE APPROVED CITY OF HOUSTON REPRESENTATIVE.
9. 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.
10. 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.
11. NO POLES SHALL BE LOCATED IN WHEELCHAIR RAMPS OR SUCH THAT THEY ARE AN OBSTRUCTION TO PEDESTRIANS OR WHEELCHAIRS.
12. THE TOP OF THE POLE FOUNDATION SHALL BE LEVELED 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. GROUTING SHALL BE USED TO FILL ANY GAP BETWEEN THE POLE BASE AND FOUNDATION.
13. POLES SHALL BE LOCATED SUCH THAT ALL PORTIONS OF THE POLES AND ATTACHED EQUIPMENT HAVE CLEARANCES FROM OVERHEAD UTILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL UTILITY AND THE NATIONAL ELECTRICAL SAFETY CODE (NESC).
14. ALL CONCRETE USED FOR TRAFFIC SIGNAL POLE AND CABINET FOUNDATIONS SHALL BE CLASS $\frac{1}{2}$ A $\frac{1}{2}$ (REFER TO THE CITY OF HOUSTON SPECIFICATION FOR CONCRETE).
15. MAST ARM AND STRAIN POLES SHALL NOT BE INSTALLED ON THE FOUNDATIONS LESS THAN SEVEN DAYS AFTER THE PLACEMENT OF THE CONCRETE FOR THE FOUNDATION.
16. 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.
17. 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.
18. UNDERGROUND CONDUIT FOR SIGNAL CABLE SHALL BE EITHER RIGID STEEL, HOT-DIPPED GALVANIZED CONDUIT OR SCHEDULE 80 ELECTRICAL PVC CONDUIT OF THE DIAMETER SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. ALL COUPLINGS AND CONNECTIONS SHALL BE TIGHT AND WATERPROOF.
19. 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.
20. ONLY NEW CONDUIT AND CABLE SHALL BE INSTALLED.
21. CONDUIT INSTALLED UNDER EXISTING PAVED DRIVEWAYS, ROADWAYS OR SIDEWALKS, WHICH ARE NOT SCHEDULED TO BE RECONSTRUCTED AS PART OF THIS PROJECT, SHALL BE INSTALLED BY MEANS OF BORING. THE CONTRACTOR SHALL NOT CUT OPEN ANY STREET OR DRIVEWAY FOR CONDUIT INSTALLATION WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REPRESENTATIVE.
22. CONDUIT NOT PLACED UNDER PAVED DRIVEWAYS, ROADWAY PAVEMENT OR SIDEWALK MAY BE PLACED BY CUTTING A TRENCH, INSTALLING THE CONDUIT AND BACKFILLING. ANY TRENCHING FOR CONDUIT WIDER THAN THREE (3) INCHES SHALL BE RESODDED.
23. PULL BOXES SHALL NOT BE INSTALLED WITHIN CONCRETE CURB ACCESS RAMPS. IN ADDITION, ANY PULL BOXES INSTALLED BEHIND CURBS SHALL BE INSTALLED BETWEEN THE CURB AND THE PROPOSED / FUTURE SIDEWALK OR BEYOND THE PROPOSED / FUTURE SIDEWALK. AN EXCEPTION TO THIS NOTE WOULD BE PULL BOXES INSTALLED IN A MEDIAN. ANY PULL BOXES INSTALLED ALONG AN UNCURBED ROADWAY SHALL BE INSTALLED ADJACENT TO, BUT NOT WITHIN, THE SHOULDER. DRAINAGE AREAS SHOULD BE AVOIDED WHEN PLACING JUNCTION BOXES.
24. A 5/8 IN. X 10 FT. GROUND ROD SHALL BE INSTALLED IN ALL PULL BOXES. A GROUND ROD CLAMP SHALL BE FURNISHED FOR GROUNDING THE GROUND WIRE.
25. 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.
26. 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.
27. 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.

28. 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.
29. THE HIGH VOLTAGE CABLES SHOULD BE SEPARATED FROM THE LOW VOLTAGE CABLES EXCEPT IN ENCLOSURES.
30. NO LOOP DETECTOR SHALL BE CUT IN A PARALLEL EXPANSION JOINT. LOOPS CUT AROUND EXPANSION JOINTS SHALL HAVE A SLACK IN THE CABLE FOR EXPANSION.
31. 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.
32. DETECTION LOOP SAW CUTS SHALL BE FLUSHED WITH WATER UNDER PRESSURE AND THEN DRIED WITH AIR UNDER PRESSURE.
33. 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.
34. TWO #10 AWG-XHHW CONDUCTORS SHALL BE INSTALLED FROM EACH LUMINAIRE TO THE SERVICE PEDESTAL, LEAVING THREE FEET OF SLACK FOR EACH CONDUCTOR (MEASURED FROM THE TOP OF THE PULL BOX) IN EACH PULL BOX. ROUTE FOUR CONDUCTORS TO THE LUMINAIRE WITH THE PHOTOELECTRIC CELL. AN IN-LINE FUSE SHALL BE INSTALLED FOR EACH LUMINAIRE IN THE ASSOCIATED PULL BOX.
35. THE EMERGENCY VEHICLE PRE-EMPTION SENSOR CABLE SHALL BE OPTICOM DETECTOR CABLE MODEL NO. 138. THE CABLE SHALL NOT BE SPLICED.
36. ALL VEHICLE AND PEDESTRIAN INDICATIONS SHALL BE LED.
37. 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.
38. THE TRAFFIC SIGNAL OPERATION AT EXISTING SIGNALIZED INTERSECTIONS SHALL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT.
39. 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.
40. ALL CROSSWALK MARKINGS SHALL BE 10-FT. WIDE, FROM INSIDE OF MARKINGS, FOLLOWING CITY OF HOUSTON STANDARD DETAILS
41. ALL CONSTRUCTION SIGNING AND CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.



WATER CONSTRUCTION NOTES

1. ALL 4" THROUGH 12" WATER LINE TO BE AWWA C-900 PVC DR-18 BLUE PRESSURE RATED WATER MAIN WITH 2" AND SMALLER WATER SERVICE LINE TO BE CONTINUOUS TYPE K COPPER TUBING PER COH STANDARD SPECIFICATION SECTION 02503. ALL 4" THRU 54" DI PIPE WATER LINES SHALL BE AWWA C151 WITH INSIDE LINING WITH AWWA C104 AND DOUBLE WRAPPED WITH 8-MIL POLYETHYLENE SHEETS.
2. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AS NECESSARY TO PREVENT PIPE MOVEMENT. USE RESTRAINED JOINTS WHERE PREVENTING PIPE MOVEMENT IS NECESSARY DUE TO THRUST.
3. ALL WATER LINES UNDER PROPOSED OR FUTURE PAVING AND TO A POINT OF ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE ENCASED IN BANK SAND TO 12" OVER PIPE AND BACKFILLED WITH CEMENT STABILIZED SAND TO WITHIN ONE (1) FOOT OF SUBGRADE.
4. ALL WATER LINE AND SEWER LINE CROSSINGS SHALL BE CONSTRUCTED PER CITY OF HOUSTON AND TCEQ REGULATIONS.
5. ALL WATER VALVES SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA C-500 AND SHALL BE OF THE RESILIENT SEAT TYPE.
6. ALL WATER LINES TO BE DISINFECTED IN CONFORMANCE WITH AWWA C-651 AND THE TEXAS STATE DEPARTMENT OF HEALTH. AT LEAST ONE BACTERIOLOGICAL SAMPLE SHALL BE COLLECTED FOR EVERY 1,000 LINEAR FEET OF WATER LINE AND SHALL BE REPEATED IF CONTAMINATION PERSISTS.
7. ALL BELOW GRADE VALVES SHALL BE GASKETED, HUB-END GATE VALVES WITH A CAST IRON BOX, EXCEPT WHERE FLANGES ARE CALLED OUT ON THE PLANS.
8. 4" THRU 12" FITTINGS SHALL BE CEMENT MORTAR LINED COMPACT DUCTILE IRON PRESSURE FITTINGS PER ANSI A21.53, OR PUSH ON FITTINGS PER ANSI A21.10 PRESSURE RATED AT 250 PSIG.
9. HYDROSTATIC TESTING: ALL WATER PIPE SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH THE LATEST CITY OF HOUSTON STANDARD CONSTRUCTION SPECIFICATIONS. TESTS ARE TO BE PERFORMED ON THE ENTIRE FOOTAGE OF WATER PIPE INCLUDED IN THE PROJECT.
10. ALL WATER LINES TO HAVE 4' MINIMUM COVER TO FINISHED GRADE AND MINIMUM 12" CLEARANCE TO OTHER UTILITIES AT CROSSING UNLESS OTHERWISE NOTED ON PLANS. ALL WATER LINE INSTALLED OVER 8' DEEP SHALL UTILIZE RESTRAINED JOINT FITTINGS.
11. CONTRACTOR SHALL KEEP WATER PIPE CLEAN AND CAPPED (OR OTHERWISE EFFECTIVELY COVERED) OPEN PIPE ENDS TO EXCLUDE INSECTS, ANIMALS OR OTHER SOURCES OF CONTAMINATION FROM UNFINISHED LINES AT TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS.

GRADING NOTES

1. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE STARTING CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
2. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS FOUND.
3. CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE FROM THE PROPOSED BUILDINGS AND NO PONDING IN PAVED AREAS, AND SHALL NOTIFY ENGINEER IF ANY GRADING DISCREPANCIES ARE FOUND IN THE EXISTING AND PROPOSED GRADES PRIOR TO PLACEMENT OF PAVEMENT OR UTILITIES.
4. CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES THAT ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
5. ALL EXISTING CONCRETE PAVING, SIDEWALK, AND CURB DEMOLITION SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR. DISPOSAL SHALL BE AT AN APPROVED OFF-SITE, LAWFUL LOCATION, UNLESS DIRECTED OTHERWISE BY THE OWNER.

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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1	
GENERAL CONSTRUCTION NOTES	
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PRIVATE UTILITY NOTES:

AT&T TEXAS/ SWBT FACILITIES:

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL CALL 1-800-344-8377 (TEXAS 811) A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.
3. WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.
4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
5. THE PRESENCE OR ABSENCE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.
6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER ROOSEVELT LEE JR. AT (713) 567-4552 OR EMAIL HIM AT RL7259@ATT.COM IF CABLE LOCATE REQUESTS ARE NOT COMPLETED FOR OUR AT&T TEXAS/SWBT FACILITIES.

CENTERPOINT ENERGY NOTES:

CAUTION: UNDERGROUND GAS FACILITIES

1. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.
 - WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL 713-207-5463 OR 713-945-8037 (7:00 AM TO 4:30 PM) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.
 - WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTERPOINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.
 - WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.
 - FOR EMERGENCIES REGARDING GAS LINES CALL 713-659-3552 OR 713-207-4200

2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL LINES:

1. OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:
 - ANY ACTIVITY WHERE PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
 - OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.
2. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED CALL CENTERPOINT ENERGY AT 713-207-2222.

ACTIVITIES ON/OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY

1. NO APPROVAL TO USE, CROSS, OR OCCUPY NO CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT OUR SURVEYING AND RIGHT OF WAY DIVISION AT (713) 207-6348 OR (713) 207-5769

METRO

1. CONTRACTOR SHALL NOTIFY METRO AT 713-615-6195 TWO WEEKS PRIOR TO DISTURBING EXISTING BUS STOPS.
2. CONTRACTOR SHALL COORDINATE WITH METRO TO REMOVE EXISTING AMENITIES.
3. BUS STOPS SHALL BE CONSTRUCTED PER CITY OF HOUSTON INFRASTRUCTURE DESIGN MANUAL AND MEET CURRENT ADA REQUIREMENT.

DETAILS

1. CITY OF HOUSTON STANDARD DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATERLINES, STORM DRAINAGE, AND STREET PAVING ARE INCORPORATED IN PLANS BY REFERENCE AS IF COPIED VERBATIM. STANDARD DETAILS ARE AVAILABLE FOR DOWNLOAD AT THE FOLLOWING WEB ADDRESS: <http://edocs.publicworks.houstontx.gov/engineering-and-construction.html>
2. DETAILS INCLUDED IN PLAN SET SUPERSEDE RELATED COH STANDARD DETAILS.

NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
 valid for one year.



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 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**
PRIVATE UTILITY NOTES

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO	5 OF 355

Pen Table: MONTROSE.tbl
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EXISTING PLAN VIEW	
	WATER METER
	WATER VALVE (GATE)
	WATER VALVE (BUTTERFLY)
	FIRE HYDRANT/FLUSHING VALVE
	TAPPING SLEEVE & VALVE
	REDUCER
	ROUND CONNECTION
	SANITARY SEWER CLEANOUT & MANHOLE
	STORM SEWER MANHOLE
	STORM SEWER INLETS
	CULVERT PIPE AND HEADWALL
	TOP OF CURB ELEVATION
	GUTTER ELEVATION
	TOP OF PAVEMENT ELEVATION
	CONTOUR LINE
	ROW LINE
	PROPERTY LINE
	LOT LINES
	EASEMENT LINE
	CENTER LINE OF ROW
	TRANSIT LINE
	EDGE OF DITCHES
	CENTER LINE OF DITCHES
	EDGE OF DITCHES
	FENCE LINE, WOOD
	FENCE LINE, CHAIN LINK
	FENCE LINE, BARBED WIRE
	FENCE LINE, HOG WIRE
	EDGE OF CONCRETE
	CURB LINE
	CONCRETE WALK
	EDGE OF ASPHALT
	EDGE OF SHELL OR GRAVEL
	DIMENSION LINE
	AERIAL POWER LINE
	UNDERGROUND POWER LINE
	GAS LINE
	UNKNOWN UNDERGROUND LINE
	OIL PIPELINE
	UNDERGROUND TELCOMM LINE W/ VAULT
	AERIAL TELCOMM LINE
	RAILROAD LINE
	WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	SANITARY SEWER FORCE MAIN
	RECLAIMED WATER LINE
	NON-POTABLE WATER LINE
	GAS METER
	GAS VALVE
	PROPANE LINE
	STEAM LINE
	MISC UNDERGROUND PIPELINE LABEL

PROPOSED PLAN VIEW	
	WATER METER
	WATER VALVE (GATE)
	WATER VALVE (BUTTERFLY)
	FIRE HYDRANT/FLUSHING VALVE
	TAPPING SLEEVE & VALVE
	REDUCER
	ROUND CONNECTION
	SANITARY SEWER CLEANOUT & MANHOLE
	STORM SEWER MANHOLE
	STORM SEWER INLETS
	CULVERT PIPE AND HEADWALL
	TOP OF CURB ELEVATION
	GUTTER ELEVATION
	TOP OF PAVEMENT ELEVATION
	CONTOUR LINE
	ROW LINE
	PROPERTY LINE
	LOT LINES
	EASEMENT LINE
	CENTER LINE OF ROW
	TRANSIT LINE
	EDGE OF DITCHES
	CENTER LINE OF DITCHES
	EDGE OF DITCHES
	FENCE LINE, WOOD
	FENCE LINE, CHAIN LINK
	FENCE LINE, BARBED WIRE
	FENCE LINE, HOG WIRE
	EDGE OF CONCRETE
	CURB LINE
	CONCRETE WALK
	EDGE OF ASPHALT
	EDGE OF SHELL OR GRAVEL
	DIMENSION LINE
	AERIAL POWER LINE
	UNDERGROUND POWER LINE
	GAS LINE
	UNKNOWN UNDERGROUND LINE
	OIL PIPELINE
	UNDERGROUND TELCOMM LINE W/ VAULT
	AERIAL TELCOMM LINE
	RAILROAD LINE
	WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	SANITARY SEWER FORCE MAIN
	RECLAIMED WATER LINE
	NON-POTABLE WATER LINE
	GAS METER
	GAS VALVE
	PROPANE LINE
	STEAM LINE
	MISC UNDERGROUND PIPELINE LABEL
	MATCH LINE

EXISTING PLAN VIEW	
	PAVING HEADER
	BUILDING, RESIDENTIAL
	BUILDING, COMMERCIAL
	TREE
	HEDGE
	IRON PIPE OR IRON ROD MONUMENT
	POINT OF INTERSECTION (PI)
	POINT OF CURVE (PC)
	POINT OF TANGENCY (PT)
	POWER POLE
	POWER POLE W/DOWN GUY
	NORTH OR EAST PROPERTY LINE
	SOUTH OR WEST PROPERTY LINE
	NORTH OR EAST CURB
	SOUTH OR WEST CURB
	NORTH OR EAST DITCH
	SOUTH OR WEST DITCH
	NORTH OR EAST NATURAL GROUND
	SOUTH OR WEST NATURAL GROUND
	NORTH OR EAST CULVERT
	SOUTH OR WEST CULVERT
	CENTERLINE OF ROW
	CENTERPOINT ENERGY CONDUIT
	GAS LINE
	WESTERN UNION
	AT&T CONDUIT
	WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	SANITARY SEWER FORCE MAIN
	RECLAIMED WATER LINE
	NON-POTABLE WATER LINE
	CENTERPOINT ENERGY MANHOLE
	AT&T MANHOLE
	WATER LINE MANHOLE
	SANITARY SEWER MANHOLE & CLEANOUT
	STORM SEWER MANHOLE
	STORM SEWER INLET

PROPOSED PLAN VIEW	
	PAVING HEADER
	BUILDING, RESIDENTIAL
	BUILDING, COMMERCIAL
	TREE
	HEDGE
	IRON PIPE OR IRON ROD MONUMENT
	POINT OF INTERSECTION (PI)
	POINT OF CURVE (PC)
	POINT OF TANGENCY (PT)
	POWER POLE
	POWER POLE W/DOWN GUY
	NORTH OR EAST PROPERTY LINE
	SOUTH OR WEST PROPERTY LINE
	NORTH OR EAST CURB
	SOUTH OR WEST CURB
	NORTH OR EAST DITCH
	SOUTH OR WEST DITCH
	NORTH OR EAST NATURAL GROUND
	SOUTH OR WEST NATURAL GROUND
	NORTH OR EAST CULVERT
	SOUTH OR WEST CULVERT
	CENTERLINE OF ROW
	CENTERPOINT ENERGY CONDUIT
	GAS LINE
	WESTERN UNION
	AT&T CONDUIT
	WATER LINE
	SANITARY SEWER LINE
	STORM SEWER LINE
	SANITARY SEWER FORCE MAIN
	RECLAIMED WATER LINE
	NON-POTABLE WATER LINE
	CENTERPOINT ENERGY MANHOLE
	AT&T MANHOLE
	WATER LINE MANHOLE
	SANITARY SEWER MANHOLE & CLEANOUT
	STORM SEWER MANHOLE
	STORM SEWER INLET

MISC STANDARD ELEMENTS

COH NORTH ARROW

COH BAR SCALE
SCALE: 1"=20'

REVISION CLOUD/DELTA

VIEW TITLE
SCALE: 1:1
DETAIL/SECTION TITLE

SECTION CALLOUT

DETAIL CALLOUT

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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2/15/2024
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Texas Registered Engineering Firm F-20017

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HOUSTON PUBLIC WORKS

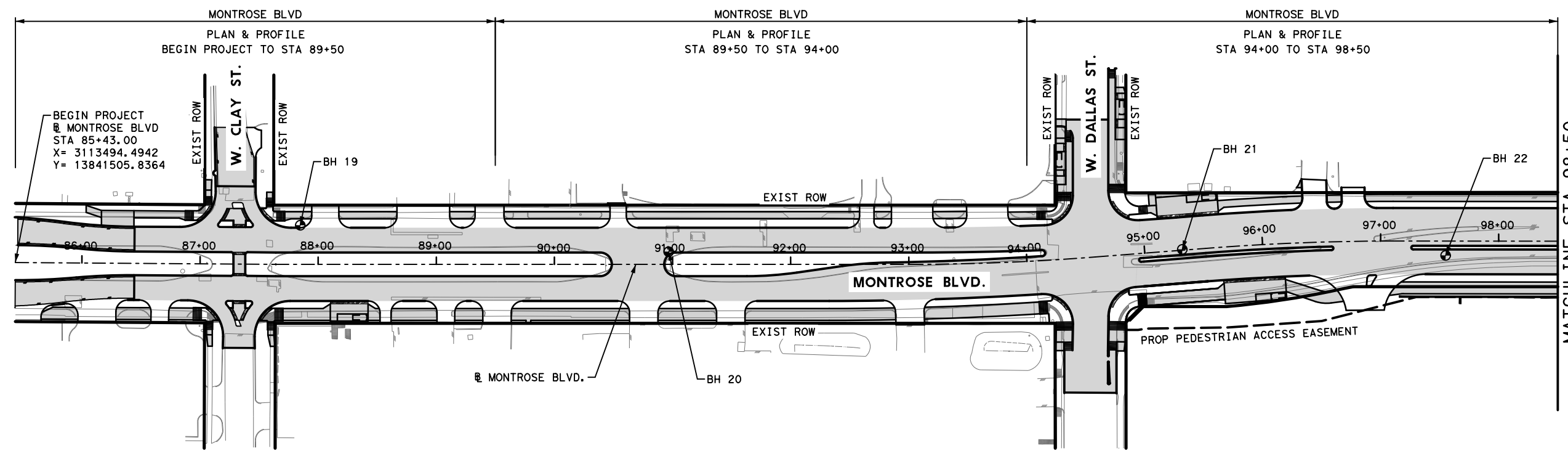
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

SYMBOLS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO	6 OF 355

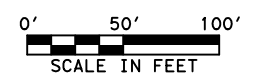
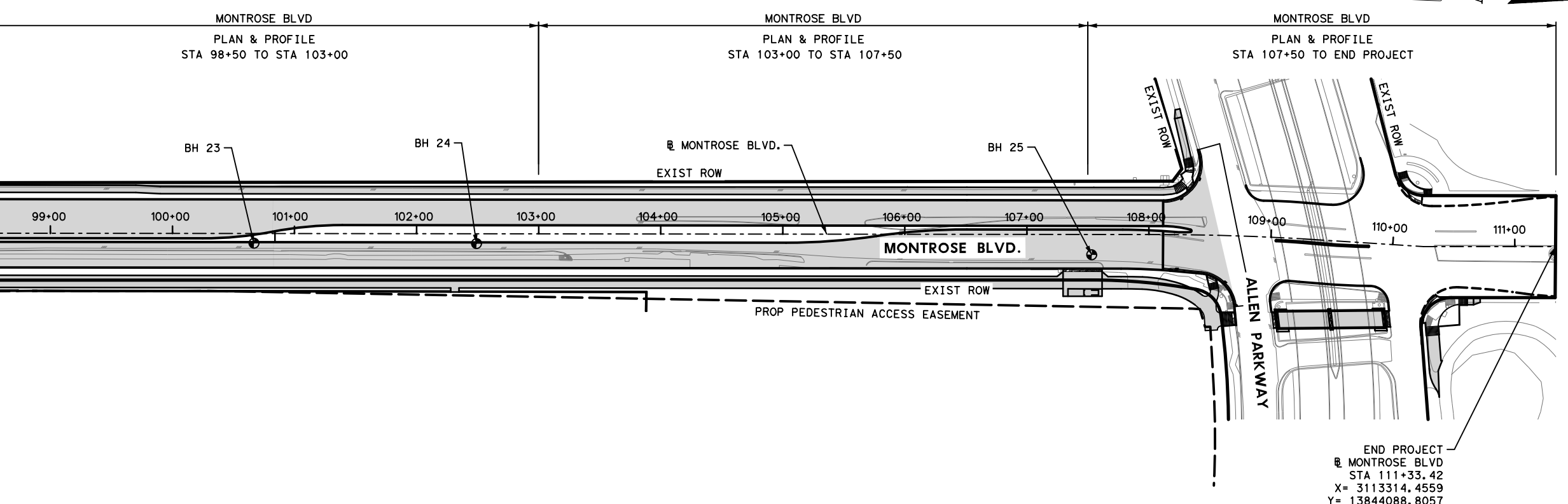
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LEGEND

- PROPOSED 100-YR HGL
- EXISTING 100-YR HGL
- WEST RIGHT-OF-WAY
- EAST RIGHT-OF-WAY
- PROPOSED PGL
- EXISTING PGL
- PROP PVMT
- BORING LOCATION

No.	DATE	REVISIONS	APP.



Gauge Engineering
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 125563
 2/20/2024
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 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

PROJECT LAYOUT

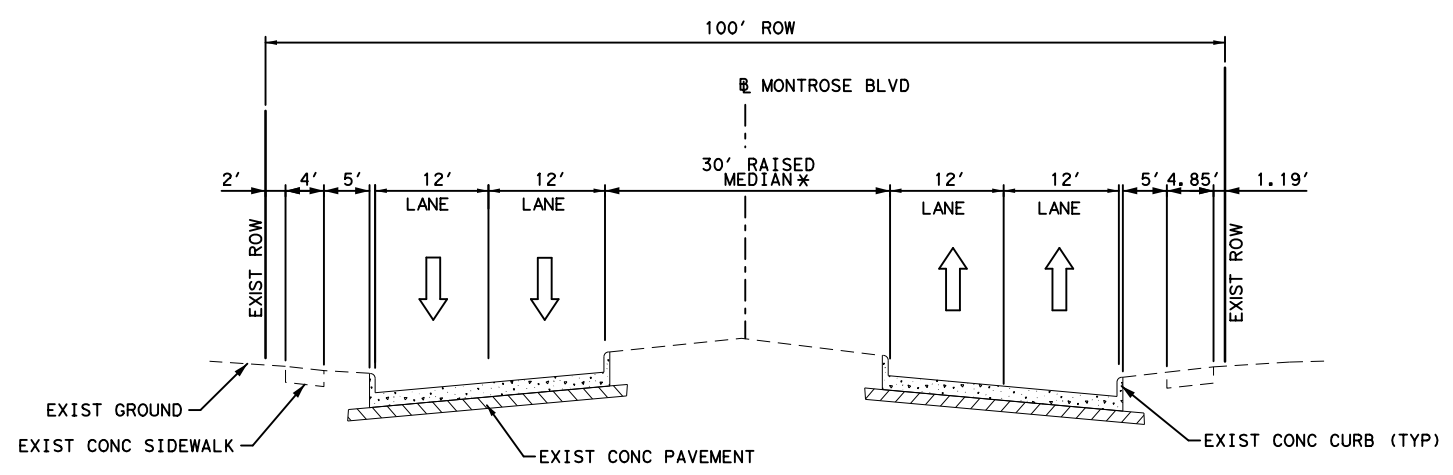
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO	7 OF 355

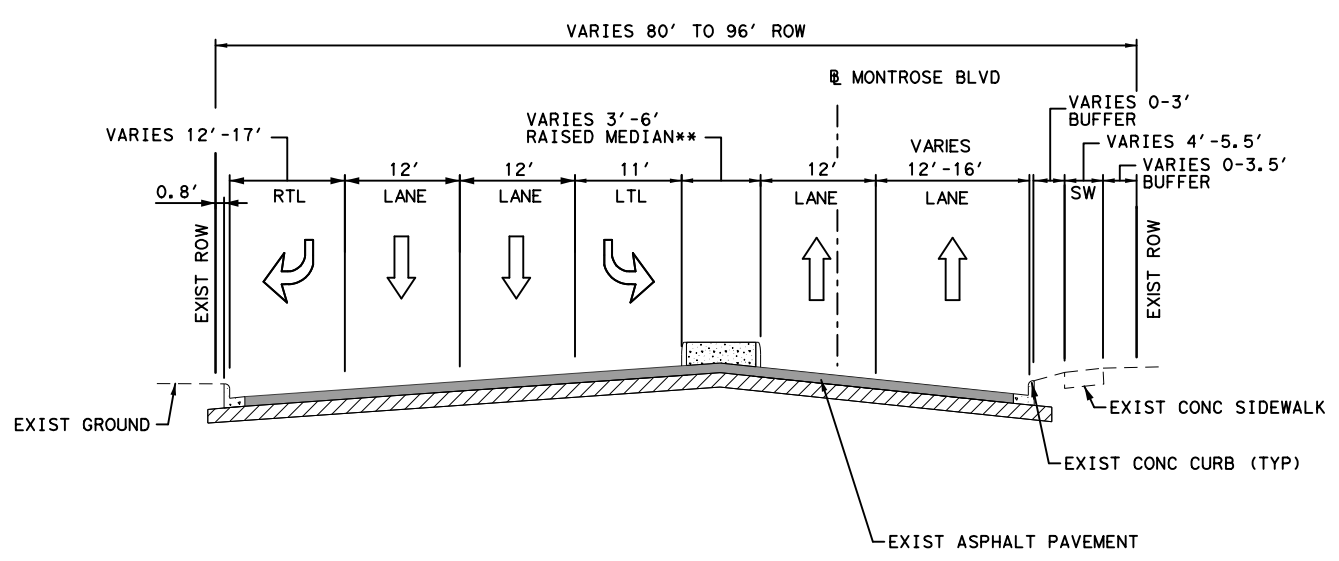
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 @ MONTROSE BLVD
 STA 111+33.42
 X= 3113314.4559
 Y= 13844088.8057

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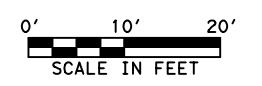
LEGEND
 → DIRECTION OF TRAFFIC



1 MONTR0SE BLVD
 STA 86+50 TO 94+20
 * LEFT TURN LANE FROM
 STA 91+79.41 TO STA 94+20.00
 N. T. S.



2 MONTR0SE BLVD
 STA 94+20 TO STA 98+00
 ** LEFT TURN LANE FROM
 STA 94+95.26 TO STA 96+50.51
 N. T. S.



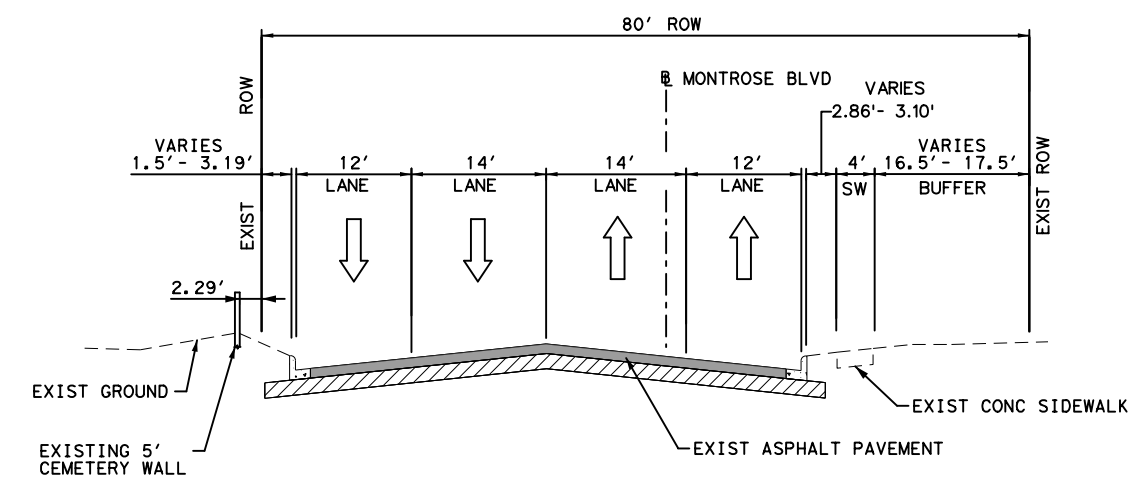
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 EXISTING TYPICAL SECTIONS	
SHEET 1 OF 2	
WBS NUMBER N-127000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 8 OF 355	

No.	DATE	REVISIONS	APP.

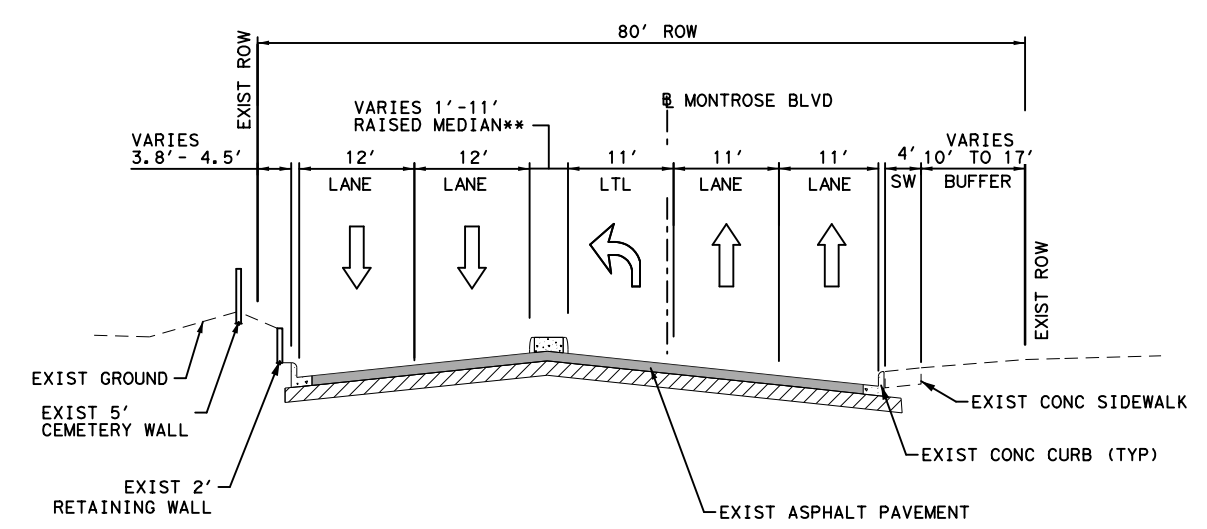
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LEGEND
 → DIRECTION OF TRAFFIC

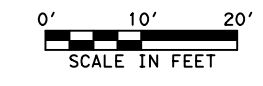
No.	DATE	REVISIONS	APP.



3 MONTR0SE BLVD
 STA 98+00 TO 103+50
 N. T. S.



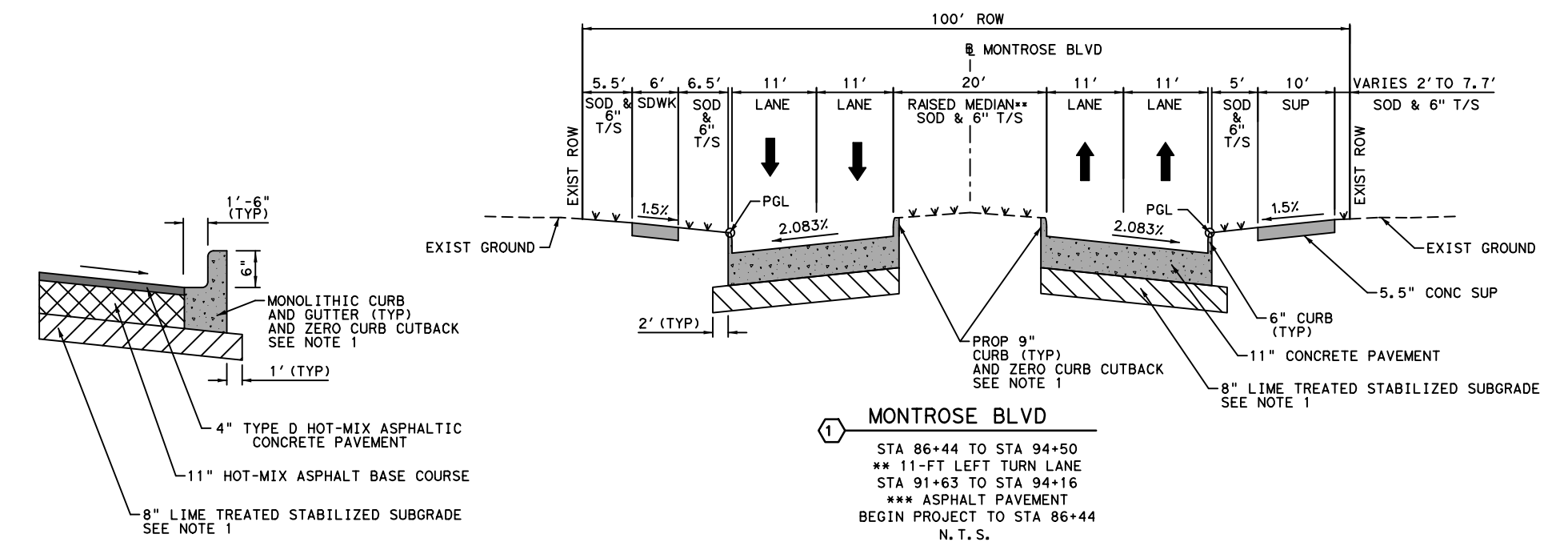
4 MONTR0SE BLVD
 STA 103+50 TO END PROJECT
 **11-FT LEFT TURN LANE
 STA 106+40 TO END PROJECT
 N. T. S.



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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 EXISTING TYPICAL SECTIONS	
SHEET 2 OF 2	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 9 OF 355	

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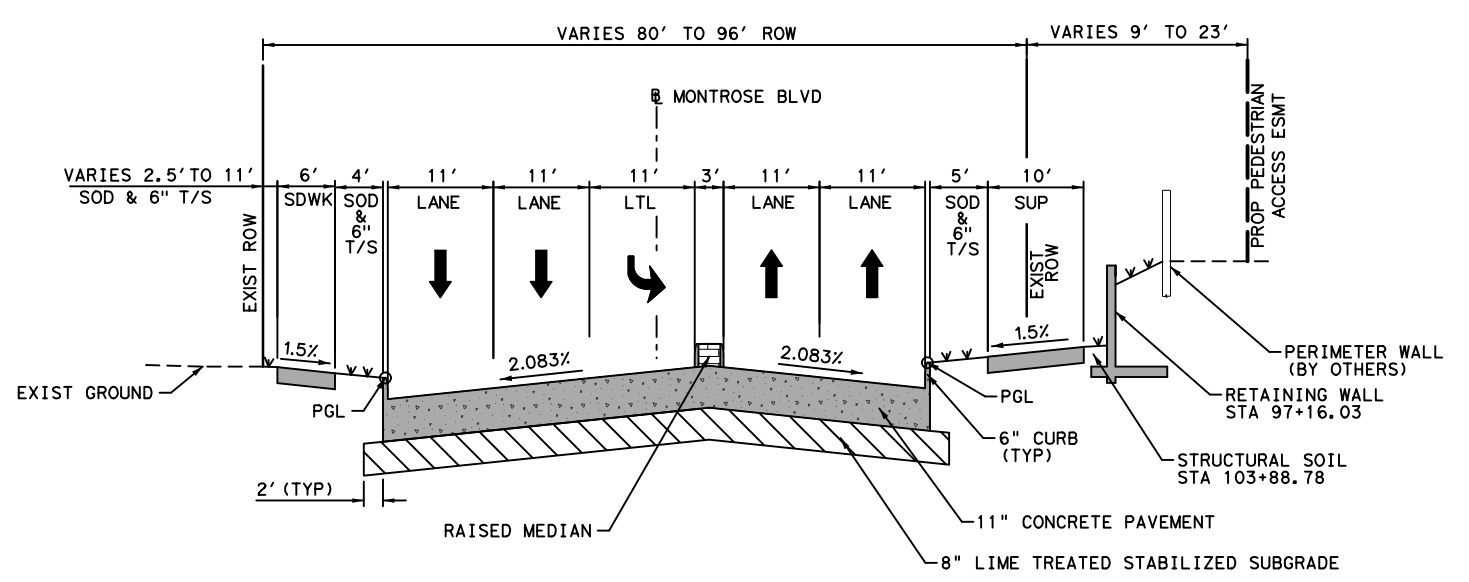
LEGEND
 → DIRECTION OF TRAFFIC
 PGL PROFILE GRADE LINE
 T/S TOPSOIL



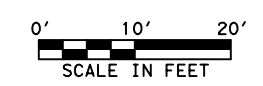
ASPHALT PAVEMENT AND MONO CURB & GUTTER DETAILS
 N. T. S.

1 MONTR0SE BLVD
 STA 86+44 TO STA 94+50
 ** 11-FT LEFT TURN LANE
 STA 91+63 TO STA 94+16
 *** ASPHALT PAVEMENT
 BEGIN PROJECT TO STA 86+44
 N. T. S.

- NOTES:
- ZERO CURB CUTBACK SHALL BE USED AT THE BACK OF CURB. AT THESE LOCATIONS THERE SHALL BE NO SUBGRADE STABILIZATION BEHIND THE BACK OF CURB. FOR LOCATIONS SEE TREE PROTECTION PLANS.
 - FOR 9" CURBS AND GUTTER, AND 10' SUP/SDWK SEE MISCELLANEOUS ROADWAY DETAILS FOR ADDITIONAL INFORMATION.
 - FOR SOIL DETAILS, REFER TO LANDSCAPING PLANS AND RETAINING WALL DETAILS.
 - FOR THE SIDEWALK AND SHARED USE PATH DETAILS, REFER TO MISCELLANEOUS ROADWAY DETAILS.



2 MONTR0SE BLVD
 STA 94+50 TO STA 99+90
 N. T. S.

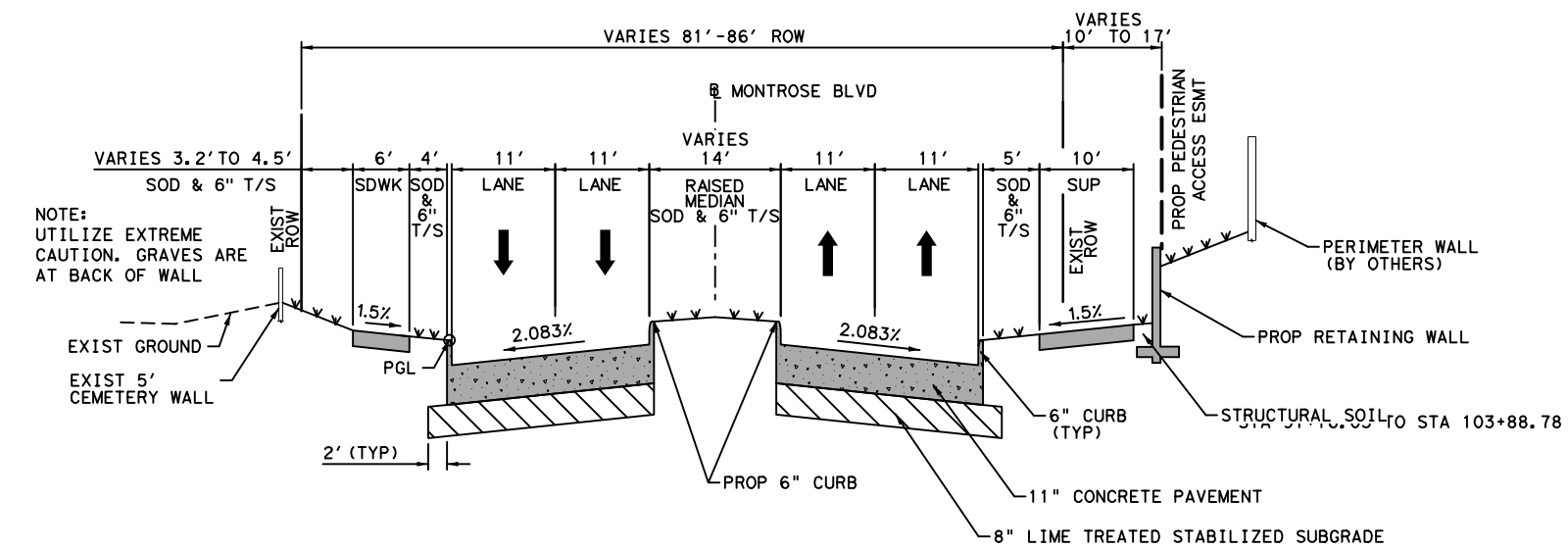


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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 PROPOSED TYPICAL SECTIONS	
SHEET 1 OF 2	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 10 OF 355	

REVISIONS	APP.
No.	DATE

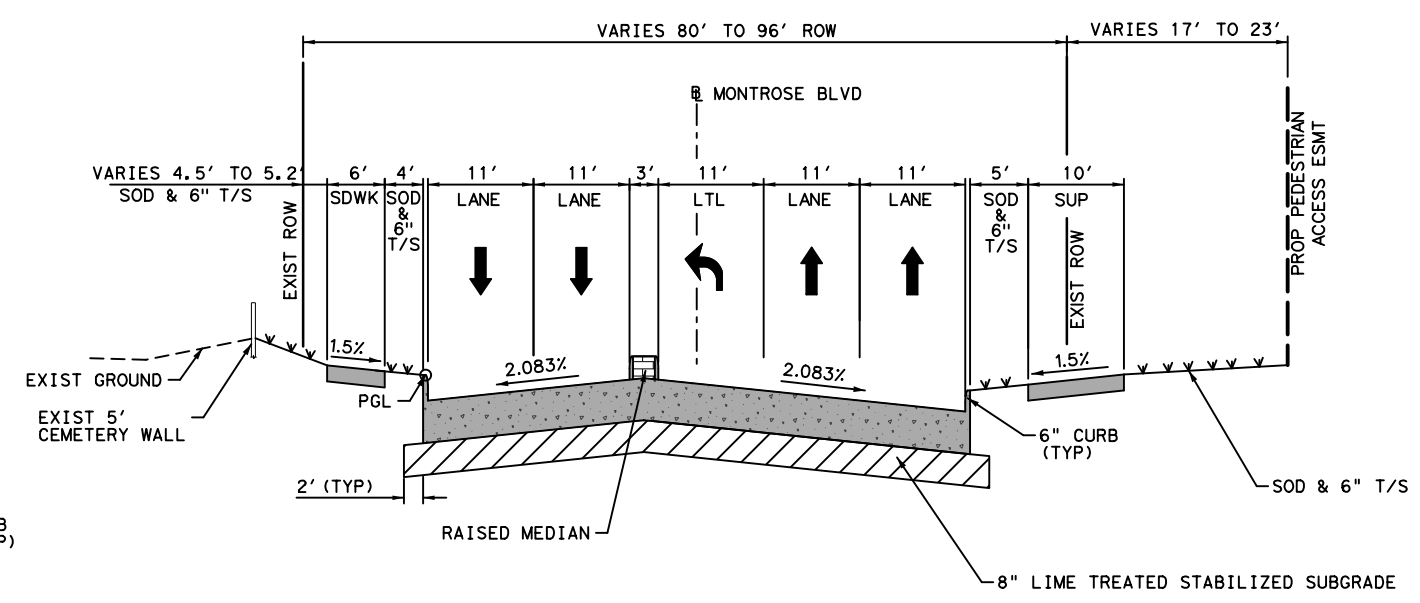
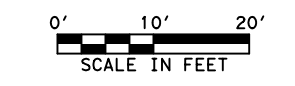
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LEGEND
 → DIRECTION OF TRAFFIC
 PGL PROFILE GRADE LINE
 T/S TOPSOIL

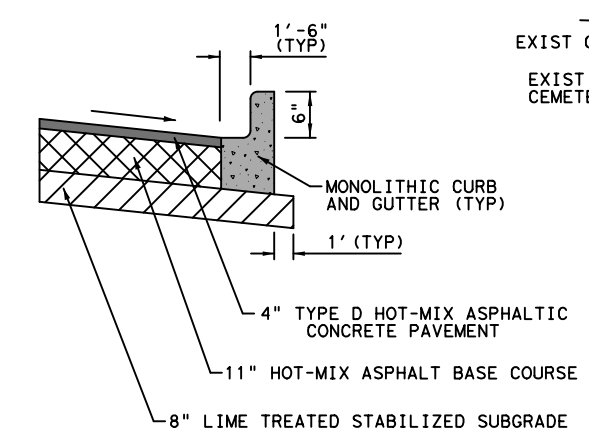


3 MONTR0SE BLVD
 STA 99+90 TO STA 105+02
 N. T. S.

- NOTES:
1. ZERO CURB CUTBACK SHALL BE USED AT THE BACK OF CURB. AT THESE LOCATIONS THERE SHALL BE NO SUBGRADE STABILIZATION BEHIND THE BACK OF CURB. FOR LOCATIONS SEE TREE PROTECTION PLANS.
 2. FOR 9" CURBS AND GUTTER, AND 10' SUP/SDWK SEE MISCELLANEOUS ROADWAY DETAILS FOR ADDITIONAL INFORMATION.
 3. FOR SOIL DETAILS, REFER TO LANDSCAPING PLANS AND RETAINING WALL DETAILS.
 4. FOR THE SIDEWALK AND SHARED USE PATH DETAILS, REFER TO MISCELLANEOUS ROADWAY DETAILS.



4 MONTR0SE BLVD
 STA 105+02 TO END PROJECT
 (ASPHALT PAVEMENT TO BE INSTALLED FROM
 STA 108+12 TO END PROJECT)
 N. T. S.



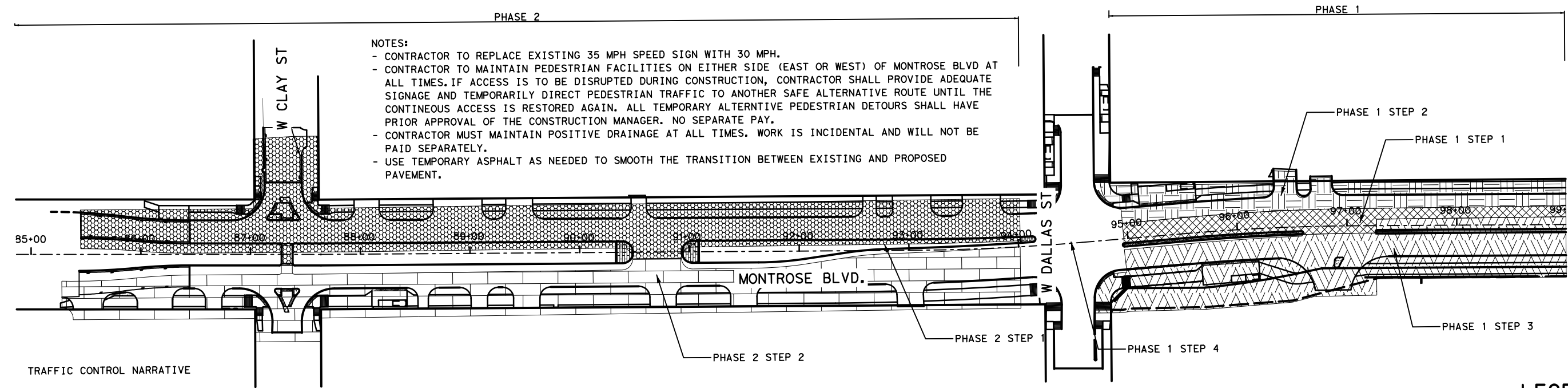
**ASPHALT PAVEMENT AND
 MONO CURB & GUTTER DETAILS**
 N. T. S.

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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 PROPOSED TYPICAL SECTIONS	
SHEET 2 OF 2	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 11 OF 355	

APP.	
REVISIONS	
No.	DATE

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APP.	REVISIONS	DATE	NO.



NOTES:

- CONTRACTOR TO REPLACE EXISTING 35 MPH SPEED SIGN WITH 30 MPH.
- CONTRACTOR TO MAINTAIN PEDESTRIAN FACILITIES ON EITHER SIDE (EAST OR WEST) OF MONTR0SE BLVD AT ALL TIMES. IF ACCESS IS TO BE DISRUPTED DURING CONSTRUCTION, CONTRACTOR SHALL PROVIDE ADEQUATE SIGNAGE AND TEMPORARILY DIRECT PEDESTRIAN TRAFFIC TO ANOTHER SAFE ALTERNATIVE ROUTE UNTIL THE CONTINEOUS ACCESS IS RESTORED AGAIN. ALL TEMPORARY ALTERNIVE PEDESTRIAN DETOURS SHALL HAVE PRIOR APPROVAL OF THE CONSTRUCTION MANAGER. NO SEPARATE PAY.
- CONTRACTOR MUST MAINTAIN POSITIVE DRAINAGE AT ALL TIMES. WORK IS INCIDENTAL AND WILL NOT BE PAID SEPARATELY.
- USE TEMPORARY ASPHALT AS NEEDED TO SMOOTH THE TRANSITION BETWEEN EXISTING AND PROPOSED PAVEMENT.

TRAFFIC CONTROL NARRATIVE

PHASE 1- (W. DALLAS ST. TO END OF PROJECT)

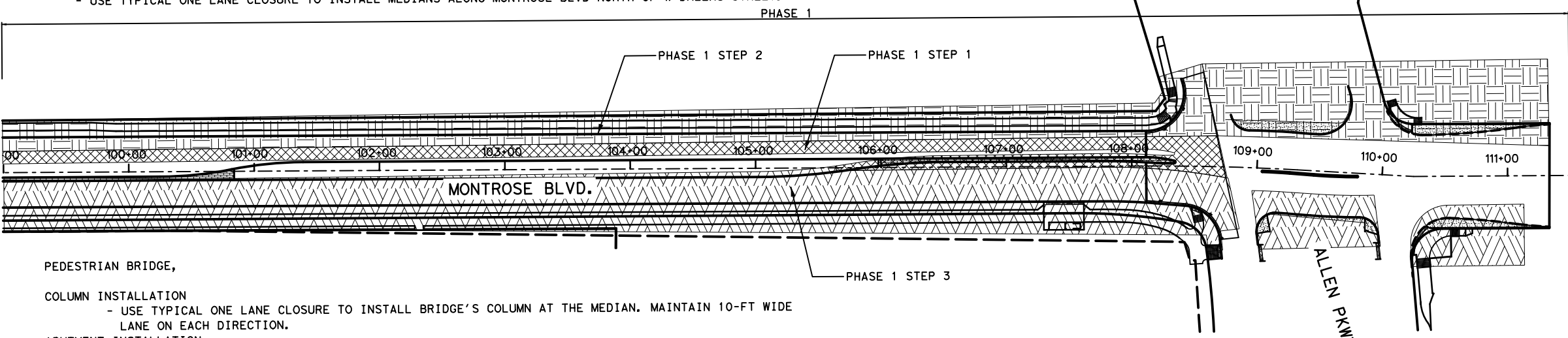
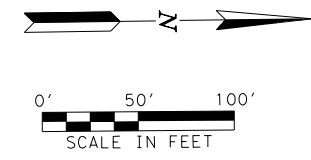
- STEP 1**
- REMOVE ALL MEDIANS AS REQUIRED.
 - CLOSE NORTHBOUND/SOUTHBOUND INNER LANES AND SHIFT THE TRAFFIC TO THE OUTER LANES. MAINTAIN MIN 11 FT WIDE TRAFFIC LANE.
 - INSTALL PROPOSED STORM SEWER BOXES (10'X10' RCB), JUNCTION BOXES, PERMANENT CONCRETE PAVEMENT AS SHOWN IN THE LAYOUTS.
- STEP 2**
- MAINTAIN STEP 1 NORTHBOUND TCP AND SHIFT MONTR0SE BLVD SOUTHBOUND TRAFFIC TO THE NEWLY CONSTRUCTED INNER LANE. MAINTAIN MIN 11 FT WIDE TRAFFIC LANE.
 - INSTALL PROPOSED PAVEMENT, INLETS AND BACK OF CURB IMPROVEMENTS (SIDEWALK AND PEDESTRIAN RAMPS) ON THE WEST SIDE OF MONTR0SE BLVD.
- STEP 3**
- SHIFT MONTR0SE BLVD NORTHBOUND TRAFFIC TO THE NEWLY CONSTRUCTED SOUTHBOUND INNER LANE. MAINTAIN MIN 10 FT WIDE TRAFFIC LANE.
 - INSTALL PROPOSED PAVEMENT, INLETS, FIRE HYDRANT, CONDUIT FOR DECORATIVE LIGHTING FOR SUP BRIDG, METER ON EXISTING LIFT STATION AND BACK OF CURB IMPROVEMENTS (SIDEWALK AND PEDESTRIAN RAMPS) ON THE EAST SIDE OF MONTR0SE BLVD.
- STEP 4**
- MONTR0SE BLVD - W DALLAS INTERSECTION CONSTRUCTION WILL BE IMPLEMENTED IN 4 QUADRANT. REFER TO TRAFFIC CONTROL SHEETS FOR MORE INFORMATION.
 - USE TYPICAL ONE LANE CLOSURE TO INSTALL MEDIANS ALONG MONTR0SE BLVD NORTH OF W DALLAS STREET.

PHASE 2- (BEGIN PROJECT TO W. DALLAS ST.)

- STEP 1**
- SHIFT MONTR0SE BLVD SOUTHBOUND TRAFFIC TO THE NORTHBOUND. USE TEMPORARY ASPHALT AS NEEDED TO MAINTAIN MIN 11 FT WIDE TRAFFIC LANE.
 - INSTALL PROPOSED STORM SEWER BOXES (10'X10' RCB), JUNCTION BOXES, WATER LINE, PAVEMENT, INLETS AND BACK OF CURB IMPROVEMENTS (SIDEWALK AND PEDESTRIAN RAMPS) ON THE WEST SIDE OF MONTR0SE BLVD.
 - DETOUR EAST/WEST WEST CLAY STREET TO INSTALL THE PROPOSED STORM SEWER AND PAVEMENT AT MONTR0SE BLVD-WEST CLAY STREET INTERSECTION.
- STEP 2**
- SHIFT MONTR0SE BLVD NORTHBOUND TRAFFIC TO THE SOUTHBOUND. USE TEMPORARY ASPHALT AS NEEDED TO MAINTAIN MIN 10 FT WIDE TRAFFIC LANE.
 - INSTALL PROPOSED PAVEMENT, INLETS AND BACK OF CURB IMPROVEMENTS (SIDEWALK AND PEDESTRIAN RAMPS) ON THE EAST SIDE OF MONTR0SE BLVD.
 - USE TEMPORARY ASPHALT PAVEMENT TO MAINTAIN ACCESS TO THE PROPERTIES DURING THE CONSTRUCTION.
 - DETOUR EAST/WEST WEST CLAY STREET TO INSTALL THE PROPOSED PAVEMENT AT MONTR0SE BLVD-WEST CLAY STREET INTERSECTION.
 - USE TYPICAL ONE LANE CLOSURE TO INSTALL THE MEDIANS ALONG MONTR0SE BLVD SOUTH OF W DALLAS STREET.

LEGEND

- TCP PHASE 1 STEP 1
- TCP PHASE 1 STEP 2
- TCP PHASE 1 STEP 3
- TCP PHASE 2 STEP 1
- TCP PHASE 2 STEP 2



- PEDESTRIAN BRIDGE,**
- COLUMN INSTALLATION**
- USE TYPICAL ONE LANE CLOSURE TO INSTALL BRIDGE'S COLUMN AT THE MEDIAN. MAINTAIN 10-FT WIDE LANE ON EACH DIRECTION.
- ABUTMENT INSTALLATION**
- USE TYPICAL ONE LANE CLOSURE TO INSTALL BRIDGE'S ABUTMENT. MAINTAIN 10-FT WIDE LANE ON EACH DIRECTION.
- BRIDGE'S BEAM INSTALLATION**
- SHIFT ALLEN PKWY WESTBOUND/EASTBOUND TRAFFIC TO THE FRONTAGE LANES.
 - CLOSE ALLEN PKWY UNDERPASS TO INSTALL THE PEDESTRIAN BRIDGE AND CONDUITS FOR THE DECORATIVE LIGHTING FOR SUP BRIDG .

CURRENT SPEED LIMIT IS 35 MPH
 PROPOSED SPEED LIMIT IS 30 MPH

MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77078

SURVEYED BY:
KUU & ASSOCIATES, INC.

INTERIM REVIEW ONLY

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KARAM QADDO
12/26/11
2/20/2024

100% SUBMITTAL
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Texas Registered Engineering Firm F-20017

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1





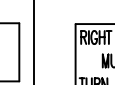
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





















SHEET 1 OF 1

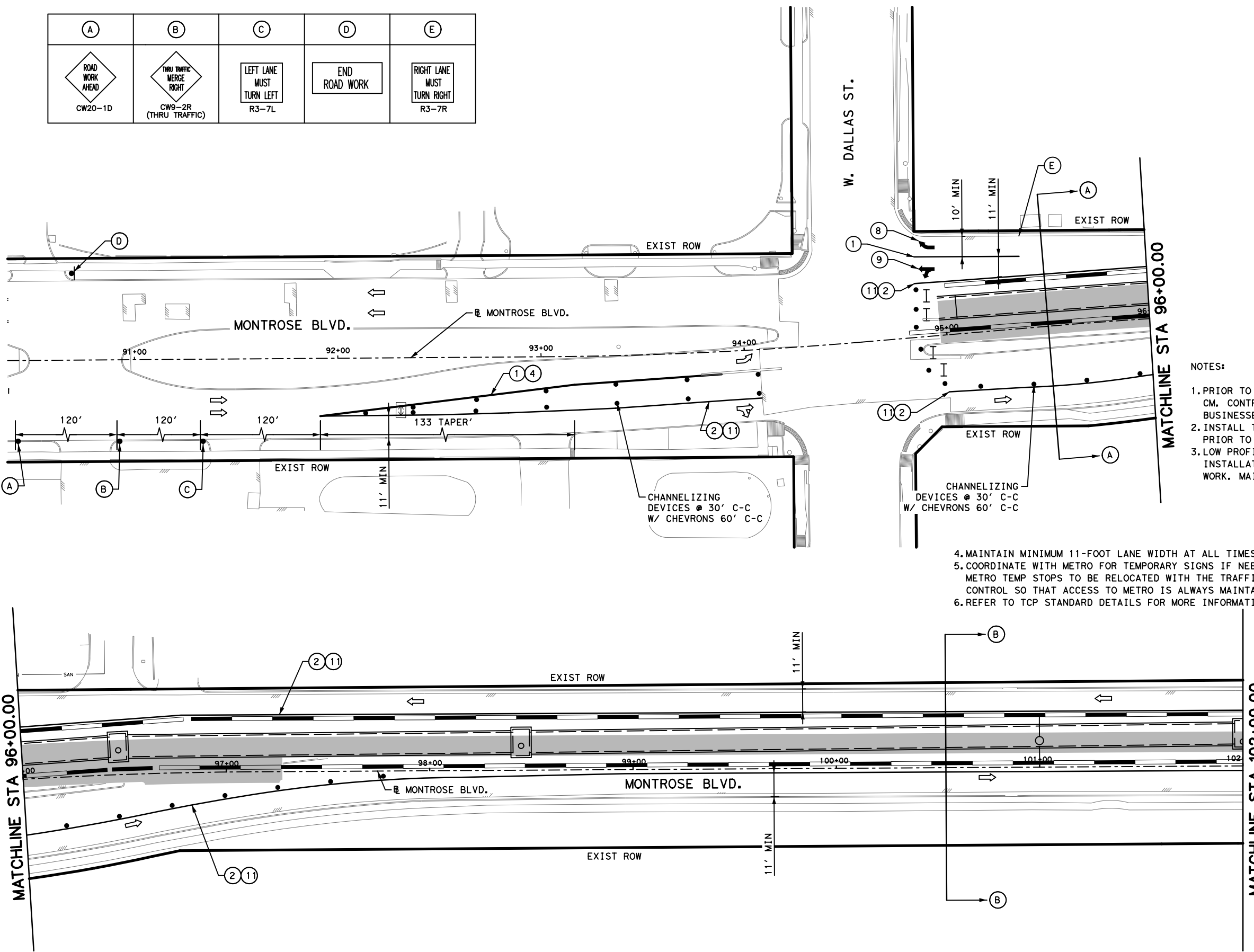
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JIADA HUANG	
SHEET NO. 12 OF 355	

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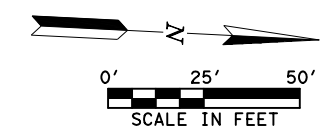
REVISIONS	DATE	APP.



(A)	(B)	(C)	(D)	(E)
				
CW20-1D	CW9-2R (THRU TRAFFIC)	R3-7L		R3-7R

- ### LEGEND
-  PROPOSED PAVEMENT
 -  TEMPORARY ASPHALT
 -  PREVIOUSLY PAVED
 -  HIGH EARLY STRENGTH CONCRETE
 -  PROPOSED LANES UNDER TRAFFIC
 -  EXISTING LANES UNDER TRAFFIC
 -  TEMP GROUND MOUNTED SIGN DRUM
 -  VERTICAL PANEL
 -  TYPE III BARRICADE W/ ROAD CLOSED SIGN
 -  FLASHING ARROW
 -  TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
 -  (1) REMOVABLE PAV MRK BUTTONS TY W
 -  (2) REMOVABLE PAV MRK BUTTONS TY Y
 -  (3) REMOVABLE PAV MRK BUTTONS W STOP BAR
 -  (4) REMOVABLE PAV MRK (REFLECTOR) TY I-C
 -  (5) REMOVABLE PAV MRK (REFLECTOR) TY A-A
 -  (6) REMOVABLE PAV MRK BUTTONS TY W (DOT)
 -  (7) REMOVABLE PAV MRK BUTTONS TY Y (DOT)
 -  (8) REMOVABLE PAV MRK BUTTONS ARROW
 -  (9) REMOVABLE PAV MRK BUTTONS DBL ARROW
 -  (10) REMOVABLE PAV MRK BUTTONS TPL ARROW
 -  (11) REMOVABLE PAV MRK (REFLECTOR) TY I-A

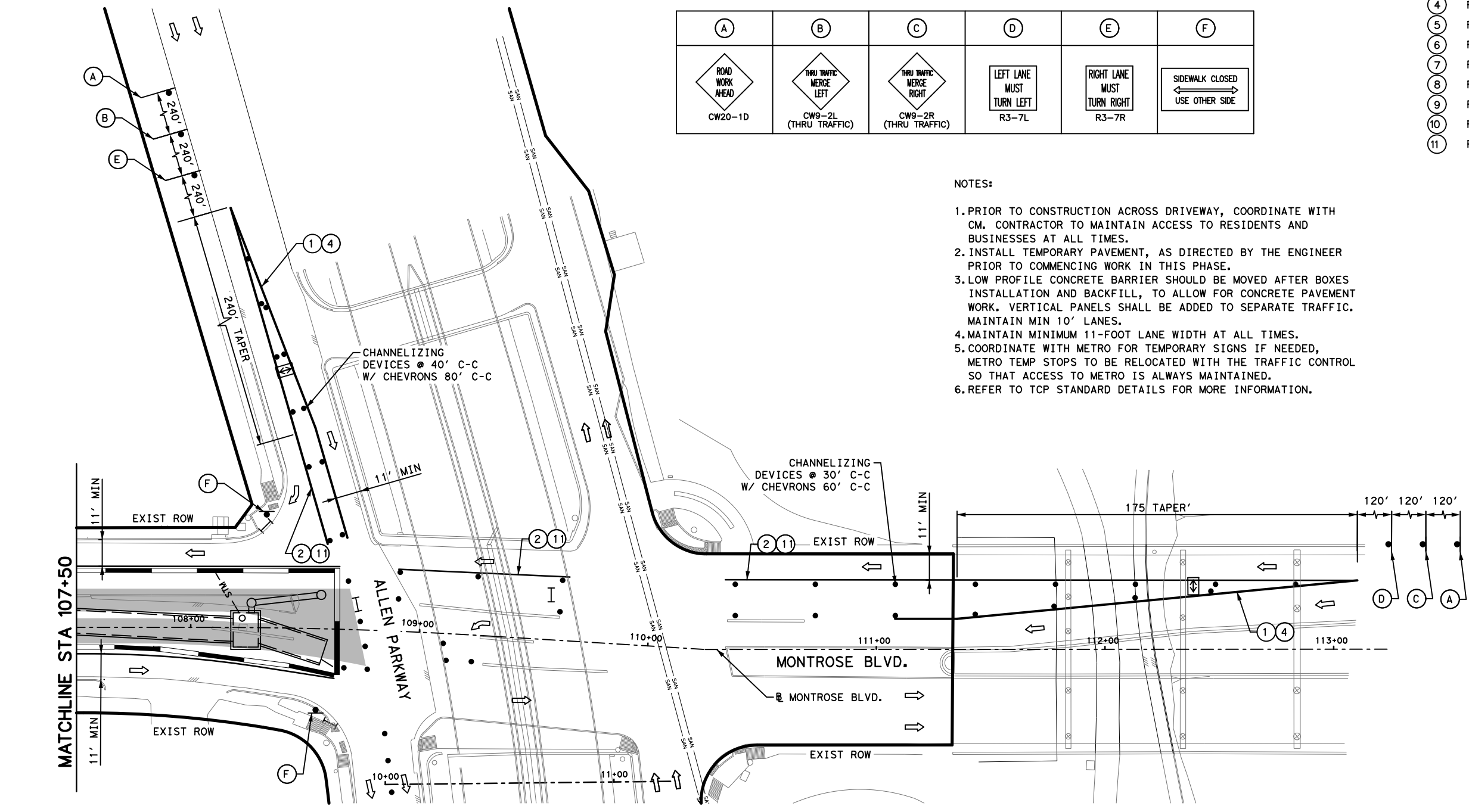
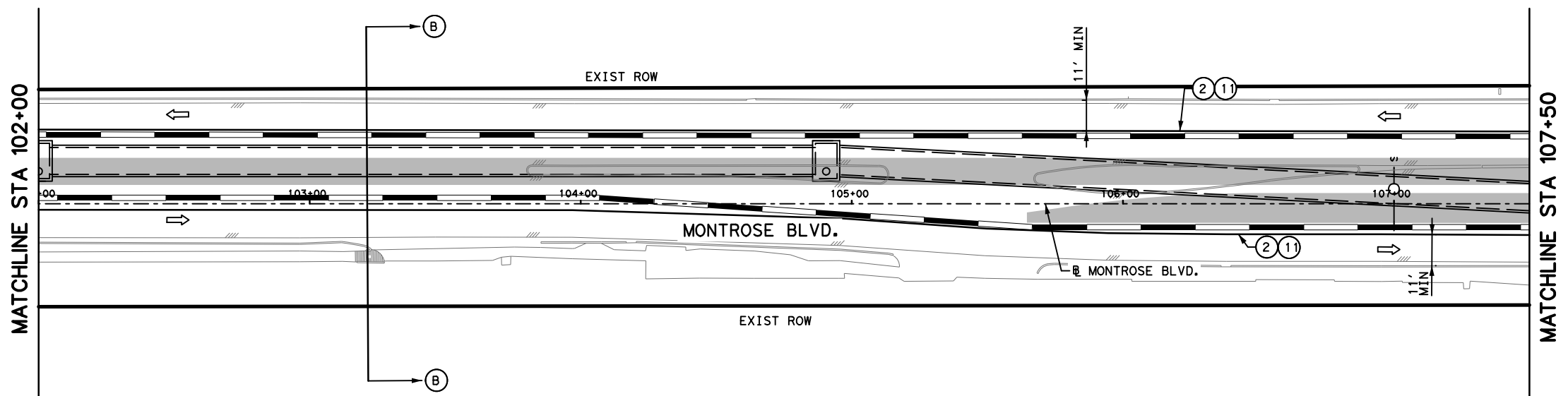


- NOTES:
- PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
 - INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.
 - LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. MAINTAIN MIN 11' LANES.



															
 <p>GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p><small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small></p> <p>KARAM QADDOO 125611 2/20/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017</p>														
<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>															
<h2>CITY OF HOUSTON</h2> <p>HOUSTON PUBLIC WORKS</p> <h3>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1</h3> <h4>TRAFFIC CONTROL PLAN</h4> <h4>PHASE 1 STEP 1</h4>															
SHEET 1 OF 2															
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AS NOTED															
CITY OF HOUSTON PM															
JUADA HUANG															
SHEET NO. 13 OF 355															

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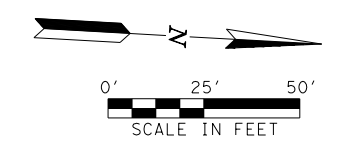


(A)	(B)	(C)	(D)	(E)	(F)
CW20-1D	CW9-2L (THRU TRAFFIC)	CW9-2R (THRU TRAFFIC)	R3-7L	R3-7R	

- NOTES:
1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
 2. INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.
 3. LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
 4. MAINTAIN MINIMUM 11-FOOT LANE WIDTH AT ALL TIMES.
 5. COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
 6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.

LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
- REMOVABLE PAV MRK BUTTONS TY W
- REMOVABLE PAV MRK BUTTONS TY Y
- REMOVABLE PAV MRK BUTTONS W STOP BAR
- REMOVABLE PAV MRK (REFLECTOR) TY I-C
- REMOVABLE PAV MRK (REFLECTOR) TY A-A
- REMOVABLE PAV MRK BUTTONS TY W (DOT)
- REMOVABLE PAV MRK BUTTONS TY Y (DOT)
- REMOVABLE PAV MRK BUTTONS ARROW
- REMOVABLE PAV MRK BUTTONS DBL ARROW
- REMOVABLE PAV MRK BUTTONS TPL ARROW
- REMOVABLE PAV MRK (REFLECTOR) TY I-A



MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

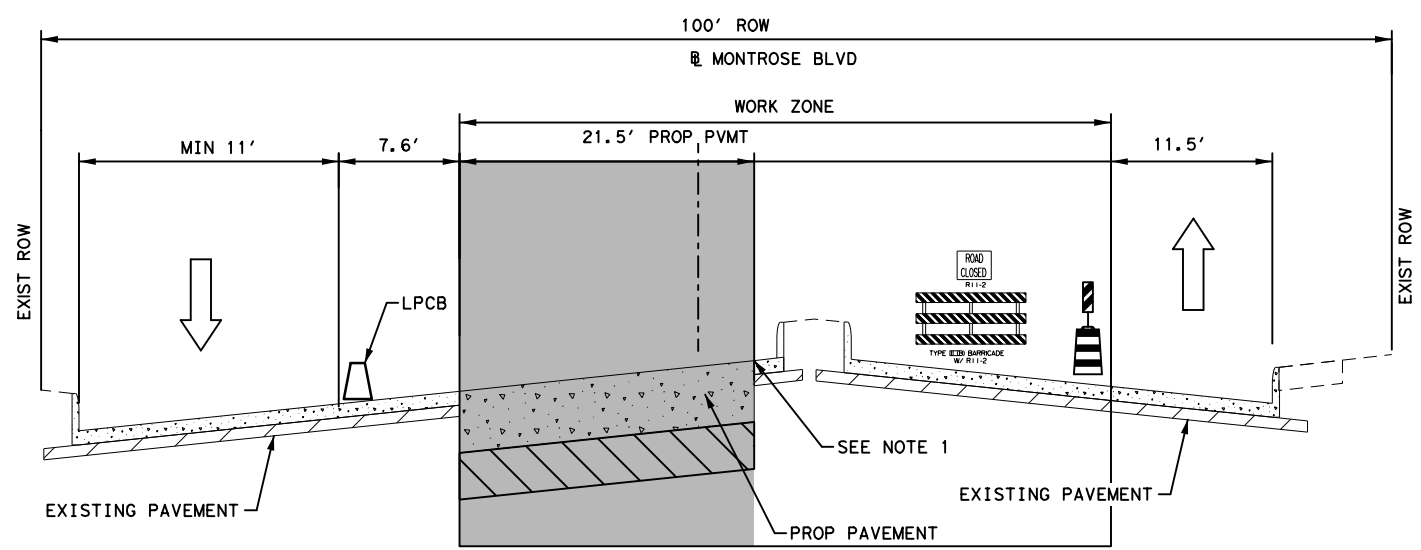
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1

SHEET 2 OF 2

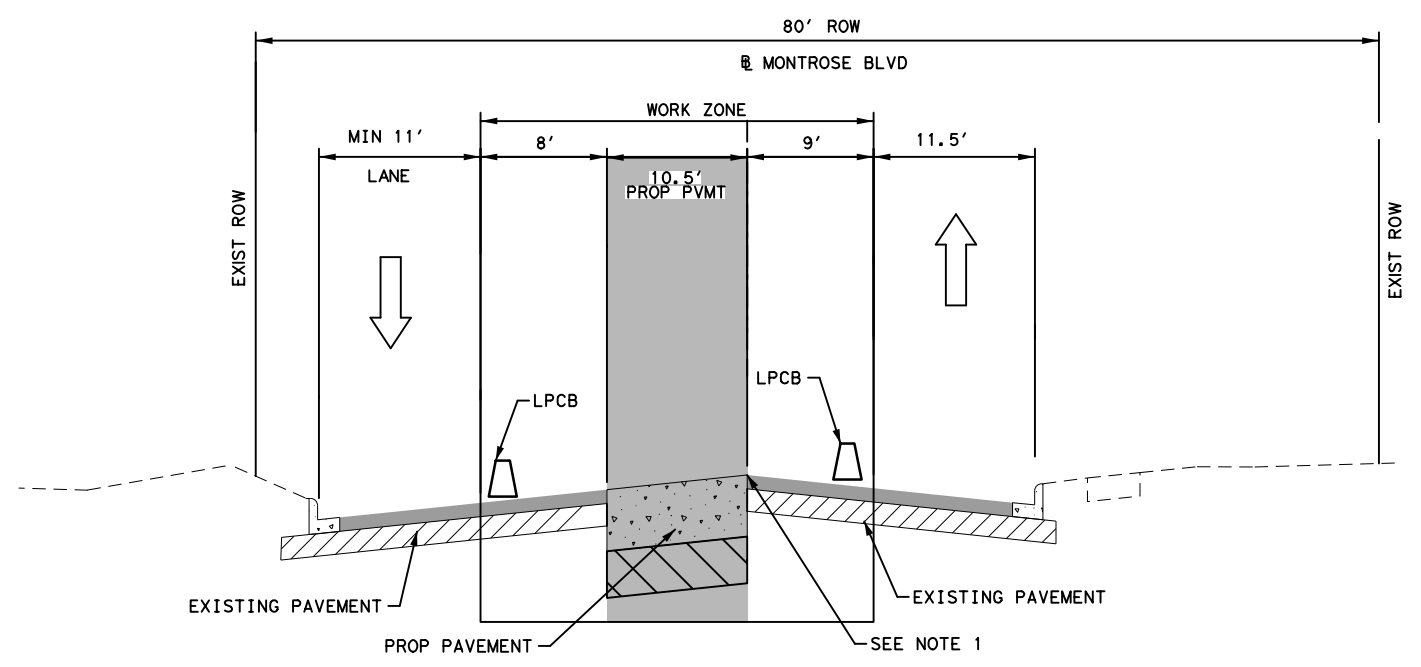
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AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 14 OF 355	

REVISIONS	DATE	APP.

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SECTION A-A
N. T. S



SECTION B-B
N. T. S

NOTES:
 1. REINFORCEMENT/DOWELS FOR PROPOSED CURB SHALL BE INSTALLED LATER WITH CURB INSTALLATION. WORK IS INCIDENTAL TO CURB PAY ITEM. NO SEPARATE PAY WILL BE MADE FOR SUCH WORK.

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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 TRAFFIC CONTROL PLAN TYPICAL SECTION SECTION A-A / B-B	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 15 OF 355	

No.	DATE	REVISIONS	APP.

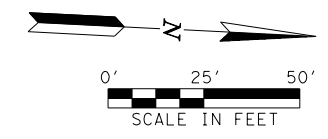
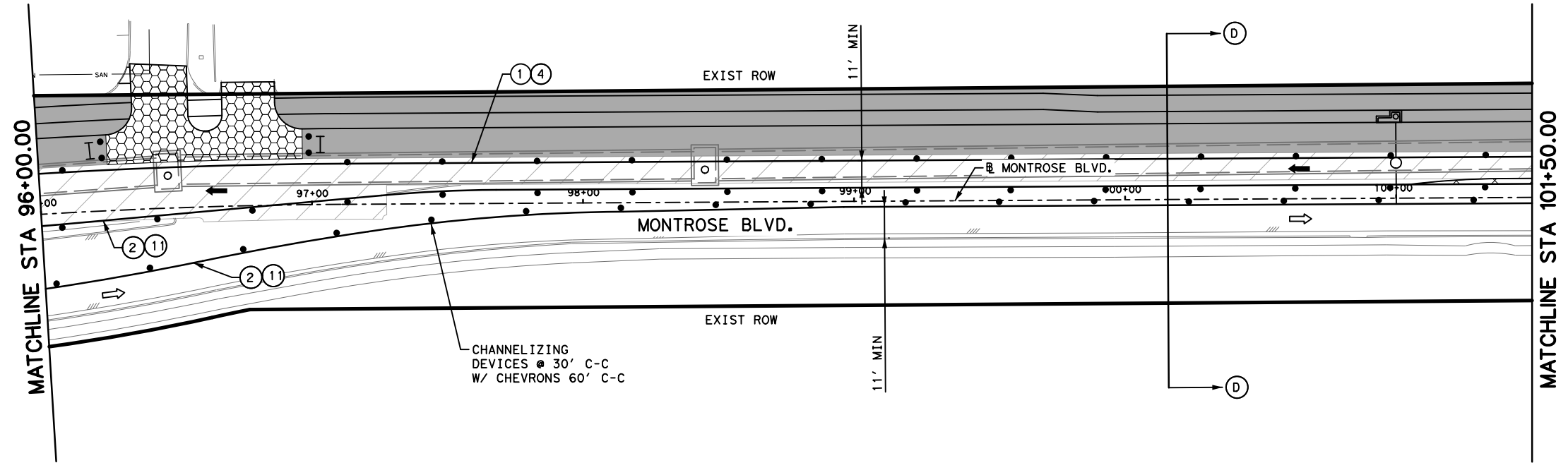
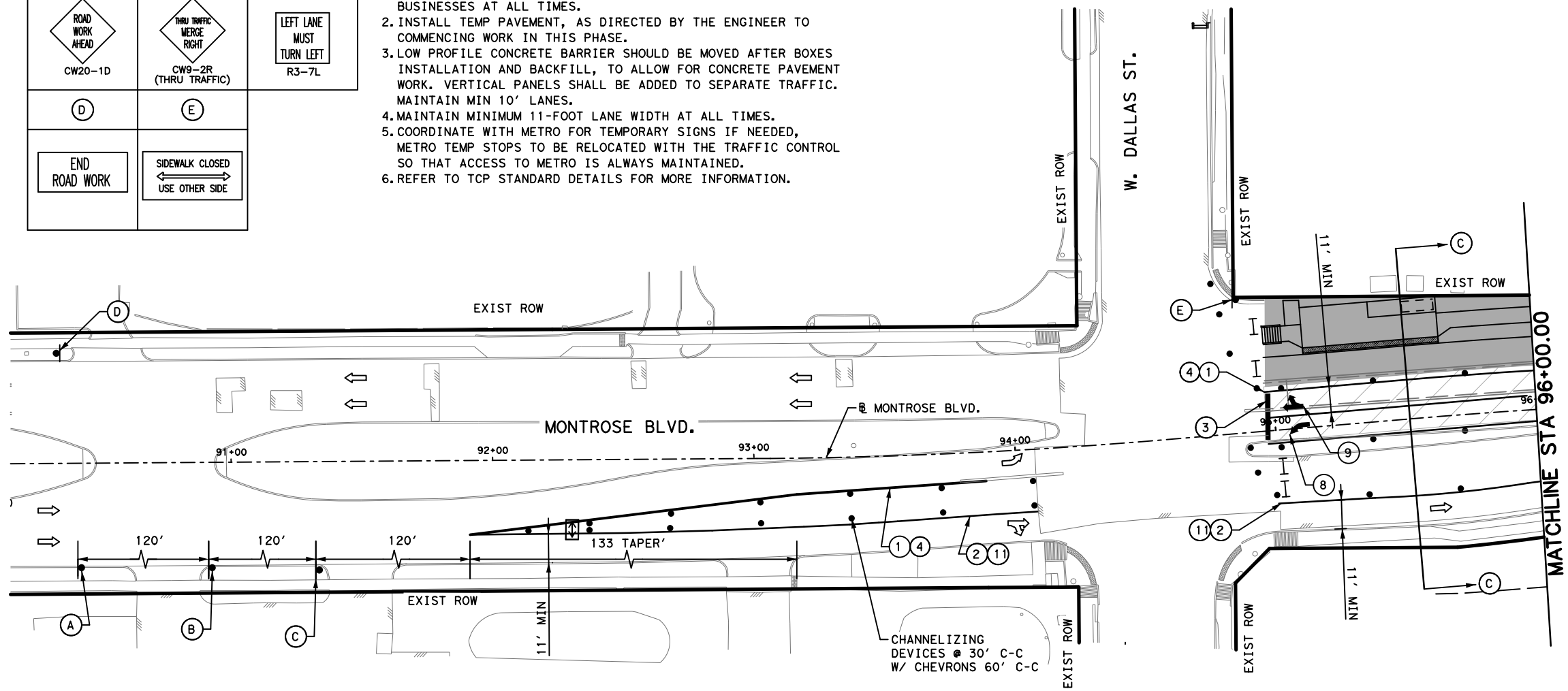
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(A)	(B)	(C)
(D)	(E)	

- NOTES:
1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
 2. INSTALL TEMP PAVEMENT, AS DIRECTED BY THE ENGINEER TO COMMENCING WORK IN THIS PHASE.
 3. LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
 4. MAINTAIN MINIMUM 11-FOOT LANE WIDTH AT ALL TIMES.
 5. COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
 6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.

LEGEND

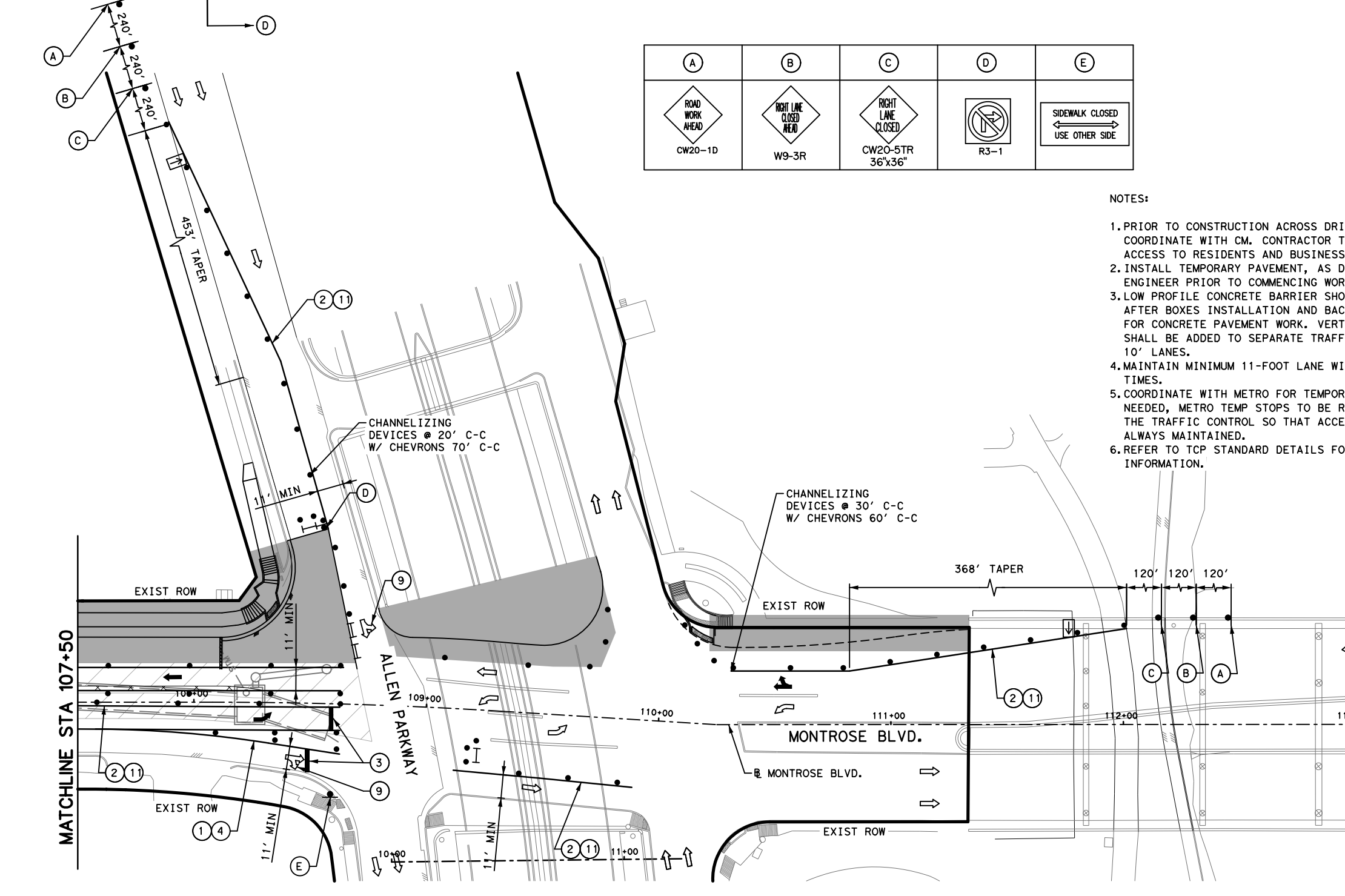
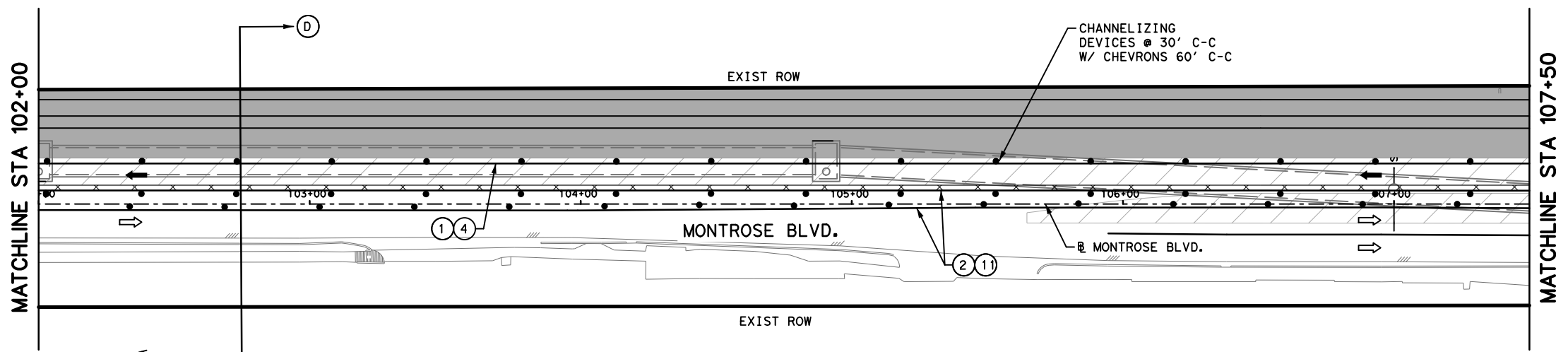
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	TEMPORARY ASPHALT
	PREVIOUSLY PAVED
	HIGH EARLY STRENGTH CONCRETE
	PROPOSED LANES UNDER TRAFFIC
	EXISTING LANES UNDER TRAFFIC
	TEMP GROUND MOUNTED SIGN DRUM
	VERTICAL PANEL
	TYPE III BARRICADE W/ ROAD CLOSED SIGN
	FLASHING ARROW
	TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
(1)	REMOVABLE PAV MRK BUTTONS TY W
(2)	REMOVABLE PAV MRK BUTTONS TY Y
(3)	REMOVABLE PAV MRK BUTTONS W STOP BAR
(4)	REMOVABLE PAV MRK (REFLECTOR) TY I-C
(5)	REMOVABLE PAV MRK (REFLECTOR) TY A-A
(6)	REMOVABLE PAV MRK BUTTONS TY W (DOT)
(7)	REMOVABLE PAV MRK BUTTONS TY Y (DOT)
(8)	REMOVABLE PAV MRK BUTTONS ARROW
(9)	REMOVABLE PAV MRK BUTTONS DBL ARROW
(10)	REMOVABLE PAV MRK BUTTONS TPL ARROW
(11)	REMOVABLE PAV MRK (REFLECTOR) TY I-A



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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TRAFFIC CONTROL PLAN PHASE 1 STEP 2	
SHEET 1 OF 2	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 16 OF 355	

REVISIONS	DATE	APP.

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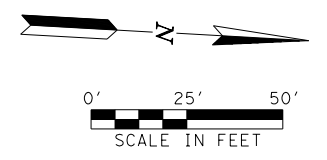


(A)	(B)	(C)	(D)	(E)
CW20-1D	W9-3R	CW20-5TR 36"x36"	R3-1	

- NOTES:
- PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
 - INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.
 - LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
 - MAINTAIN MINIMUM 11-FOOT LANE WIDTH AT ALL TIMES.
 - COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
 - REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.

LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
- (1) REMOVABLE PAV MRK BUTTONS TY W
- (2) REMOVABLE PAV MRK BUTTONS TY Y
- (3) REMOVABLE PAV MRK BUTTONS W STOP BAR
- (4) REMOVABLE PAV MRK (REFLECTOR) TY I-C
- (5) REMOVABLE PAV MRK (REFLECTOR) TY A-A
- (6) REMOVABLE PAV MRK BUTTONS TY W (DOT)
- (7) REMOVABLE PAV MRK BUTTONS TY Y (DOT)
- (8) REMOVABLE PAV MRK BUTTONS ARROW
- (9) REMOVABLE PAV MRK BUTTONS DBL ARROW
- (10) REMOVABLE PAV MRK BUTTONS TPL ARROW
- (11) REMOVABLE PAV MRK (REFLECTOR) TY I-A



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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 KARAM QADDOO
 125611
 2/20/2024

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 Texas Registered Engineering Firm F-20017

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

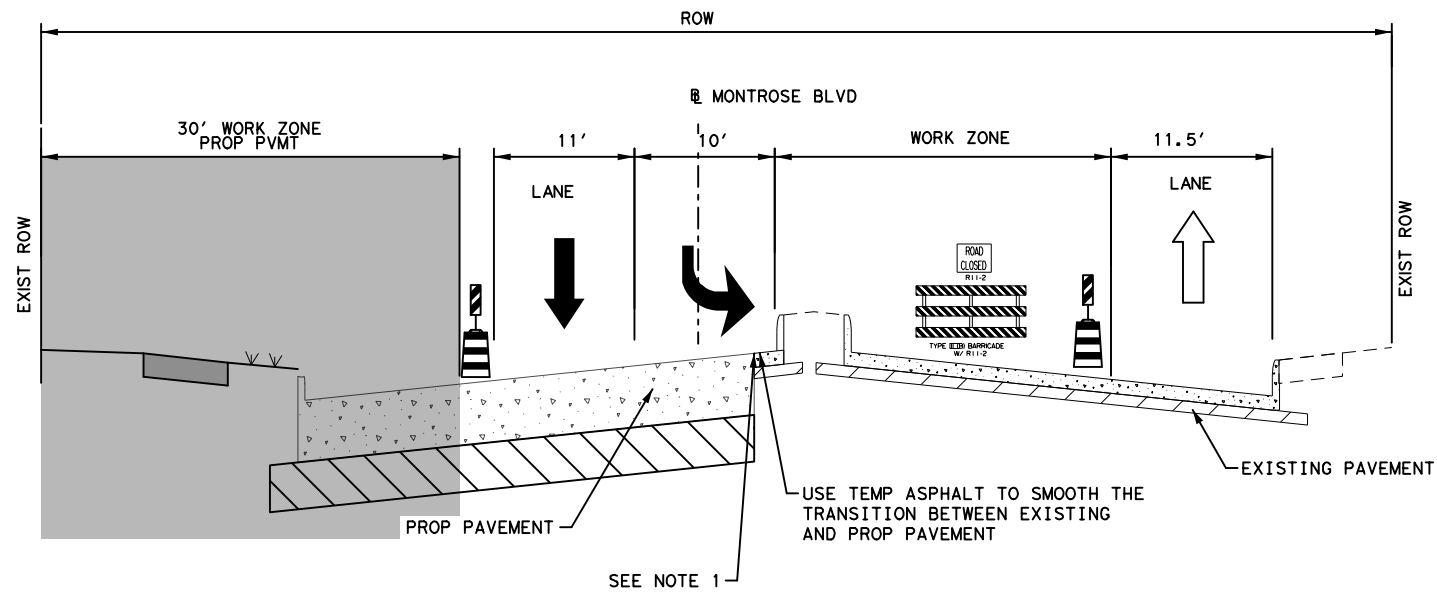
TRAFFIC CONTROL PLAN PHASE 1 STEP 2

SHEET 2 OF 2

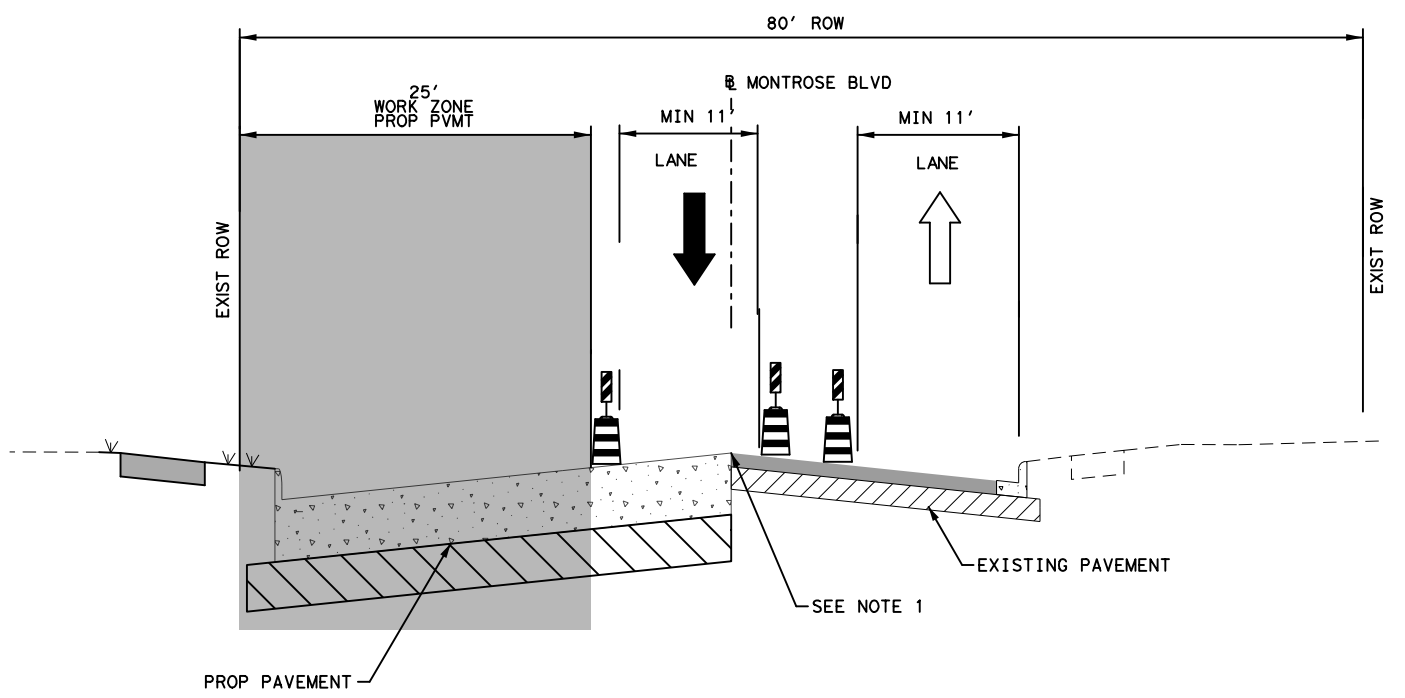
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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 17 OF 355	

No.	DATE	REVISIONS	APP.

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SECTION C-C
 N. T. S



SECTION D-D
 N. T. S

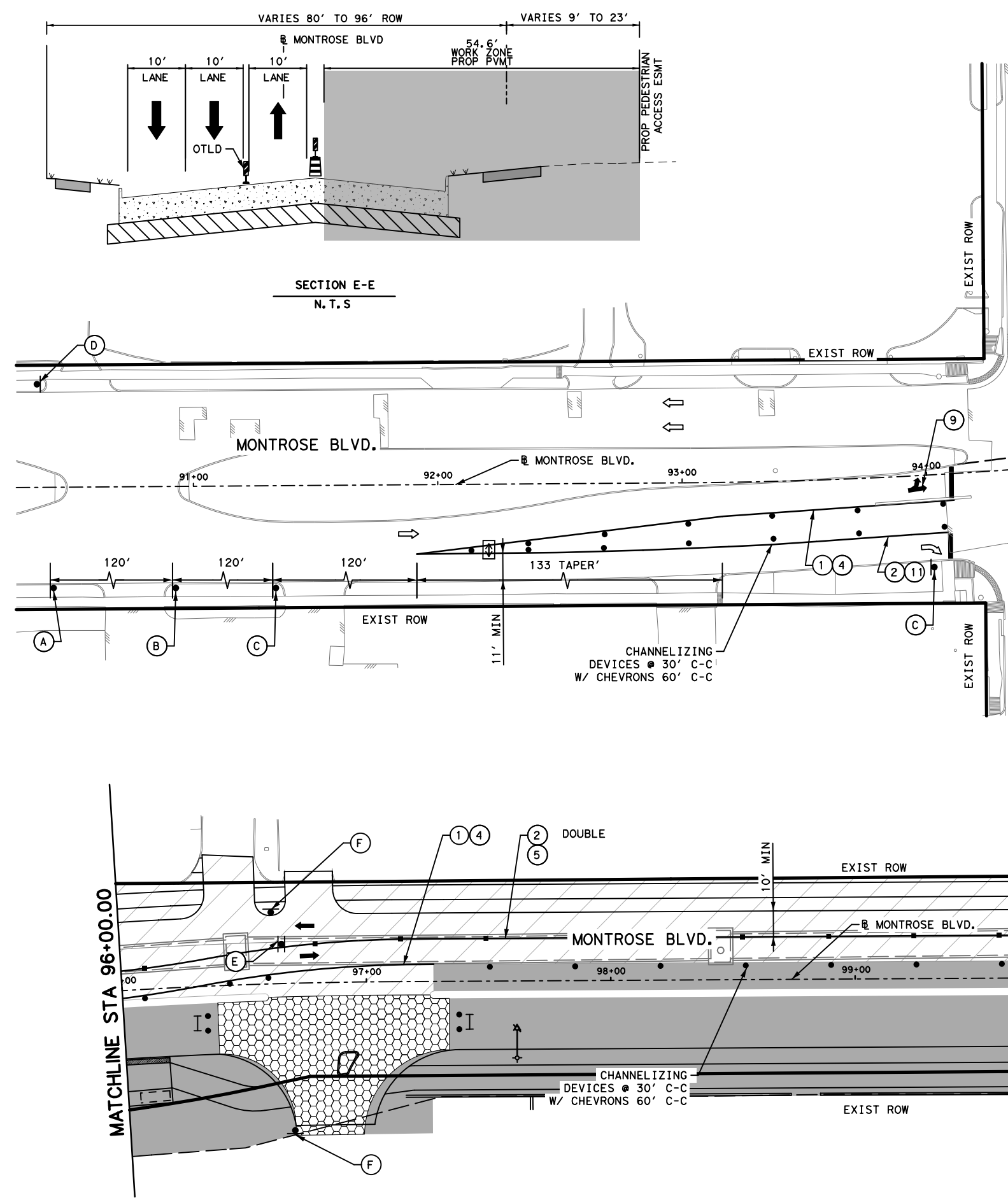
NOTES:

1. REINFORCEMENT/DOWELS FOR PROPOSED CURB SHALL BE INSTALLED LATER WITH CURB INSTALLATION. WORK IS INCIDENTAL TO CURB PAY ITEM. NO SEPARATE PAY WILL BE MADE FOR SUCH WORK.

No.	DATE	REVISIONS	APP.

 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> KARIM QADDO 125611 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-2017</small>
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 TRAFFIC CONTROL PLAN TYPICAL SECTION SECTION C-C / D-D	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 18 OF 355	

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(A)	(B)	(C)	(D)
ROAD WORK AHEAD CW20-1D	THRU TRAFFIC MERGE LEFT CW9-2L (THRU TRAFFIC)	RIGHT LANE MUST TURN RIGHT R3-7R	END ROAD WORK
(E)	(F)	(G)	
CW9-2L	R3-2	SIDEWALK CLOSED USE OTHER SIDE R9-10	

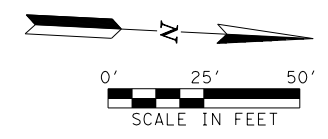
LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN
- DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
- ① REMOVABLE PAV MRK BUTTONS TY W
- ② REMOVABLE PAV MRK BUTTONS TY Y
- ③ REMOVABLE PAV MRK BUTTONS W STOP BAR
- ④ REMOVABLE PAV MRK (REFLECTOR) TY I-C
- ⑤ REMOVABLE PAV MRK (REFLECTOR) TY A-A
- ⑥ REMOVABLE PAV MRK BUTTONS TY W (DOT)
- ⑦ REMOVABLE PAV MRK BUTTONS TY Y (DOT)
- ⑧ REMOVABLE PAV MRK BUTTONS ARROW
- ⑨ REMOVABLE PAV MRK BUTTONS DBL ARROW
- ⑩ REMOVABLE PAV MRK BUTTONS TPL ARROW
- ⑪ REMOVABLE PAV MRK (REFLECTOR) TY I-A

NOTES:

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
2. INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.

3. LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
4. MAINTAIN MINIMUM 10-FOOT LANE WIDTH AT ALL TIMES.
5. COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.



MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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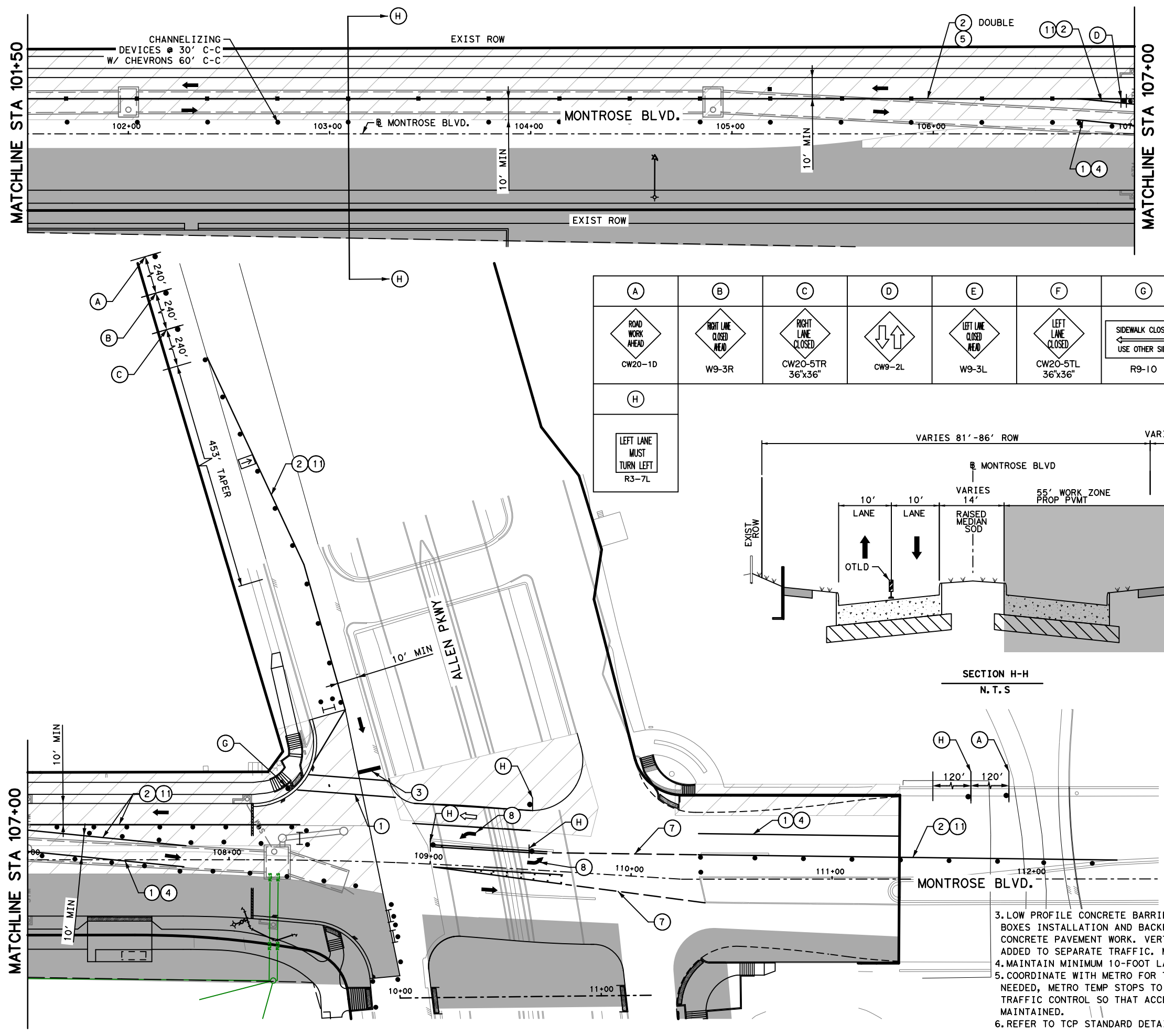
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 1 STEP 3

SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 19 OF 355	

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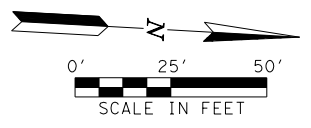
LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN
- DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS

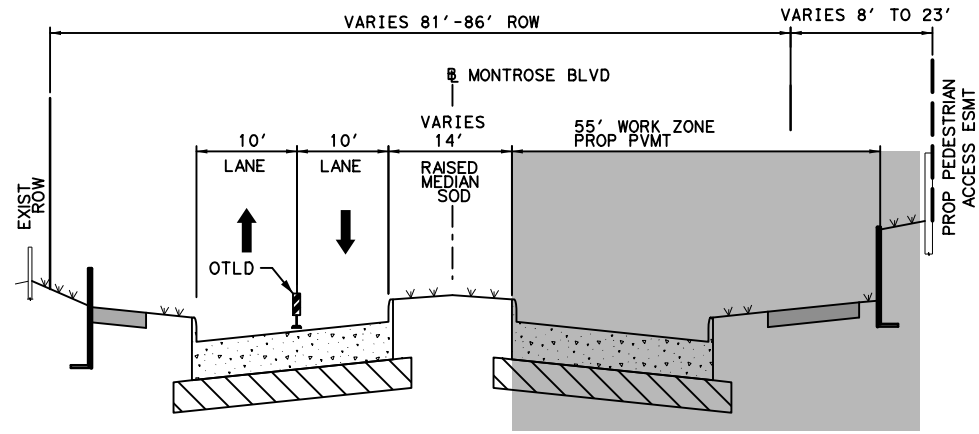
- ① REMOVABLE PAV MRK BUTTONS TY W
- ② REMOVABLE PAV MRK BUTTONS TY Y
- ③ REMOVABLE PAV MRK BUTTONS W STOP BAR
- ④ REMOVABLE PAV MRK (REFLECTOR) TY I-C
- ⑤ REMOVABLE PAV MRK (REFLECTOR) TY A-A
- ⑥ REMOVABLE PAV MRK BUTTONS TY W (DOT)
- ⑦ REMOVABLE PAV MRK BUTTONS TY Y (DOT)
- ⑧ REMOVABLE PAV MRK BUTTONS ARROW
- ⑨ REMOVABLE PAV MRK BUTTONS DBL ARROW
- ⑩ REMOVABLE PAV MRK BUTTONS TPL ARROW
- ⑪ REMOVABLE PAV MRK (REFLECTOR) TY I-A

NOTES:

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2. INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.



A	B	C	D	E	F	G
 CW20-1D	 W9-3R	 CW20-5TR 36"x36"	 CW9-2L	 W9-3L	 CW20-5TL 36"x36"	 R9-10
H						
 R3-7L						



3. LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
4. MAINTAIN MINIMUM 10-FOOT LANE WIDTH AT ALL TIMES.
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6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.

MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 1 STEP 3

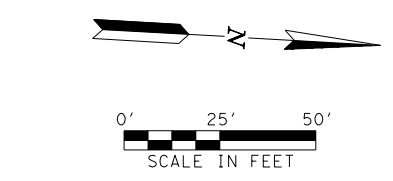
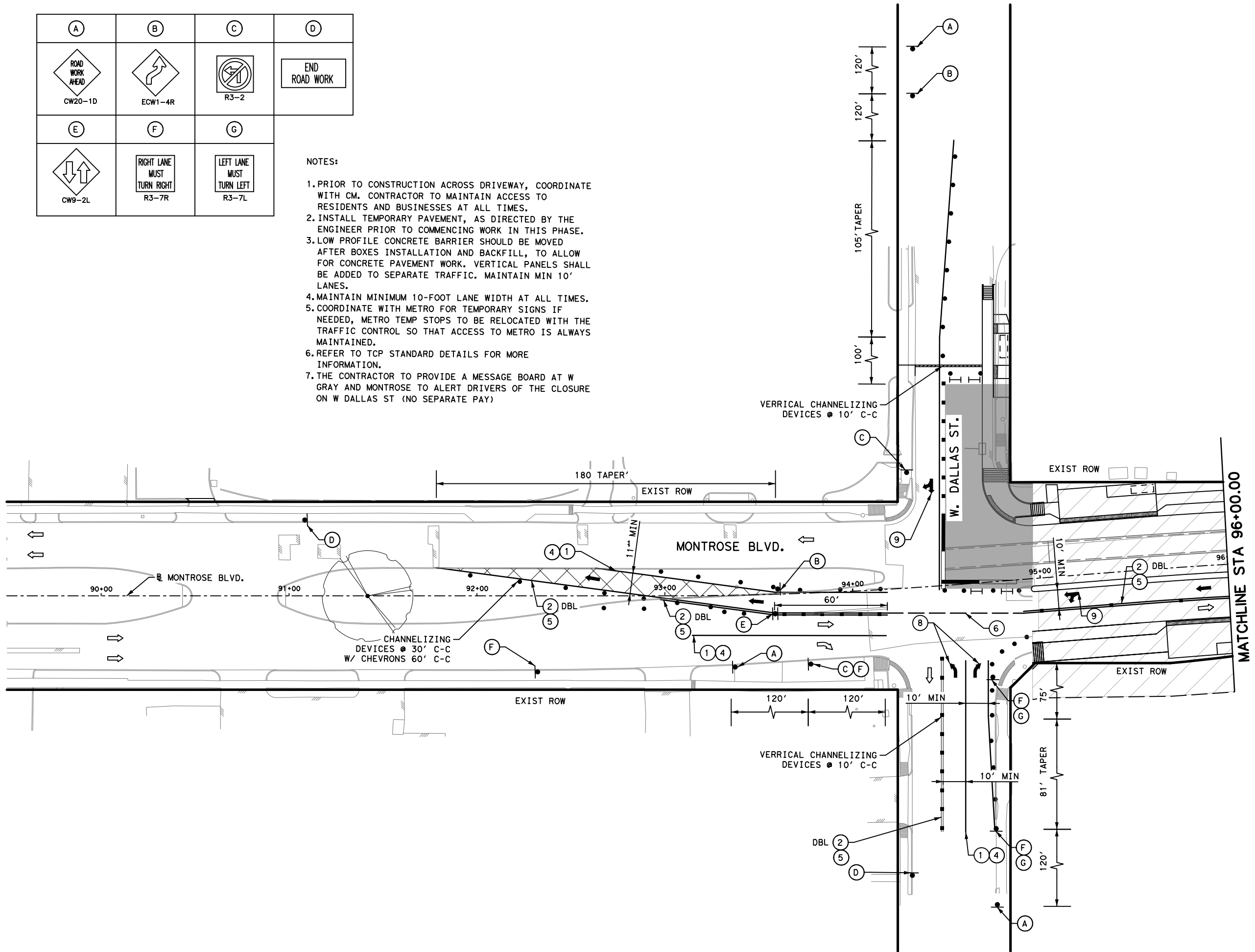
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 20	OF 355

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(A) ROAD WORK AHEAD CW20-1D	(B) ROAD WORK AHEAD ECW1-4R	(C) NO LEFT TURN R3-2	(D) END ROAD WORK
(E) TRAFFIC AHEAD CW9-2L	(F) RIGHT LANE MUST TURN RIGHT R3-7R	(G) LEFT LANE MUST TURN LEFT R3-7L	

- NOTES:
1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
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 6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.
 7. THE CONTRACTOR TO PROVIDE A MESSAGE BOARD AT W GRAY AND MONTROSE TO ALERT DRIVERS OF THE CLOSURE ON W DALLAS ST (NO SEPARATE PAY)



MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 Texas Registered Engineering Firm F-20017

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

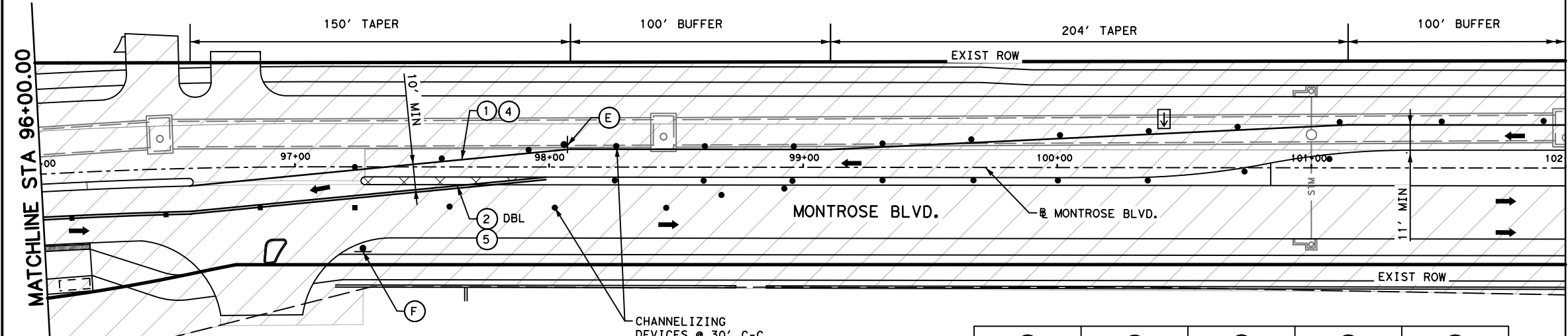
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4
QUADRANT 1

SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO	21 OF 355

No.	DATE	REVISIONS	APP.

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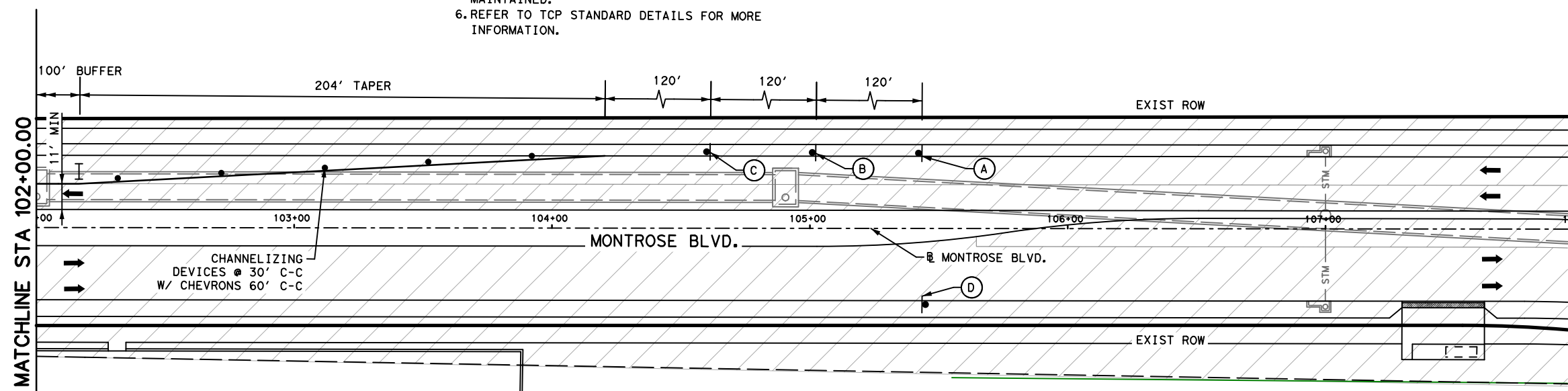
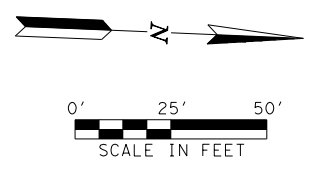
- NOTES:**
1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
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 6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.

(A)	(B)	(C)	(D)	(E)
(F)				

LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN
- DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS

1 REMOVABLE PAV MRK BUTTONS TY W
 2 REMOVABLE PAV MRK BUTTONS TY Y
 3 REMOVABLE PAV MRK BUTTONS W STOP BAR
 4 REMOVABLE PAV MRK (REFLECTOR) TY I-C
 5 REMOVABLE PAV MRK (REFLECTOR) TY A-A
 6 REMOVABLE PAV MRK BUTTONS TY W (DOT)
 7 REMOVABLE PAV MRK BUTTONS TY Y (DOT)
 8 REMOVABLE PAV MRK BUTTONS ARROW
 9 REMOVABLE PAV MRK BUTTONS DBL ARROW
 10 REMOVABLE PAV MRK BUTTONS TPL ARROW
 11 REMOVABLE PAV MRK (REFLECTOR) TY I-A



MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 Texas Registered Engineering Firm F-20017

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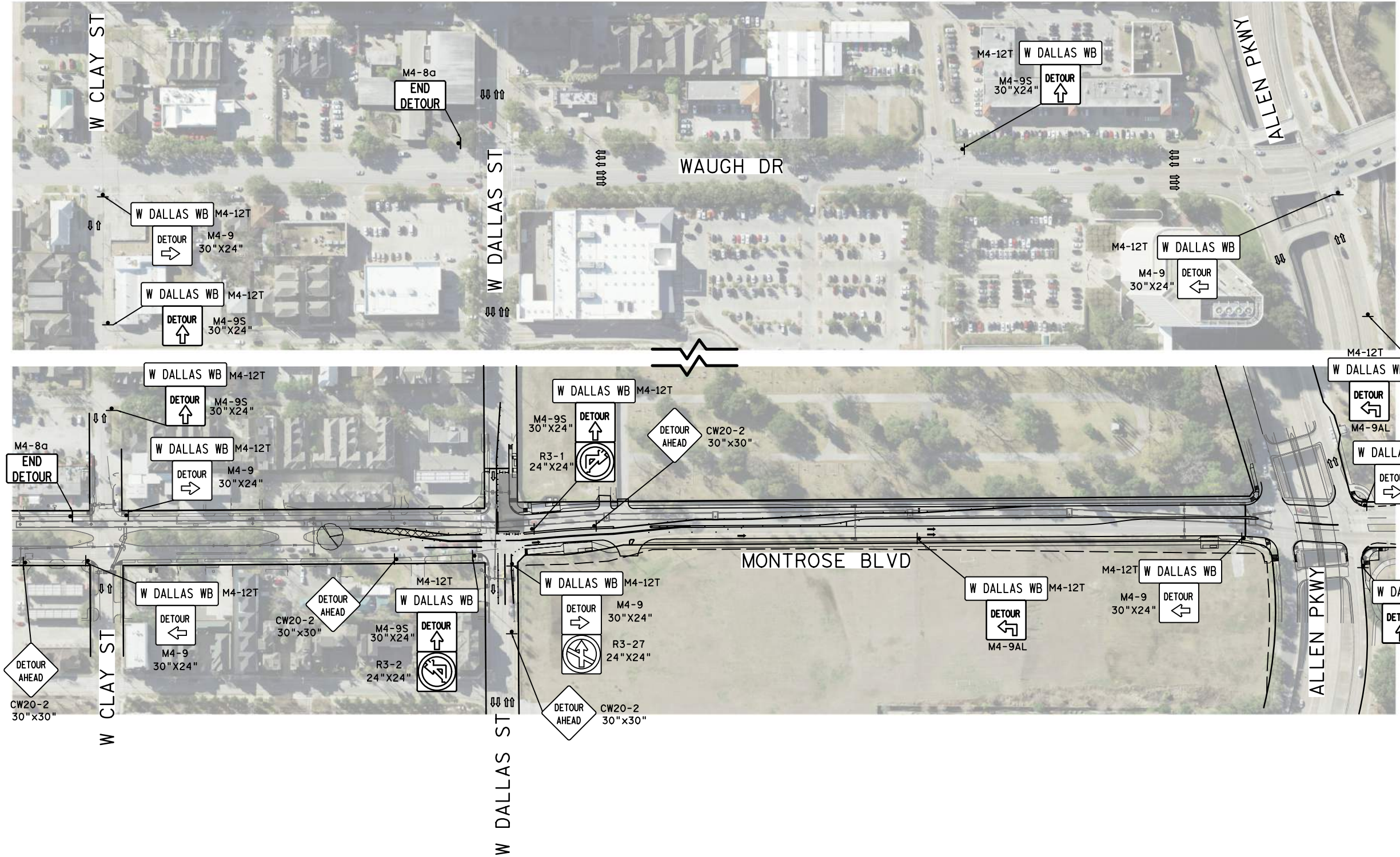
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
 TRAFFIC CONTROL PLAN
 PHASE 1 STEP 4
 QUADRANT 1

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 22 OF 355	

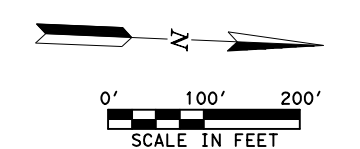
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LEGEND

	WORK ZONE
	TEMPORARY ASPHALT
	PROPOSED LANES UNDER TRAFFIC
	EXISTING LANES UNDER TRAFFIC
	TEMP GROUND MOUNTED SIGN
	DRUM
	VERTICAL PANEL
	TYPE III BARRICADE W/ ROAD CLOSED SIGN
	FLASHING ARROW
	TY I WITH TY II END TREATMENT
	LOW PROFILE CONC BARRIER

NOTE:
 1. WARNING SIGNS AND REGULARITY SIGNS SHALL BE INSTALLED ON DIFFERENT POSTS.



MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
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 TEXAS PE FIRM REG.# 20017
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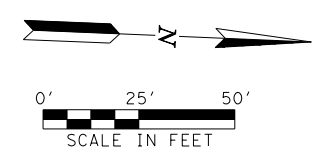
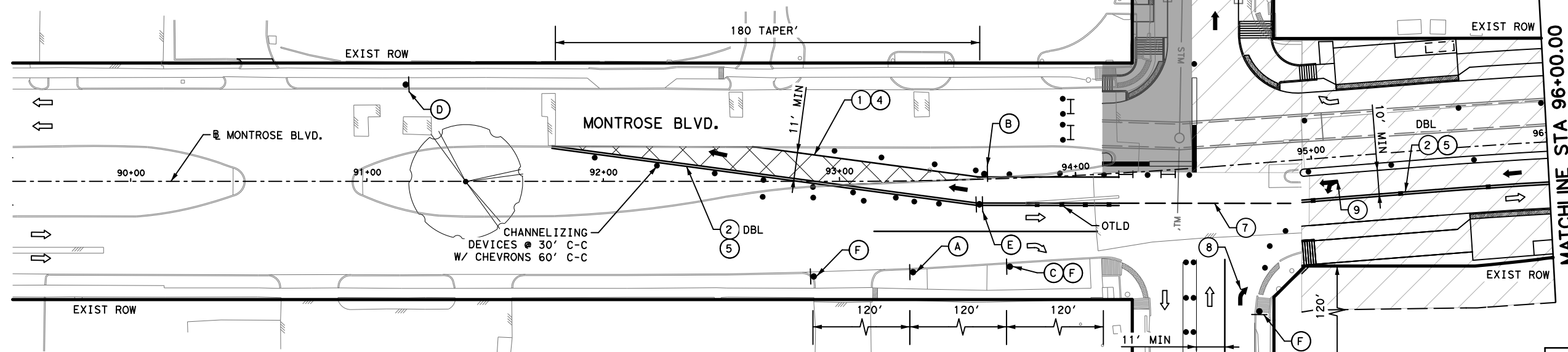
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1	
PHASE 1 STEP 4 QUADRANT 1 DETOUR PLAN	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 23 OF 355	

REVISIONS	DATE	APP.

(A)	(B)	(C)	(D)
(E)	(F)	(G)	



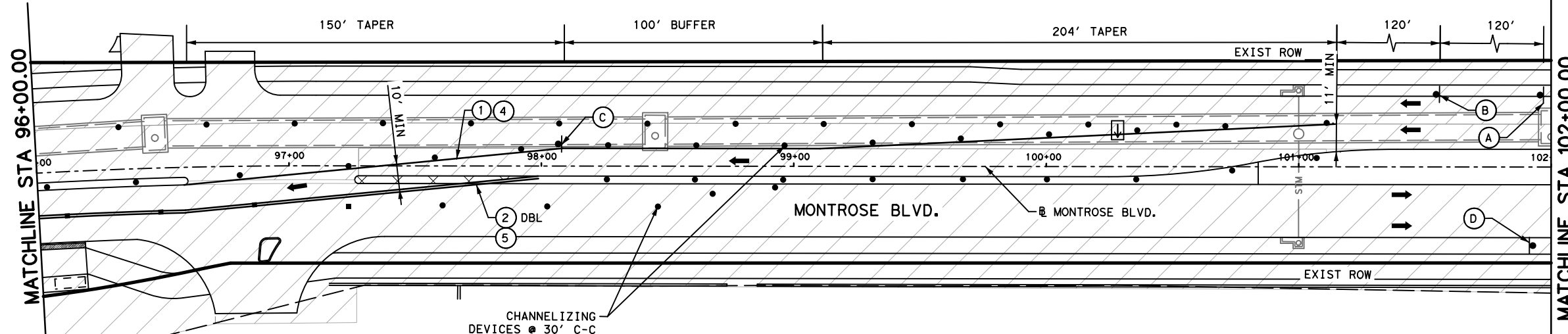
LEGEND

	WORK ZONE
	TEMPORARY ASPHALT
	PREVIOUS PHASES/STEPS
	HIGH EARLY STRENGTH CONCRETE
	PROPOSED LANES UNDER TRAFFIC
	EXISTING LANES UNDER TRAFFIC
	TEMP GROUND MOUNTED SIGN
	DRUM
	VERTICAL PANEL
	TYPE III BARRICADE W/ ROAD CLOSED SIGN
	FLASHING ARROW
	TY I WITH TY II END TREATMENT
	LOW PROFILE CONC BARRIER WITH REFLECTORS
(1)	REMOVABLE PAV MRK BUTTONS TY W
(2)	REMOVABLE PAV MRK BUTTONS TY Y
(3)	REMOVABLE PAV MRK BUTTONS W STOP BAR
(4)	REMOVABLE PAV MRK (REFLECTOR) TY I-C
(5)	REMOVABLE PAV MRK (REFLECTOR) TY A-A
(6)	REMOVABLE PAV MRK BUTTONS TY W (DOT)
(7)	REMOVABLE PAV MRK BUTTONS TY Y (DOT)
(8)	REMOVABLE PAV MRK BUTTONS ARROW
(9)	REMOVABLE PAV MRK BUTTONS DBL ARROW
(10)	REMOVABLE PAV MRK BUTTONS TPL ARROW
(11)	REMOVABLE PAV MRK (REFLECTOR) TY 1-A

- NOTES:**
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TRAFFIC CONTROL PLAN PHASE 1 STEP 4 QUADRANT 2	
SHEET 1 OF 2	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 24 OF 355	

No.	DATE	REVISIONS	APP.



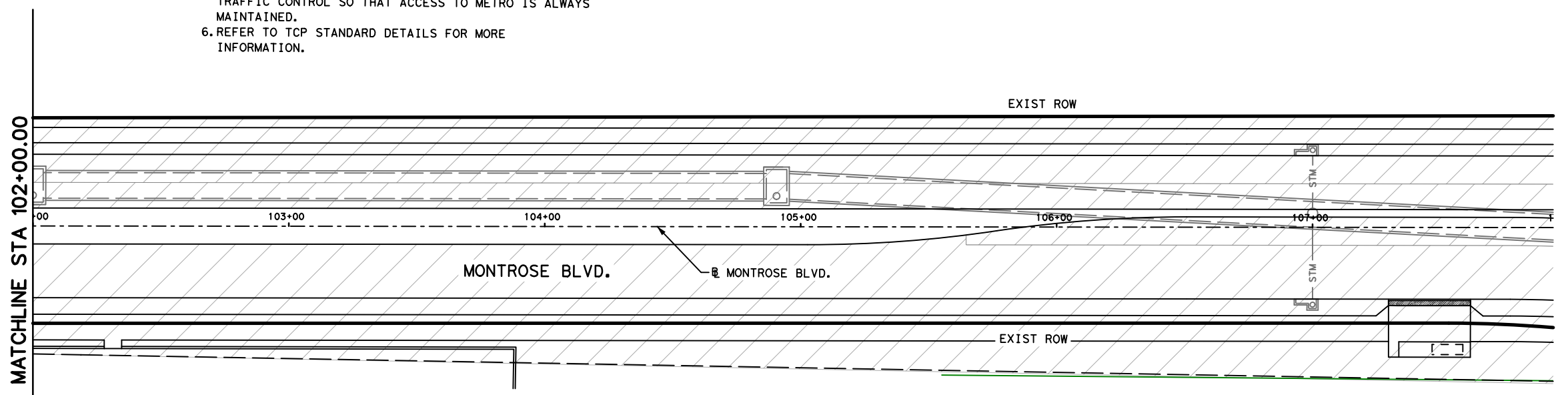
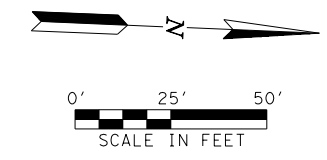
LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN DRUM
- DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS

①	REMOVABLE PAV MRK BUTTONS TY W
②	REMOVABLE PAV MRK BUTTONS TY Y
③	REMOVABLE PAV MRK BUTTONS W STOP BAR
④	REMOVABLE PAV MRK (REFLECTOR) TY I-C
⑤	REMOVABLE PAV MRK (REFLECTOR) TY A-A
⑥	REMOVABLE PAV MRK BUTTONS TY W (DOT)
⑦	REMOVABLE PAV MRK BUTTONS TY Y (DOT)
⑧	REMOVABLE PAV MRK BUTTONS ARROW
⑨	REMOVABLE PAV MRK BUTTONS DBL ARROW
⑩	REMOVABLE PAV MRK BUTTONS TPL ARROW
⑪	REMOVABLE PAV MRK (REFLECTOR) TY I-A

- NOTES:**
1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
 2. INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.
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 4. MAINTAIN MINIMUM 10-FOOT LANE WIDTH AT ALL TIMES.
 5. COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
 6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.

A CW20-1D	B R3-7R	C CW9-2L	D END ROAD WORK
---	---	--	---



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

INTERIM REVIEW ONLY

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KARAM QADDO
125611
2/20/2024

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Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
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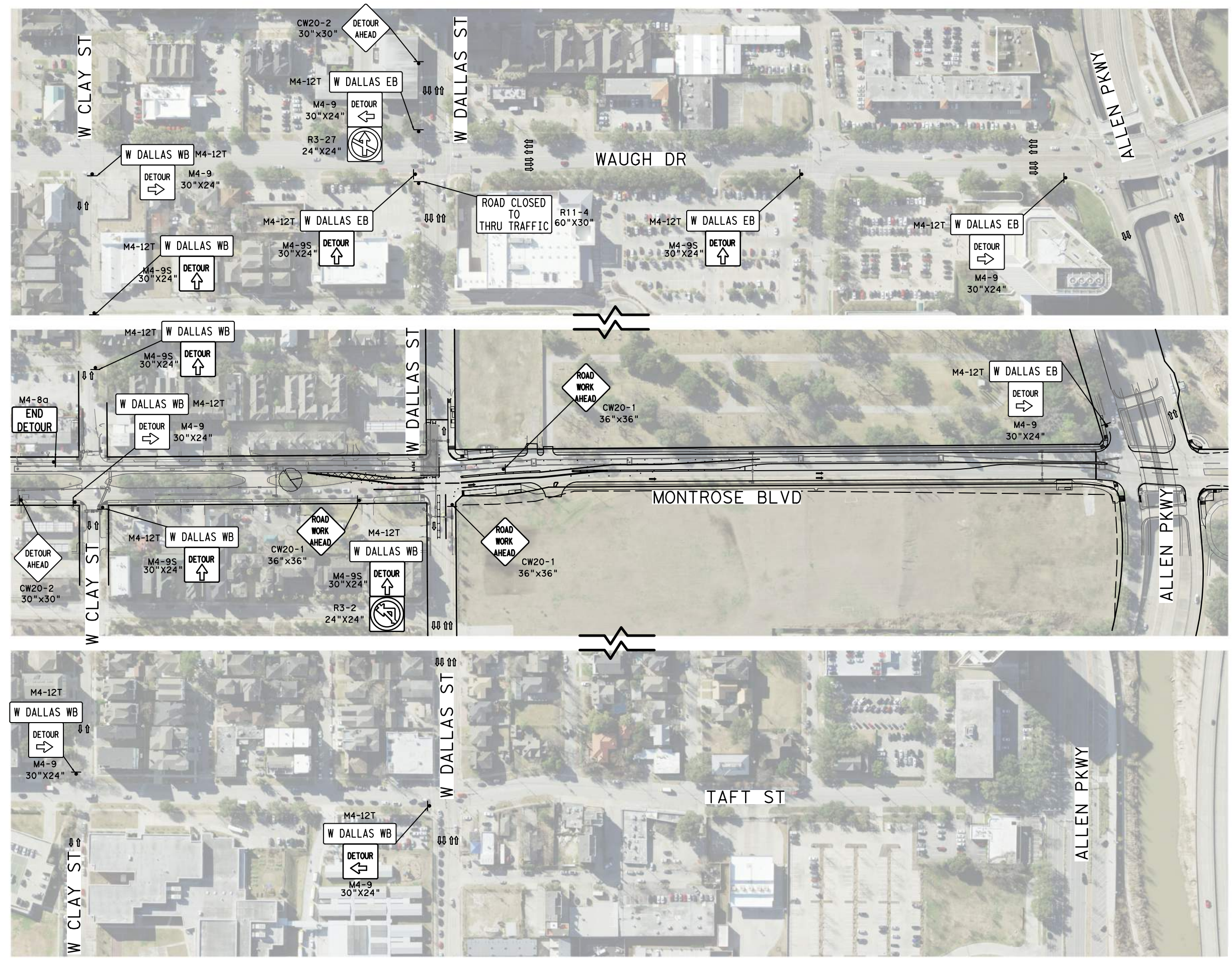
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4
QUADRANT 2

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO	25 OF 355

REVISIONS	APP.
No.	DATE

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LEGEND

- WORK ZONE
- TEMPORARY ASPHALT
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN
- DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER

NOTE:
 1. WARNING SIGNS AND REGULARITY SIGNS SHALL BE INSTALLED ON DIFFERENT POSTS.



MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG.# 20017
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

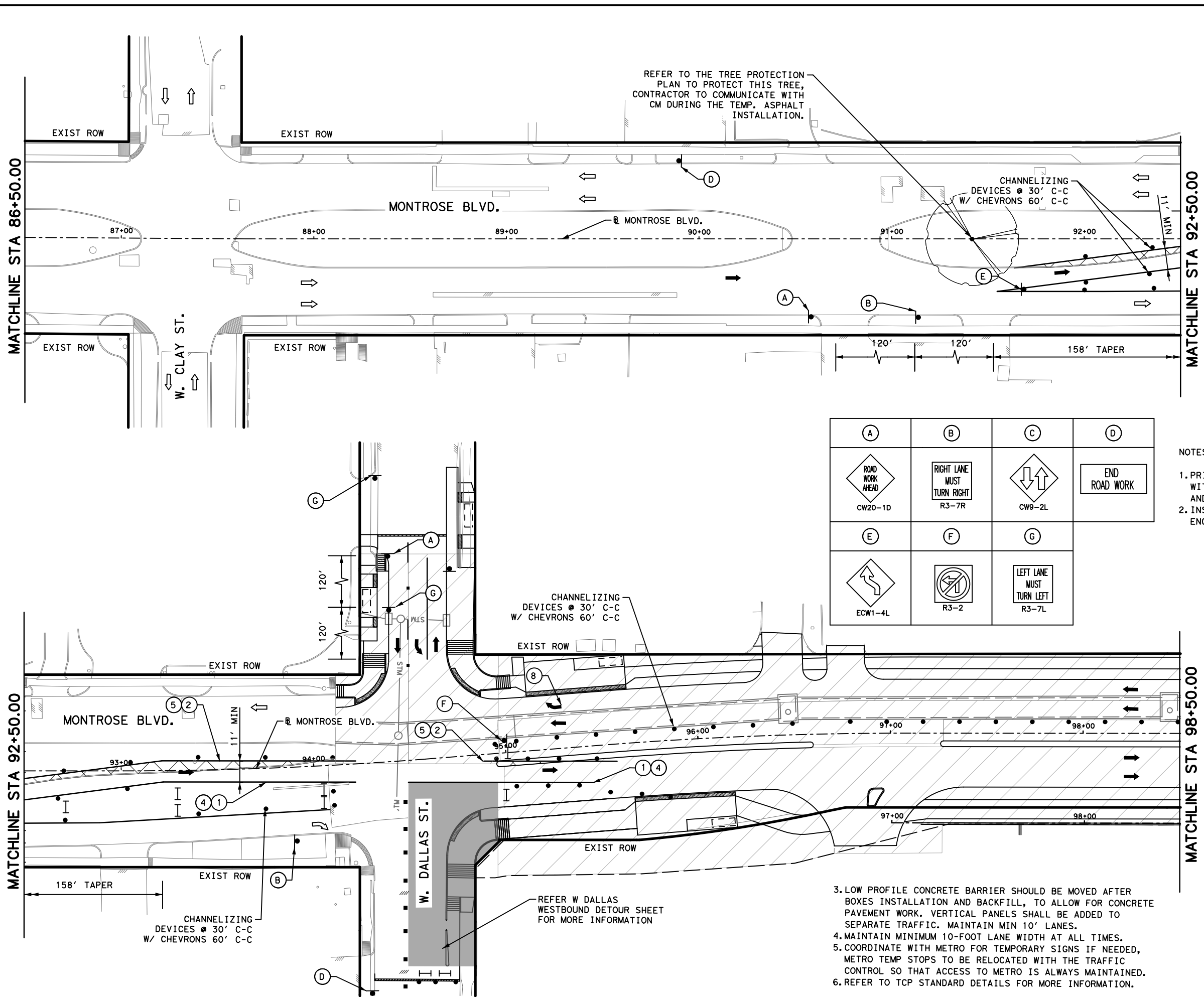
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
 PHASE 1 STEP 4
 QUADRANT 2
 DETOUR PLAN

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO	26 OF 355

APP.	
REVISIONS	
No.	DATE

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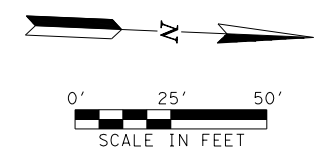


LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
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- REMOVABLE PAV MRK BUTTONS TY W
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- REMOVABLE PAV MRK (REFLECTOR) TY A-A
- REMOVABLE PAV MRK BUTTONS TY W (DOT)
- REMOVABLE PAV MRK BUTTONS TY Y (DOT)
- REMOVABLE PAV MRK BUTTONS ARROW
- REMOVABLE PAV MRK BUTTONS DBL ARROW
- REMOVABLE PAV MRK BUTTONS TPL ARROW
- REMOVABLE PAV MRK (REFLECTOR) TY I-A

(A)	(B)	(C)	(D)
ROAD WORK AHEAD CW20-1D	RIGHT LANE MUST TURN RIGHT R3-7R	TWO LANE TRAFFIC CW9-2L	END ROAD WORK
(E)	(F)	(G)	
LEFT TURN ECW1-4L	NO LEFT TURN R3-2	LEFT LANE MUST TURN LEFT R3-7L	

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MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
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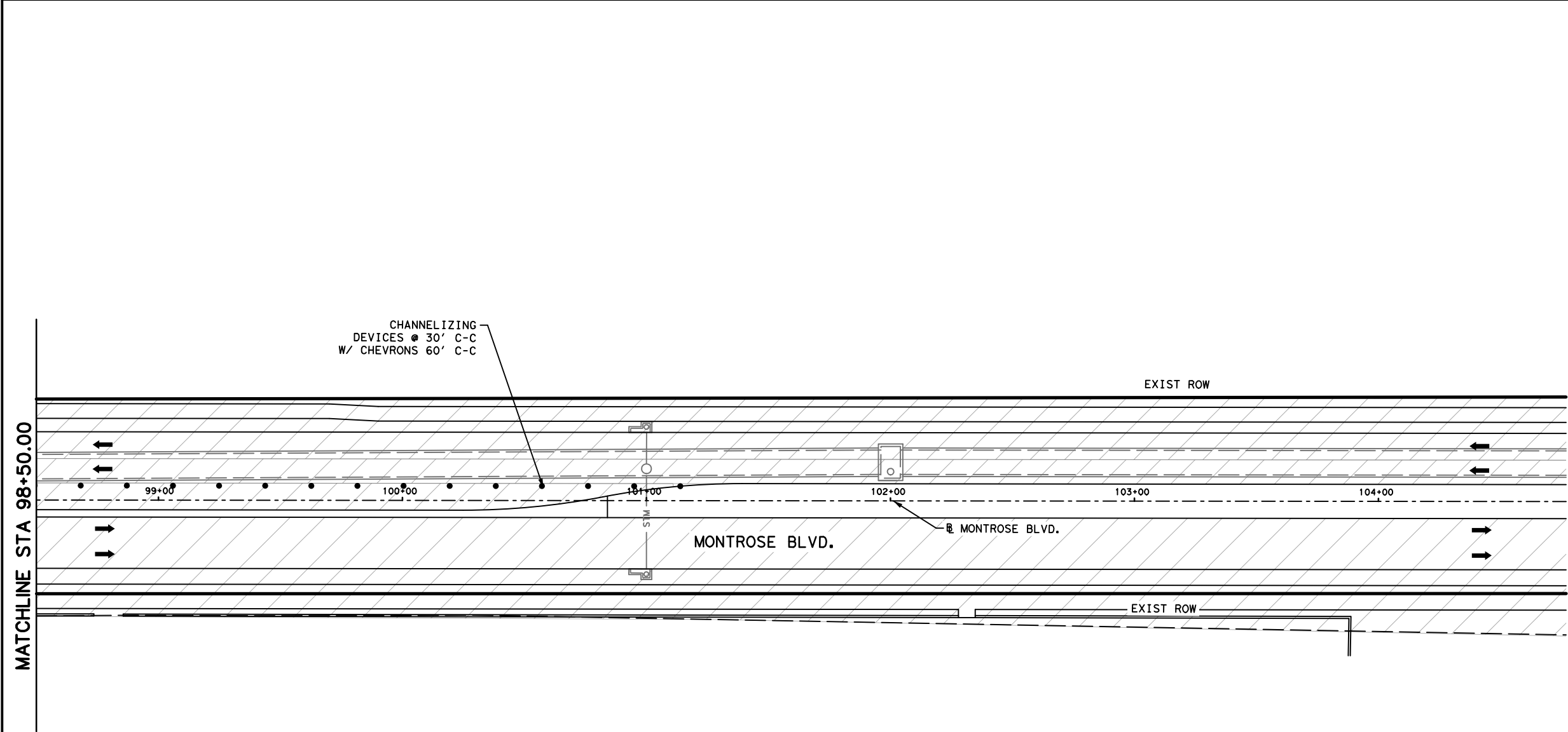
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HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4
QUADRANT 3

SHEET 1 OF 3

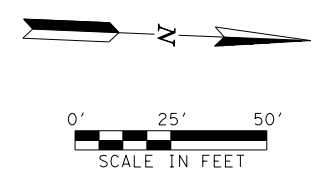
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 27 OF 355	

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- LEGEND**
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 - PREVIOUSLY PAVED
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 - ① REMOVABLE PAV MRK BUTTONS TY W
 - ② REMOVABLE PAV MRK BUTTONS TY Y
 - ③ REMOVABLE PAV MRK BUTTONS W STOP BAR
 - ④ REMOVABLE PAV MRK (REFLECTOR) TY I-C
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 - ⑩ REMOVABLE PAV MRK BUTTONS TPL ARROW
 - ⑪ REMOVABLE PAV MRK (REFLECTOR) TY I-A

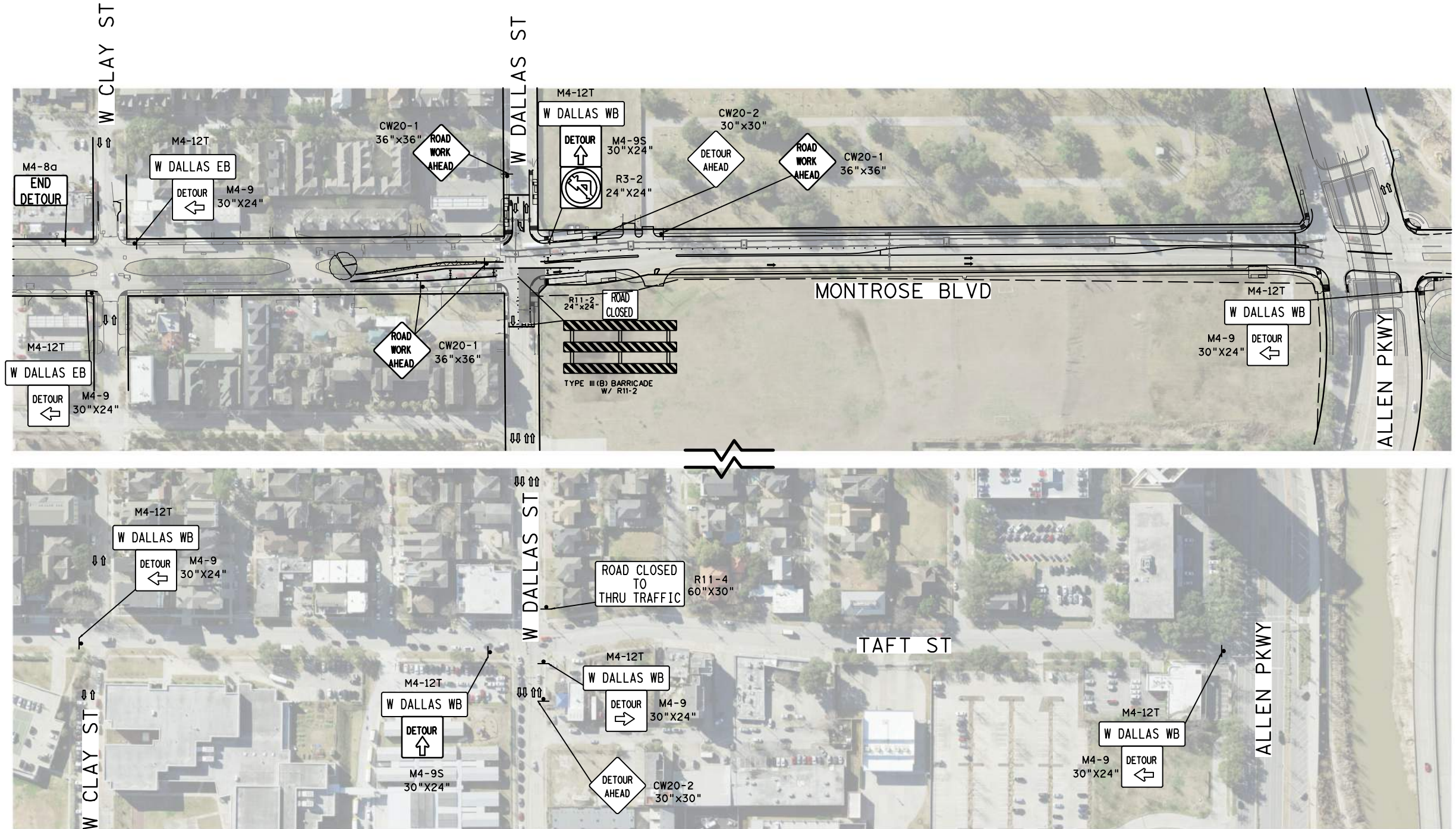
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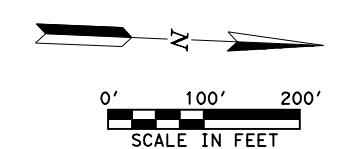
 GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> KARAM QADDO 125611 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-20017</small>
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TRAFFIC CONTROL PLAN PHASE 1 STEP 4 QUADRANT 3	
SHEET 2 OF 3	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 28 OF 355	

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- LEGEND**
- WORK ZONE
 - TEMPORARY ASPHALT
 - PROPOSED LANES UNDER TRAFFIC
 - EXISTING LANES UNDER TRAFFIC
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 - FLASHING ARROW
 - TY I WITH TY II END TREATMENT
 - LOW PROFILE CONC BARRIER

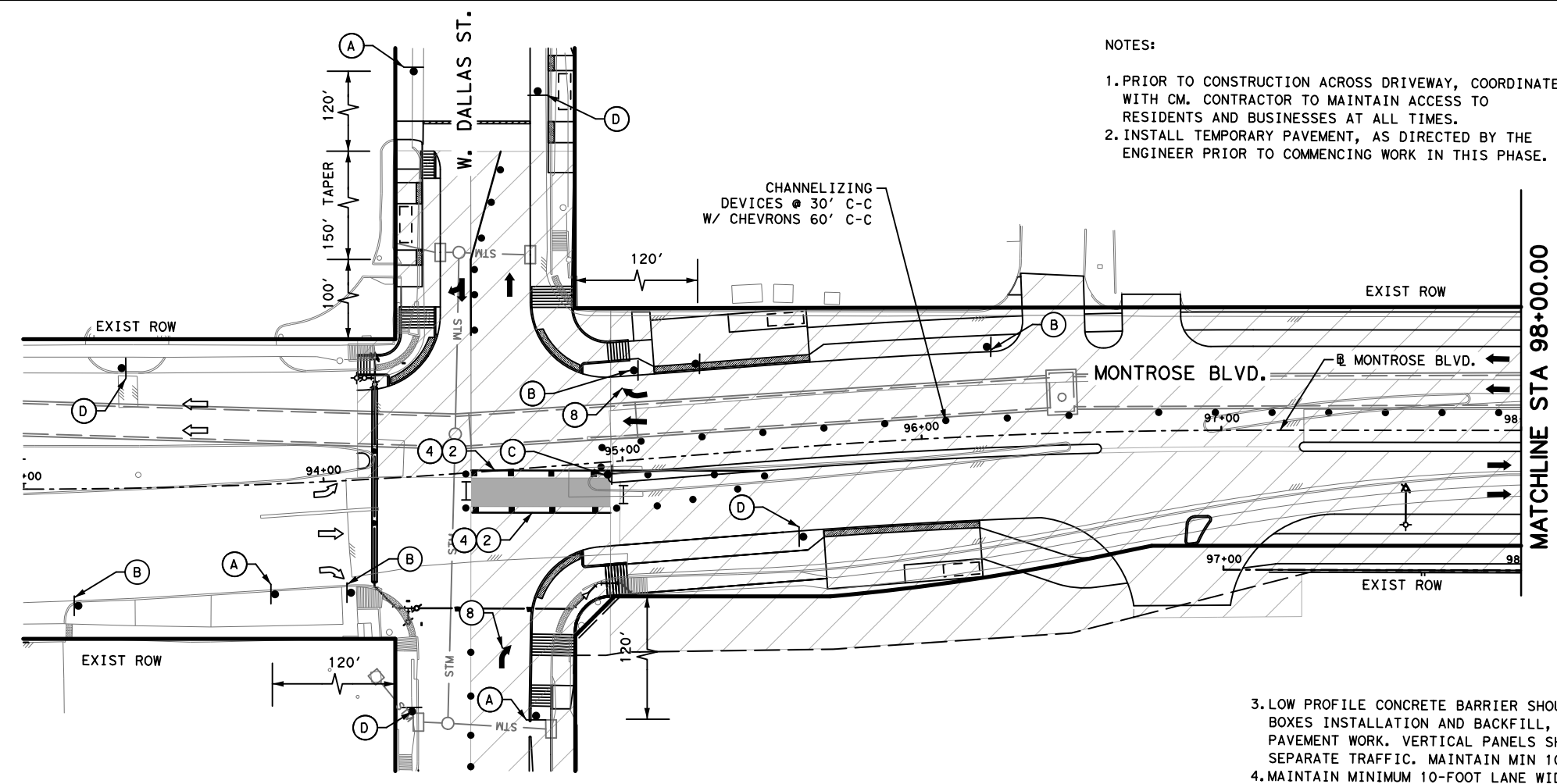
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<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 PHASE 1 STEP 4 QUADRANT 3 DETOUR PLAN</p>	
<p>SHEET 1 OF 1</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JIADA HUANG</p>	
<p>SHEET NO 29 OF 355</p>	

No.	DATE	REVISIONS	APP.

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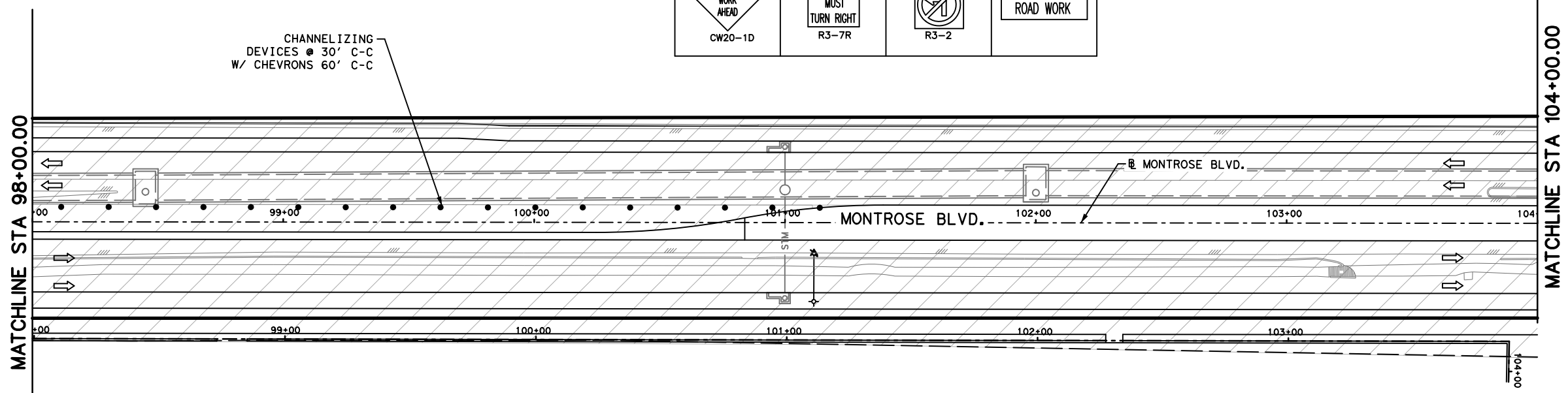
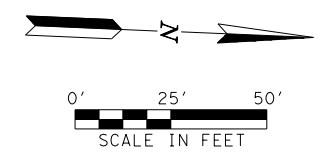


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 - REMOVABLE PAV MRK BUTTONS TY W
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 - REMOVABLE PAV MRK BUTTONS DBL ARROW
 - REMOVABLE PAV MRK BUTTONS TPL ARROW
 - REMOVABLE PAV MRK (REFLECTOR) TY I-A

(A)	(B)	(C)	(D)
CW20-1D	R3-7R	R3-2	

3. LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG.# 20017
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 HOUSTON, TX 77079

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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 TRAFFIC CONTROL PLAN
 PHASE 1 STEP 4
 QUADRANT 3

SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO	30 OF 355

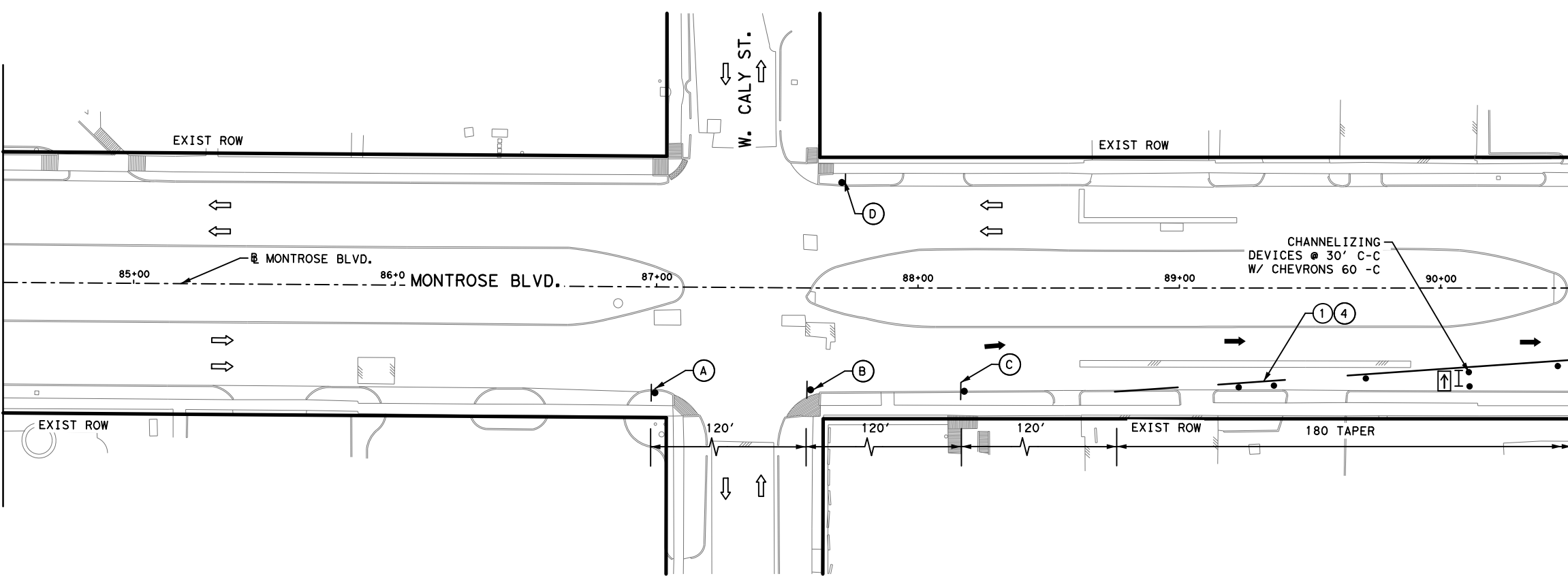
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MATCHLINE STA 84+50.00

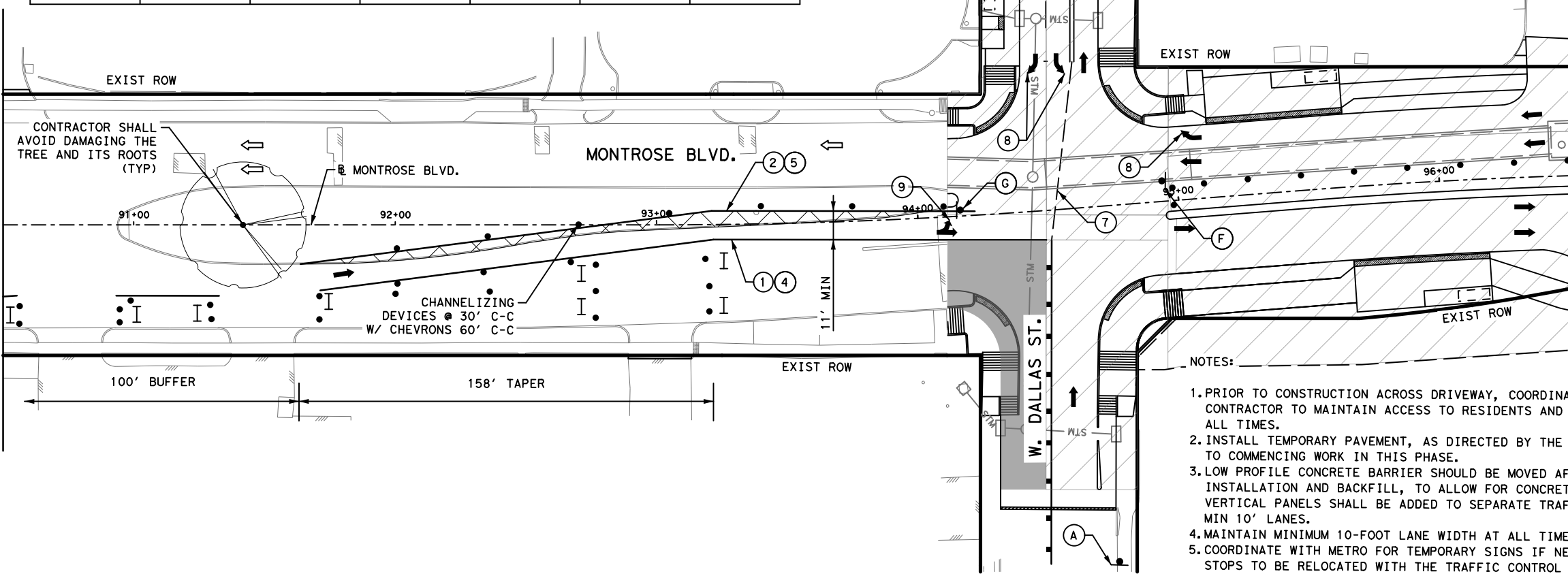
MATCHLINE STA 90+50.00

MATCHLINE STA 90+50.00

MATCHLINE STA 96+50.00

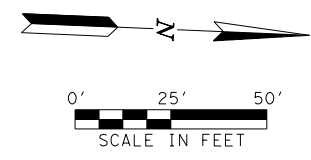


(A)	(B)	(C)	(D)	(E)	(F)	(G)
CW20-1D	W9-3R	CW20-5TL		CW9-2L	R3-2	R3-1



LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
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- REMOVABLE PAV MRK BUTTONS TY W
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- REMOVABLE PAV MRK (REFLECTOR) TY A-A
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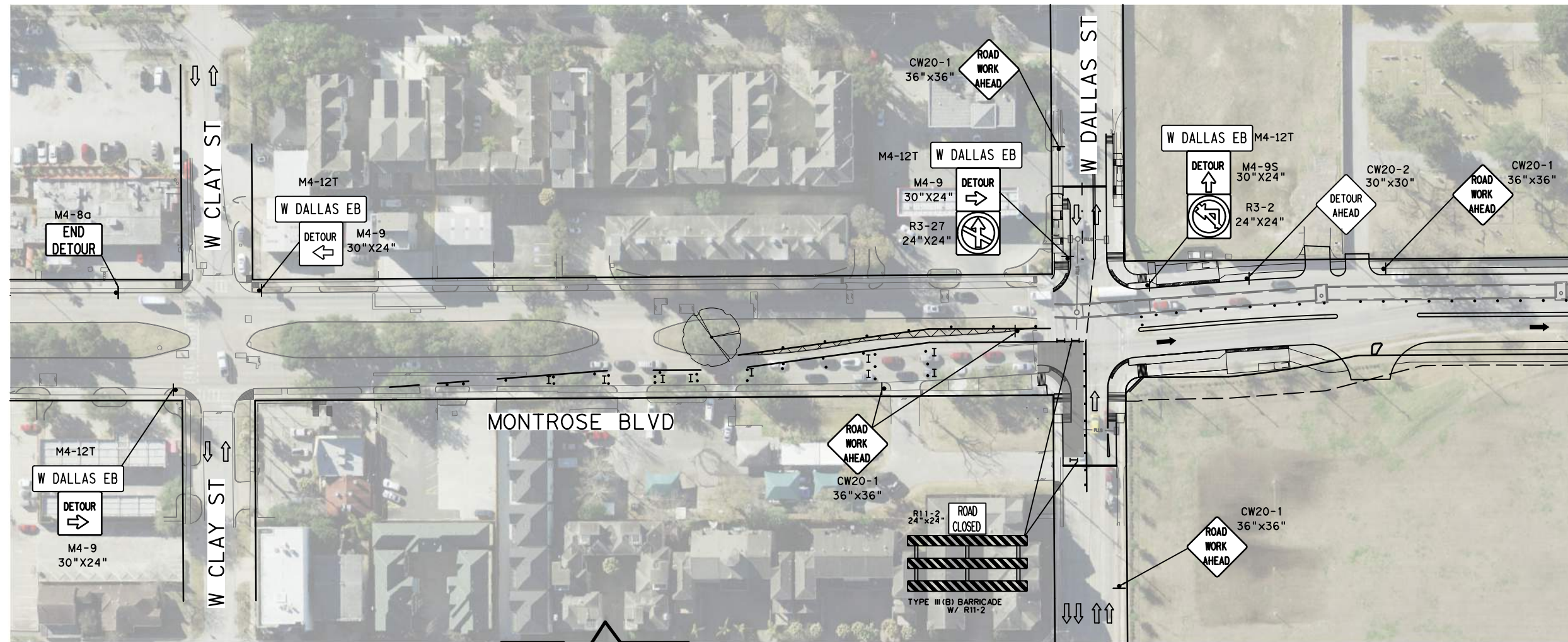
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 1 STEP 4
QUADRANT 4

SHEET 1 OF 3

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AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO	31 OF 355

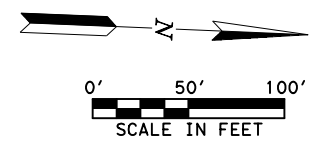
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- LEGEND**
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 - LOW PROFILE CONC BARRIER

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 1. WARNING SIGNS AND REGULARITY SIGNS SHALL BE INSTALLED ON DIFFERENT POSTS.



MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 KARAM QADDOO
 125611
 2/20/2024

100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

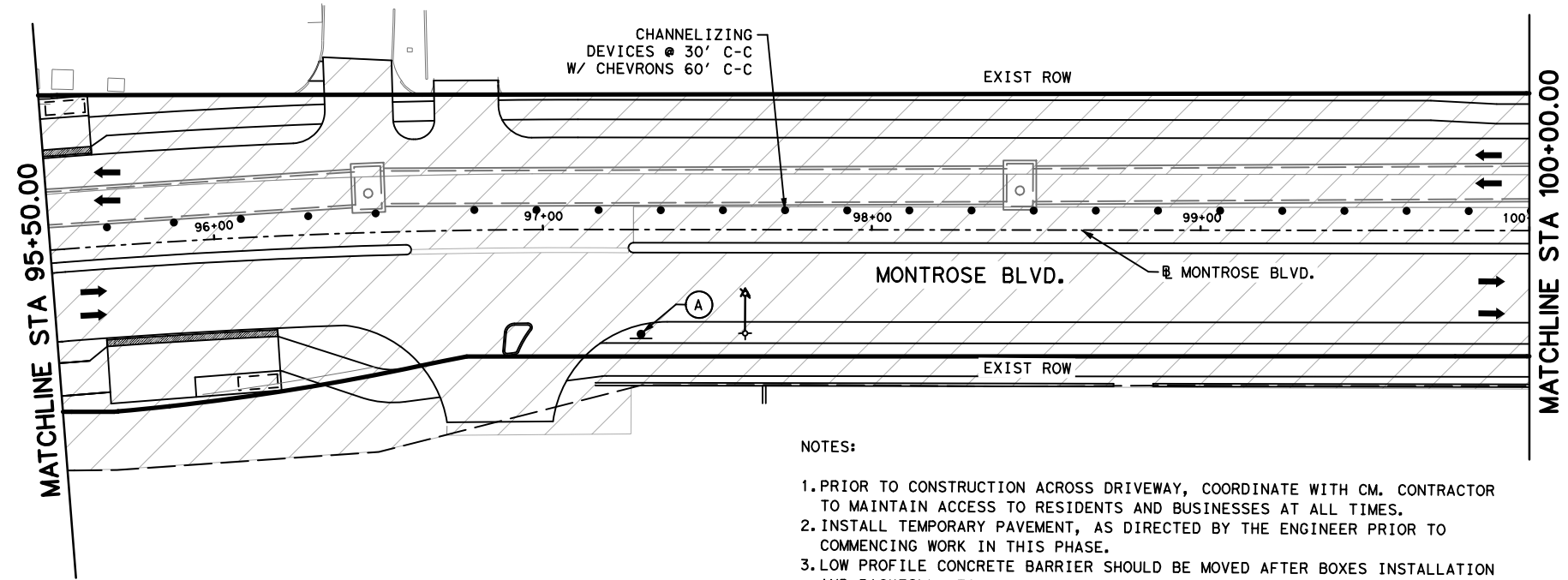
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 PHASE 1 STEP 4
 QUADRANT 4
 DETOUR PLAN

SHEET 1 OF 1

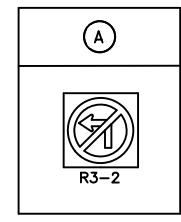
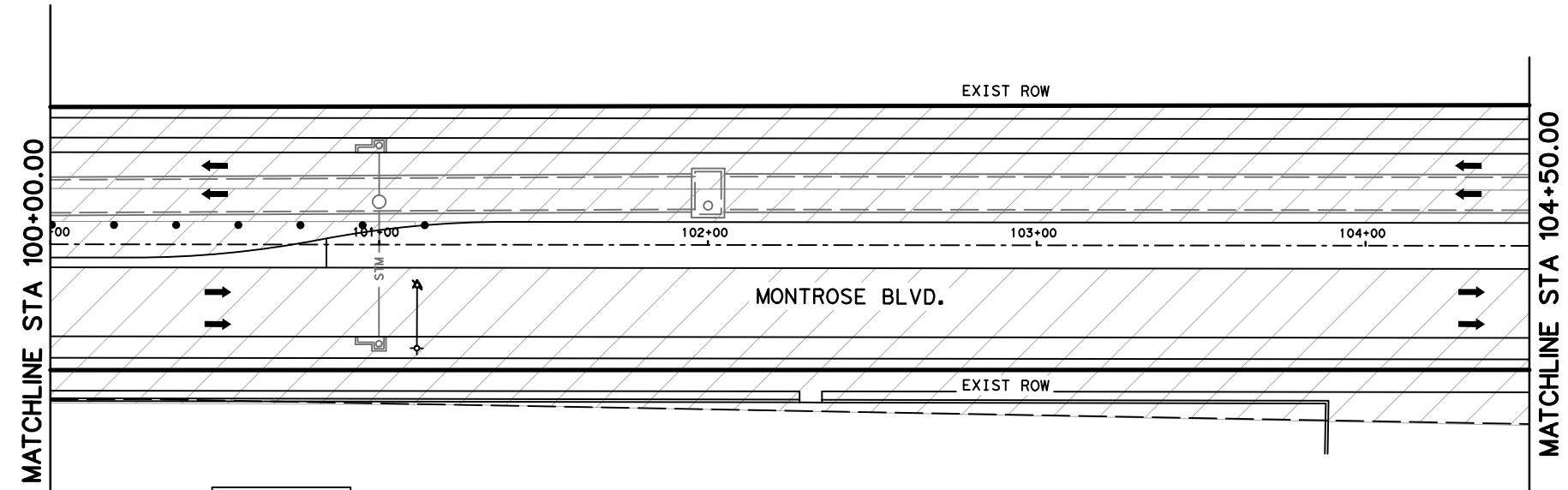
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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO	32 OF 355

APP.	
REVISIONS	
No.	DATE

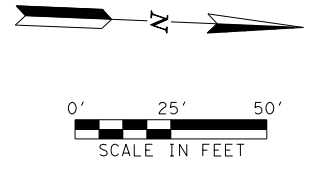
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- NOTES:
1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
 2. INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.
 3. LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
 4. MAINTAIN MINIMUM 11-FOOT LANE WIDTH AT ALL TIMES.
 5. COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
 6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.



- LEGEND**
- PROPOSED PAVEMENT
 - TEMPORARY ASPHALT
 - PREVIOUSLY PAVED
 - HIGH EARLY STRENGTH CONCRETE
 - PROPOSED LANES UNDER TRAFFIC
 - EXISTING LANES UNDER TRAFFIC
 - TEMP GROUND MOUNTED SIGN DRUM
 - VERTICAL PANEL
 - TYPE III BARRICADE W/ ROAD CLOSED SIGN
 - FLASHING ARROW
 - TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
 - REMOVABLE PAV MRK BUTTONS TY W
 - REMOVABLE PAV MRK BUTTONS TY Y
 - REMOVABLE PAV MRK BUTTONS W STOP BAR
 - REMOVABLE PAV MRK (REFLECTOR) TY I-C
 - REMOVABLE PAV MRK (REFLECTOR) TY A-A
 - REMOVABLE PAV MRK BUTTONS TY W (DOT)
 - REMOVABLE PAV MRK BUTTONS TY Y (DOT)
 - REMOVABLE PAV MRK BUTTONS ARROW
 - REMOVABLE PAV MRK BUTTONS DBL ARROW
 - REMOVABLE PAV MRK BUTTONS TPL ARROW
 - REMOVABLE PAV MRK (REFLECTOR) TY I-A



 GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> KARIM QADDOO 125611 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 TRAFFIC CONTROL PLAN PHASE 1 STEP 4 QUADRANT 4	
SHEET 2 OF 3	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 33 OF 355	

No.	DATE	REVISIONS	APP.

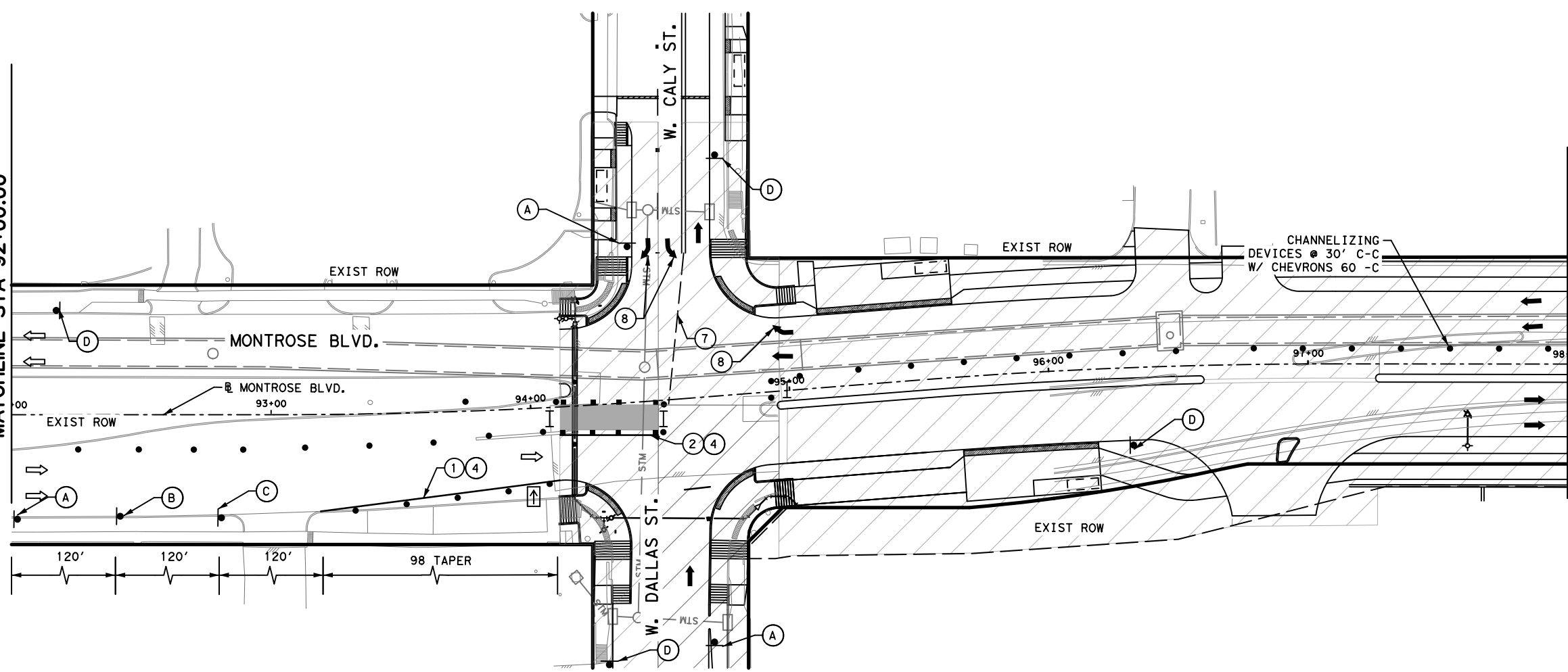
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MATCHLINE STA 92+00.00

MATCHLINE STA 98+00.00

MATCHLINE STA 98+00.00

MATCHLINE STA 104+00.00



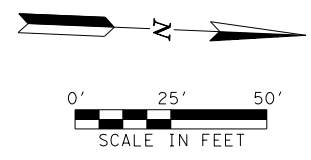
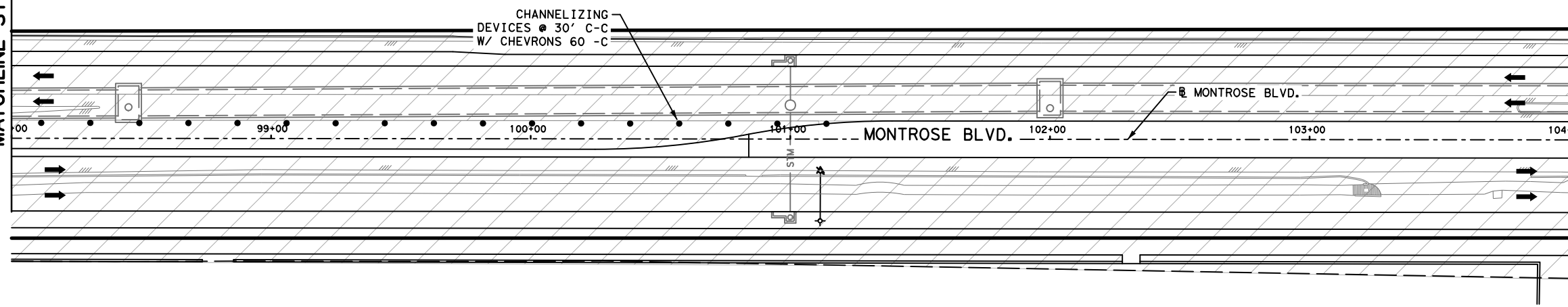
LEGEND

	PROPOSED PAVEMENT
	TEMPORARY ASPHALT
	PREVIOUSLY PAVED
	HIGH EARLY STRENGTH CONCRETE
	PROPOSED LANES UNDER TRAFFIC
	EXISTING LANES UNDER TRAFFIC
	TEMP GROUND MOUNTED SIGN
	DRUM
	VERTICAL PANEL
	TYPE III BARRICADE W/ ROAD CLOSED SIGN
	FLASHING ARROW
	TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
①	REMOVABLE PAV MRK BUTTONS TY W
②	REMOVABLE PAV MRK BUTTONS TY Y
③	REMOVABLE PAV MRK BUTTONS W STOP BAR
④	REMOVABLE PAV MRK (REFLECTOR) TY I-C
⑤	REMOVABLE PAV MRK (REFLECTOR) TY A-A
⑥	REMOVABLE PAV MRK BUTTONS TY W (DOT)
⑦	REMOVABLE PAV MRK BUTTONS TY Y (DOT)
⑧	REMOVABLE PAV MRK BUTTONS ARROW
⑨	REMOVABLE PAV MRK BUTTONS DBL ARROW
⑩	REMOVABLE PAV MRK BUTTONS TPL ARROW
⑪	REMOVABLE PAV MRK (REFLECTOR) TY I-A

NOTES:

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Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ	Ⓖ
CW20-1D	W9-3R	CW20-5TL		CW9-2L	R3-2	R3-1



MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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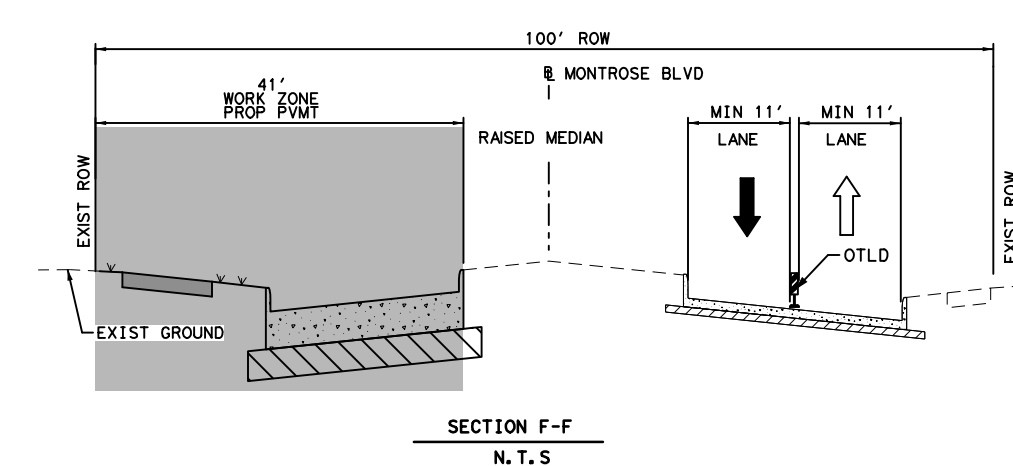
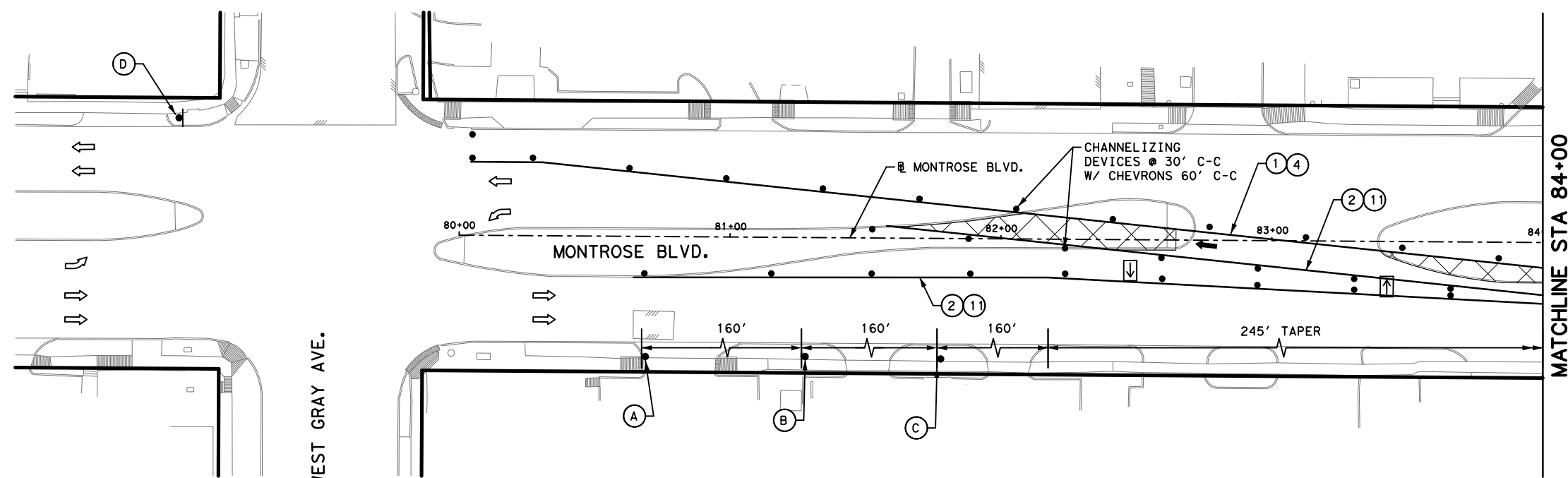
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
 TRAFFIC CONTROL PLAN
 PHASE 1 STEP 4
 QUADRANT 4

SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 34 OF 355	

REVISIONS	APP.
No.	DATE

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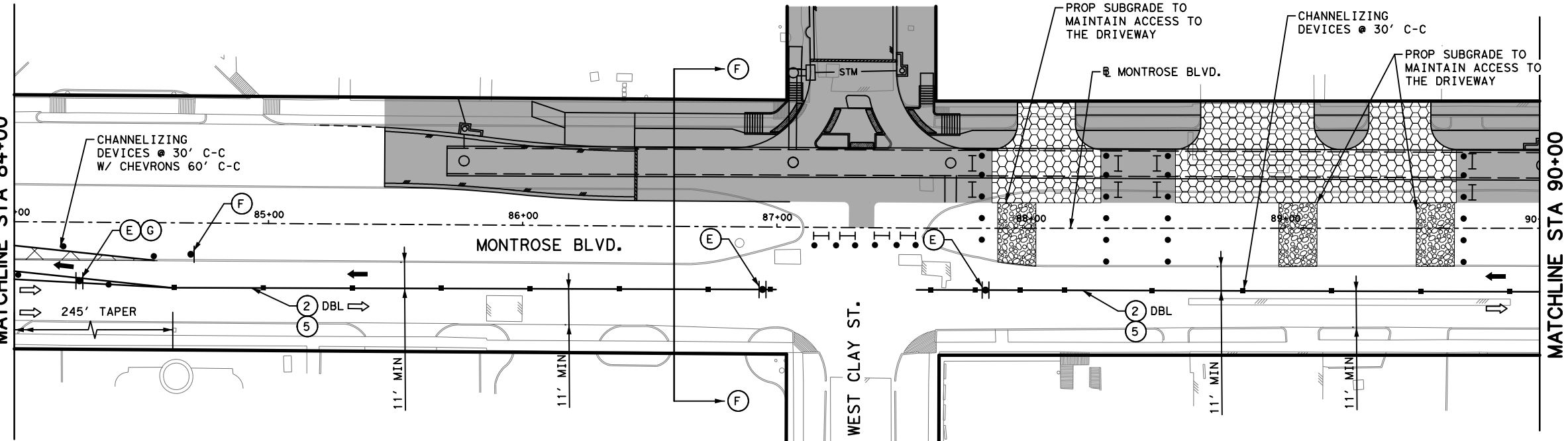


(A)	(B)	(C)	(D)
(E)	(F)	(G)	

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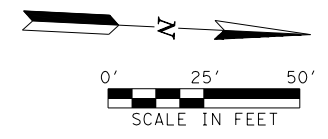
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LEGEND

	PROPOSED PAVEMENT
	TEMPORARY ASPHALT
	PREVIOUSLY PAVED
	HIGH EARLY STRENGTH CONCRETE
	PROPOSED LANES UNDER TRAFFIC
	EXISTING LANES UNDER TRAFFIC
	TEMP GROUND MOUNTED SIGN
	DRUM
	VERTICAL PANEL
	TYPE III BARRICADE W/ ROAD CLOSED SIGN
	FLASHING ARROW
	TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS

- | | |
|------|--------------------------------------|
| (1) | REMOVABLE PAV MRK BUTTONS TY W |
| (2) | REMOVABLE PAV MRK BUTTONS TY Y |
| (3) | REMOVABLE PAV MRK BUTTONS W STOP BAR |
| (4) | REMOVABLE PAV MRK (REFLECTOR) TY I-C |
| (5) | REMOVABLE PAV MRK (REFLECTOR) TY A-A |
| (6) | REMOVABLE PAV MRK BUTTONS TY W (DOT) |
| (7) | REMOVABLE PAV MRK BUTTONS TY Y (DOT) |
| (8) | REMOVABLE PAV MRK BUTTONS ARROW |
| (9) | REMOVABLE PAV MRK BUTTONS DBL ARROW |
| (10) | REMOVABLE PAV MRK BUTTONS TPL ARROW |
| (11) | REMOVABLE PAV MRK (REFLECTOR) TY I-A |



MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
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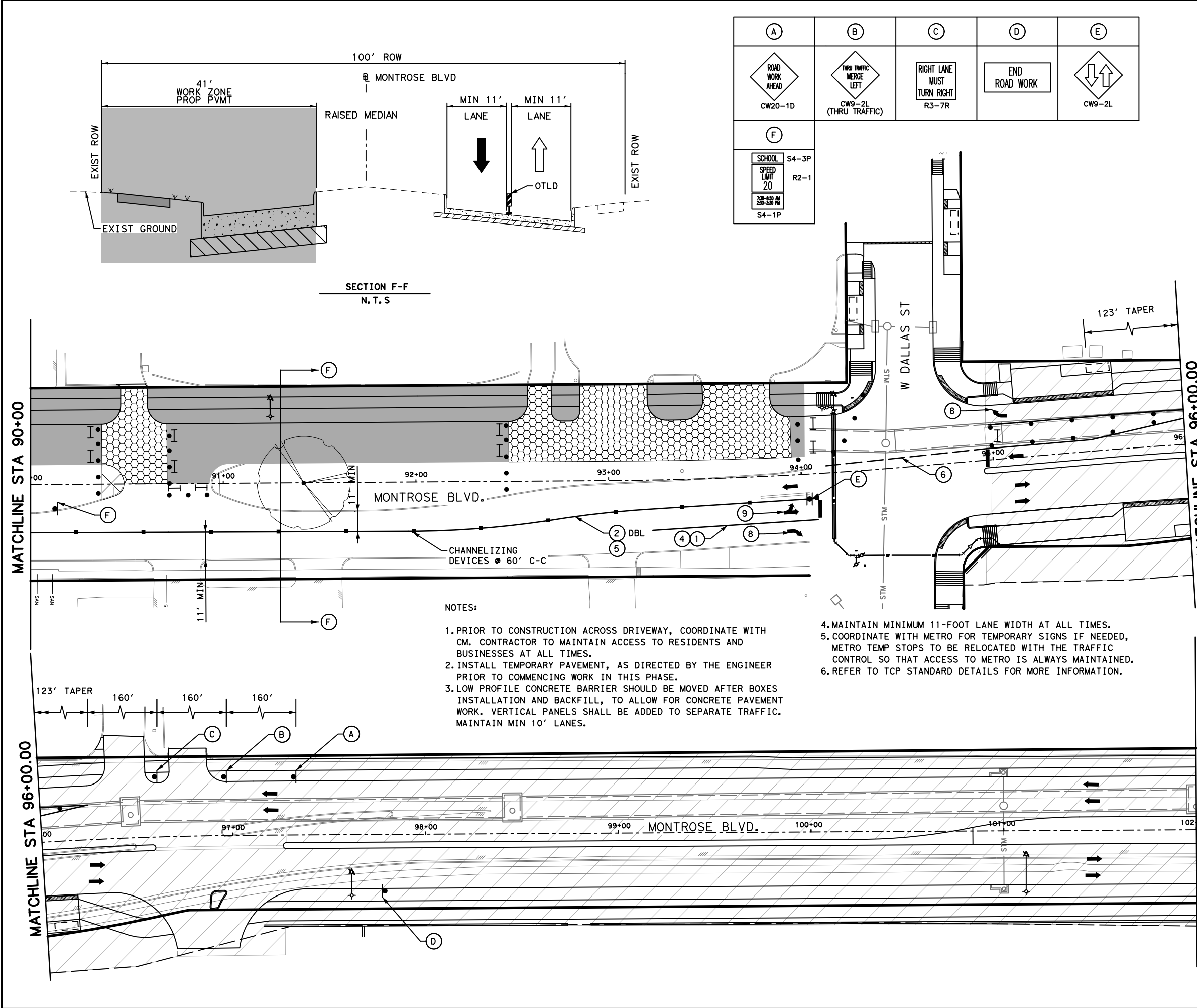
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 2 STEP 1

SHEET 1 OF 2

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DRAWING SCALE	
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CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 35 OF 355	

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(A)	(B)	(C)	(D)	(E)
CW20-1D	CW9-2L (THRU TRAFFIC)	R3-7R		CW9-2L
(F)				
	S4-3P			
	R2-1			
	S4-1P			

- LEGEND**
- PROPOSED PAVEMENT
 - TEMPORARY ASPHALT
 - PREVIOUSLY PAVED
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 - TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
 - ① REMOVABLE PAV MRK BUTTONS TY W
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 - ③ REMOVABLE PAV MRK BUTTONS W STOP BAR
 - ④ REMOVABLE PAV MRK (REFLECTOR) TY I-C
 - ⑤ REMOVABLE PAV MRK (REFLECTOR) TY A-A
 - ⑥ REMOVABLE PAV MRK BUTTONS TY W (DOT)
 - ⑦ REMOVABLE PAV MRK BUTTONS TY Y (DOT)
 - ⑧ REMOVABLE PAV MRK BUTTONS ARROW
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MONTR0SE
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Gauge
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
 TRAFFIC CONTROL PLAN
 PHASE 2 STEP 1

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 36	OF 355

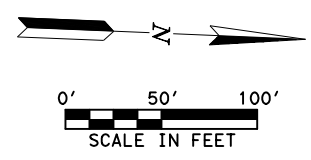
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LEGEND

	WORK ZONE
	TEMPORARY ASPHALT
	PREVIOUS PHASES/STEPS
	HIGH EARLY STRENGTH CONCRETE

No.	DATE	REVISIONS	APP.

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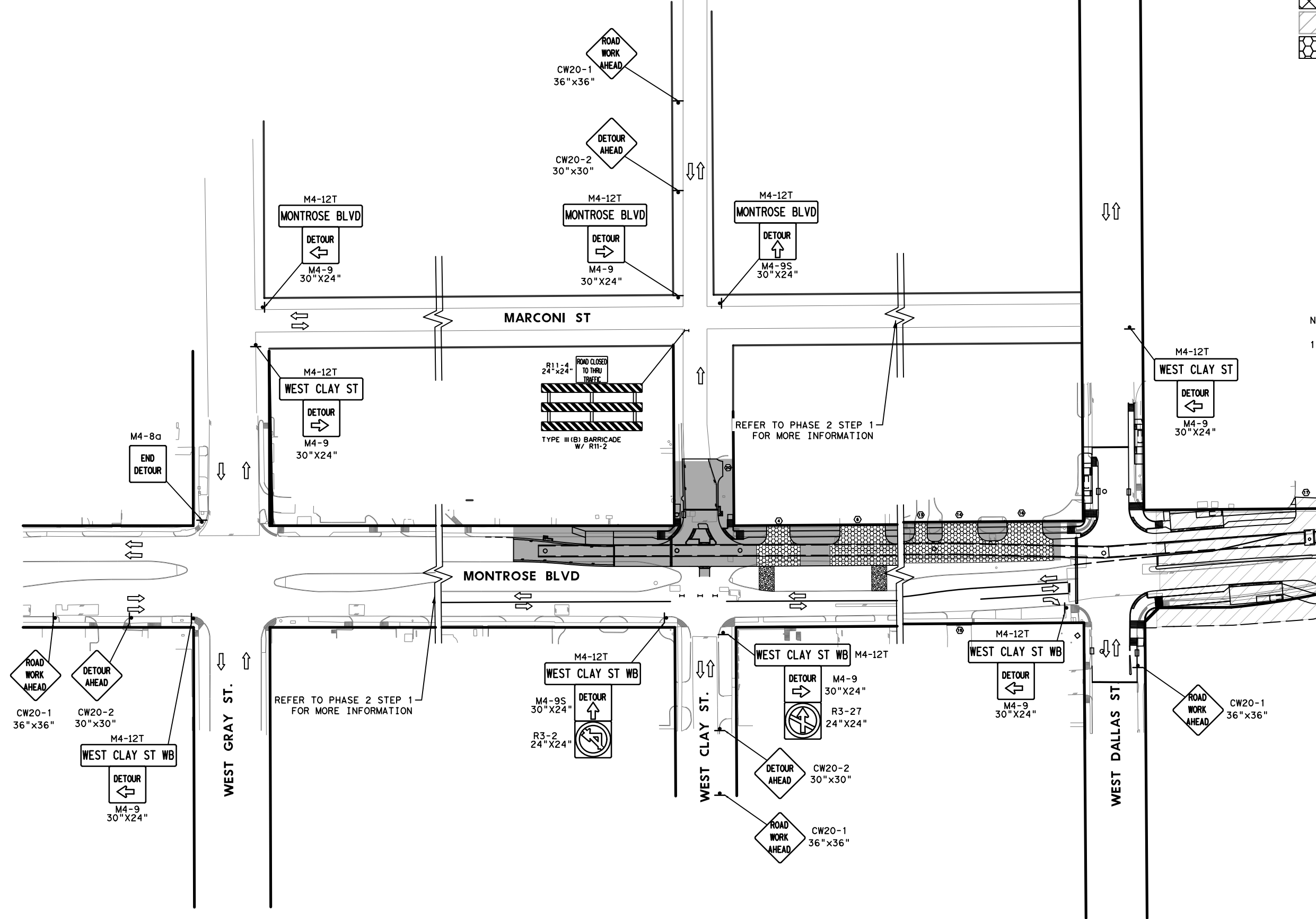
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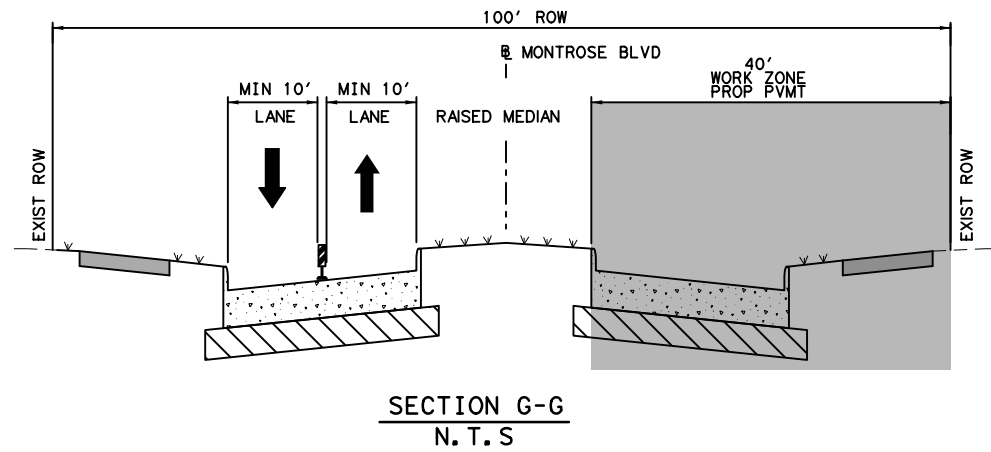
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 PHASE 2 STEP 1
 DETOUR PLAN

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SHEET NO. 37 OF 355	



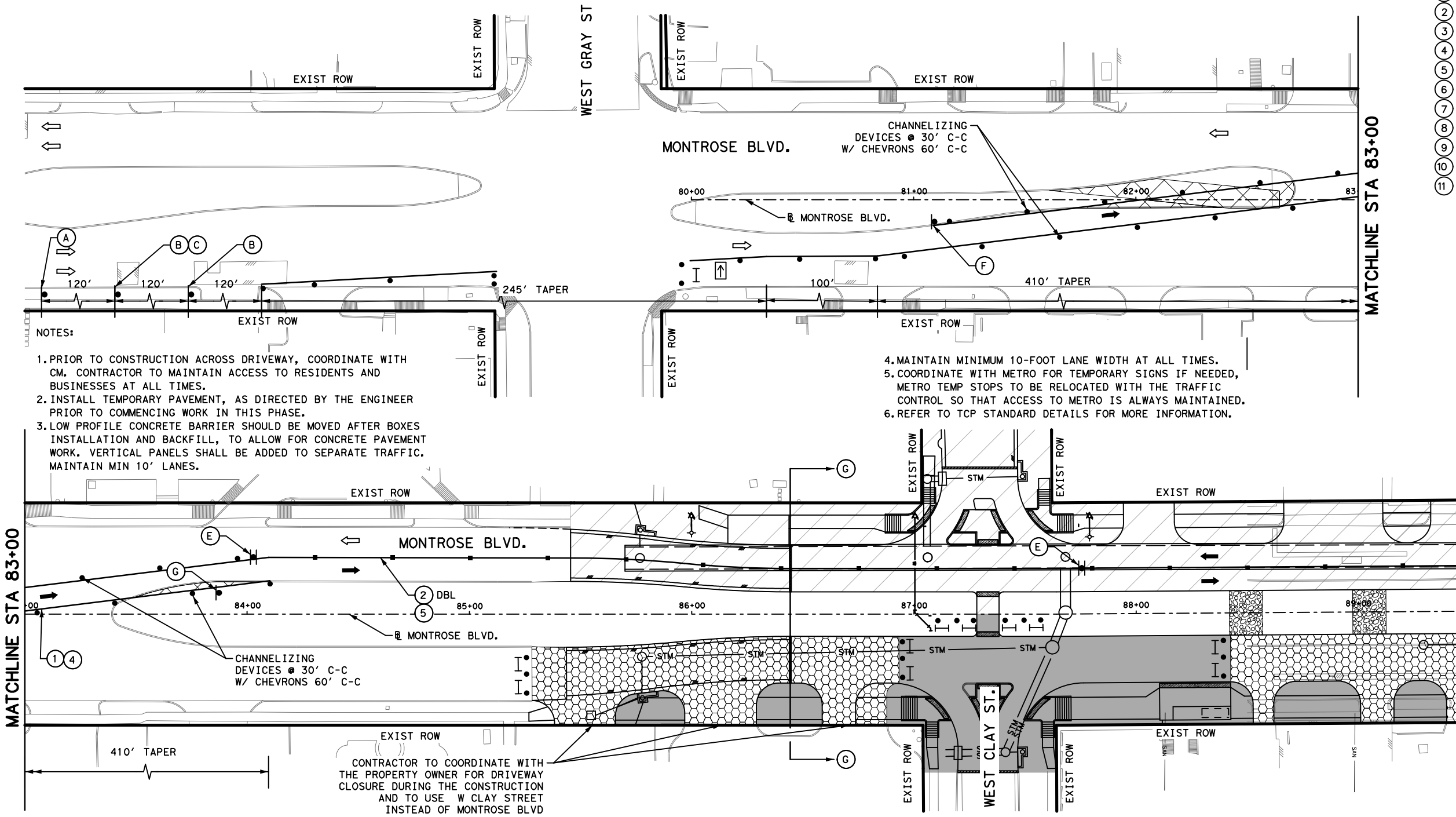
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(A) ROAD WORK AHEAD CW20-1D	(B) RIGHT LANE CLOSED AHEAD W9-3R	(C) RIGHT LANE CLOSED CW20-5TR 36"x36"
(D) END ROAD WORK	(E) CW9-2L	(F) ECW1-4L
		(G) SCHOOL S4-3P R2-1 S4-1P

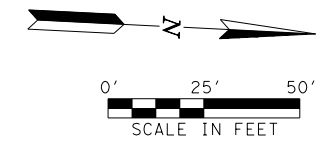
LEGEND

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- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
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- ③ REMOVABLE PAV MRK BUTTONS W STOP BAR
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- ⑤ REMOVABLE PAV MRK (REFLECTOR) TY A-A
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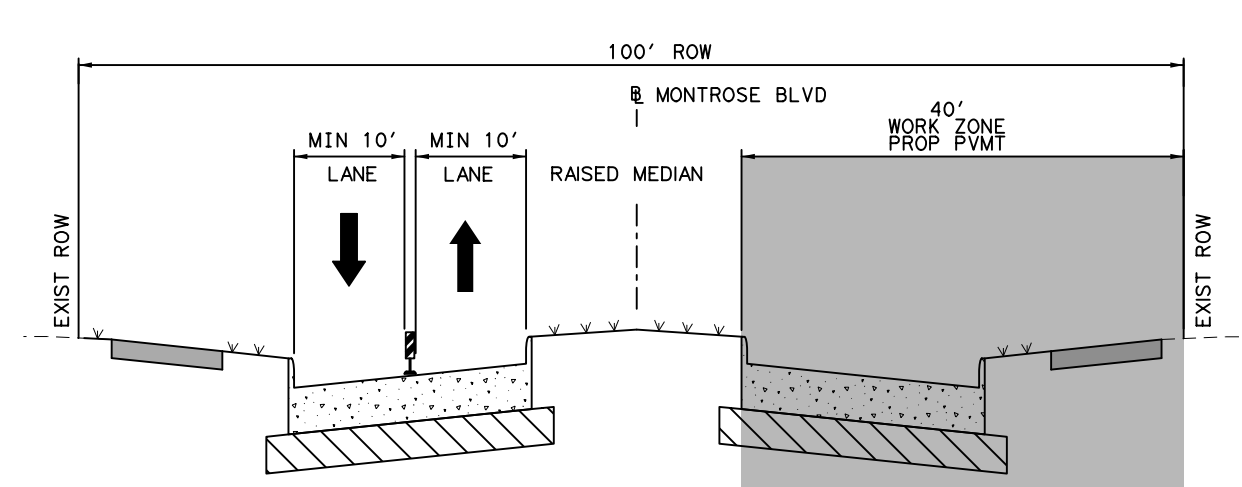
CITY OF HOUSTON
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MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 2 STEP 2

SHEET 1 OF 2

WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 38 OF 355	

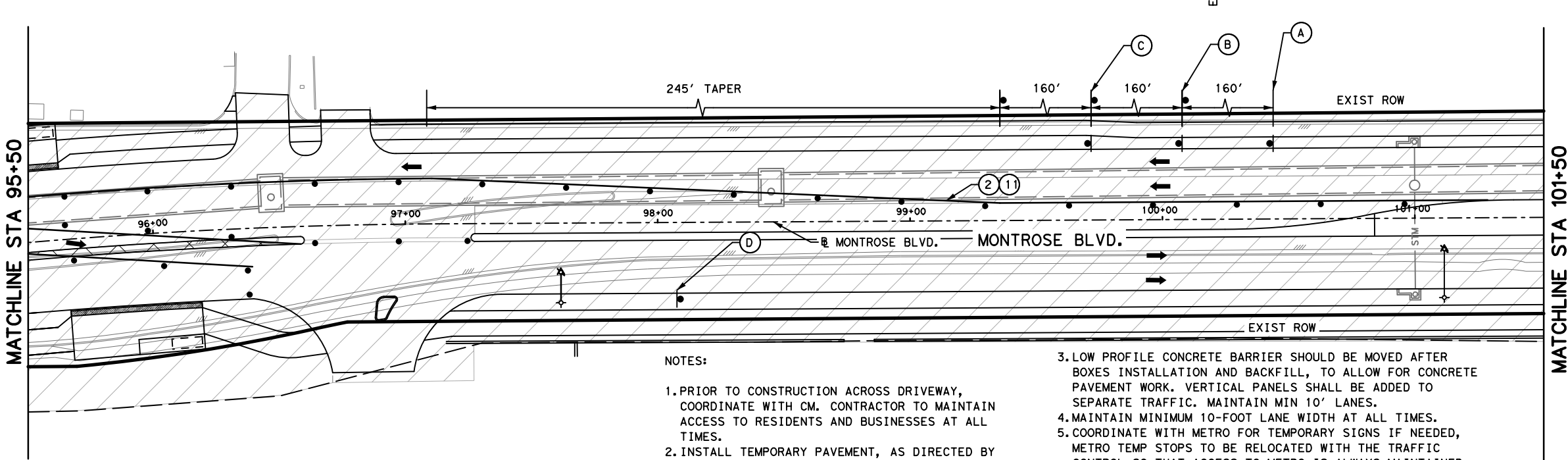
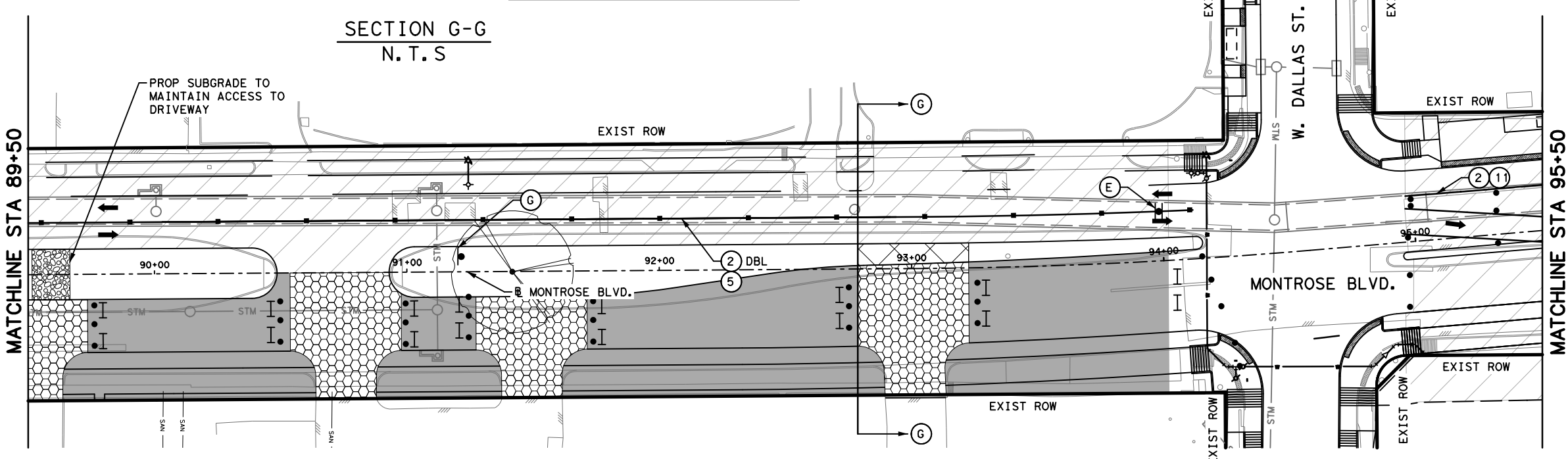
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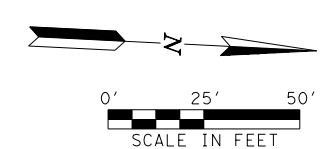
(A) ROAD WORK AHEAD CW20-1D	(B) LEFT LANE CLOSED AHEAD W9-3R	(C) LEFT LANE CLOSED CW20-5TL 36"x36"	(D) END ROAD WORK	(E) ROAD CLOSED AHEAD CW9-2L
(F) SCHOOL SPEED LIMIT 20 S4-3P R2-1 S4-1P	(G) END SCHOOL SPEED LIMIT S5-3			

LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
- ① REMOVABLE PAV MRK BUTTONS TY W
- ② REMOVABLE PAV MRK BUTTONS TY Y
- ③ REMOVABLE PAV MRK BUTTONS W STOP BAR
- ④ REMOVABLE PAV MRK (REFLECTOR) TY I-C
- ⑤ REMOVABLE PAV MRK (REFLECTOR) TY A-A
- ⑥ REMOVABLE PAV MRK BUTTONS TY W (DOT)
- ⑦ REMOVABLE PAV MRK BUTTONS TY Y (DOT)
- ⑧ REMOVABLE PAV MRK BUTTONS ARROW
- ⑨ REMOVABLE PAV MRK BUTTONS DBL ARROW
- ⑩ REMOVABLE PAV MRK BUTTONS TPL ARROW
- ⑪ REMOVABLE PAV MRK (REFLECTOR) TY I-A



- NOTES:**
- PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
 - INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.
 - LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
 - MAINTAIN MINIMUM 10-FOOT LANE WIDTH AT ALL TIMES.
 - COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
 - REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.



MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

INTERIM REVIEW ONLY
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 KARIM QADDO
 125611
 2/20/2024

100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PHASE 2 STEP 2





SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO	39 OF 355

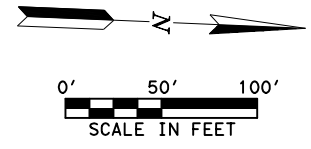
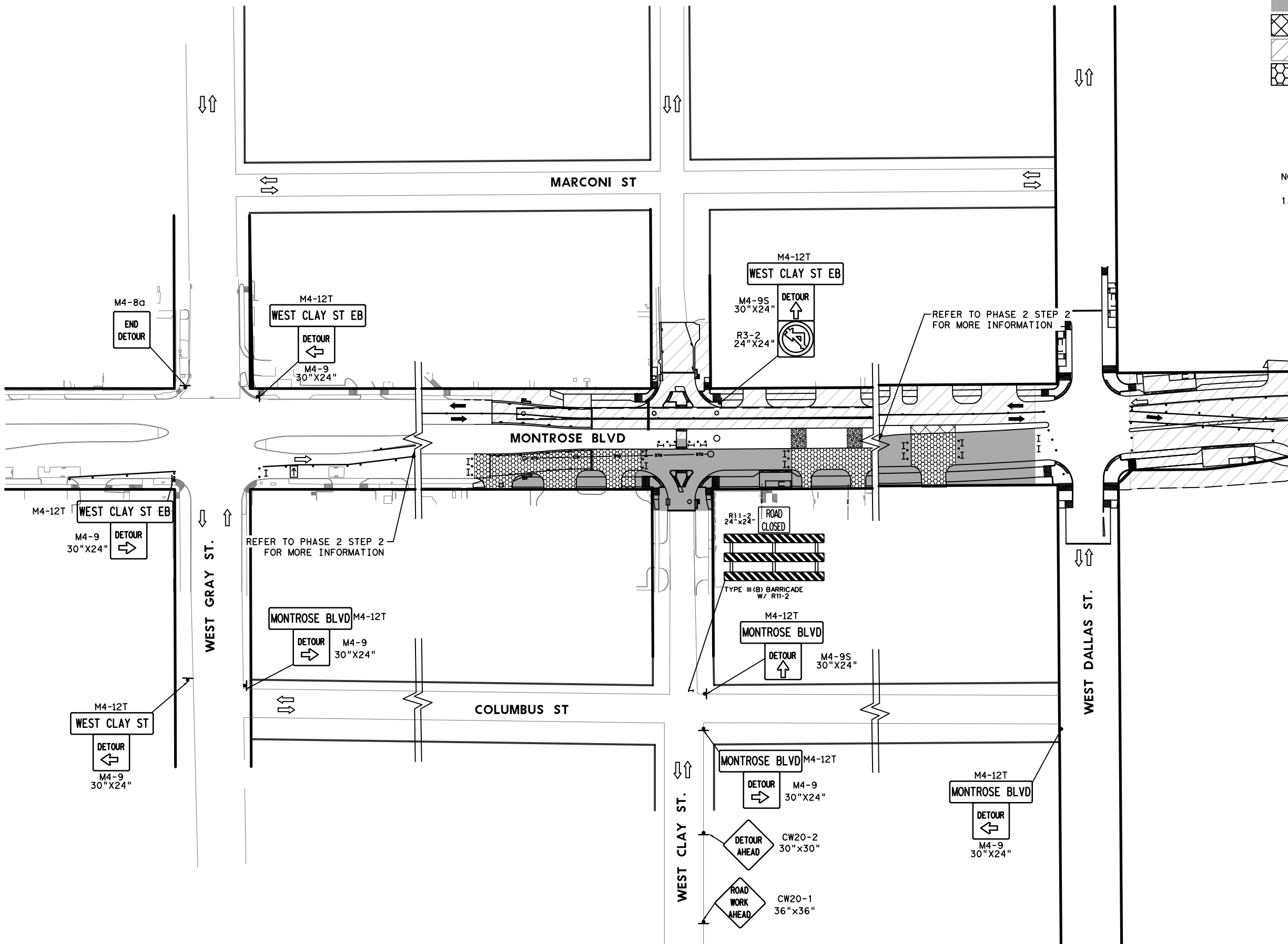
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LEGEND

	WORK ZONE
	TEMPORARY ASPHALT
	PREVIOUS PHASES/STEPS
	HIGH EARLY STRENGTH CONCRETE

NOTE:
 1. WARNING SIGNS AND REGULARITY SIGNS SHALL BE INSTALLED ON DIFFERENT POSTS.



MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 Texas Registered Engineering Firm F-20017

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS




MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
 PHASE 2 STEP 2
 DETOUR PLAN

SHEET 1 OF 1























WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 40	OF 355

No.	DATE	REVISIONS	APP.

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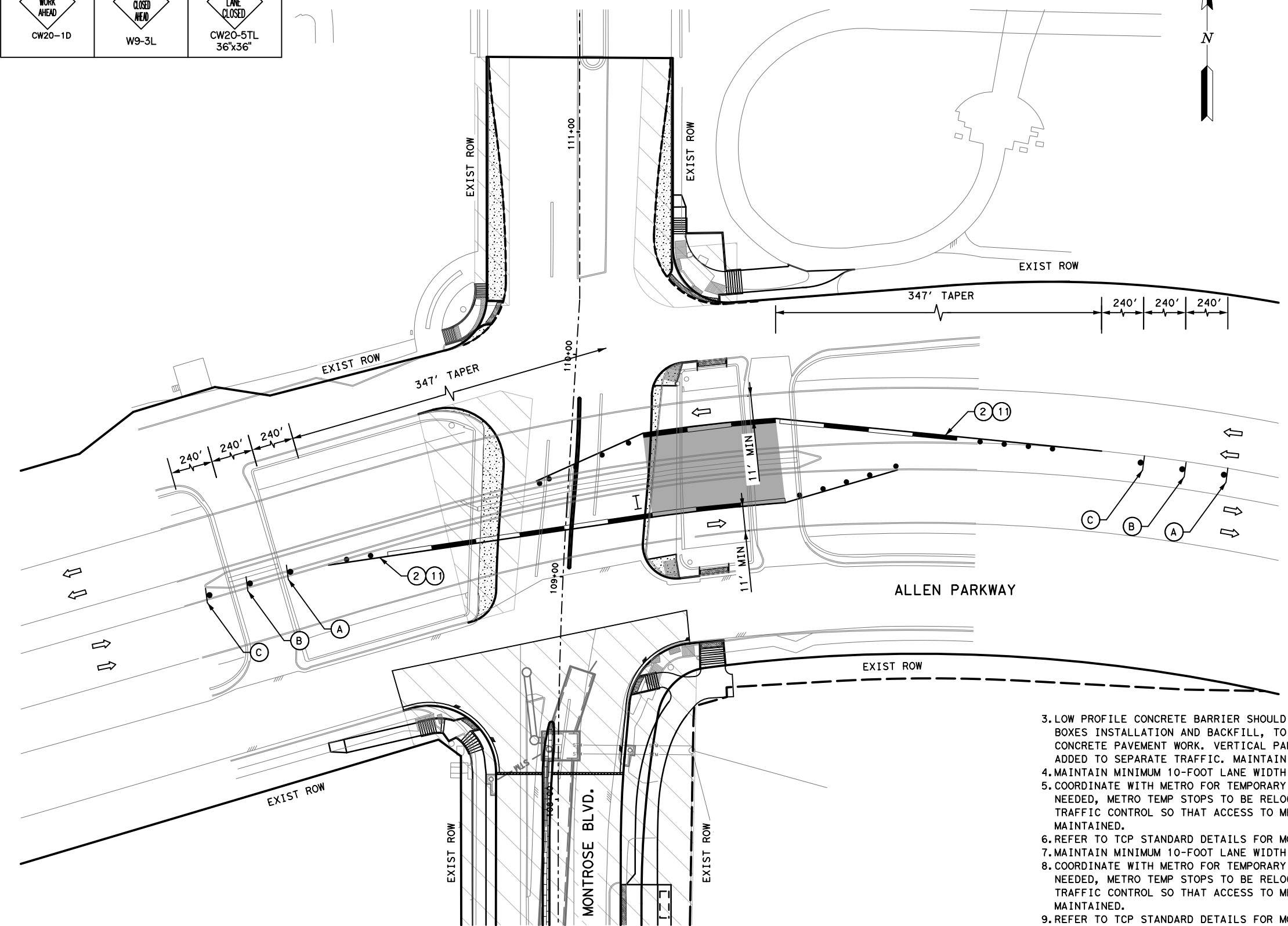
(A)	(B)	(C)
 ROAD WORK AHEAD CW20-1D	 LEFT LANE CLOSED AHEAD W9-3L	 LEFT LANE CLOSED CW20-5TL 36"x36"

LEGEND



-  PROPOSED PAVEMENT
-  TEMPORARY ASPHALT
-  PREVIOUSLY PAVED
-  HIGH EARLY STRENGTH CONCRETE
-  PROPOSED LANES UNDER TRAFFIC
-  EXISTING LANES UNDER TRAFFIC
-  TEMP GROUND MOUNTED SIGN DRUM
-  VERTICAL PANEL
-  TYPE III BARRICADE W/ ROAD CLOSED SIGN
-  FLASHING ARROW
-  TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS
-  (1) REMOVABLE PAV MRK BUTTONS TY W
-  (2) REMOVABLE PAV MRK BUTTONS TY Y
-  (3) REMOVABLE PAV MRK BUTTONS W STOP BAR
-  (4) REMOVABLE PAV MRK (REFLECTOR) TY I-C
-  (5) REMOVABLE PAV MRK (REFLECTOR) TY A-A
-  (6) REMOVABLE PAV MRK BUTTONS TY W (DOT)
-  (7) REMOVABLE PAV MRK BUTTONS TY Y (DOT)
-  (8) REMOVABLE PAV MRK BUTTONS ARROW
-  (9) REMOVABLE PAV MRK BUTTONS DBL ARROW
-  (10) REMOVABLE PAV MRK BUTTONS TPL ARROW
-  (11) REMOVABLE PAV MRK (REFLECTOR) TY I-A

NOTES:

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY, COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO RESIDENTS AND BUSINESSES AT ALL TIMES.
2. INSTALL TEMPORARY PAVEMENT, AS DIRECTED BY THE ENGINEER PRIOR TO COMMENCING WORK IN THIS PHASE.

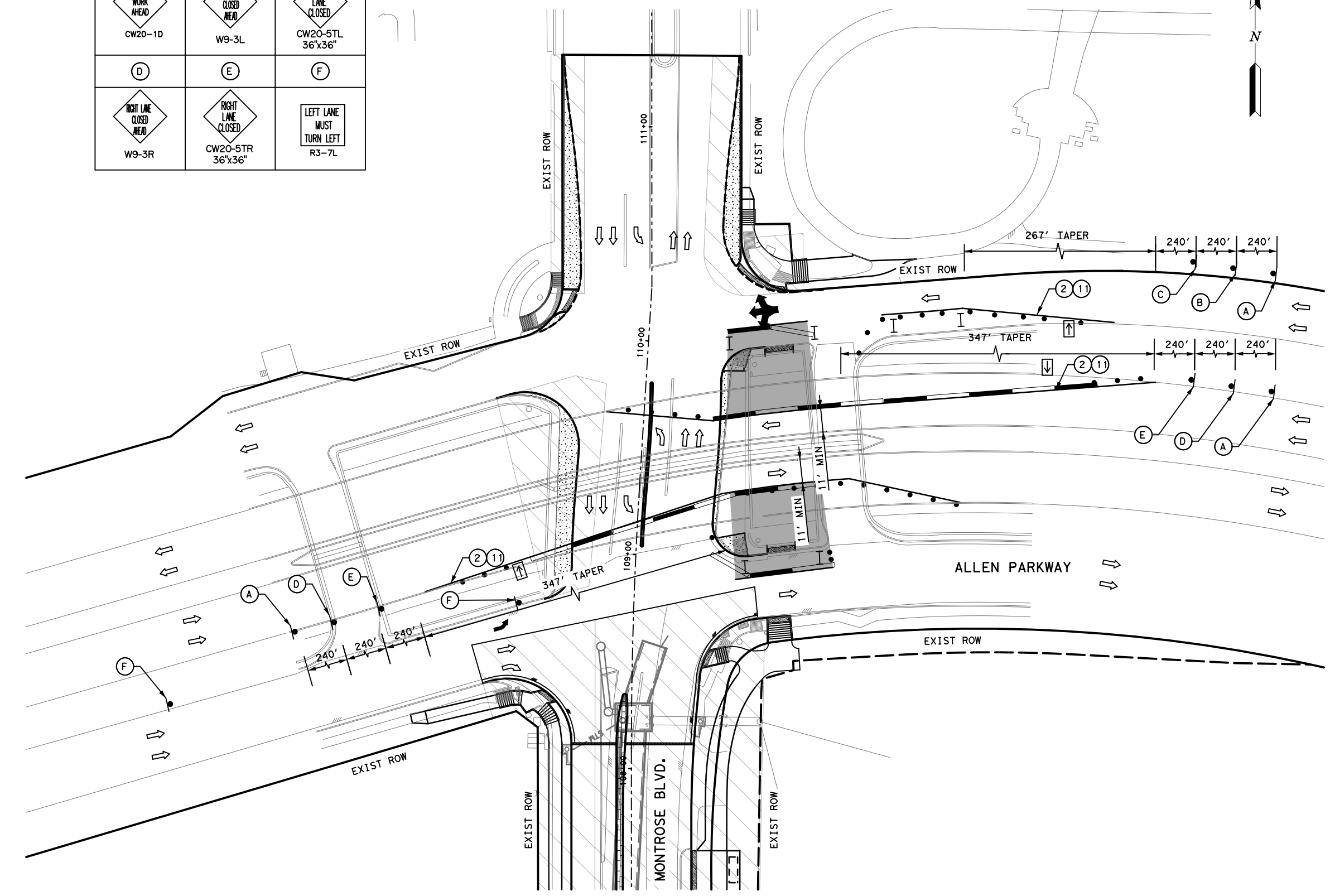


3. LOW PROFILE CONCRETE BARRIER SHOULD BE MOVED AFTER BOXES INSTALLATION AND BACKFILL, TO ALLOW FOR CONCRETE PAVEMENT WORK. VERTICAL PANELS SHALL BE ADDED TO SEPARATE TRAFFIC. MAINTAIN MIN 10' LANES.
4. MAINTAIN MINIMUM 10-FOOT LANE WIDTH AT ALL TIMES.
5. COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
6. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.
7. MAINTAIN MINIMUM 10-FOOT LANE WIDTH AT ALL TIMES.
8. COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
9. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.

	
 <p>GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p><small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small></p> <p>KARAM QADDO 125611 2/20/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017</p>
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TRAFFIC CONTROL PLAN PEDESTRIAN BRIDGE INSTALLATION STEP 1</p>	
<p>SHEET 1 OF 2</p>	
<p>WBS NUMBER N-T27000-0005-7</p> <p>DRAWING SCALE AS NOTED</p> <p>CITY OF HOUSTON PM JIADA HUANG</p> <p>SHEET NO 41 OF 355</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>

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(A) ROAD WORK AHEAD CW20-1D	(B) LEFT LANE CLOSED AHEAD W9-3L	(C) LEFT LANE CLOSED CW20-5TL 36"x36"
(D) RIGHT LANE CLOSED AHEAD W9-3R	(E) RIGHT LANE CLOSED CW20-5TR 36"x36"	(F) LEFT LANE MUST TURN LEFT R3-7L

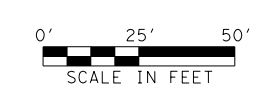


LEGEND

- PROPOSED PAVEMENT
- TEMPORARY ASPHALT
- PREVIOUSLY PAVED
- HIGH EARLY STRENGTH CONCRETE
- PROPOSED LANES UNDER TRAFFIC
- EXISTING LANES UNDER TRAFFIC
- TEMP GROUND MOUNTED SIGN DRUM
- VERTICAL PANEL
- TYPE III BARRICADE W/ ROAD CLOSED SIGN
- FLASHING ARROW
- TY I WITH TY II END TREATMENT LOW PROFILE CONC BARRIER WITH REFLECTORS

- ① REMOVABLE PAV MRK BUTTONS TY W
- ② REMOVABLE PAV MRK BUTTONS TY Y
- ③ REMOVABLE PAV MRK BUTTONS W STOP BAR
- ④ REMOVABLE PAV MRK (REFLECTOR) TY I-C
- ⑤ REMOVABLE PAV MRK (REFLECTOR) TY A-A
- ⑥ REMOVABLE PAV MRK BUTTONS TY W (DOT)
- ⑦ REMOVABLE PAV MRK BUTTONS TY Y (DOT)
- ⑧ REMOVABLE PAV MRK BUTTONS ARROW
- ⑨ REMOVABLE PAV MRK BUTTONS DBL ARROW
- ⑩ REMOVABLE PAV MRK BUTTONS TPL ARROW
- ⑪ REMOVABLE PAV MRK (REFLECTOR) TY I-A

- NOTES:
1. MAINTAIN MINIMUM 10-FOOT LANE WIDTH AT ALL TIMES.
 2. COORDINATE WITH METRO FOR TEMPORARY SIGNS IF NEEDED, METRO TEMP STOPS TO BE RELOCATED WITH THE TRAFFIC CONTROL SO THAT ACCESS TO METRO IS ALWAYS MAINTAINED.
 3. REFER TO TCP STANDARD DETAILS FOR MORE INFORMATION.



MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

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KARAM QADDOO
125611
2/20/2024

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Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
TRAFFIC CONTROL PLAN
PEDESTRIAN BRIDGE INSTALLATION
STEP 2

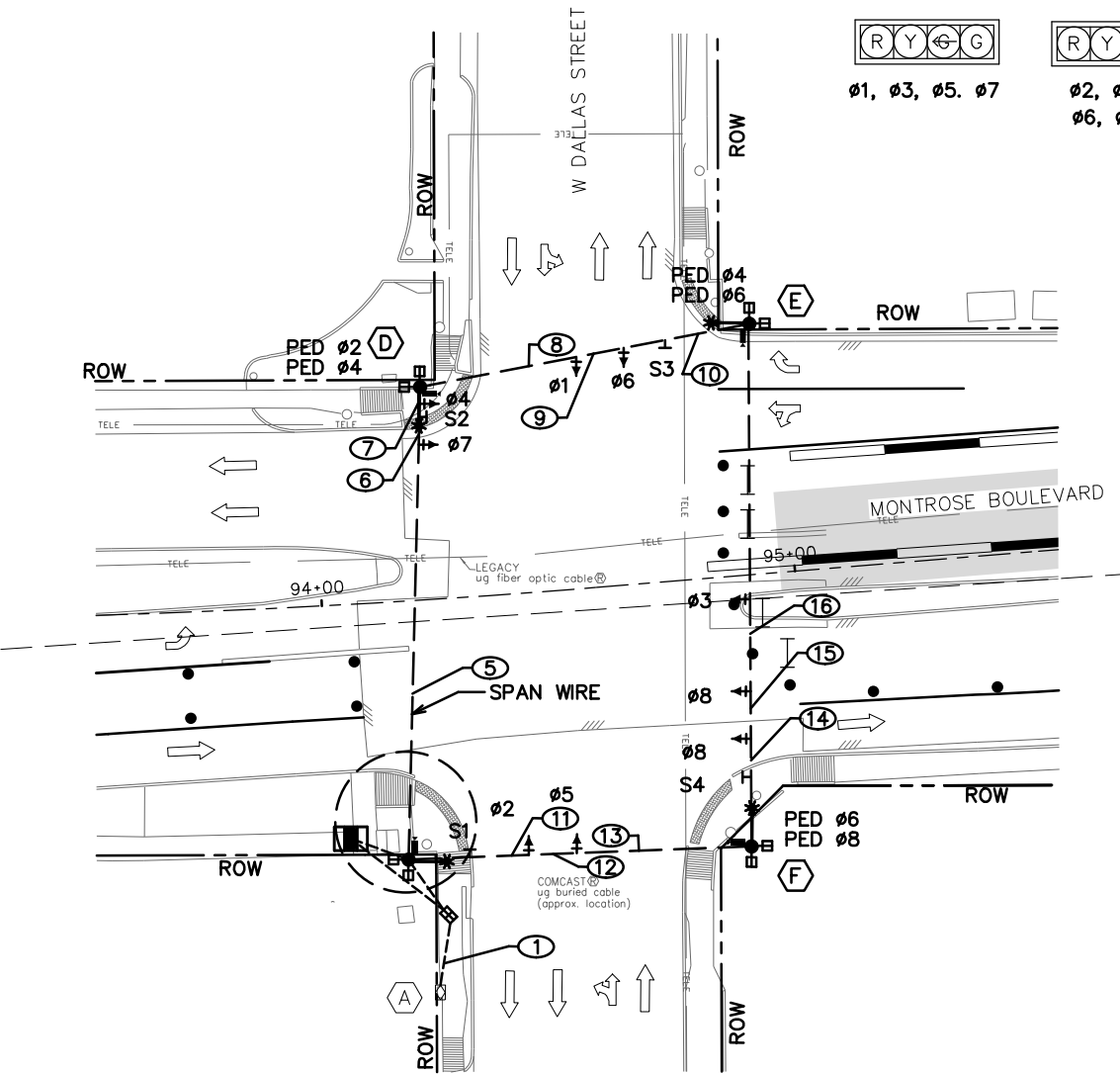
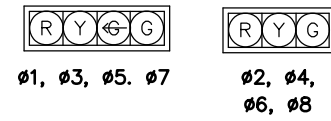
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 42 OF 355	

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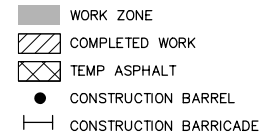
PHASE 1, STEP 1

SIGNAL HEAD SCHEDULE

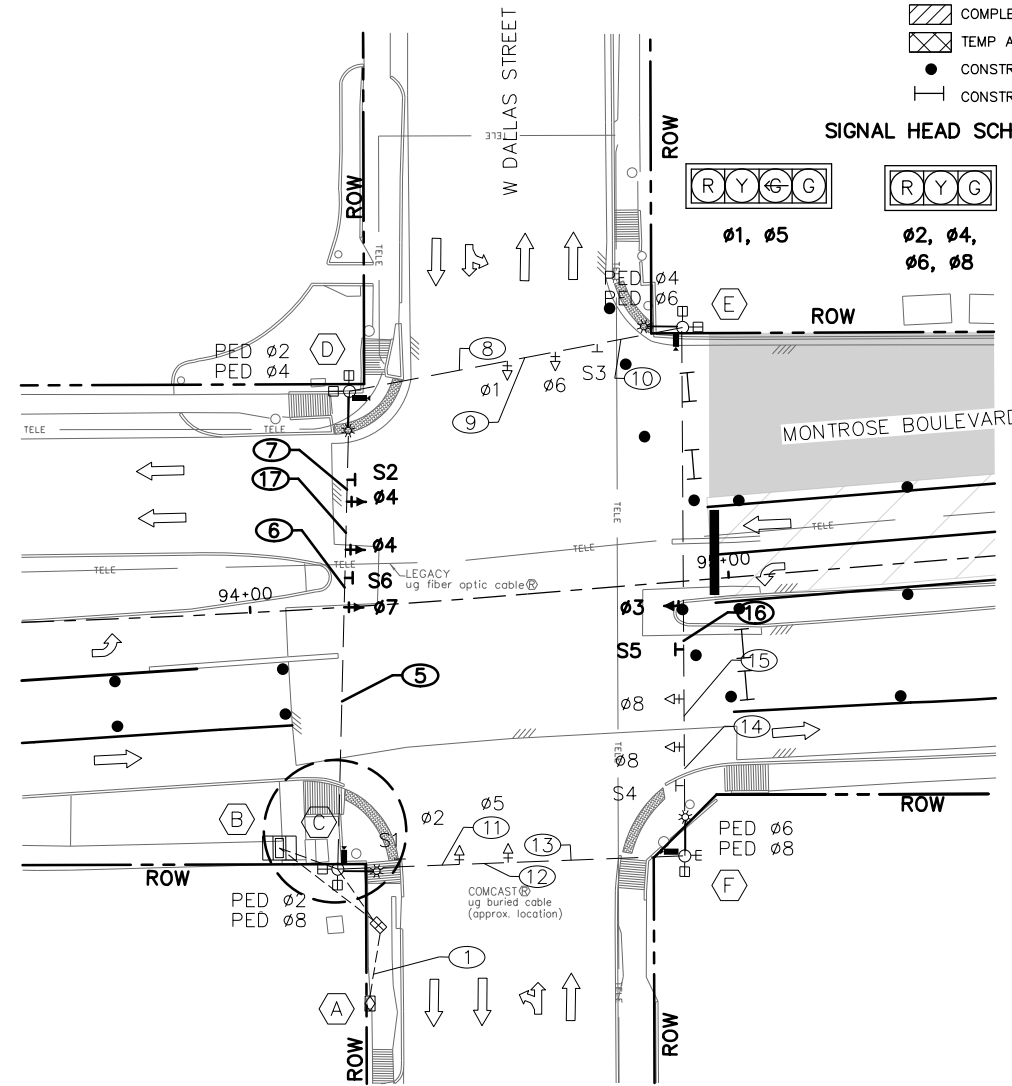
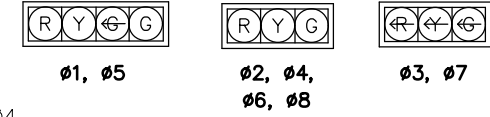


PHASE 1, STEP 2

TOP LEGEND

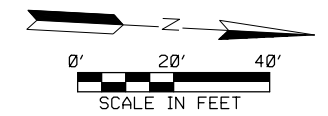


SIGNAL HEAD SCHEDULE



LEGEND

- ➔ VEHICLE SIGNAL HEAD
- ⊠ VIVDS VEHICLE DETECTOR ZONE
- ⊠ VIVDS BIKE DETECTOR ZONE
- ⊠ VIVDS DETECTOR
- ⊠ OPTICOM
- ⊠ POLE W/ MAST ARM
- ⊠ PEDESTRIAN SIGNAL HEAD
- ⊠ PEDESTRIAN PUSH BUTTON
- ⊠ PEDESTRIAN POLE
- ⊠ PULL BOX - TYPE A
- ⊠ PULL BOX - TYPE B
- ⊠ PULL BOX - TYPE C
- ⊠ CONDUIT (TRENCH)
- ⊠ CONDUIT (BORE)
- ⊠ LUMINAIRE
- ⊠ MAST ARM SIGN
- ⊠ CONTROLLER CABINET WITH BBU
- ⊠ ELECTRICAL SERVICE



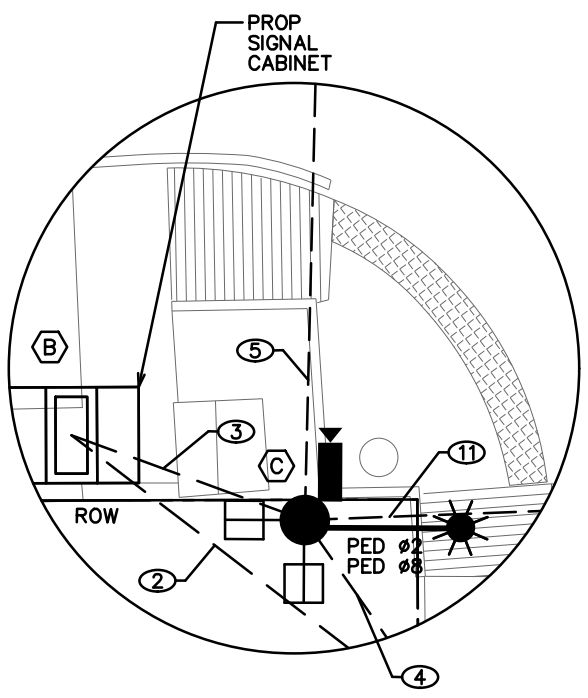
NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature Date valid for one year.



POLE AND CABINET SCHEDULE

- (A) EXISTING ELECTRICAL SERVICE
- (B) PROPOSED TEMPORARY SIGNAL CABINET
- (C) 40' TIMBER POLE W/ LUMINAIRE, PED ø2, PED ø8, AND VIVDS
- (D) 40' TIMBER POLE W/ LUMINAIRE, PED ø2, PED ø4, AND VIVDS
- (E) 40' TIMBER POLE W/ LUMINAIRE, PED ø4, PED ø6, AND VIVDS
- (F) 40' TIMBER POLE W/ LUMINAIRE, PED ø6, PED ø8, AND VIVDS

SIGN SCHEDULE

- S1 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 900 AND 1000
- S2 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2300 AND 2400
- S3 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 1000 AND 900
- S4 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2400 AND 2300
- S5 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S6 = R10-5 "LEFT ON GREEN ARROW ONLY"

NOTES:

1. PAIRED SIGNAL HEADS TO BE 10' APART. LEFT-TURN SIGNAL HEADS TO BE CENTERED IN APPROACH LANE.
2. EXISTING SIGNAL TO REMAIN OPERATIONAL UNTIL TEMPORARY SIGNAL IS OPERATIONAL.
3. EXISTING ELECTRICAL SERVICE TO BE USED FOR TEMPORARY SIGNAL.
4. VIVDS DETECTION ZONES TO BE ADJUSTED FOR EACH PHASE.
5. PED PHASE RECALL ACTIVE DURING ALL CONSTRUCTION PHASES.
6. TEMPORARY SIGNAL CABINET TO BE INSTALLED FOR TEMPORARY TRAFFIC SIGNAL.

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

teip
Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002

SURVEYED BY:
Kuo & Associates, Inc.

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BRADLEY G. LEAVES
91759
2/16/2024

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TEI Planning + Design
Texas Registered Engineering Firm F-3158

CITY OF HOUSTON

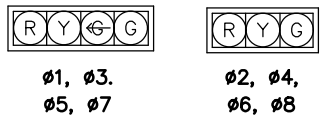
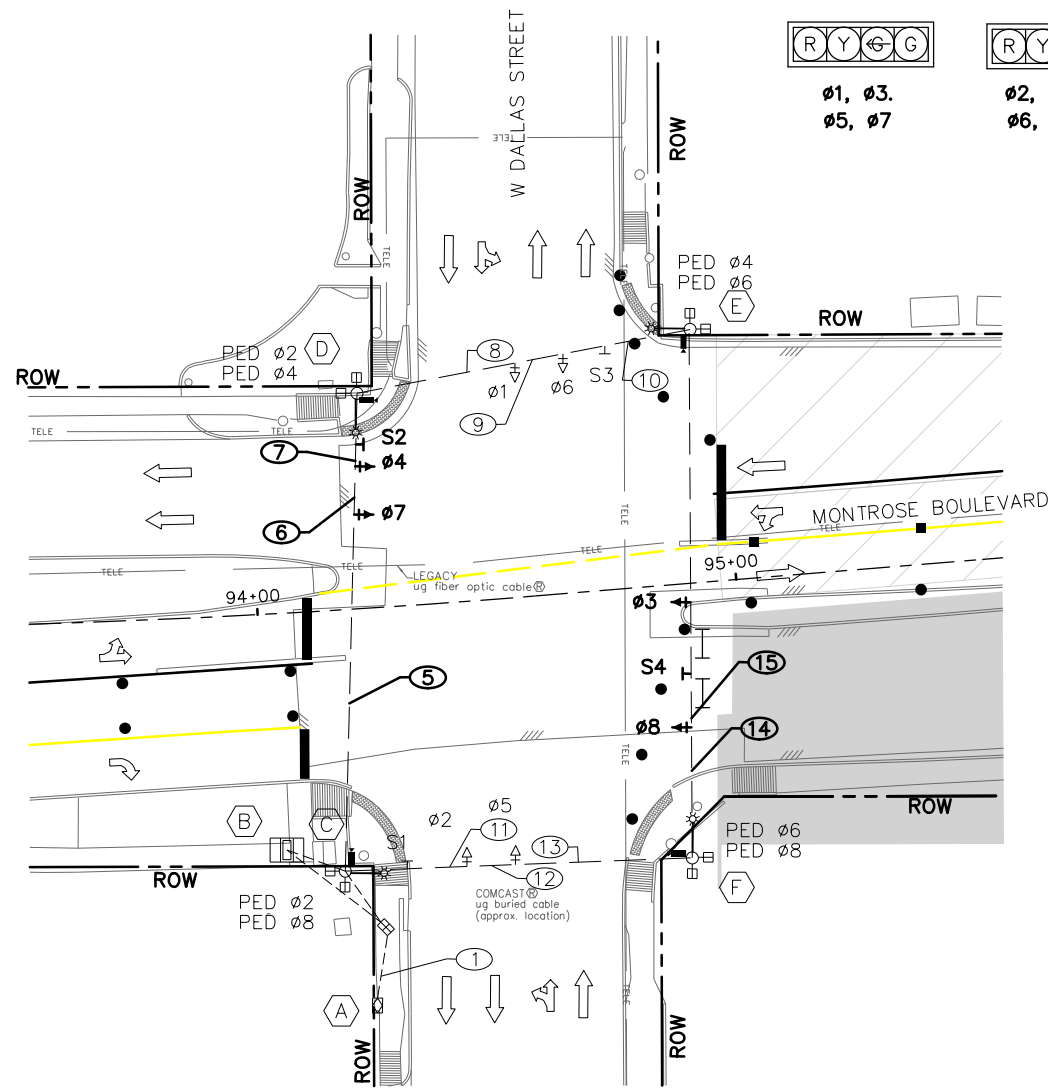
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT
W DALLAS ST SIGNAL
TEMPORARY SIGNAL LAYOUT
SHEET 1 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 43 OF 355	

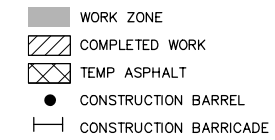
PHASE 1, STEP 3

SIGNAL HEAD SCHEDULE

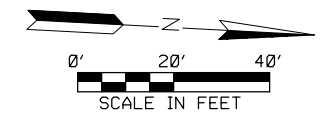
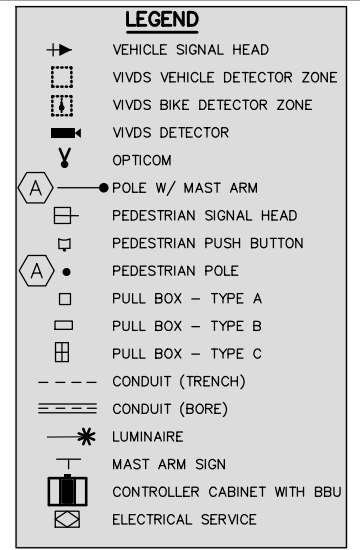
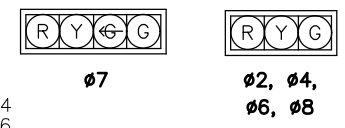
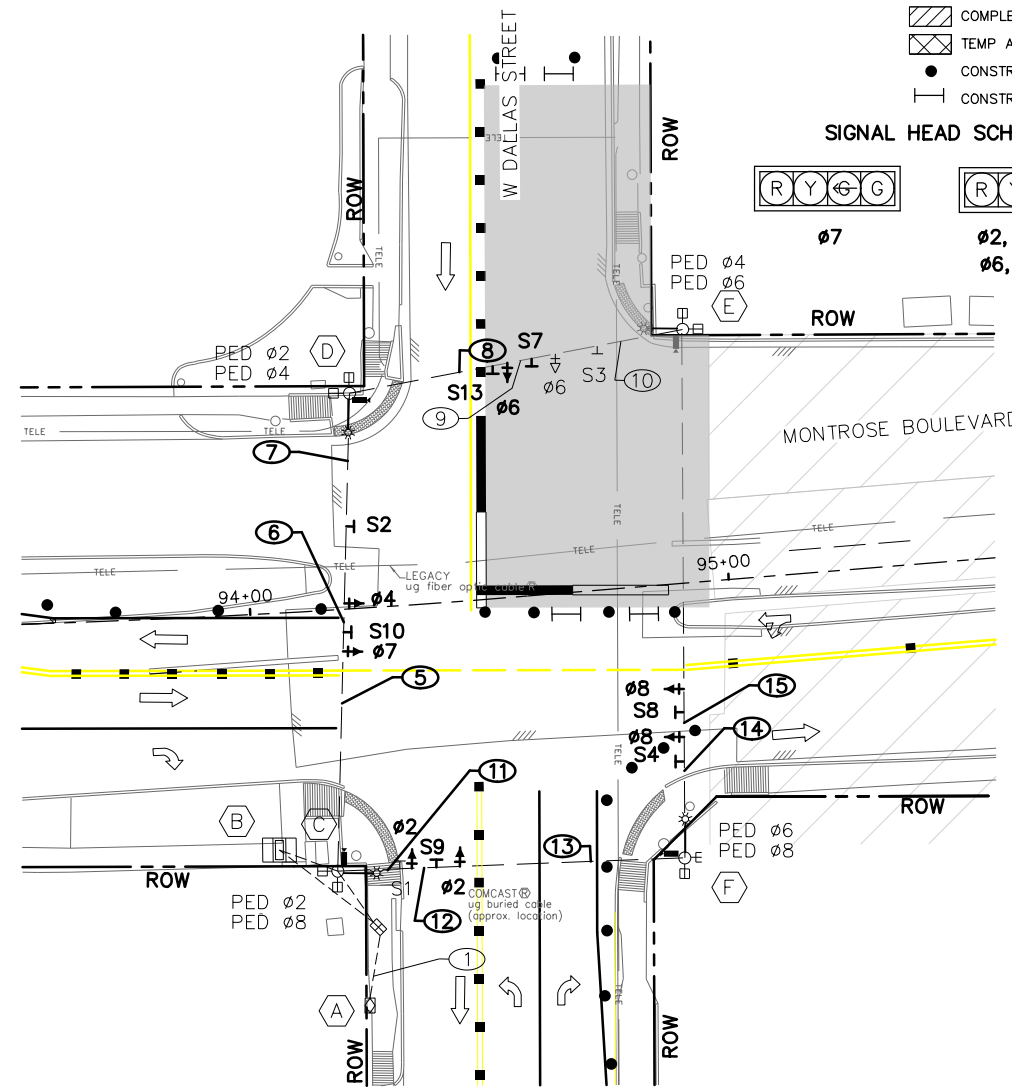


PHASE 1, STEP 4 QUADRANT 1

TOP LEGEND



SIGNAL HEAD SCHEDULE



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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
Signature valid for six months.

Date _____
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____ valid for one year.

SIGN SCHEDULE

- S1 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 900 AND 1000
- S2 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2300 AND 2400
- S3 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 1000 AND 900
- S4 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2400 AND 2300
- S7 = R3-8LR "LEFT/RIGHT TURN ONLY"
- S8 = R3-2 "NO LEFT TURN"
- S9 = R3-2 "NO LEFT TURN"
- S10 = R3-1 "NO RIGHT TURN"
- S13 = R10-12 "LEFT TURN YIELD ON GREEN"

- NOTES:
1. PAIRED SIGNAL HEADS TO BE 10' APART. LEFT-TURN SIGNAL HEADS TO BE CENTERED IN APPROACH LANE.
 2. EXISTING SIGNAL TO REMAIN OPERATIONAL UNTIL TEMPORARY SIGNAL IS OPERATIONAL.
 3. EXISTING ELECTRICAL SERVICE TO BE USED FOR TEMPORARY SIGNAL.
 4. VIVDS DETECTION ZONES TO BE ADJUSTED FOR EACH PHASE.
 5. PED PHASE RECALL ACTIVE DURING ALL CONSTRUCTION PHASES.
 6. TEMPORARY SIGNAL CABINET TO BE INSTALLED FOR TEMPORARY TRAFFIC SIGNAL.
 7. SEE PHASE 1, STEP 1 FOR RUNS 1-4 DETAIL.

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

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TEXAS PE FIRM REG. #F-3158
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HOUSTON, TX 77002

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W DALLAS ST SIGNAL
TEMPORARY SIGNAL LAYOUT
SHEET 2 OF 7

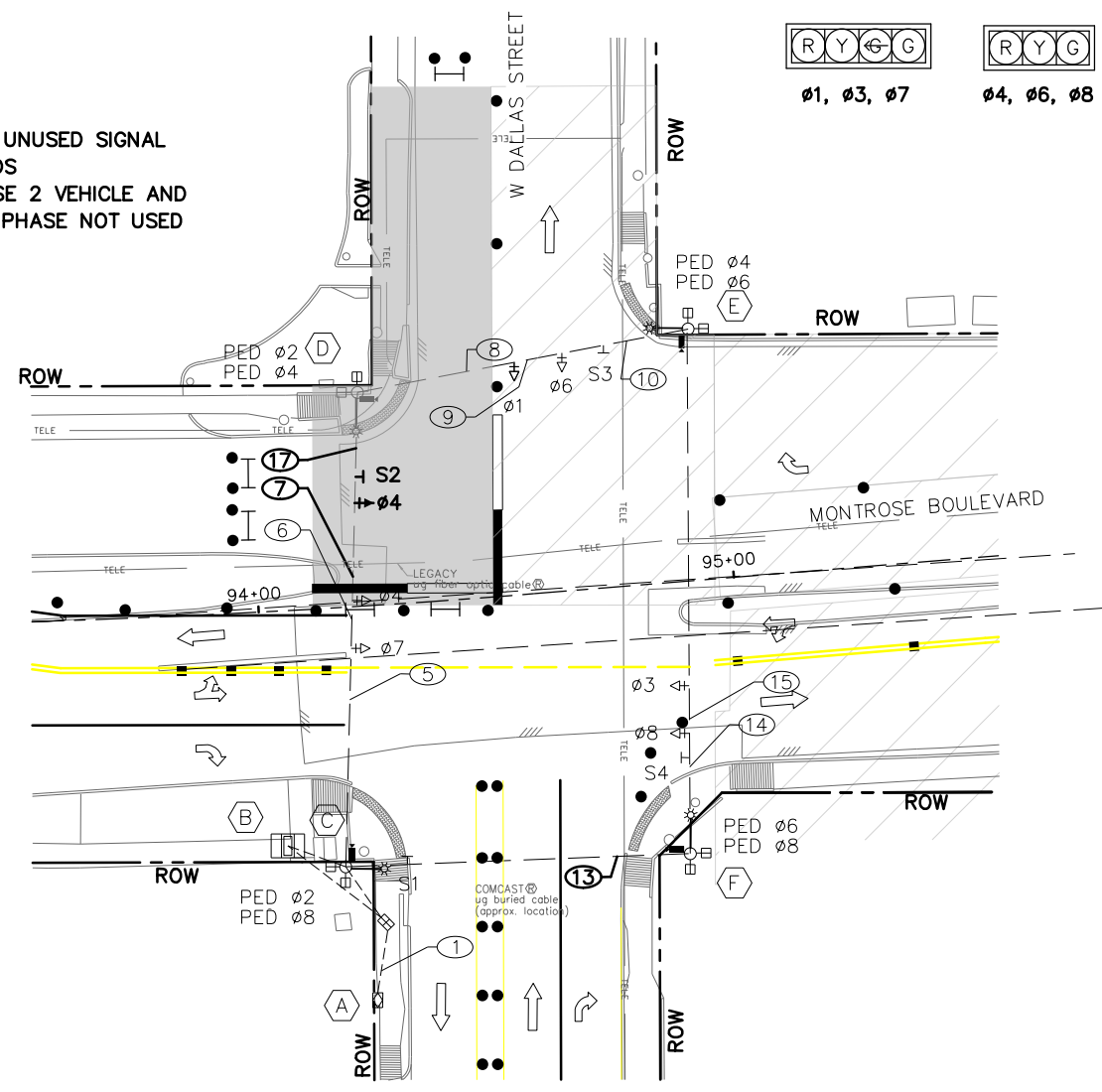
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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 44 OF 355	

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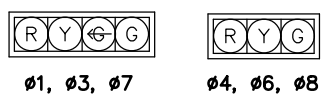
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PHASE 1, STEP 4 QUADRANT 2

BAG UNUSED SIGNAL HEADS
 PHASE 2 VEHICLE AND PED PHASE NOT USED

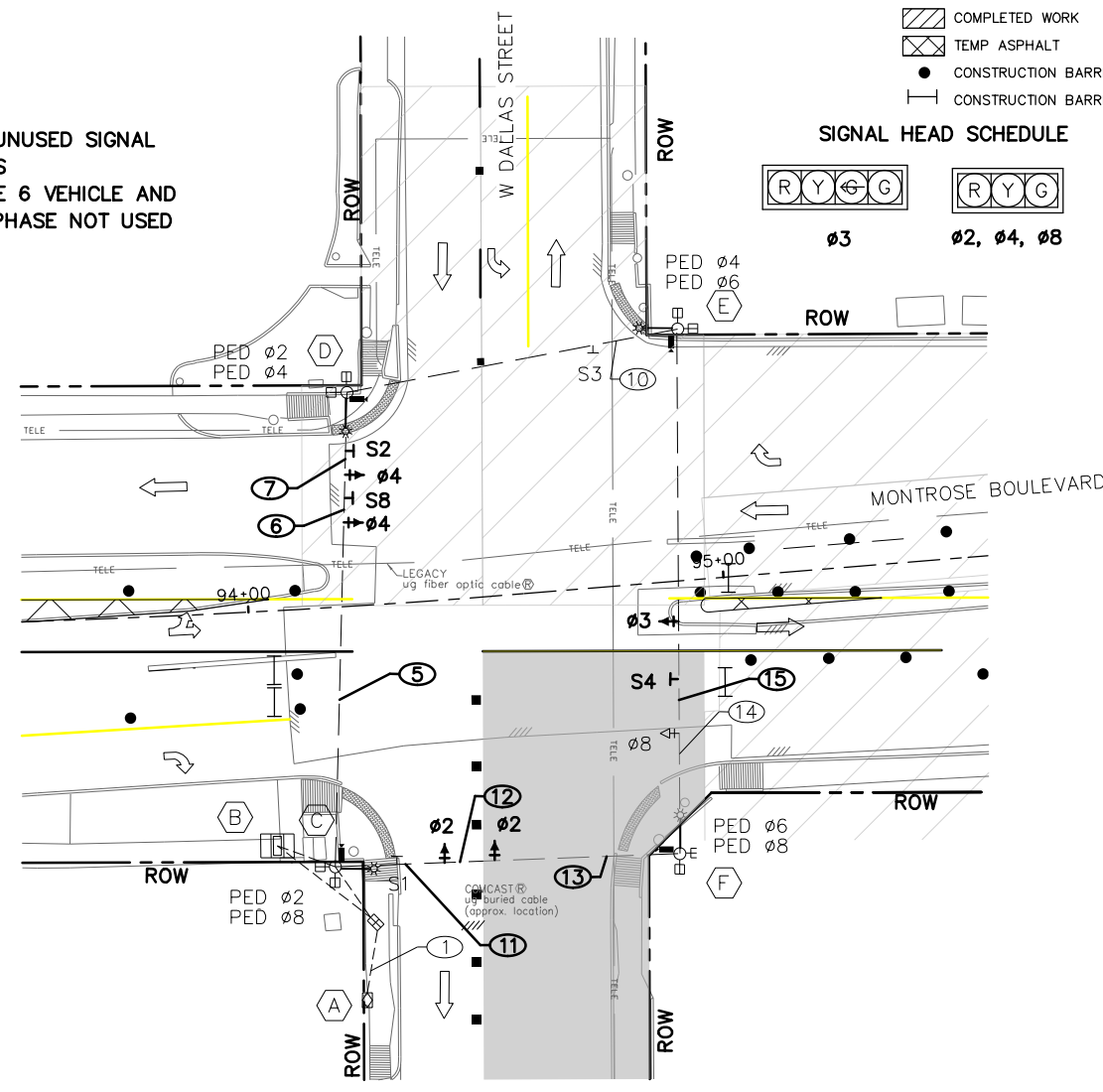


SIGNAL HEAD SCHEDULE

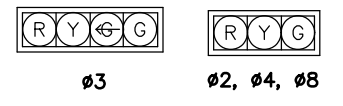


PHASE 1, STEP 4 QUADRANT 3, STEP 1

BAG UNUSED SIGNAL HEADS
 PHASE 6 VEHICLE AND PED PHASE NOT USED



SIGNAL HEAD SCHEDULE

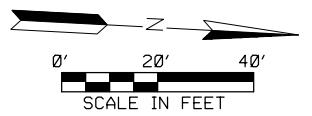


TOP LEGEND

- WORK ZONE
- COMPLETED WORK
- TEMP ASPHALT
- CONSTRUCTION BARREL
- CONSTRUCTION BARRICADE

LEGEND

- VEHICLE SIGNAL HEAD
- VVDS VEHICLE DETECTOR ZONE
- VVDS BIKE DETECTOR ZONE
- VVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
- PULL BOX - TYPE B
- PULL BOX - TYPE C
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- LUMINAIRE
- MAST ARM SIGN
- CONTROLLER CABINET WITH BBU
- ELECTRICAL SERVICE



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 TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for informational purposes only.</small> Interm review under the authority of: BRADLEY G. ZEAVES, 91759 2/16/2024
	SURVEYED BY: KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W DALLAS ST SIGNAL
TEMPORARY SIGNAL LAYOUT
SHEET 3 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 45 OF 355	

SIGN SCHEDULE

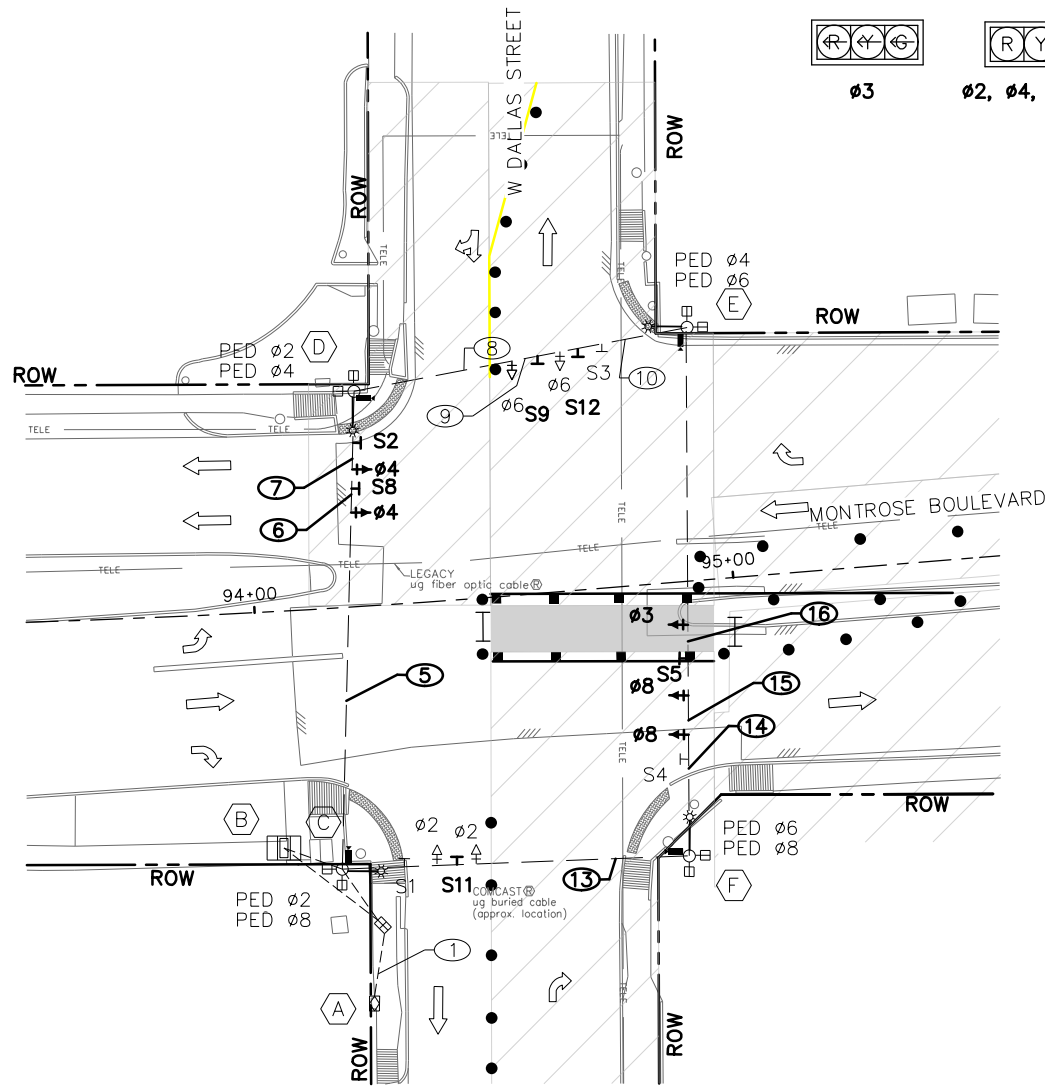
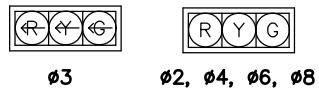
- S1 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 900 AND 1000
- S2 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2300 AND 2400
- S3 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 1000 AND 900
- S4 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2400 AND 2300
- S8 = R3-2 "NO LEFT TURN"

- NOTES:**
1. PAIRED SIGNAL HEADS TO BE 10' APART. LEFT-TURN SIGNAL HEADS TO BE CENTERED IN APPROACH LANE.
 2. EXISTING SIGNAL TO REMAIN OPERATIONAL UNTIL TEMPORARY SIGNAL IS OPERATIONAL.
 3. EXISTING ELECTRICAL SERVICE TO BE USED FOR TEMPORARY SIGNAL.
 4. VVDS DETECTION ZONES TO BE ADJUSTED FOR EACH PHASE.
 5. PED PHASE RECALL ACTIVE DURING ALL CONSTRUCTION PHASES.
 6. TEMPORARY SIGNAL CABINET TO BE INSTALLED FOR TEMPORARY TRAFFIC SIGNAL.
 7. SEE PHASE 1, STEP 1 FOR RUNS 1-4 DETAIL.

APP.	
REVISIONS	
No.	DATE

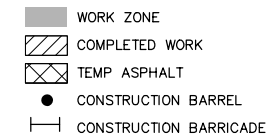
PHASE 1, STEP 4 QUADRANT 3, STEP 2

SIGNAL HEAD SCHEDULE

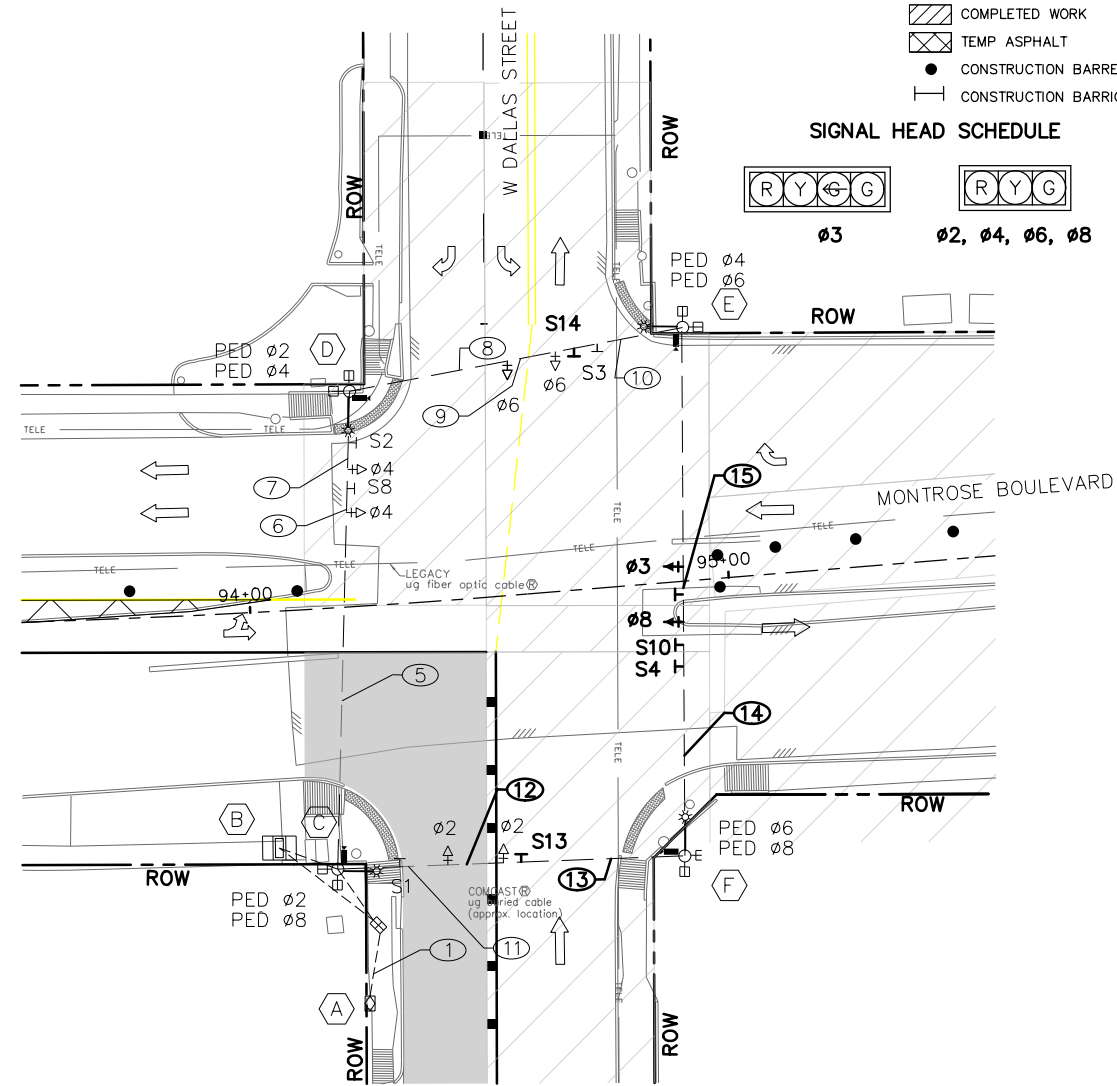


PHASE 1, STEP 4 QUADRANT 4, STEP 1

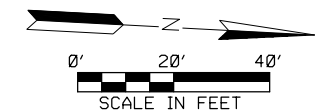
TOP LEGEND



SIGNAL HEAD SCHEDULE



LEGEND	
	VEHICLE SIGNAL HEAD
	VVDS VEHICLE DETECTOR ZONE
	VVDS BIKE DETECTOR ZONE
	VVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE



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 TEI Planning + Design TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for informational purposes only. Interim review under the authority of: BRADLEY G. ZEAVES 91759 2/16/2024
	SURVEYED BY: KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W DALLAS ST SIGNAL
TEMPORARY SIGNAL LAYOUT
SHEET 4 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 46 OF 355	

SIGN SCHEDULE

- S1 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 900 AND 1000
- S2 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2300 AND 2400
- S3 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 1000 AND 900
- S4 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2400 AND 2300
- S5 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S8 = R3-2 "NO LEFT TURN"
- S9 = R3-2 "NO LEFT TURN"
- S10 = R3-1 "NO RIGHT TURN"
- S11 = R3-2 "NO LEFT TURN"
- S12 = R3-5R "RIGHT TURN ONLY"
- S13 = R10-12 "LEFT TURN YIELD ON GREEN"
- S14 = R10-12 "LEFT TURN YIELD ON GREEN"

NOTES:

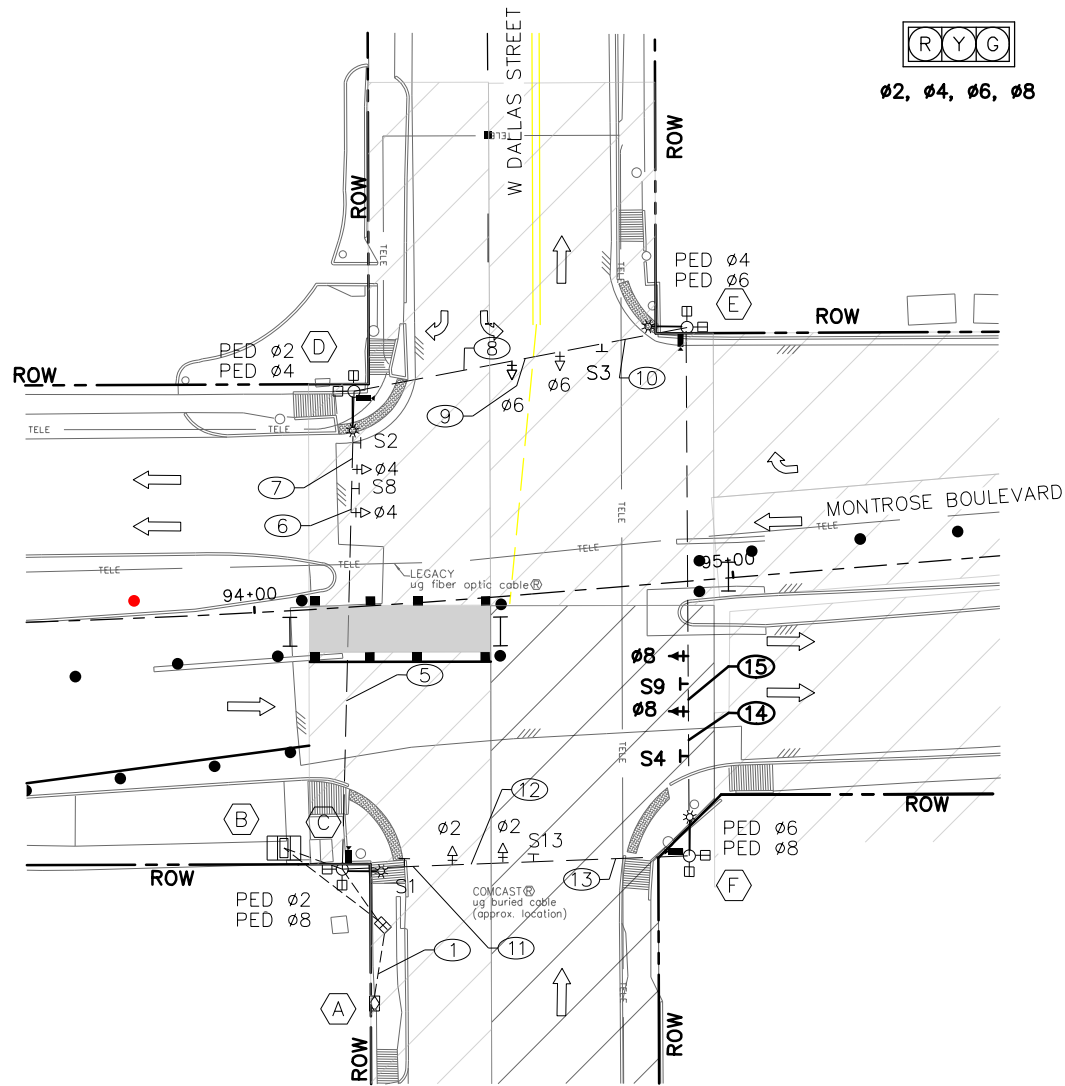
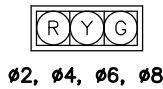
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7. SEE PHASE 1, STEP 1 FOR RUNS 1-4 DETAIL.

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APP.	REVISIONS	DATE

PHASE 1, STEP 4 QUADRANT 4, STEP 2

SIGNAL HEAD SCHEDULE

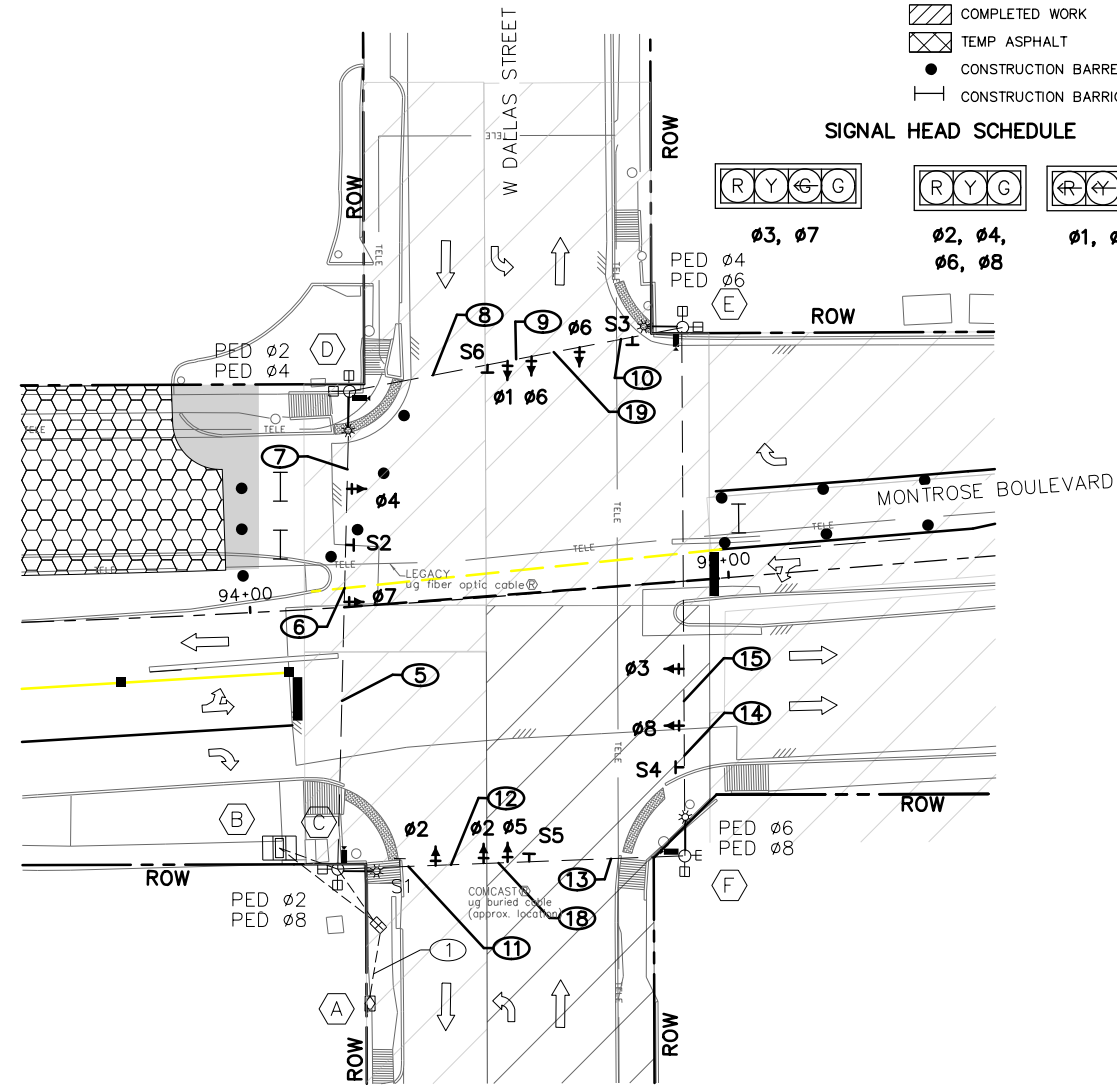
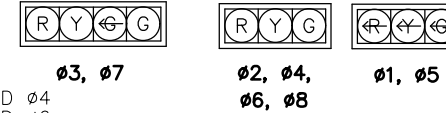


PHASE 2, STEP 1

TOP LEGEND

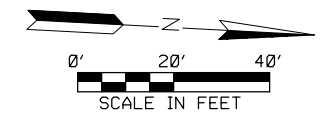
- WORK ZONE
- COMPLETED WORK
- TEMP ASPHALT
- CONSTRUCTION BARREL
- CONSTRUCTION BARRICADE

SIGNAL HEAD SCHEDULE



LEGEND

- VEHICLE SIGNAL HEAD
- VVDS VEHICLE DETECTOR ZONE
- VVDS BIKE DETECTOR ZONE
- VVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
- PULL BOX - TYPE B
- PULL BOX - TYPE C
- CONDUIT (TRENCH)
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tei
Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002

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BRADLEY G. ZEAVES
91759
2/16/2024
100% SUBMITTAL
TEL Planning + Design
Texas Registered Engineering Firm F-3158

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W DALLAS ST SIGNAL
TEMPORARY SIGNAL LAYOUT
SHEET 5 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 47 OF 355	

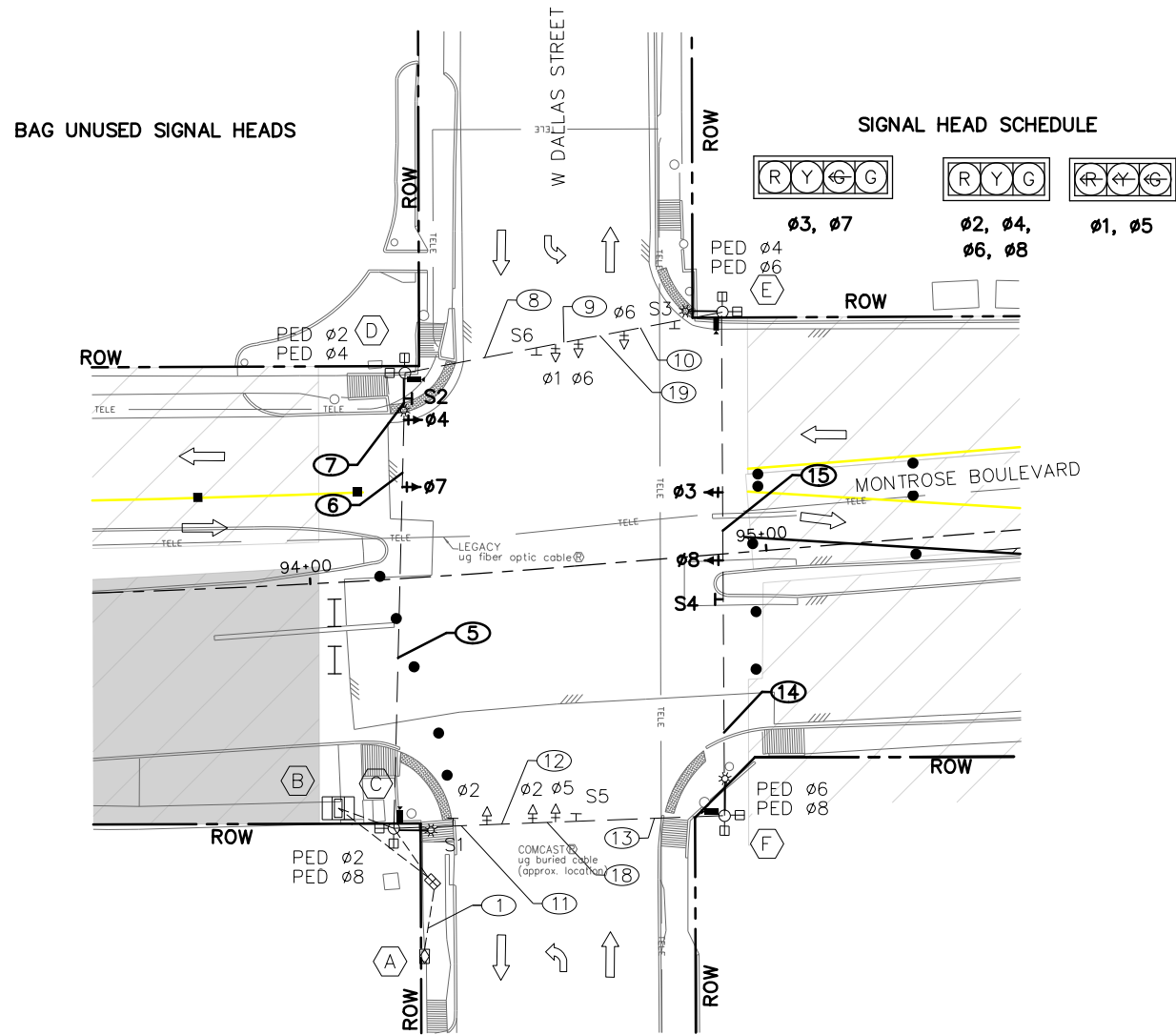
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- S3 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 1000 AND 900
- S4 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2400 AND 2300
- S5 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S6 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S7 = R3-8LR "LEFT/RIGHT TURN ONLY"
- S8 = R3-2 "NO LEFT TURN"
- S9 = R3-2 "NO LEFT TURN"
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PHASE 2, STEP 2

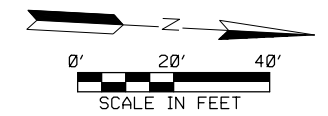


TOP LEGEND

- WORK ZONE
- COMPLETED WORK
- TEMP ASPHALT
- CONSTRUCTION BARREL
- CONSTRUCTION BARRICADE

LEGEND

- VEHICLE SIGNAL HEAD
- VIVDS VEHICLE DETECTOR ZONE
- VIVDS BIKE DETECTOR ZONE
- VIVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
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ITEM	RUN NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
LUMINAIRE & SIGN LIGHT	2 #10 AWG XHHW	4			4	2	2	2	1	1	1	2	2	1					2	1	1
PUSH BUTTON	3CC #14 AWG SOLID CONDUCTOR CABLE			8		4	4	4	2	2	2	2	2	2					4	2	2
PED. SIGNAL	5CC #14 AWG SOLID CONDUCTOR CABLE			1	12	7	5	4	3	2		6	5	3	3	2	1	4	4	2	
VEH. SIGNAL	7CC #14 AWG SOLID CONDUCTOR CABLE			1	1	1	1														
GROUND BARE	BARE BOND #8 AWG SOLID	1	1	1	1																
POWER	SIGNAL POWER (SEE NOTE)	1	1																		
VIVDS CABLE	PER MANUFACTURER			4	4	2	2	2	1	1	1	1	1	1					2	1	1
CONDUIT	1 INCH PVC																				
	2 INCH PVC																				
	3 INCH PVC																				
	4 INCH PVC																				

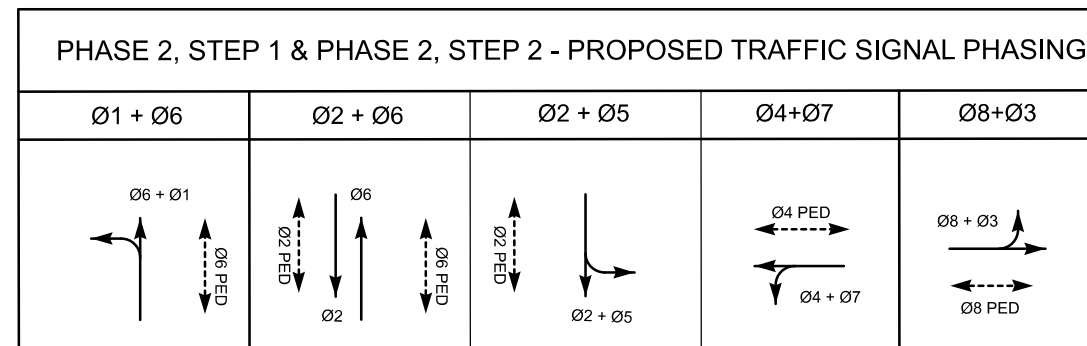
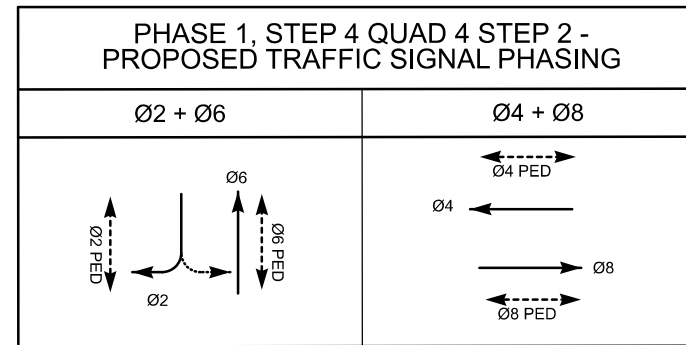
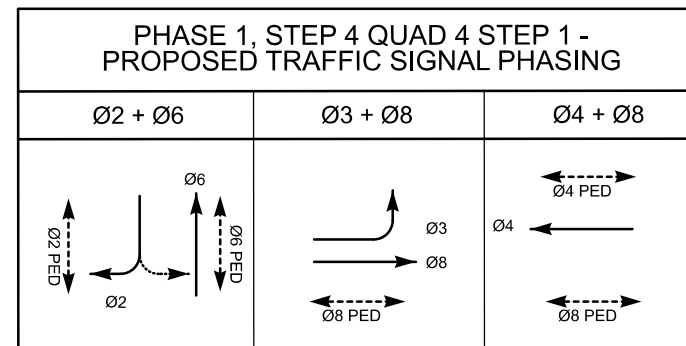
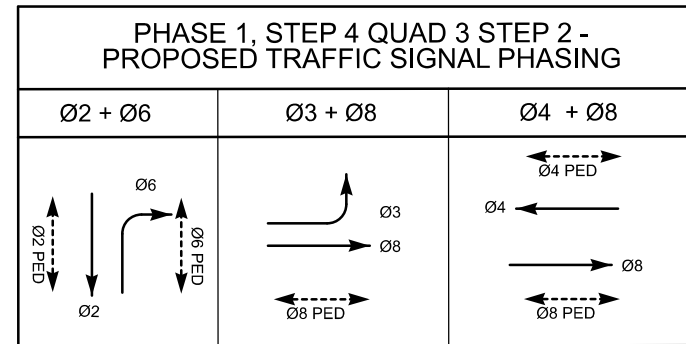
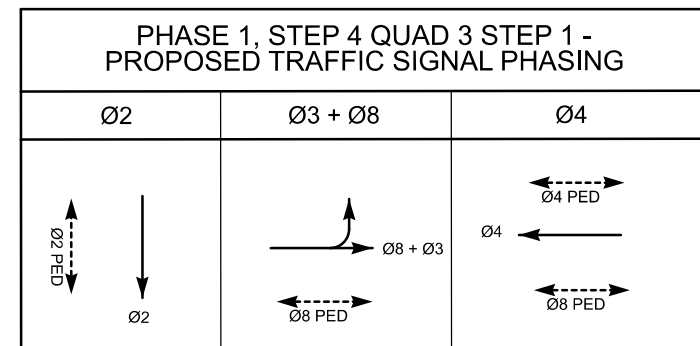
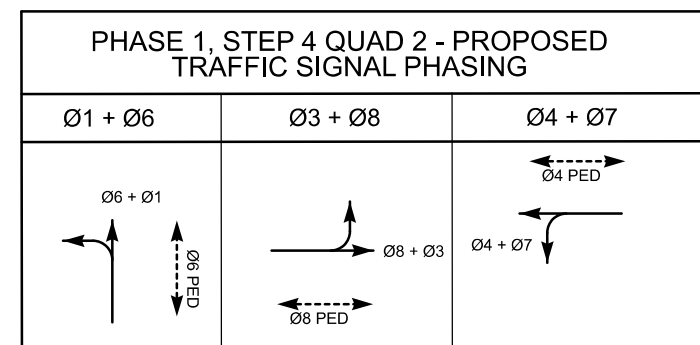
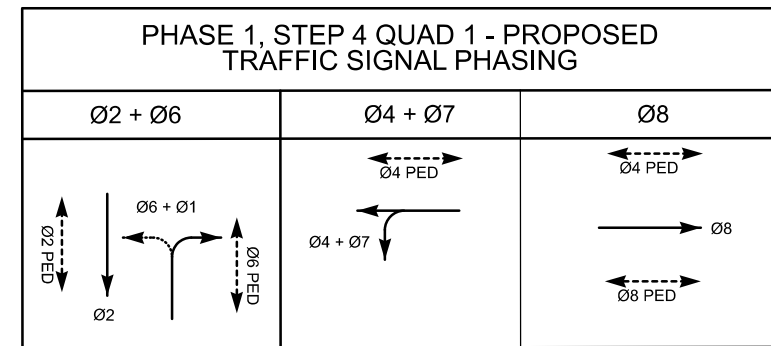
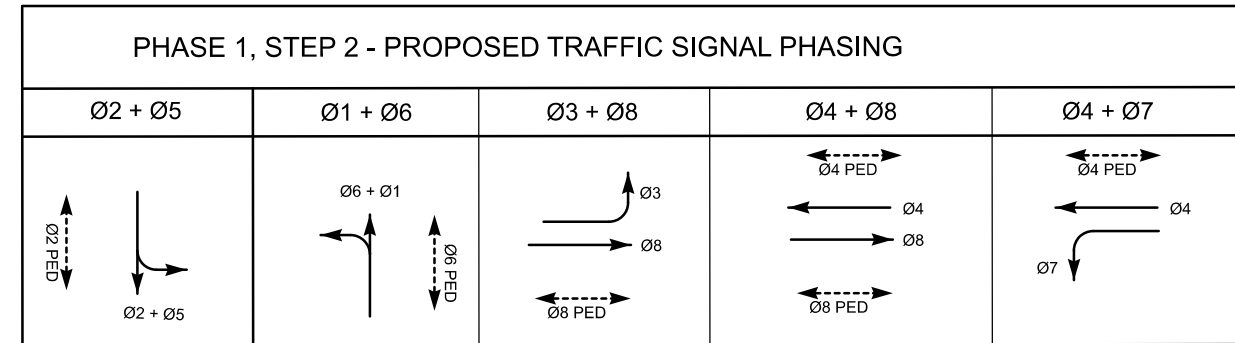
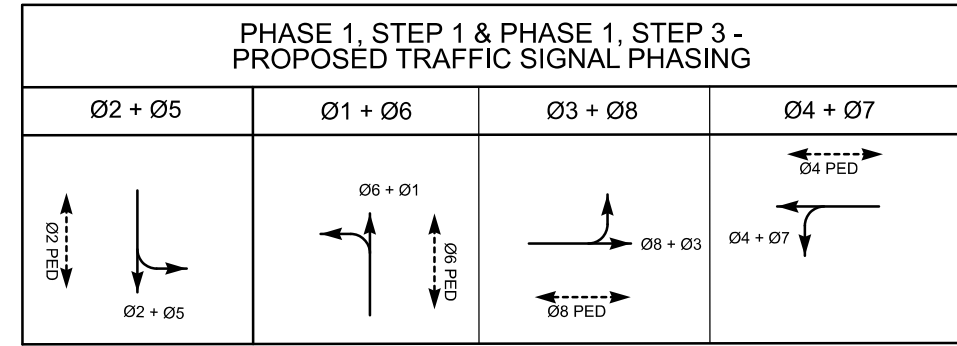
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 MONTROSE BLVD AT W DALLAS ST SIGNAL
 TEMPORARY SIGNAL LAYOUT
 SHEET 6 OF 7

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APP.	REVISIONS	DATE



LEGEND

- VEHICLE SIGNAL HEAD
- WVDS VEHICLE DETECTOR ZONE
- WVDS BIKE DETECTOR ZONE
- WVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
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- PULL BOX - TYPE C
- CONDUIT (TRENCH)
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- LUMINAIRE
- MAST ARM SIGN
- CONTROLLER CABINET WITH BBU
- ELECTRICAL SERVICE

REVISIONS	DATE	APP.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

tei Planning + Design
 TEXAS PE FIRM REG. #F-3158
 712 MAIN STREET, SUITE #950
 HOUSTON, TX 77002

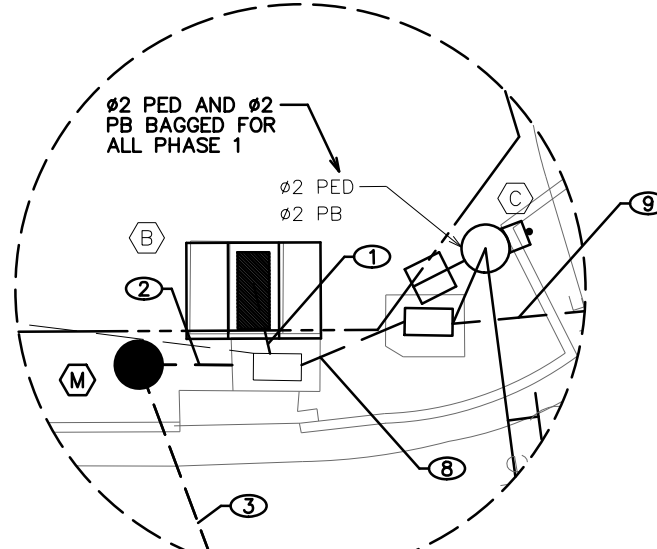
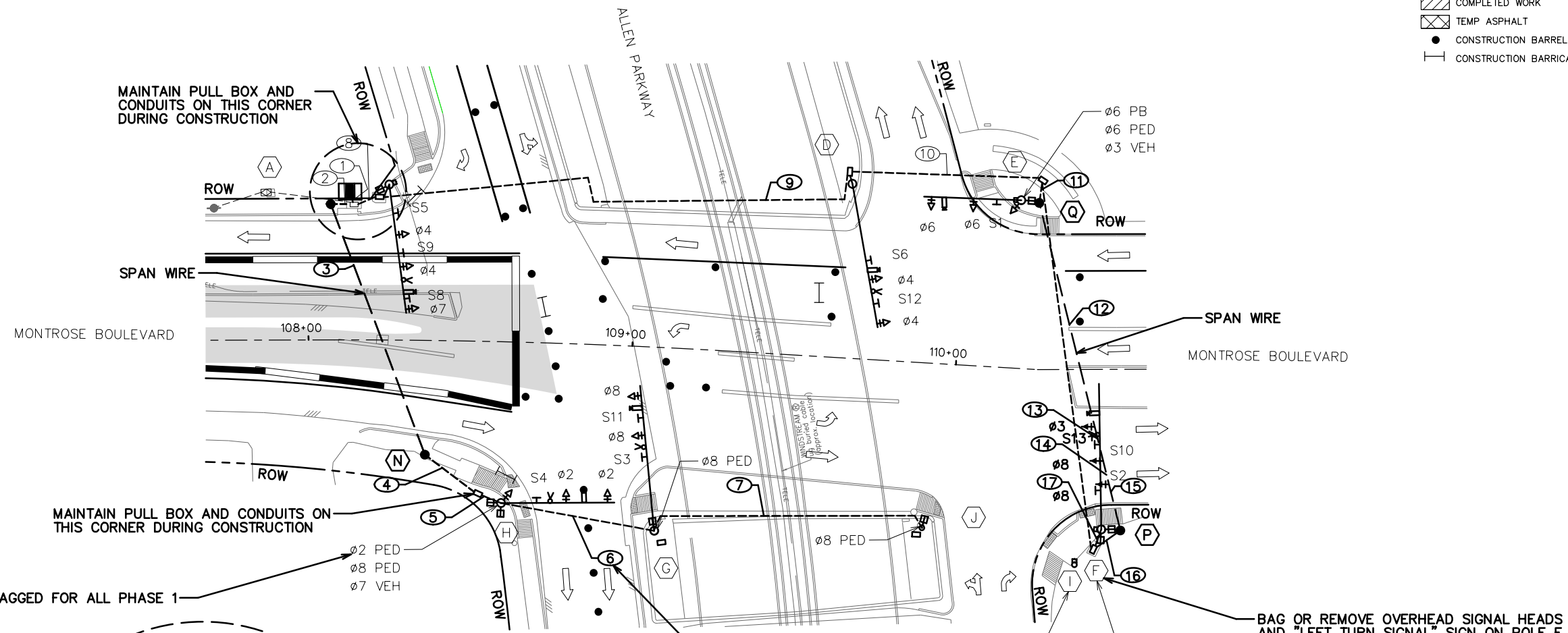
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SHEET NO. 49 OF 355	

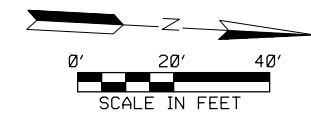


TOP LEGEND

- WORK ZONE
- COMPLETED WORK
- TEMP ASPHALT
- CONSTRUCTION BARREL
- CONSTRUCTION BARRICADE

LEGEND

- VEHICLE SIGNAL HEAD
- VIVDS VEHICLE DETECTOR ZONE
- VIVDS BIKE DETECTOR ZONE
- VIVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
- PULL BOX - TYPE B
- PULL BOX - TYPE C
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- LUMINAIRE
- MAST ARM SIGN
- CONTROLLER CABINET WITH BBU
- ELECTRICAL SERVICE



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Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002

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BRADLEY G. LEAVES
91779
2/16/2024
100% SUBMITTAL
TEI Planning + Design
Texas Registered Engineering Firm F-3158

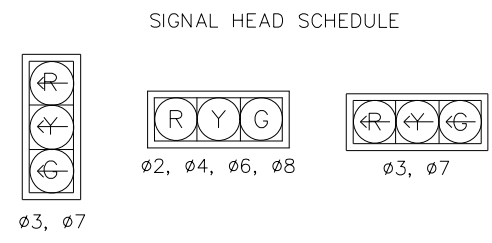
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT ALLEN PKWY SIGNAL
TEMPORARY SIGNAL LAYOUT
SHEET 1 OF 3

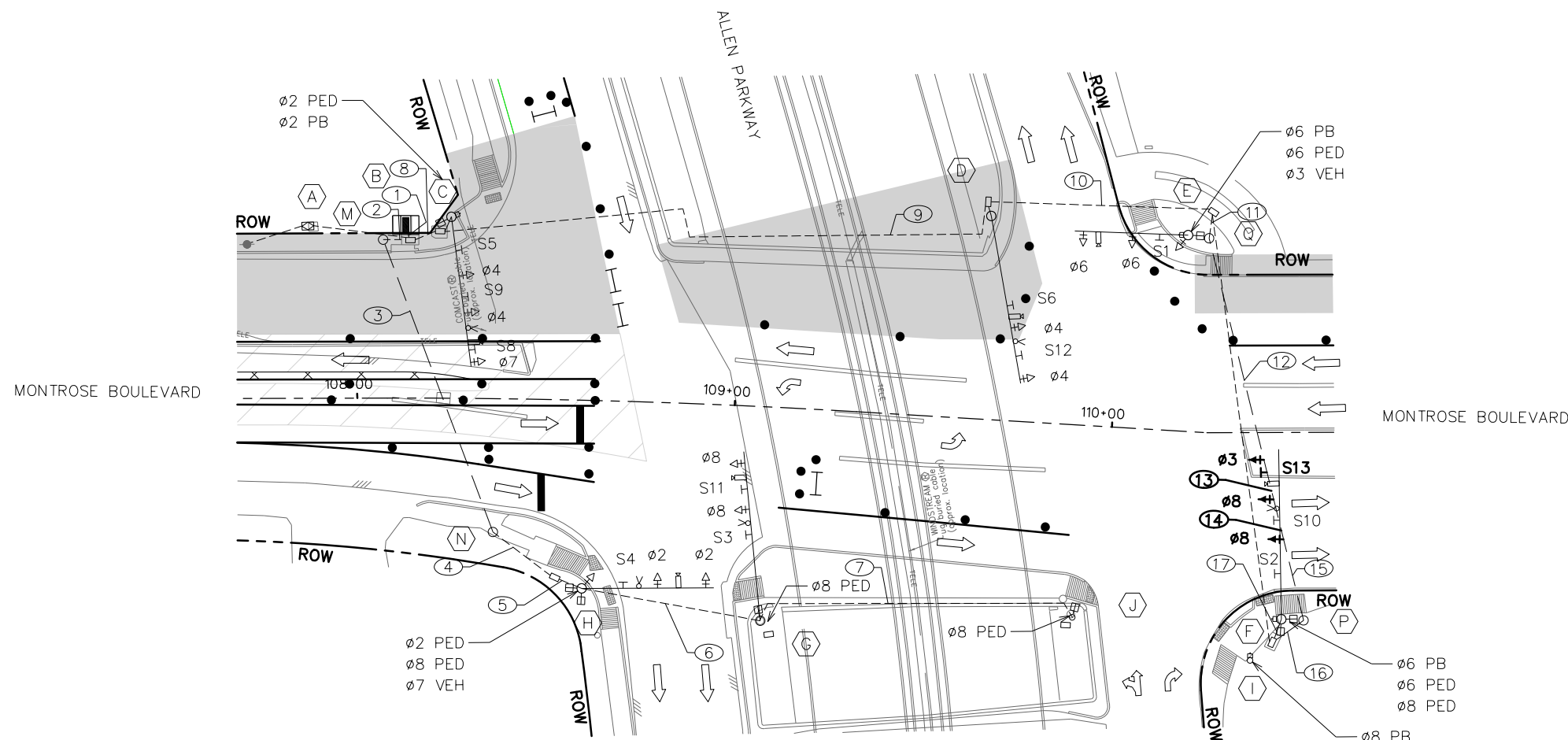
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 50 OF 355	

- SIGN SCHEDULE**
- S1 = STREET NAME SIGN "Montrose Blvd"
 - S2 = STREET NAME SIGN "Allen Pkwy"
 - S3 = STREET NAME SIGN "Allen Pkwy"
 - S4 = STREET NAME SIGN "Montrose Blvd"
 - S5 = STREET NAME SIGN "Allen Pkwy"
 - S6 = STREET NAME SIGN "Allen Pkwy"
 - S8 = R10-5 "LEFT ON GREEN ARROW ONLY"
 - S9 = R6-2L "ONE WAY"
 - S10 = R6-1L "ONE WAY"
 - S11 = R6-2R "ONE WAY"
 - S12 = R6-2R "ONE WAY"
 - S13 = R10-5 "LEFT ON GREEN ARROW ONLY"

- POLE AND CABINET SCHEDULE**
- A EXISTING ELECTRICAL SERVICE
 - B EXISTING SIGNAL CABINET
 - C EXIST MAST ARM POLE W/ 40' MAST ARM, Ø2 PB, AND Ø2 PED (BAGGED)
 - D EXIST MAST ARM POLE W/ 45' MAST ARM
 - E EXIST MAST ARM POLE W/ 30' MAST ARM, Ø3 VEH, Ø6 PB, AND Ø6 PED
 - F EXIST MAST ARM POLE W/ 45' MAST ARM, Ø6 PB, Ø6 PED, AND Ø8 PED
 - G EXIST MAST ARM POLE W/ 45' MAST ARM AND Ø8 PED
 - H EXIST MAST ARM POLE W/ 35' MAST ARM Ø8 AND Ø2 PED (BAGGED)
 - I EXIST PED POLE W/ Ø8 PB
 - J EXIST PED POLE W/ Ø8 PED
 - M 40' TIMBER POLE
 - N 40' TIMBER POLE
 - P 40' TIMBER POLE
 - Q 40' TIMBER POLE



- NOTES:**
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 - ALL LOUVRES TO BE REMOVED FROM SIGNAL HEADS DURING CONSTRUCTION.
 - VIVDS DETECTION ZONES TO BE ADJUSTED FOR EACH PHASE.
 - PED PHASE RECALL ACTIVE DURING ALL CONSTRUCTION PHASES.
 - PED BUTTONS AND PED POLES ADJACENT TO POLE G, POLE H, AND POLE J TO BE REMOVED AT START OF CONSTRUCTION.
 - EXISTING SIGNAL PHASING TO BE MAINTAINED FOR ALL STEPS.
 - CONTRACTOR TO MAINTAIN VISIBILITY OF ALL SIGNAL HEADS FROM STOP BARS DURING CONSTRUCTION.

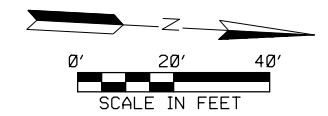


TCP LEGEND

- WORK ZONE
- COMPLETED WORK
- TEMP ASPHALT
- CONSTRUCTION BARREL
- CONSTRUCTION BARRICADE

LEGEND

- VEHICLE SIGNAL HEAD
- VIVDS VEHICLE DETECTOR ZONE
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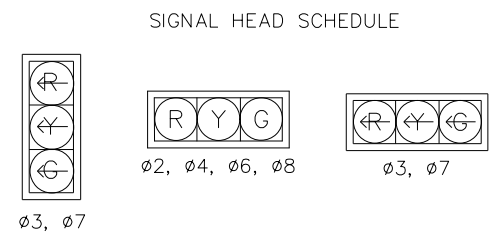
 TEI Planning + Design TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for review purposes of interim review under the authority of: BRADLEY G. ZEAVES 91759 2/16/2024
	SURVEYED BY: KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT ALLEN PKWY SIGNAL
TEMPORARY SIGNAL LAYOUT
SHEET 2 OF 3

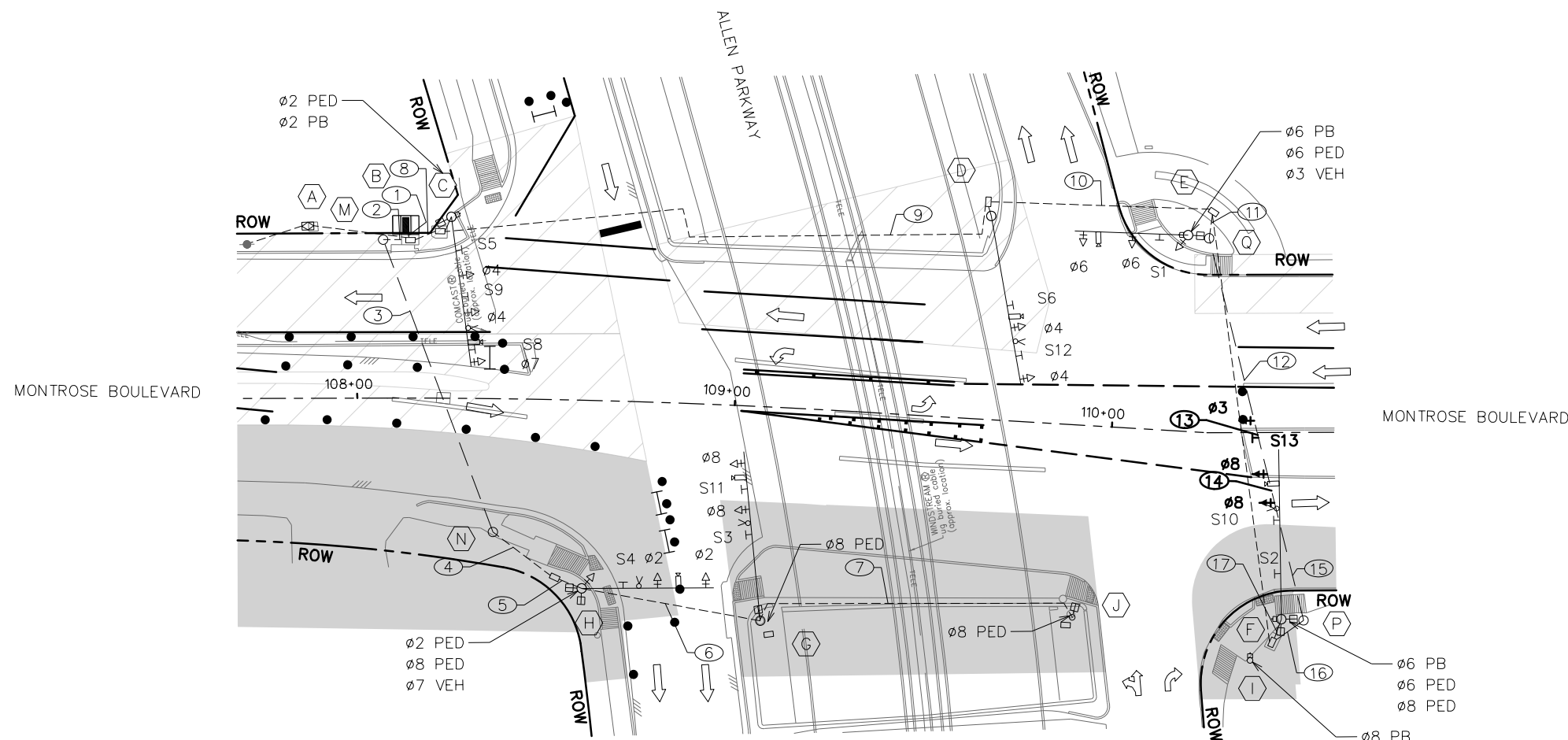
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JIADA HUANG	
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 5. VIVDS DETECTION ZONES TO BE ADJUSTED FOR EACH PHASE.
 6. PED PHASE RECALL ACTIVE DURING ALL CONSTRUCTION PHASES.
 7. CONTRACTOR TO MAINTAIN VISIBILITY OF ALL SIGNAL HEADS FROM STOP BARS DURING CONSTRUCTION.

APP.	
REVISIONS	
No.	DATE

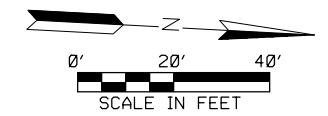


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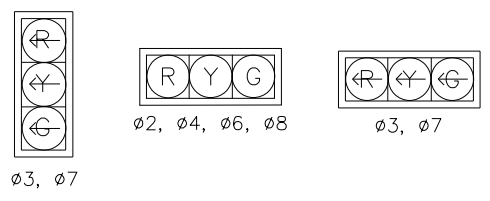
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SHEET 3 OF 3

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SIGNAL HEAD SCHEDULE



ITEM	RUN NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
LUMINAIRE & SIGN LIGHT	2 #10 AWG XHHW																	
PUSH BUTTON	3CC #14 AWG SOLID CONDUCTOR CABLE																	
PED. SIGNAL	5CC #14 AWG SOLID CONDUCTOR CABLE	5	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2
VEH. SIGNAL	7CC #14 AWG SOLID CONDUCTOR CABLE	8	5	5	5	3	2		3	3	3	3	3	2	1			2
GROUND BARE	BARE BOND #8 AWG SOLID		1		1			1				1					1	
POWER	SIGNAL POWER (SEE NOTE)																	
VVDS CABLE	PER MANUFACTURER	3	2	2	2	2	1											
CONDUIT	1 INCH PVC																	
	2 INCH PVC	EXIST																
	3 INCH PVC		SPAN			EXIST	SPAN		EXIST	EXIST	EXIST		SPAN	SPAN	SPAN	SPAN	1	EXIST
	4 INCH PVC		1		1							1						

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- CONTRACTOR TO MAINTAIN VISIBILITY OF ALL SIGNAL HEADS FROM STOP BARS DURING CONSTRUCTION.

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DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THE USE OF THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR ADEQUACY AND SAFETY AND WARRANTS OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

GENERAL NOTES

- THE CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) LATEST EDITION WITH REVISIONS DURING THE ENTIRE CONSTRUCTION PERIOD.
- ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM THE LATEST VERSION OF THE TMUTCD.
- NO LANES SHALL BE CLOSED DURING THE HOURS OF 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM MONDAY THRU FRIDAY WITHOUT APPROVAL OF THE CITY TRAFFIC ENGINEER.
- NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00 PM TO 7:00 AM.
- CONTRACTOR SHALL MAINTAIN APPROVED NUMBER OF THROUGH LANES OF TRAFFIC IN EACH DIRECTION DURING CONSTRUCTION WORKING HOURS. TRAFFIC CONTROL PLANS SHALL INCLUDE ONE-WAY AND/OR DETOUR PLANS. CONTRACTOR SHALL MAINTAIN ADA COMPLIANT PEDESTRIAN ACCESS TO BUS STOPS AND ADEQUATE BUS ACCESS TO ALL THE BUS STOPS.
- CONTRACTOR SHALL MAINTAIN TRAFFIC LANES AND DETOURS ACCORDING TO TRAFFIC CONTROL PLANS DURING WORKING HOURS.
- CONTRACTOR SHALL COVER OPEN PAVEMENT EXCAVATIONS FOR MINOR UTILITY WORK WITH ANCHORED STEEL PLATES DURING NON-WORKING HOURS, AND OPEN LANES FOR NORMAL TRAFFIC FLOW WHEN FEASIBLE.
- IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF "TRAFFIC CONTROL PLANS" DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT AN ALTERNATE SET OF TRAFFIC CONTROL PLANS TO THE CITY OF HOUSTON PROJECT MANAGER FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION. THESE PLANS SHALL BE DRAWN TO SCALE ON REPRODUCIBLE MYLARS AND SHALL BE SEALED BY A LICENSED ENGINEER IN THE STATE OF TEXAS. OFFICE OF CITY ENGINEER, MOBILITY PERMITS SECTION REPRESENTATIVE APPROVAL IS REQUIRED TO ACCEPT THE PROPOSED CHANGES.
- CONTRACTOR SHALL SECURE LANE/SIDEWALK/BICYCLE FACILITY CLOSURE PERMITS FROM OFFICE OF CITY ENGINEER (MOBILITY PERMIT SECTION AT <https://geohub.houstonlx.gov>) BEFORE IMPLEMENTING THE TRAFFIC CONTROL PLAN. THE APPLICATION MUST BE SUBMITTED AT LEAST TEN DAYS PRIOR TO THE IMPLEMENTATION OF THE TRAFFIC CONTROL PLAN AND/OR BEGINNING CONSTRUCTION WORK. THE CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS, CONSTRUCTION SEQUENCING, AND CONSTRUCTION SCHEDULE WITH THE APPLICATION.
- CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES.
- DURING PAVEMENT SURFACE RESTORATION PROJECTS; THE CONTRACTOR SHALL NOT OPEN CLOSED LANES UNTIL THE PAVEMENT SURFACE HAS CURED ENOUGH TO ALLOW VEHICULAR TRAFFIC ACCORDING TO CITY OF HOUSTON STANDARD SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND COORDINATING ALL CONSTRUCTION ACTIVITIES WITH STAKE HOLDERS IN THE VICINITY INCLUDING EMERGENCY RESPONSE AGENCIES SUCH AS HOUSTON POLICE DEPARTMENT, HOUSTON FIRE DEPARTMENT, AND METROPOLITAN TRANSIT AUTHORITY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ISSUING ALL WORK DIRECTIVES TO ALL SUB-CONTRACTORS, UTILITY COMPANIES, AND ALL OTHER ENTITIES PERFORMING CONSTRUCTION WORK ASSOCIATED WITH THE PROJECT.
- NOTHING IN THESE NOTES OR PLANS SHALL RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT; INCLUDING SAFETY OF ALL MODES OF TRANSPORTATION, PERSONS, AND PROPERTY, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO WORKING HOURS.
- THE OFFICE OF CITY ENGINEER (MOBILITY PERMITS GROUP) PER THE DIRECTION OF THE CITY TRAFFIC ENGINEER HAVE THE RIGHT TO DEMAND THE INSTALLATION OF ADDITIONAL TRAFFIC CONTROL DEVICES OR MODIFICATIONS OF THESE PLANS AND NOTES, AS DEEMED NECESSARY TO PROMOTE THE SAFE AND ORDERLY FLOW OF TRAFFIC, INCLUDING PEDESTRIANS AND BICYCLES, THROUGH THE CONSTRUCTION WORK ZONE. THE CONTRACTOR SHALL COMPLY WITH THESE ADDITIONAL REQUESTS OR MODIFICATIONS WITH DUE DILIGENCE.
- ALL EXISTING TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS SHALL BE MAINTAINED IN VISIBLE LOCATIONS DURING CONSTRUCTION UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER. THE CONTRACTOR SHALL RESTORE OR REPLACE (AT THE DISCRETION OF THE CITY TRAFFIC ENGINEER) ANY PAVEMENT MARKING OR SIGNING DAMAGE DURING CONSTRUCTION OPERATIONS, INCLUDING RAISED PAVEMENT MARKERS (RPMs).
- WHEN ENTERING OR LEAVING ROADWAYS CARRYING PUBLIC TRAFFIC, THE CONTRACTOR'S EQUIPMENT, WHETHER EMPTY OR LOADED SHALL IN ALL CASES YIELD TO PUBLIC TRAFFIC WITH THE ASSISTANCE OF CONTRACTOR PROVIDED CERTIFIED FLAGGER/PEACE OFFICER.
- ACCESS TO DRIVEWAYS ADJACENT TO THE CONSTRUCTION WORK ZONE SHALL BE MAINTAINED AT ALL TIMES AS MUCH AS POSSIBLE. ADDITIONAL CONES AND/OR DELINEATORS MAY BE REQUIRED TO DELINEATE THE DRIVEWAY ACCESS ROUTE THROUGH THE CONSTRUCTION WORK ZONE. A MINIMUM OF ONE TRAVEL LANE SHALL BE MAINTAINED ACROSS THE DRIVEWAYS, UNLESS PRIOR WRITTEN APPROVAL IS OBTAINED FROM CITY OF HOUSTON PROJECT MANAGER.
- SPILLAGE RESULTING FROM HAULING OPERATIONS ALONG OR ACROSS ANY PUBLIC TRAVELED WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
- THE CONTRACTOR SHALL SUBMIT AN APPLICATION FOR TEMPORARY PARKING RESTRICTIONS IF THERE ARE PARKING METERS LOCATED AT THE PROPOSED LANE CLOSURES FROM PARKING MANAGEMENT DIVISION (832-393-8690) AT LEAST TEN BUSINESS DAYS BEFORE IMPLEMENTATION OF LANE CLOSURES. IN ADDITION, TEMPORARY NO PARKING SIGNS SHALL BE POSTED 24 HOURS PRIOR TO COMMENCEMENT OF WORK.
- ADDITIONAL OFF DUTY OFFICERS/FLAGGERS MAY BE REQUESTED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED AT THE DISCRETION OF THE CITY PROJECT MANAGER EVEN IF THEY ARE NOT SPECIFICALLY IDENTIFIED ON THE PROJECT PLANS.
- THE CONTRACTOR SHALL REPLACE WITHIN 72 HOURS, ALL TRAFFIC SIGNAL LOOP DETECTORS DAMAGED DURING CONSTRUCTION.
- IN GENERAL, A SOLAR POWERED FLASHING ARROW BOARD SHALL BE REQUIRED ON ALL MAJOR THOROUGHFARE LANES CLOSURES. EXCEPTIONS TO FLASHING ARROW BOARDS AND/OR IMPLEMENTATION ON RESIDENTIAL LANE CLOSURES SHALL BE APPROVED BY CITY TRAFFIC ENGINEER.
- APPROVED TRAFFIC CONTROL PLAN SHALL BE IN PLACE BEFORE STARTING ANY EXCAVATION.
- WATER FILLED BARRIERS CAN BE USED AS INSTRUCTED BY THE ENGINEER AND APPROVED BY THE CITY FOR PROJECTS WHERE SPACE IS LIMITED AND HEAVY EQUIPMENT TO PLACE CONCRETE BARRIERS IS NOT FEASIBLE. WATER FILLED BARRIERS SHALL NOT BE USED ON ROADWAYS WITH A POSTED SPEED LIMIT MORE THAN 45 MPH.
- WATER FILLED BARRIERS MUST BE INSTALLED AND MAINTAINED PER THE MANUFACTURER'S REQUIREMENTS AND ROUTINELY INSPECTED FOR DEFECTS.
- IF WATER FILLED BARRIER IS PROVIDED, USE ENVIRONMENTALLY SAFE ANTI-FREEZING AGENT IN THE WATER WHEN IT IS APPLICABLE PER MANUFACTURER SPECIFICATIONS AND RECOVER AGENT WHEN THE BARRIER IS DRAINED.

- DISPOSE OF WATER AND AGENT PROPERLY. DO NOT DRAIN WATER FILLED BARRIER INTO OR ACROSS AN EXISTING TRAVEL LANE.
- PROVIDE BARRIER UNITS THAT ARE CAPABLE OF BEING LIFTED AND MOVED WHEN FILLED IF DRAINING IS NOT POSSIBLE.
- PROVIDE WATER FILLED BARRIER THAT ACTS AS ITS OWN FREE STANDING, NON-REDIRECTIVE END TREATMENT.
- WHEN WATER FILLED BARRIERS ARE USED TO CHANNELIZE PEDESTRIANS, THEY MUST HAVE A CONTINUOUS DETECTABLE BOTTOM FOR USERS OF LONG CANES AND THE TOP OF THE UNIT SHALL NOT BE LESS THAN 32 INCHES IN HEIGHT.
- ANY CLOSURE OF A PEDESTRIAN OR BICYCLE FACILITY SHALL REQUIRE THE SHORTEST DETOUR THAT MAINTAINS THE SAFETY OF PEDESTRIAN AND/OR BICYCLISTS.

SPACING FOR CHANNELIZING DEVICES

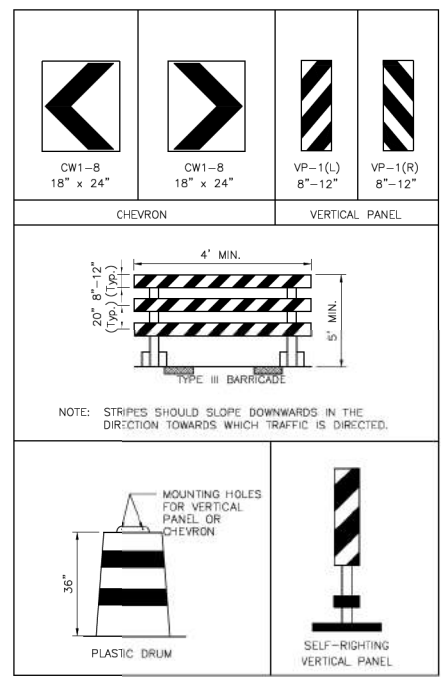
- PLASTIC DRUMS ON MERGING TAPER @ 30' C - C WITH CHEVRON SIGN @ 60' C - C AND WARNING LIGHTS FOR OVERNIGHT CLOSURE.
- PLASTIC DRUMS ON DOWNSIDE TAPER @ 30' C - C (RETURN TAPER AND BARRICADE ARE OPTIONAL AND DIVIDED ROADWAY SECTION)
- PLASTIC DRUMS ON RADI @ 35' C - C.
- PLASTIC DRUMS ON TANGENT @ 35' C - C WITH VERTICAL PANEL AT 70' C - C AND APPROVED WARNING LIGHT @ 70' C - C (FOR OVERNIGHT CLOSURE).
- PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C - C WITH VERTICAL PANEL AT 40' C - C AND APPROVED WARNING LIGHT @ 40' C - C (FOR OVERNIGHT CLOSURE).
- CONCRETE TRAFFIC BARRIER (CTB) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB) WITH APPROVED REFLECTORS @ 10' C - C IF PAVEMENT DROP IS GREATER THAN 1 FOOT.
- PLASTIC DRUMS W/GUARD RAIL MOUNTED.
- SELF-RIGHTING VERTICAL PANEL SPACING.
 - 4 LANES TO 2 LANES UNDIVIDED ROADWAY SECTION @ 20' C - C.
 - 4 LANES DIVIDED ROADWAY TO ONE SIDE TWO WAY ROADWAY @ 20' C - C.
 - LEFT LANE AND RIGHT LANE STORAGE BAYS @ 15' C - C.
- SPACING SHOWN ON TRAFFIC CONTROL SHALL SUPERSEDE THE ABOVE SPACING.
- SPACING MAY BE ADJUSTED TO PROVIDE DRIVEWAYS, INTERSECTIONS AND /OR MEDIAN OPENINGS.

TABLE C3 - TYPICAL SIGN SPACING, TAPER LENGTHS, AND SUGGESTED SPACING OF CHANNELIZATION DEVICES

POSTED SPEED (MPH)	SIGN SPACING "X" (FEET)	MIN. DESIRABLE TAPER LENGTH "L"			SUGGESTED MAXIMUM SPACING OF DEVICE	
		10' OFFSET	11' OFFSET	12' OFFSET	ON A TAPER	ON A TANGENT
30	120'	150'	165'	180'	30'	60'-75'
35	160'	205'	225'	245'	35'	70'-90'
40	240'	265'	295'	320'	40'	80'-100'
45	320'	450'	495'	540'	45'	90'-110'
50	400'	500'	550'	600'	50'	100'-125'
55	500'	550'	605'	660'	55'	110'-140'

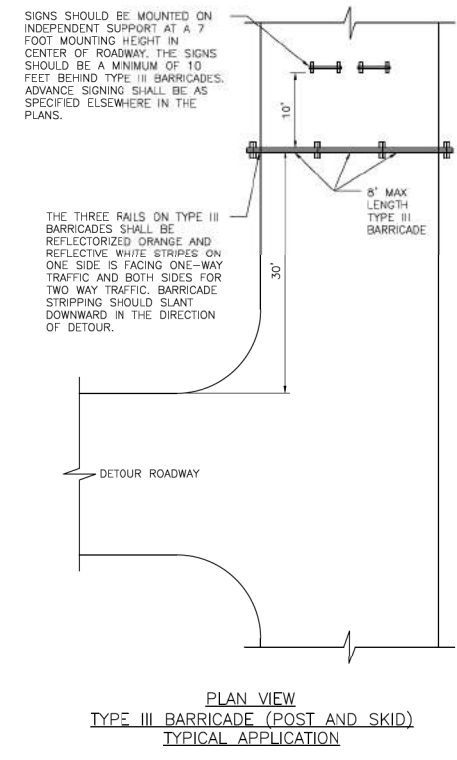
TABLE C4 - STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

POSTED SPEED (MPH)	DISTANCE "D" (FEET)
30	200
35	250
40	305
45	360
50	425
55	495



- LEGEND:**
- SIGN
 - FLAGGER
 - APPROVED CHANNELIZATION DEVICE
 - BARRICADE
 - FLASHING ARROW PANEL
 - AREA UNDER CONSTRUCTION
 - EXISTING TRAVEL WAY
 - TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

CHANNELIZATION AND BARRICADES



APPROVED BY: *Sudal Karam* CITY ENGINEER

APPROVED BY: *HARSH NGUYEN* CITY TRAFFIC ENGINEER

APPROVED BY: *Carl Holland* DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV-27-2023 DWG NO: 01555-01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP NOTES CHANNELIZING DEVICES AND BARRICADES

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE: NOT TO SCALE

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

TCP NOTE, CHANNELIZING DEVICES AND BARRICADES

SHEET 1 OF 12

WBS NUMBER: N-T27000-0005-7

DRAWING SCALE: AS NOTED

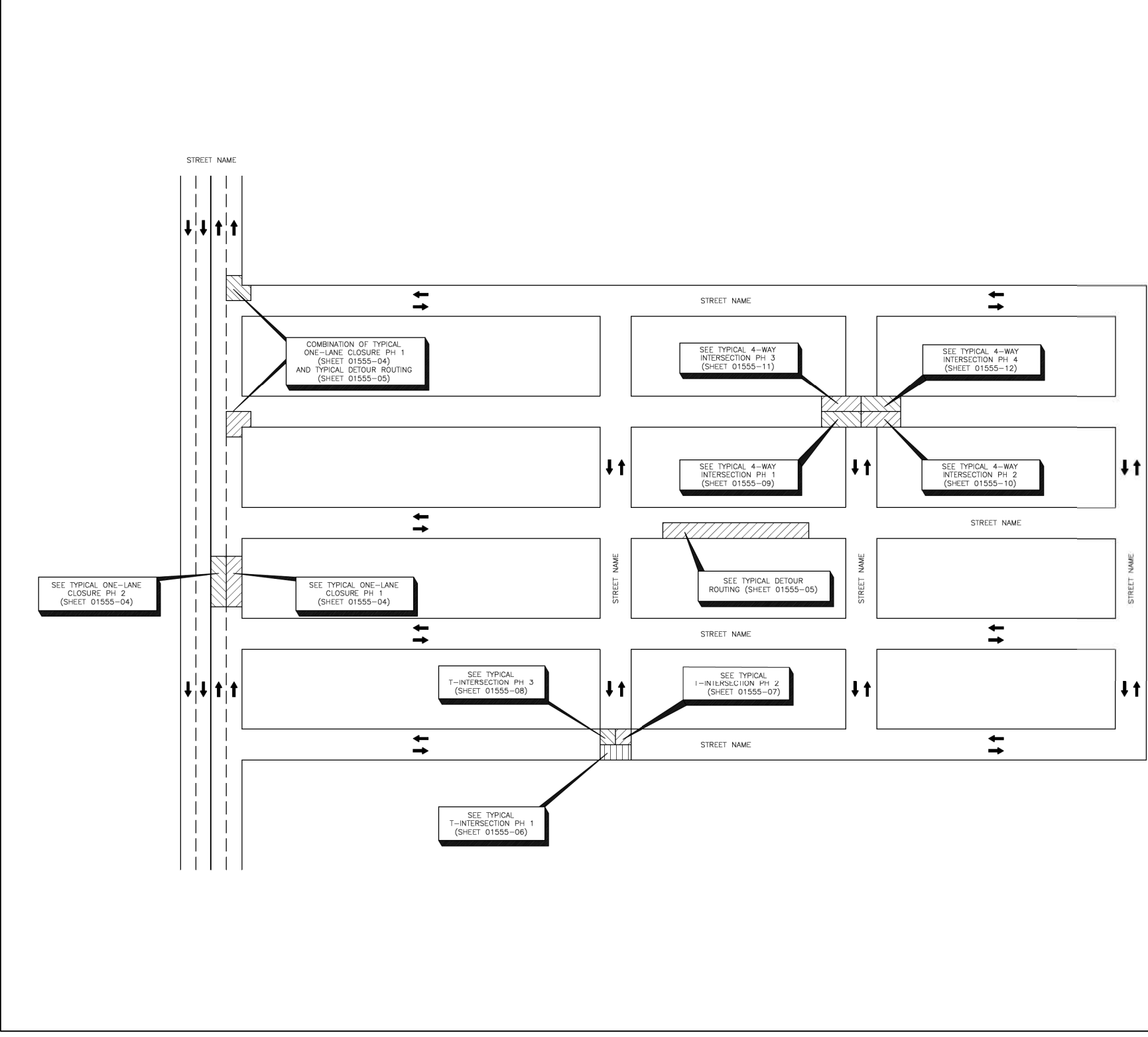
CITY OF HOUSTON PM: JIADA HUANG

SHEET NO: 53 OF 355

No.	DATE	REVISIONS	APP.

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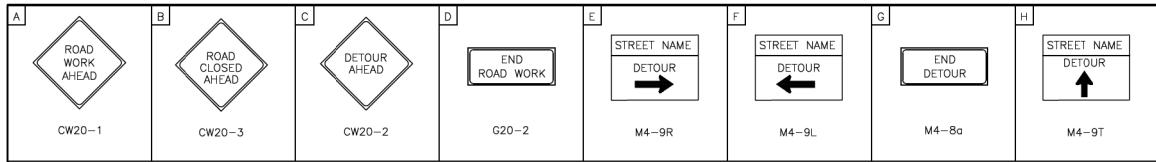


APPROVED BY: <i>Sahar Hassan</i> CITY ENGINEER	APPROVED BY: <i>LIANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carroll</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-02
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP OVERALL TRAFFIC CONTROL LAYOUT	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

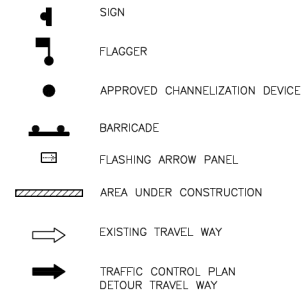
MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> KARIM QADDO 125611 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TCP OVERALL TRAFFIC CONTROL LAYOUT	
SHEET 2 OF 12	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 54 OF 355	

No.	DATE	REVISIONS	APP.

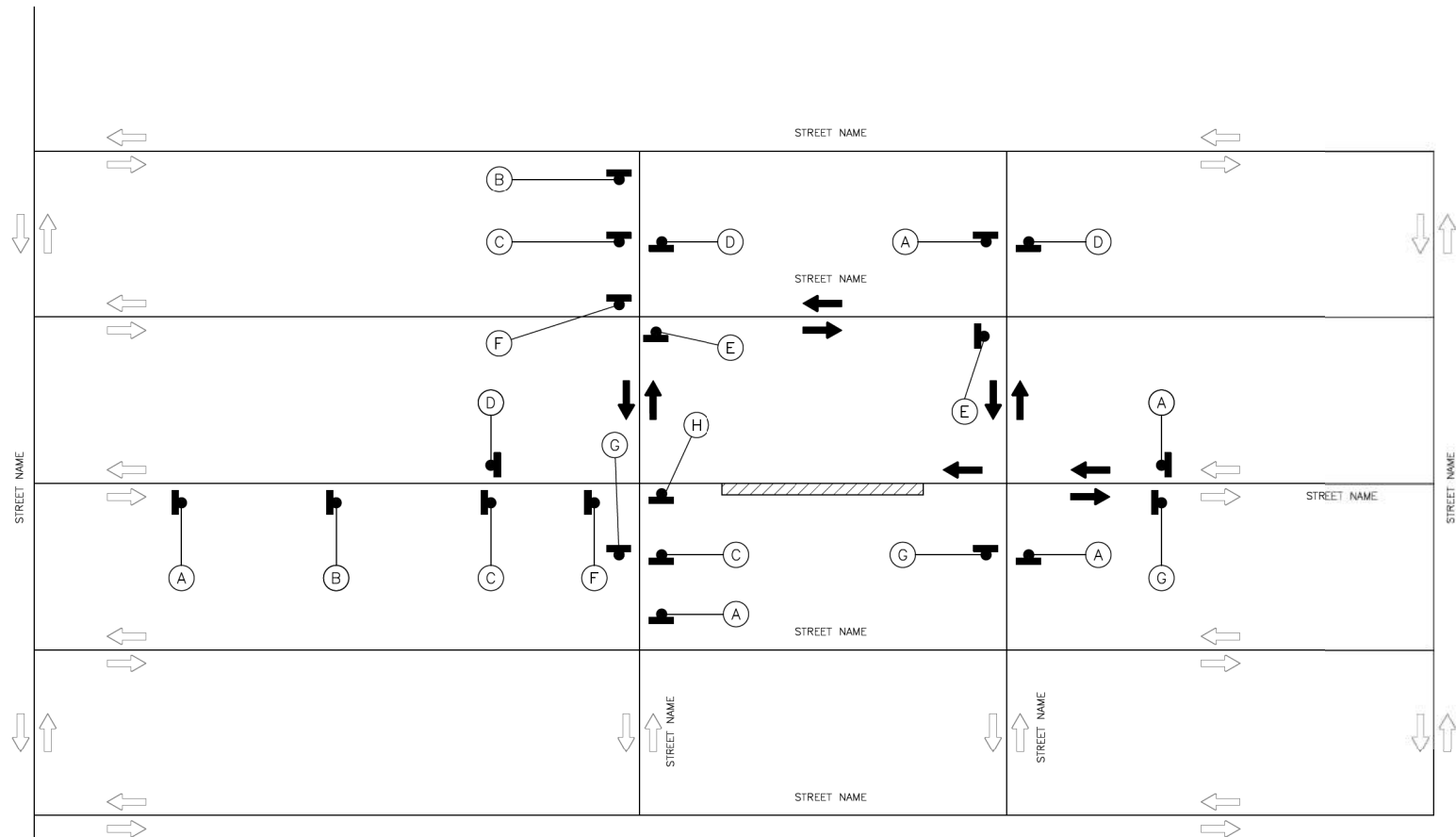
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APPROVED BY: <i>Suzel Ivanovic</i> CITY ENGINEER	APPROVED BY: <i>HEUNG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-03
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TRAFFIC CONTROL LAYOUT	
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 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

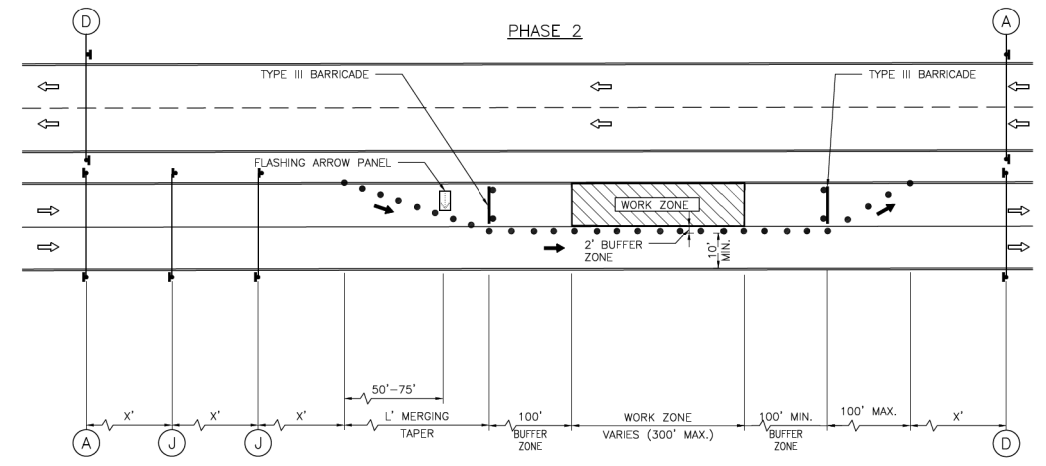
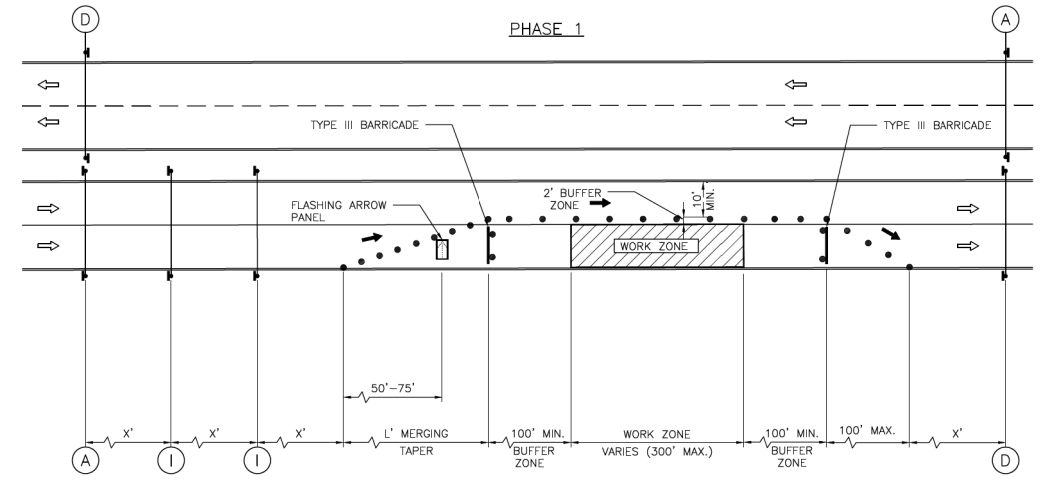
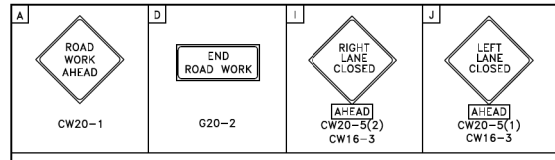
TRAFFIC CONTROL LAYOUT

SHEET 3 OF 12

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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO: 55	OF 355

No.	DATE	REVISIONS	APP.

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- LEGEND:**
- SIGN
 - FLAGGER
 - APPROVED CHANNELIZATION DEVICE
 - BARRICADE
 - FLASHING ARROW PANEL
 - AREA UNDER CONSTRUCTION
 - EXISTING TRAVEL WAY
 - TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

- NOTES:**
1. RETURN TAPERS AND DOWNSTREAM BARRICADES ARE OPTIONAL ON A DIVIDED ROADWAY SECTION.
 2. DOUBLE SIGNS SHALL BE USED ONLY ON ROADWAYS WITH MEDIANS.
 3. FOR DIMENSIONS REFER TO SHEET 01555-01.
 4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.

APPROVED BY: <i>Sulaiman</i> CITY ENGINEER	APPROVED BY: <i>KARIM QADDO</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-04
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP ONE LANE CLOSURE PHASE 1 & 2	
FOR CITY OF HOUSTON USE ONLY	
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NOT TO SCALE	

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 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

TCP ONE LANE CLOSURE PHASE 1 & 2

SHEET 4 OF 12

FOR CITY OF HOUSTON USE ONLY

WBS NUMBER: N-T27000-0005-7

DRAWING SCALE: AS NOTED

CITY OF HOUSTON PM: JIADA HUANG

SHEET NO: 56 of 355

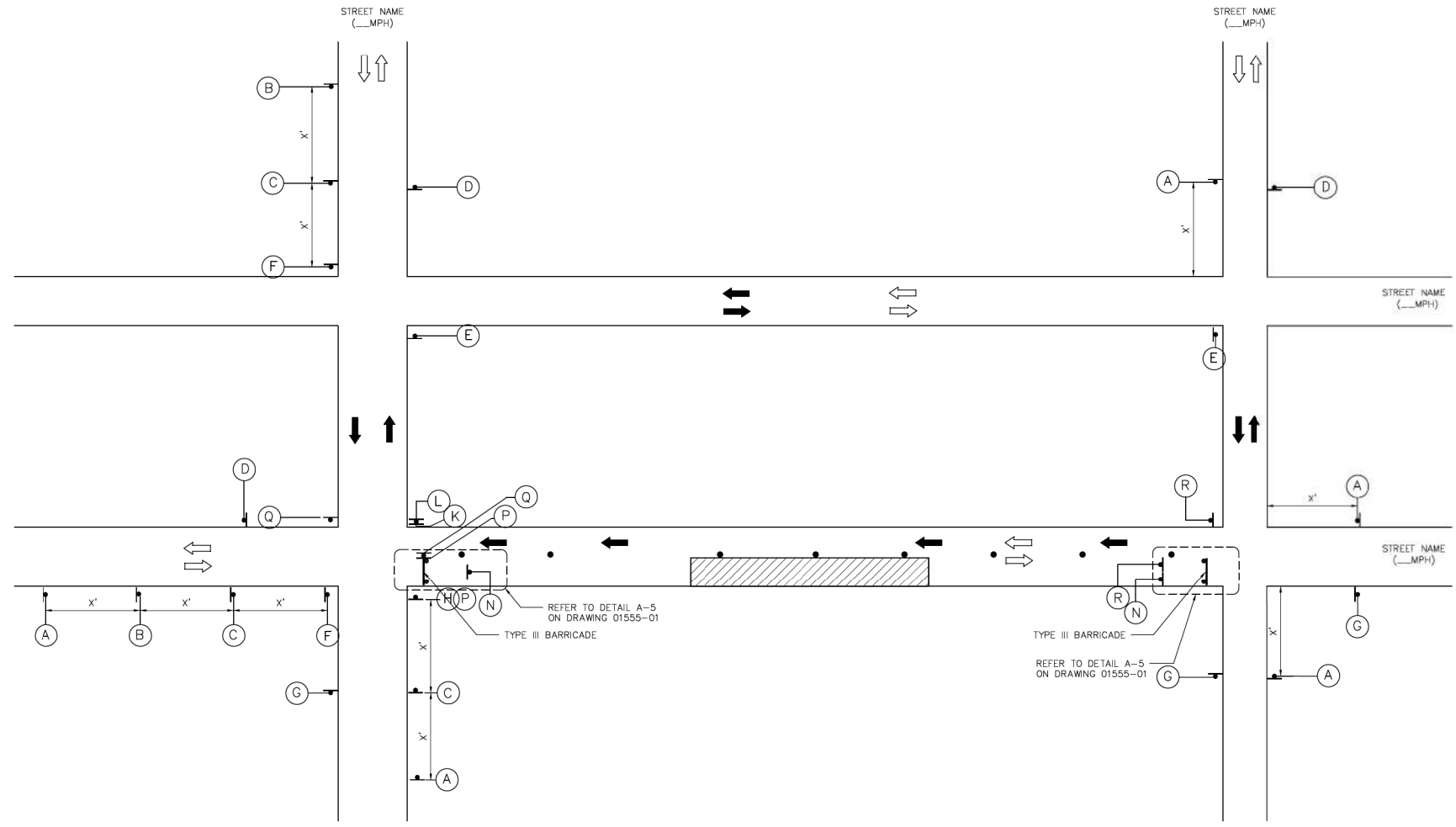
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A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R		

- LEGEND:**
- SIGN
 - FLAGGER
 - APPROVED CHANNELIZATION DEVICE
 - BARRICADE
 - FLASHING ARROW PANEL
 - AREA UNDER CONSTRUCTION
 - EXISTING TRAVEL WAY
 - TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

- NOTES:**
1. A 10' MINIMUM LANE WIDTH FOR EMERGENCY SHALL BE MADE AVAILABLE AND MAINTAINED BY THE CONTRACTOR AT ALL TIMES.
 2. FOR DIMENSIONS REFER TO SHEET 01555-01.
 3. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.



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APPROVED BY: <i>Suzanne Krawmer</i> CITY ENGINEER	APPROVED BY: <i>Erin Nguyen</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Holbrook</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-05
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP TYPICAL DETOUR ROUTING WITH ONE LANE CLOSURE (ONE BLOCK)	
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DRAWING SCALE	
NOT TO SCALE	

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTR0SE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**

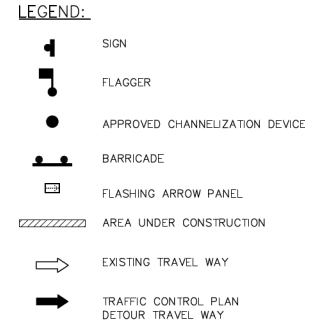
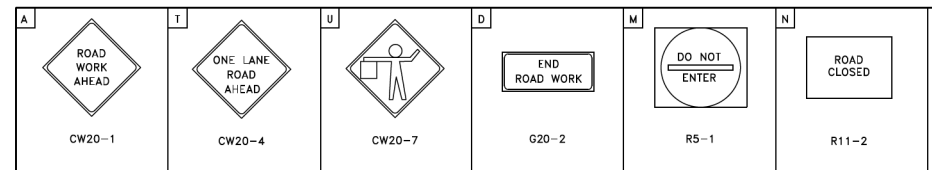
**TCP TYPICAL DETOUR ROUTING
 WITH ONE LANE CLOSURE
 (ONE BLOCK)**

SHEET 5 OF 12

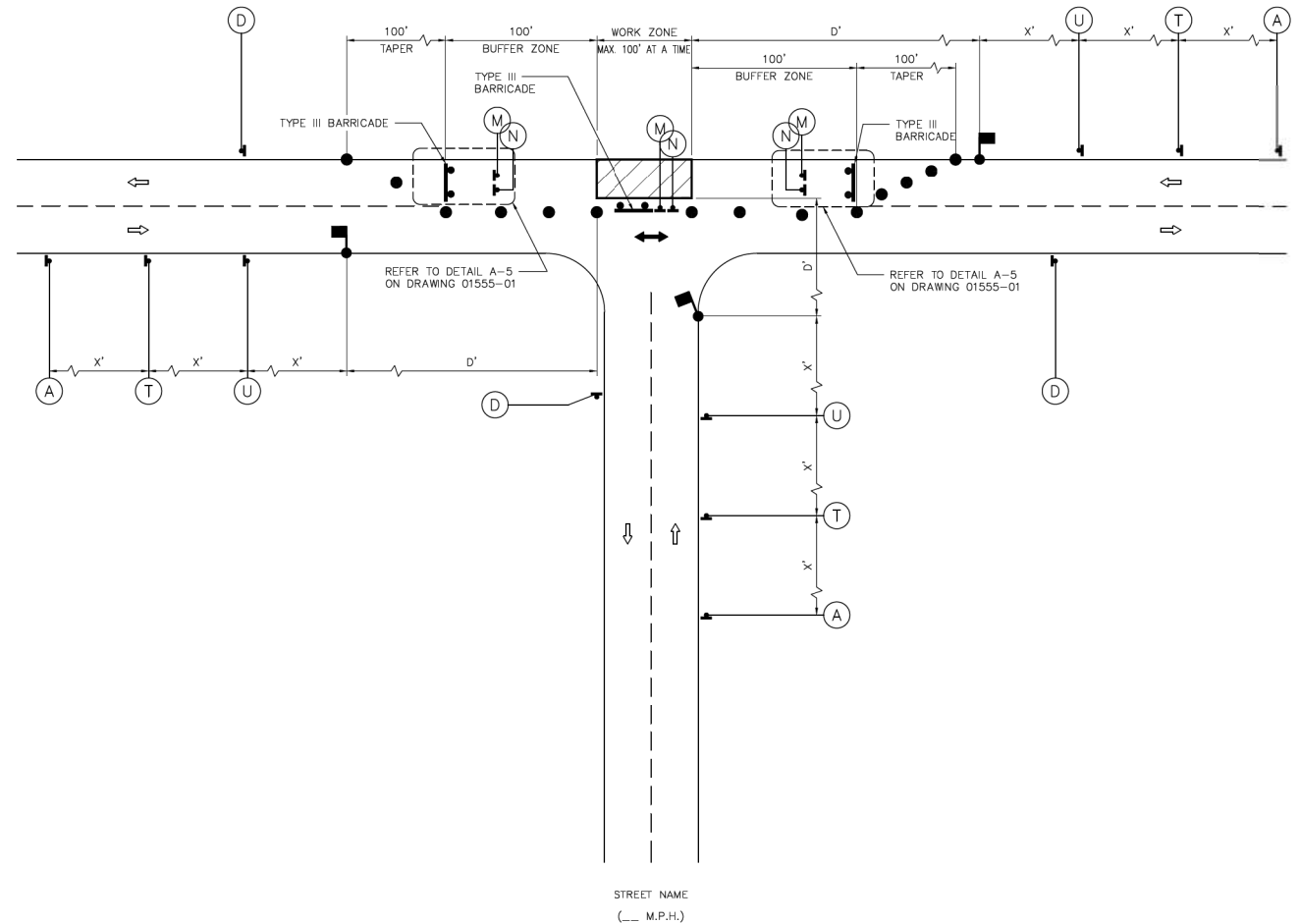
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CITY OF HOUSTON PM	JUADA HUANG
SHEET NO	57 of 355

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- NOTES:**
- MINOR WORK AND DAYTIME OPERATIONS ONLY.
 - REFER TO PROJECT SPECIFIC TRAFFIC CONTROL PLANS FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
 - FOR DIMENSIONS REFER TO SHEET 01555-01.
 - INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
 - MAX. 100' WORK ZONE AT A TIME.



DISCLAIMER: THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH ANY USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

APPROVED BY: <i>Sudant Kulkarni</i> CITY ENGINEER	APPROVED BY: <i>LIANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Stubbins</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-06

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TCP TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION PHASE 1 OF 3

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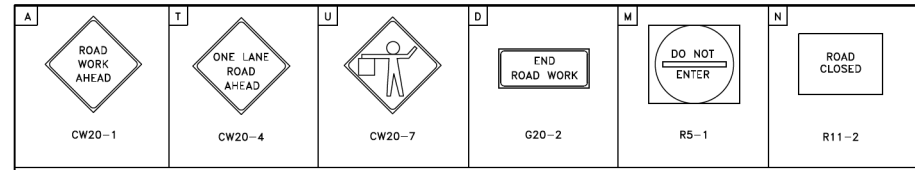
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 TCP TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION PHASE 1 OF 3

SHEET 6 OF 12

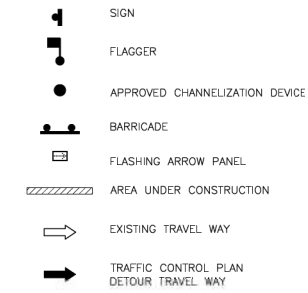
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JUADA HUANG	
SHEET NO. 58 OF 355	

No.	DATE	REVISIONS	APP.

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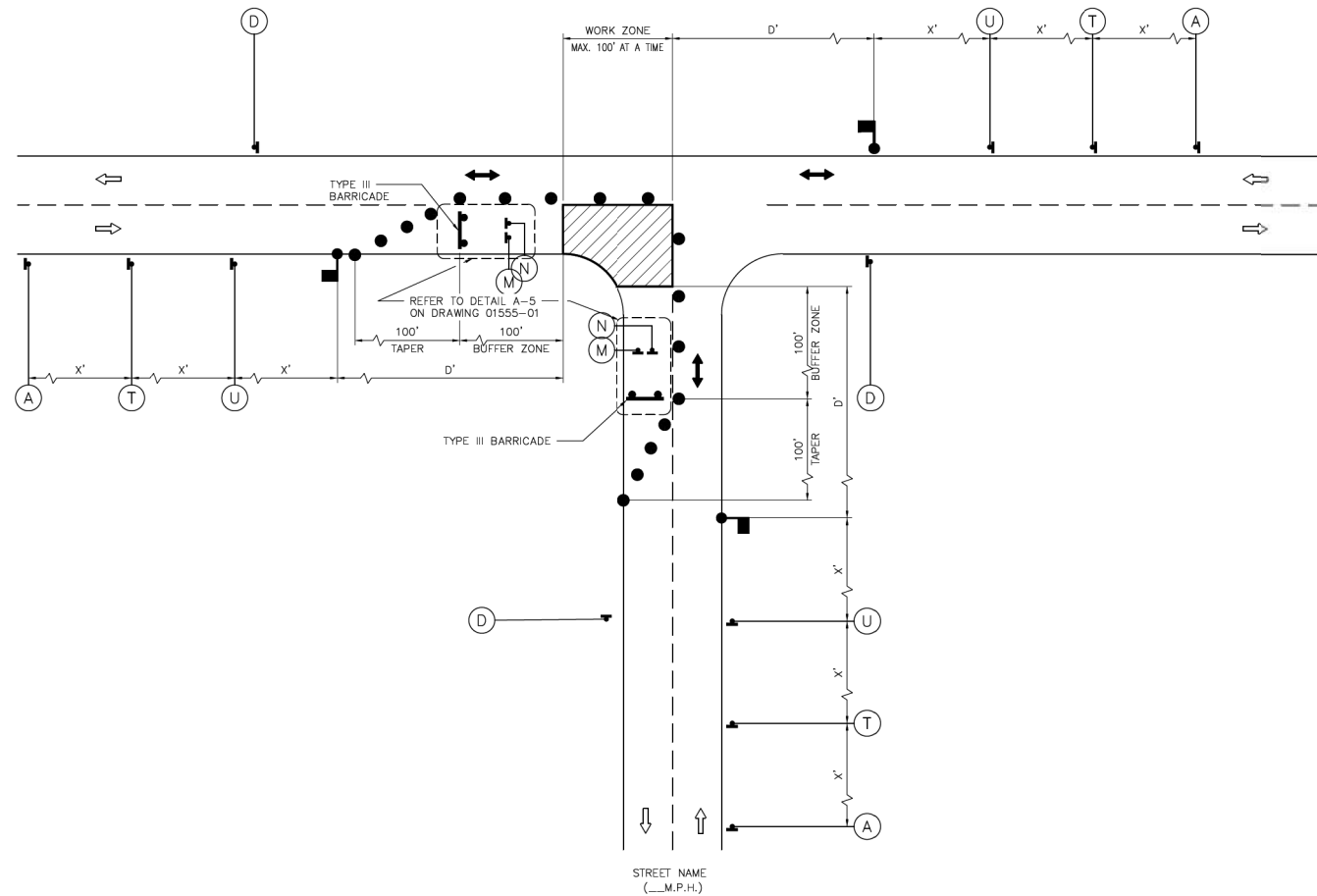


LEGEND:



NOTES:

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- REFER TO PROJECT SPECIFIC TRAFFIC CONTROL PLANS FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
- FOR DIMENSIONS REFER TO SHEET 01555-01.
- INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
- MAX. 100' WORK ZONE AT A TIME.



STREET NAME
(...M.P.H.)

STREET NAME
(...M.P.H.)

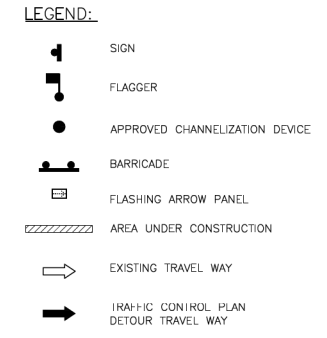
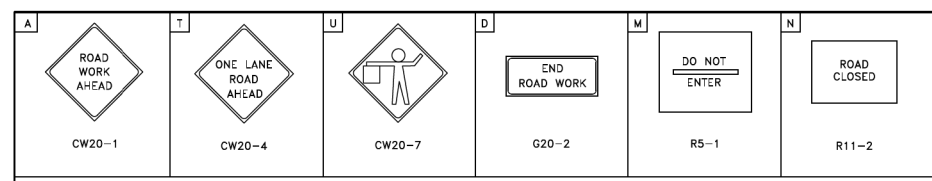
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APPROVED BY: <i>Sultan Esauwari</i> CITY ENGINEER	APPROVED BY: <i>Wahne Nguyen</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-07
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION PHASE 2 OF 3	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

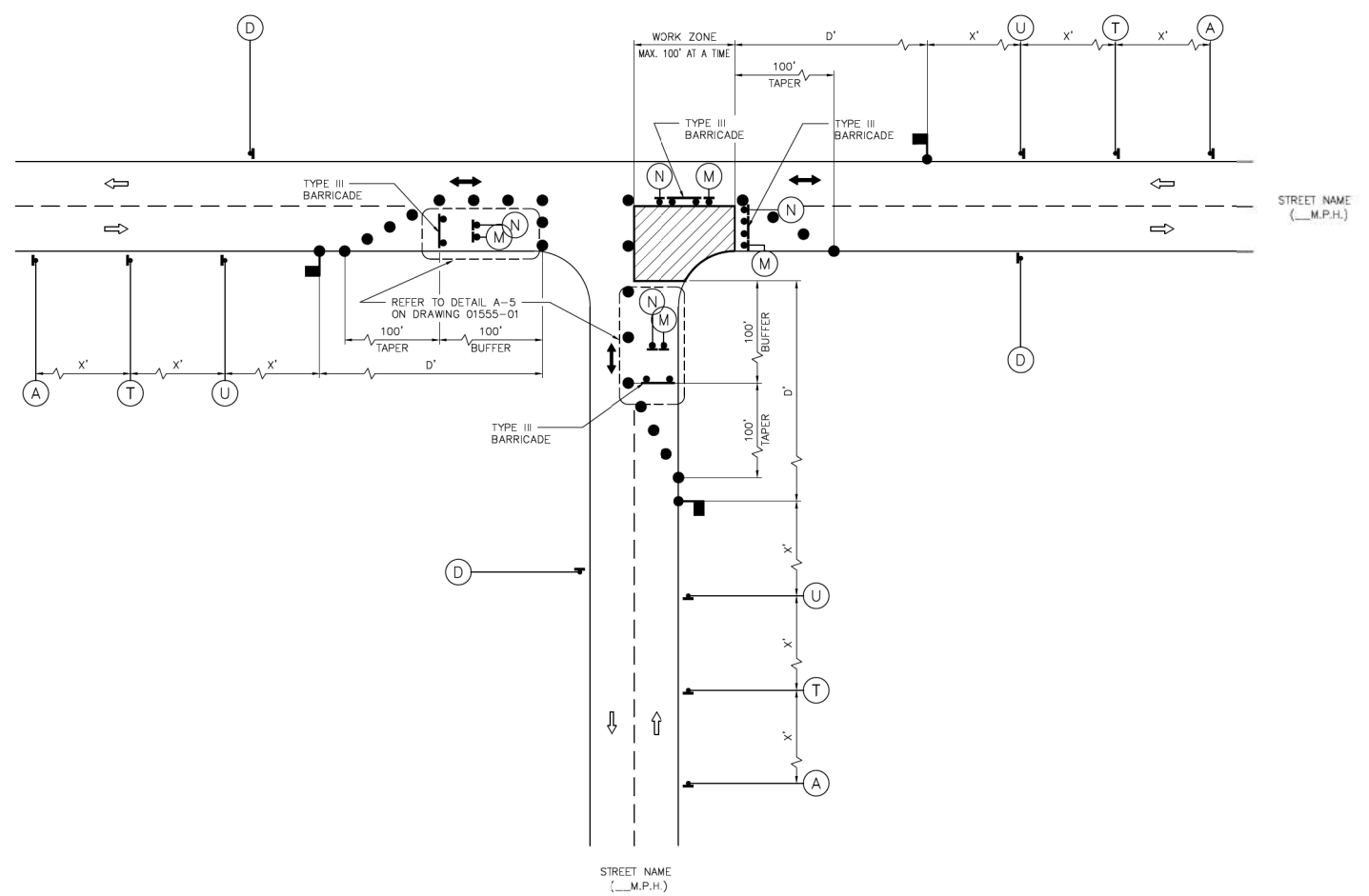
<p>TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</p> <p><u>KARIM QADDO</u> 125611 2/20/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017</p>
<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TCP TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION PHASE 2 OF 3</p>	
<p>SHEET 7 OF 12</p>	
<p>FOR CITY OF HOUSTON USE ONLY</p> <p>WBS NUMBER N-T27000-0005-7</p> <p>DRAWING SCALE AS NOTED</p> <p>CITY OF HOUSTON PM JIADA HUANG</p> <p>SHEET NO 59 of 355</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>

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No.	DATE

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 - FOR DIMENSIONS REFER TO SHEET D1555-01.
 - INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
 - MAX. 100' WORK ZONE AT A TIME.



APPROVED BY: <i>Sahad Ebrahim</i> CITY ENGINEER	APPROVED BY: <i>LAIRING HOANG</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: D1555-08
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION PHASE 3 OF 3	
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DRAWING SCALE	
NOT TO SCALE	

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MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

SURVEYED BY:
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1**

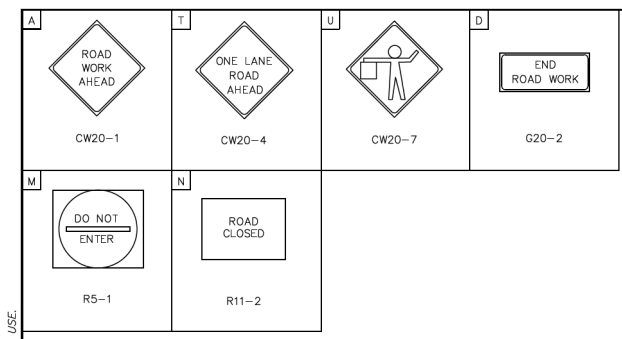
**TCP TYPICAL CONSTRUCTION
ZONE AT A T-INTERSECTION
PHASE 3 OF 3**

SHEET 8 OF 12

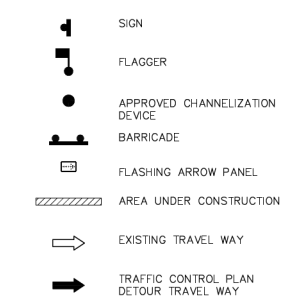
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DRAWING SCALE	
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CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 60 OF 355	

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	REVISIONS
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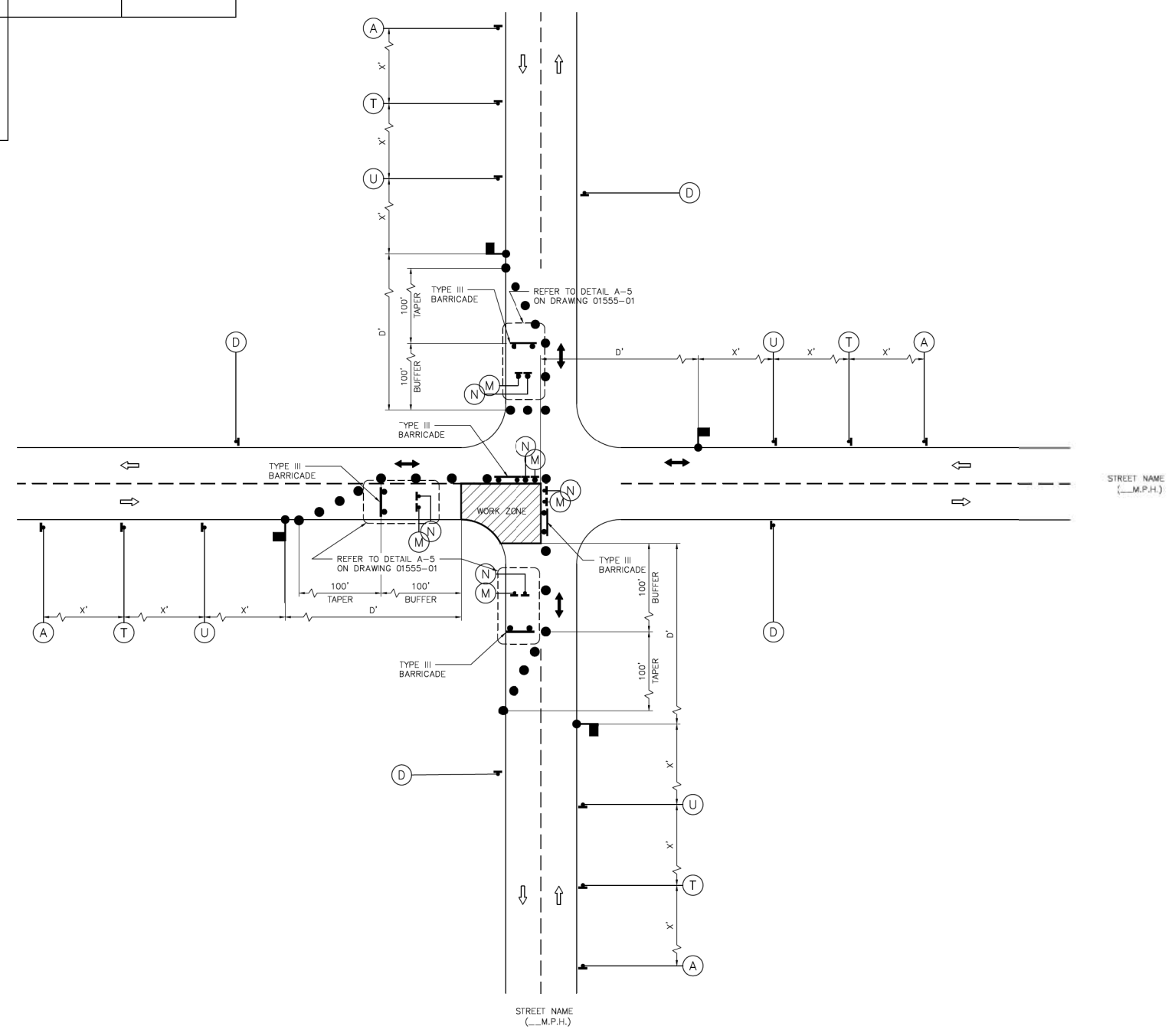
LEGEND:



NOTES:

- MINOR WORK AND DAYTIME OPERATIONS ONLY.
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- FOR DIMENSIONS REFER TO SHEET 01555-01.
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- MAX. 100' WORK ZONE AT A TIME.

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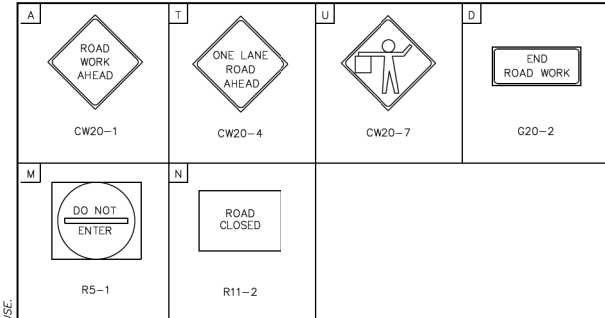


APPROVED BY: <i>Suhail Kassar</i> CITY ENGINEER	APPROVED BY: <i>BRUCE NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl [Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-09
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 1 OF 4	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

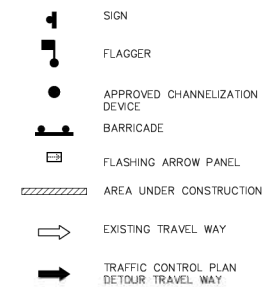
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> KARIM QADDO 125611 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 1 OF 4 SHEET 9 OF 12	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 61 OF 355	

REVISIONS	APP.
No.	DATE

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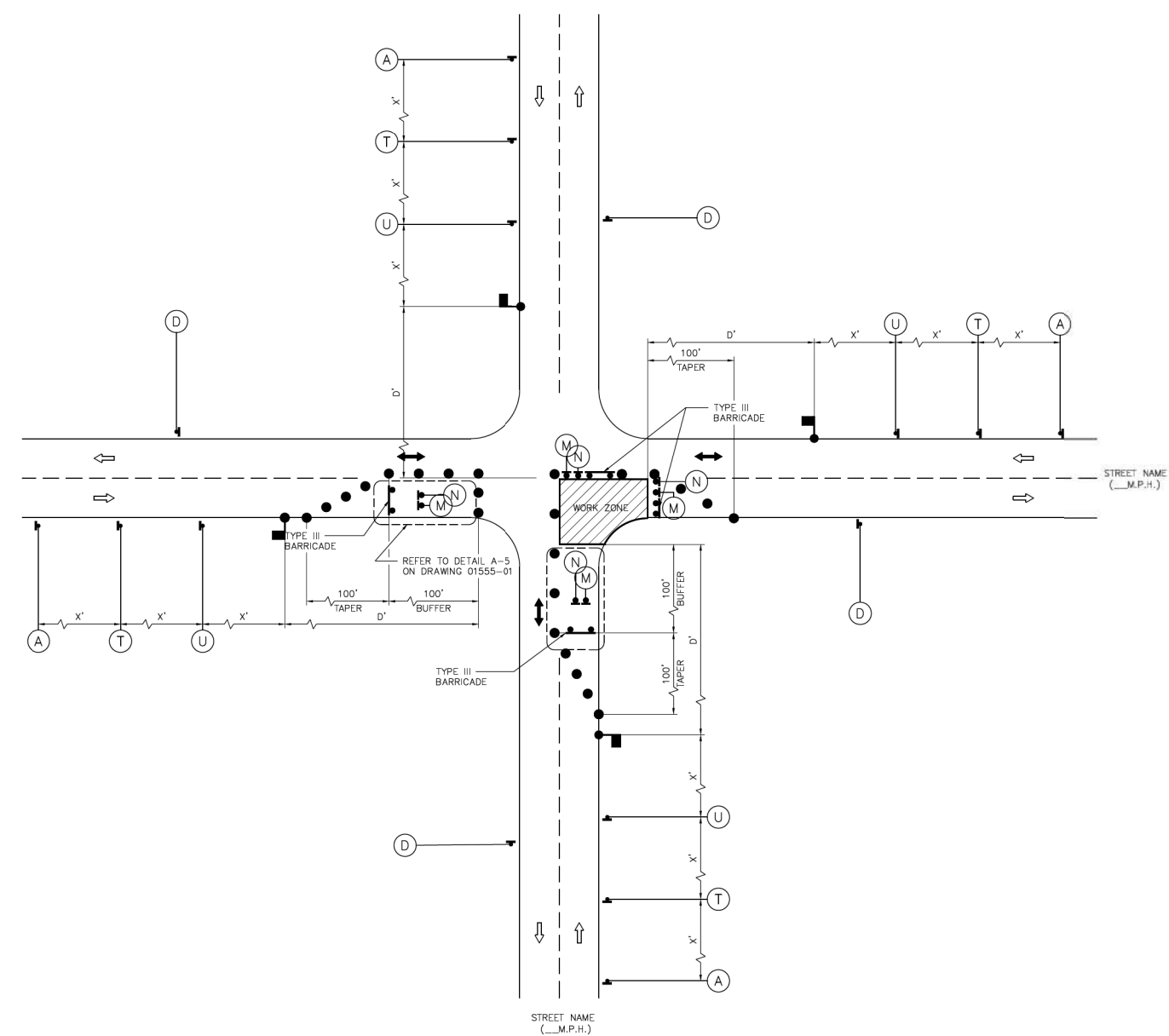
LEGEND:



NOTES:

- MINOR WORK AND DAYTIME OPERATIONS ONLY.
- REFER TO PROJECT SPECIFIC TRAFFIC CONTROL PLANS FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
- FOR DIMENSIONS REFER TO SHEET D1555-01.
- INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
- MAX. 100' WORK ZONE AT A TIME.

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APPROVED BY: <i>Sulek Kassar</i> CITY ENGINEER	APPROVED BY: <i>LIANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hubbard</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-10
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 2 OF 4	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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KARIM QADDO
125611
2/20/2024
100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-20017

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
TCP TYPICAL CONSTRUCTION ZONE AT
A 4-WAY INTERSECTION
(LOW VOLUME TRAFFIC)
PHASE 2 OF 4

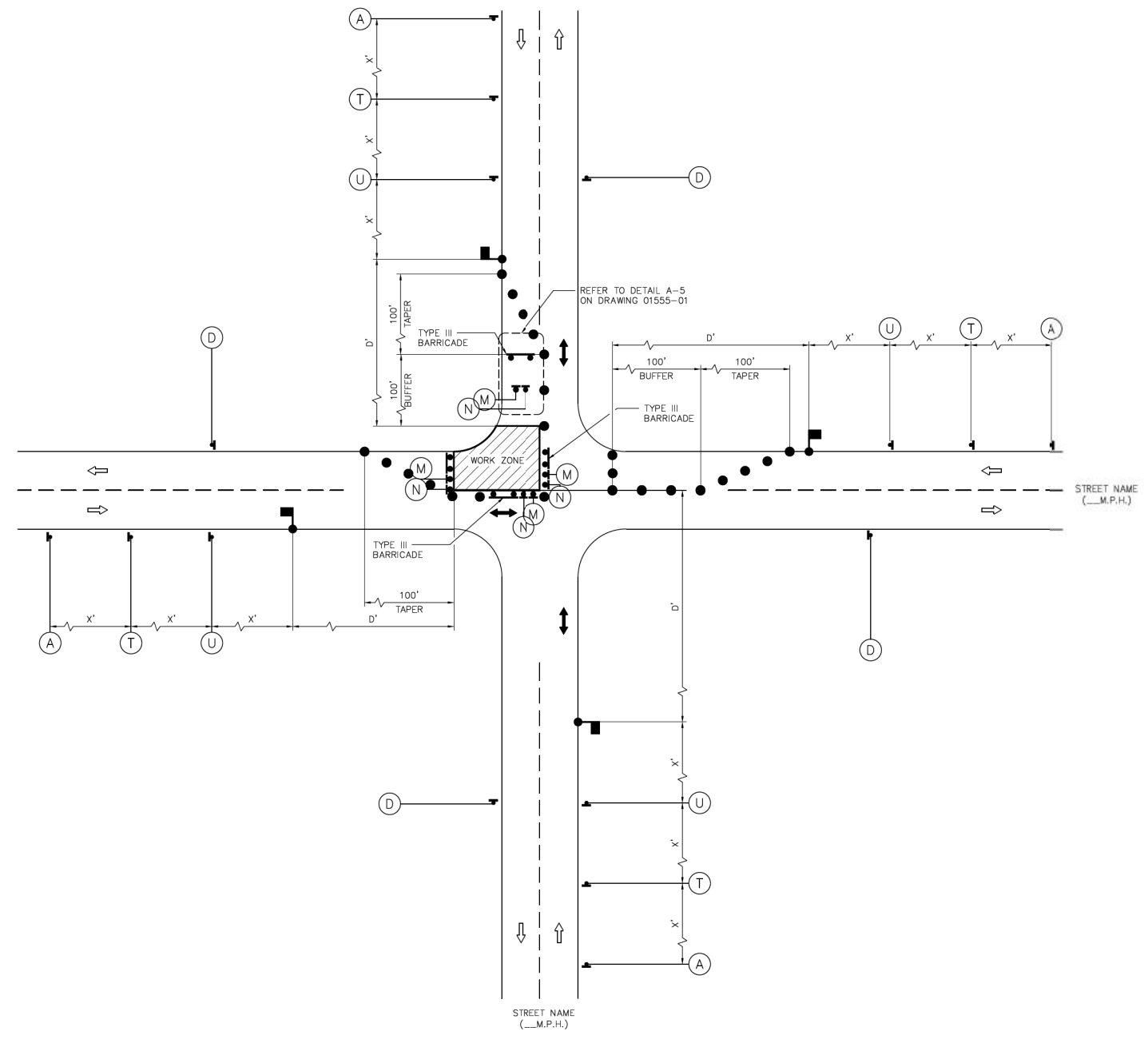
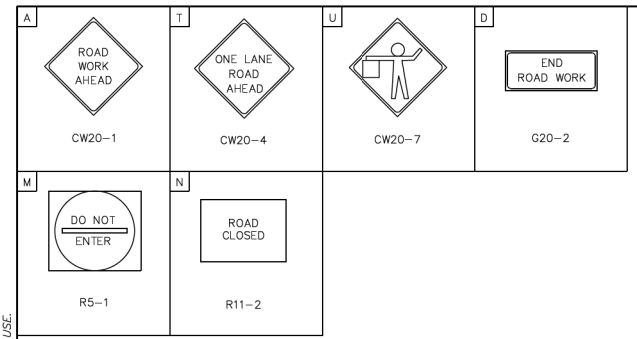
SHEET 10 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 62 OF 355	

No.	DATE	REVISIONS	APP.

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LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

1. MINOR WORK AND DAYTIME OPERATIONS ONLY.
2. REFER TO PROJECT SPECIFIC TRAFFIC CONTROL PLANS FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01555-01.
4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
5. MAX. 100' WORK ZONE AT A TIME.

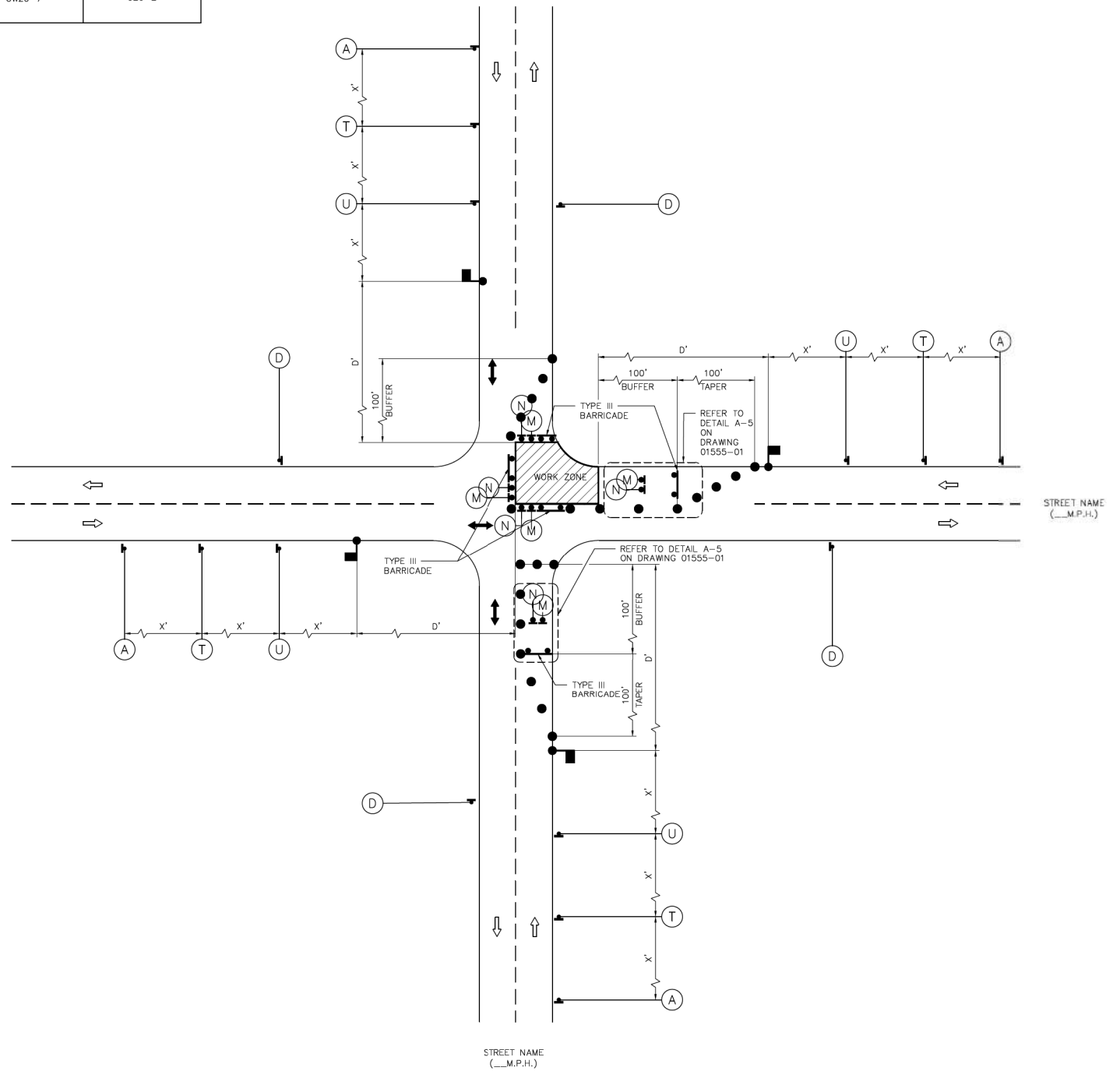
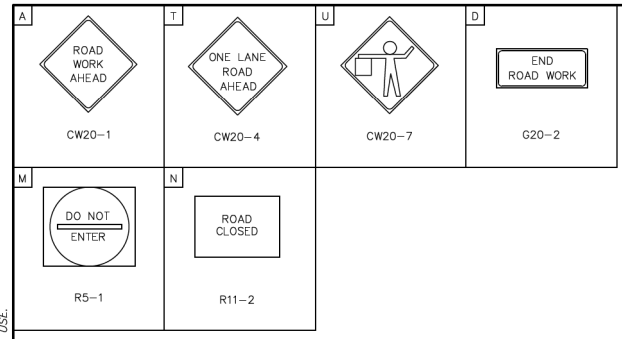
APPROVED BY: <i>Sahar Karam</i> CITY ENGINEER	APPROVED BY: <i>Leung Nguyen</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO. 01555-11
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 3 OF 4	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> KARIM QADDO 125611 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 3 OF 4 SHEET 11 OF 12	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 63 OF 355	

No.	DATE	REVISIONS	APP.

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LEGEND:

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVEL WAY
- TRAFFIC CONTROL PLAN
- DETOUR TRAVEL WAY

NOTES:

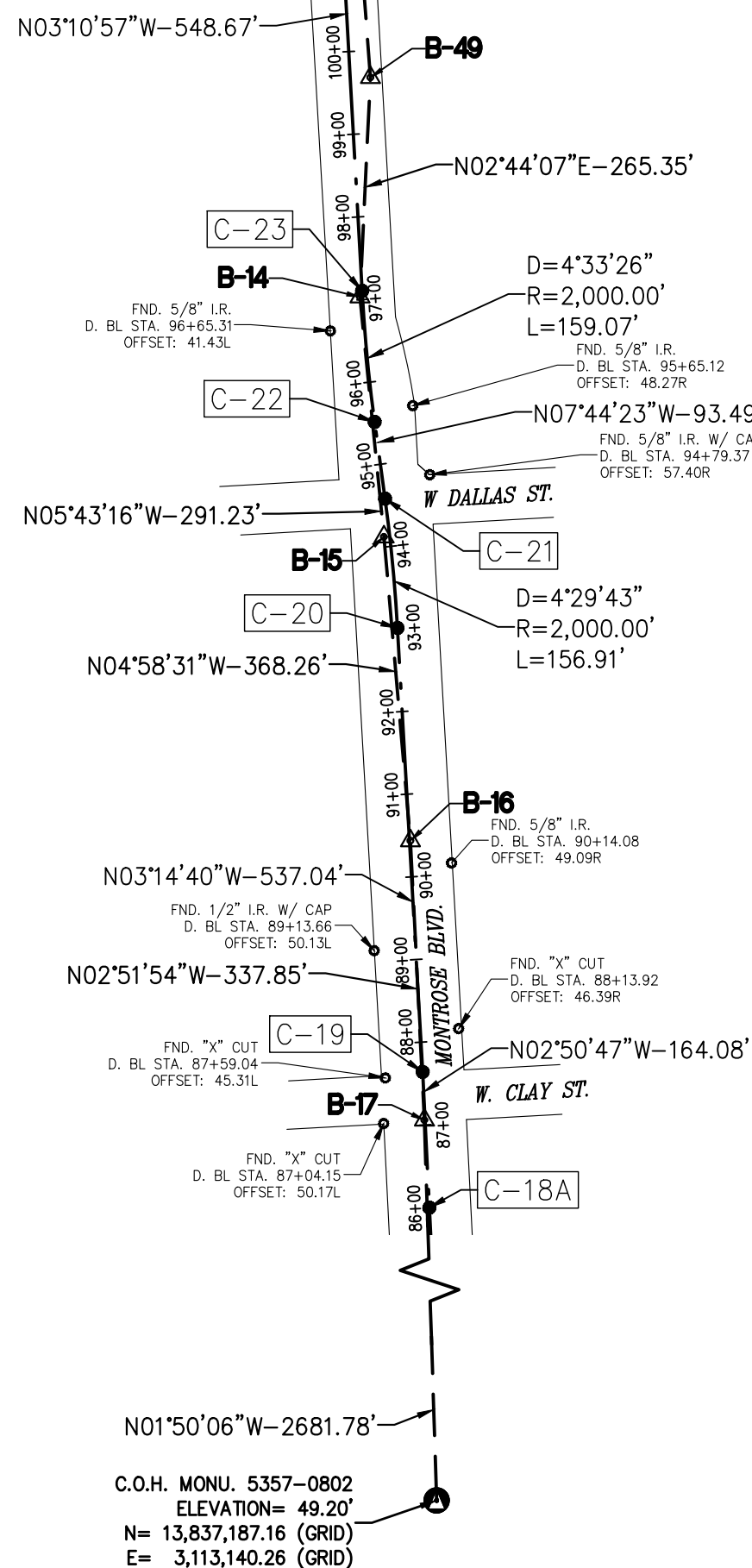
1. MINOR WORK AND DAYTIME OPERATIONS ONLY.
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3. FOR DIMENSIONS REFER TO SHEET 01555-01.
4. INSTALL FLASHERS ON DRUMS WHERE REQUIRED AND APPROVED BY CITY TRAFFIC ENGINEER.
5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY: <i>Sudal Kousour</i> CITY ENGINEER	APPROVED BY: <i>Huang Nguyen</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-12
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 4 OF 4	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	
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100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017	
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TCP TYPICAL CONSTRUCTION ZONE AT A 4-WAY INTERSECTION (LOW VOLUME TRAFFIC) PHASE 4 OF 4 SHEET 12 OF 12	
FOR CITY OF HOUSTON USE ONLY	
WBS NUMBER	
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO	64 of 355

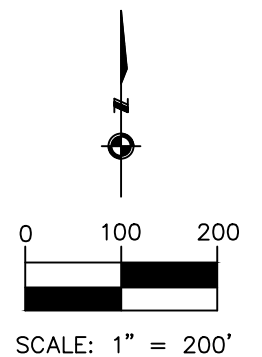
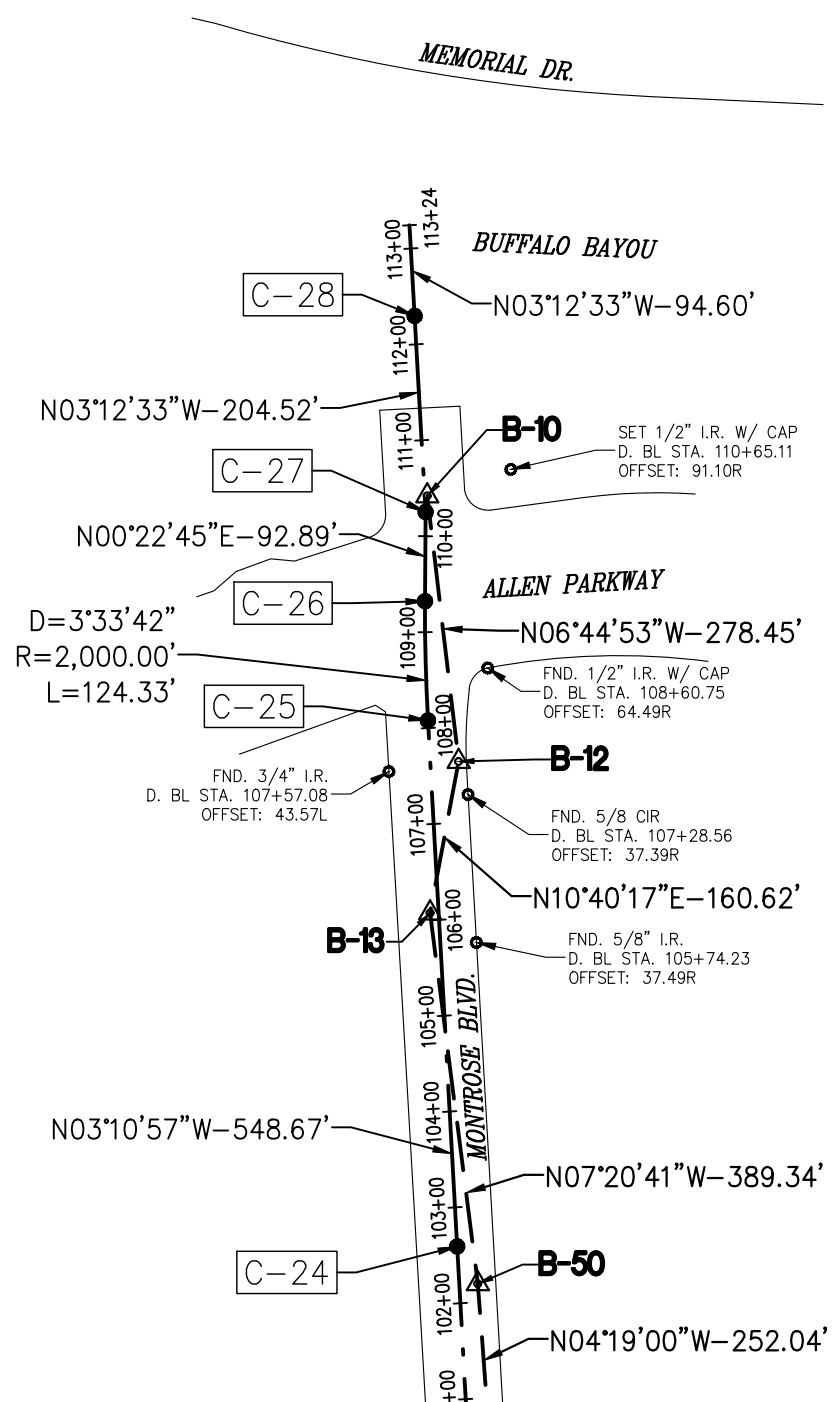
REVISIONS	DATE	APP.

MATCH LINE 'A' (SEE THIS SHEET)



C.O.H. MONU. 5357-0802
 ELEVATION= 49.20'
 N= 13,837,187.16 (GRID)
 E= 3,113,140.26 (GRID)

MATCH LINE 'A' (SEE THIS SHEET)



BENCHMARK:
 CITY OF HOUSTON MONUMENT 5357-0802. A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTROSE BOULEVARD
 ELEV. 49.20 Feet NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

VERTICAL DATUM ADJUSTMENT:
 THE ELEVATION DIFFERENCE IN BETWEEN THE FLOODPLAIN REFERENCE MARKS (RM 210055) PUBLISHED DATUM NAVD 1988, 2001 ADJUSTMENT AND DATUM NAVD 1988 (GEOID '18) IS 0.17'.
 NAVD 1988, 2001 ADJ. ELEVATION
 = NAVD 1988 (GEOID '18) ELEVATION - 0.17 FEET.

NOTE:
 ALL BEARINGS AND DISTANCES ARE BASED ON TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, NAD83 (CORS96). ALL DISTANCES ARE IN SURFACE.
 THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NO. 4204 STATE PLANE GRID COORDINATES (NAD83) AND MAY BE BROUGHT TO SURFACE BY DIVIDING BY THE COMBINED SCALE FACTOR 0.999870017.

- LEGEND:**
- B-X** SURVEY CONTROL POINT NUMBER
 - C-X** DESIGN BASELINE POINT NUMBER
 - ▲ SURVEY CONTROL POINT
 - DESIGN BASELINE POINT
 - ⊙ CITY OF HOUSTON MONUMENT
 - D. BL: DESIGN BASELINE
 - S. BL: SURVEY BASELINE

Gauge ENGINEERING TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, SUITE 400
 HOUSTON, TX 77079

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

KUO & Associates, Inc.
 Consulting Engineers & Surveyors
 10300 Westoffice Dr., Suite 800, Houston, Texas 77042
 Tel: 713-975-8769, Fax: 713-975-0920, www.kuoassociates.com
 TBP&LS Engineering Firm Reg. No. F-4578
 TBP&LS Surveying Firm Reg. No. 1007560

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 KUTUBUL A. M. MANUDDIN, R.P.L.S.
 TEXAS REG. NO.: 6404
 ON 05/26/2023 IT IS NOT TO BE USED FOR PERMIT, BIDDING OR CONSTRUCTION PURPOSES

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

SURVEY CONTROL MAP (SHEET 1 OF 3)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
1" = 200'	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 65 OF 355	

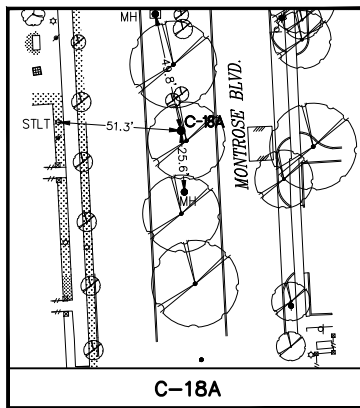
No.	DATE	REVISIONS	APP.

APP
REVISIONS
No. DATE

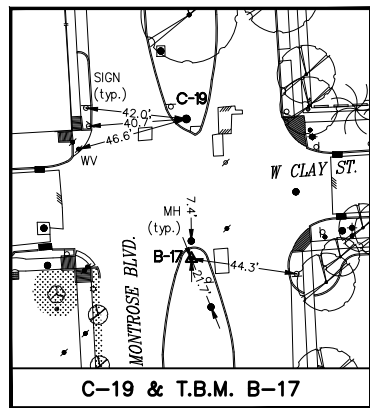
SURVEY BASELINE POINTS DATA (TEMPORARY BENCHMARK)								
POINT No.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)	ELEVATION	D. BL STA.	OFFSET	DESCRIPTION
B-10	13,843,997.36	3,113,322.18	13,842,197.88	3,112,917.50	32.88'	110+41.69	2.60R	SET "X" CUT
B-12	13,843,720.84	3,113,354.90	13,841,921.39	3,112,950.22	31.21'	107+63.52	29.54R	SET "X" CUT
B-13	13,843,562.99	3,113,325.16	13,841,763.57	3,112,920.48	34.87'	106+07.57	8.92L	SET "X" CUT
B-14	13,842,660.48	3,113,381.24	13,840,861.17	3,112,976.56	47.43'	97+03.34	3.04L	SET MAG NAIL W/ SHINER
B-15	13,842,370.69	3,113,410.27	13,840,571.42	3,113,005.58	49.92'	94+12.21	7.01L	SET "X" CUT
B-16	13,842,003.83	3,113,442.21	13,840,204.60	3,113,037.52	51.15'	90+43.68	1.04R	SET "X" CUT
B-17	13,841,666.39	3,113,459.10	13,839,867.21	3,113,054.40	51.97'	87+05.82	0.79L	SET 1/2" I.R. W/ CAP
B-49	13,842,925.52	3,113,393.90	13,841,126.18	3,112,989.22	44.57'	99+67.26	24.33R	SET 5/8" I.R. W/ CAP
B-50	13,843,176.85	3,113,374.93	13,841,377.47	3,112,970.25	40.79'	102+19.25	19.34R	SET "X" CUT

DESIGN BASELINE POINTS DATA					
POINT No.	D. BL STA.	NORTHING (SURFACE)	EASTING (SURFACE)	NORTHING (GRID)	EASTING (GRID)
C-18A	86+00.00	13,841,560.74	3,113,465.14	13,839,761.57	3,113,060.44
C-19	87+64.08	13,841,724.62	3,113,456.99	13,839,925.43	3,113,052.30
C-20	93+01.12	13,842,260.80	3,113,426.60	13,840,461.54	3,113,021.91
C-21	94+58.04	13,842,416.96	3,113,411.59	13,840,617.68	3,113,006.90
C-22	95+51.53	13,842,509.59	3,113,399.00	13,840,710.30	3,112,994.31
C-23	97+10.60	13,842,667.90	3,113,383.86	13,840,868.59	3,112,979.18
C-24	102+59.27	13,843,215.73	3,113,353.40	13,841,416.35	3,112,948.72
C-25	108+07.95	13,843,763.56	3,113,322.94	13,841,964.10	3,112,918.26
C-26	109+32.27	13,843,887.83	3,113,319.90	13,842,088.36	3,112,915.22
C-27	110+25.16	13,843,980.72	3,113,320.52	13,842,181.23	3,112,915.84
C-28	112+29.68	13,844,184.91	3,113,309.07	13,842,385.41	3,112,904.39

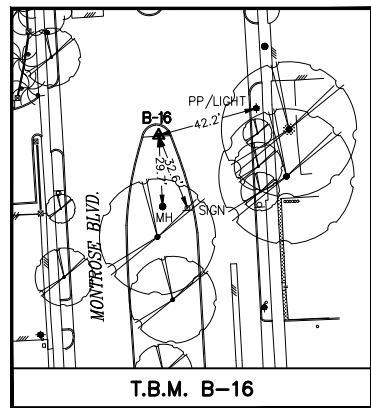
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10300 Westoffice Dr., Suite 600, Houston, Texas 77042 Tel: 713-975-8769, Fax: 713-975-0920, www.kuoassociates.com TBPELS Engineering Firm Reg. No. F-4578 TBPELS Surveying Firm Reg. No. 1907560	
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS – SEGMENT 1	
SURVEY CONTROL MAP (SHEET 2 OF 3)	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
N/A	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEETED NO. 66 OF 355	



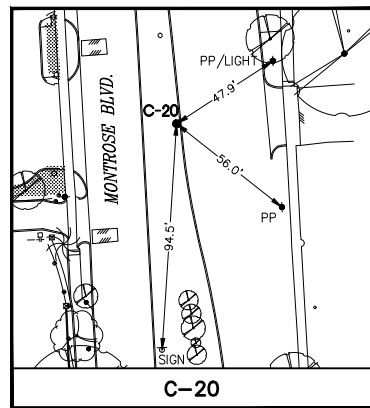
C-18A



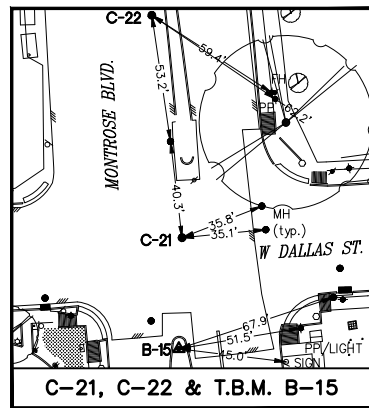
C-19 & T.B.M. B-17



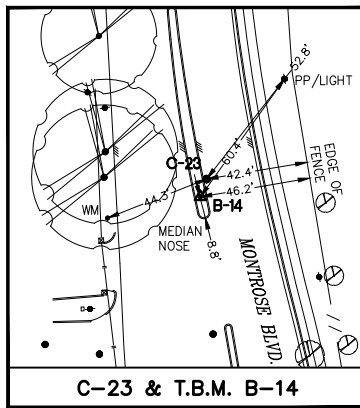
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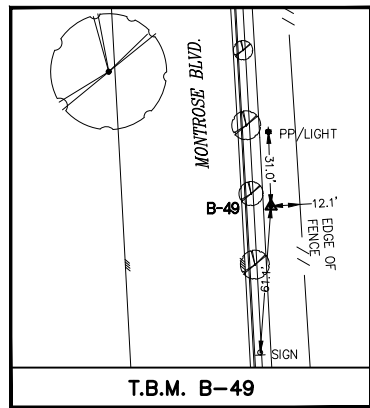
C-20



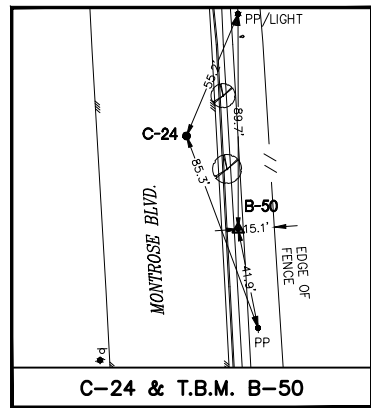
C-21, C-22 & T.B.M. B-15



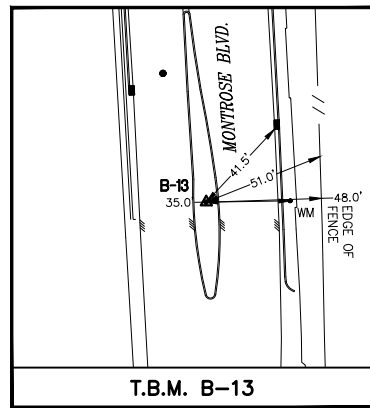
C-23 & T.B.M. B-14



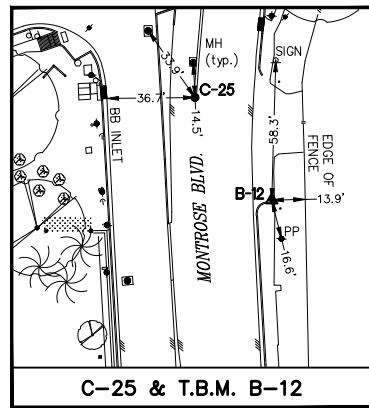
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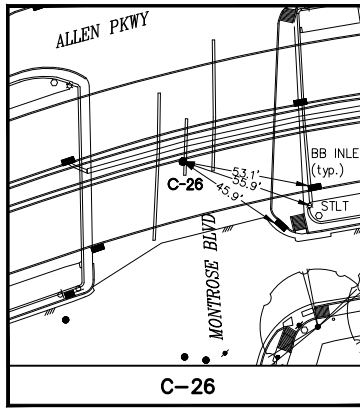
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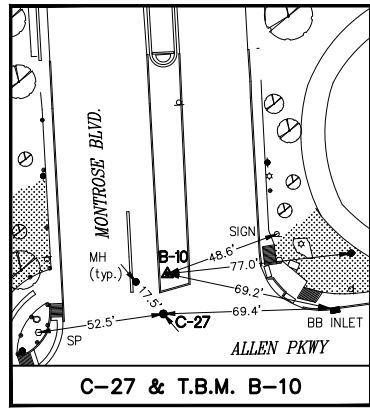
T.B.M. B-13



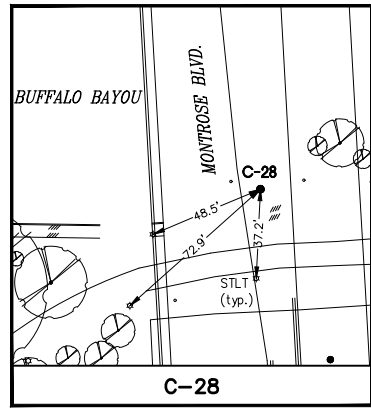
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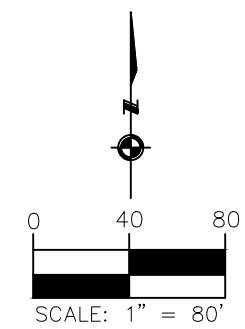
C-26



C-27 & T.B.M. B-10



C-28



- EXIST. TOPOGRAPHIC LEGEND**
- MANHOLE
 - GRATE INLET
 - B/BB INLET
 - ◆ FIRE HYDRANT
 - SIGNAL POLE
 - FENCE
 - BUSH
 - WATER VALVE
 - HIGH BANK
 - ☆ LIGHT
 - ◇ SIGN
 - ◆ POWER POLE
 - ◆ POWER POLE W/LIGHT
 - DOWN GUY
 - TREE
 - PLANTER
 - BUILDING
 - WATER METER
 - HEDGE ROW

- ABBREVIATIONS**
- FH - FIRE HYDRANT
 - FC - FENCE CORNER
 - LT - LIGHT POLE
 - MB - MAIL BOX
 - MH - MANHOLE
 - PP - POWER POLE
 - PP/LIGHT - POWER POLE W/LIGHT
 - WM - WATER METER
 - STLT - STREET LIGHT
 - SP - SIGNAL POLE

REVISIONS	APP.
No.	DATE

Gauge
ENGINEERING

TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, SUITE 400
HOUSTON, TX 77079

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

KUO
& Associates, Inc.
Consulting Engineers
& Surveyors

10300 Westoffice Dr., Suite 800, Houston, Texas 77042
Tel: 713-975-8769, Fax: 713-975-0920, www.kuoassociates.com
TIPELS Engineering Firm Reg. No. F-4578
TIPELS Surveying Firm Reg. No. 1107560

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF

KUTUBUL A. M. MANUDDIN, R.P.L.S.
TEXAS REG. NO.: 6404

ON 05/26/2023 IT IS NOT TO BE USED FOR PERMIT, BIDDING OR CONSTRUCTION PURPOSES

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

SURVEY CONTROL MAP
(SHEET 3 OF 3)

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
1" = 80'	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 67 OF 355	

Pen Table: MONTR0SE.tbl
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 Plotted on: 2/20/2024 9:08:04 AM ahatamleh

ROADWAY ALIGNMENT

Curve Data

Curve MONTR0SE_27
 P.I. Station 93+79.62 N 13,842,339.1752 E 3,113,422.1581
 Delta = 4° 29' 42.99" (LT)
 Degree = 2° 51' 53.24"
 Tangent = 78.4976
 Length = 156.9147
 Radius = 2,000.0000
 External = 1.5399
 Long Chord = 156.8744
 Mid. Ord. = 1.5387
 P.C. Station 93+01.12 N 13,842,260.8034 E 3,113,426.6006
 P.T. Station 94+58.04 N 13,842,416.9577 E 3,113,411.5868
 C.C. N 13,842,147.6160 E 3,111,429.8060
 Back = N 3° 14' 39.53" W
 Ahead = N 7° 44' 22.52" W
 Chord Bear = N 5° 29' 31.03" W

Course from PT MONTR0SE_27 to PC MONTR0SE_30 N 7° 44' 22.52" W Dist 93.4861

Curve Data

Curve MONTR0SE_30
 P.I. Station 96+31.10 N 13,842,588.4464 E 3,113,388.2799
 Delta = 4° 33' 25.70" (RT)
 Degree = 2° 51' 53.24"
 Tangent = 79.5790
 Length = 159.0742
 Radius = 2,000.0000
 External = 1.5826
 Long Chord = 159.0322
 Mid. Ord. = 1.5813
 P.C. Station 95+51.53 N 13,842,509.5923 E 3,113,398.9969
 P.T. Station 97+10.60 N 13,842,667.9027 E 3,113,383.8621
 C.C. N 13,842,778.9340 E 3,115,380.7777
 Back = N 7° 44' 22.52" W
 Ahead = N 3° 10' 56.82" W
 Chord Bear = N 5° 27' 39.67" W

Course from PT MONTR0SE_30 to PC MONTR0SE_33 N 3° 10' 56.82" W Dist 1,097.3472

Curve Data

Curve MONTR0SE_33
 P.I. Station 108+70.13 N 13,843,825.6455 E 3,113,319.4899
 Delta = 3° 33' 42.21" (RT)
 Degree = 2° 51' 53.24"
 Tangent = 62.1839
 Length = 124.3277
 Radius = 2,000.0000
 External = 0.9665
 Long Chord = 124.3076
 Mid. Ord. = 0.9660
 P.C. Station 108+07.95 N 13,843,763.5576 E 3,113,322.9421
 P.T. Station 109+32.27 N 13,843,887.8280 E 3,113,319.9015
 C.C. N 13,843,874.5890 E 3,115,319.8577
 Back = N 3° 10' 56.82" W
 Ahead = N 0° 22' 45.39" E
 Chord Bear = N 1° 24' 05.72" W

Course from PT MONTR0SE_33 to MONTR0SE36 N 0° 22' 45.39" E Dist 92.8899

Point MONTR0SE36 N 13,843,980.7159 E 3,113,320.5164 Sta 110+25.16

Course from MONTR0SE36 to MONTR0SE37 N 3° 12' 32.95" W Dist 299.1233

Point MONTR0SE37 N 13,844,279.3702 E 3,113,303.7712 Sta 113+24.29

=====

Ending chain MONTR0SE description

RETAINING WALL ALIGNMENT

Beginning chain MONT_RWRT_2 description
 =====

Point MONTR0SE94 N 13,842,660.6492 E 3,113,430.8926 Sta 97+00.00

Course from MONTR0SE94 to MONTR0SE95 N 3° 08' 00.43" W Dist 688.0310

Point MONTR0SE95 N 13,843,347.6516 E 3,113,393.2836 Sta 103+88.03

=====

Ending chain MONT_RWRT_2 description

MONTROSE SUP ALIGNMENT

Beginning chain M_BRIDGE description
 =====



Point 03 N 13,843,844.3544 E 3,113,387.2610 Sta 10+00.00

Course from 03 to 04 N 3° 47' 38.87" W Dist 124.9399

Point 04 N 13,843,969.0205 E 3,113,378.9935 Sta 11+24.94

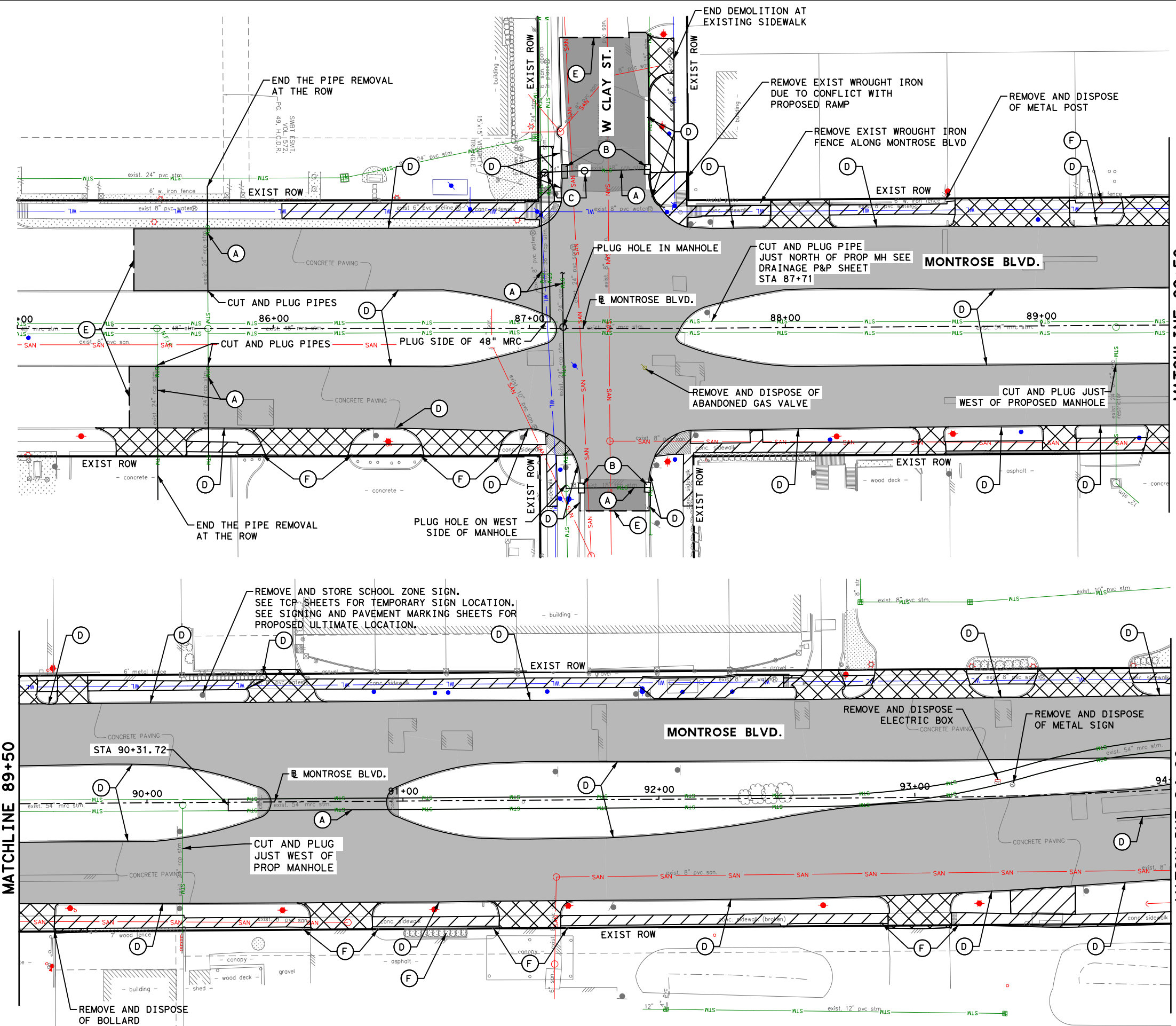
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Ending chain M_BRIDGE description

	
 <p>GAUGE ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p><small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small></p> <p>DAVID G. CHEZANEY 172563 2/20/2024</p>
	<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017</p>
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1</p>	
<p>HORIZONTAL CURVE DATA</p>	
<p>SHEET 1 OF 1</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JIADA HUANG</p>	
<p>SHEET NO. 68 OF 355</p>	

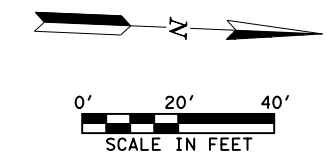
APP.
REVISIONS
No.
DATE

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LEGEND

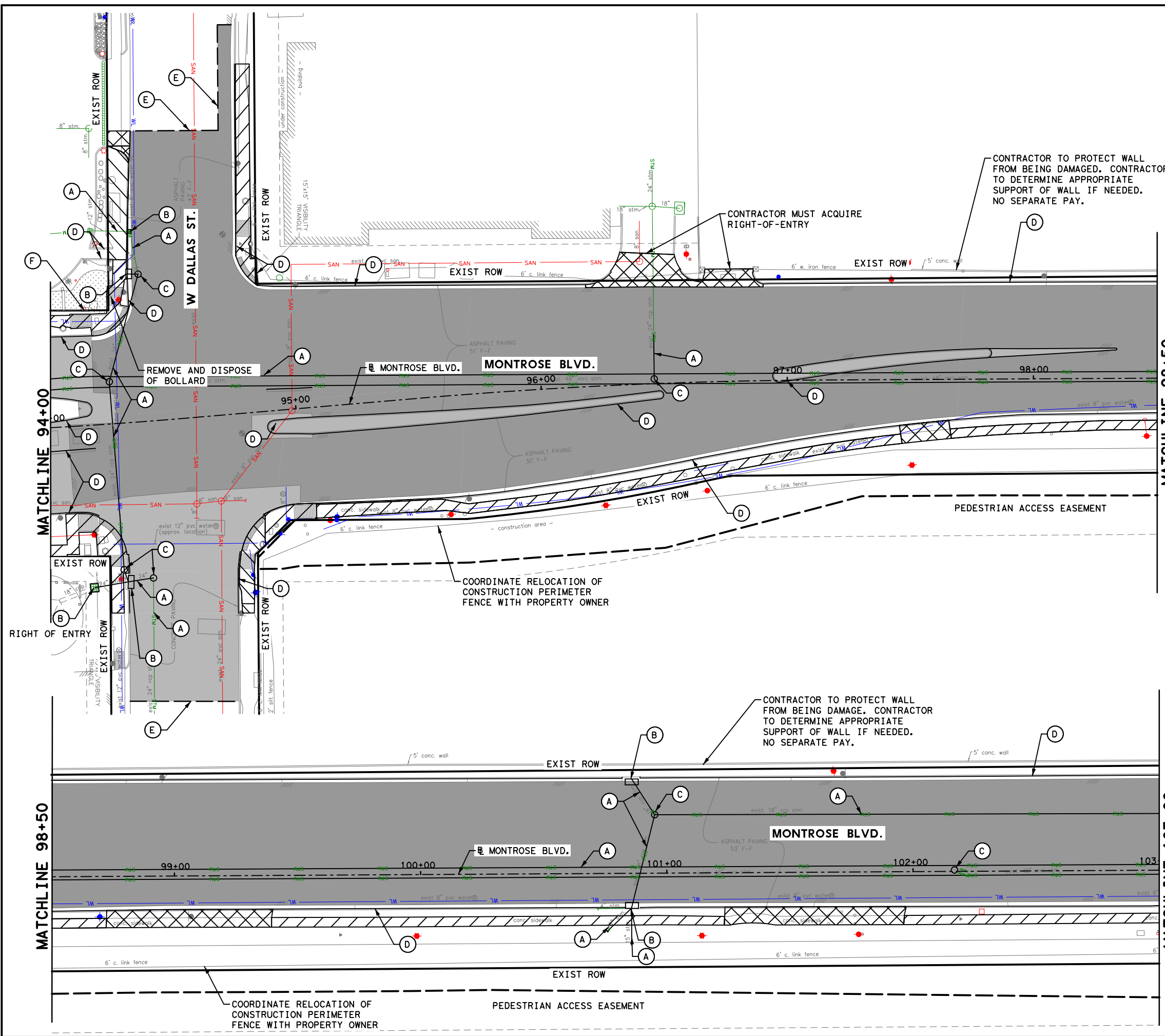
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[Hatched Box]	REMOVE CONC DRWY
[Hatched Box]	REMOVE CONC SIDEWALK
[Hatched Box]	REMOVE CONC PAV W/ OR W/O ASPH OVERLAY
(A)	REMOVE AND DISPOSE OF PIPE (RCP, OR MRC)
(B)	REMOVE AND DISPOSE OF INLET
(C)	REMOVE AND DISPOSE OF MH
(D)	REMOVE AND DISPOSE OF CURB
(E)	SAWCUT
(F)	TO REMAIN



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SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 DEMOLITION PLAN BEGIN PROJECT TO STA 94+00	
SHEET 1 OF 3	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 70 OF 355	

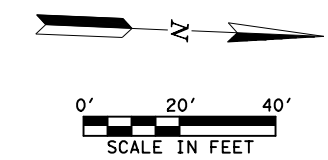
REVISIONS	DATE	APP.

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LEGEND

	REMOVE ASPH PAV & BASE
	REMOVE CONC DRWY
	REMOVE CONC SIDEWALK
	REMOVE CONC PAV W/ OR W/O ASPH OVERLAY
(A)	REMOVE AND DISPOSE OF PIPE (RCP, OR MRC)
(B)	REMOVE AND DISPOSE OF INLET
(C)	REMOVE AND DISPOSE OF MH
(D)	REMOVE AND DISPOSE OF CURB
(E)	SAWCUT
(F)	TO REMAIN



MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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DAVID G. CHEZANEY
 172563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

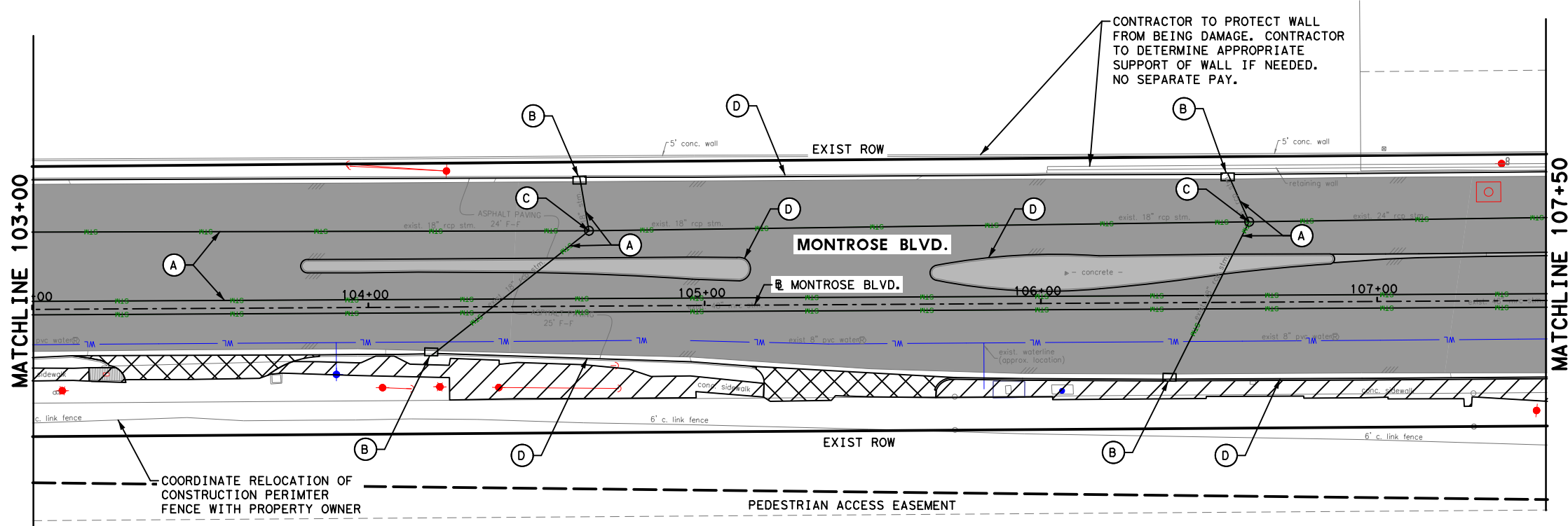
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
DEMOLITION PLAN
 STA 94+00 TO STA 103+00

SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 71 OF 355	

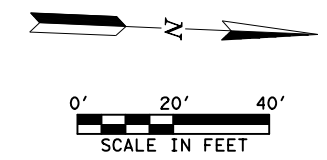
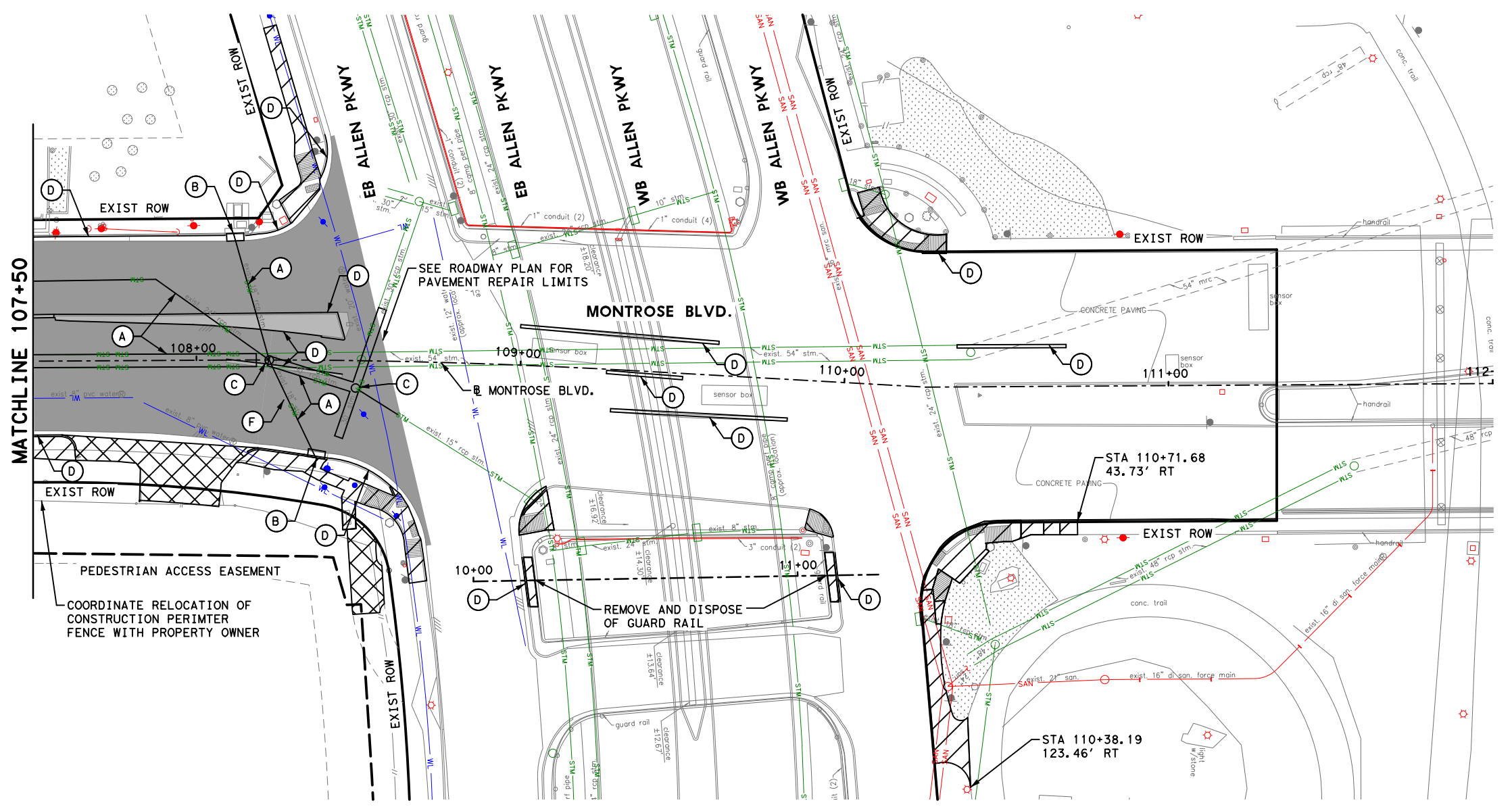
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No.	DATE

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 Plotted on: 2/20/2024 9:08:10 AM ahatamleh



LEGEND

	REMOVE ASPH PAV & BASE
	REMOVE CONC DRWY
	REMOVE CONC SIDEWALK
	REMOVE CONC PAV W/ OR W/O ASPH OVERLAY
(A)	REMOVE AND DISPOSE OF PIPE (RCP, OR MRC)
(B)	REMOVE AND DISPOSE OF INLET
(C)	REMOVE AND DISPOSE OF MH
(D)	REMOVE AND DISPOSE OF CURB
(E)	SAWCUT
(F)	TO REMAIN



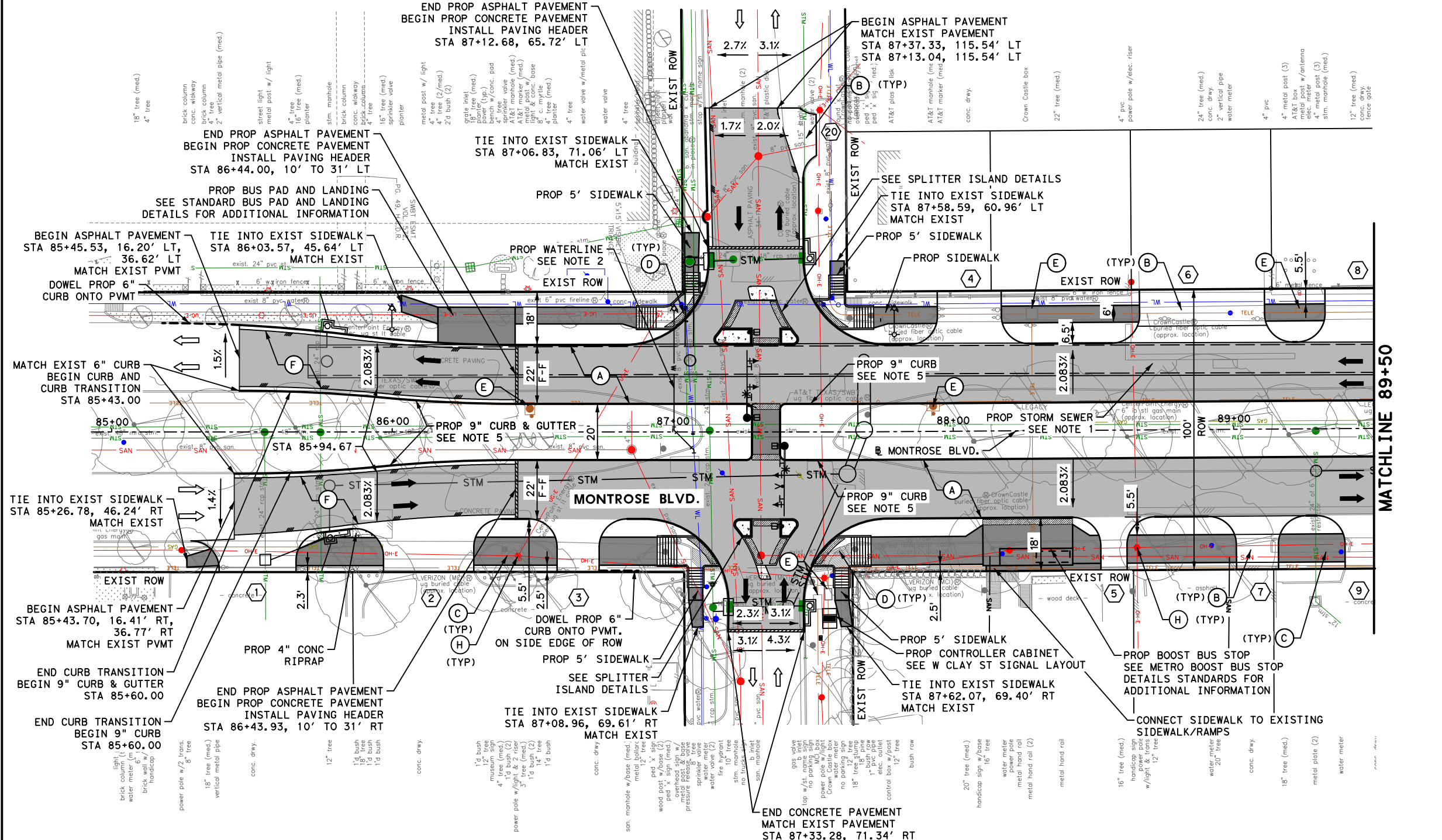
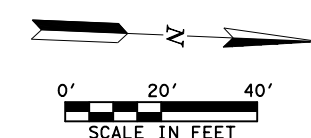
 GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID C. GAFFNEY 175563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 DEMOLITION PLAN STA 103+00 TO END PROJECT	
SHEET 3 OF 3	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 72 OF 355	

No.	DATE	REVISIONS	APP.

BENCHMARK
CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTRORSE BOULEVARD
ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

LEGEND

- PROP LANE
- EXIST LANE
- EXIST ROW
- PROP 6" CURB
- PROP 6" CURB AND GUTTER
- PROP PAVEMENT RESTORATION
- PROP 11" JRCP
- PROP CONC DRIVEWAY
- PROP 10' CONC SUP
- PROP WHEEL CHAIR RAMP
- ADJUST TO GRADE/RELOCATE (BY OTHERS)
- PROP HMAC
- ADJUST TO GRADE
- POWER POLE TO BE RELOCATED (BY OTHERS)
- PROP DRIVEWAY NO.



NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.
Signature valid for six months.

Date _____
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
valid for one year.

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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DAVID G. GIBNEY
125563
2/20/2024

SURVEYED BY:
Kuo & Associates, Inc.

100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTRORSE BOULEVARD
IMPROVEMENTS - SEGMENT 1**

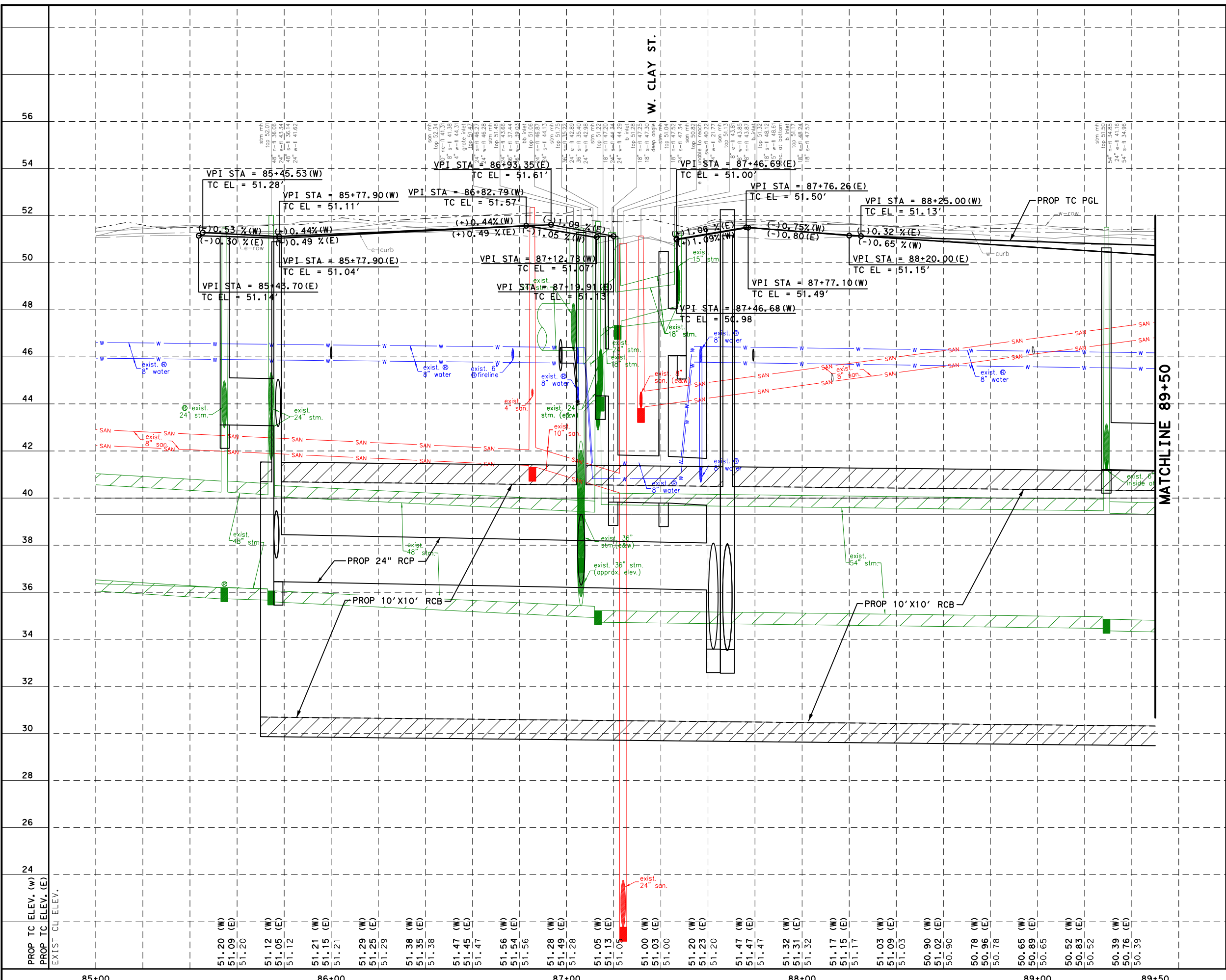
**ROADWAY PLAN
BEGIN PROJECT TO STA 89+50**

SHEET NO. 73 OF 355	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER N-127000-0005-7	DRAWING SCALE AS NOTED
CITY OF HOUSTON PM JIADA HUANG	

- NOTES:**
- REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADJUST TO GRADE AND ADDITIONAL INFORMATION.
 - ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK UNLESS OTHERWISE NOTED.
 - REFER TO SIDEWALK TREE WELL DETAILS FOR ADDITIONAL INFORMATION.
 - THERE MUST BE ZERO CURB CUTBACK, INCLUDING SUBGRADE. SEE DETAIL ON TREE PROTECTION PLAN.
 - REFER TO RETAINING WALL PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - FOR MEDIANS WITH PAVERS REFER TO (MISCELLANEOUS ROADWAY DETAILS) FOR ADDITIONAL INFORMATION.

No.	DATE	REVISIONS	APP.

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56	56
54	54
52	52
50	50
48	48
46	46
44	44
42	42
40	40
38	38
36	36
34	34
32	32
30	30
28	28
26	26
24	24

No.	DATE	REVISIONS	APP.

HORZ 0' 20' 40'
 VERT 0' 2' 4'
 SCALE IN FEET

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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature Date valid for one year.

Gauge Engineering
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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DAVID G. CHEZANEY
 125563
 2/21/2024

100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
ROADWAY PROFILE
BEGIN PROJECT TO STA 89+50

SHEET 2 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 74 OF 355	

PROP TC ELEV. (W)	51.20	51.09	51.20	51.12	51.05	51.12	51.21	51.15	51.21	51.29	51.25	51.29	51.38	51.35	51.38	51.47	51.45	51.47	51.56	51.54	51.56	51.28	51.49	51.28	51.05	51.13	51.05	51.00	51.03	51.00	51.20	51.47	51.47	51.32	51.31	51.32	51.17	51.15	51.17	51.03	51.09	51.03	50.90	50.90	50.90	50.78	50.96	50.78	50.65	50.89	50.65	50.52	50.83	50.52	50.39	50.76	50.39
PROP TC ELEV. (E)	51.20	51.09	51.20	51.12	51.05	51.12	51.21	51.15	51.21	51.29	51.25	51.29	51.38	51.35	51.38	51.47	51.45	51.47	51.56	51.54	51.56	51.28	51.49	51.28	51.05	51.13	51.05	51.00	51.03	51.00	51.20	51.47	51.47	51.32	51.31	51.32	51.17	51.15	51.17	51.03	51.09	51.03	50.90	50.90	50.90	50.78	50.96	50.78	50.65	50.89	50.65	50.52	50.83	50.52	50.39	50.76	50.39
EXIST' CU ELEV.	51.20	51.09	51.20	51.12	51.05	51.12	51.21	51.15	51.21	51.29	51.25	51.29	51.38	51.35	51.38	51.47	51.45	51.47	51.56	51.54	51.56	51.28	51.49	51.28	51.05	51.13	51.05	51.00	51.03	51.00	51.20	51.47	51.47	51.32	51.31	51.32	51.17	51.15	51.17	51.03	51.09	51.03	50.90	50.90	50.90	50.78	50.96	50.78	50.65	50.89	50.65	50.52	50.83	50.52	50.39	50.76	50.39

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BENCHMARK

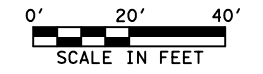
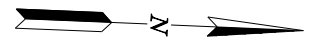
CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTROSE BOULEVARD

ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*

* OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

LEGEND

- ➔ PROP LANE
- ➔ EXIST LANE
- EXIST ROW
- PROP 6" CURB
- PROP 6" CURB AND GUTTER
- ▨ PROP PAVEMENT RESTORATION
- Ⓐ PROP 11" JRCP
- Ⓑ PROP CONC DRIVEWAY
- Ⓒ PROP 10' CONC SUP
- Ⓓ PROP WHEEL CHAIR RAMP
- Ⓔ ADJUST TO GRADE/RELOCATE (BY OTHERS)
- Ⓕ PROP HMAC
- Ⓖ ADJUST TO GRADE (BY OTHERS)
- Ⓗ POWER POLE TO BE RELOCATED (BY OTHERS)
- ⓧ PROP DRIVEWAY NO.



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Approved for AT&T underground conduit facilities only. Signature _____ Date _____
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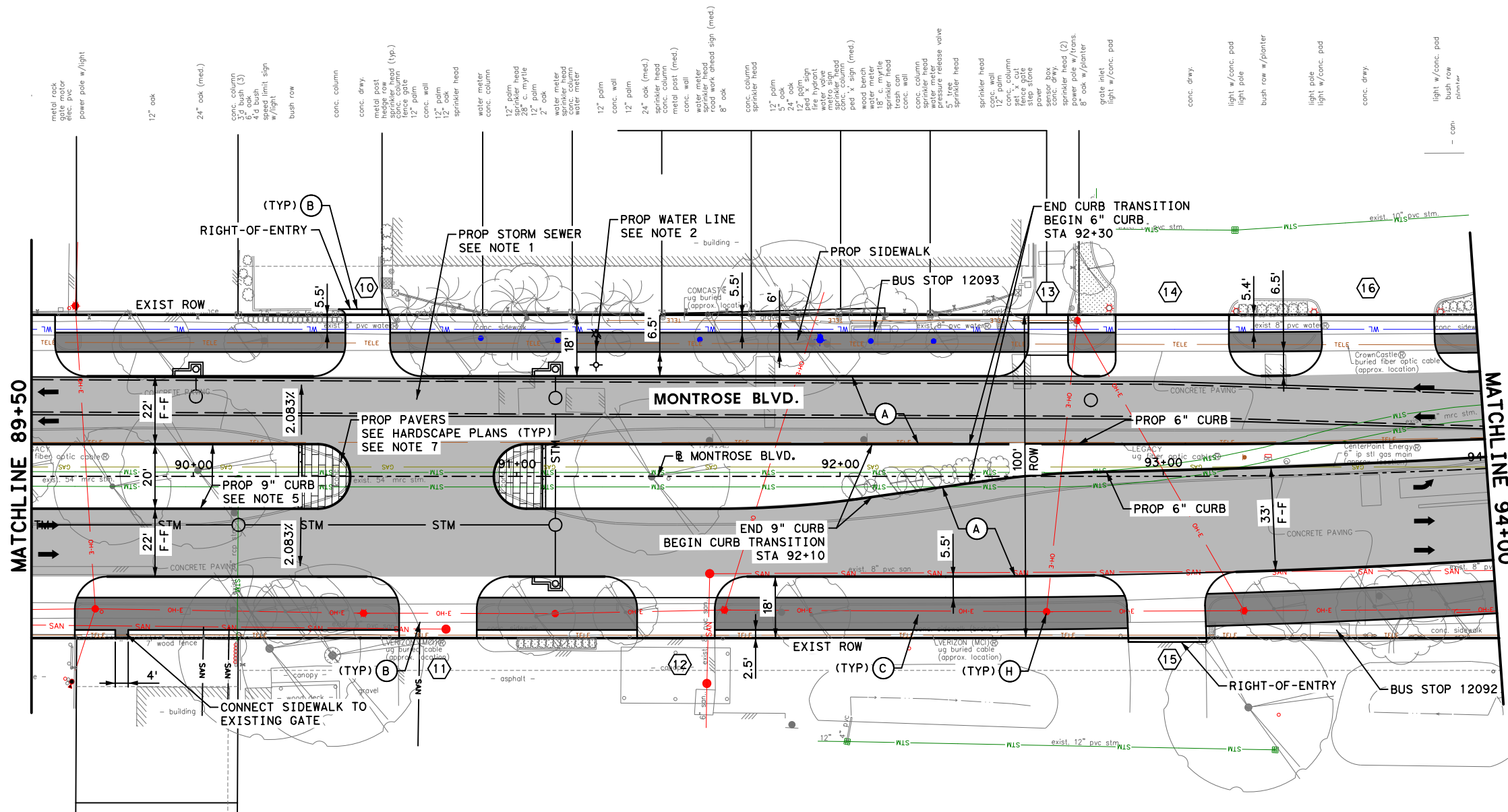
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of: DAVID G. CHEANEY 125563 2/20/2024
	SURVEYED BY: KUO & ASSOCIATES, INC. 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
ROADWAY PLAN
STA 89+50 TO STA 94+00

SHEET 3 OF 12

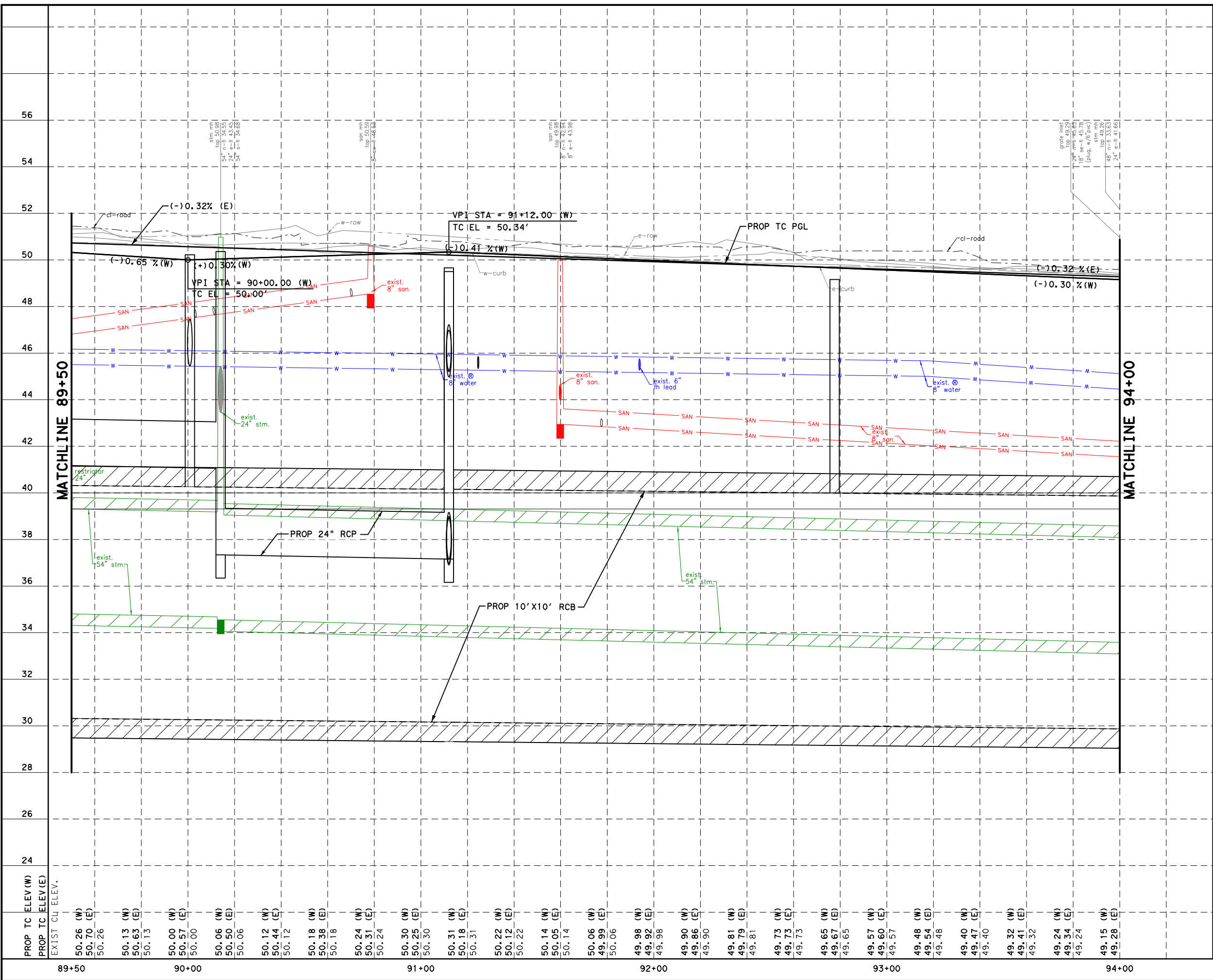
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 75 OF 355	



NOTES:

1. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
2. REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADJUST TO GRADE AND ADDITIONAL INFORMATION.
3. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK UNLESS OTHERWISE NOTED.
4. REFER TO SIDEWALK TREE WELL DETAILS FOR ADDITIONAL INFORMATION.
5. THERE MUST BE ZERO CURB CUTBACK, INCLUDING SUBGRADE. SEE DETAIL ON TREE PROTECTION PLAN.
6. REFER TO RETAINING WALL PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION.
7. FOR MEDIANS WITH PAVERS REFER TO (MISCELLANEOUS ROADWAY DETAILS) FOR ADDITIONAL INFORMATION.

Pen Table: MONTROSE.tbl
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No.	DATE	REVISIONS	APP.

HORZ 0' 20' 40'
 VERT 0' 2' 4'
 SCALE IN FEET

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
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 Signature valid for six months.

Date _____
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Approved for AT&T underground conduit facilities only. Signature _____ Date _____
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Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

INTERIM REVIEW ONLY
 Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:
DAVID G. CHEZANEY
 125563
 2/21/2024

SURVEYED BY:
 KUO & ASSOCIATES, INC.

100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

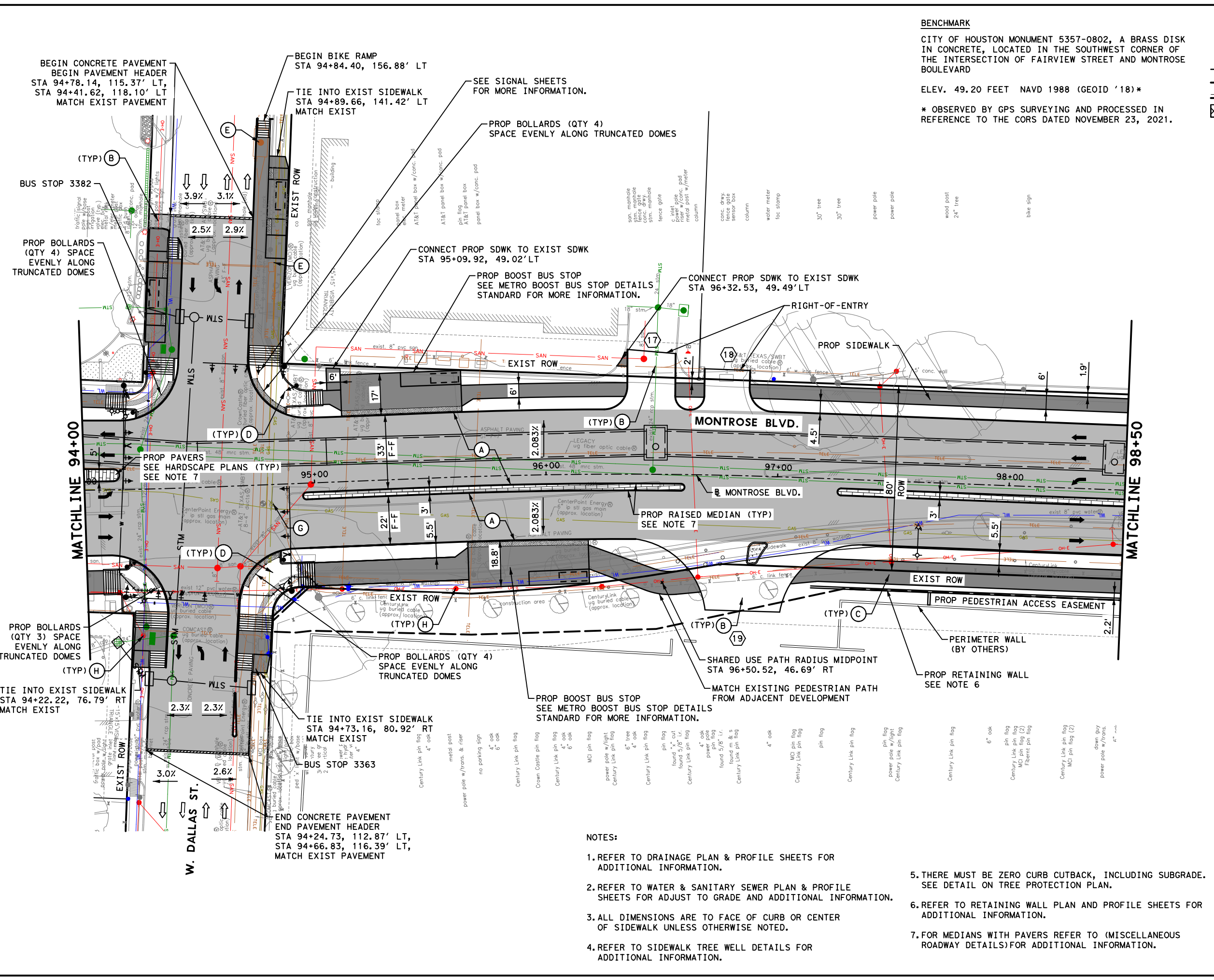
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
ROADWAY PROFILE
STA 89+50 TO STA 94+00

SHEET 4 OF 12

WBS NUMBER
N-T27000-0005-7
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
JIADA HUANG

FOR CITY OF HOUSTON USE ONLY
SHEET NO. 76 OF 355

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 Plotted on: 2/20/2024 9:08:21 AM ahatamleh



BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTROSE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

LEGEND

- ➔ PROP LANE
- ➔ EXIST LANE
- EXIST ROW
- PROP 6" CURB
- PROP 6" CURB AND GUTTER
- ▨ PROP PAVEMENT RESTORATION
- Ⓐ PROP 11" JRCP
- Ⓑ PROP CONC DRIVEWAY
- Ⓒ PROP 10' CONC SUP
- Ⓓ PROP WHEEL CHAIR RAMP
- Ⓔ ADJUST TO GRADE/RELOCATE (BY OTHERS)
- Ⓕ PROP HMAC
- Ⓖ ADJUST TO GRADE
- Ⓗ POWER POLE TO BE RELOCATED (BY OTHERS)
- ⓧ PROP DRIVEWAY No.

0' 20' 40'
 SCALE IN FEET

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- NOTES:**
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 - REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADJUST TO GRADE AND ADDITIONAL INFORMATION.
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 - REFER TO SIDEWALK TREE WELL DETAILS FOR ADDITIONAL INFORMATION.
 - THERE MUST BE ZERO CURB CUTBACK, INCLUDING SUBGRADE. SEE DETAIL ON TREE PROTECTION PLAN.
 - REFER TO RETAINING WALL PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - FOR MEDIANS WITH PAVERS REFER TO (MISCELLANEOUS ROADWAY DETAILS) FOR ADDITIONAL INFORMATION.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

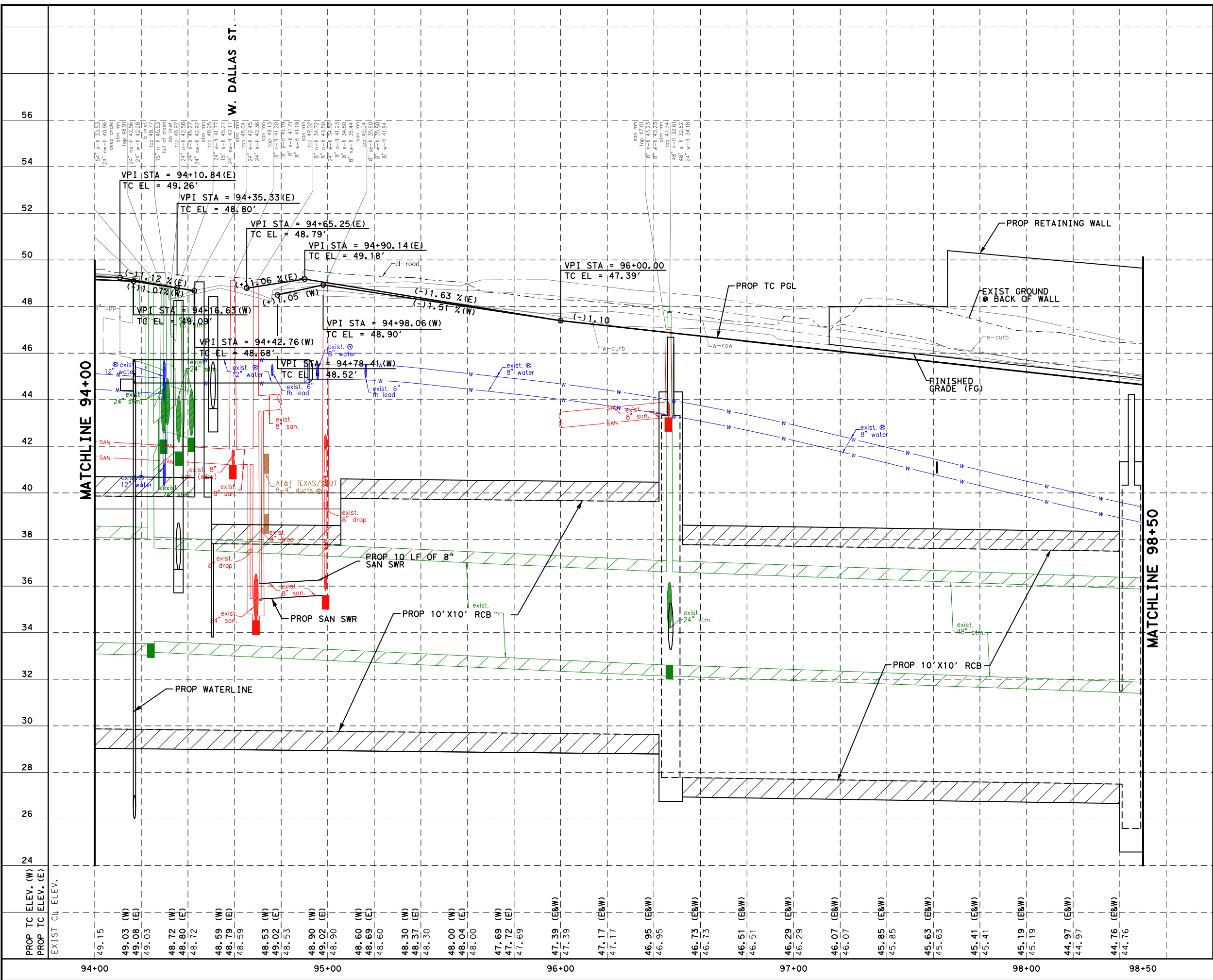
Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
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GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1	
ROADWAY PLAN	
STA 94+00 TO STA 98+50	
SHEET 5 OF 12	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 77 OF 355	

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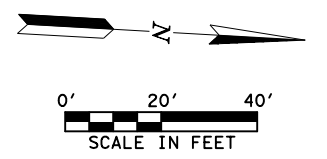
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No. DATE REVISIONS APP.	
HORIZ 0' 20' 40' VERT 0' 2' 4' SCALE IN FEET	
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SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 ROADWAY PROFILE STA 94+00 TO STA 98+50	
SHEET 6 OF 12	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JUADA HUANG	
SHEET NO. 78 OF 355	

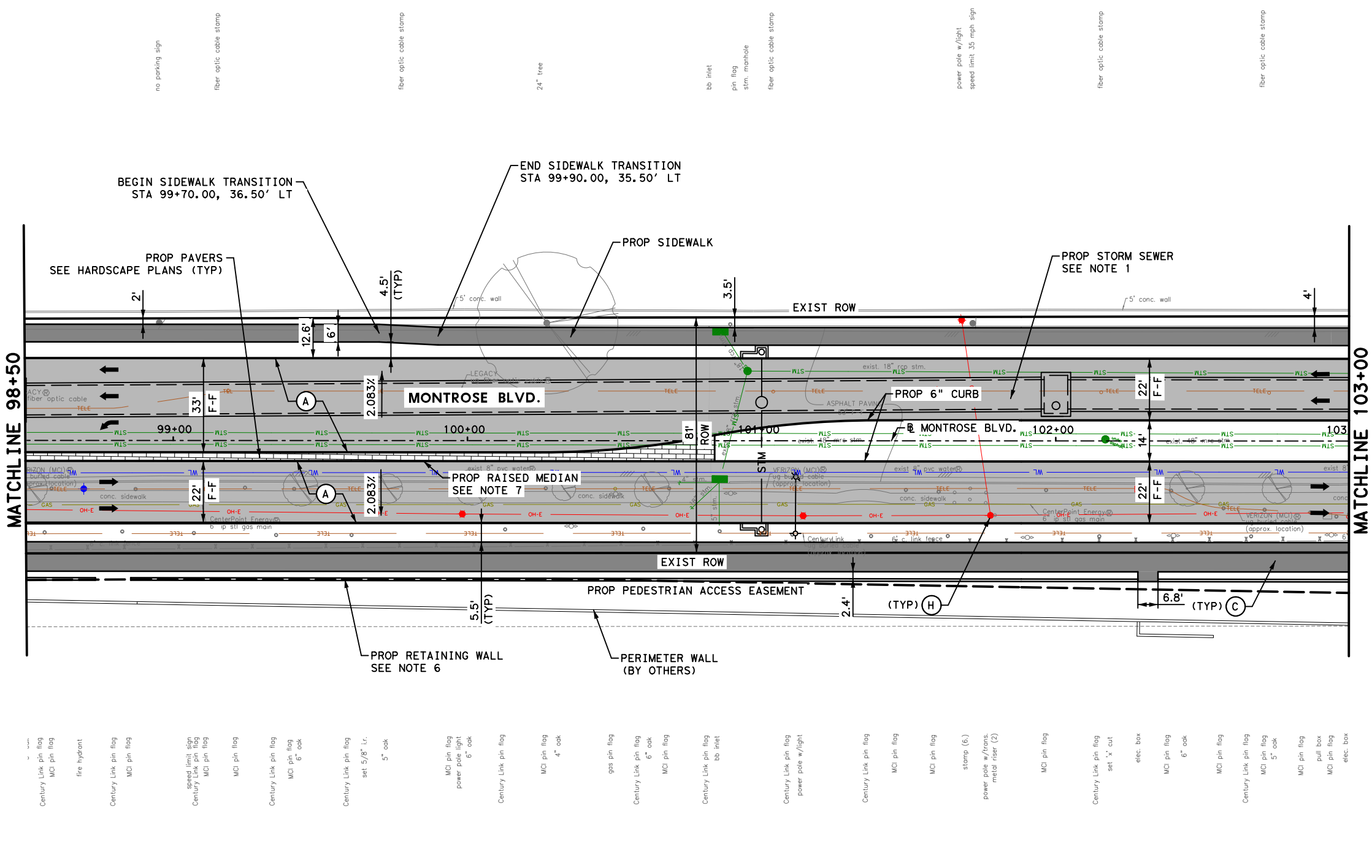
PROP TC ELEV. (W)	49.15	49.03 (W)	49.08 (E)	49.03	48.72 (W)	48.80 (E)	48.72	48.59 (W)	48.79 (E)	48.59	48.53 (W)	49.02 (E)	48.53	48.90 (W)	49.02 (E)	48.90	48.60 (W)	48.69 (E)	48.60	48.30 (W)	48.37 (E)	48.30	48.00 (W)	48.04 (E)	48.00	47.69 (W)	47.72 (E)	47.69	47.39 (E&W)	47.39	47.17 (E&W)	47.17	46.95 (E&W)	46.95	46.73 (E&W)	46.73	46.51 (E&W)	46.51	46.29 (E&W)	46.29	46.07 (E&W)	46.07	45.85 (E&W)	45.85	45.63 (E&W)	45.63	45.41 (E&W)	45.41	45.19 (E&W)	45.19	44.97 (E&W)	44.97	44.76 (E&W)	44.76
EXIST C/L ELEV.	49.15	49.03 (W)	49.08 (E)	49.03	48.72 (W)	48.80 (E)	48.72	48.59 (W)	48.79 (E)	48.59	48.53 (W)	49.02 (E)	48.53	48.90 (W)	49.02 (E)	48.90	48.60 (W)	48.69 (E)	48.60	48.30 (W)	48.37 (E)	48.30	48.00 (W)	48.04 (E)	48.00	47.69 (W)	47.72 (E)	47.69	47.39 (E&W)	47.39	47.17 (E&W)	47.17	46.95 (E&W)	46.95	46.73 (E&W)	46.73	46.51 (E&W)	46.51	46.29 (E&W)	46.29	46.07 (E&W)	46.07	45.85 (E&W)	45.85	45.63 (E&W)	45.63	45.41 (E&W)	45.41	45.19 (E&W)	45.19	44.97 (E&W)	44.97	44.76 (E&W)	44.76

BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTR0SE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18) *
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

- LEGEND**
- ➔ PROP LANE
 - ➔ EXIST LANE
 - EXIST ROW
 - PROP 6" CURB
 - PROP 6" CURB AND GUTTER
 - ▨ PROP PAVEMENT RESTORATION
 - Ⓐ PROP 11" JRCP
 - Ⓑ PROP CONC DRIVEWAY
 - Ⓒ PROP 10' CONC SUP
 - Ⓓ PROP WHEEL CHAIR RAMP
 - Ⓔ ADJUST TO GRADE/RELOCATE (BY OTHERS)
 - Ⓕ PROP HMAC
 - Ⓖ ADJUST TO GRADE
 - Ⓗ POWER POLE TO BE RELOCATED (BY OTHERS)
 - ⓧ PROP DRIVEWAY NO.



No.	DATE	REVISIONS	APP.



- Century Link pin flag
- MCI pin flag
- fire hydrant
- Century Link pin flag
- MCI pin flag
- speed limit sign
- Century Link pin flag
- MCI pin flag
- Century Link pin flag
- MCI pin flag
- 6" oak
- Century Link pin flag
- set 5/8" Lr.
- 5" oak
- MCI pin flag
- power pole light
- 6" oak
- Century Link pin flag
- MCI pin flag
- 4" oak
- gas pin flag
- Century Link pin flag
- 6" oak
- MCI pin flag
- Century Link pin flag
- bb inlet
- Century Link pin flag
- power pole w/light
- Century Link pin flag
- MCI pin flag
- MCI pin flag
- stamp (6)
- power pole w/trans. metal rider (2)
- MCI pin flag
- Century Link pin flag
- set "x" cut
- elec. box
- MCI pin flag
- 6" oak
- MCI pin flag
- Century Link pin flag
- MCI pin flag
- 5" oak
- MCI pin flag
- pull box
- MCI pin flag
- elec. box

- NOTES:**
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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 172563
 2/20/2024
 100% SUBMITTAL
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 Texas Registered Engineering Firm F-20017

SURVEYED BY:
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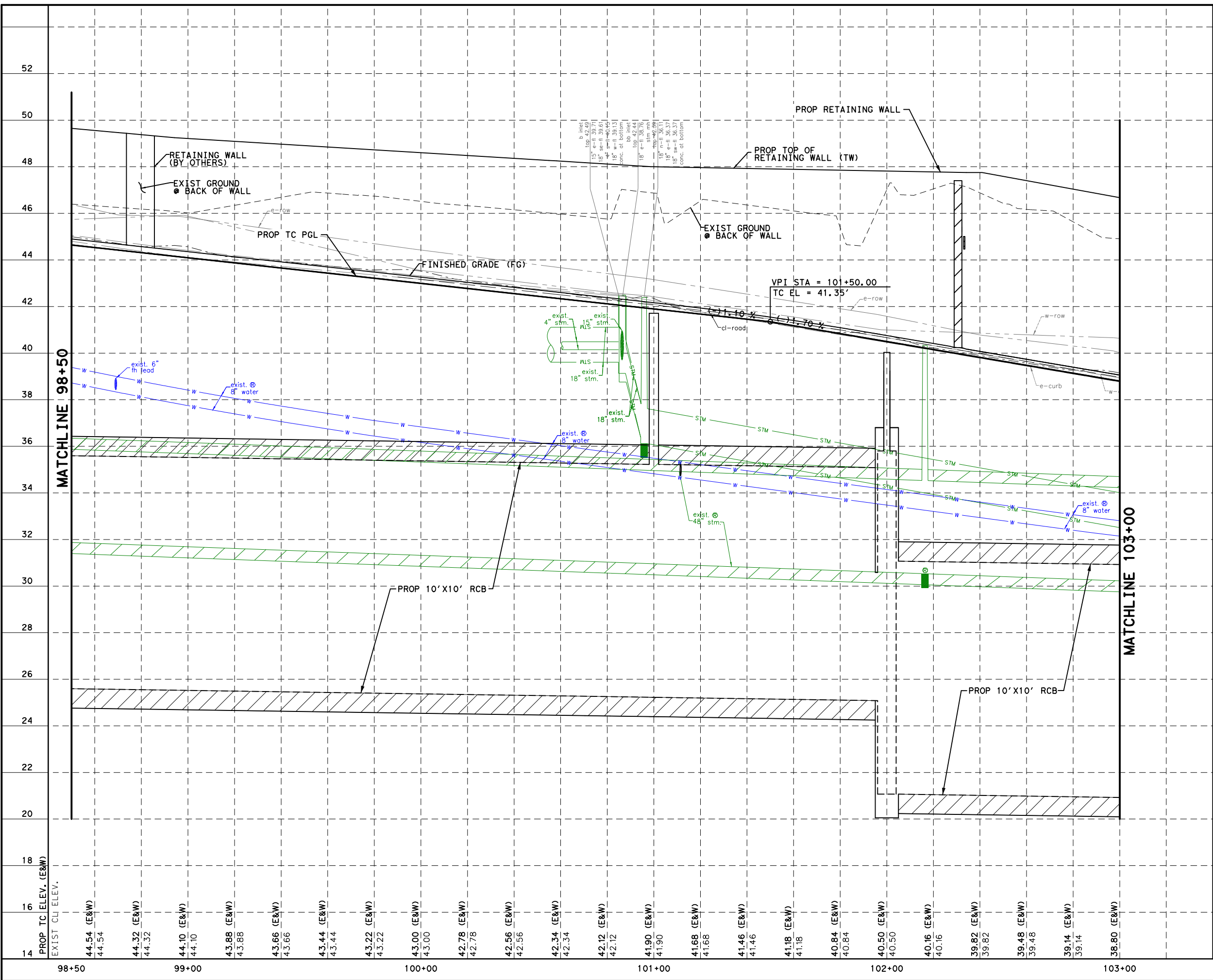
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
ROADWAY PLAN
STA 98+50 TO STA 103+00

SHEET 7 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 79 OF 355	

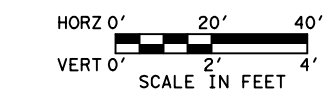
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 Plotted on: 2/21/2024 10:58:45 AM mguthrie



MATCHLINE 98+50

MATCHLINE 103+00

14	PROP TC ELEV. (E&W)	44.54 (E&W)	44.54	44.32 (E&W)	44.32	44.10 (E&W)	44.10	43.88 (E&W)	43.88	43.66 (E&W)	43.66	43.44 (E&W)	43.44	43.22 (E&W)	43.22	43.00 (E&W)	43.00	42.78 (E&W)	42.78	42.56 (E&W)	42.56	42.34 (E&W)	42.34	42.12 (E&W)	42.12	41.90 (E&W)	41.90	41.68 (E&W)	41.68	41.46 (E&W)	41.46	41.18 (E&W)	41.18	40.84 (E&W)	40.84	40.50 (E&W)	40.50	40.16 (E&W)	40.16	39.82 (E&W)	39.82	39.48 (E&W)	39.48	39.14 (E&W)	39.14	38.80 (E&W)	38.80			
16	EXIST CL ELEV.																																																	



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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1
 ROADWAY PROFILE
 STA 98+50 TO STA 103+00

SHEET 8 OF 12

WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO.	80 OF 355

No.	DATE	REVISIONS	APP.

Pen Table: MONTROSE.tbl
 Plot Driver: P:\TIRZ_27\1135-Montrose Blvd Improvements\4-0-Production-Working\4-1-CAD\Resource\Plot files\MONTROSE.pltcfg
 Plotted on: 2/20/2024 9:08:27 AM ahatamlieh

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LEGEND

- ➔ PROP LANE
- ➔ EXIST LANE
- EXIST ROW
- PROP 6" CURB
- PROP 6" CURB AND GUTTER
- ▨ PROP PAVEMENT RESTORATION
- Ⓐ PROP 11" JRCP
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0' 20' 40'
SCALE IN FEET

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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

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 TEXAS PE FIRM REG.# 20017
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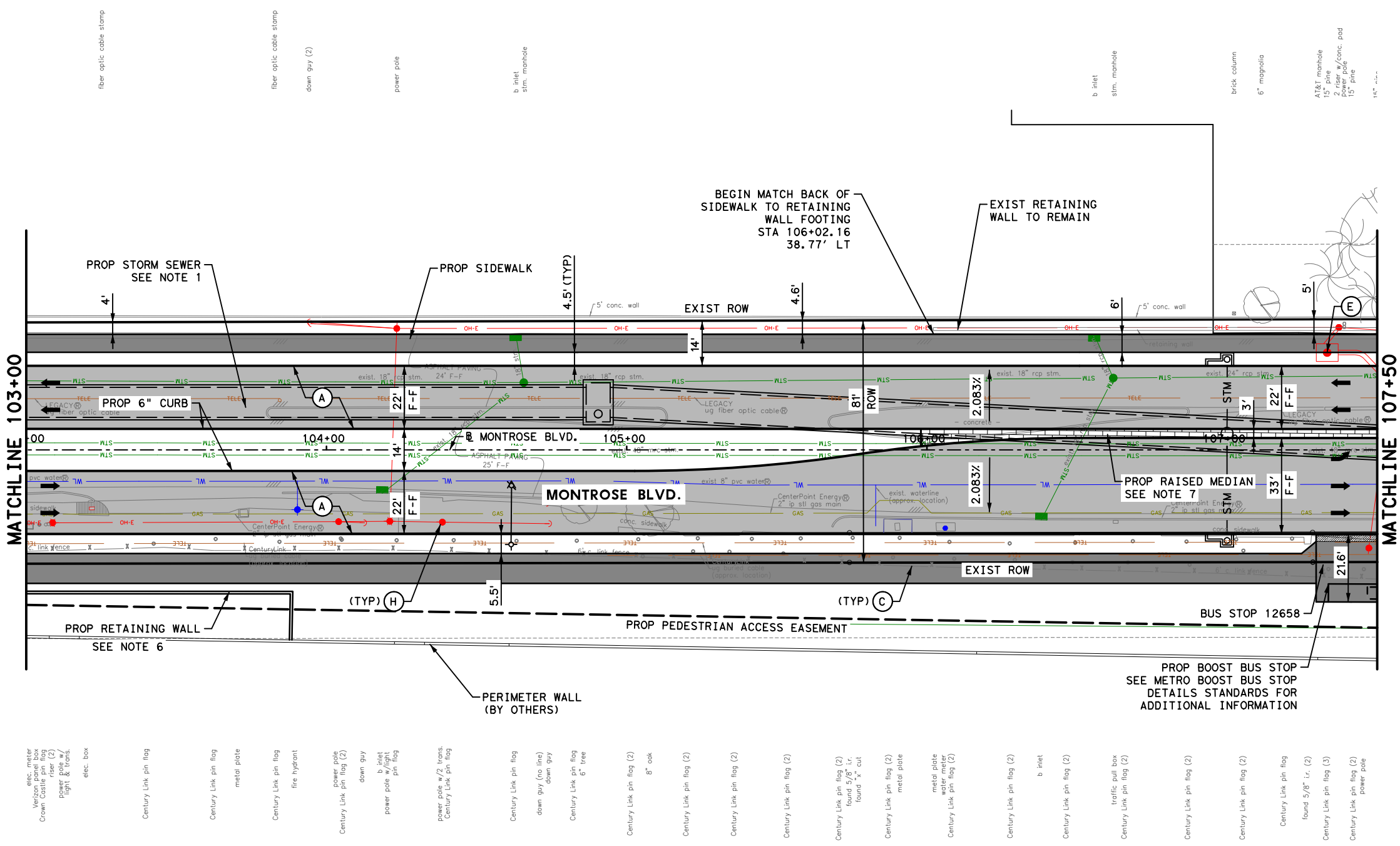
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
ROADWAY PLAN
STA 103+00 TO STA 107+50

SHEET 9 OF 12

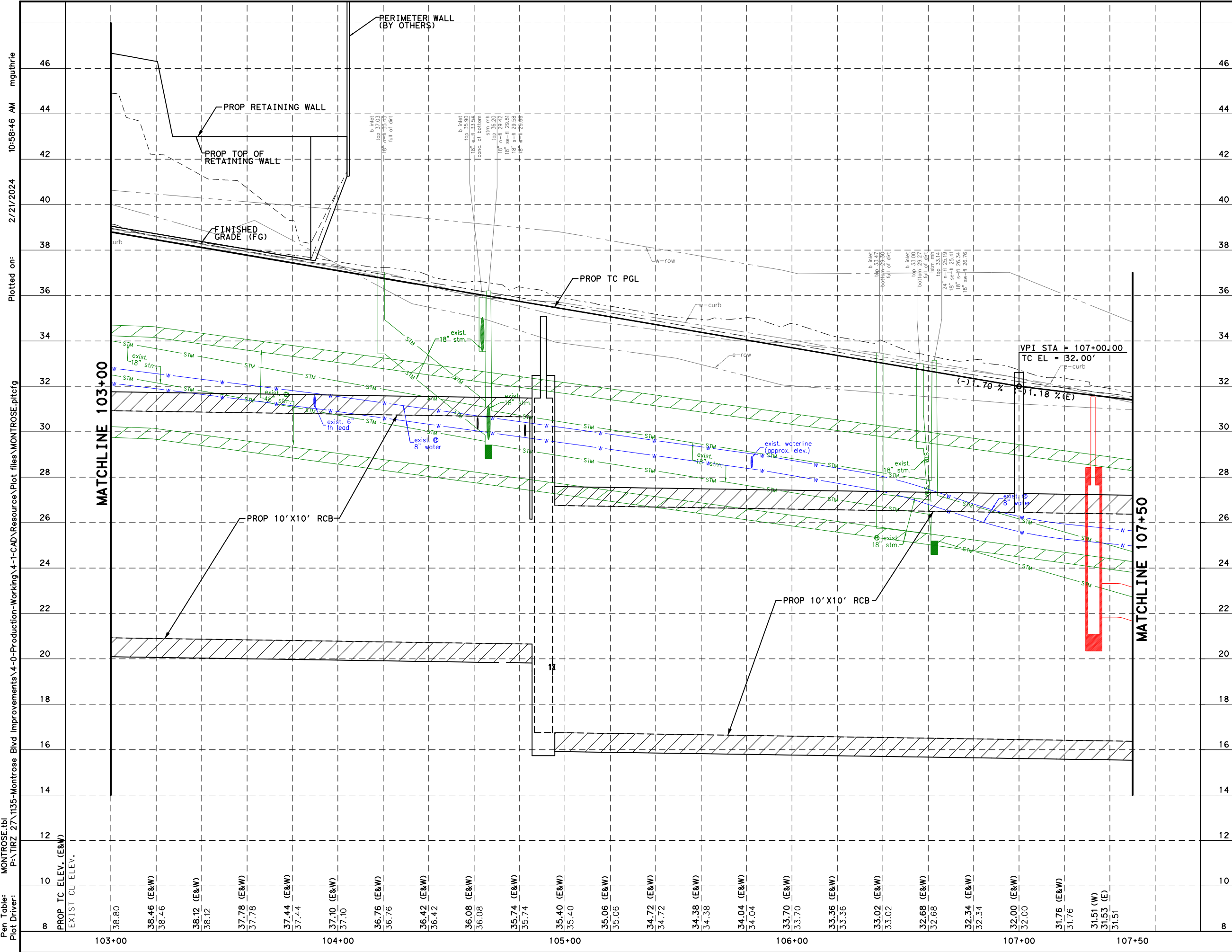
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 81 OF 355	



- elec. meter
- Verizon panel box
- Crown Castle pin flag
- rise (2)
- Phone light & frame
- elec. box
- Century Link pin flag
- Century Link pin flag
- metal plate
- Century Link pin flag
- fire hydrant
- power pole
- Century Link pin flag (2)
- down guy
- power pole
- b. inlet
- pin flag
- power pole
- pin flag
- power pole w/ 2 bases
- Century Link pin flag
- Century Link pin flag
- Century Link pin flag
- down guy (no line)
- down guy
- Century Link pin flag
- 6" tree
- Century Link pin flag (2)
- 8" oak
- Century Link pin flag (2)
- Century Link pin flag (2)
- Century Link pin flag (2)
- Century Link pin flag (2)
- Century Link pin flag (2)
- Century Link pin flag (2)
- metal plate
- metal plate
- water meter
- Century Link pin flag (2)
- Century Link pin flag (2)
- b. inlet
- Century Link pin flag (2)
- traffic pull box
- Century Link pin flag (2)
- Century Link pin flag (2)
- Century Link pin flag (2)
- Century Link pin flag
- found 5/8" i.r. (2)
- Century Link pin flag (3)
- Century Link pin flag (2)
- power pole

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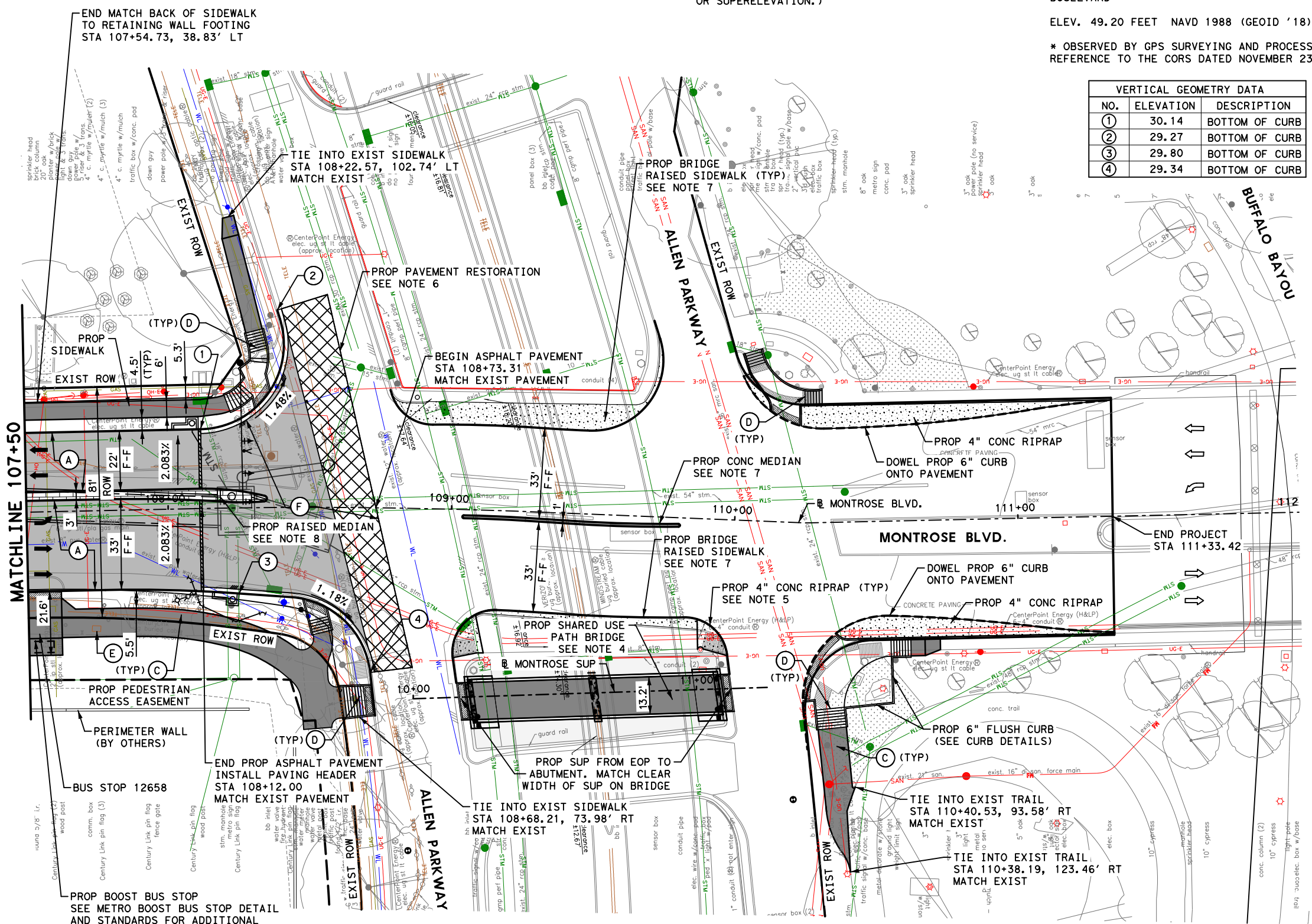
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
ROADWAY PROFILE
STA 103+00 TO STA 107+50

SHEET 10 OF 12

FOR CITY OF HOUSTON USE ONLY	
WBS NUMBER	N-127000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO.	82 OF 355

APP.	REVISIONS	DATE

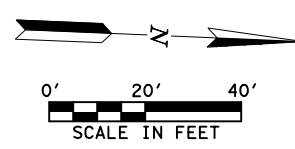


*INSTALL A 2 INCH DRAINAGE OPENING AT 10 FT C-C WHEN CURB IS NOT ON TOP OF CROSS SECTION. (LOCATED ON A 2 OR 3 PERCENT TRAVERSE GRADE, OR SUPERELEVATION.)

BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTR0SE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

VERTICAL GEOMETRY DATA		
NO.	ELEVATION	DESCRIPTION
①	30.14	BOTTOM OF CURB
②	29.27	BOTTOM OF CURB
③	29.80	BOTTOM OF CURB
④	29.34	BOTTOM OF CURB

- LEGEND**
- ➔ PROP LANE
 - ➔ EXIST LANE
 - EXIST ROW
 - PROP 6" CURB
 - PROP 6" CURB AND GUTTER
 - ▨ PROP PAVEMENT RESTORATION
 - Ⓐ PROP 11" JRCP
 - Ⓑ PROP CONC DRIVEWAY
 - Ⓒ PROP 10' CONC SUP
 - Ⓓ PROP WHEEL CHAIR RAMP
 - Ⓔ ADJUST TO GRADE/RELOCATE (BY OTHERS)
 - Ⓕ PROP HMAC
 - Ⓖ ADJUST TO GRADE
 - Ⓗ POWER POLE TO BE RELOCATED (BY OTHERS)
 - ⓧ PROP DRIVEWAY No.



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature _____ Date _____
 valid for one year.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

INTERIM REVIEW ONLY
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DAVID G. CHEANEY
 125563
 2/20/2024

100% SUBMITTAL
GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

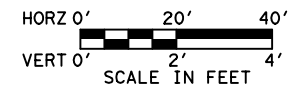
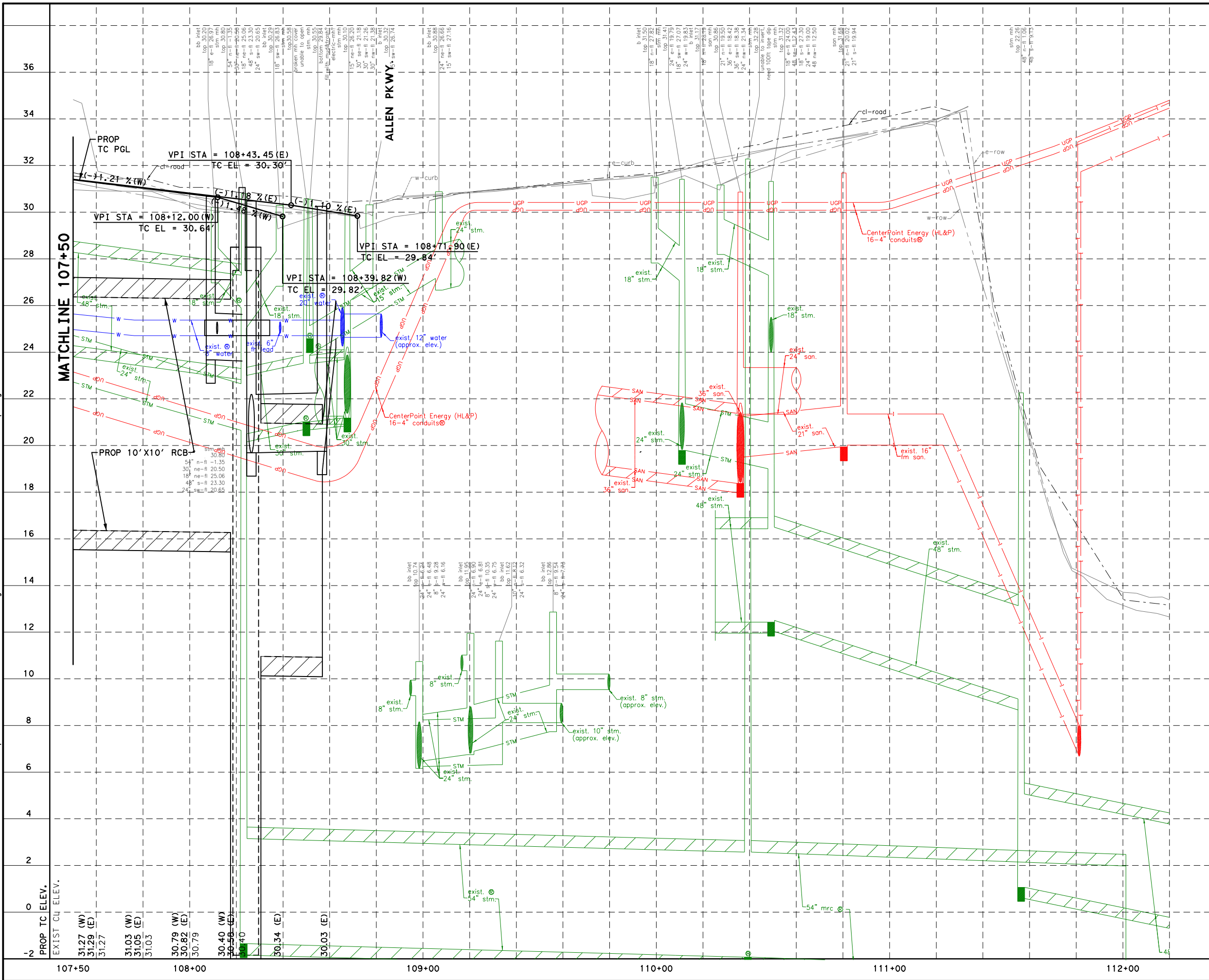
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
ROADWAY PLAN
STA 107+50 TO END PROJECT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 83 OF 355	

- NOTES:**
- REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADJUST TO GRADE AND ADDITIONAL INFORMATION.
 - ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK UNLESS OTHERWISE NOTED.
 - REFER TO SIDEWALK TREE WELL DETAILS FOR ADDITIONAL INFORMATION.
 - THERE MUST BE ZERO CURB CUTBACK, INCLUDING SUBGRADE. SEE DETAIL ON TREE PROTECTION PLAN.
 - REFER TO RETAINING WALL PLAN AND PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - FOR MEDIANS WITH PAVERS REFER TO (MISCELLANEOUS ROADWAY DETAILS) FOR ADDITIONAL INFORMATION.
 - FOR MEDIANS WITH PAVERS REFER TO (MISCELLANEOUS ROADWAY DETAILS) FOR ADDITIONAL INFORMATION.

REVISIONS	No.	DATE	APP.



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 Signature valid for six months.

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 125563
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 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
ROADWAY PROFILE
STA 107+50 TO END PROJECT

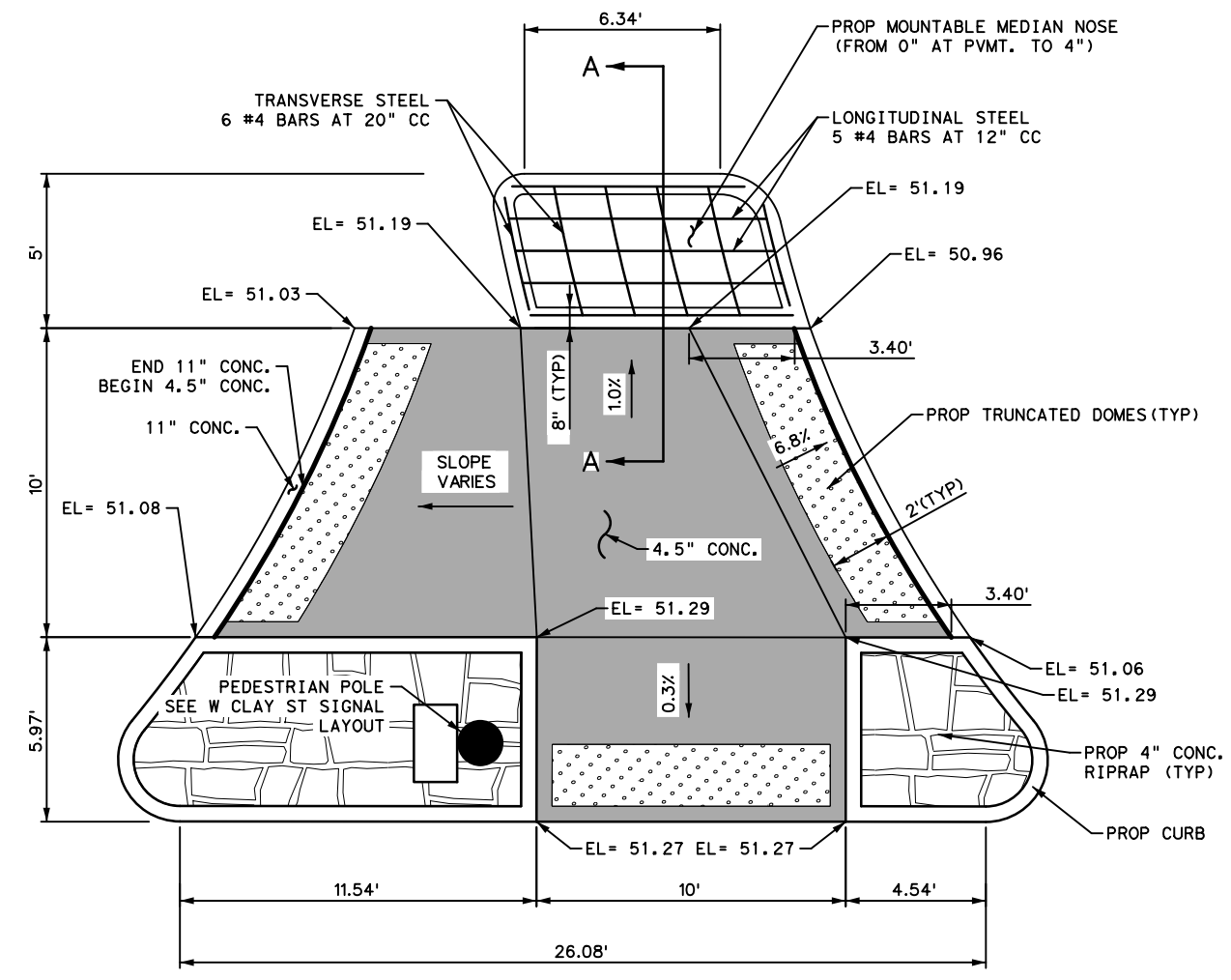
SHEET 12 OF 12

FOR CITY OF HOUSTON USE ONLY	
WBS NUMBER	N-127000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO.	84 OF 355

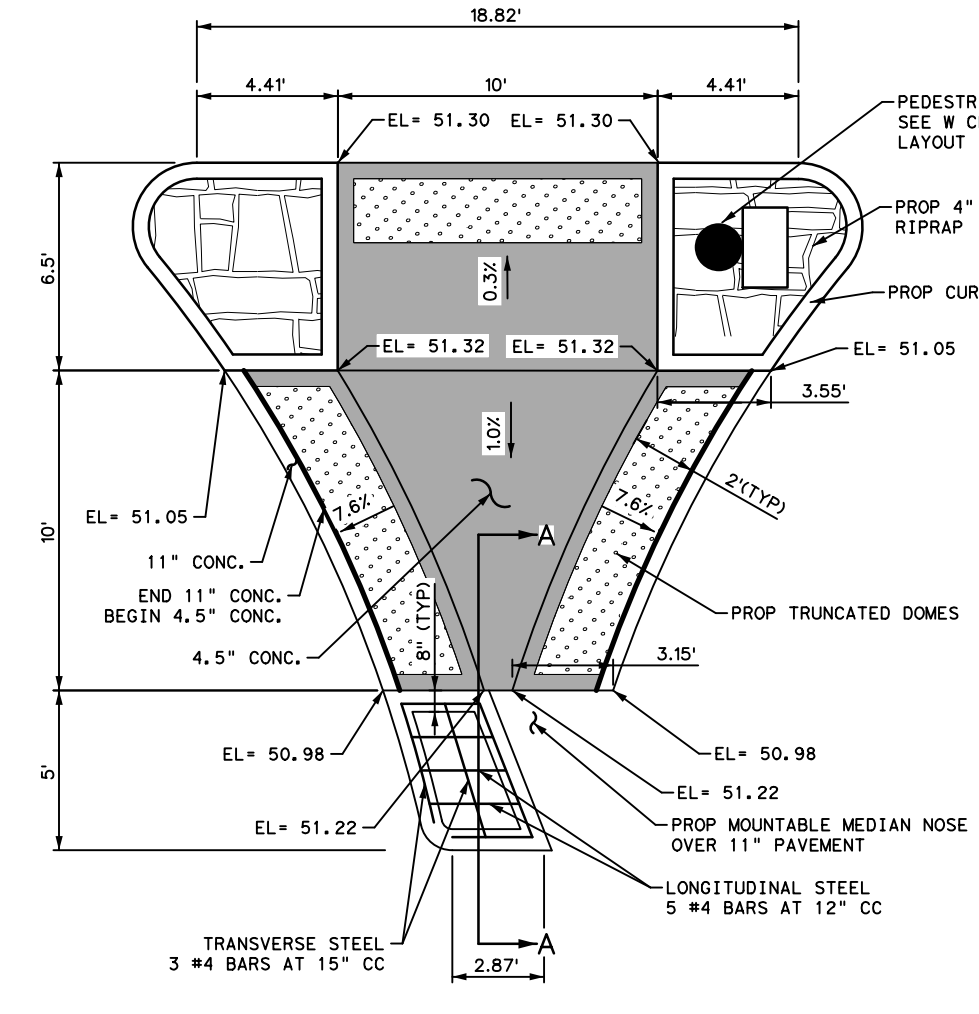
REVISIONS	DATE	APP.

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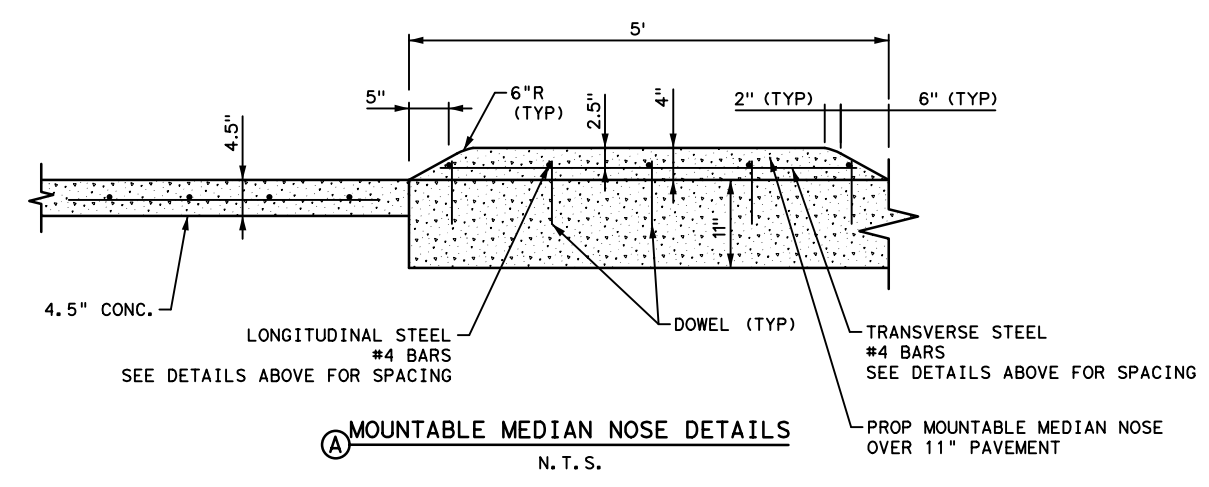
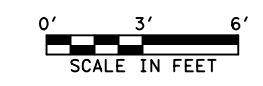
No.	DATE	REVISIONS	APP.



WEST CLAY ST. SPLITTER ISLAND (WEST SIDE)
 N. T. S.



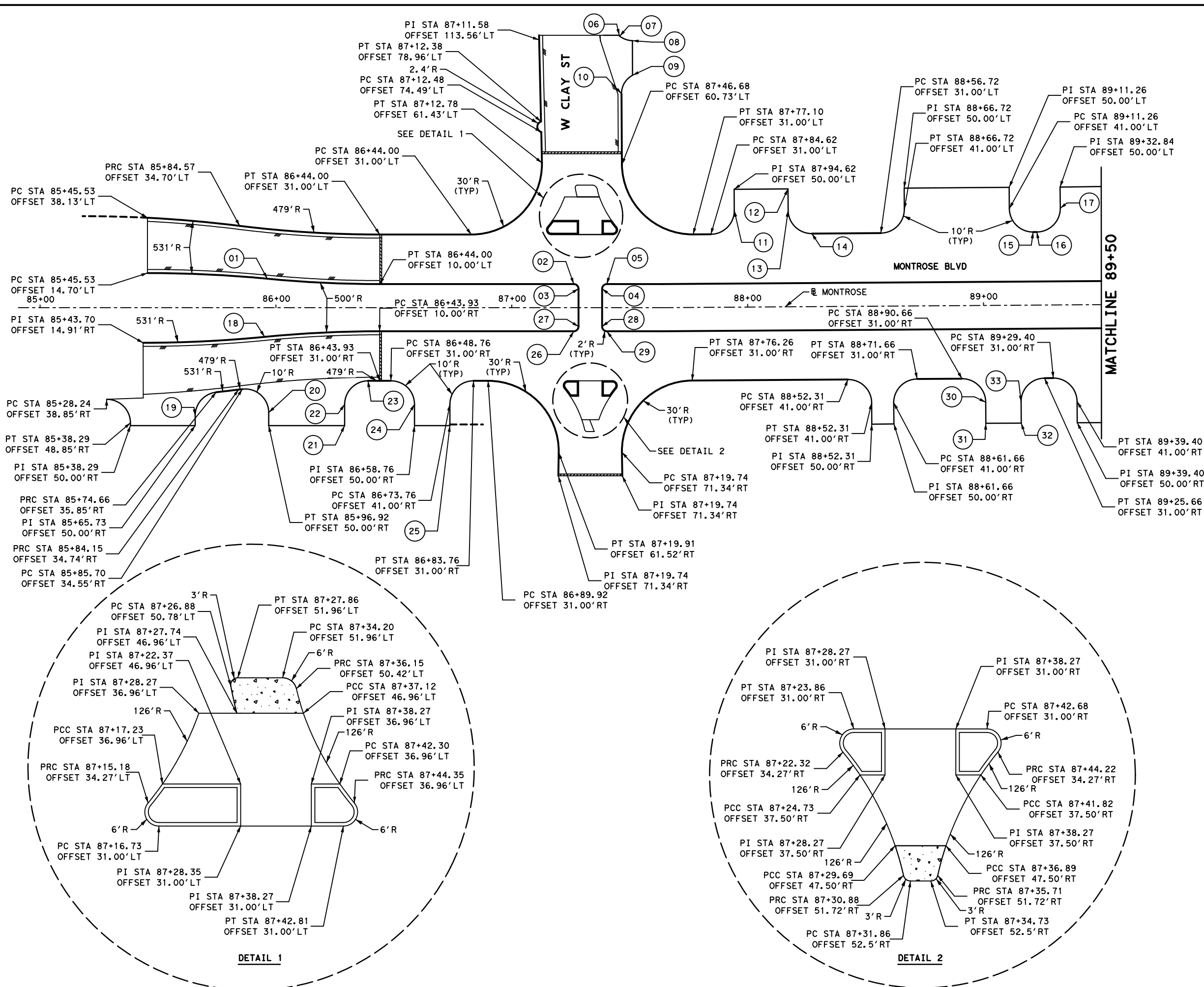
WEST CLAY ST. SPLITTER ISLAND (EAST SIDE)
 N. T. S.



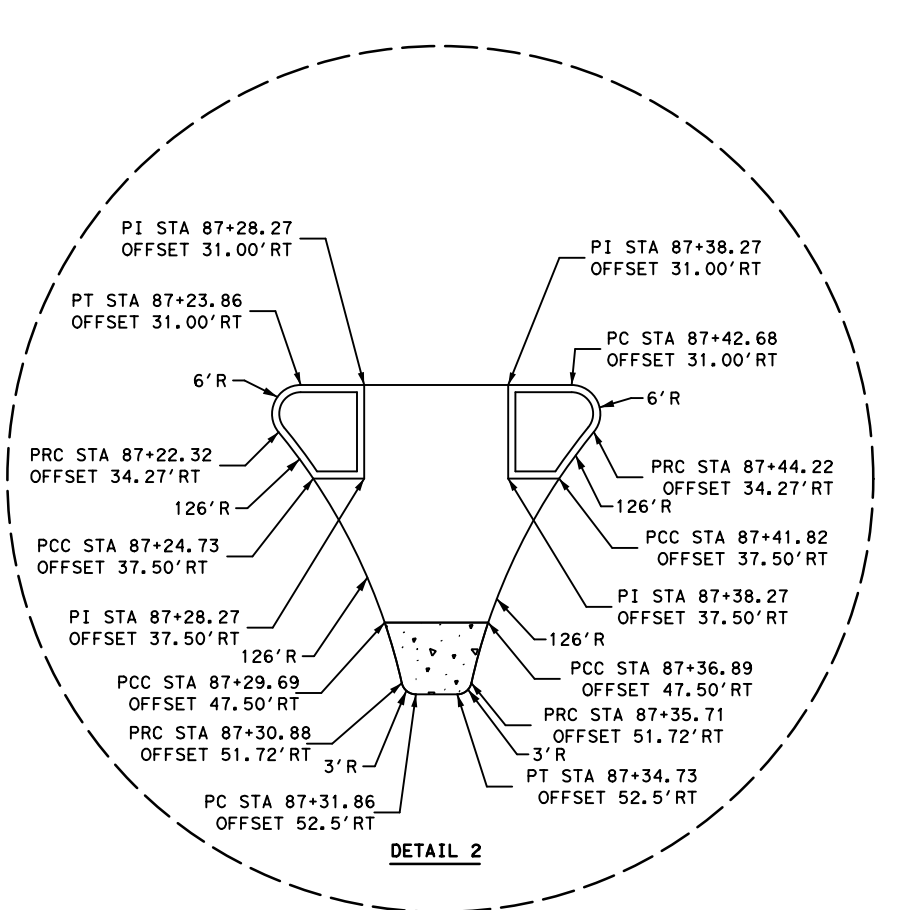
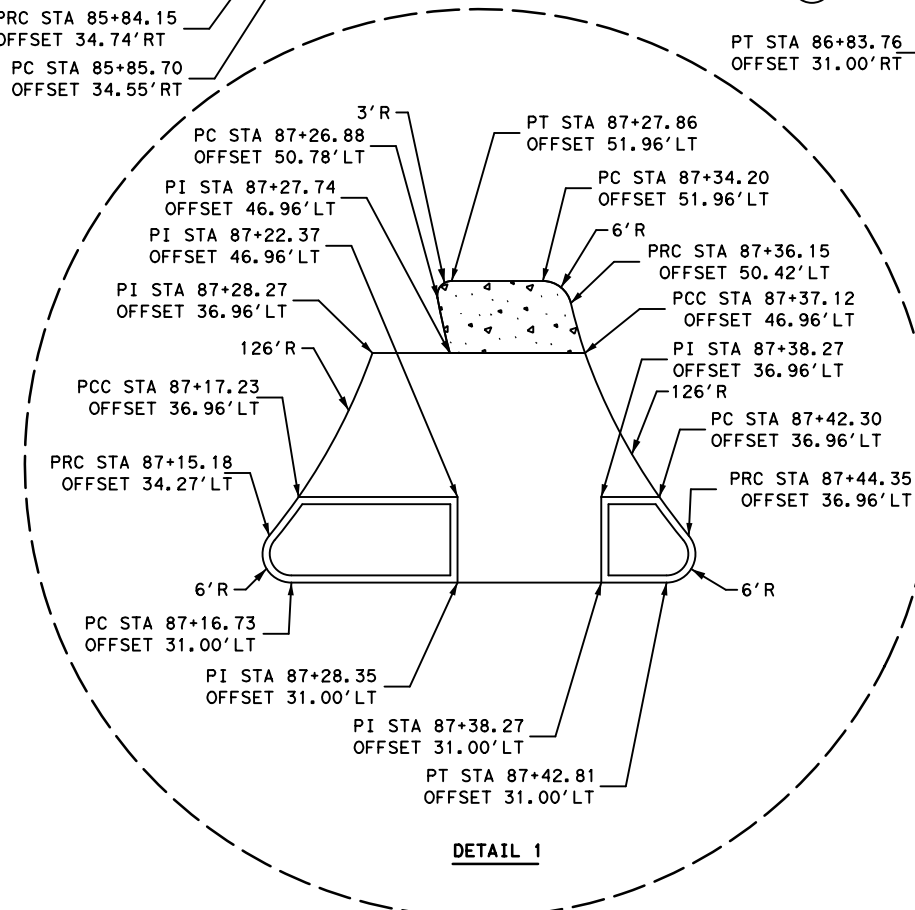
MOUNTABLE MEDIAN NOSE DETAILS
 N. T. S.

<p>Gauge Engineering TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</p> <p>DAVID G. CHEANEY 175563 2/20/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017</p>
<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1</p>	
<p>W. CLAY ST. SPLITTER ISLANDS DETAIL</p>	
<p>SHEET 1 OF 1</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JIADA HUANG</p>	
<p>SHEET NO. 85 OF 355</p>	

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 Plotted on: 2/20/2024 9:08:33 AM ahatamleh



HORIZONTAL GEOMETRY DATA			
NO.	DESCRIP	STATION	OFFSET
01	PRC	85+96.29	12.28'LT
02	PC	87+26.27	10.00'LT
03	PT	87+28.27	8.00'LT
04	PC	87+38.27	8.04'LT
05	PT	87+40.27	10.00'LT
06	PC	87+45.58	115.54'LT
07	PCC	87+45.74	115.14'LT
08	PI	87+51.12	113.24'LT
09	PI	87+51.20	98.57'LT
10	PT	87+46.50	90.70'LT
11	PT	87+94.62	41.00'LT
12	PI	88+17.44	50.00'LT
13	PC	88+17.44	41.00'LT
14	PT	88+27.44	31.00'LT
15	PT	89+21.26	31.00'LT
16	PC	89+22.84	31.00'LT
17	PT	89+32.84	41.00'LT
18	PRC	85+95.18	12.38'RT
19	PI	85+65.73	45.79'RT
20	PC	85+96.92	44.48'RT
21	PI	86+29.10	50.00'RT
22	PC	86+29.10	41.02'RT
23	PCC	86+39.00	31.03'RT
24	PT	86+58.76	41.00'RT
25	PI	86+73.76	50.00'RT
26	PT	87+26.27	10.00'RT
27	PC	87+28.27	8.00'RT
28	PI	87+38.27	8.00'RT
29	PT	87+40.27	10.00'RT
30	PT	89+00.66	41.00'RT
31	PI	89+00.66	50.00'RT
32	PI	89+15.66	50.00'RT
33	PC	89+15.66	41.00'RT



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125563
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Texas Registered Engineering Firm F-2017

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1

HORIZONTAL GEOMETRY
BEGIN PROJECT TO STA 89+50

SHEET 1 OF 4

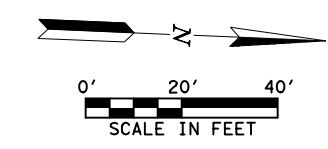
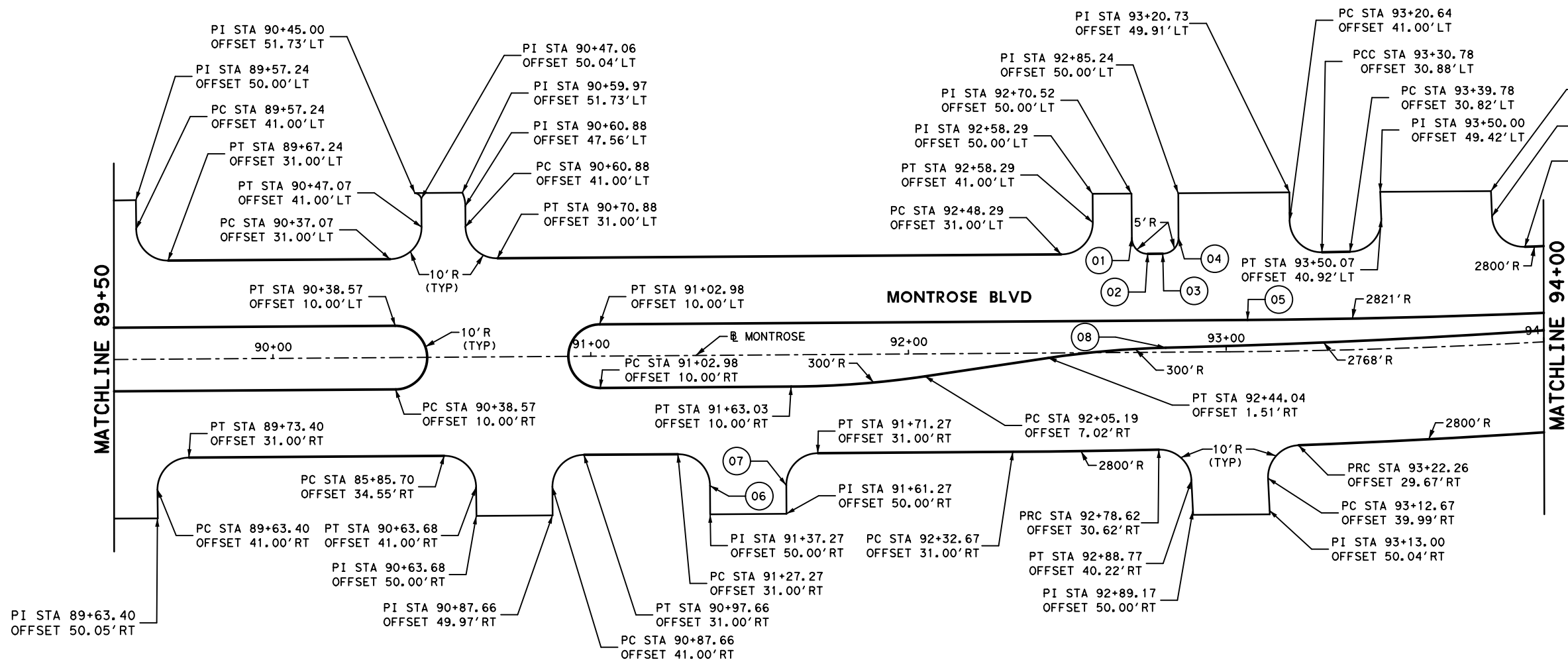
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 86 OF 355	

NO.	DATE	REVISIONS

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 Plotted on: 2/20/2024 9:08:34 AM ahatamleh

HORIZONTAL GEOMETRY DATA			
NO.	DESCRIP	STATION	OFFSET
01	PC	92+70.52	36.00' LT
02	PCC	92+75.52	31.00' LT
03	PCC	92+80.24	31.00' LT
04	PT	92+85.24	36.00' LT
05	PC	93+06.81	9.99' LT
06	PT	91+37.27	41.00' RT
07	PC	91+61.27	41.00' RT
08	PRC	92+80.96	1.42' LT

NO.	DATE	REVISIONS	APP.



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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HOUSTON PUBLIC WORKS

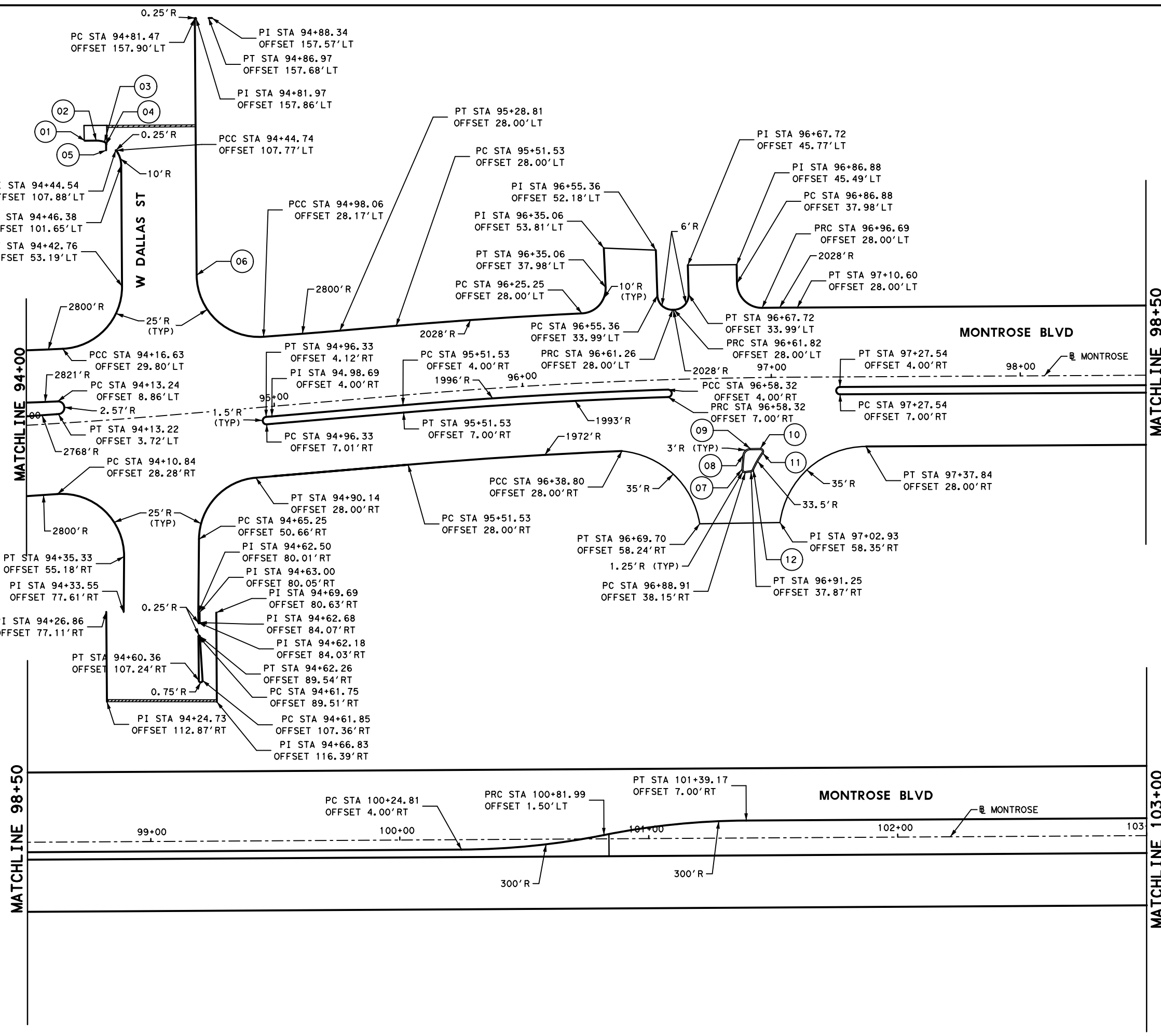
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

HORIZONTAL GEOMETRY
STA 89+50 TO STA 94+00

SHEET 2 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 87	OF 355

Pen Table: MONTROSE.tbl
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HORIZONTAL GEOMETRY DATA			
NO.	DESCRIP	STATION	OFFSET
01	PI	94+31.82	112.63'LT
02	PT	94+36.58	112.33'LT
03	PCC	94+40.06	111.53'LT
04	PC	94+40.69	110.00'LT
05	PI	94+40.52	108.15'LT
06	PC	94+73.41	55.12'LT
07	PT	96+87.49	36.79'RT
08	PC	96+88.05	31.19'RT
09	PT	96+91.07	28.48'RT
10	PC	96+95.25	28.46'RT
11	PRC	96+96.27	30.46'RT
12	PRC	96+92.26	37.14'RT



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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 Texas Registered Engineering Firm F-20017

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HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
HORIZONTAL GEOMETRY
STA 94+00 TO STA 103+00

SHEET 3 OF 4

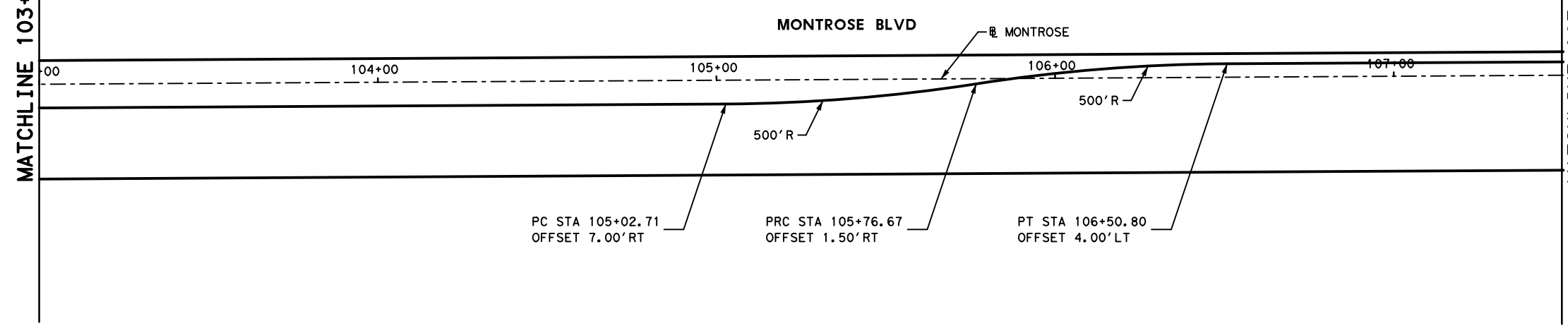
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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 88	OF 355

NO.	DATE	REVISIONS	APP.

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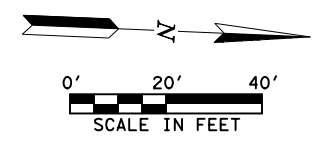
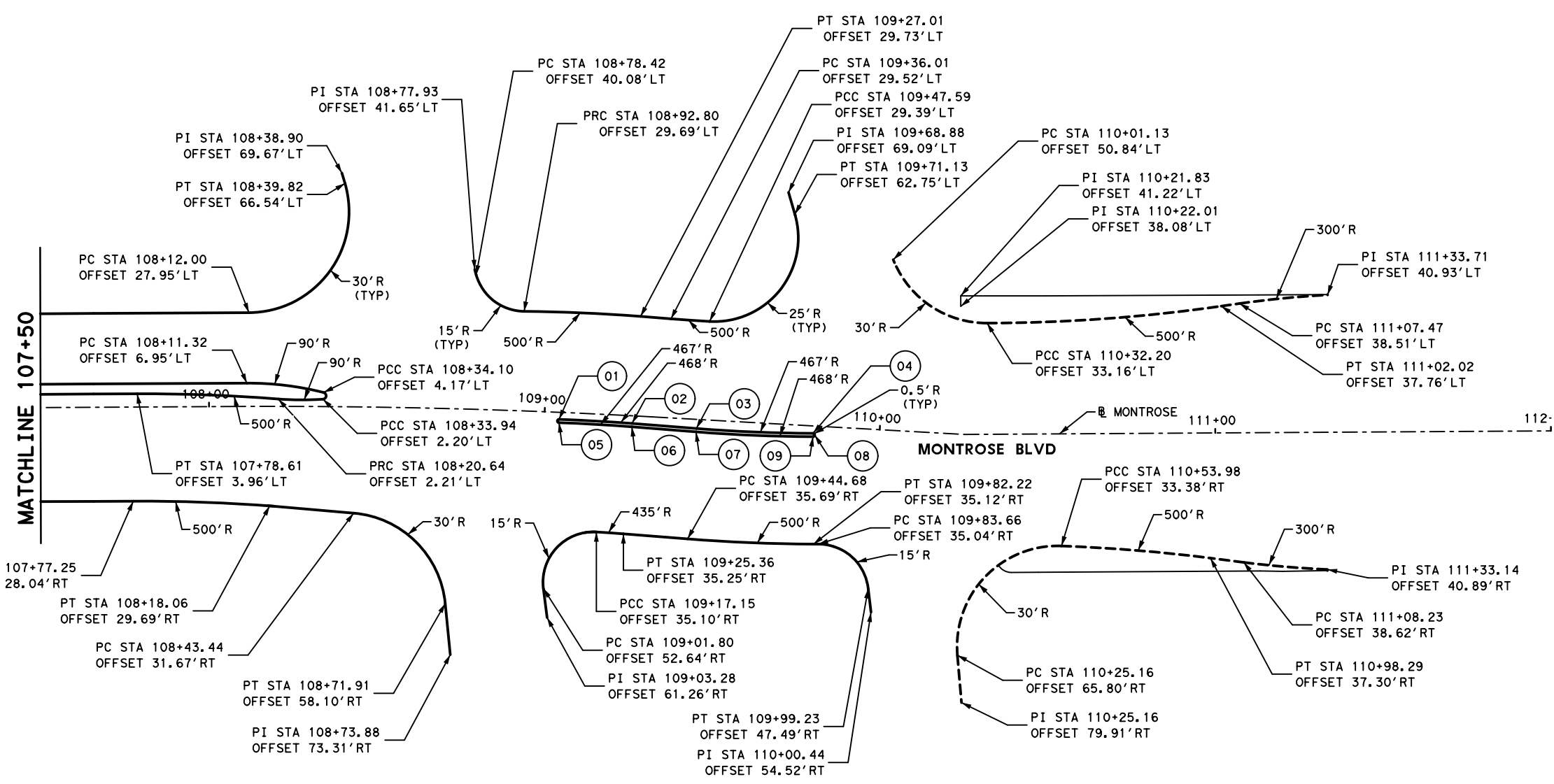
MATCHLINE 103+00

MATCHLINE 107+50



HORIZONTAL GEOMETRY DATA			
NO.	DESCRIP	STATION	OFFSET
01	PC	109+04.40	2.10' RT
02	PT	109+26.21	2.26' RT
03	PC	109+45.42	2.70' RT
04	PRC	109+80.21	2.18' RT
05	PRC	109+04.41	3.10' RT
06	PC	109+26.18	3.26' RT
07	PT	109+45.39	3.70' RT
08	PCC	109+80.74	2.65' RT
09	PCC	109+80.26	3.18' RT

NO.	DATE	REVISIONS	APP.



MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
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TEXAS PE FIRM REG. # 20017
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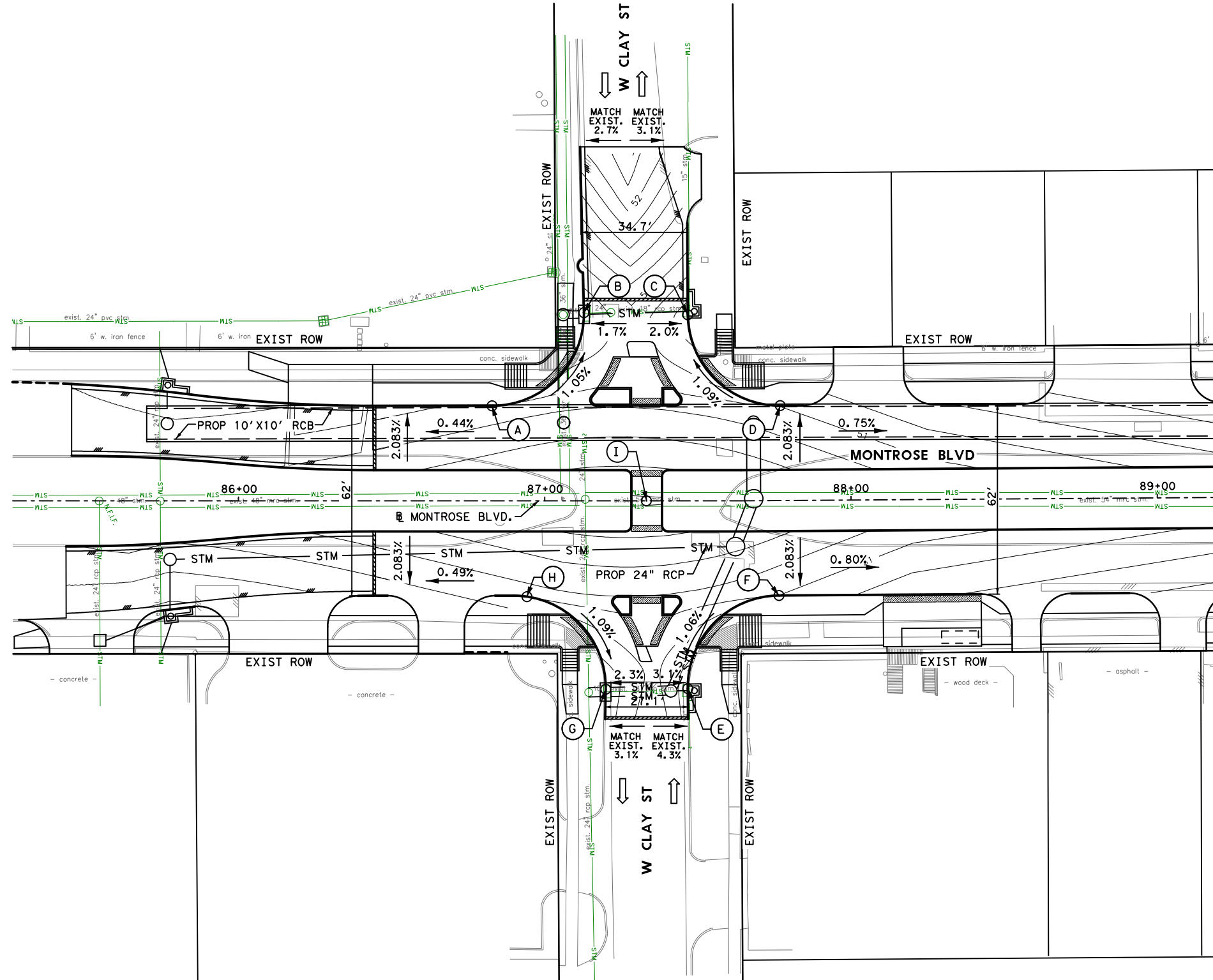
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1**

**HORIZONTAL GEOMETRY
STA 103+00 TO PROJECT END**

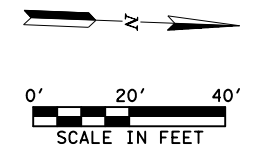
SHEET 4 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 89 OF 355	



NOTE:
 1. PROP 0.2' CONTOURS ARE SHOWN ON LAYOUT.

VERTICAL GEOMETRY DATA		
NO.	ELEVATION	DESCRIPTION
A	51.07	BOTTOM OF CURB
B	50.57	BOTTOM OF CURB
C	50.48	BOTTOM OF CURB
D	50.99	BOTTOM OF CURB
E	50.50	BOTTOM OF CURB
F	51.00	BOTTOM OF CURB
G	50.63	BOTTOM OF CURB
H	51.49	BOTTOM OF CURB
I	51.94	CNTR OF INT



MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
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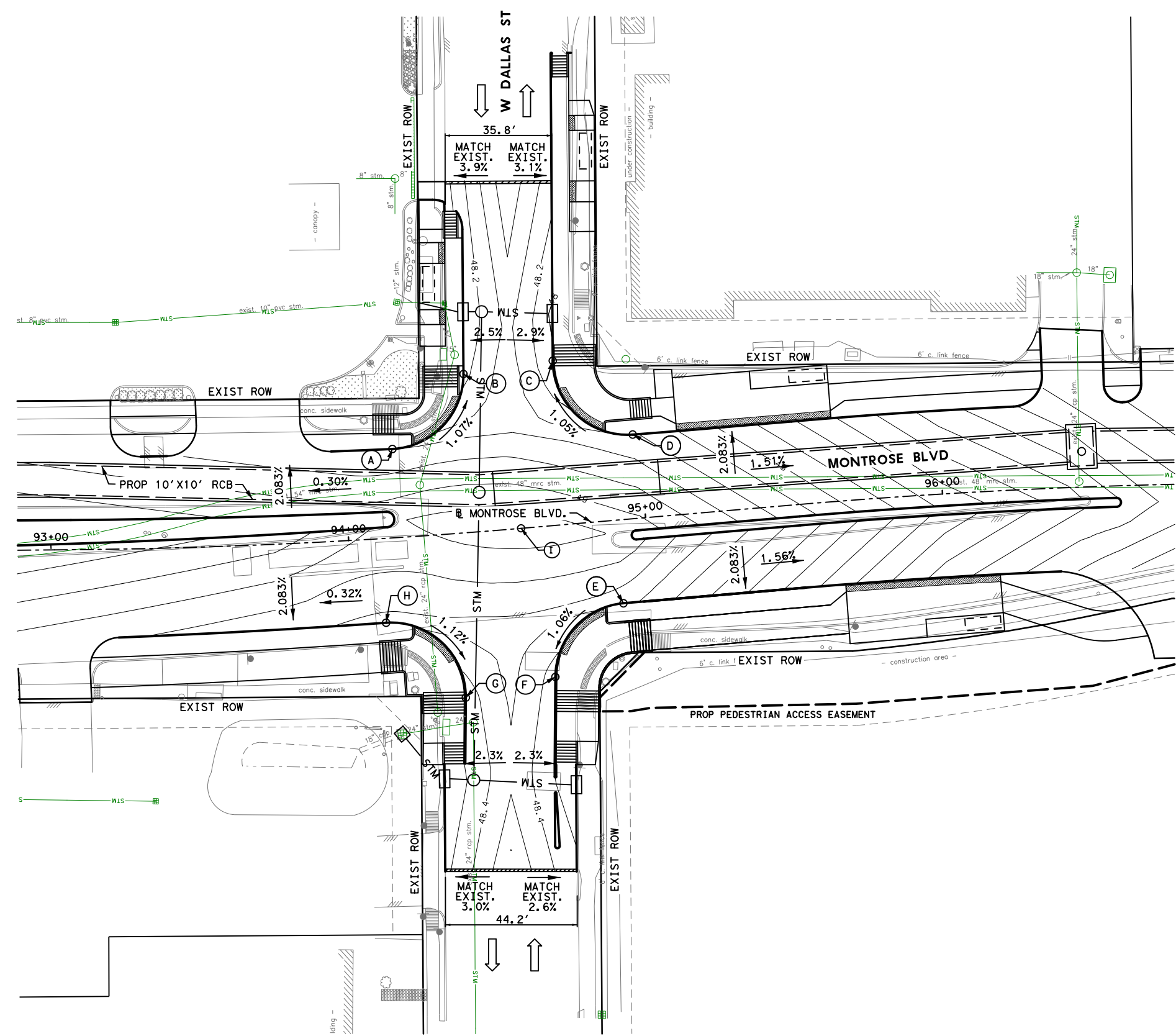
**MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**

**MONTROSE @ W CLAY
 INTERSECTION LAYOUT**

SHEET 1 OF 2

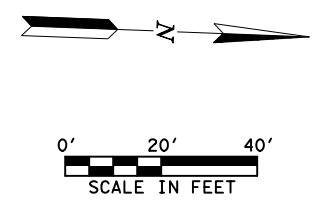
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 90	OF 355

No.	DATE	REVISIONS	APP.



NOTE:
 1. PROP 0.2' CONTOURS ARE SHOWN ON LAYOUT.

VERTICAL GEOMETRY DATA		
NO.	ELEVATION	DESCRIPTION
A	48.59	BOTTOM OF CURB
B	48.18	BOTTOM OF CURB
C	48.00	BOTTOM OF CURB
D	48.43	BOTTOM OF CURB
E	48.68	BOTTOM OF CURB
F	48.29	BOTTOM OF CURB
G	48.30	BOTTOM OF CURB
H	48.74	BOTTOM OF CURB
I	49.34	CNTR OF INT



Gauge Engineering
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
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 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTR0SE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**

**MONTR0SE @ W DALLAS
 INTERSECTION LAYOUT**

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 91 OF 355	

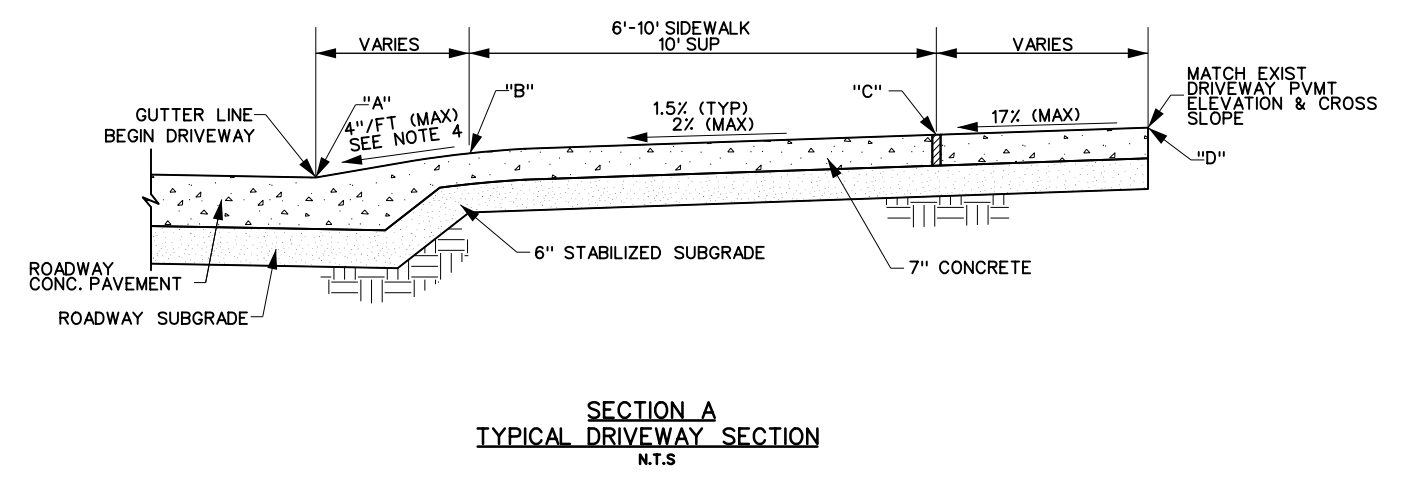
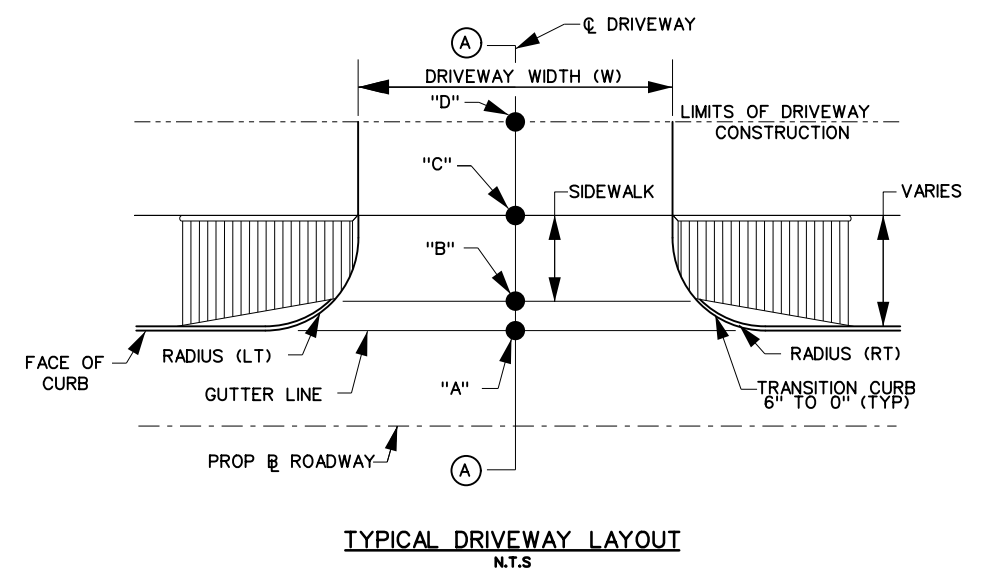
NO.	DATE	REVISIONS	APP.

Pen Table: MONTR0SE.tbl
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 Plotted on: 2/20/2024 9:08:39 AM ahatamleh

DRIVEWAY NO.	DRIVEWAY CL STATION	EXIST DRWY WIDTH	EXIST DRWY MATERIAL	PROP DRWY WIDTH (ft)	PROP DRWY MATERIAL	PROP RADIUS	OFFSET *				ELEVATION				Slope			DRIVEWAY CONCRETE	SIDEWALK WIDTH THRU	DRIVEWAY TYPE
							POINT "A"	POINT "B"	POINT "C"	POINT "D"	POINT "A"	POINT "B"	POINT "C"	POINT "D"	A-B	B-C	C-D			
1	85+52.01	27.5	CONCRETE	27.4	CONCRETE	10	37.77	41.70	47.70	50.00	50.62	51.09	51.21	51.53	12.0%	2.0%	13.8%	7" CONC	10.0 ft	COMMERCIAL
2	86+13.01	35.4	CONCRETE	32.2	CONCRETE	10	32.75	37.59	47.60	50.00	50.79	51.32	51.47	51.62	9.8%	1.5%	6.2%	7" CONC	10.0 ft	COMMERCIAL
3	86+66.26	31.2	CONCRETE	15.0	CONCRETE	10	31.00	37.50	47.50	50.00	50.98	51.62	51.57	51.69	6.0%	1.5%	4.8%	7" CONC	10.0 ft	COMMERCIAL
4	88+06.03	22.9	CONCRETE	22.8	CONCRETE	10	31.00	37.00	47.00	48.30	50.77	51.43	51.58	51.73	11.0%	1.5%	11.5%	7" CONC	10.0 ft	COMMERCIAL
5	88+88.99	44.7	CONCRETE	44.5	CONCRETE	10	31.00	37.00	47.00	50.00	50.38	51.04	51.19	51.55	11.0%	1.5%	12.0%	7" CONC	10.0 ft	COMMERCIAL
6	89+45.04	24.0	CONCRETE	24.4	CONCRETE	10	31.00	37.00	47.00	50.00	50.16	50.82	50.97	51.28	11.0%	1.5%	10.3%	7" CONC	10.0 ft	COMMERCIAL
7	88+56.99	9.5	CONCRETE	9.4	CONCRETE	10	31.00	37.49	47.49	50.00	50.51	51.15	51.30	51.41	9.8%	1.5%	4.5%	7" CONC	10.0 ft	COMMERCIAL
8	89+08.16	12.3	CONCRETE	15.0	CONCRETE	10	31.00	37.50	47.50	50.00	50.31	50.95	51.10	51.10	9.8%	1.5%	0.1%	7" CONC	10.0 ft	COMMERCIAL
9	89+51.40	22.6	CONCRETE	24.0	CONCRETE	10	31.00	37.50	47.50	50.00	50.15	50.79	50.94	51.22	9.8%	1.5%	11.3%	7" CONC	10.0 ft	COMMERCIAL
10	90+53.83	26.5	CONCRETE	13.5	CONCRETE	10	31.00	37.50	47.50	51.73	49.73	50.51	50.71	51.22	12.0%	2.0%	12.1%	7" CONC	10.0 ft	COMMERCIAL
11	90+75.67	24.2	CONCRETE	24.0	CONCRETE	10	31.00	37.50	47.50	50.00	49.75	50.39	50.54	50.63	9.8%	1.5%	3.7%	7" CONC	10.0 ft	COMMERCIAL
12	91+49.27	23.9	CONCRETE	24.0	CONCRETE	10	31.00	37.50	47.50	50.00	49.53	50.17	50.32	50.49	9.8%	1.5%	6.9%	7" CONC	10.0 ft	COMMERCIAL
13	92+64.41	18.0	CONCRETE	12.2	CONCRETE	10 / 5	31.00	37.50	47.50	50.00	49.04	49.76	49.91	50.20	11.0%	1.5%	11.8%	7" CONC	10.0 ft	COMMERCIAL
14	93+02.71	37.6	CONCRETE	35.0	CONCRETE	10 / 5	31.04	37.52	47.51	50.00	48.93	49.57	49.71	49.96	9.8%	1.5%	9.8%	7" CONC	10.0 ft	COMMERCIAL
15	93+01.28	23.8	CONCRETE	24.1	CONCRETE	10	30.07	36.63	46.64	51.21	49.11	49.75	49.90	49.91	9.8%	1.5%	0.2%	7" CONC	10.0 ft	COMMERCIAL
16	93+66.36	38.2	CONCRETE	35.0	CONCRETE	10	30.55	37.81	43.00	48.91	49.50	50.21	50.29	50.91	9.8%	1.5%	10.5%	7" CONC	10.0 ft	COMMERCIAL
17	96+45.21	27.8	CONCRETE	20.9	CONCRETE	10 / 6	27.92	33.47	39.47	52.96	46.40	46.94	47.03	47.09	9.8%	1.5%	0.4%	7" CONC	6.0 ft	COMMERCIAL
18	96+77.30	19.6	CONCRETE	19.6	CONCRETE	10 / 6	27.93	33.47	39.48	45.61	46.04	46.58	46.67	46.79	9.8%	1.5%	1.9%	7" CONC	6.0 ft	COMMERCIAL
19	96+86.31	NA	CONCRETE	32.3	CONCRETE	35	28.51	38.04	48.36	58.37	46.01	46.94	47.10	47.87	9.8%	1.5%	7.7%	7" CONC	10.0 ft	COMMERCIAL
20	87+51.16	14.9	CONCRETE	14.7	CONCRETE	9.5 / 8.8	105.90	105.90	N/A	N/A	51.76	51.82	N/A	N/A	0.6%	N/A	N/A	7" CONC	0.0 ft	COMMERCIAL

NOTES

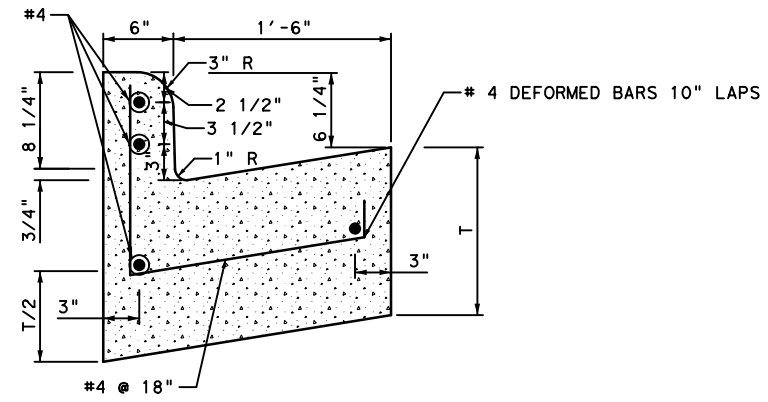
- REFER TO CONCRETE SIDEWALK & DRIVEWAY DETAILS FOR ADDITIONAL INFORMATION.
- ELEVATION AT POINT "D" IS (+/-) AS SHOWN IN DRIVEWAY TABLE. MATCH EXISTING ELEVATION AT ROW.
- REFER TO PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
- 4"/FT MAXIMUM IS OVER A DISTANCE OF 1'-6". IF DISTANCE FROM A TO B IS GREATER THAN 1'-6", MAXIMUM SLOPE IS 12%.



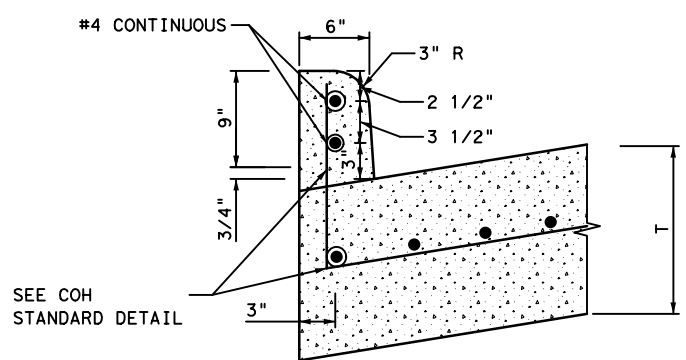
<p>GAUGE ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is prepared for the purpose of interim review under the authority of:</p> <p>DAVID G. CHEZANEY 125563 2/20/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017</p>
<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 DRIVEWAY TABULATION DETAILS</p>	
<p>SHEET 1 OF 1</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JIADA HUANG</p>	
<p>SHEET NO. 92 OF 355</p>	

NO.	DATE	REVISIONS	APP.

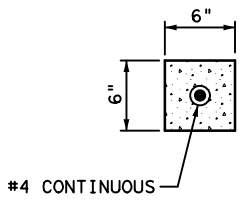
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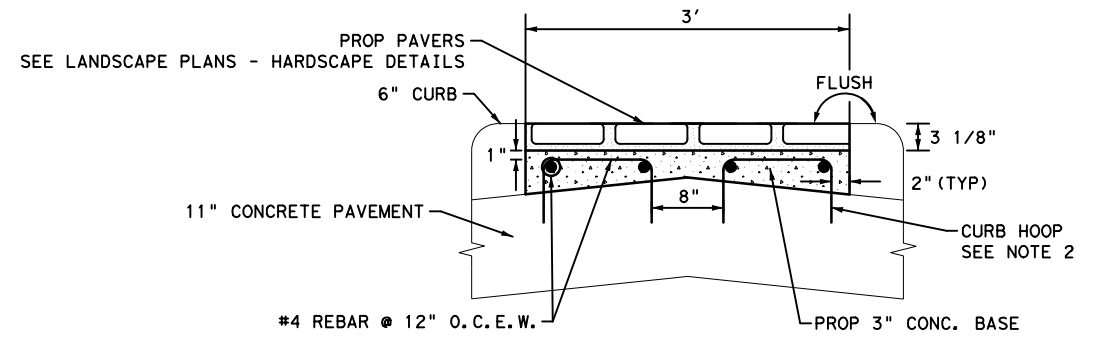
9" CURB AND GUTTER DETAIL
N. T. S.



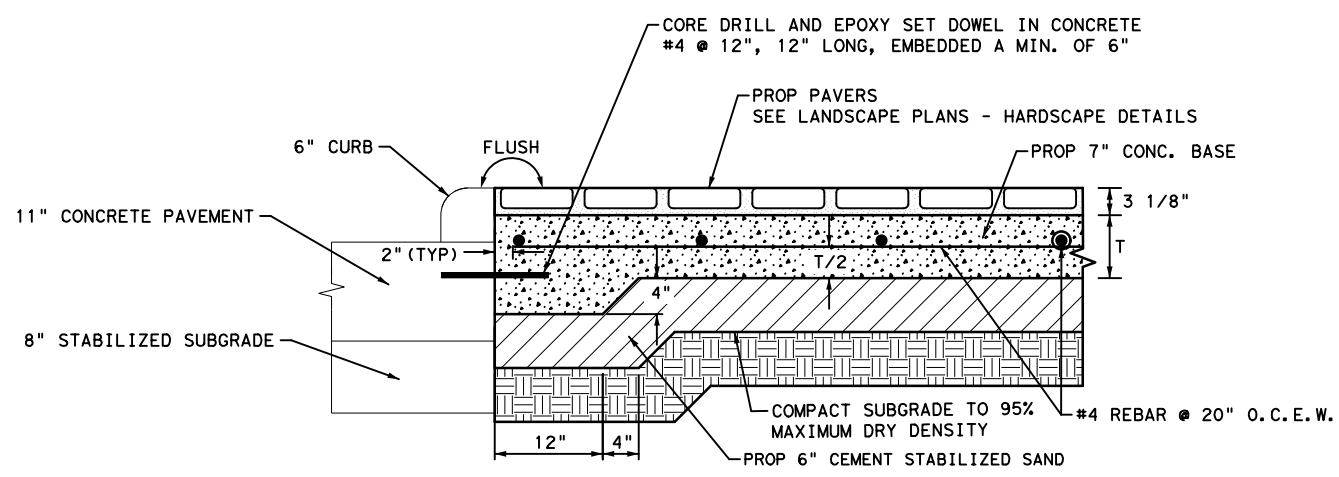
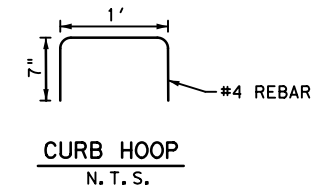
9" CURB DETAIL
N. T. S.



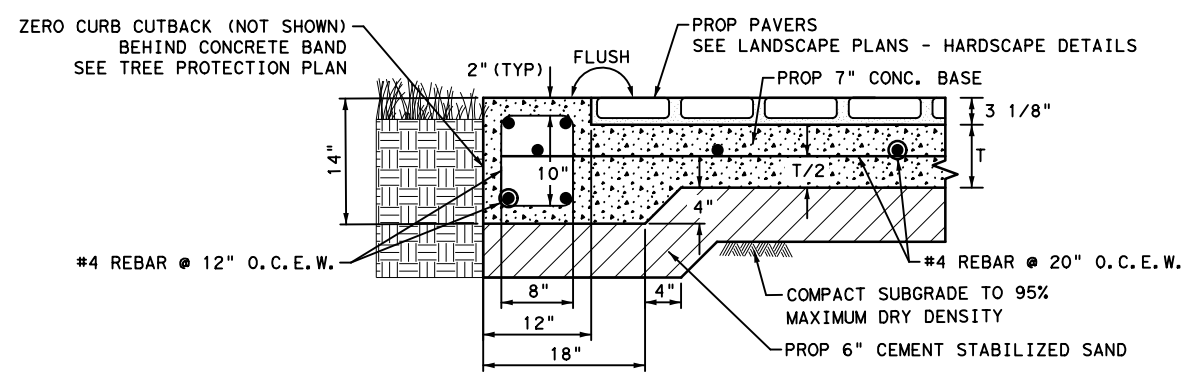
6" FLUSH CURB DETAIL
N. T. S.



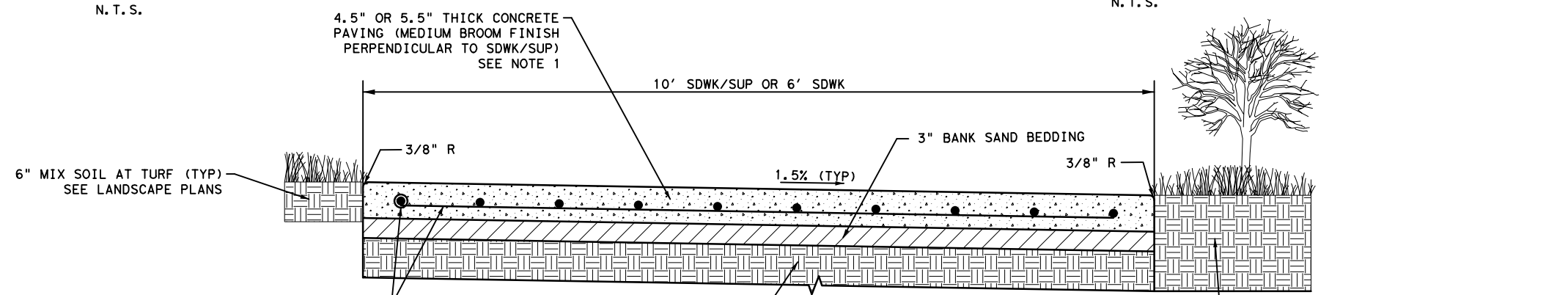
3' TO 14' MEDIAN CONCRETE BASE FOR PAVERS
N. T. S.



20' MEDIAN CONCRETE BASE FOR PAVERS
N. T. S.



CONCRETE BAND DETAIL FOR PAVERS
N. T. S.



SIDEWALK/SHARED USE PATH DETAIL
N. T. S.

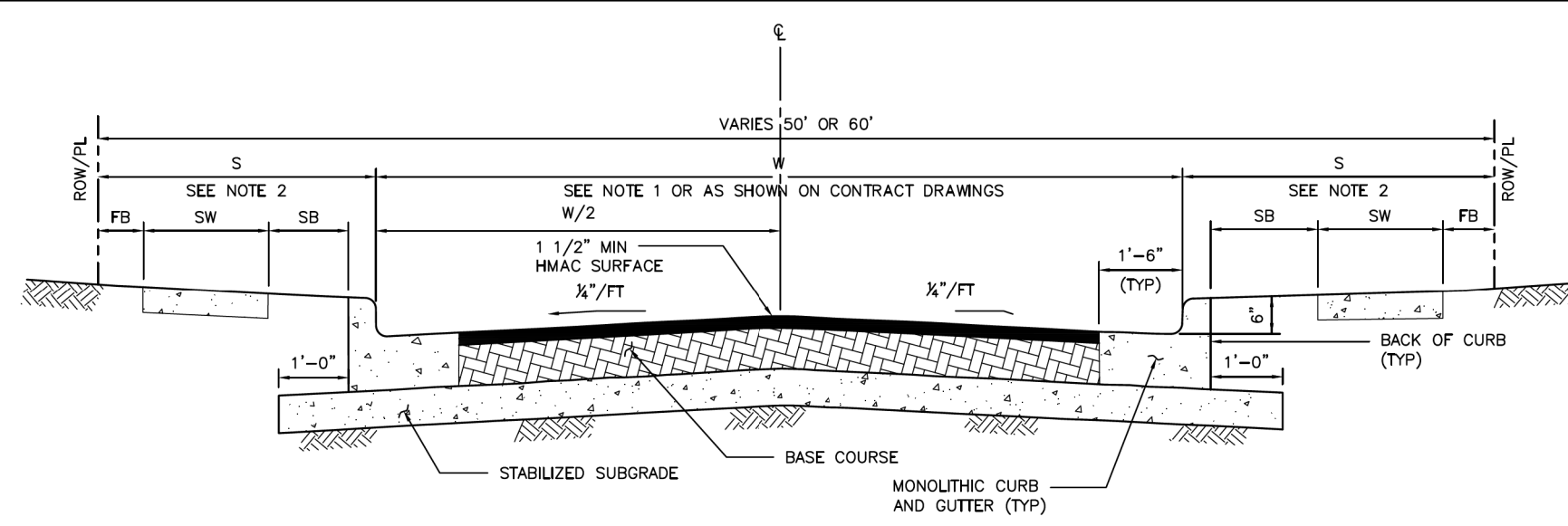
NOTES

- 1.6' SIDEWALK SHALL BE 4.5" THICK. 10' SUP/SDWK SHALL BE 5.5" THICK.
2. INSTALL CURB HOOPS IN CONCRETE PAVEMENT WHILE STILL WET.

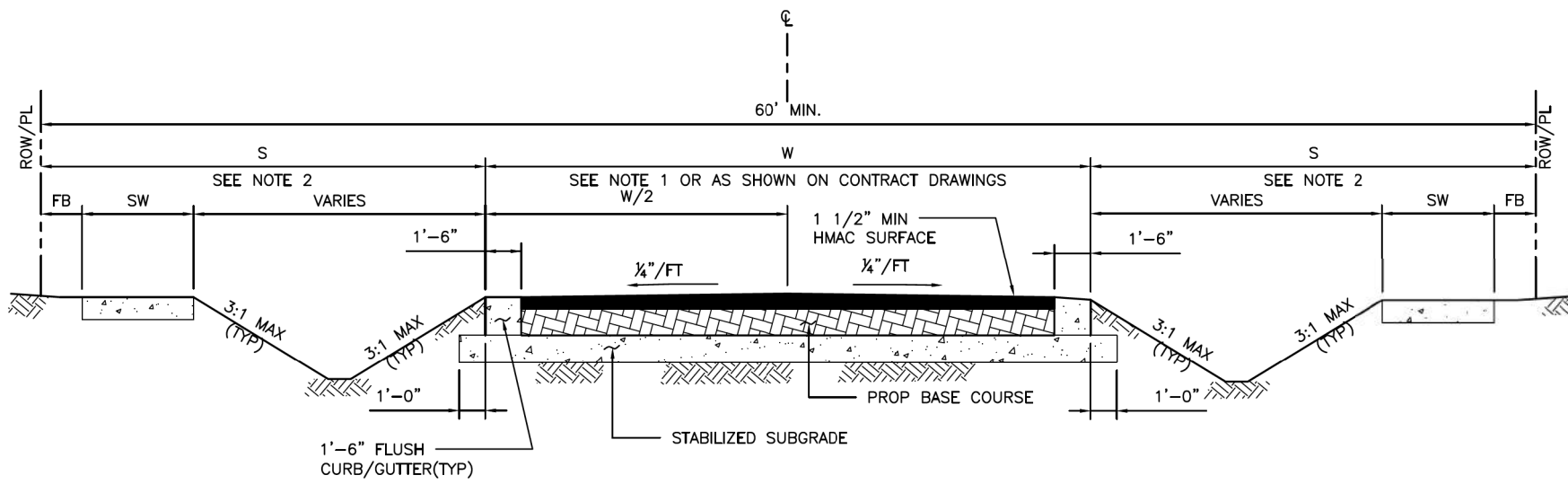
 GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079 SURVEYED BY: KUO & ASSOCIATES, INC.	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is prepared for the purpose of interim review under the authority of:</small> DAVID G. CHEZANEY 125563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1	
MISCELLANEOUS ROADWAY DETAILS	
SHEET 1 OF 1	
WBS NUMBER N-127000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JUADA HUANG	
SHEET NO. 93 OF 355	

APP.	
REVISIONS	
No.	DATE

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HMAC PAVEMENT – CURB & GUTTER SECTION
 (NOT APPLICABLE TO ETJ OF CITY OF HOUSTON)



HMAC PAVEMENT – DITCH SECTION
 (NOT APPLICABLE TO ETJ OF CITY OF HOUSTON)

- NOTES:**
- FOR TRAVEL WAY WIDTH (W) REFER TO IDM SECTION 10.3.03.A.
 - REFER TO CONTRACT DRAWINGS FOR "S" DIMENSION (S), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
 - BASE COURSE SHALL BE:
 ALTERNATES:
 A) 6" (MIN) HOT MIX ASPHALTIC CONCRETE.
 B) 8" (MIN) CRUSHED CONCRETE.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS STANDARD

HOT MIX ASPHALTIC CONCRETE PAVEMENT DETAILS
 (SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Sulail Kanwar</i> —9E1860C841F547B— CITY ENGINEER	DocuSigned by: <i>Carl Hallbeck</i> —A93D4103783482— DIRECTOR OF HPW
DocuSigned by: <i>Khang Nguyen</i> —95A28F0A784CDD— CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 02741-01

MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 DAVID G. CHEZANEY
 175563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
HOT MIX ASPHALTIC CONCRETE PAVEMENT DETAILS

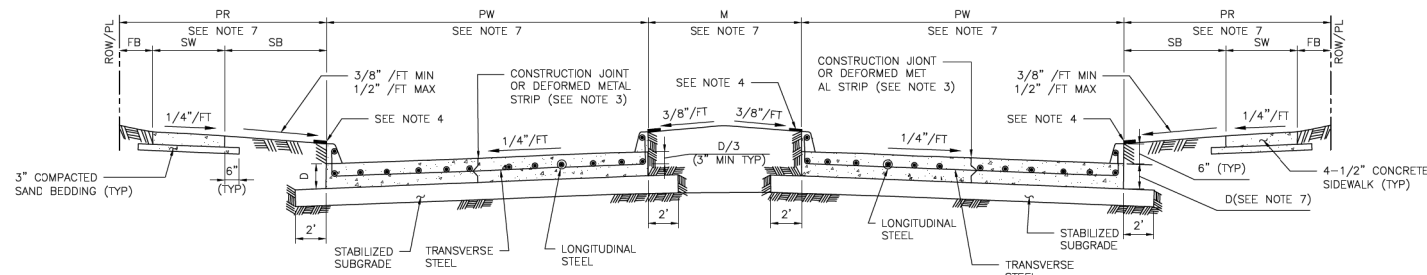
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO	94 OF 355

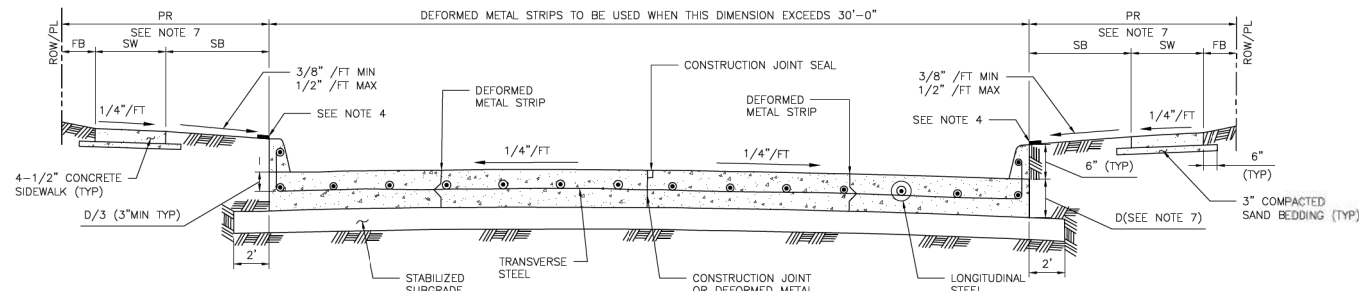
No.	DATE	REVISIONS	APP.

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TYPICAL DOUBLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS



TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

TABLE 1
 REINFORCING STEEL BAR SIZES AND SPACINGS FOR VARIOUS PAVEMENT THICKNESSES (D) WITH: MAXIMUM TRANSVERSE CONTROL JOINT SPACING = 20'-0"
 MAXIMUM EXPANSION JOINT SPACING = 80'-0"
 f_c = 4,000 PSI/28 DAYS AND F_y = 60,000 PSI

PAVEMENT THICKNESS 'D' (IN)	PAVEMENT WIDTH 'PW' (FT)	LONGITUDINAL STEEL									TRAVERSE STEEL		
		#4 BARS			#5 BARS			#6 BARS			#4 BARS	#5 BARS	#6 BARS
		NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	NUMBER OF BARS	SPACING (IN)	END BAR SPACING (IN)	SPACING (IN)	SPACING (IN)	SPACING (IN)
6	28	17	20.50	4.00	-	-	-	-	-	-	36	-	-
7	25	17	18.25	4.00	-	-	-	-	-	-	36	-	-
7	35	24	18.00	3.00	-	-	-	-	-	-	36	-	-
7	36	25	17.75	3.00	-	-	-	-	-	-	36	-	-
7	37	25	18.25	3.00	-	-	-	-	-	-	36	-	-
7	41	28	18.00	3.00	-	-	-	-	-	-	36	-	-
7	45	31	17.75	3.75	-	-	-	-	-	-	36	-	-
8	25	20	15.50	2.75	13	24.50	3.0	-	-	-	36	36	-
8	34	27	15.50	2.50	17	25.00	4.0	-	-	-	36	36	-
8	35	27	16.00	2.00	18	24.25	4.0	-	-	-	36	36	-
8	36	28	15.75	3.25	18	25.00	3.0	-	-	-	30	36	-
8	44	24	15.75	4.00	22	24.75	4.0	-	-	-	30	36	-
8	45	35	15.75	2.25	23	24.25	3.0	-	-	-	30	36	-
9	25	22	14.00	3.00	14	22.50	4.0	-	-	-	36	36	-
9	34	31	13.50	2.00	19	22.25	3.5	-	-	-	30	36	-
9	35	31	13.75	3.75	20	21.75	3.5	-	-	-	30	36	-
9	36	32	13.75	3.00	21	21.25	3.5	-	-	-	30	36	-
9	44	39	13.75	2.75	25	21.75	3.0	-	-	-	24	36	-
9	45	39	14.00	4.00	26	21.25	4.5	-	-	-	24	36	-
10	25	24	12.75	3.50	17	18.25	4.0	-	-	-	36	36	36
10	34	33	12.50	4.00	21	20.00	4.0	-	-	-	30	36	36
10	35	34	12.50	3.75	23	18.75	4.0	-	-	-	30	36	36
10	36	35	12.50	3.50	24	18.50	3.0	-	-	-	30	36	36
10	44	44	12.00	4.00	29	18.50	4.5	-	-	-	24	36	36
10	45	44	12.50	3.00	29	19.00	3.0	-	-	-	24	36	36
11	25	27	11.25	3.00	17	18.25	4.0	12	26.75	3	36	36	36
11	34	36	11.50	2.75	24	17.50	2.5	17	25.00	4	24	36	36
11	35	37	11.50	3.00	24	18.00	3.0	17	25.75	4	24	36	36
11	36	40	11.00	2.00	25	17.75	3.0	17	26.50	4	24	36	36
11	44	48	11.25	2.50	30	18.00	3.0	21	26.00	4	24	36	36
11	45	49	11.25	3.00	31	17.75	4.0	22	25.50	3	24	36	36
12	25	-	-	-	19	16.25	4.0	13	24.50	3	36	36	36
12	34	-	-	-	26	16.00	4.0	18	23.50	4	24	36	36
12	35	-	-	-	26	16.50	4.0	19	23.00	3	24	36	36
12	36	-	-	-	27	16.25	4.5	20	22.25	4.5	24	36	36
12	44	-	-	-	33	16.25	4.0	24	22.50	5	24	30	36
12	45	-	-	-	35	15.75	3.0	25	22.25	3	24	30	36

MINIMUM LAP LENGTH (L):
 A. # 4 BARS : L = 22 INCHES
 B. # 5 BARS : L = 27 INCHES
 C. # 6 BARS : L = 32 INCHES

- NOTES:
1. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0".
 2. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED UNLESS SHOWN OTHERWISE ON DRAWINGS.
 3. CONTRACTOR MAY SAW CUT IN LIEU OF DEFORMED METAL STRIP.
 4. USE STRIP OF SOD GRASS TO PREVENT EROSION UNTIL STAND OF GRASS IS ESTABLISHED.
 5. AN EQUAL OR LARGER AREA OF WELDED REINFORCEMENT BAR CONFORMING TO ASTM A497, MAY BE SUBSTITUTED FOR REBARS LISTED IN TABLE 1.
 6. IF AVAILABLE ROW IS NOT SUFFICIENT TO ACCOMMODATE SIDEWALK WIDTH (SW) ACCORDING TO IDM REQUIREMENTS, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER.
 7. REFER TO CONTRACT DRAWINGS FOR PAVEMENT WIDTH (PW) AND PAVEMENT THICKNESS (D), MEDIAN (M), PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

APPROVED BY: <i>Sahar Kassar</i> CITY ENGINEER	APPROVED BY: <i>HANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Chris Ballack</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02751-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
CONCRETE PAVEMENT DETAILS	
FOR CITY OF HOUSTON USE ONLY	
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NOT TO SCALE	

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DAVID G. CHEANEY
 125563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

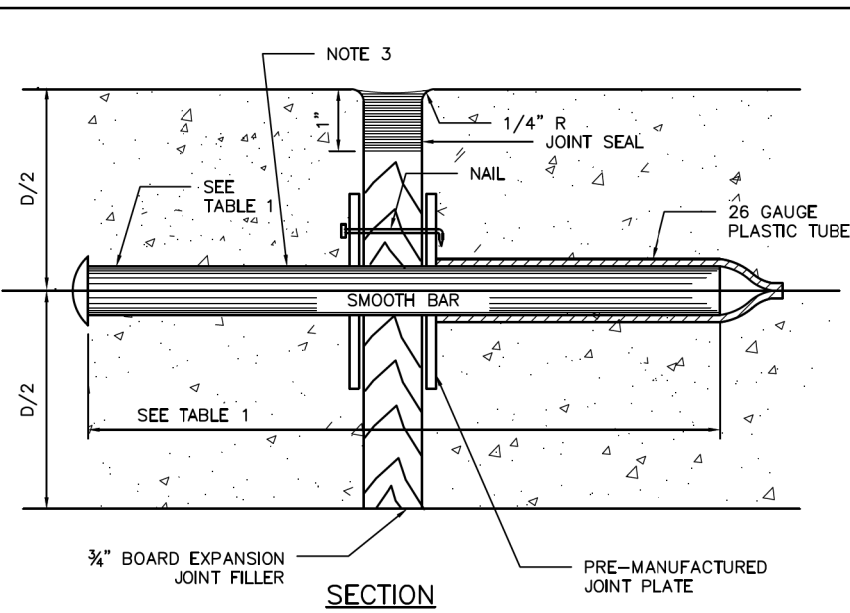
CONCRETE PAVEMENT DETAILS

SHEET 1 OF 1

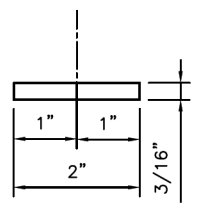
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
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SHEET NO	95 OF 355

No.	DATE	REVISIONS	APP.

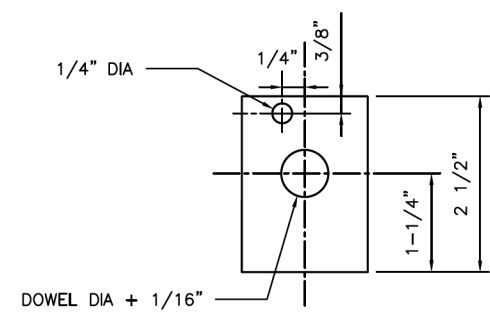
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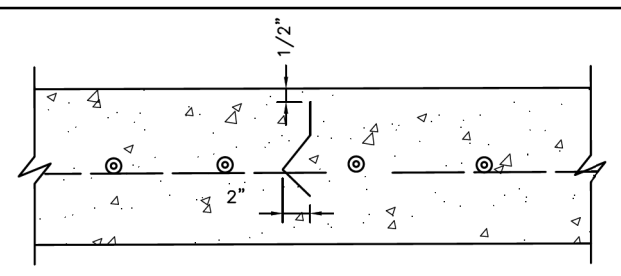
SECTION
DOWEL TYPE EXPANSION JOINT



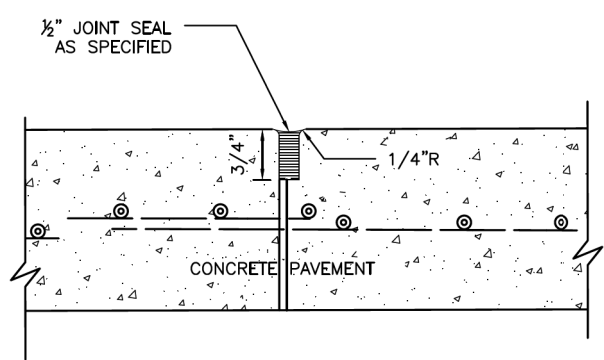
PLAN VIEW
JOINT PLATE



ELEVATION VIEW
JOINT PLATE



SECTION
DEFORMED METAL STRIP



SECTION
CONSTRUCTION JOINT SEAL

TABLE 1

PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12

- NOTES:**
1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS. UNITS TO BE SPACED 12" CENTER ON CENTER.
 2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS.
 3. CENTER DOWEL HORIZONTALLY ON JOINT.
 4. CENTER DOWEL VERTICALLY IN CONCRETE BASE. EXTEND THICKENED CONCRETE AS NEEDED TO MAINTAIN 3" MIN COVER.
 5. CITY OF HOUSTON APPROVED PRODUCTS MAY BE USED AS JOINT PLATE ALTERNATIVE.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Sulail Khanwar</i> 5E7860C341F5476 CITY ENGINEER	DocuSigned by: <i>Carol Haddock</i> A03C410B7203403 DIRECTOR OF HPW
DocuSigned by: <i>Khang Nguyen</i> 6A21EFD0A7584C0 CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 02752-01

MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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DAVID G. CHEZANEY
 125563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS

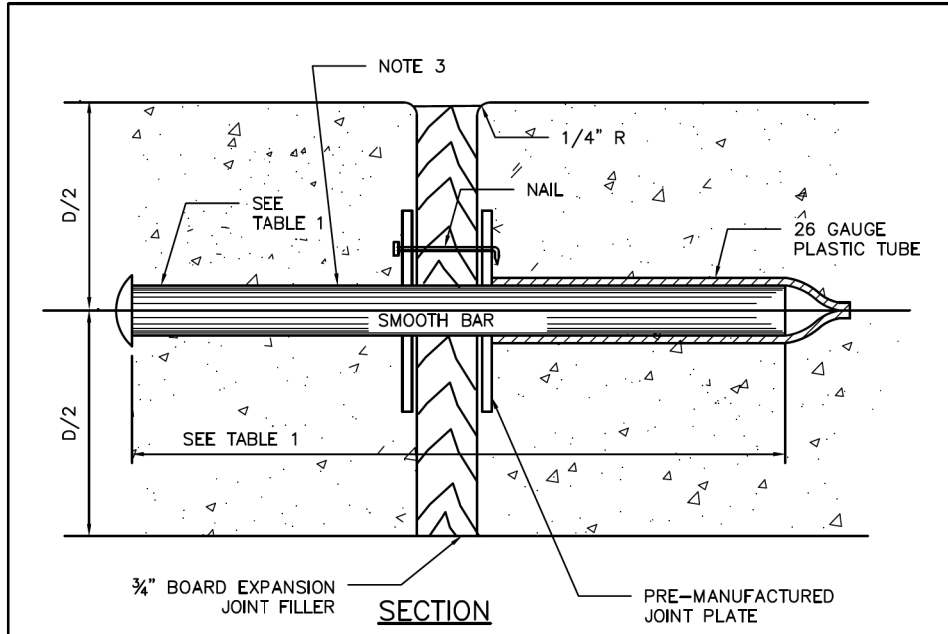
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO: 96	OF 355

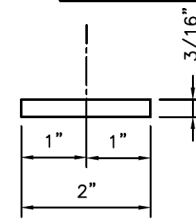
No.	DATE	REVISIONS	APP.

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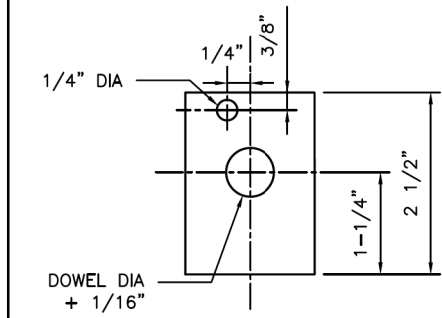
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SECTION DOWEL TYPE EXPANSION JOINT



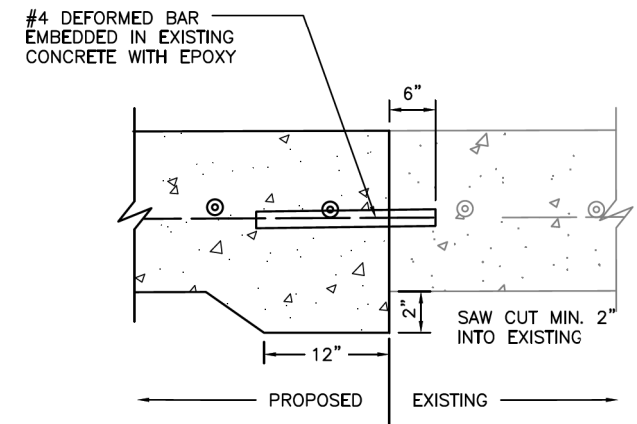
PLAN VIEW JOINT PLATE



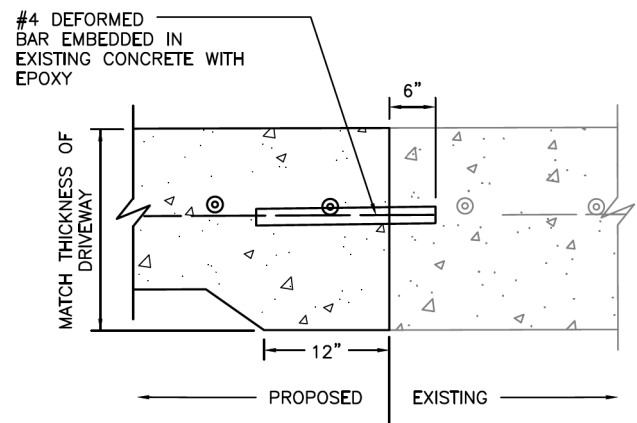
ELEVATION VIEW JOINT PLATE

TABLE 1

PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
4 1/2	1/2	18	12
5	1/2	18	12
6	3/4	18	12
7	1	18	12



SECTION SIDEWALK TO EXISTING SIDEWALK



SECTION SIDEWALK TO EXISTING DRIVEWAY

- NOTES:
1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS.
 2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED AT A MAXIMUM DISTANCE OF 3 FEET MAXIMUM SPACING FOR CONTROL JOINTS SHALL BE 5 FEET.
 3. CENTER DOWEL HORIZONTALLY ON JOINT.
 4. CENTER DOWEL VERTICALLY IN CONCRETE AS NEEDED TO MAINTAIN A 2 INCH MINIMUM COVER.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS STANDARD

SIDEWALK EXPANSION AND CONSTRUCTION JOINT DETAILS
 (SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Sulail Kanwar</i> BEFB0C641F547B CITY ENGINEER	DocuSigned by: <i>Carl Adcock</i> A03C410672B3453 DIRECTOR OF HPW
DocuSigned by: <i>LIANG NGUYEN</i> 95A29EFA75B4CD CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 02752-02

MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 175563
 2/20/2024
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 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
 SIDEWALK EXPANSION AND CONSTRUCTION JOINT DETAILS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 97 OF 355	

REVISIONS	DATE	APP.

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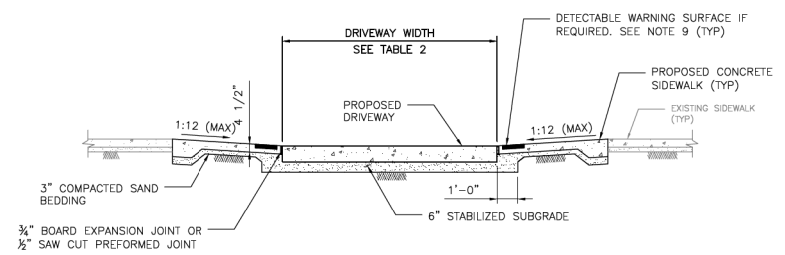
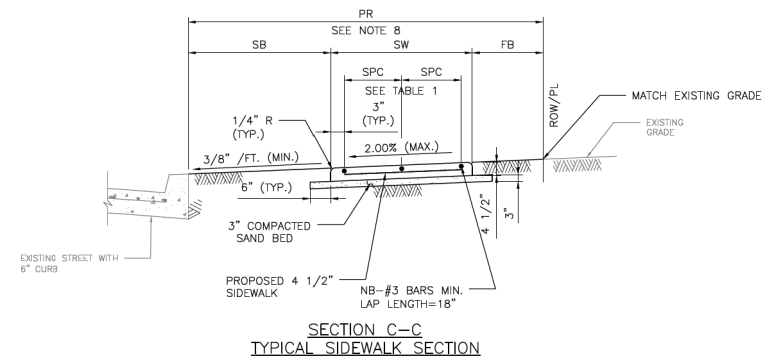
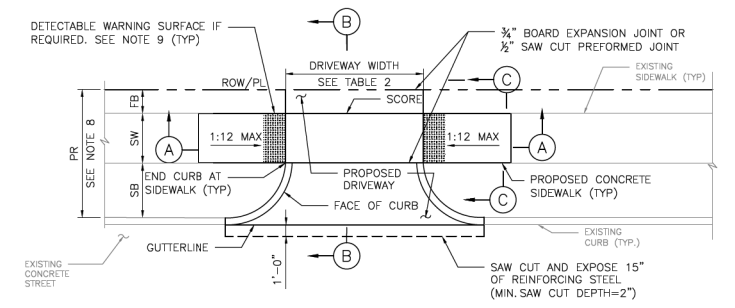


TABLE 1
 REINFORCING STEEL INFORMATION FOR 4 1/2" THICK SIDEWALKS
 EXPANSION JOINT SPACING = 40 FT
 f_c' = 3,500 PSI AND f_y = 60,000 PSI
 REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL			TRANSVERSE STEEL #3 BARS SPACING (IN)
		NO. OF BARS "NB"	SPACING "SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48

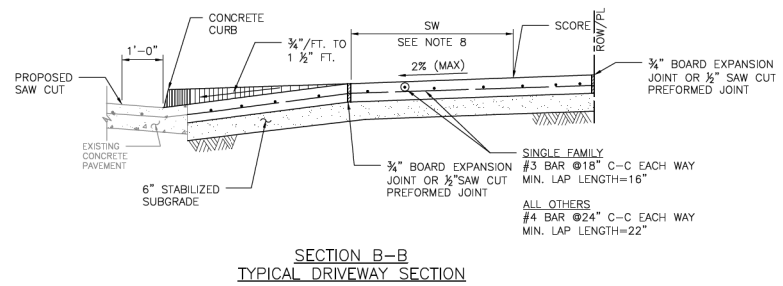


TABLE 2
 DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)				TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)			
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE-WAY	10	12	4	10	12 ⁽⁵⁾	16 ⁽⁵⁾	4 ⁽⁵⁾	10 ⁽⁵⁾	15	20	10	20
TWO-WAY	10 ⁽⁵⁾	24 ⁽⁴⁾	4	10	16 ⁽⁶⁾	24	4	10	24	35	10	20

(1) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLE 15.2.07.C.1.F FOR DRIVEWAYS THAT REQUIRE A VEHICLE SWEEP PATH ANALYSIS.
 (2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLES 15.2.07.C.1.G.(1) AND 15.2.07.C.1.G.(2) FOR TYPE 1 PAE AND TYPE 2 PAE REQUIREMENTS.
 (3) THE MINIMUM WIDTH FOR JOINT ACCESS DRIVEWAY IS 12 FT.
 (4) REFER TO CHAPTER 42 OF THE CODE OF ORDINANCES FOR DRIVEWAY WIDTHS FOR NARROW LOTS.
 (5) ONLY MURS AND COURTYARD STYLE DEVELOPMENTS ON CORNER LOTS CAN HAVE ONE-WAY DRIVEWAYS.
 (6) REFER TO CHAPTER 42, SECTION 42-146 OF THE CODE OF ORDINANCES FOR EXCEPTIONS TO THE MINIMUM DRIVEWAY WIDTH FOR SHARED DRIVEWAYS.

- NOTES:
- REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40-552.
 - FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
 - EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
 - THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
 - EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
 - THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
 - 20 FOOT TOTAL LENGTH IS DEFINED AS:
 - UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
 - UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
 - ALL JOINTS ALONG THE SIDEWALK SHALL BE CONSTRUCTED ACCORDING TO DRAWING 02752-02 AND SPECIFICATION 02752.
 - DRIVEWAYS SHALL BE MINIMUM 6" THICK FOR SINGLE FAMILY AND DUPLEXES. DRIVEWAYS SHALL BE MINIMUM 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
 - DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
 - ALL RAMP AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
 - CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
 - REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
 - DETECTABLE WARNING SURFACES:
 - SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
 - SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED; OR
 - SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
 - DETECTABLE WARNING SURFACES ARE OPTIONAL WHERE SIDEWALKS INTERSECT TYPE A DRIVEWAYS (SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) OR TYPE B DRIVEWAYS (SHARED ACCESS/SHARED DRIVEWAYS).
 - REFER TO STANDARD DETAILS 02775-06 TO 02775-07 FOR DETECTABLE WARNING SURFACE STANDARDS.

APPROVED BY: <i>Suhail Hanwar</i> CITY ENGINEER	APPROVED BY: <i>Erin Nguyen</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02754-01B
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
DRIVEWAY DETAIL WITH 6" CURBED STREETS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	NOT TO SCALE

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Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
DRIVEWAY DETAIL WITH 6" CURBED STREETS
 SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 98 OF 355	

No.	DATE	REVISIONS	APP.

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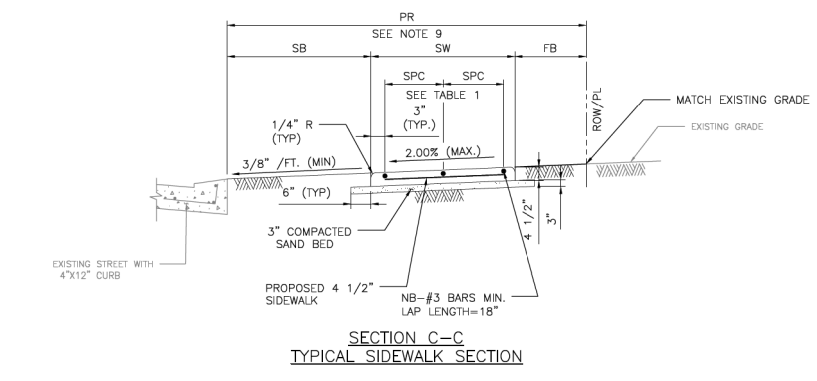
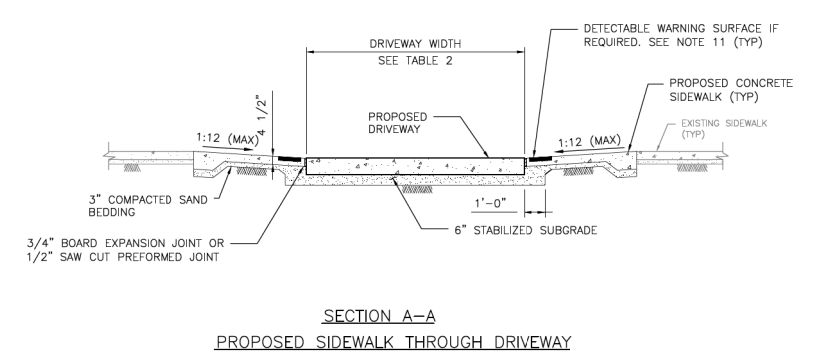
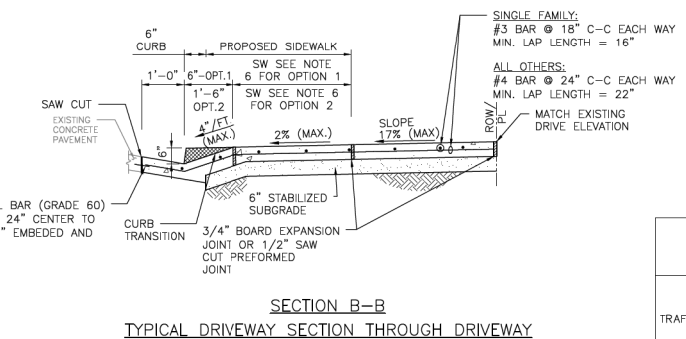
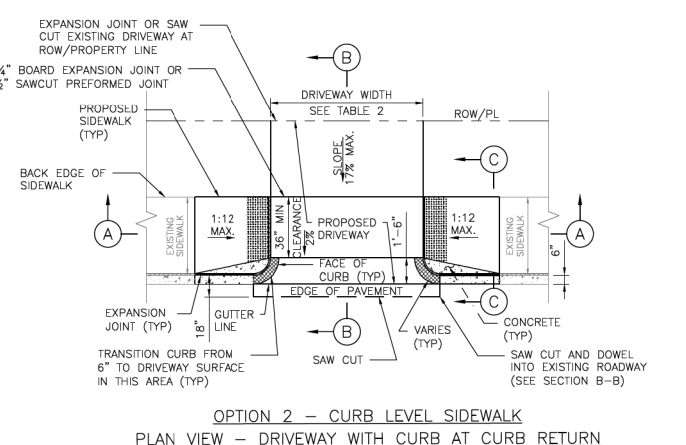
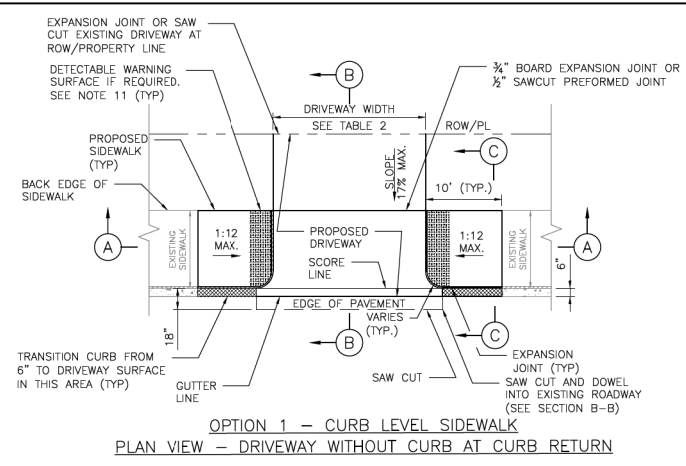


TABLE 1
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 FOR 4 1/2" THICK SIDEWALKS
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4.5	5	3	27	3	48
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TABLE 2
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	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE-WAY	10	12	4	10	12 ⁽⁵⁾	16 ⁽⁵⁾	4 ⁽⁵⁾	10 ⁽⁵⁾	15	20	10	20
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 - UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
 - UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
 - PROPOSED SIDEWALKS THAT DO NOT FALL WITHIN THE SCOPE DEFINED IN NOTE 2 SHALL BE DESIGNED ACCORDING TO IDM REQUIREMENTS AND CONSTRUCTED ACCORDING TO THE CONTRACT DRAWINGS.
 - DRIVEWAY WIDTH VARIES TO MATCH EXISTING DRIVE.
 - DRIVEWAY DETAIL TO PROVIDE FOR SIDEWALK TRANSITION FROM EXISTING BACK OF CURB TO PROPOSED DRIVEWAY EDGE.
 - DRIVEWAY WITH WIDTH >5' @ 2% CROSS SLOPE QUALIFIES AS PASSING SPACE. (SEE OPTION 1 AND OPTION 2 PLANS)
 - ALL RAMP AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
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APPROVED BY: <i>Sulaiman</i> CITY ENGINEER	APPROVED BY: <i>HANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>David Hall</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02754-03
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE	
FOR CITY OF HOUSTON USE ONLY	
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NOT TO SCALE	

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

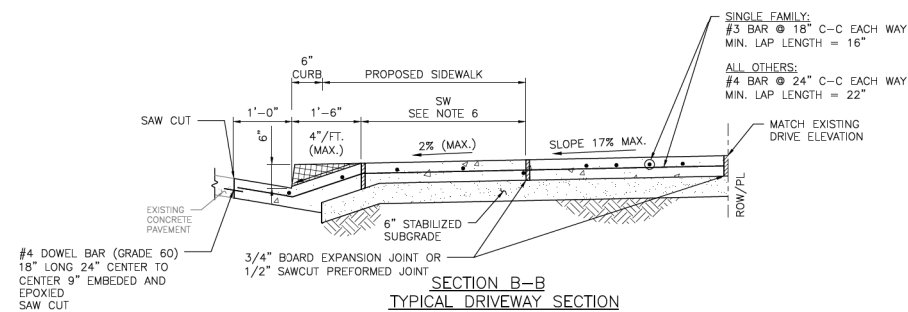
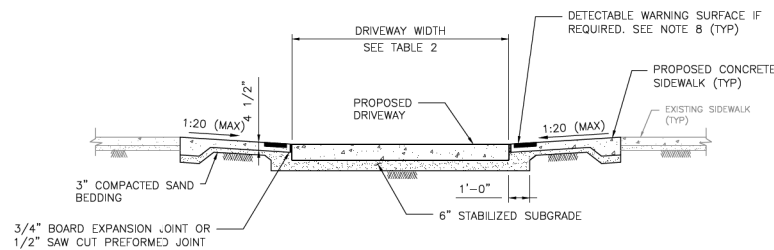
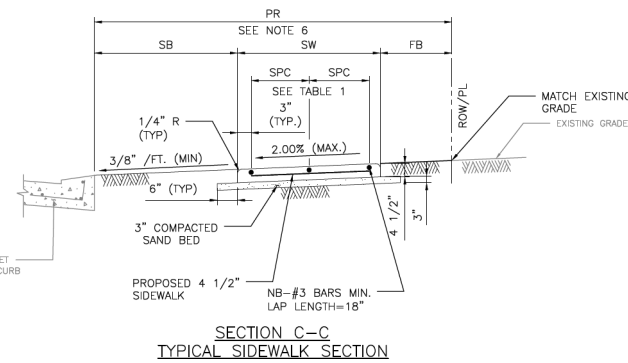
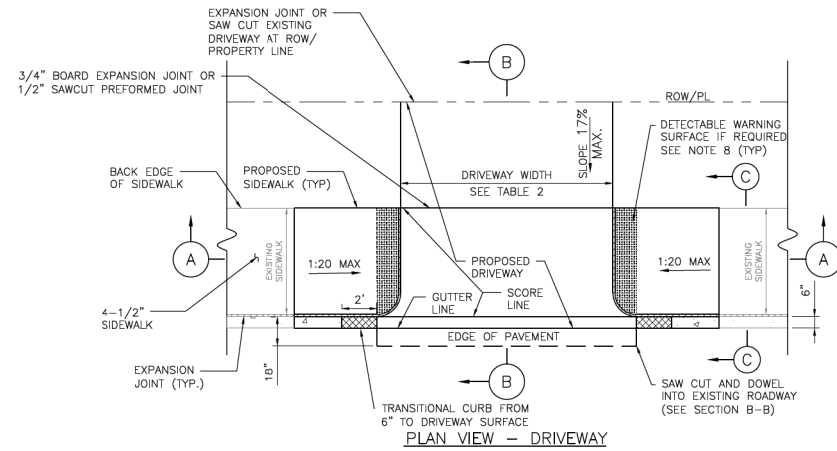
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE
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JIADA HUANG	
SHEET NO	99 OF 355

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No.	DATE

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- ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
- CURB RAMPS THAT ARE STEEPER THAN A 1:20 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
- REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
- DRIVEWAYS SHALL BE MINIMUM 6" THICK FOR SINGLE FAMILY AND DUPLEXES. DRIVEWAYS SHALL BE MINIMUM 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
- DETECTABLE WARNING SURFACES:
 - SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED.
 - DETECTABLE WARNING SURFACES ARE OPTIONAL WHERE SIDEWALKS INTERSECT TYPE A DRIVEWAYS (SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) OR TYPE B DRIVEWAYS (SHARED ACCESS/SHARED DRIVEWAYS).
 - REFER TO STANDARD DETAILS 02775-06 TO 02775-07 FOR DETECTABLE WARNING SURFACE STANDARDS.

TABLE 1

REINFORCING STEEL INFORMATION FOR 4 1/2" THICK SIDEWALKS EXPANSION JOINT SPACING = 40 FT f'c = 3,500 PSI and fy = 60,000 PSI REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL #3 BARS			TRANSVERSE STEEL #3 BARS SPACING (IN)
		NO. OF BARS "NB"	SPACING "SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	4B
4.5	6	4	22	3	4B

TABLE 2

DRIVEWAY DESIGN CRITERIA (1)(2)

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES)						TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY)				TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)					
	WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)		WIDTH (FT)		RADIUS (FT)	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
ONE-WAY	10	12	4	10	12(5)	16(5)	4(5)	10(5)	15	20	10	20				
TWO-WAY	10(3)	24(4)	4	10	16(6)	24	4	10	24	35	10	20				

(1) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLE 15.2.07.C.1.F FOR DRIVEWAYS THAT REQUIRE A VEHICLE SWEEP PATH ANALYSIS.
 (2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLES 15.2.07.C.1.G.(1) AND 15.2.07.C.1.G.(2) FOR TYPE 1 PAE AND TYPE 2 PAE REQUIREMENTS.
 (3) THE MINIMUM WIDTH FOR JOINT ACCESS DRIVEWAY IS 12 FT.
 (4) REFER TO CHAPTER 42 OF THE CODE OF ORDINANCES FOR DRIVEWAY WIDTHS FOR NARROW LOTS.
 (5) ONLY MURS AND COURTYARD STYLE DEVELOPMENTS ON CORNER LOTS CAN HAVE ONE-WAY DRIVEWAYS.
 (6) REFER TO CHAPTER 42, SECTION 42-146 OF THE CODE OF ORDINANCES FOR EXCEPTIONS TO THE MINIMUM DRIVEWAY WIDTH FOR SHARED DRIVEWAYS.

APPROVED BY: <i>Suzal Karaman</i> CITY ENGINEER	APPROVED BY: <i>HANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02754-04

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PROPOSED SIDEWALK THROUGH DRIVEWAY WITH MINIMAL ELEVATION DIFFERENCE

DRAWING SCALE	FOR CITY OF HOUSTON USE ONLY
NOT TO SCALE	

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

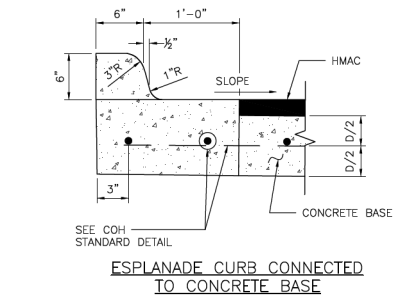
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH MINIMAL ELEVATION DIFFERENCE
SHEET 1 OF 1

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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 100 OF 355	

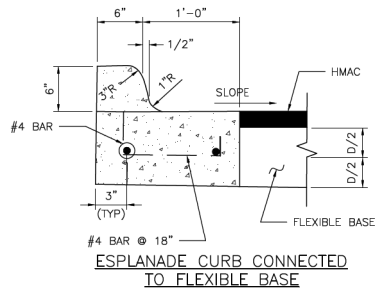
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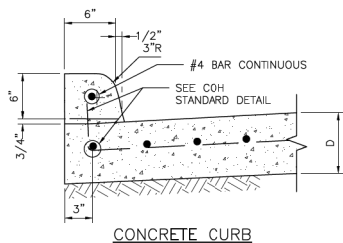
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ESPLANADE CURB CONNECTED TO CONCRETE BASE

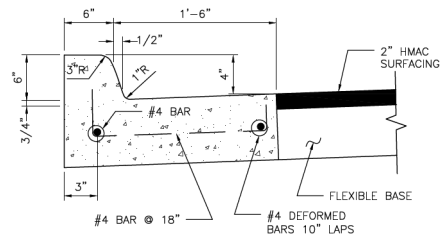


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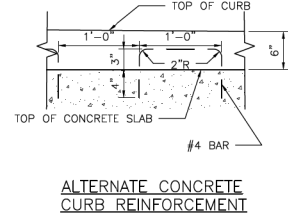


CONCRETE CURB

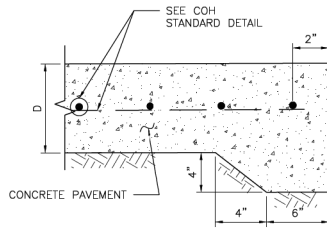
WHEN CONCRETE CURB IS TO BE PLACED EXISTING CONCRETE USE BASE
 #4 BAR @ 18" LONG, DOWELED AND SET IN EPOXY GROUT.
 SET #4 DOWEL BARS, 25" LONG AT 12" C-C WHEN PAVEMENT SECTION POURED.



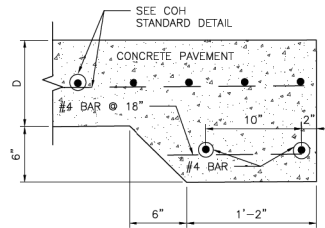
MONOLITHIC CURB AND GUTTER



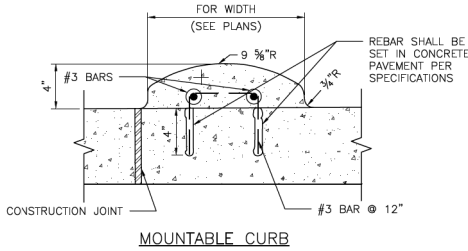
ALTERNATE CONCRETE CURB REINFORCEMENT



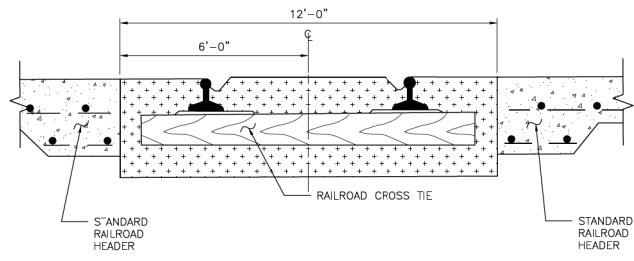
STANDARD CONCRETE PAVING HEADER



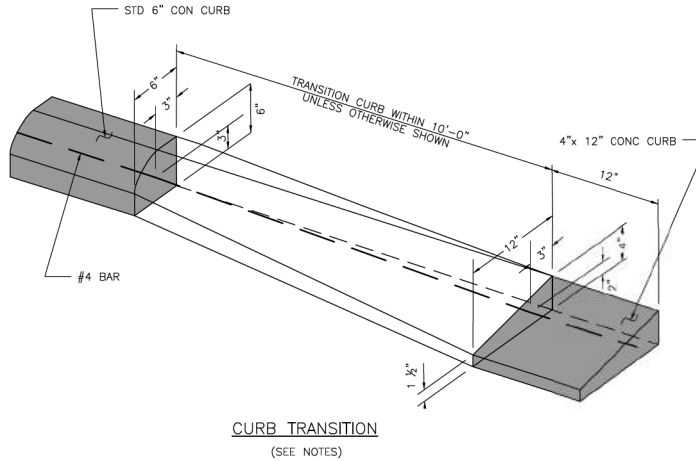
STANDARD RAILROAD HEADER



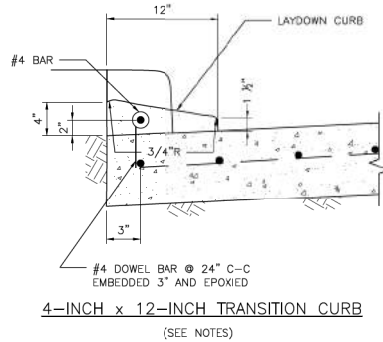
MOUNTABLE CURB



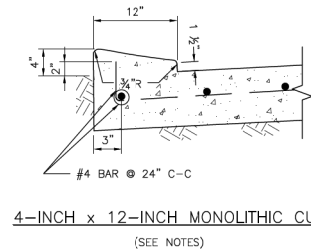
STANDARD RAILROAD CROSSING - SINGLE TRACK



CURB TRANSITION
(SEE NOTES)



4-INCH x 12-INCH TRANSITION CURB
(SEE NOTES)



4-INCH x 12-INCH MONOLITHIC CURB
(SEE NOTES)

4"x12" MONOLITHIC AND TRANSITION CURB NOTES:

- 6-INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS, NON-RESIDENTIAL STREETS, AND RESIDENTIAL STREETS.
- TRANSITIONS FROM 6-INCH CONCRETE CURB TO 4-INCH x 12-INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 10 FEET, UNLESS OTHERWISE SHOWN. IF THIS 10-FOOT TRANSITION CURB IS NOT POURED MONOLITHICALLY WITH THE PAVEMENT, THEN REINFORCING STEEL AS SHOWN IN "4-INCH x 12-INCH TRANSITION CURB" IS TO BE INSTALLED.

APPROVED BY: <i>Sahad Hassan</i> CITY ENGINEER	APPROVED BY: <i>LEUNG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02771-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
CURB, CURB AND GUTTER AND HEADER DETAILS	
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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

CURB, CURB AND GUTTER AND HEADER DETAILS

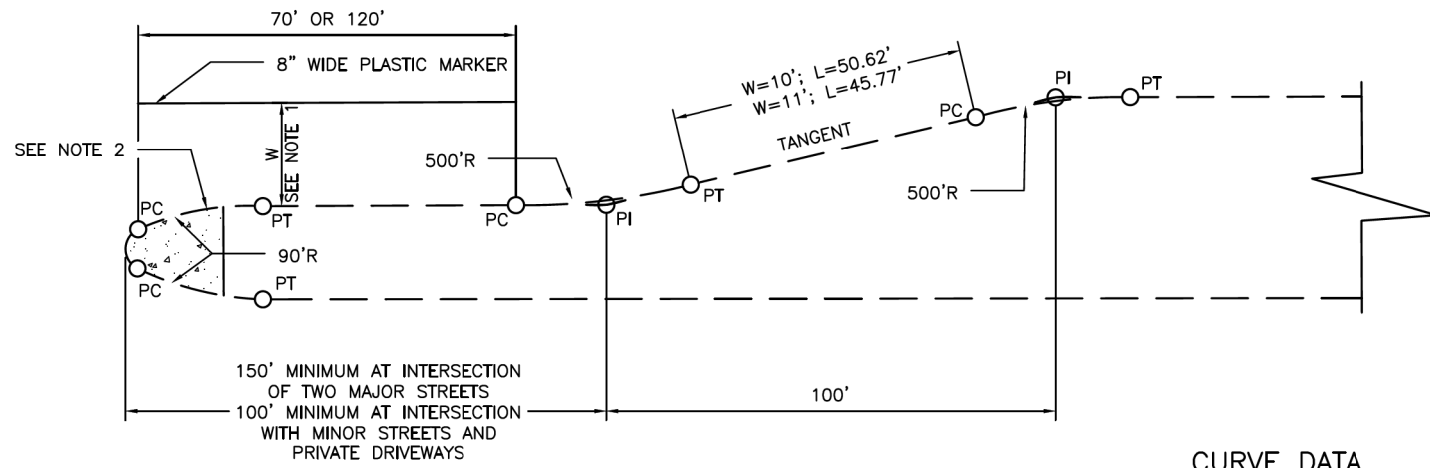
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No.	DATE

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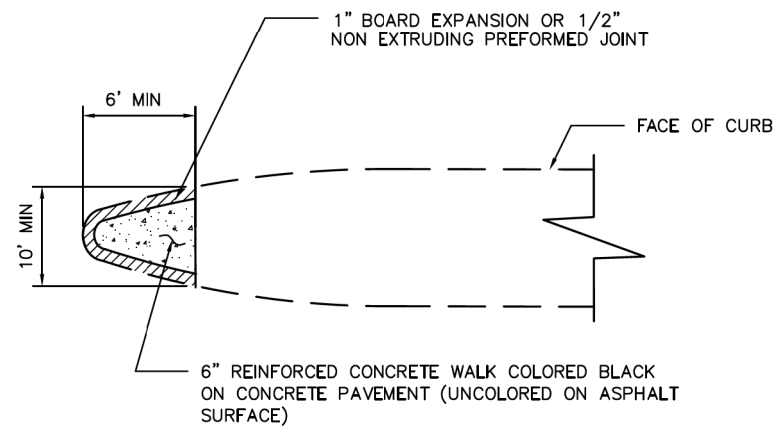
DETAIL OF LEFT TURN LANE

CURVE DATA

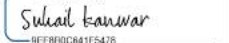


W=10'	W=11'
R=500'	R=500'
$\Delta = 5^{\circ}42'38.14''$	$\Delta = 6^{\circ}16'38.27''$
L = 49.83'	L = 54.78'
T=24.94'	T=27.42'



NOTES:

1. 10 FT FOR 80 FT ROW; 11 FT FOR 100 FT ROW.
2. FOR MEDIANS WITH BULLET NOSE CONFIGURATION, PAINT CURB WITH YELLOW REFLECTORIZED PAINT AROUND THE ESPLANADE NOSE TO THE PT OF THE 90 FT R. FOR MEDIANS WITHOUT BULLET NOSE CONFIGURATION, PAINT CURB FROM PC TO PT AND 30 FT BACK OF PC/PT.



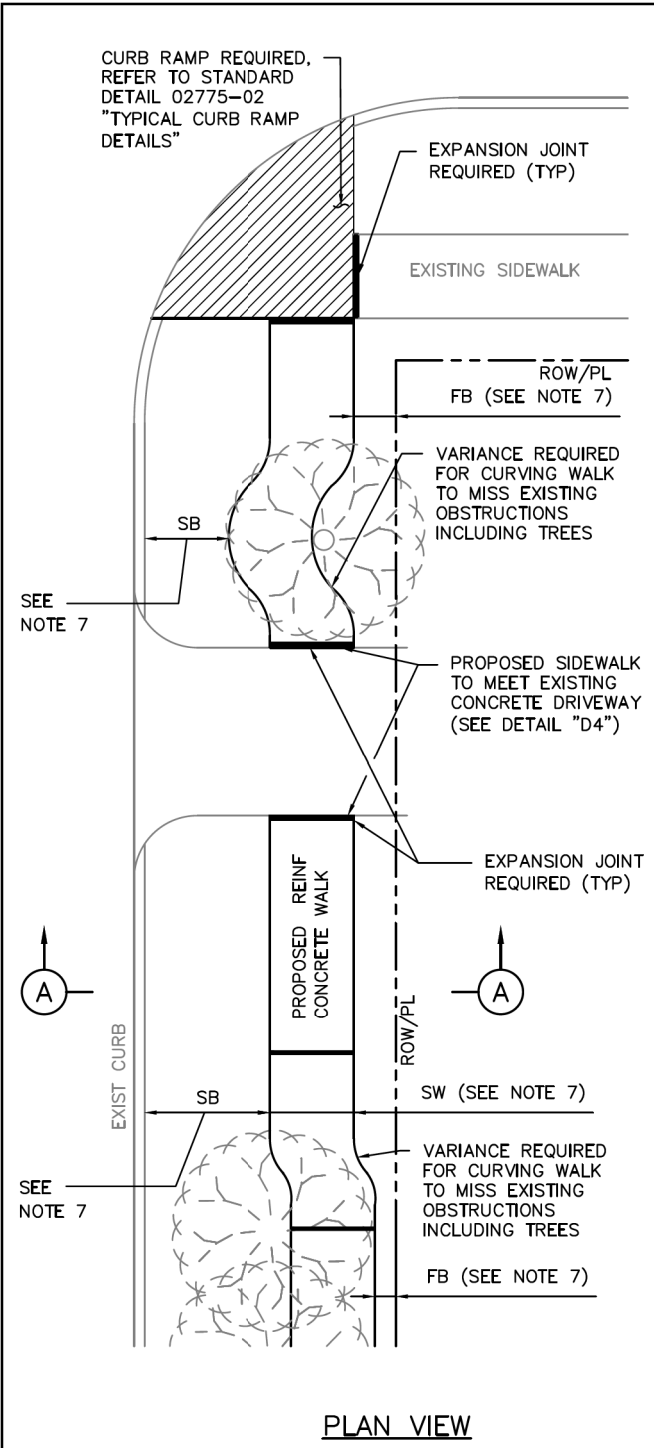
ESPLANADE NOSE

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ESPLANADE NOSE AND LEFT TURN DETAILS (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by:  <small>REF80C084F5476</small> CITY ENGINEER DocuSigned by:  <small>65A28EFDA759ACD</small> CITY TRAFFIC ENGINEER	DocuSigned by:  <small>A93C410972B3452</small> DIRECTOR OF HPW
EFF DATE: NOV-27-2023	DWG NO: 02772-01

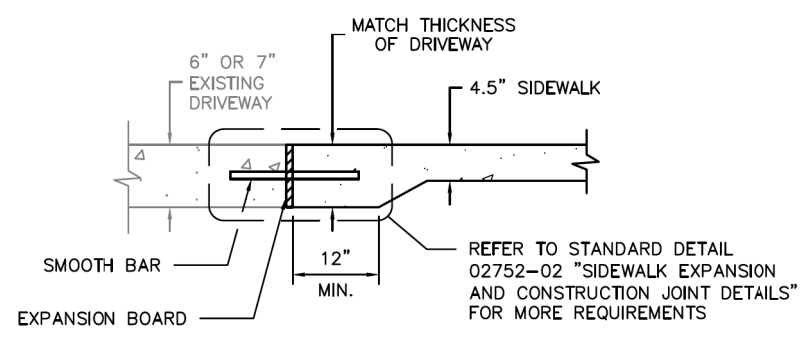
	
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 ESPLANADE NOSE AND LEFT TURN DETAILS	
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PLAN VIEW

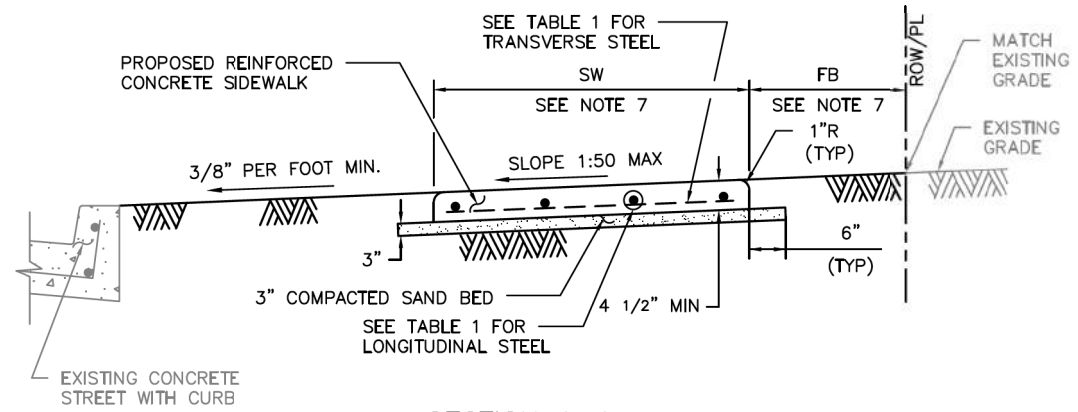


DETAIL D4
 DRIVEWAY/SIDEWALK HEADER

TABLE 1

REINFORCING STEEL INFORMATION FOR 4 1/2" THICK SIDEWALKS
 EXPANSION JOINT SPACING = 40 FT
 f'c = 3,500 PSI AND fy = 60,000 PSI
 REFER TO CONTRACT DRAWINGS FOR SIDEWALKS WIDER THAN 6 FEET.

SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL			TRANSVERSE STEEL #3 BARS SPACING (IN)
		#3 BARS			
		NO. OF BARS	SPACING (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48



SECTION A-A

NOTES:

- 6X6 - W2.9XW2.9 WELDED WIRE FABRIC MAY BE USED IN LIEU OF THE REINFORCING STEEL GIVEN IN TABLE 1.
- REINFORCED CONCRETE SIDEWALKS THRU DRIVEWAYS OPENINGS SHALL BE EITHER 6" THICK OR 7" THICK AS SPECIFIED ON 6" STABILIZED SUBGRADE. FOR THE REINFORCING STEEL REQUIREMENTS, SEE CITY OF HOUSTON STANDARD DETAILS 02754-01A, 02754-01B, 02754-03, AND 02754-04.
- MAXIMUM SPACING FOR EXPANSION JOINTS SHALL BE 40 FEET.
- CONTRACTOR SHALL CONSTRUCT SIDEWALK IN A MANNER NOT TO BLOCK THE NATURAL DRAINAGE FROM ADJACENT PROPERTY.
- ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
- CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON UNLESS NOTED OTHERWISE.
- REFER TO CONTRACT DRAWINGS FOR SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS STANDARD

TYPICAL SIDEWALK LAYOUT AND DETAILS FOR STREETS WITH CURBS
 (SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Suhail Kanwar</i> 9E98B0C8A1F547E CITY ENGINEER	DocuSigned by: <i>Carl Hallock</i> A73C41057263453 DIRECTOR OF HPW
DocuSigned by: <i>Leung Nguyen</i> 95A20EFD7A7584CD CITY TRAFFIC ENGINEER	

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MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

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 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

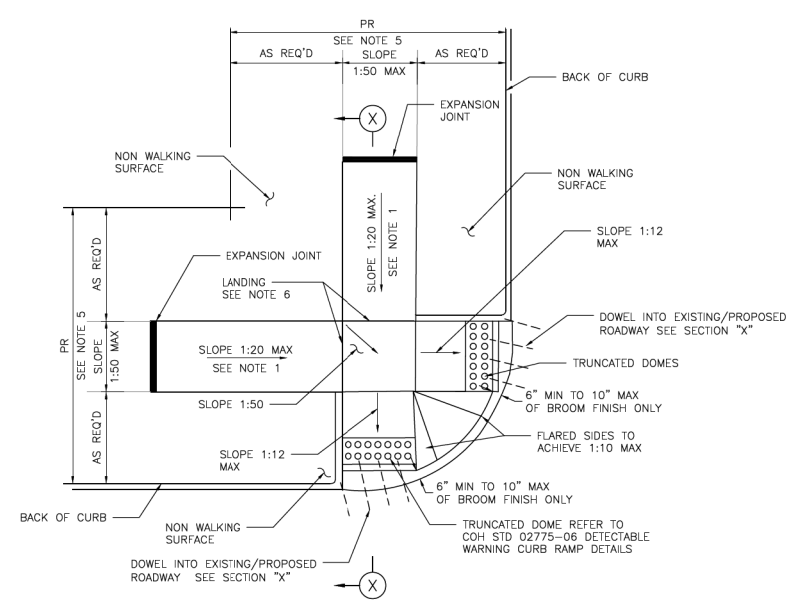
TYPICAL SIDEWALK LAYOUT AND DETAILS FOR STREETS WITH CURBS
 SHEET 1 OF 1

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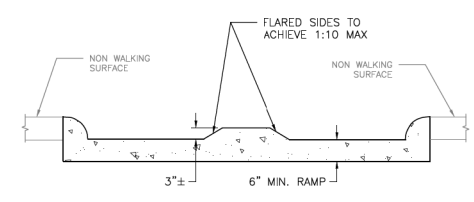
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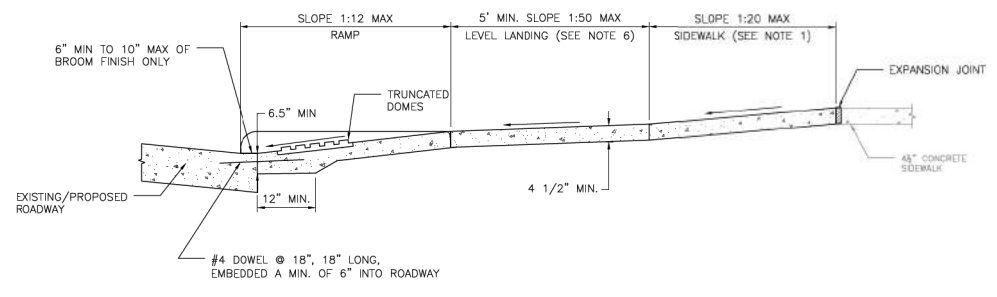
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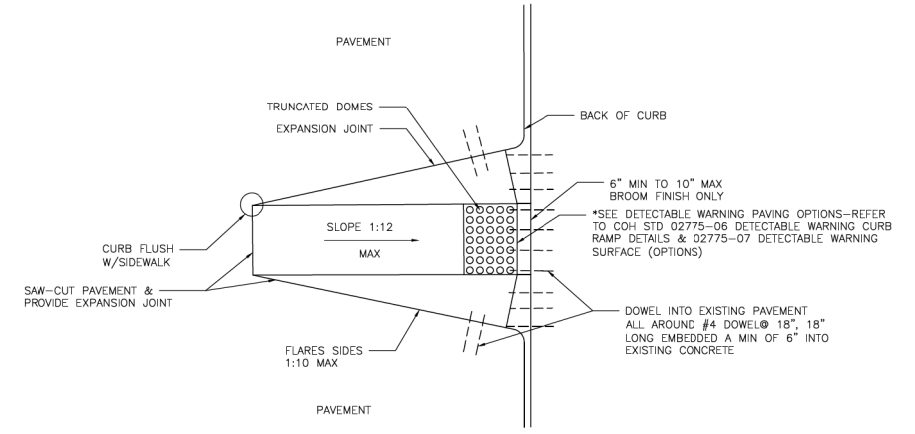
STREETS WITH NON- WALKING SURFACE BEHIND CURB
 SEE NOTE-7



ELEVATION
 LOOKING UP RAMP



SECTION X-X



CURB RAMP CONSTRUCTION FOR EXISTING PAVEMENT

- NOTES:**
1. REPLACE EXISTING SIDEWALK FROM LEVEL LANDING AS NECESSARY TO ACHIEVE 1:20 SLOPE.
 2. BROOM FINISH IS MEASURED FROM FACE OF CURB.
 3. ALL RAMP AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
 4. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON UNLESS NOTED OTHERWISE.
 5. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR) WIDTH.
 6. MINIMUM 5'x5' LANDING PAD ACCORDING TO ADA REQUIREMENTS. WHEN THE APPROACHING SIDEWALK IS WIDER THAN 5', THE LANDING PAD AND RAMP WIDTH MUST MATCH THE SIDEWALK WIDTH.
 7. FOR STREETS WITH WALKABLE SURFACES IMMEDIATELY BEHIND THE CURB A FLARE IS REQUIRED ON BOTH SIDES OF THE RAMP.

APPROVED BY: <i>Sahar Khatib</i> CITY ENGINEER	APPROVED BY: <i>HAUNG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallbeck</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02775-02
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TYPICAL CURB RAMP DETAILS	
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CITY OF HOUSTON
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

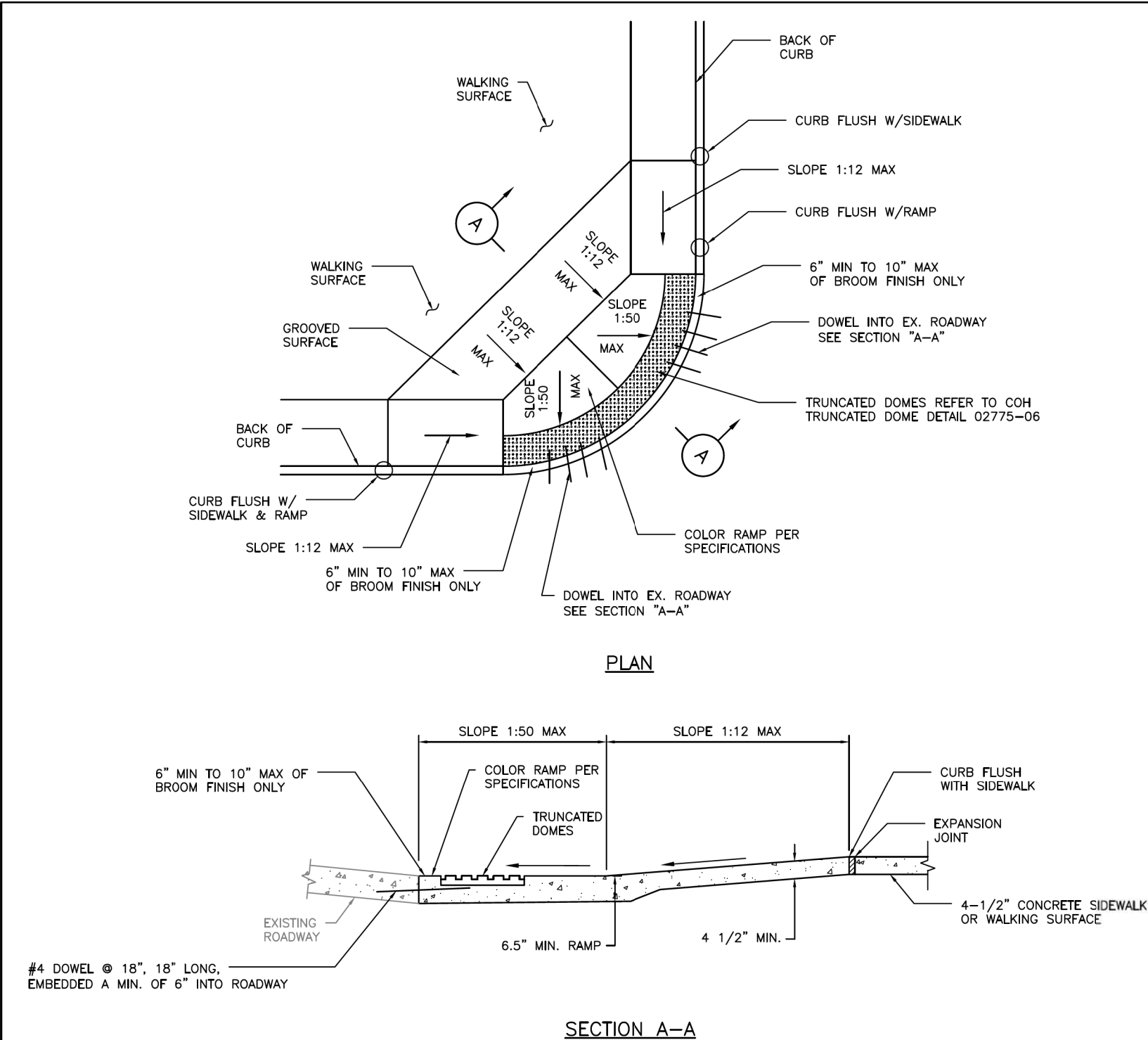
TYPICAL CURB RAMP DETAILS

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NOTES:

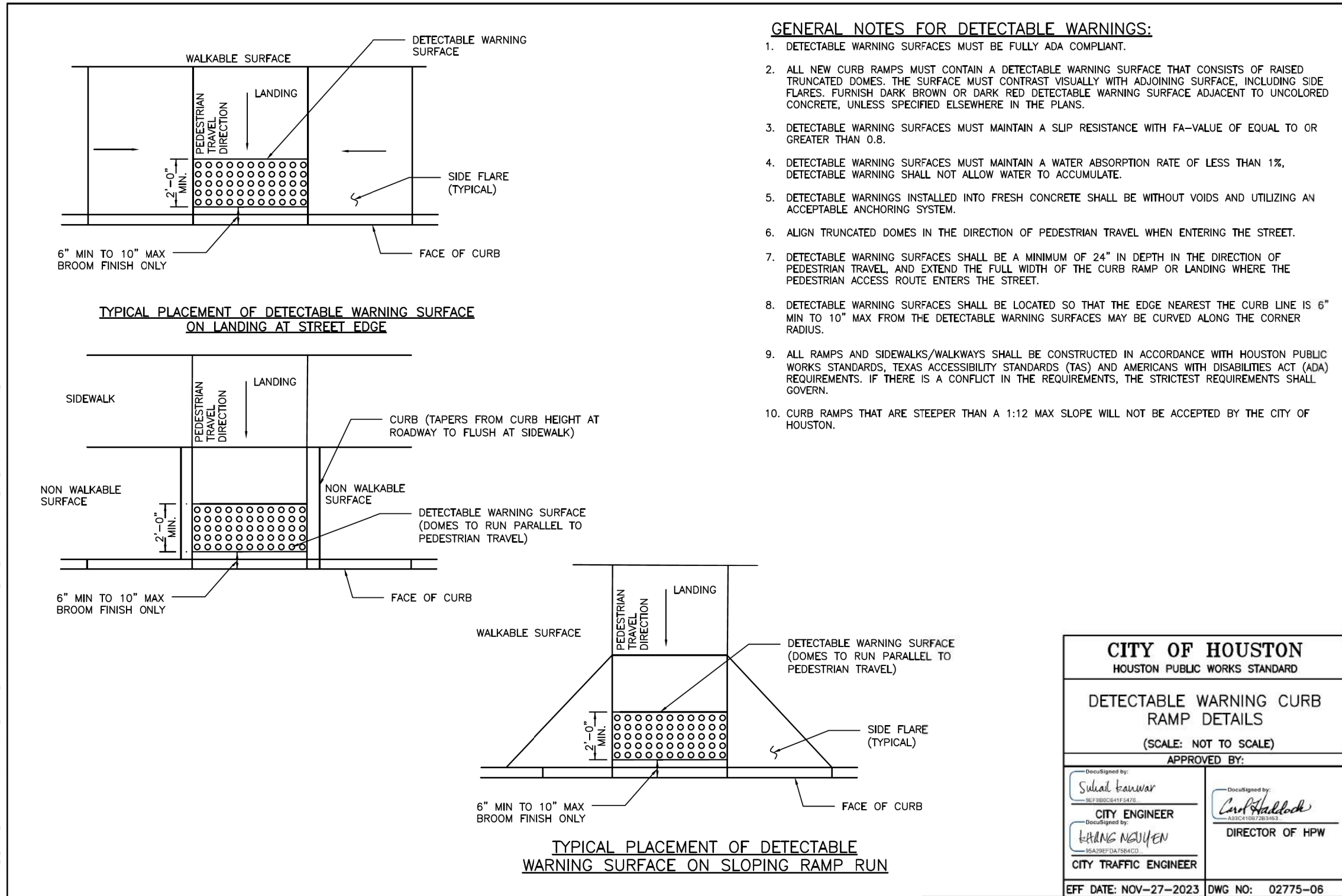
1. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
2. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
3. THIS STANDARD DETAIL SHALL BE USED ONLY IF THE ROADWAY GEOMETRIC DOESN'T ALLOW STANDARD DETAILS 02775-02, 02775-03, AND 02775-09 TO BE USED.
4. THIS STANDARD DETAIL SHALL NOT BE USED IN LIEU OF STANDARD DETAILS 02775-02, 02775-03, AND 02775-09 UNLESS APPROVED BY THE CITY.

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
COMMERCIAL & HIGH DENSITY CONDITIONS CURB RAMP DETAILS (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by: <i>Suhail Kanwar</i> 8E980C641F547B CITY ENGINEER DocuSigned by: <i>Khang Nguyen</i> 9A29EFD47584CD CITY TRAFFIC ENGINEER	DocuSigned by: <i>Carl Haddock</i> A93C410972034E3 DIRECTOR OF HPW
EFF DATE: NOV-27-2023	DWG NO: 02775-05

 MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
 Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	
INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> DAVID G. CHEANEY 172563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017	
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 COMMERCIAL & HIGH DENSITY CONDITIONS CURB RAMP DETAILS SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 106 OF 355	

No.	DATE	REVISIONS	APP.

DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INDIRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.



- GENERAL NOTES FOR DETECTABLE WARNINGS:**
1. DETECTABLE WARNING SURFACES MUST BE FULLY ADA COMPLIANT.
 2. ALL NEW CURB RAMP MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES. THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACE, INCLUDING SIDE FLARES. FURNISH DARK BROWN OR DARK RED DETECTABLE WARNING SURFACE ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
 3. DETECTABLE WARNING SURFACES MUST MAINTAIN A SLIP RESISTANCE WITH FA-VALUE OF EQUAL TO OR GREATER THAN 0.8.
 4. DETECTABLE WARNING SURFACES MUST MAINTAIN A WATER ABSORPTION RATE OF LESS THAN 1%, DETECTABLE WARNING SHALL NOT ALLOW WATER TO ACCUMULATE.
 5. DETECTABLE WARNINGS INSTALLED INTO FRESH CONCRETE SHALL BE WITHOUT VOIDS AND UTILIZING AN ACCEPTABLE ANCHORING SYSTEM.
 6. ALIGN TRUNCATED DOMES IN THE DIRECTION OF PEDESTRIAN TRAVEL WHEN ENTERING THE STREET.
 7. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24" IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
 8. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6" MIN TO 10" MAX FROM THE DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.
 9. ALL RAMP AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
 10. CURB RAMP THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS STANDARD

DETECTABLE WARNING CURB RAMP DETAILS
 (SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Suhail Banwar</i> 9EF8B0C841F847E CITY ENGINEER	DocuSigned by: <i>Carl Hallod</i> A99C410672B3493 DIRECTOR OF HPW
DocuSigned by: <i>LEANN NGUYEN</i> 95A29EFDA7584CD CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 02775-06

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 DAVID G. CHEANEY
 172563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

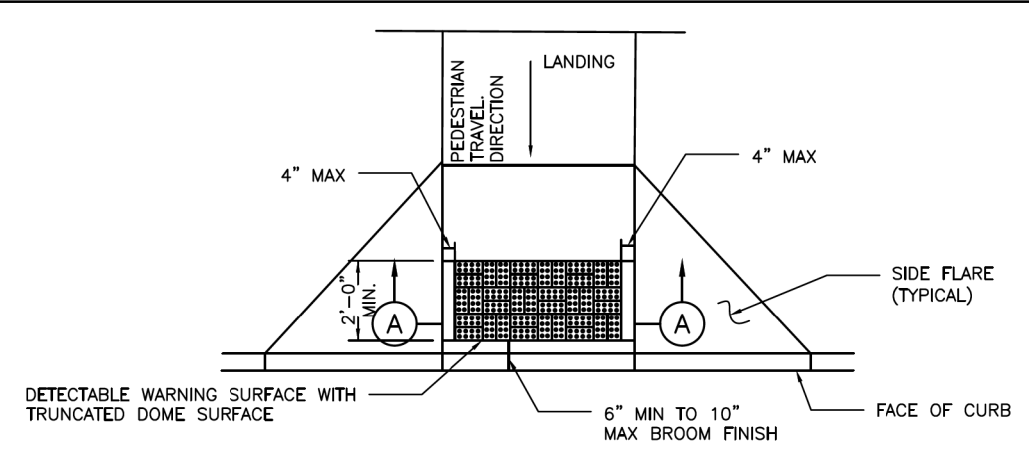
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
DETECTABLE WARNING CURB RAMP DETAILS

SHEET 1 OF 1

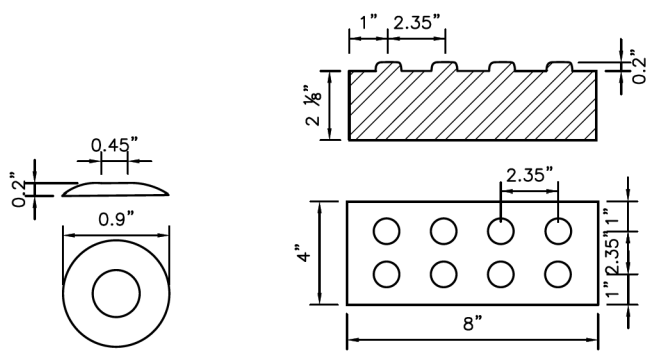
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 107 OF 355	

No.	DATE	REVISIONS	APP.

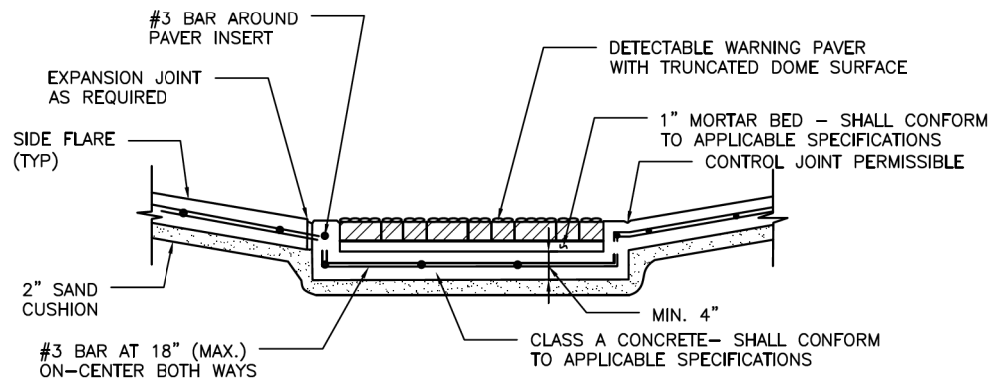
DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS THE USE OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.



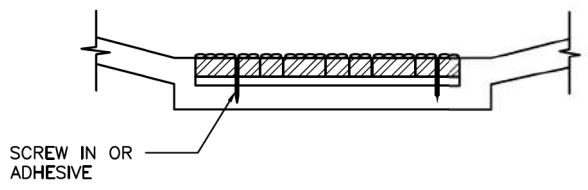
PLAN VIEW
 DETECTABLE WARNING SURFACE



DETAIL
 DETECTABLE WARNING PAVER



SECTION A-A
 PAVER



DETAIL A-5

NOTES:

GENERAL NOTES

1. ALL RAMPS AND SIDEWALKS/WALKWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOUSTON PUBLIC WORKS STANDARDS, TEXAS ACCESSIBILITY STANDARDS (TAS) AND AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS. IF THERE IS A CONFLICT IN THE REQUIREMENTS, THE STRICTEST REQUIREMENTS SHALL GOVERN.
2. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.

PAVERS

1. FURNISH DETECTABLE WARNING SURFACE UNITS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33. LAY IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.
2. LAY FULL-SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING POWER UNITS USING A POWER SAW.

POLYMER CONCRETE

1. DETECTABLE WARNING TILES SHALL BE MADE OF POLYMER CONCRETE MATERIALS.
2. DETECTABLE WARNING TILES SHALL BE INSTALLED INTO FRESH CONCRETE (CAST-IN-PLACE) UTILIZING AN ANCHORING SYSTEM.
3. DETECTABLE WARNING TILES SHALL BE OF TERRACOTTA (BRICK-RED) COLOR AND COLORED THROUGHOUT TO GUARANTEE THE ADA REQUIRED COLOR CONTRAST.
4. DETECTABLE WARNING TILES SHALL MEET OR EXCEED THE FOLLOWING ASTM-BASED "STANDARDS" FOR CONCRETE MATERIALS.
 - A. COMPRESSION STRENGTH > 12,500 PSI PER ASTM C 39-04
 - B. WATER ABSORPTION < 0.25% PER ASTM C 97-09

PADS

1. FURNISH REQUIREMENTS OF ADAAG (MARCH 2003).
2. OTHER MATERIALS MAY BE USED IF APPROVED BY THE CITY ENGINEER

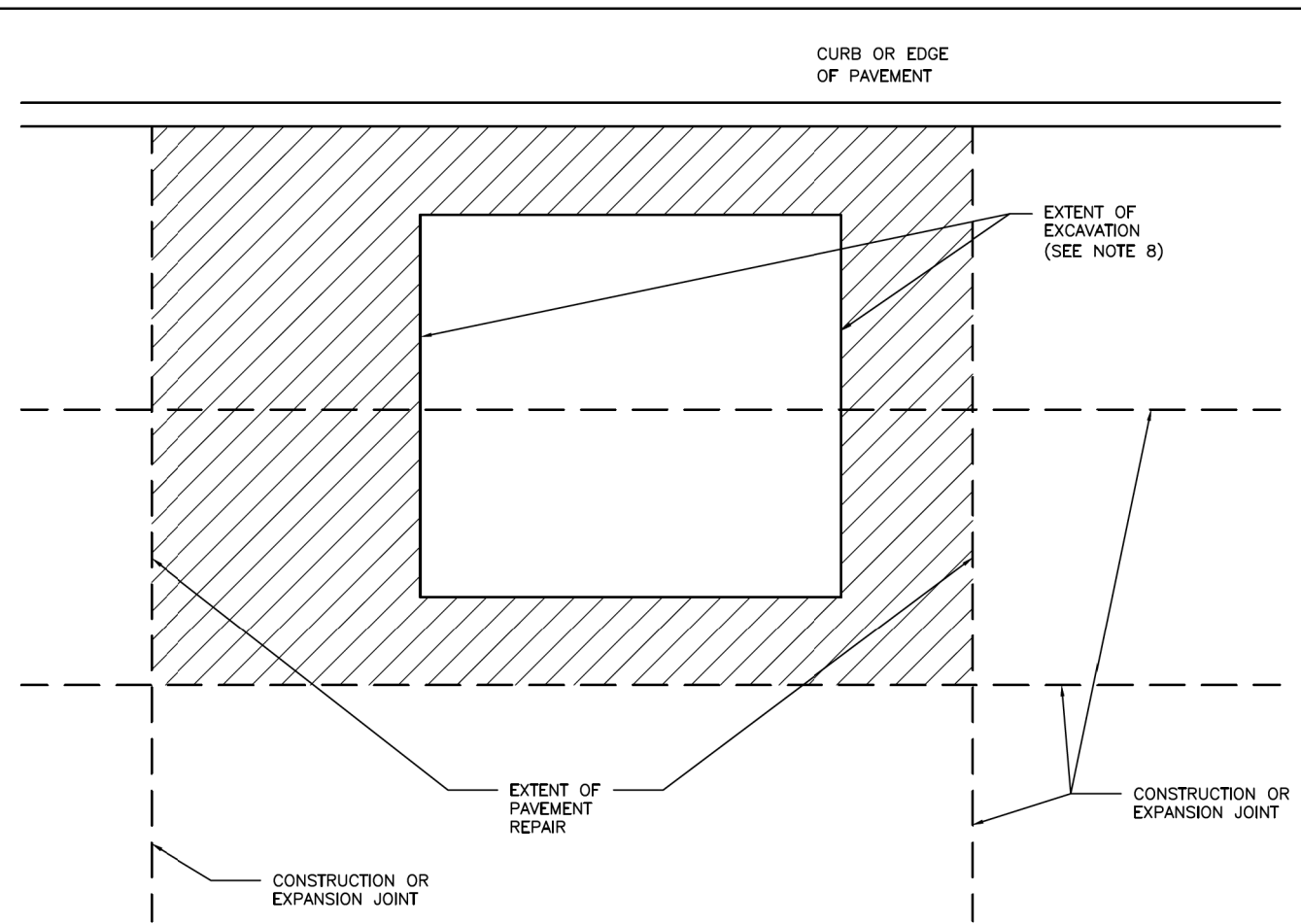
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
DETECTABLE WARNING SURFACE (OPTIONS) (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by: <i>Sukal Kanwar</i> 8E7880C84115478 CITY ENGINEER	DocuSigned by: <i>Carl Haddock</i> A00C4110672834D3 DIRECTOR OF HPW
DocuSigned by: <i>KEVIN NGUYEN</i> 9A29EFDA75B4CD CITY TRAFFIC ENGINEER	
EFF DATE: NOV-27-2023	DWG NO: 02775-07

MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	
INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of: DAVID G. CHEANEY 175563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017	
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1	
DETECTABLE WARNING SURFACE (OPTIONS)	
SHEET 1 OF 1	
WBS NUMBER N-127000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 108 OF 355	

No.	DATE	REVISIONS	APP.

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NOTES:

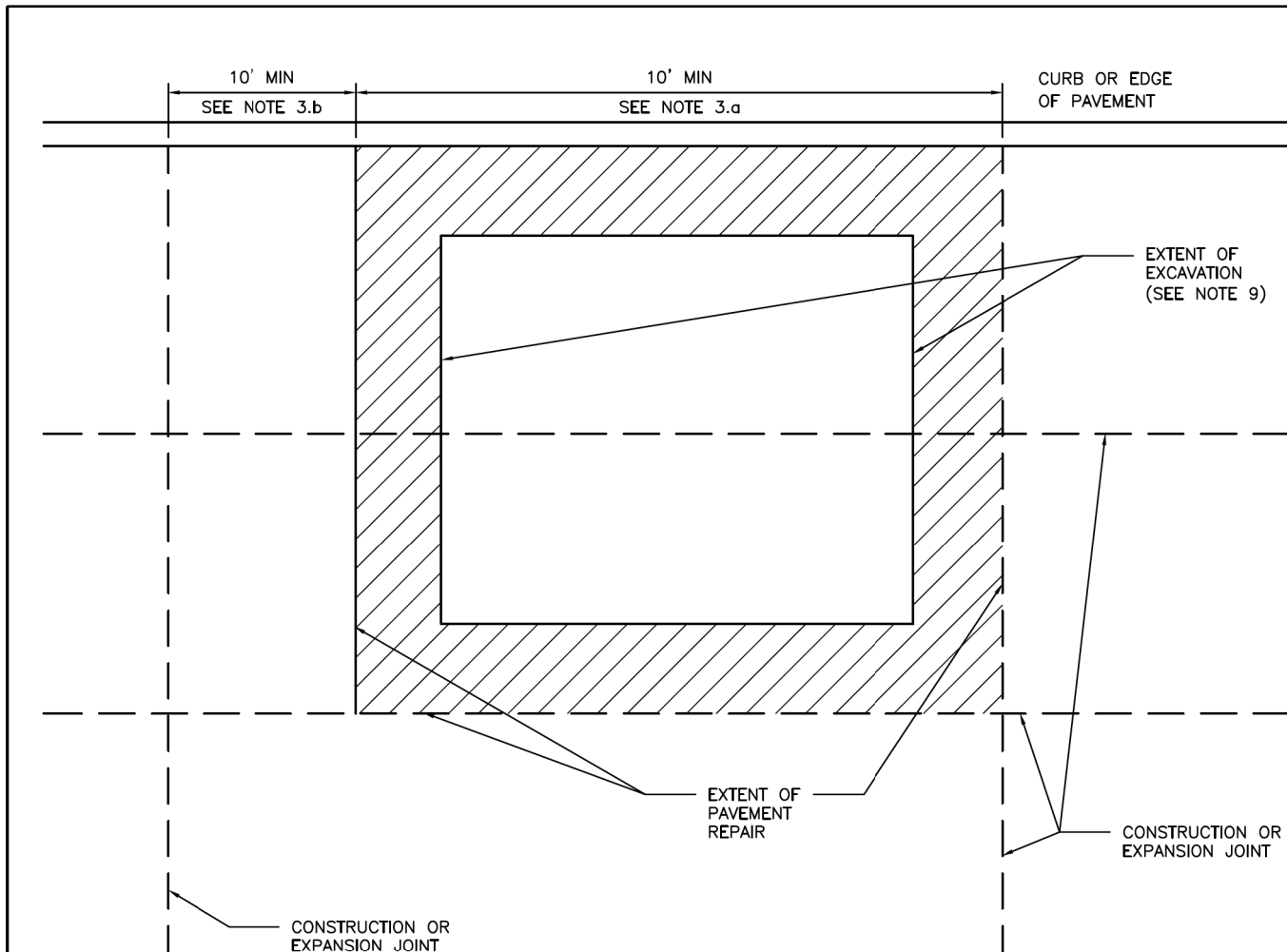
1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. REPLACE ENTIRE PANEL WIDTH AND LENGTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.
3. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL WITHIN EXISTING PAVEMENT. PROVIDE HORIZONTAL DOWELS (PER SPECIFICATION SECTION 02951-PAVEMENT REPAIR AND RESTORATION) IF EXISTING REINFORCING IS BROKEN OFF.
4. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
5. MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
6. SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.
7. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764-RAISED PAVEMENT MARKERS AND 02767-THERMOPLASTIC PAVEMENT MARKINGS.
8. EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02951-04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX-BASE PAVEMENT & CONCRETE PAVEMENT).

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION AGE OF PAVEMENT ≤ 5YRS (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by: CITY ENGINEER	DocuSigned by: DIRECTOR OF HPW
DocuSigned by: CITY TRAFFIC ENGINEER	
EFF DATE: NOV-27-2023	DWG NO: 02951-01

 MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
 Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> DAVID G. CHEZANEY 175563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1	
STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION AGE OF PAVEMENT < 5YRS	
SHEET 1 OF 1	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 109 OF 355	

No.	DATE	REVISIONS	APP.

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NOTES:

- EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
- WIDTH:**
REPLACE PANEL WIDTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.
- LENGTH:**
 - MINIMUM LENGTH OF PAVEMENT REPAIR ALONG TRAVEL WAY IS 10' FROM THE NEAREST JOINT.
 - IF EXTENT OF PAVEMENT REPAIR IS LESS THAN 10' FROM EXISTING CONSTRUCTION OR EXPANSION JOINT, EXTEND PAVEMENT REPAIR TO EXISTING JOINT.
- SAW CUT AND EXPOSE 15" OF REINFORCING STEEL AROUND EDGE OF PANEL REPLACEMENT. PROVIDE HORIZONTAL DOWELS (PER SPECIFICATION SECTION 02951-PAVEMENT REPAIR AND RESTORATION) IF REINFORCING IS BROKEN OFF OR DOES NOT EXIST.
- REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
- MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
- SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.
- REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764-RAISED PAVEMENT MARKERS AND 02767-THERMOPLASTIC PAVEMENT MARKINGS.
- EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02951-04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX-BASE PAVEMENT & CONCRETE PAVEMENT).

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION AGE OF PAVEMENT > 5YRS (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by: 9E988C641F5473 CITY ENGINEER DocuSigned by: 16A29EF0A7584C0 CITY TRAFFIC ENGINEER	DocuSigned by: A832C410B7205483 DIRECTOR OF HPW
EFF DATE: NOV-27-2023	DWG NO: 02951-02

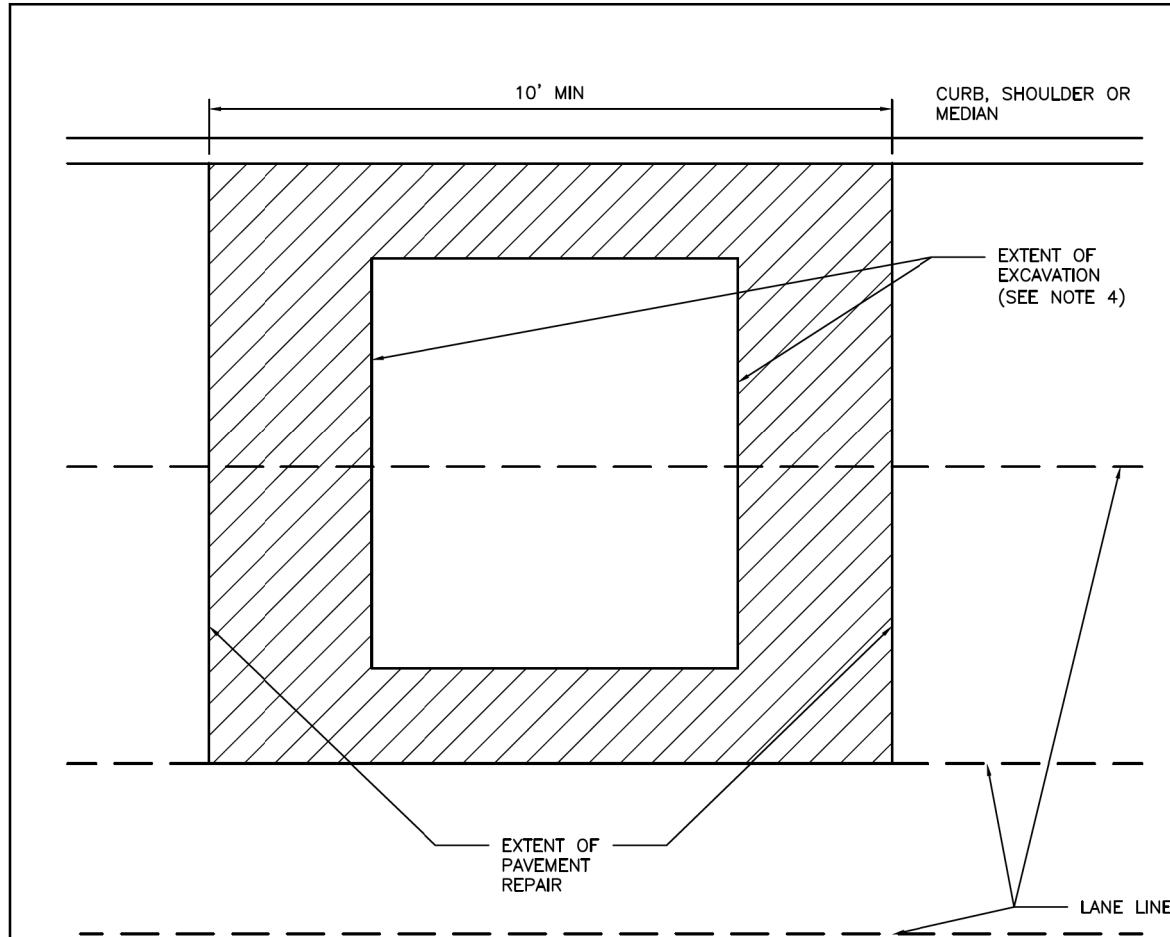
 MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is prepared for the purpose of interim review under the authority of: DAVID G. CHEANEY 172563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	SURVEYED BY: KUO & ASSOCIATES, INC.

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION AGE OF PAVEMENT > 5YRS SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JUADA HUANG	
SHEET NO. 110 OF 355	

No.	DATE	REVISIONS	APP.

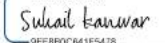
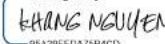

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NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. **FLEXIBLE BASE:** REPLACE BASE TO SAME THICKNESS PLUS TWO INCHES (2") FOR EXTENT OF EXCAVATION. USE APPROVED BASE MATERIAL TYPE.*
3. **SURFACE COURSE:**
 - 3.1. **WIDTH:** SURFACE MILL AND OVERLAY FULL WIDTH OF LANE(S) TO NEAREST LANE DIVIDER BEYOND EDGE OF EXCAVATION.
 - 3.2. **LENGTH:** MINIMUM LENGTH OF SURFACE MILL ALONG TRAVEL WAY IS 10'.
 - 3.3. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764—RAISED PAVEMENT MARKERS AND 02767—THERMOPLASTIC PAVEMENT MARKINGS.
4. EXTENT OF EXCAVATION INCLUDES 18" OVER CUT AS SHOWN ON STANDARD DETAIL 02951-04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX-BASE PAVEMENT AND CONCRETE PAVEMENT).
5. **ADDITIONAL REQUIREMENTS FOR ASPHALT OVERLAY ON CONCRETE PAVEMENT:**
 - 5.1. REPLACE CONCRETE FOR EXTENT OF EXCAVATION. REPLACE TO SAME THICKNESS PLUS TWO INCHES (2").
 - 5.2. **WIDTH:**
 - 5.2.1. IF EXCAVATION EXTENDS MORE THAN HALF OF A LANE, REPLACE ENTIRE LANE OF CONCRETE. OTHERWISE USE STANDARD DETAIL 02951-04 THROUGH 05.
 - 5.3. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL AROUND EDGE OF CONCRETE REPLACEMENT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS PER CITY OF HOUSTON STANDARD SPECIFICATION SECTION 02951-PAVEMENT REPAIR AND RESTORATION.
 - 5.4. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
 - 5.5. MAINTAIN CONCRETE EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

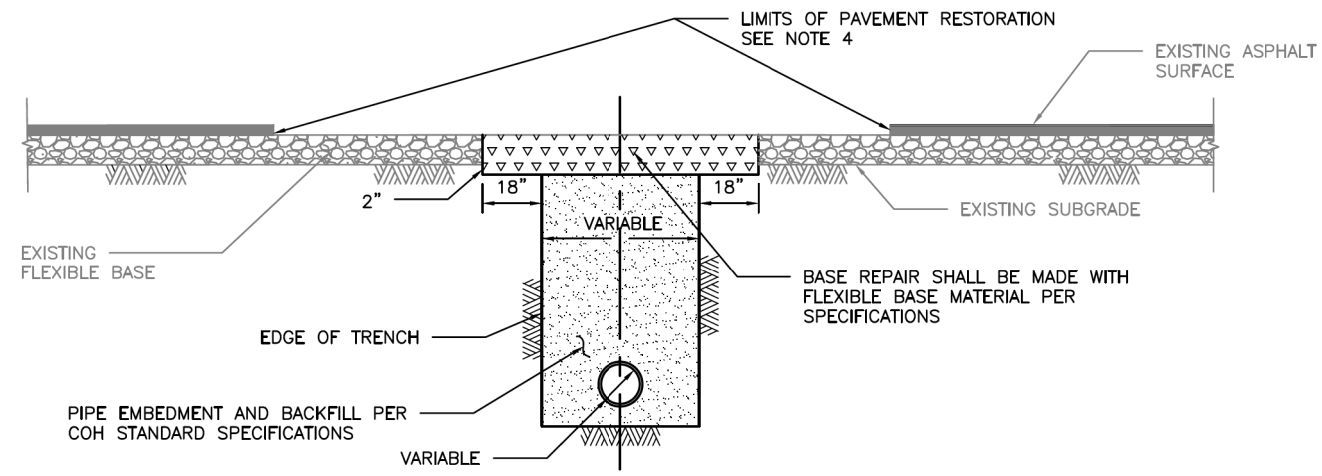
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
STREET CUT FOR ASPHALT PAVEMENT REPLACEMENT/RESTORATION FOR PAVEMENT OF ALL AGES (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by:  0EF880C641F5478 CITY ENGINEER DocuSigned by:  95A29EFD478B4CD CITY TRAFFIC ENGINEER	DocuSigned by:  A83C41051263453 DIRECTOR OF HPW
EFF DATE: NOV-27-2023	DWG NO: 02951-03

	
 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEANEY 172563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-20017</small>
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1	
STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION FOR PAVEMENT OF ALL AGES	
SHEET 1 OF 1	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 111 OF 355	

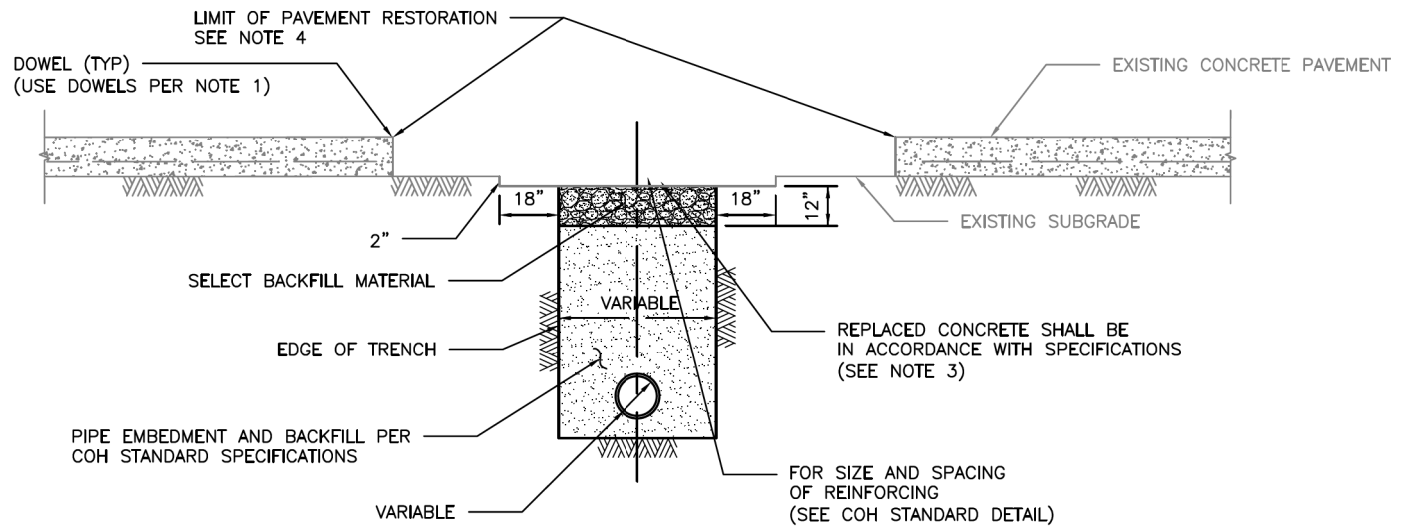
No.	DATE	REVISIONS	APP.

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ELEVATION A
 REPAIR OF FLEXIBLE BASE PAVEMENT



ELEVATION B
 REPAIR OF REINFORCED CONCRETE PAVEMENT

NOTES:

1. EXPOSE 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BAR, 24" LONG, 24" C-C, DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB. WITH "PO ROC" OR EQUAL.
2. IF REINFORCED CONCRETE IS OVERLAYED WITH ASPHALT, REPLACE WITH 2" MIN HMAC SURFACING.
3. REFER TO STANDARD DETAIL 02751-01 FOR REINFORCING STEEL REQUIREMENTS.
4. REFER TO STANDARD DETAIL 02951-01 THROUGH 03 FOR PAVEMENT RESTORATION LIMITS.

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX-BASE PAVEMENT & CONCRETE PAVEMENT) (SCALE: NOT TO SCALE)	
APPROVED BY:	
DocuSigned by: <i>Sulail Karwar</i> REF:8F0C0641F547E CITY ENGINEER	DocuSigned by: <i>Carl Haddock</i> AR3C41087253453 DIRECTOR OF HPW
DocuSigned by: <i>KHANG NGUYEN</i> 05A20E7DA75B4C0 CITY TRAFFIC ENGINEER	
EFF DATE: NOV-27-2023	DWG NO: 02951-04

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SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX-BASE PAVEMENT & CONCRETE PAVEMENT) SHEET 1 OF 1	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 112 OF 355	

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 Plotted on: 2/20/2024 9:09:51 AM ahatamleh

CITY OF HOUSTON
Houston Public Works

Street Paving Design Requirements
Figure 10.14 – Standard Bus Pad and Landings

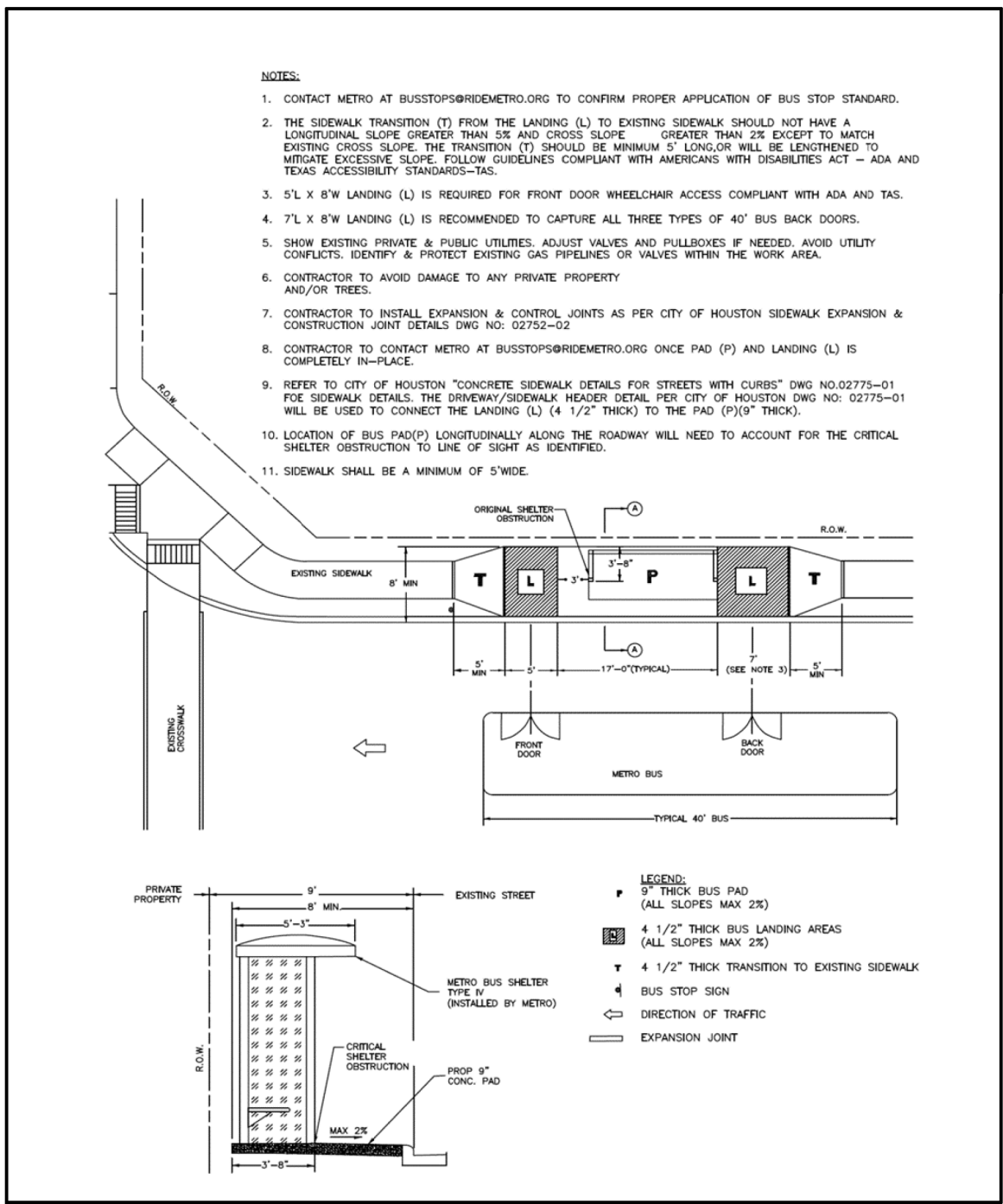


Figure 10.14 - STANDARD BUS PAD AND LANDINGS

10-52
07-01-2022

No.	DATE	REVISIONS	APP.

 GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEZANEY 175563 2/20/2024 <small>100% SUBMITTAL</small> GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-20017</small>
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 STANDARD BUS PAD AND LANDINGS	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 113 OF 355	

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No.	DATE	REVISIONS	APP.

Table A-1 - Bus Stop Design Variables

Design Variable	Value	Design Criteria
Back-of-Curb to ROW Dimension (E)	$E \geq 12'$	See Table A-2
	$8' \leq E < 12'$	Use Constrained ROW Detail C
	$E < 8'$	Noncompliant; Not Recommended
Design Bus Length	40'	Dimensions Marked * = 0'
	60'	Include Dimensiones Marked *
Platform Curb Height	9" (Preferred)	Include Design Elements Marked ^
	6"	Omit Design Elements Marked ^

Table A-2 - Dimensions

Dimension	Minimum	Standard	Signature	Maximum
Total Back-of-Curb to ROW (E)	12'	15'	18'	25'
Front Curbside Programming (A1)	2'	4'	4'	6'
Rear Curbside Programming (A2)	3'	4'	4'	6'
Front Clear Sidewalk (B1)	4'	5'	6'	11'
Rear Clear Sidewalk (B2)	6'	6'	7'	10'
Shelter Foundation Depth (C1)	6'	6'	7'	7'
Back-of-Platform Programming (C2)	3'	5'	6'	8'
ROW Buffer (D)	0'	0'	1'	1'

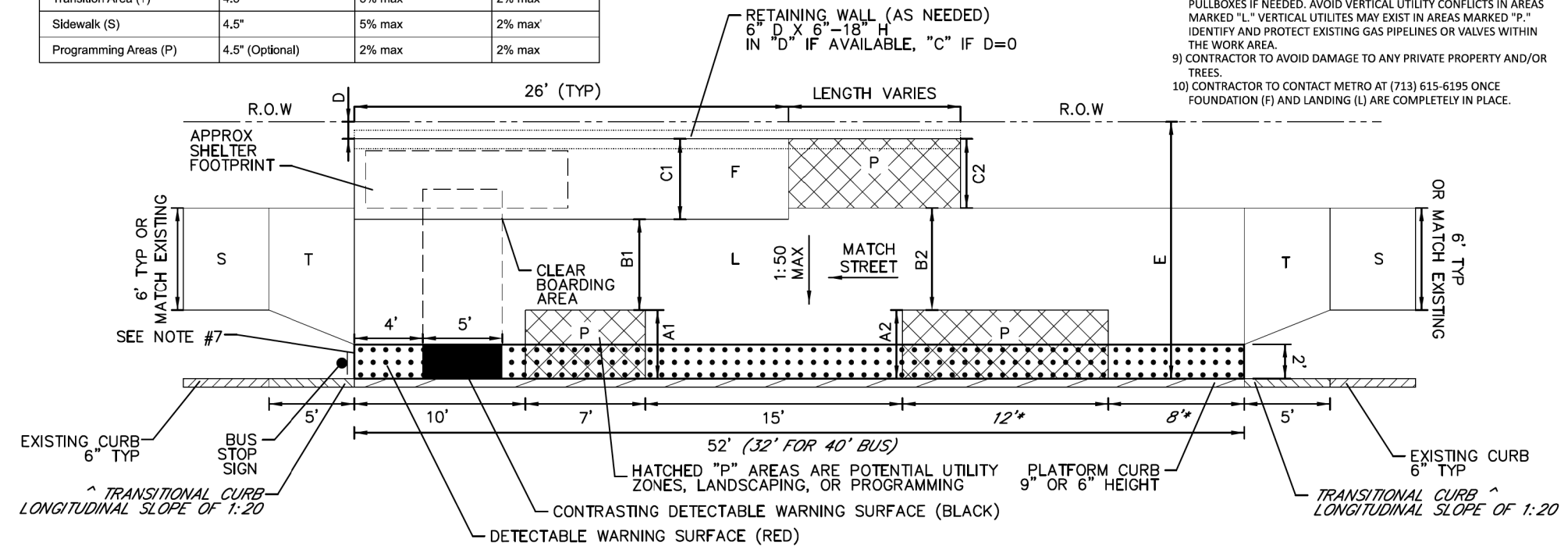
Table A-3 - Slopes & Concrete Thickness

Area	Paving Thickness	Running Slope	Cross Slope
Landing (L) 2'	4.5"	Match Street	2% max
Bus Shelter Area (F)	9"	2% max	2% max
Transition Area (T)	4.5"	5% max	2% max
Sidewalk (S)	4.5"	5% max	2% max
Programming Areas (P)	4.5" (Optional)	2% max	2% max

† Except to match existing
 ‡ See METRO Foundation Details Type I, II, and IV

Notes

- LOCATION OF BUS STOP LONGITUDINALLY ALONG THE ROADWAY SHOULD ACCOUNT FOR THE CRITICAL SHELTER OBSTRUCTION TO LINE OF SIGHT AND OTHER GUIDELINES SET FORTH IN METRO TRANSIT DESIGN STANDARDS.
- THE TRANSITION (T) SHOULD BE MINIMUM 5' LONG OR MAY BE LENGTHENED TO MITIGATE EXCESSIVE SLOPE.
- REFER TO "METRO BOOST BUS STOP CONCRETE DETAILS" FOR REBAR REQUIREMENTS FOR 9 INCH AND TRANSITIONAL CURB AND EXPANSION AND CONTROL JOINTS. EXPANSION JOINTS WILL BE USED BETWEEN LANDING (L) AND TRANSITION (T). SAW CUT CONTROL JOINTS SHOULD BE SPACED MAX 8' IN EACH DIRECTION.
- REFER TO CITY OF HOUSTON "CONCRETE SIDEWALK DETAILS FOR STREETS WITH CURBS" DWG NO. 02775-01 FOR SIDEWALK DETAILS. THE DRIVEWAY/SIDEWALK HEADER DETAIL PER CITY OF HOUSTON DWG NO. 02775-01 WILL BE USED TO CONNECT THE 4.5" LANDING (L) TO THE 9" PAD (F).
- PROGRAMMING AREAS (P) MAY INCLUDE LANDSCAPING, BIKE PARKING, UTILITIES, STREET FURNITURE, ETC. TO BE DETERMINED BY METRO.
- THE LANDING AREA (L) SHALL CONTAIN REINFORCING TRANSVERSE STEEL #4 BAR CONTINUOUS 12" C-C (TYP) AND LONGITUDINAL STEEL #4 BAR CONTINUOUS 12" C-C (TYP).
- DETECTABLE WARNING SURFACE SHALL EXTEND ALONG TRANSITIONAL CURB WHERE SIDEWALK PAVING MEETS TRANSITIONAL CURB.
- SHOW EXISTING PRIVATE AND PUBLIC UTILITIES. ADJUST VALVES AND PULLBOXES IF NEEDED. AVOID VERTICAL UTILITY CONFLICTS IN AREAS MARKED "L." VERTICAL UTILITES MAY EXIST IN AREAS MARKED "P." IDENTIFY AND PROTECT EXISTING GAS PIPELINES OR VALVES WITHIN THE WORK AREA.
- CONTRACTOR TO AVOID DAMAGE TO ANY PRIVATE PROPERTY AND/OR TREES.
- CONTRACTOR TO CONTACT METRO AT (713) 615-6195 ONCE FOUNDATION (F) AND LANDING (L) ARE COMPLETELY IN PLACE.



MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

INTERIM REVIEW ONLY

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DAVID G. CHEZANEY
172563
2/20/2024
100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-20017

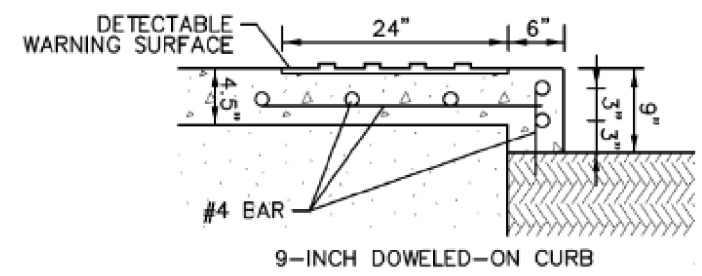
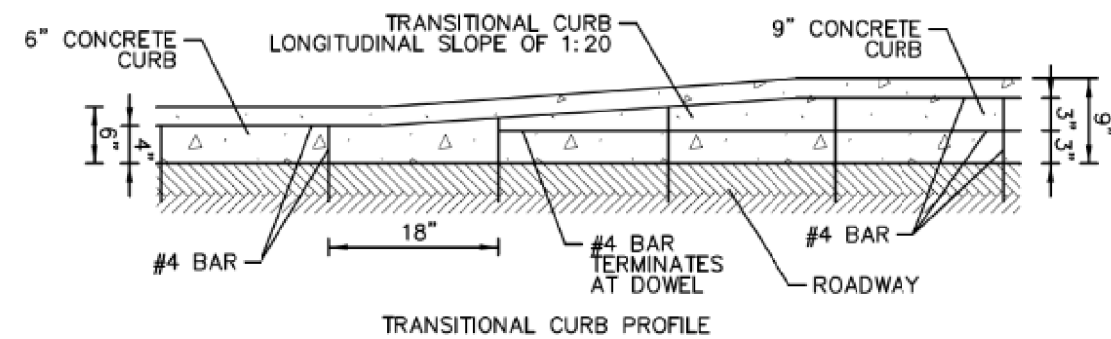
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1
METRO BOOST BUS STOP
DETAIL A**

SHEET 1 OF 1

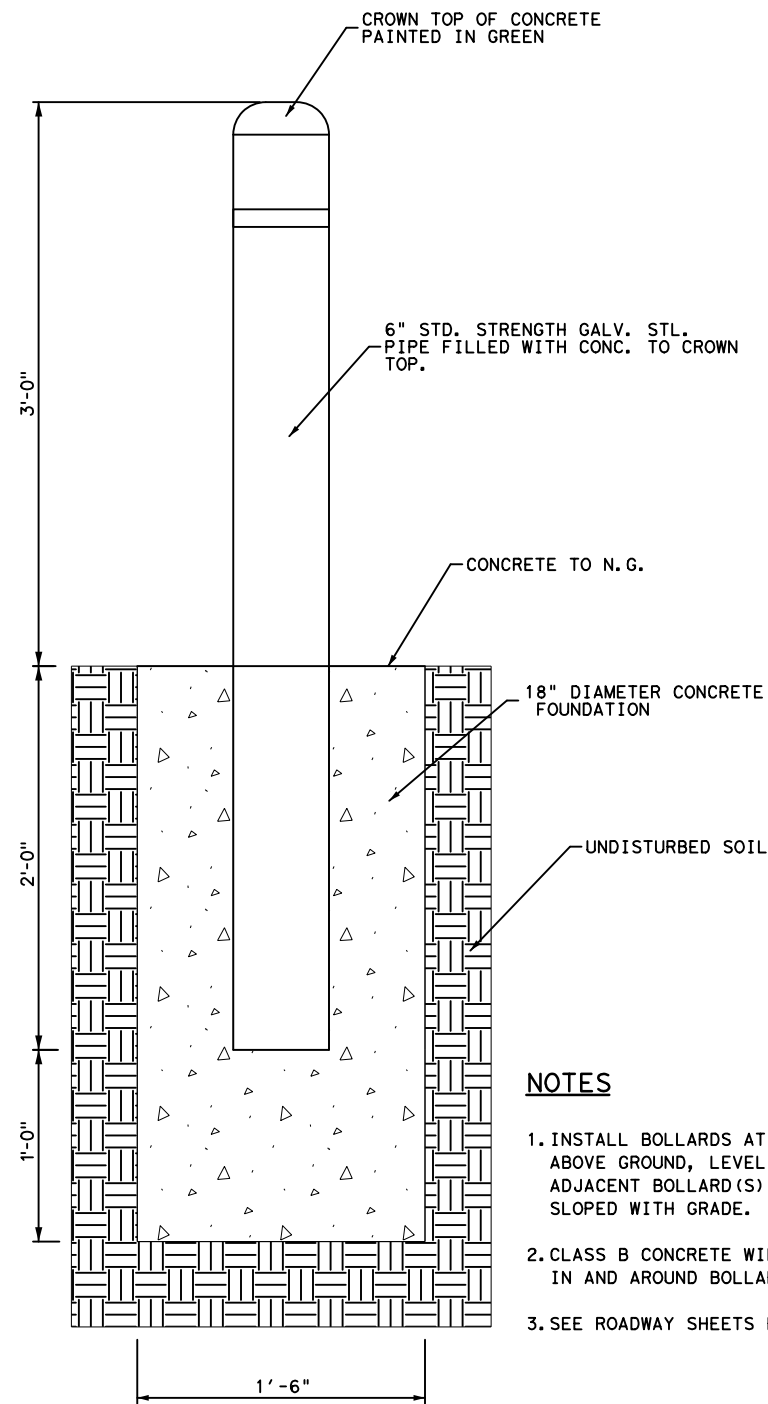
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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 114 OF 355	

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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 METRO BOOST BUS STOP CONCRETE DETAILS	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 115 OF 355	

No.	DATE	REVISIONS	APP.



NOTES

1. INSTALL BOLLARDS AT 3' ± ABOVE GROUND, LEVEL WITH ADJACENT BOLLARD(S) OR EVENLY SLOPED WITH GRADE.
2. CLASS B CONCRETE WILL BE USED IN AND AROUND BOLLARDS.
3. SEE ROADWAY SHEETS FOR SPACING.

BOLLARD DETAIL
N.T.S.

No.	DATE	REVISIONS	APP.

 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEZANEY 125563 2/21/2024 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-2017</small>
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 BOLLARD DETAIL	
SHEET 1 OF 1	
WBS NUMBER N-127000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 116 OF 355	

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DRILLING LOG

1 of 3

WinCore
Version 3.3

County Harris
Highway Montrose Blvd.
CSJ

Hole B-26
Structure Bridge
Station 9+96.39
Offset 53.52RT

District Houston
Date 8/8/2023
Grnd. Elev. 29.12 ft
GW Elev. 2.12 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
27.1			PVMT, 4" AC + 5" stabilized shell + 1.75" AC + 7.5" stab.shell							
5		10 (6) 9 (6)	FILL, SANDY LEAN CLAY, soft, gray and tan -with brick pieces 5'-7" and gravel 7'-9" (CL)			8				P=4.5+, N=11
				0	35.8	13	36	23	120.3	#200=61%, P=4.0
						8				P=4.5+
19.1		8 (6) 8 (6)	FILL, LEAN CLAY WITH SAND, stiff, light gray and tan, with silty sand seams -with siltstone fragments 10'-12' (CL)			18	30	15	129.6	#200=75%, P=3.75 CU (10'-12'): C'=250 psf, Phi'=29.8 deg C_cu=190 psf, Phi_cu=27.5 deg
				9	6.8	21			128.9	P=1.25
14.1		10 (6) 14 (6)	SILT, SANDY, slightly compact, tan, with lean clay pockets -with siltstone fragments and silty clay seams 15'-17', wet at 17' (ML)			22				N=11
						26				#200=66%, N=4
						26				N=22
2.1		17 (6) 22 (6)	CLAY, SILTY, WITH SAND, stiff, tan, with calcareous nodules (CL-ML)			17	23	5		#200=78%, P=2.75, N=16
				17	11.5	19	25	11	131.9	#200=43%, P=1.0
-2.9		10 (6) 12 (6)	SAND, CLAYEY, slightly compact, tan, with siltstone fragments and silt seams, wet (SC)			29				N=14
						29				N=14
-7.9		12 (6) 18 (6)	CLAY, SANDY LEAN, stiff to very stiff, tan and reddish brown, with silty sand partings (CL)							

Remarks: Groundwater was encountered at a depth of 17' below existing grade during drilling and 15 minutes after initial encounter. Borehole cave-in at 16' on 8/15/2023, at 58' on 8/16/2023, and at 98' on 8/17/2023. Drilling started on 8/8/2023 and ended on 8/17/2023. Survey Coordinates (TSPC, Grid, Zone 4204): Northing:13842044.8342, Easting 3113036.2079

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: V&S Logger: JH Organization: AVILES ENGINEERING CORP.

Z:\Engineering\Reports\2021\G152-21 Montrose Blvd Improvements from US59 to Allen Parkway - Gauge Engineering\Wincore\B-26.CLG

PLATE A-3



DRILLING LOG

2 of 3

WinCore
Version 3.3

County Harris
Highway Montrose Blvd.
CSJ

Hole B-26
Structure Bridge
Station 9+96.39
Offset 53.52RT

District Houston
Date 8/8/2023
Grnd. Elev. 29.12 ft
GW Elev. 2.12 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
			CLAY, SANDY LEAN, stiff to very stiff, tan and reddish brown, with silty sand partings (CL)							
						21	35	19		#200=54%, N=32
45		25 (6) 26 (6)								
-17.9			CLAY, FAT, stiff, tan and reddish brown, with slickensides -with silty sand partings 48'-50', and siltstone fragments and ferrous nodules 58'-60' (CH)			22	45.6	31	120.3	P=3.5
						34	74	48		#200=99%, P=3.25
50		15 (6) 17 (6)								
						25	21.3	33	119.8	
55		15 (6) 16 (6)								
						28				P=4.5
60		15 (6) 20 (6)								
						20	46	28		#200=99%, P=4.5+
65		16 (6) 20 (6)								
						30	27.9	25	124.6	P=4.5+
70		16 (6) 29 (6)								
						22				P=4.5+
75		23 (6) 30 (6)								
-37.9			CLAY, LEAN, very stiff, reddish brown -with silt partings and siltstone fragments 73'-75', and slickensides 78'-80' (CL)							
80										

Remarks: Groundwater was encountered at a depth of 17' below existing grade during drilling and 15 minutes after initial encounter. Borehole cave-in at 16' on 8/15/2023, at 58' on 8/16/2023, and at 98' on 8/17/2023. Drilling started on 8/8/2023 and ended on 8/17/2023. Survey Coordinates (TSPC, Grid, Zone 4204): Northing:13842044.8342, Easting 3113036.2079

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: V&S Logger: JH Organization: AVILES ENGINEERING CORP.

Z:\Engineering\Reports\2021\G152-21 Montrose Blvd Improvements from US59 to Allen Parkway - Gauge Engineering\Wincore\B-26.CLG

PLATE A-3

H10 LOADING

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
Signature valid for six months.

Date _____
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature Date valid for one year.



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MAHSA ABASTOO
125082
2/8/2024
100% SUBMITTAL
AGUIRRE & FIELDS
Texas Registered Engineering Firm F-739

SURVEYED BY:
Kuo & Associates, Inc.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY BRIDGE BORING LOGS

SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 117 OF 355	

APP.	
REVISIONS	
No.	DATE

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DRILLING LOG

2 of 3

WinCore
Version 3.3

County Harris
Highway Montrose Blvd.
CSJ

Hole B-27
Structure Bridge
Station 11+32.87
Offset 39.85RT

District Houston
Date 8/8/2023
Grnd. Elev. 30.28 ft
GW Elev. 7.88 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
-12.7		13 (6) 18 (6)	CLAY, LEAN, stiff to hard, reddish brown, with silty sand seams -with silt pockets and siltstone fragments 33'-35' (CL)							
45		17 (6) 27 (6)	SILT, SANDY, compact, reddish brown, with lean clay pockets, wet (ML)			25				#200=50%, N=32
-17.7										
50		15 (6) 16 (6)	CLAY, FAT, stiff to very stiff, gray, w/ slickensides -w/ siltstone fragments, calcareous nodules, & ferrous stains 58'-60' (CH)			36	64	42		#200=99%, P=2.25, N=15
55		12 (6) 15 (6)		27	12.4	33			118.8	P=3.25
60		12 (6) 15 (6)				32				P=3.0
65		18 (6) 21 (6)				26	62	40		#200=98%, P=4.25
70		31 (6) 34 (6)		32	13.1	22			127	P=2.75
75		24 (6) 28 (6)				28				P=4.5+
80				36	57.6	22	50	32	129.9	#200=93%, P=4.25

Remarks: Groundwater was encountered at a depth of 28' below existing grade during drilling; then measured at 22.8' after 15 minutes. Borehole cave-in at 57' on 8/10/2023 and at 79' on 8/11/2023. Drilling started on 8/8/2023 and ended on 8/11/2023. Survey Coordinates (TSPC, Grid, Zone 4204): Northing:13842180.0881, Easting 3113013.5381
Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: V&S Logger: JH Organization: AVILES ENGINEERING CORP.

Z:\Engineering\Reports\2021\G152-21 Montrose Blvd Improvements from US59 to Allen Parkway - Gauge Engineering\Wincore\B-27.CLG

PLATE A-4



DRILLING LOG

3 of 3

WinCore
Version 3.3

County Harris
Highway Montrose Blvd.
CSJ

Hole B-27
Structure Bridge
Station 11+32.87
Offset 39.85RT

District Houston
Date 8/8/2023
Grnd. Elev. 30.28 ft
GW Elev. 7.88 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test		Properties				Additional Remarks
				Lateral Press. (psi)	Deviator Stress (psi)	MC	LL	PI	Wet Den. (pcf)	
-52.7		10 (6) 19 (6)	CLAY, FAT, stiff to very stiff, gray, w/ slickensides -w/ siltstone fragments, calcareous nodules, & ferrous stains 58'-60' (CH)							
85		25 (6) 30 (6)	CLAY, SANDY FAT, very stiff, reddish brown, with sandy silt partings (CH)			34	58	40		#200=52%, N=40
-57.7										
90		20 (6) 24 (6)	CLAY, LEAN, WITH SAND, very stiff, tan and light gray -with silt pockets 88'-90' and siltstone fragments 93'-95' (CL)			17				P=4.5+, N=22
95		20 (6) 24 (6)		41	42.4	23			129.4	P=3.0
100		30 (6) 25 (6)				17	32	16		#200=83%, P=4.0
105		20 (6) 30 (6)				18				P=4.5+
-79.7	110	30 (6) 37 (6)	CLAY, FAT, very stiff, reddish brown and light gray, with silt seams (CH)			46	12.4	22	128.8	P=1.5
-84.7	115	29 (6) 32 (6)	CLAY, LEAN, very stiff, tan and light gray, with ferrous nodules and siltstone fragments (CL)			26	63	36		#200=99%, P=4.5+
-89.7	120					18				P=4.5+ TD=120'

Remarks: Groundwater was encountered at a depth of 28' below existing grade during drilling; then measured at 22.8' after 15 minutes. Borehole cave-in at 57' on 8/10/2023 and at 79' on 8/11/2023. Drilling started on 8/8/2023 and ended on 8/11/2023. Survey Coordinates (TSPC, Grid, Zone 4204): Northing:13842180.0881, Easting 3113013.5381
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Driller: V&S Logger: JH Organization: AVILES ENGINEERING CORP.

Z:\Engineering\Reports\2021\G152-21 Montrose Blvd Improvements from US59 to Allen Parkway - Gauge Engineering\Wincore\B-27.CLG

PLATE A-4

H10 LOADING

NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.
Signature valid for six months.

Date _____
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature Date valid for one year.



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128082
2/8/2024
100% SUBMITTAL
AGUIRRE & FIELDS
Texas Registered Engineering Firm F-739

SURVEYED BY:
Kuo & Associates, Inc.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY BRIDGE BORING LOGS

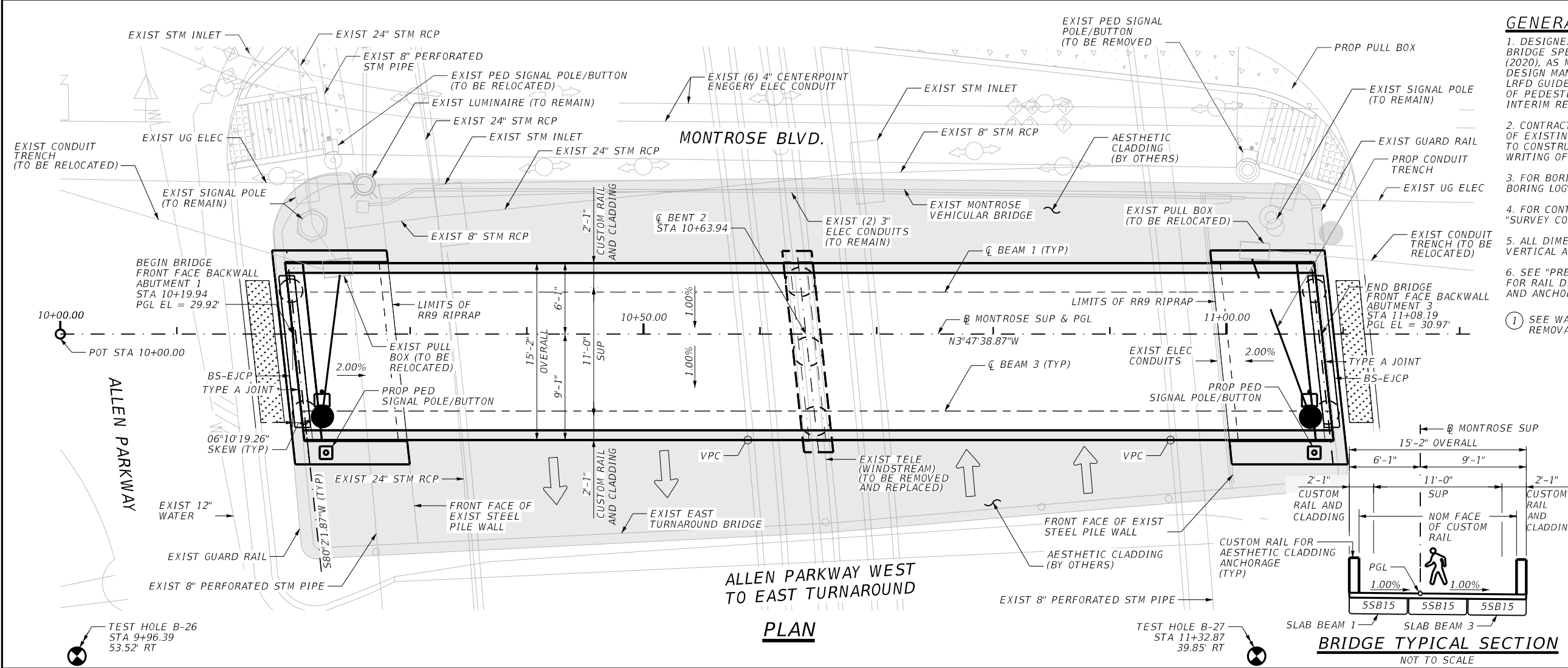
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 119 OF 355	

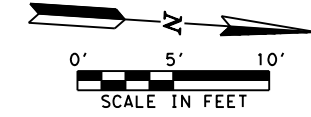
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APP.
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No. DATE

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- GENERAL NOTES**
- DESIGNED ACCORDING TO AASHTO LRFD BRIDGE SPECIFICATIONS, 9TH EDITION, (2020), AS MODIFIED BY THE TXDOT BRIDGE DESIGN MANUAL - LRFD, JAN 2020 AND AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, DEC 2009 (WITH 2015 INTERIM REVISIONS).
 - CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES AND STRUCTURES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEERS IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
 - FOR BORING LOG INFORMATION, SEE "BRIDGE BORING LOG" SHEETS.
 - FOR CONTROL POINTS INFORMATION, SEE "SURVEY CONTROL MAP" SHEETS.
 - ALL DIMENSIONS ARE EITHER HORIZONTAL OR VERTICAL AND MUST BE CORRECTED FOR GRADE.
 - SEE "PRESTR CONC SLAB BEAM UNIT SHEET" FOR RAIL DIMENSIONS, REBAR INFORMATION, AND ANCHORAGE DETAILS.
- ① SEE WALL LAYOUT SHEET FOR LIMITS OF WALL REMOVAL AND ESTIMATED REMOVAL DEPTH.



H10 LOADING
SUPERSTRUCTURE INV/OPR RATINGS: 1.63/2.99

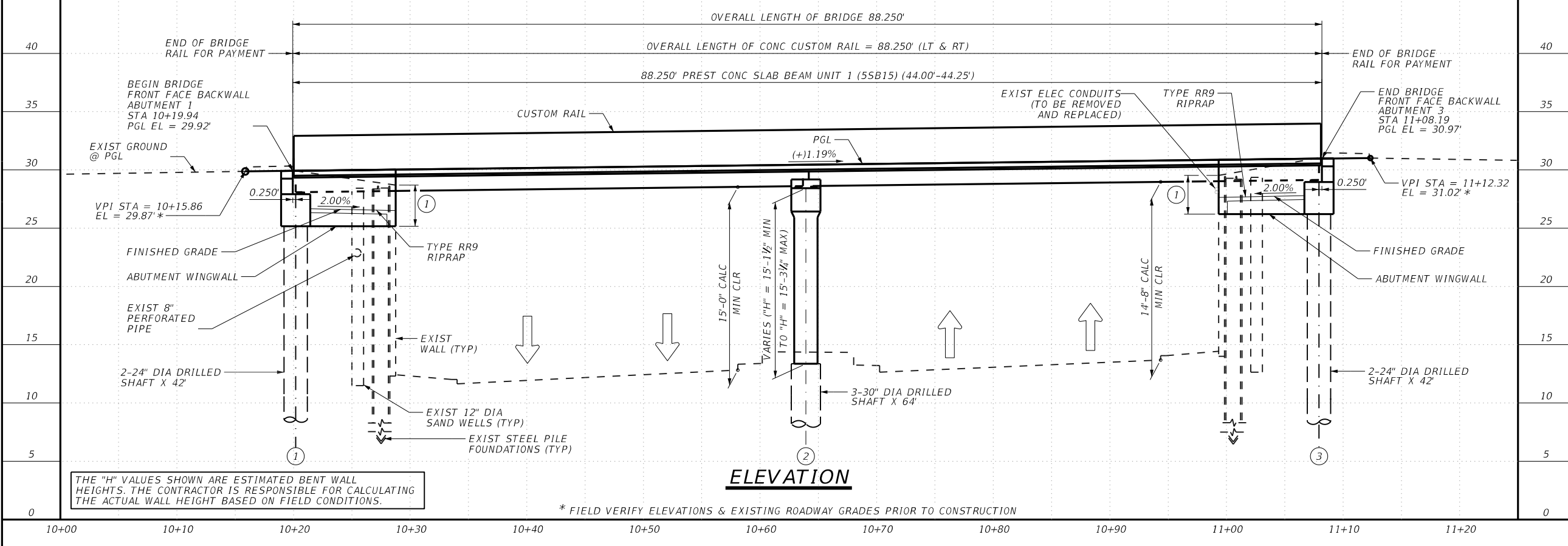
NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
Signature valid for six months.

Date _____
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Approved for All underground conduit facilities only. Signature Date valid for one year.



AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TYPE FIRM REGISTRATION # 739

INTERIM REVIEW ONLY
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2/8/2024
100% SUBMITTAL
AGUIRRE & FIELDS
Texas Registered Engineering Firm F-739

SURVEYED BY:
Kuo & Associates, Inc.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP
BRIDGE OVER ALLEN PARKWAY
BRIDGE LAYOUT

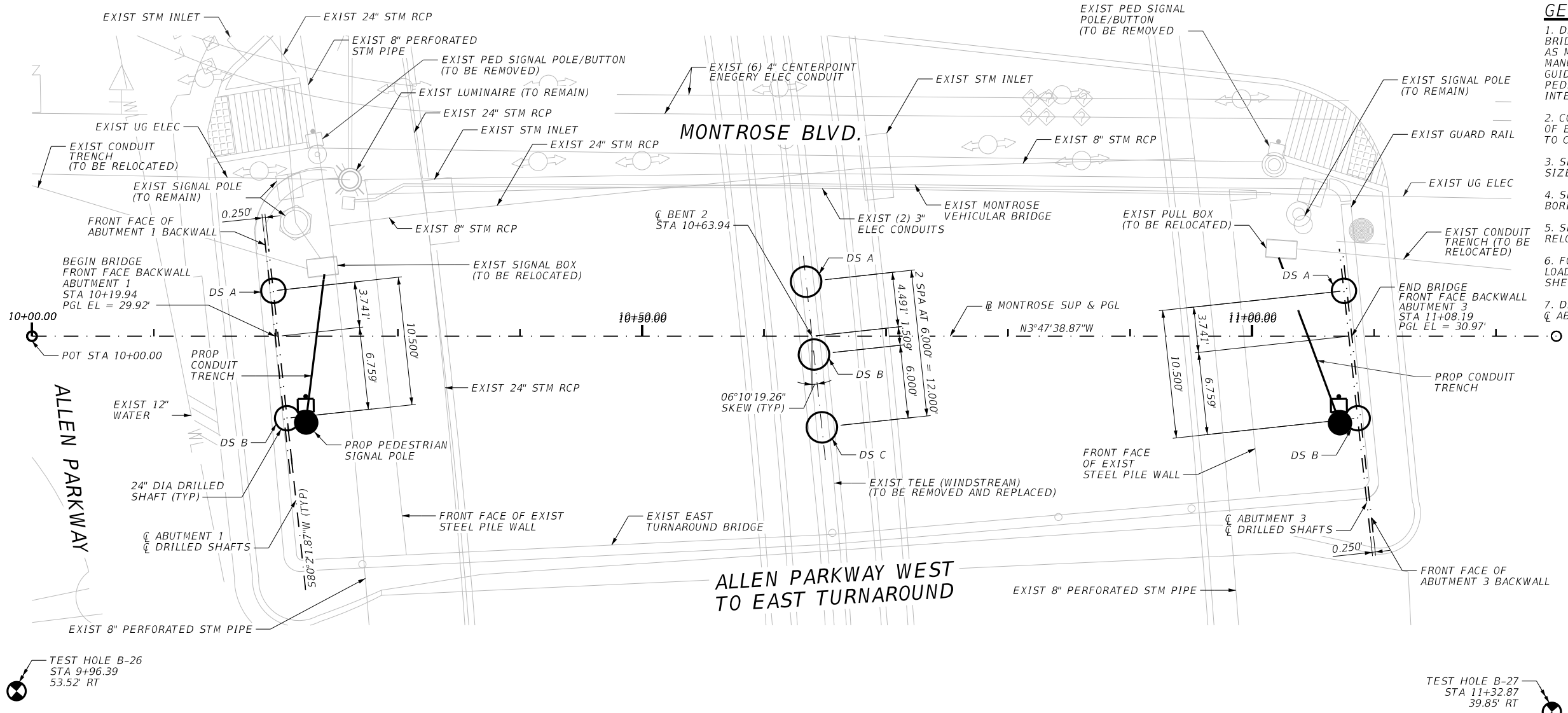
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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 120 OF 355	

APP. REVISIONS No. DATE
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Plotted on: 2/8/2024

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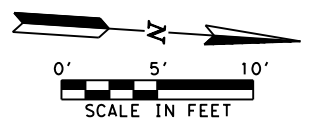


PLAN

SCALE: 1" = 1'-0"

GENERAL NOTES

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- SEE "BRIDGE LAYOUT" SHEET FOR FOUNDATION SIZE, LENGTHS, AND TIP ELEVATIONS.
- SEE "BRIDGE BORING LOGS" SHEETS FOR BORING HOLE DATA.
- SEE UTILITY PLANS FOR ANY UTILITY RELOCATIONS.
- FOR ALL FOUNDATION DETAILS, NOTES, AND LOADS NOT SHOWN, SEE "FOUNDATION DETAILS" SHEET.
- DRILLED SHAFT SPACING MEASURED ALONG \bar{C} ABUTMENTS OR \bar{C} BENT.



H10 LOADING

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Approved for AT&T underground conduit facilities only. Signature Date valid for one year.	

AGUIRRE & FIELDS
ENGINEERING INNOVATORS
TYPE FIRM REGISTRATION # 739

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125082
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AGUIRRE & FIELDS
Texas Registered Engineering Firm F-739

SURVEYED BY:
KYO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY FOUNDATION LAYOUT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 122 OF 355	

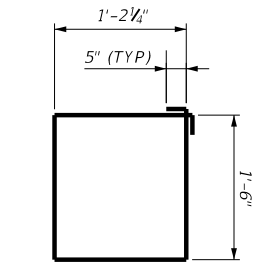
APP.	REVISIONS	DATE

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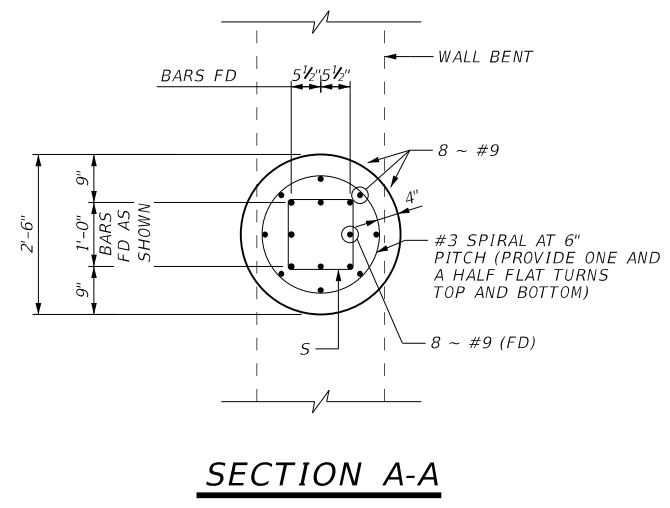
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BENT 2 FOUNDATION REINFORCING QUANTITIES

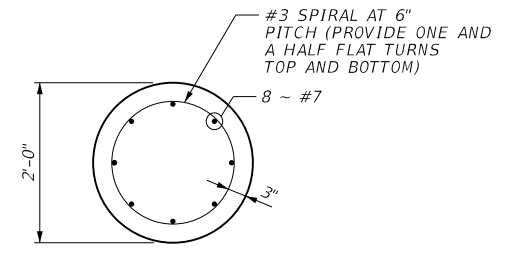
BAR	NO	SIZE	LENGTH	WEIGHT
FD	8	#9	8'-6"	232
S	12	#4	6'-3"	50
REINFORCING STEEL			LB	282



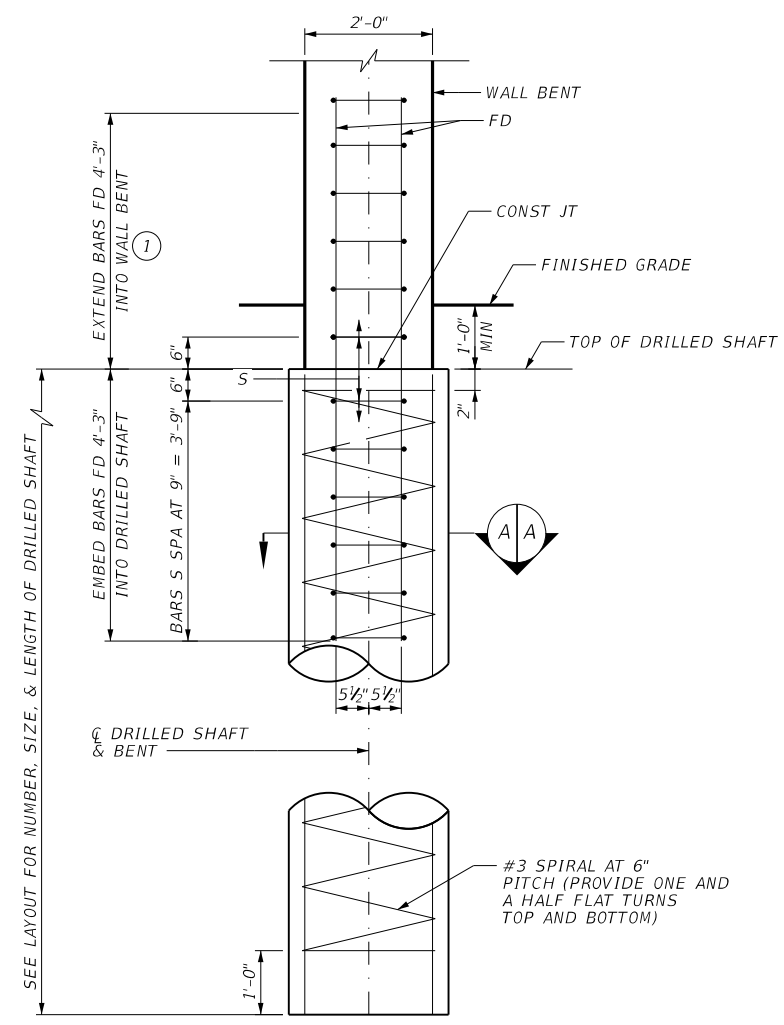
BARS S
BAR DETAILS



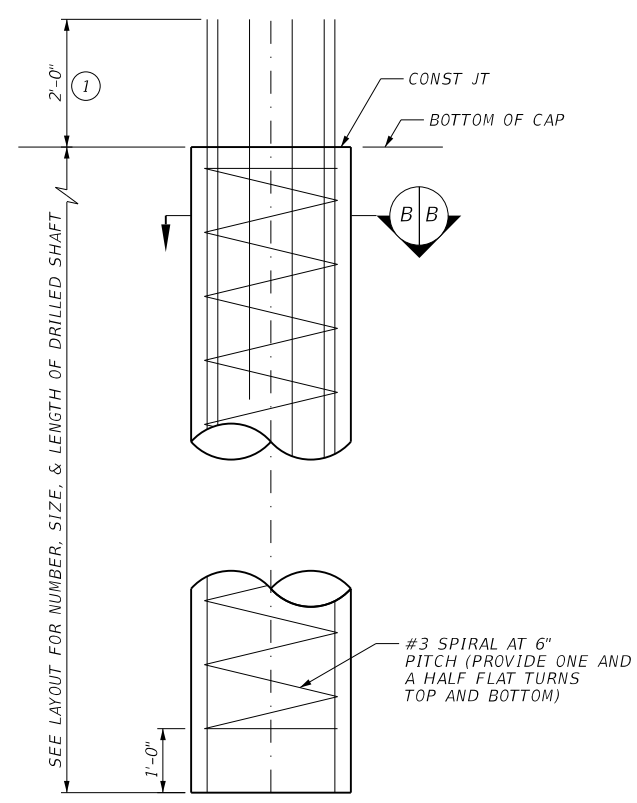
SECTION A-A



SECTION B-B



BENT 2 DRILLED SHAFT DETAILS



ABUTMENT 1 & 3 DRILLED SHAFT DETAIL

GENERAL NOTES

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2. ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.

3. DOWELS ARE TO BE INCLUDED IN UNIT PRICE BID FOR DRILLED SHAFTS.

CALCULATED FOUNDATION LOADS:
 ABUTMENT 1 & 3: 55 TONS / DRILLED SHAFT
 BENT 2: 75 TONS / DRILLED SHAFT

MATERIAL NOTES

- PROVIDE CLASS SS CONCRETE ($f'c = 3,600$ PSI).
- PROVIDE GRADE 60 REINFORCING STEEL.

① PROJECTING REINFORCING IS TO BE INCLUDED IN UNIT PRICE BID FOR DRILLED SHAFTS.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
 REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

H10 LOADING

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 ENGINEERING INNOVATORS
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 2/8/2024
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 Texas Registered Engineering Firm F-739

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 KUO & ASSOCIATES, INC.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY FOUNDATION DETAILS

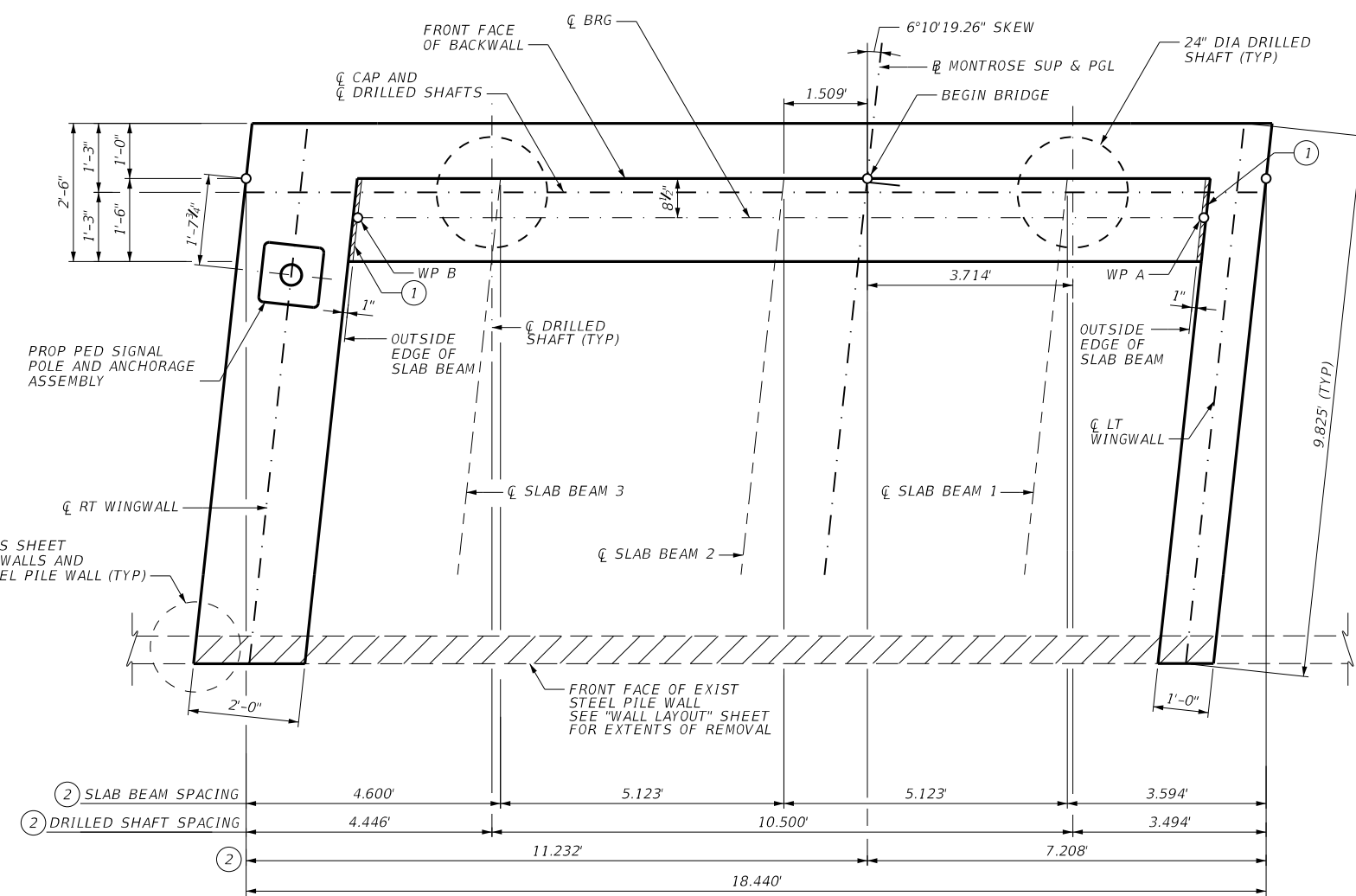
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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 123 OF 355	

NO.	DATE	REVISIONS	APP.

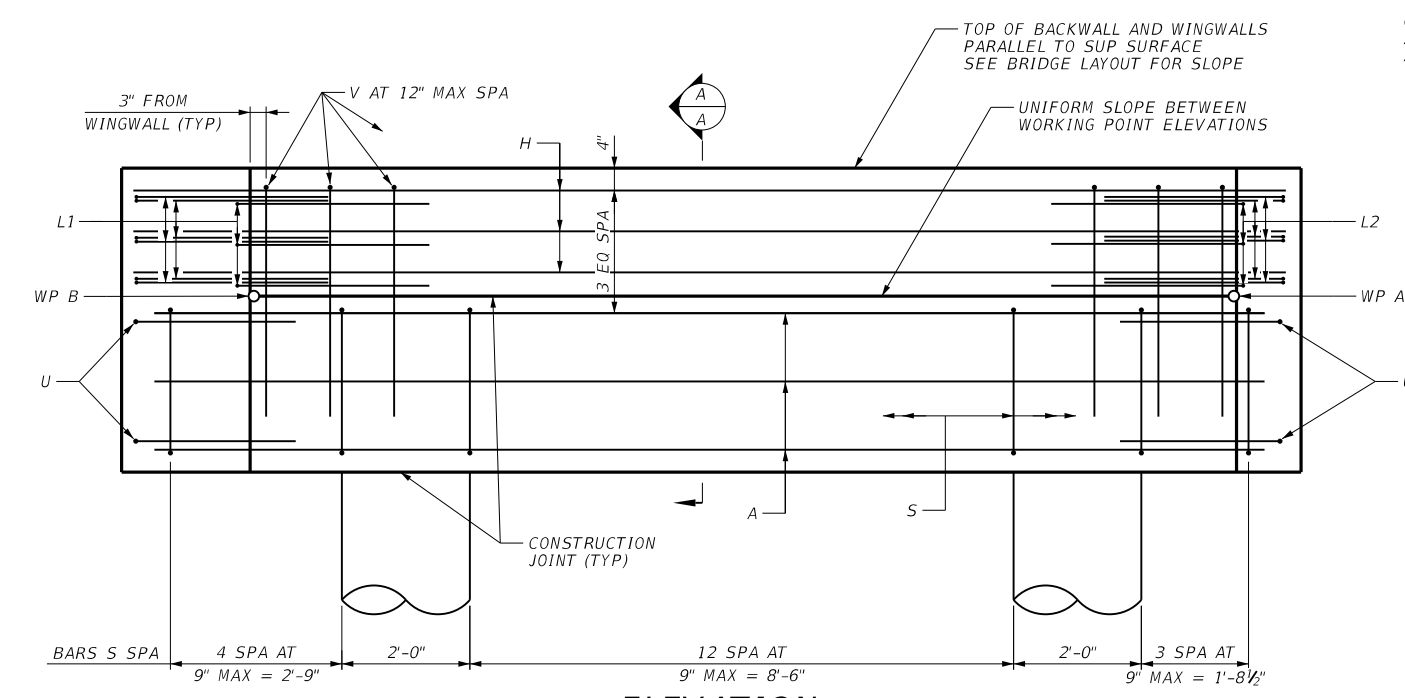
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TOP OF CAP ELEVATIONS		
ABUT	WP A	WP B
1	28.064	27.933

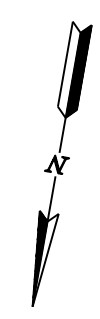
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PLAN



ELEVATION



GENERAL NOTES

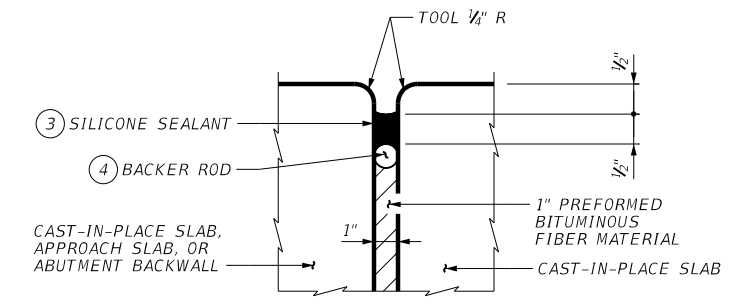
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MATERIAL NOTES

- PROVIDE CLASS C CONCRETE ($f'_c = 3,600$ PSI).
- PROVIDE GRADE 60 REINFORCING STEEL.
- PROVIDE 1" PREFORMED BITUMINOUS FIBER MATERIAL BETWEEN BEAM AND PORTION OF THE WINGWALL ABOVE CAP ONLY. BOND TO WINGWALL WITH AN APPROVED ADHESIVE.
- ALL DIMENSIONS ARE SHOWN ALONG THE BACKWALL.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.

REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.



TYPE A JOINT DETAIL ⑤

- 1 1/2" BACKER ROD MUST BE COMPATIBLE WITH JOINT SEALANT. USE OF MULTIPLE PIECES TO CREATE A BACKER ROD CROSS SECTION IS NOT PERMITTED. TOP OF BACKER ROD MUST BE CONVEX AS SHOWN.
- CLASS 7 SILICONE SEALANT THAT CONFORMS TO DMS-6310. INSTALL WHEN AMBIENT TEMPERATURE IS BETWEEN 55°F AND 85°F AND RISING. ENGINEER TO DETERMINE ALLOWABLE HOURS FOR SEALANT APPLICATION.
- SEE BRIDGE LAYOUT FOR EXPANSION JOINT LOCATIONS. IF USING TYPE A EXPANSION JOINTS, THE MAXIMUM DISTANCE BETWEEN JOINTS IS 100 FEET. TYPE A JOINTS ARE SUBSIDIARY TO ITEM 422, "CONCRETE SUPERSTRUCTURES"

H10 LOADING

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 ENGINEERING INNOVATORS
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 AGUIRRE & FIELDS
 Texas Registered Engineering Firm F-739

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY
ABUTMENT 1 DETAILS

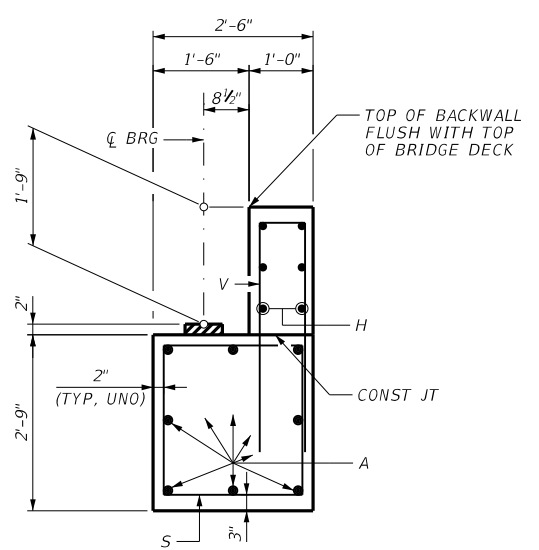
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 124 OF 355	

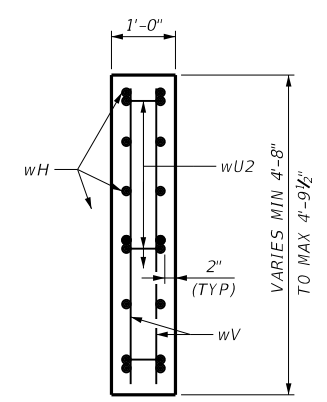
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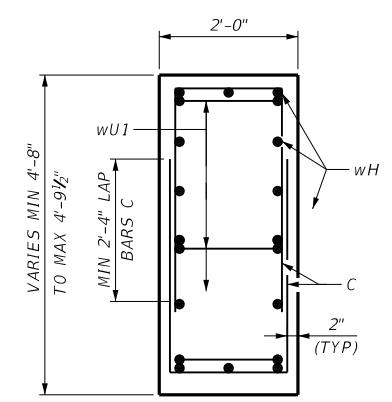
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BAR	NO.	SIZE	LENGTH	WEIGHT
A	8	#11	17'-5"	741
C	22	#5	8'-4"	191
H	6	#5	18'-1"	113
L1	9	#6	4'-0"	54
L2	9	#6	6'-0"	81
S	22	#5	10'-0"	229
U	4	#6	7'-1"	43
V	16	#5	7'-8"	128
wH	26	#6	9'-6"	371
wU1	9	#4	1'-8"	10
wU2	9	#4	2'-8"	16
wV	22	#5	4'-5"	101
REINFORCING STEEL			LB	2,078
CLASS "C" CONC (ABUT)			CY	10.7



SECTION A-A



**SECTION B-B
(WINGWALL LT)**

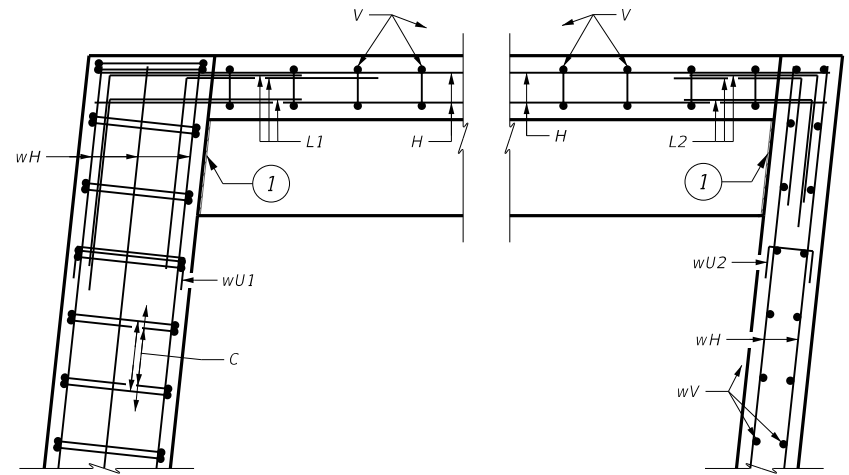


**SECTION C-C
(WINGWALL RT)**

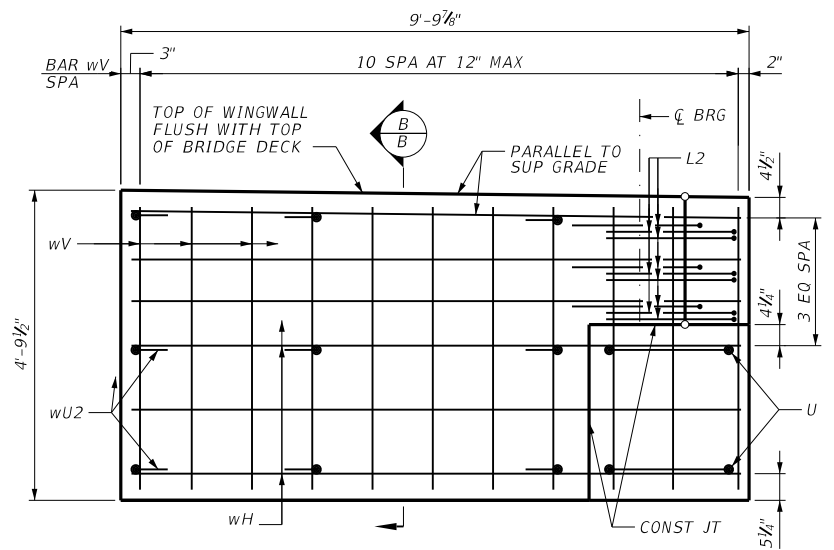
NOTES
 1. SEE SHEET 1 OF 2 FOR GENERAL NOTES.

① PROVIDE 1" PREFORMED BITUMINOUS FIBER MATERIAL BETWEEN BEAM AND PORTION OF THE WINGWALL ABOVE CAP ONLY. BOND TO WINGWALL WITH AN APPROVED ADHESIVE. INSIDE FACE OF WINGWALL TO BE CAST WITH VERTICAL SIDE OF BEAM.

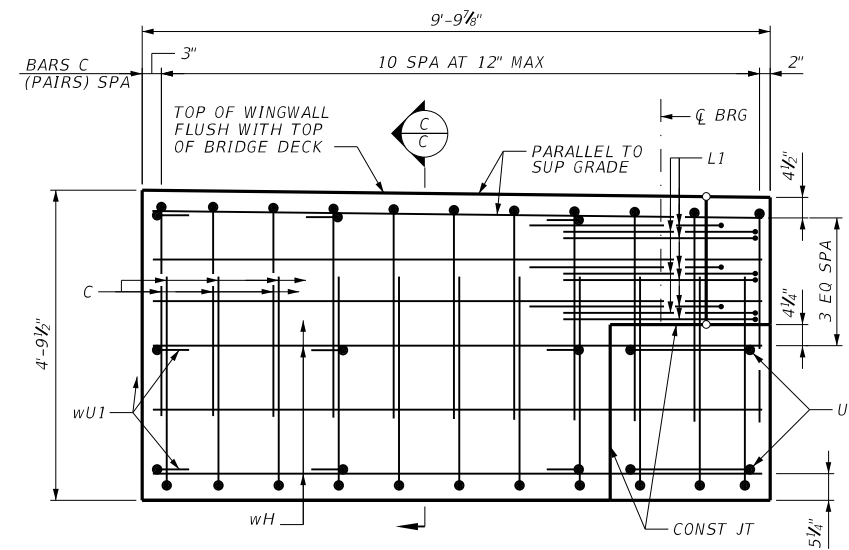
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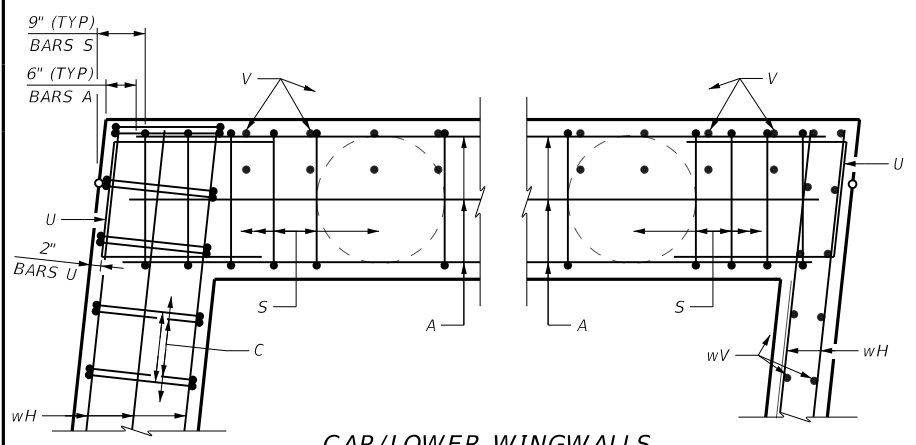
BACKWALL/UPPER WINGWALLS



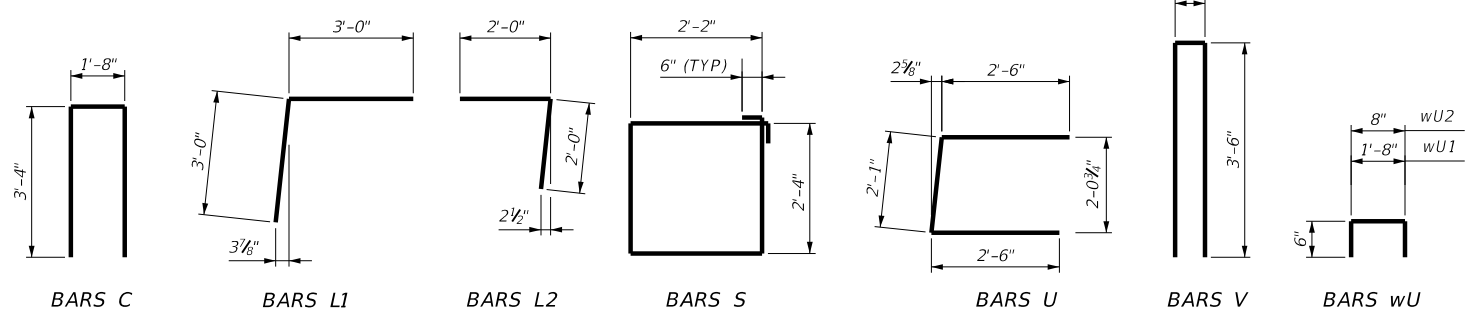
WINGWALL LT ELEVATION



WINGWALL RT ELEVATION



CAP/LOWER WINGWALLS



BAR DETAILS

CORNER DETAILS

H10 LOADING
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 MAHSA ARASTOO
 128062
 2/8/2024

100% SUBMITTAL
 AGUIRRE & FIELDS
 Texas Registered Engineering Firm F-739

SURVEYED BY:
 KUO & ASSOCIATES, INC.

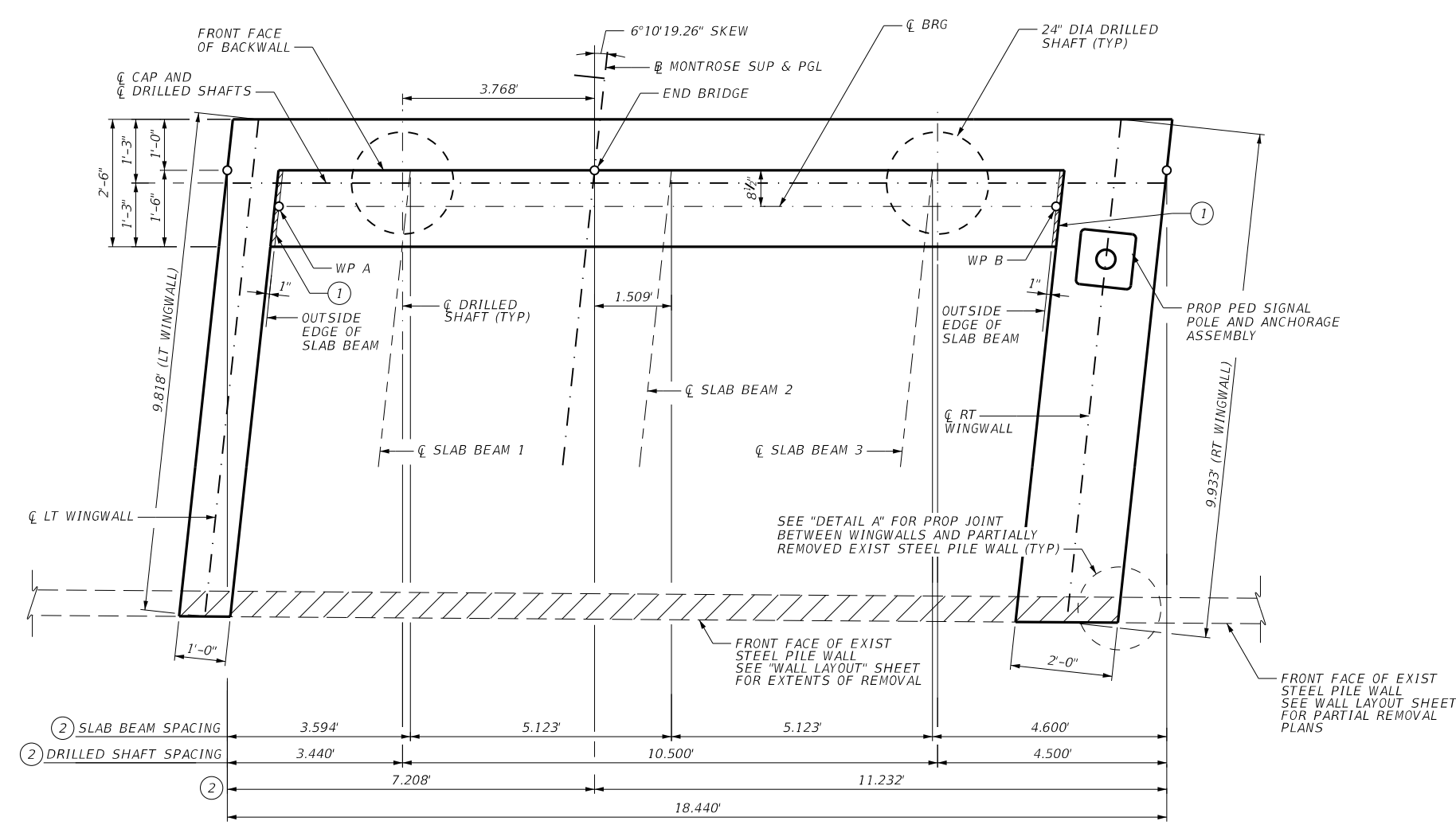
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY ABUTMENT 1 DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
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CITY OF HOUSTON PM	
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SHEET NO. 125 OF 355	

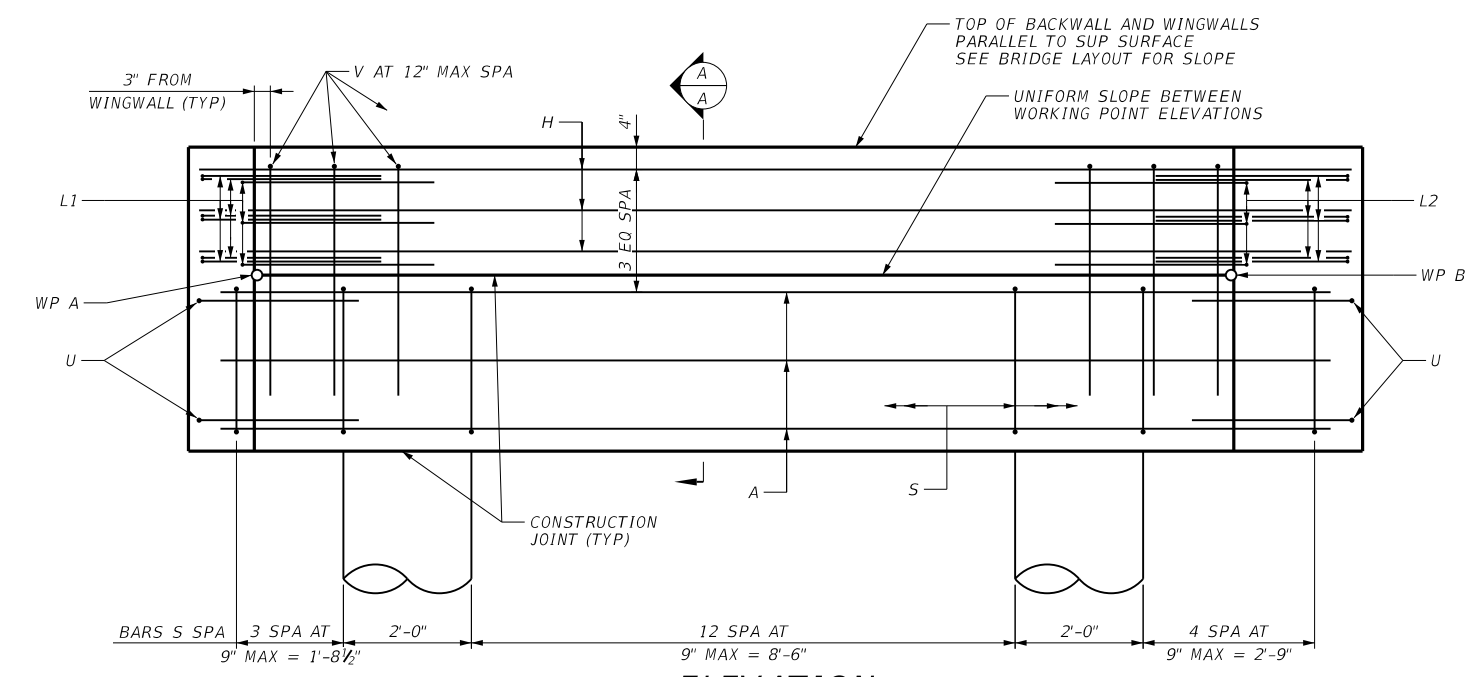
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TOP OF CAP ELEVATIONS		
ABUT	WP A	WP B
3	29.097	28.966

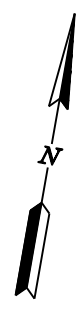
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 Plotted on: 2/8/2024 6:44:28 PM USER: default



PLAN



ELEVATION



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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

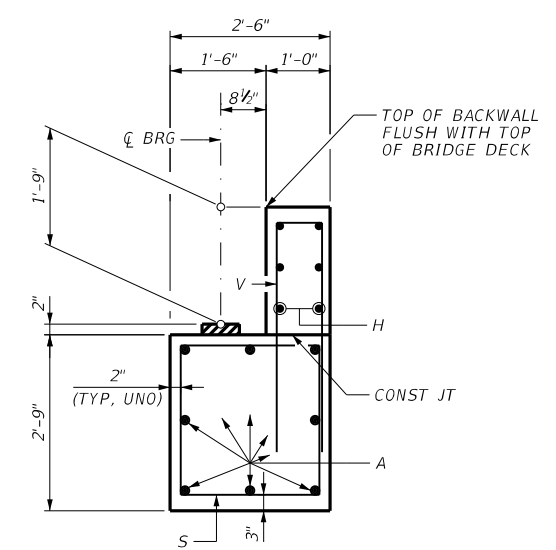
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY
ABUTMENT 3 DETAILS
 SHEET 1 OF 2

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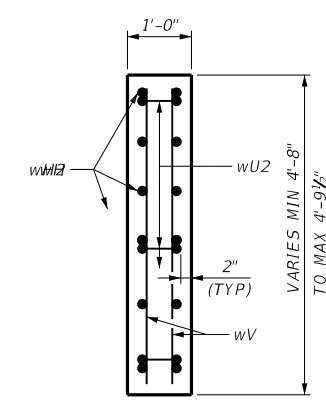
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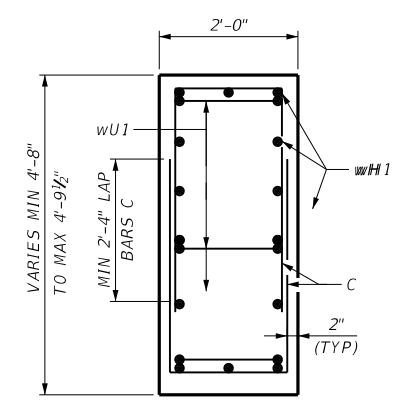
TABLE OF ESTIMATED QUANTITIES				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	8	#11	17'-5"	742
C	22	#5	8'-4"	191
H	6	#5	18'-1"	113
L1	9	#6	8'-0"	108
L2	9	#6	8'-0"	108
S	22	#5	10'-0"	229
U	4	#6	7'-1"	43
V	16	#5	7'-8"	128
wH1	14	#6	9'-7"	202
wH2	12	#6	9'-6"	171
wU1	9	#4	1'-8"	10
wU2	9	#4	2'-8"	16
wV	22	#5	4'-5"	101
REINFORCING STEEL			LB	2,162
CLASS "C" CONC (ABUT)			CY	10.7



SECTION A-A



**SECTION B-B
(WINGWALL LT)**

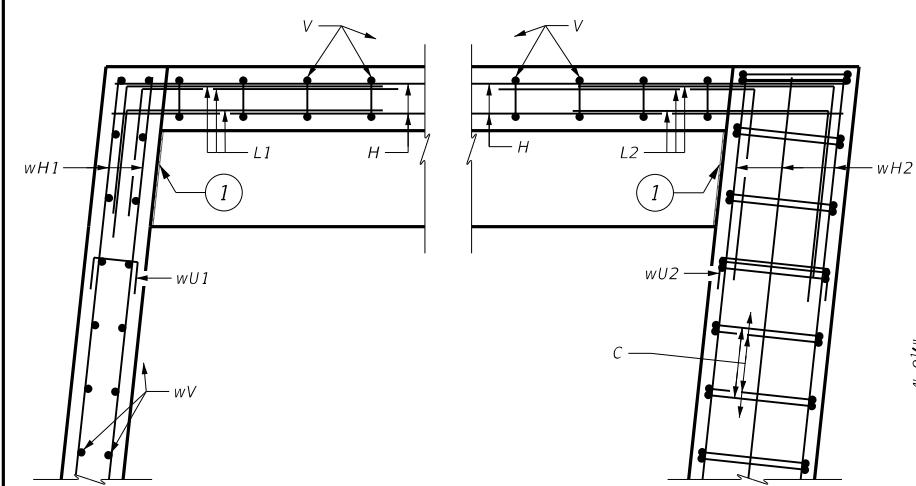


**SECTION C-C
(WINGWALL RT)**

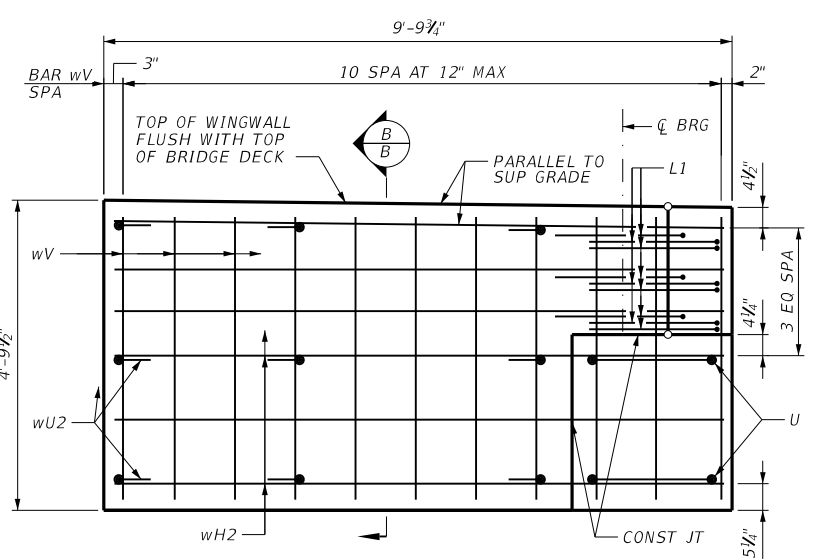
NOTES
 1. SEE SHEET 1 OF 2 FOR GENERAL NOTES.

① PROVIDE 1" PREFORMED BITUMINOUS FIBER MATERIAL BETWEEN BEAM AND PORTION OF THE WINGWALL ABOVE CAP ONLY. BOND TO WINGWALL WITH AN APPROVED ADHESIVE. INSIDE FACE OF WINGWALL TO BE CAST WITH VERTICAL SIDE OF BEAM.

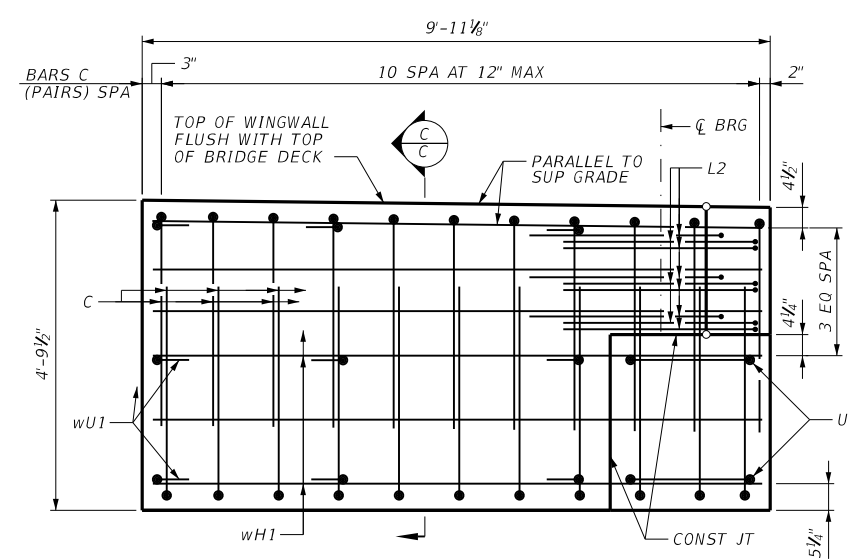
COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
 REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.



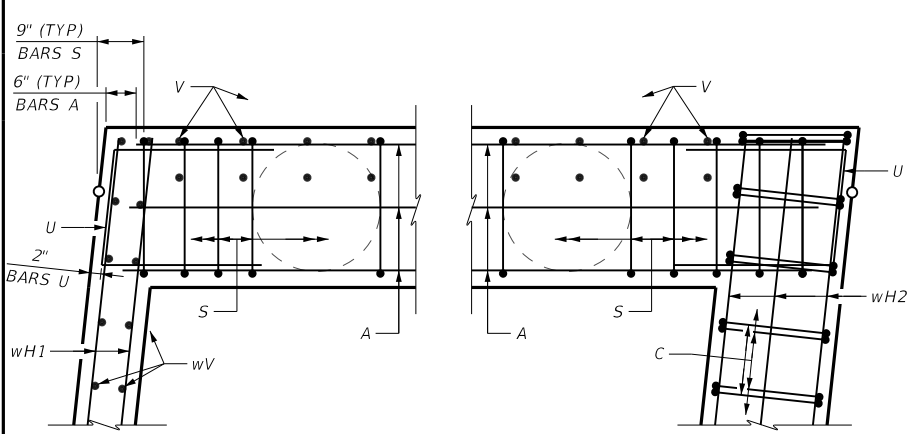
BACKWALL/UPPER WINGWALLS



WINGWALL LT ELEVATION

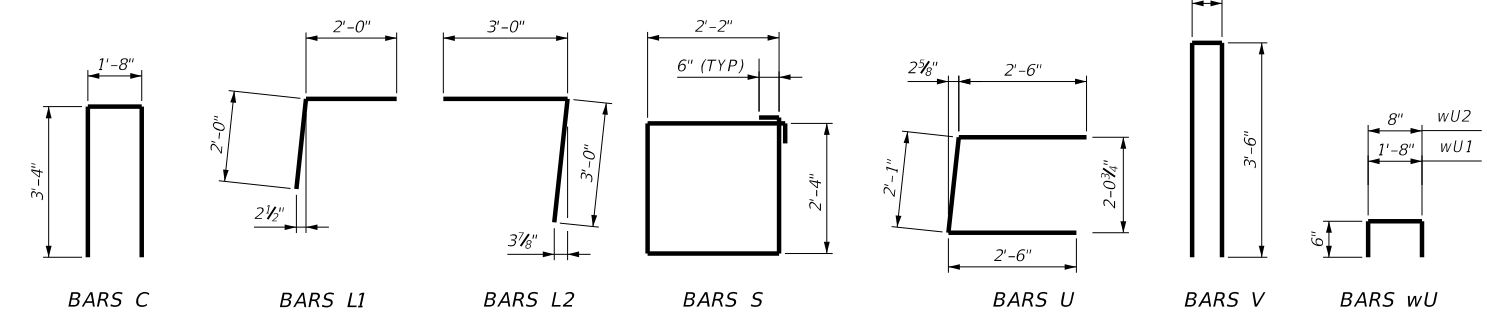


WINGWALL RT ELEVATION



CAP/LOWER WINGWALLS

CORNER DETAILS



BAR DETAILS

H10 LOADING

NOTICE:
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 Signature valid for six months.

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AGUIRRE & FIELDS
 ENGINEERING INNOVATORS
 TYPE FIRM REGISTRATION # 739

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 128062
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 Texas Registered Engineering Firm F-739

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY ABUTMENT 3 DETAILS

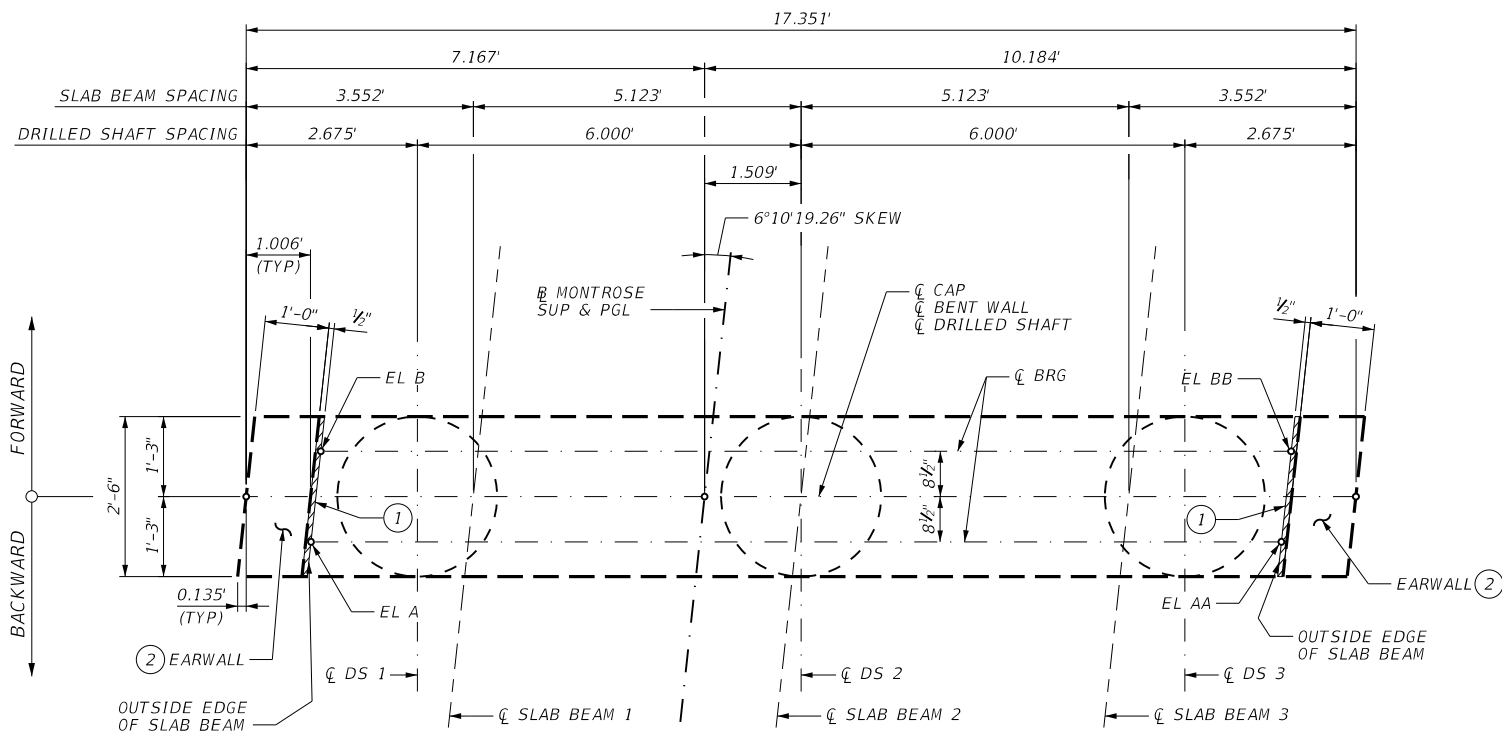
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 127 OF 355	

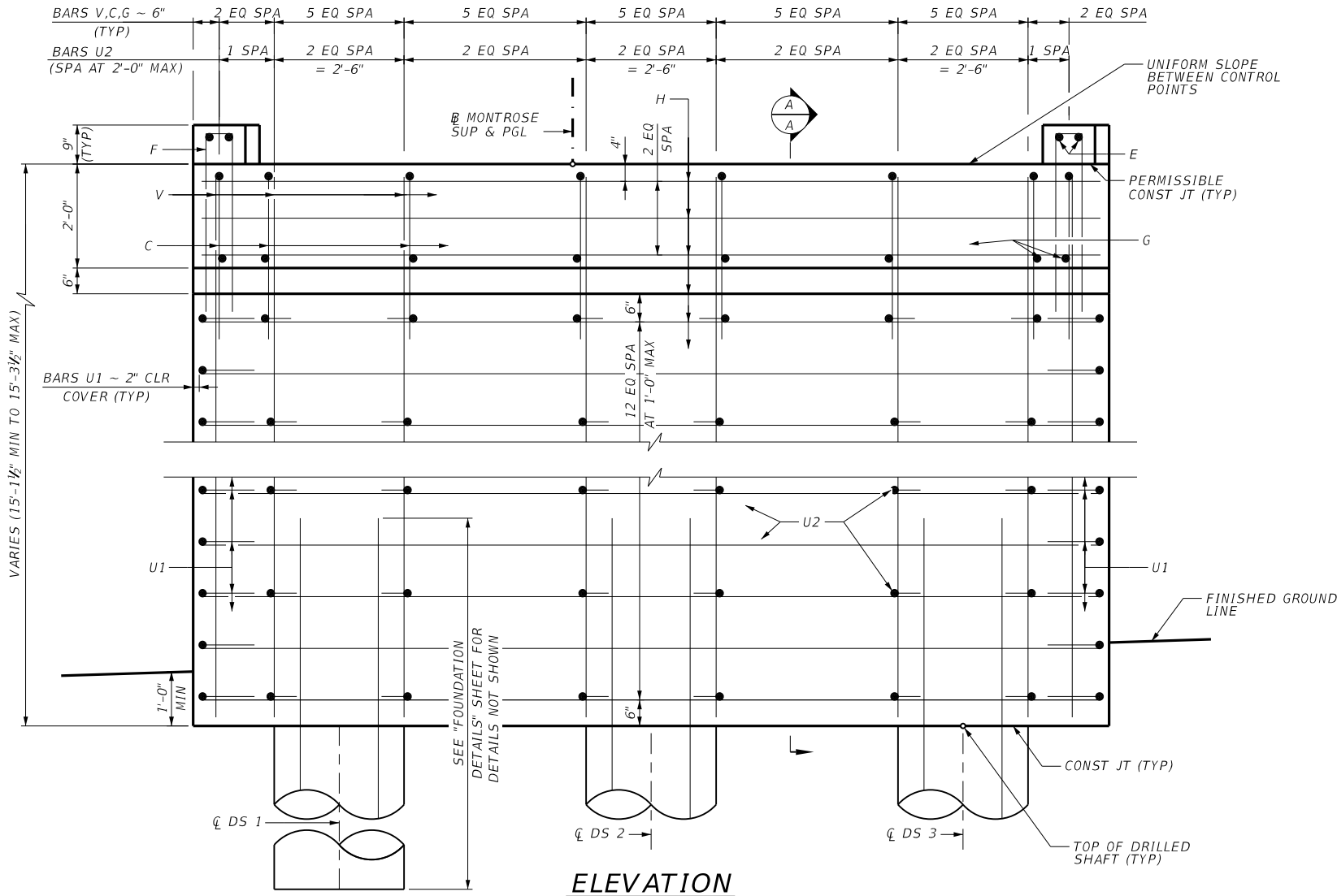
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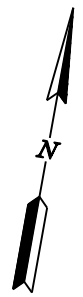
TOP OF CAP ELEVATIONS				
BENT	EL A	EL AA	EL B	EL BB
2	30.488	30.355	30.505	30.372



PLAN



ELEVATION



GENERAL NOTES

- DESIGNED ACCORDING TO AASHTO LRFD BRIDGE SPECIFICATIONS, 9TH EDITION, (2020), AS MODIFIED BY THE TXDOT BRIDGE DESIGN MANUAL - LRFD, JAN 2020 AND AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, DEC 2009 (WITH 2015 INTERIM REVISIONS).
- ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.
- FOR ALL FOUNDATION DETAILS, NOTES, AND LOADS NOT SHOWN, SEE "FOUNDATION DETAILS" SHEET.

MATERIAL NOTES

- PROVIDE CLASS C CONCRETE ($f'_c = 3,600$ PSI).
- PROVIDE GRADE 60 REINFORCING STEEL.
- PROVIDE 1/2" PREFORMED BITUMINOUS FIBER MATERIAL BETWEEN BEAM AND EARWALL. BOND TO EARWALL WITH AN APPROVED ADHESIVE. INSIDE FACE OF EARWALL TO BE CAST WITH VERTICAL SIDE OF BEAM.
- DO NOT CAST EARWALLS UNTIL SLAB BEAMS ARE ERECTED IN THEIR FINAL POSITION.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
 REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

H10 LOADING

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 ENGINEERING INNOVATORS
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY BENT 2 DETAILS

SHEET 1 OF 2

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SHEET NO. 128 OF 355	

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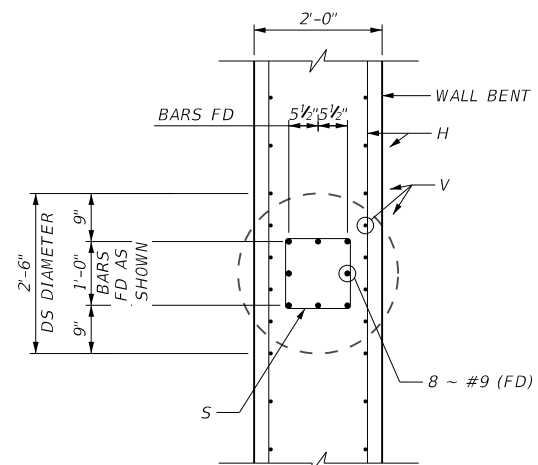
TABLE OF ESTIMATED BENT QUANTITIES

BAR	NO	SIZE	LENGTH	WEIGHT
C	28	#5	8'-10"	258
E	4	#4	2'-2"	6
F	14	#4	6'-6"	61
G	28	#4	3'-0"	57
H	39	#6	17'-0"	997
U1	26	#4	3'-8"	64
U2	13	#4	2'-8"	24
V	28	#6	15'-1"	634
REINFORCING STEEL			LB	2,101
CLASS "C" CONC			CY	28.6

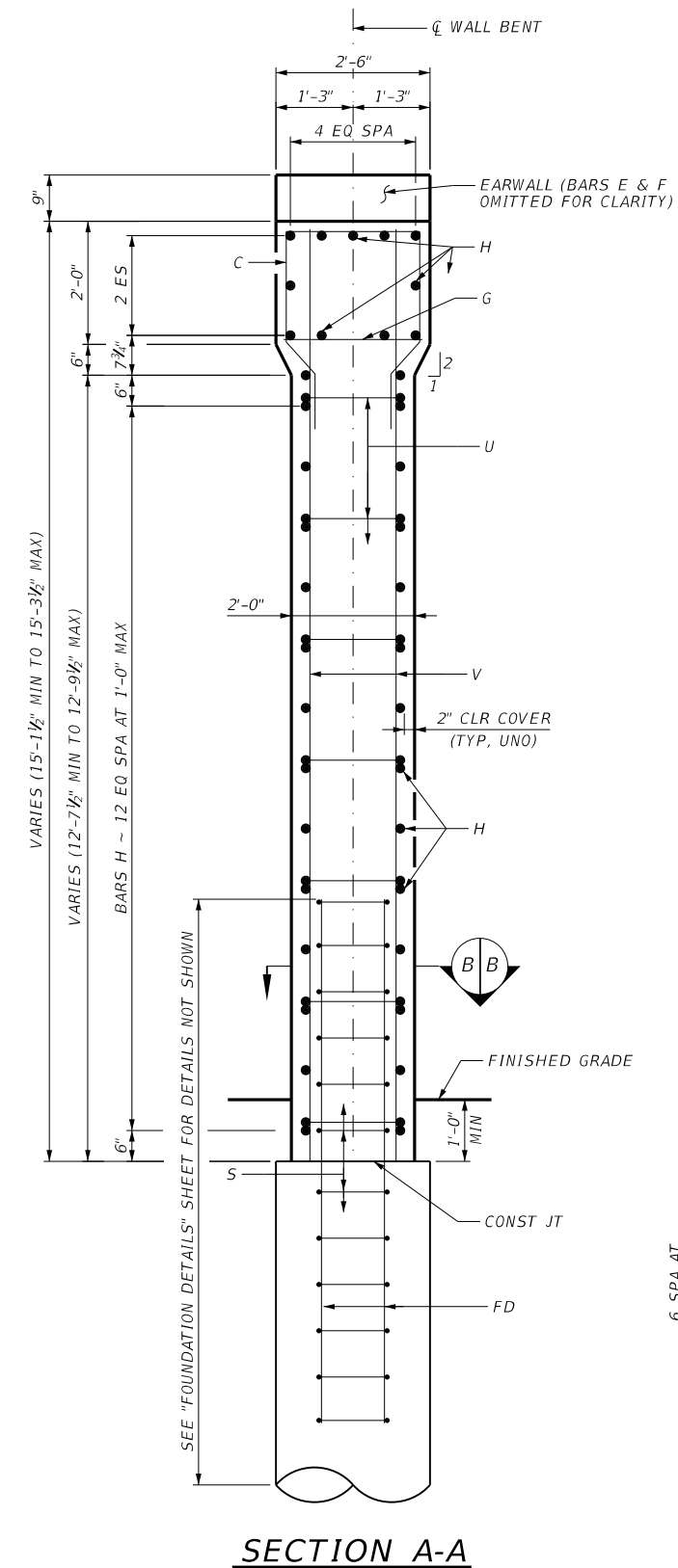
NOTES

1. SEE SHEET 1 OF 2 FOR GENERAL NOTES.

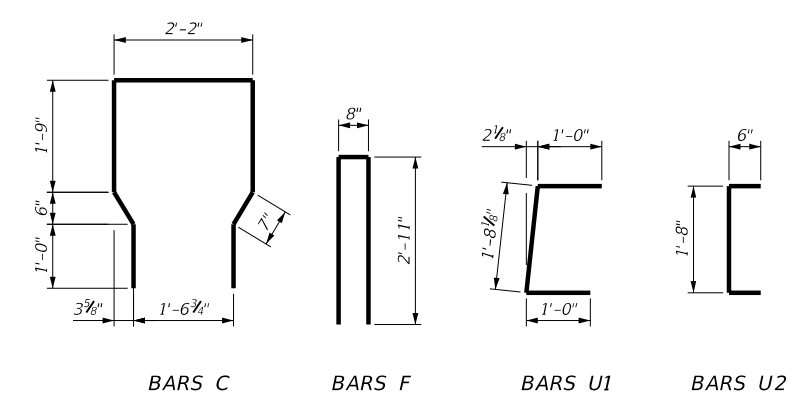
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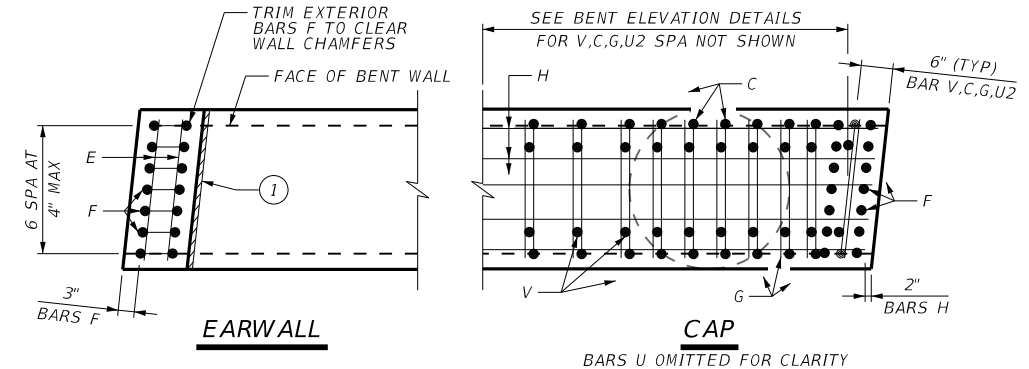
SECTION B-B
BARS U OMITTED FOR CLARITY



SECTION A-A



BAR DETAILS



CAP/WALL END DETAIL

H10 LOADING

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ENGINEERING INNOVATORS
TYPE FIRM REGISTRATION # 739

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Texas Registered Engineering Firm F-739

SURVEYED BY:
Kuo & Associates, Inc.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

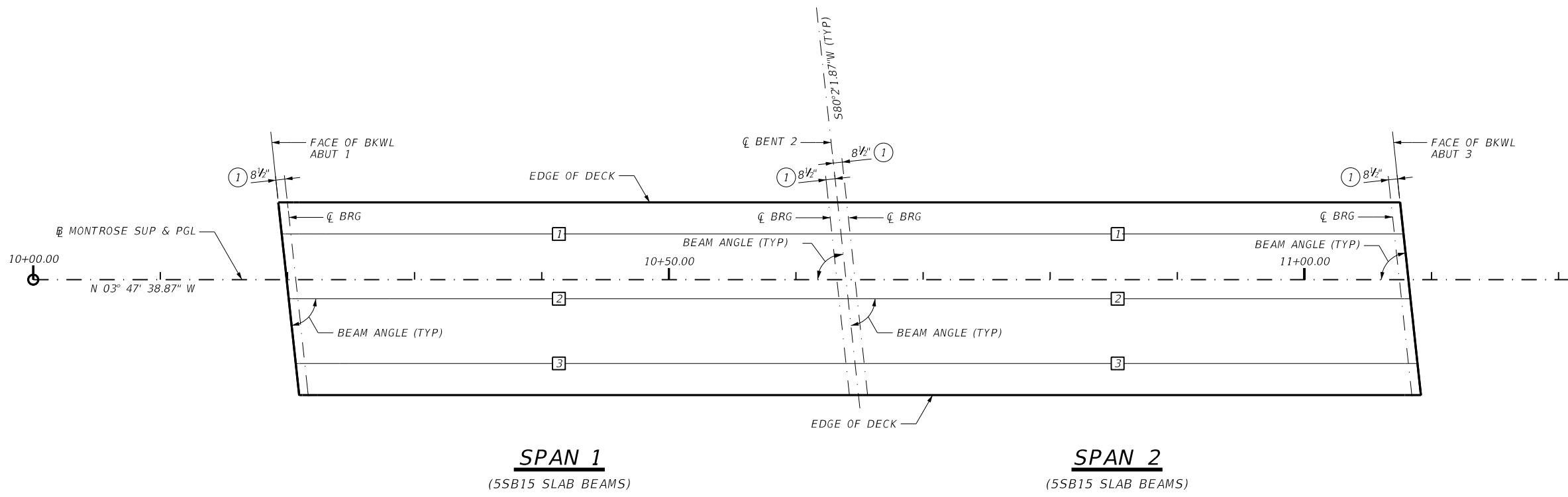
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY BENT 2 DETAILS

SHEET 2 OF 2

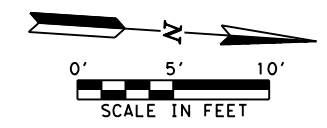
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AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 129 OF 355	

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- ① SEE SLAB BEAM ELASTOMERIC BEARING AND BEAM END DETAILS (PSBEB) STANDARD SHEET FOR ORIENTATION AND DIMENSION.
- ② BEAM LENGTHS SHOWN ARE BOTTOM BEAM LENGTHS WITH ADJUSTMENTS MADE FOR BEAM SLOPE.
- X GIRDER NUMBER



BENT REPORT

ABUT NO. 1 (S 80 2 01.87 W)					
DISTANCE BETWEEN STATION LINE AND BEAM 1, 3.615 L					
	BEAM	SPAC.	BEAM ANGLE		
			(C.L. ABUT)	D	M
SPAN 1	BEAM 1	0.000	83	49	40.74
	BEAM 2	5.123	83	49	40.74
	BEAM 3	5.123	83	49	40.74
	TOTAL	10.246			

BENT NO. 2 (S 80 2 01.87 W)					
DISTANCE BETWEEN STATION LINE AND BEAM 1, 3.615 L					
	BEAM	SPAC.	BEAM ANGLE		
			(C.L. BENT)	D	M
SPAN 1	BEAM 1	0.000	83	49	40.74
	BEAM 2	5.123	83	49	40.74
	BEAM 3	5.123	83	49	40.74
	TOTAL	10.246			

ABUT NO. 3 (S 80 2 01.87 W)					
DISTANCE BETWEEN STATION LINE AND BEAM 1, 3.615 L					
	BEAM	SPAC.	BEAM ANGLE		
			(C.L. ABUT)	D	M
SPAN 3	BEAM 1	0.000	83	49	40.74
	BEAM 2	5.123	83	49	40.74
	BEAM 3	5.123	83	49	40.74
	TOTAL	10.246			

GIRDER REPORT

BEAM REPORT, SPAN 1				
BEAM	HORIZONTAL DISTANCE	TRUE DISTANCE	BEAM	
	FACE OF BKWL TO C.L. BENT	C-C BRG.	BOT. BEAM. FLG.	SLOPE
BEAM 1	44.000	42.575	43.502	0.0119
BEAM 2	44.000	42.575	43.502	0.0119
BEAM 3	44.000	42.575	43.502	0.0119

BEAM REPORT, SPAN 2				
BEAM	HORIZONTAL DISTANCE	TRUE DISTANCE	BEAM	
	C.L. BENT TO FACE OF BKWL	C-C BRG.	BOT. BEAM. FLG.	SLOPE
BEAM 1	44.250	42.825	43.752	0.0119
BEAM 2	44.250	42.825	43.752	0.0119
BEAM 3	44.250	42.825	43.752	0.0119

H10 LOADING

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MAHSA ABASTOO
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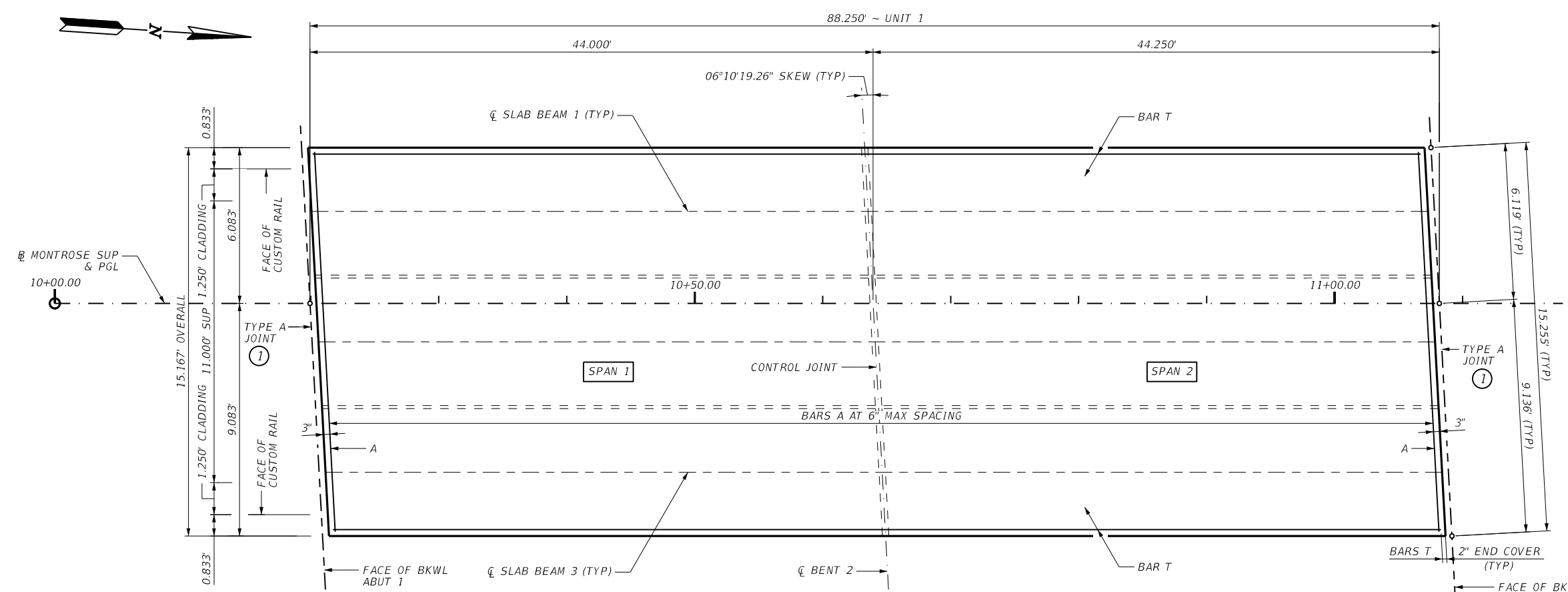
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY FRAMING PLAN

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DRAWING SCALE	
AS NOTED	
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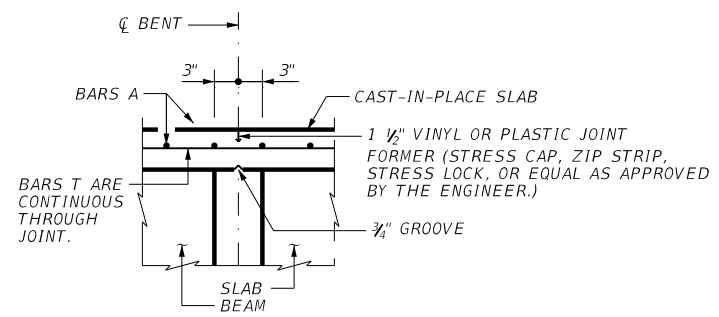


PLAN

① TYPE A JOINTS ARE SUBSIDIARY TO ITEM 422, "CONCRETE SUPERSTRUCTURES".

TABLE OF ESTIMATED QUANTITIES			
SPAN	PRESTR CONCRETE SLAB BEAM (TY 5SB15)	REINF CONCRETE SLAB (SLAB BEAM)	TOTAL REINF STEEL ②
	LF	SF	LB
1	130.51	667	1868
2	131.26	671	1879
TOTAL	261.77	1338	3746

② REINFORCING STEEL WEIGHT IS BASED ON AN APPROXIMATE FACTOR OF 2.8 LBS PER SQUARE FOOT OF SLAB.



CONTINUOUS SLAB DETAIL
(NOT TO SCALE)

BAR TABLE	
BAR	SIZE
A	#5
T	#4

GENERAL NOTES

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- SEE SHEET 2 OF 2 FOR RAIL ANCHORAGE DETAIL.

MATERIAL NOTES

- PROVIDE CLASS 5 CONCRETE ($f'_c = 4,000$ PSI).
- PROVIDE GRADE 60 REINFORCING STEEL.
- DEFORMED WELDED WIRE REINFORCEMENT (WWR) (ASTM A1064) OF EQUAL SIZE AND SPACING MAY BE SUBSTITUTED FOR BARS A OR T UNLESS NOTED OTHERWISE. PROVIDE THE SAME LAPS AS REQUIRED FOR REINFORCING BARS.
- PROVIDE BAR LAPS, WHERE REQUIRED, AS FOLLOWS:
 ~ #4 = 1'-7"
 ~ #5 = 2'-0"
- PROVIDE CLASS "C" CONCRETE FOR CUSTOM RAIL.

COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
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H10 LOADING

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 TYPE FIRM REGISTRATION # 739

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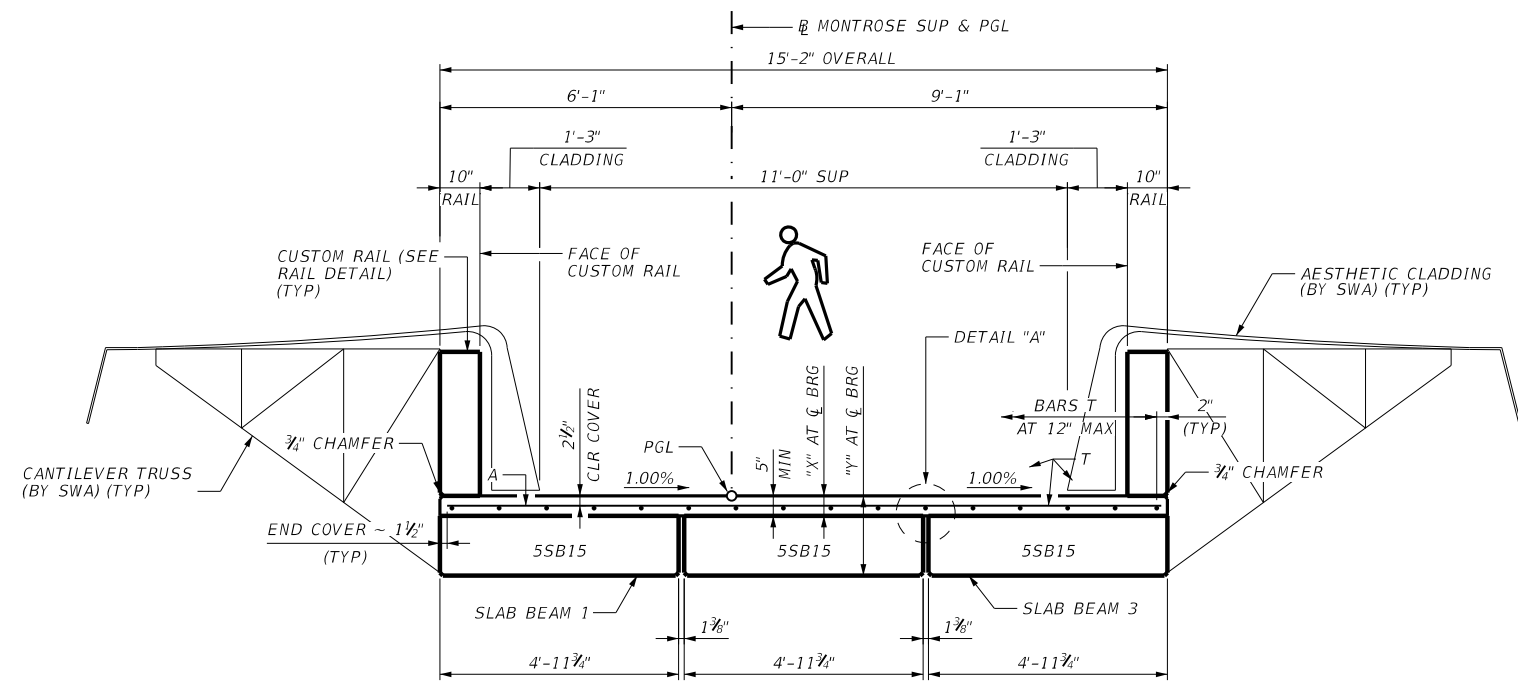
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY
88.25' PRESTR CONC SLAB BEAM UNIT

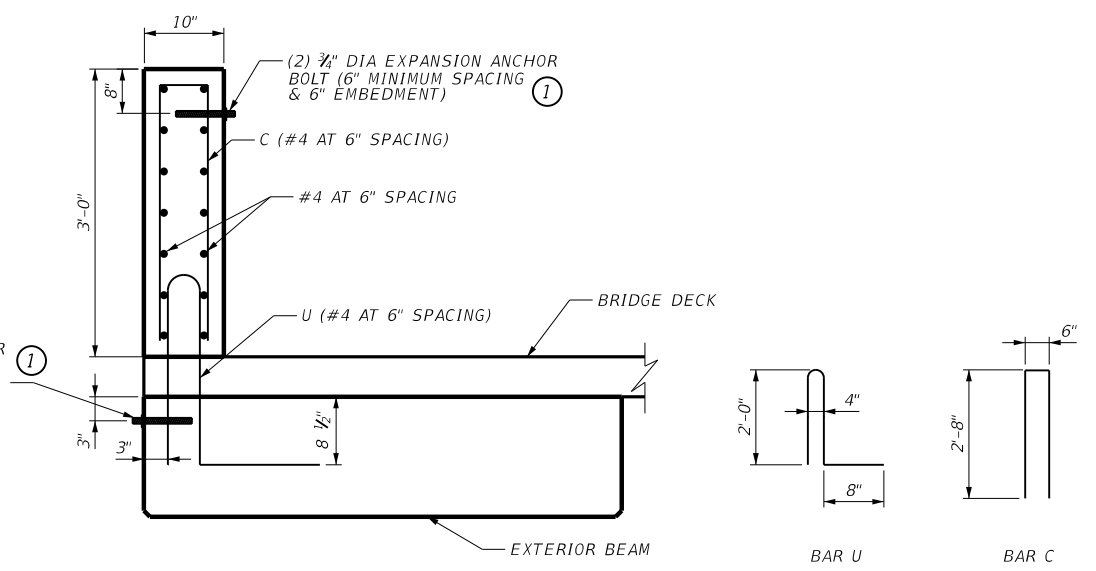
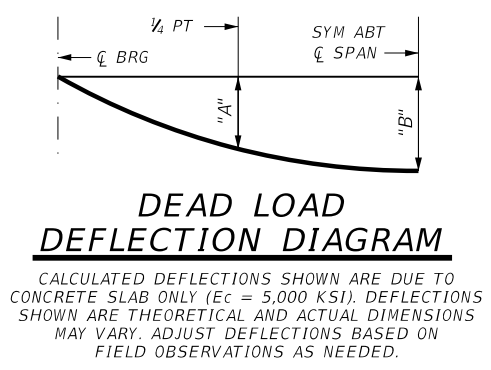
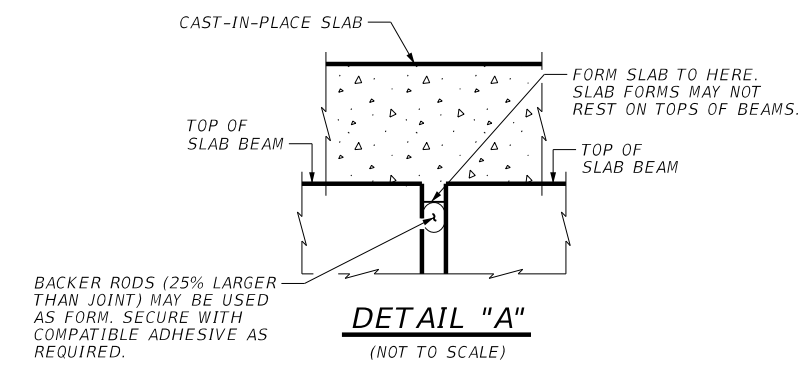
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No.	DATE	REVISIONS	APP.

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TYPICAL TRANSVERSE SECTION



RAIL DETAIL

TABLE OF DEAD LOAD DEFLECTIONS

SPAN	BEAM	"A" / "B"	
		FT	FT
1	1	0.016	0.023
	2	0.016	0.023
	3	0.016	0.023
2	1	0.017	0.024
	2	0.017	0.024
	3	0.017	0.024

TABLE OF SECTION DEPTHS

SPAN	BEAM	"X" AT CL BRG	"Y" AT CL BRG	"Z" AT CL SPAN
1-2	1-3	6"	1'-9"	5 1/4"

NOTES:
 1. SEE SHEET 1 OF 2 FOR GENERAL NOTES AND MATERIAL NOTES.
 ① USE SIMPSON STRONG-BOLT 2 OR EQUIVALENT MATERIAL.

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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY
 88.25' PRESTR CONC SLAB BEAM UNIT

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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JUDA HUANG	
SHEET NO. 132 OF 355	

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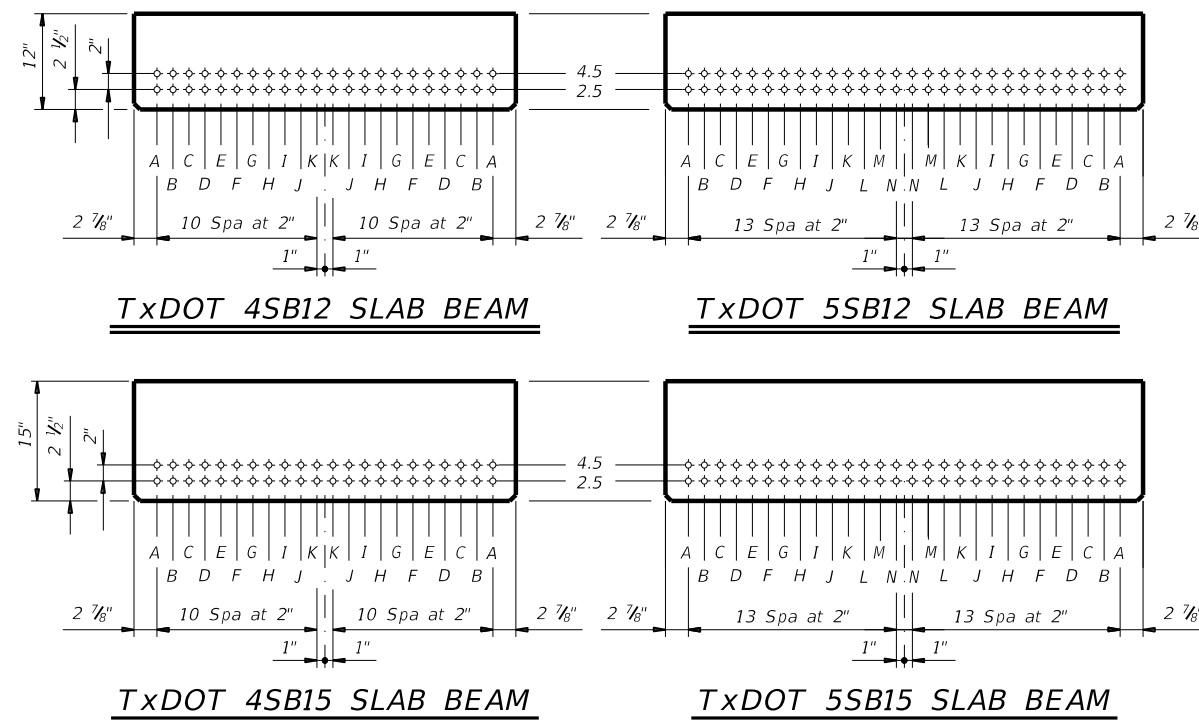
STRUCTURE	DESIGNED BEAMS (STRAIGHT STRANDS)																	OPTIONAL DESIGN					LOAD RATING FACTORS			NON-STANDARD STRAND PATTERNS				
	SPAN NO.	BEAM NO.	BEAM TYPE	PRESTRESSING STRANDS							DEBONDED STRANDS PER ROW					CONCRETE		DESIGN LOAD COMP STRESS (TOP ϵ) (SERVICE I) fct (ksi)	DESIGN LOAD TENSILE STRESS (BOT ϵ) (SERVICE III) fcb (ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR		STRENGTH I SERVICE III			PATTERN	STRAND ARRANGEMENT AT ϵ OF BEAM			
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ϵ (in)	"e" END (in)	TOT NO. DEB	DIST FROM BOTTOM (in)	NO. OF STRANDS		NUMBER OF STRANDS DEBONDED TO (ft from end)							RELEASE STRGTH $\textcircled{1}$ f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	$\textcircled{2}$		Inv			Opr	Inv	
												TOTAL	DE-BONDED	3	6	9	12						15	Moment						Shear
MONTROSE BLVD. SUP BRIDGE OVER ALLEN PARKWAY	1-2	1-3	5SB15		16	0.6	270	5.00	5.00	0	0.00	0	0	0	0	0	0	0	4.000	5.000	2.080	-2.471	936	0.600	0.600	2.31	2.99	1.63		

DESIGN NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
 Load rated using Load and Resistance Factor Rating according to AASHTO Manual for Bridge Evaluation.
 Prestress losses for the designed beams have been calculated for a relative humidity of 75 percent. Optional designs must likewise conform.

FABRICATION NOTES:

Provide Class H concrete.
 Provide Grade 60 reinforcing steel.
 Use low relaxation strands, each pretensioned to 75 percent of fpu.
 Full-length debonded strands are not permitted in positions "A" and "B".
 Strand debonding must comply with Item 424.4.2.2.4.
 When shown on this sheet, the Fabricator has the option of furnishing either the designed beam or an approved optional beam design. All optional design submittals and shop drawings must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.
 Locate strands for the designed beam as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5". Place strands within a row as follows:
 1) Locate a strand in each "A" position.
 2) Place strand symmetrically about vertical centerline of beam.
 3) Space strands as equally as possible across the entire width.
 Do not debond strands in position "A". Distribute debonded strands symmetrically about the vertical centerline. Increase debonded lengths working outward, with debonding staggered in each row.



HL10 LOADING

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MAHSA ARASTOO

Engineer
125062

2/8/2024

Date

100% SUBMITTAL

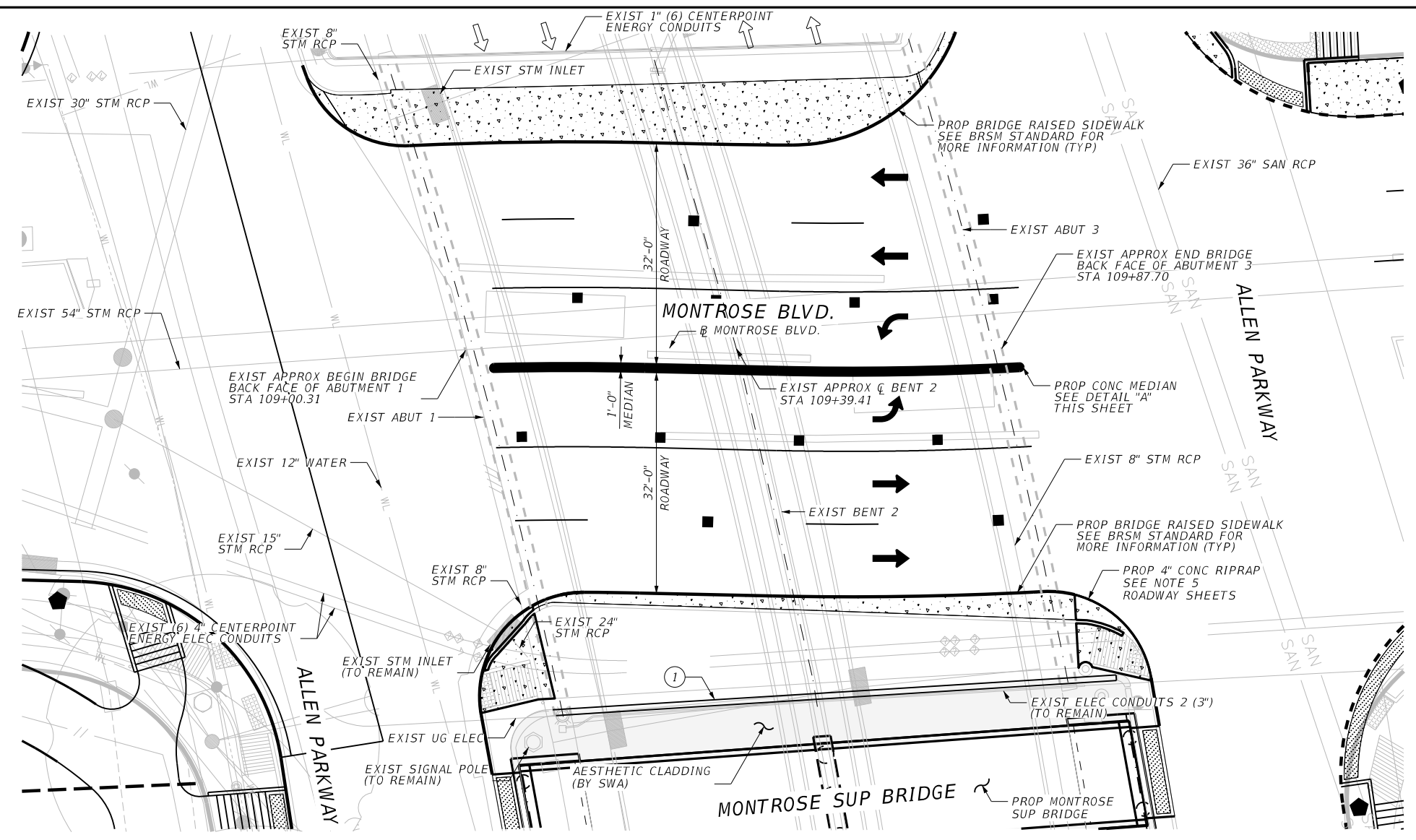
AGUIRRE & FIELDS

Texas Registered Engineering Firm F-739

		Bridge Division Standard	
PRESTRESSED CONCRETE SLAB BEAM DESIGNS (NON-STANDARD SPANS)			
PSBND			
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT January 2017	CONT	SECT	JOB
REVISIONS			HIGHWAY
3-22: Added Load Rating.	DIST	COUNTY	SHEET NO.
			133

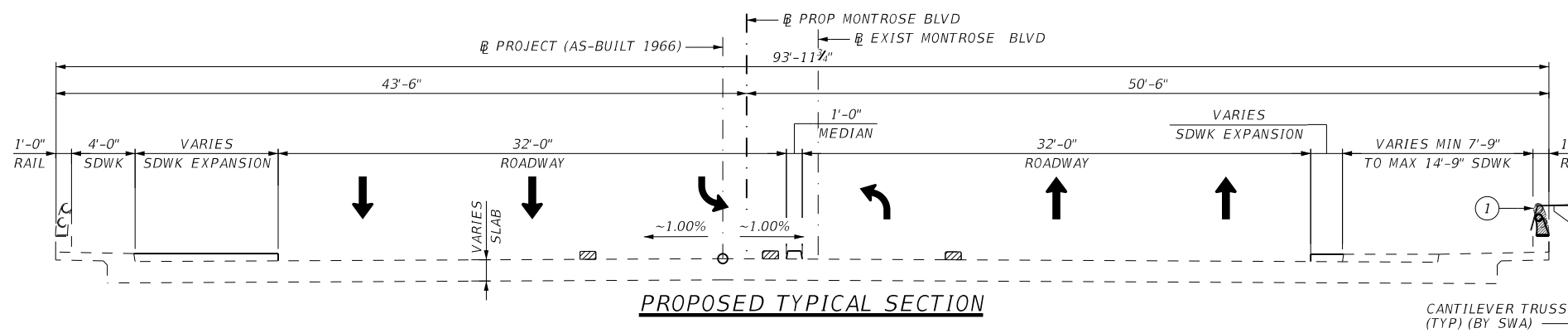
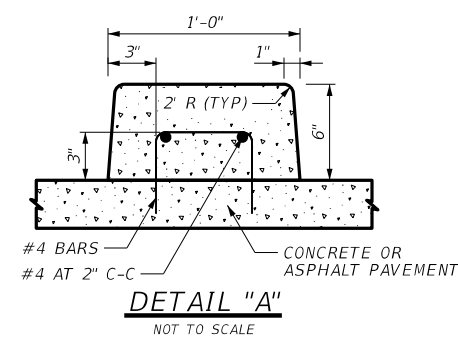
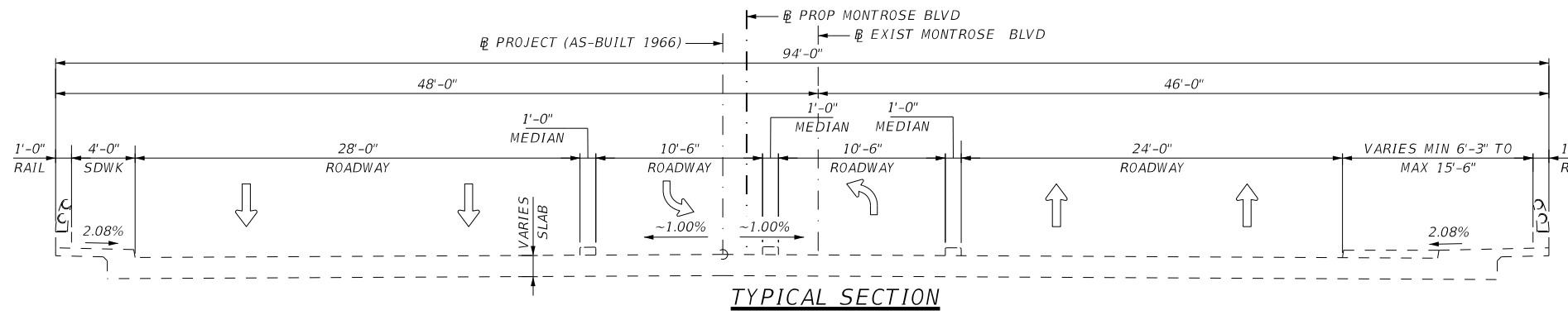
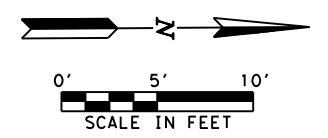
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- GENERAL NOTES**
- DESIGNED ACCORDING XXX
 - CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES AND STRUCTURES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEERS IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
 - FOR CONTROL POINTS INFORMATION, SEE "SURVEY CONTROL MAP" SHEETS.
 - ALL DIMENSIONS ARE EITHER HORIZONTAL OR VERTICAL AND MUST BE CORRECTED FOR GRADE.
 - SEE ROADWAY "HORIZONTAL GEOMETRY" SHEETS FOR LIMITS OF MEDIAN AND SIDEWALKS.

① ALUMINUM RAIL TO BE REMOVED AND REPLACED. CONCRETE BASE TO REMAIN. SEE RAIL DETAIL ON SHEET 2 OF 2 FOR INFORMATION FOR ALUMINUM RAIL REPLACEMENT.



H10 LOADING
 NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature Date valid for one year.

AGUIRRE & FIELDS
 ENGINEERING INNOVATORS
 TYPE FIRM REGISTRATION # 739

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 125082
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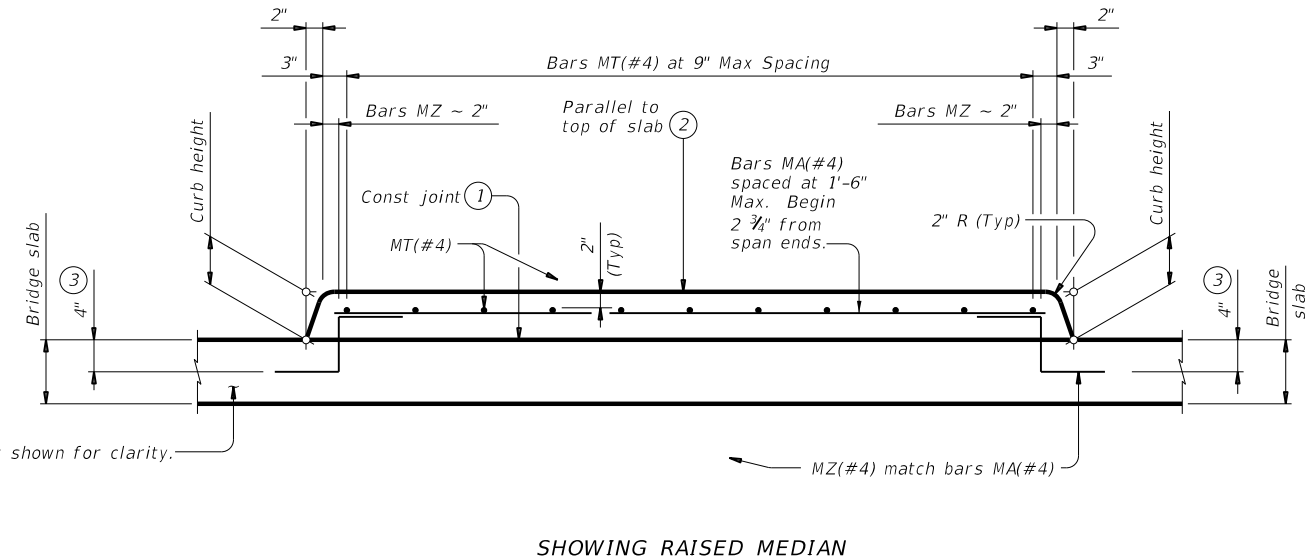
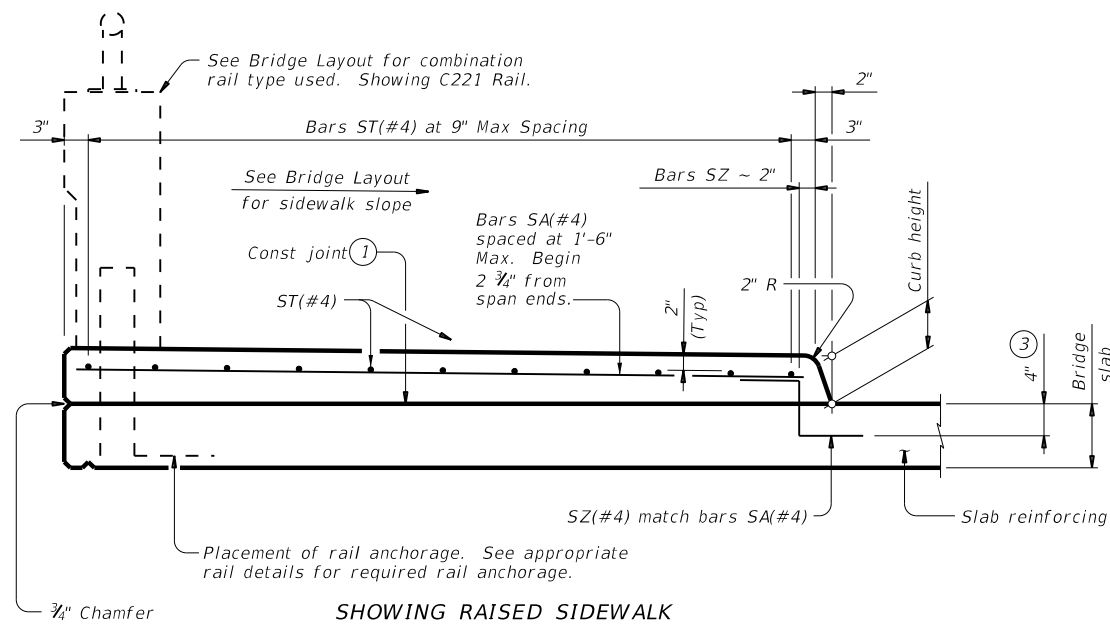
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 EXIST MONTROSE BOULEVARD BRIDGE OVER ALLEN PARKWAY BRIDGE LAYOUT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 134 OF 355	

REVISIONS
 No. DATE
 APP.
 Design File name: ... \AF_BRC.BL_EXIST MONTROSE BRIDGE_01.dgn

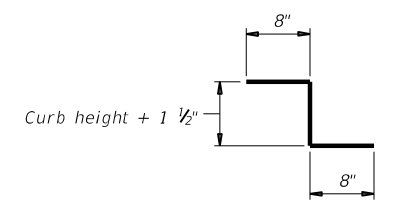
REVISIONS	No.	DATE	APP.



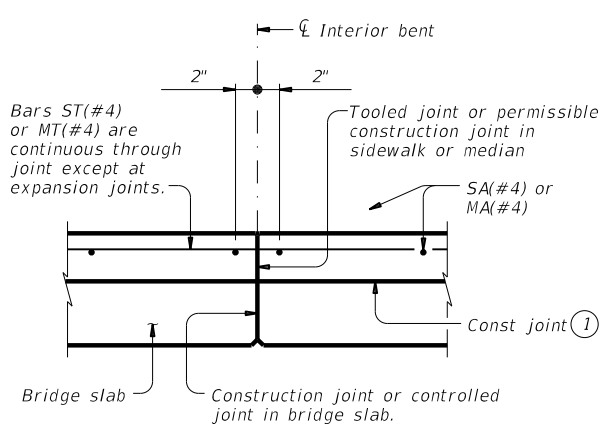
TYPICAL TRANSVERSE SECTIONS

See Span Details for dimensions not shown.

- ① Provide broom finish to top of bridge slab where raised sidewalk or raised median area is defined.
- ② Unless noted otherwise on the span details.
- ③ Bars may rest on top of PCPs.

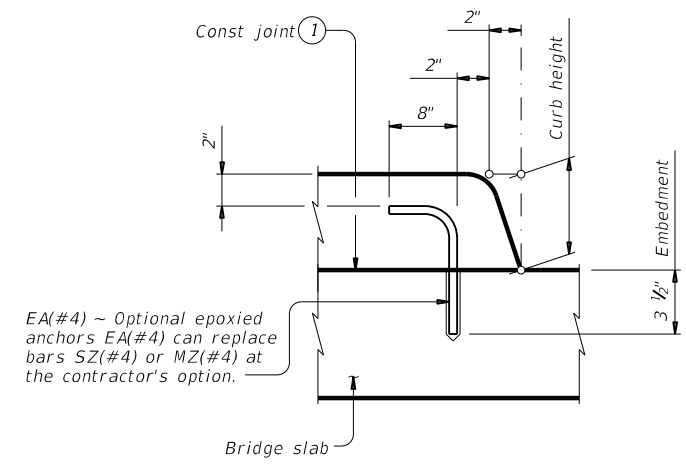


BARS SZ(#4) AND MZ(#4)



LONGITUDINAL SECTION AT INTERIOR BENT

At bents with expansion joints, provide an open joint in the sidewalk/median matching the deck's joint width.



OPTIONAL EPOXY ANCHORS

Embed EA(#4) bar into concrete with a Type III (Class C, D, E, or F) epoxy meeting the requirements of DMS-6100, "Epoxyes and Adhesives". Follow manufacturer's directions for installing the epoxied anchor bars.

APPROVED SLIP RESISTANT PLATE	
Product	Manufacturer Website
Algrip™, Steel	www.algrip.com
Mebac® #3, Steel	www.harscoikg.com
SlipNOT® Grade 2, Steel	www.slipnot.com

Provide drain cover plates fabricated with a product from this list. No exceptions are permitted.

MATERIAL NOTES:
Provide the same concrete required for the bridge deck, Class S or Class 5 (HPC) concrete.
Provide Grade 60 reinforcing steel. Deformed welded wire reinforcement (WWR) meeting ASTM A1064 of equivalent size and spacing may be substituted for bars SA, ST, MA, and MT.
Provide epoxy coat or galvanize reinforcement if bridge deck reinforcement is required to be epoxy coated or galvanized.
Provide hot-dip galvanize slip resistant steel plate after fabrication in accordance with Item 445, "Galvanizing".
Chamfer or round edges approximately 1/16" prior to galvanizing.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Provide the following bar or wire lap lengths when required:
Uncoated, 1'-7" Min
Coated, 2'-5" Min
Submittal and approval of drain cover plate shop drawings is not required if fabrication is accordance with these details.
Raised sidewalks will be paid under Item 422 by the SF of Bridge Sidewalk or Bridge Sidewalk (HPC). Raised medians will be paid under Item 422 by the SF of Bridge Median or Bridge Median (HPC).
Payment for drain cover plates will be by the pound of "Structural Steel (Misc Non-Bridge)" as per Item 442, "Metal for Structures". Weight of one drain cover plate is 48 plf.

DESIGNER NOTES:
These details do not apply for longitudinal grades exceeding 5 percent.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

H10 LOADING

NOTICE:
FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.
Signature valid for six months.

Date _____
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____ valid for one year.

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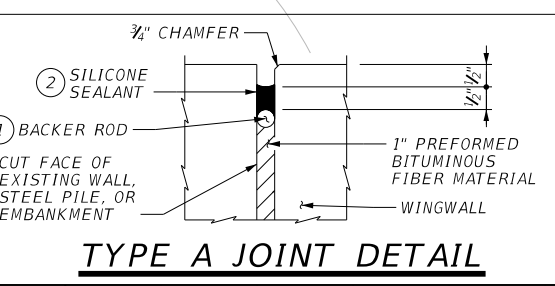
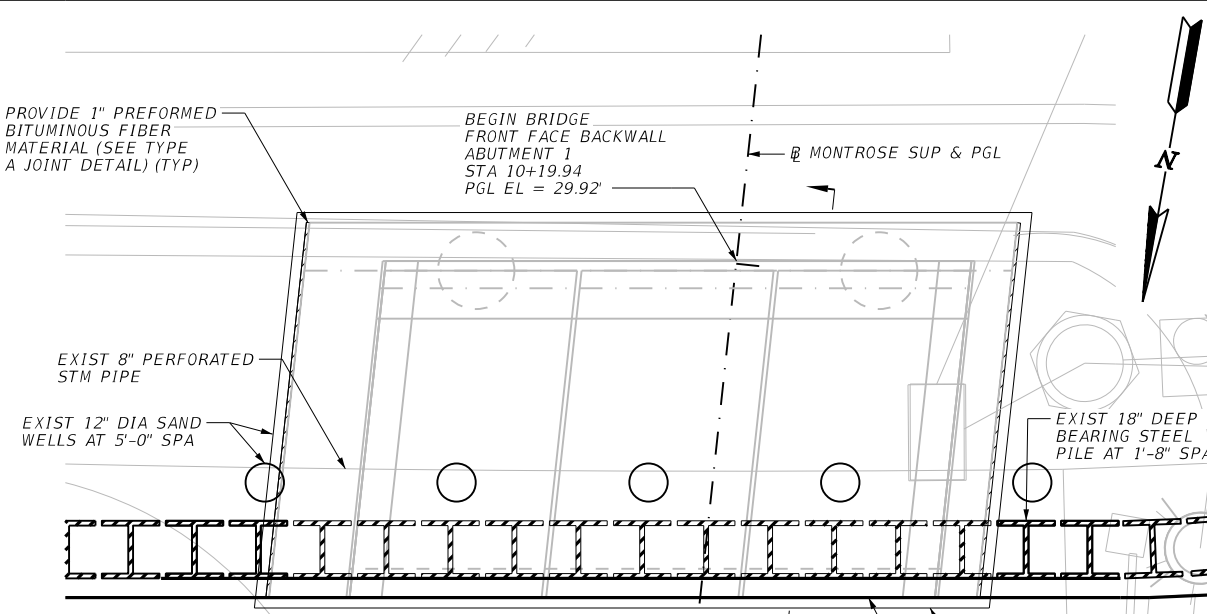
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
EXIST MONTROSE BOULEVARD BRIDGE OVER ALLEN PARKWAY BRIDGE LAYOUT

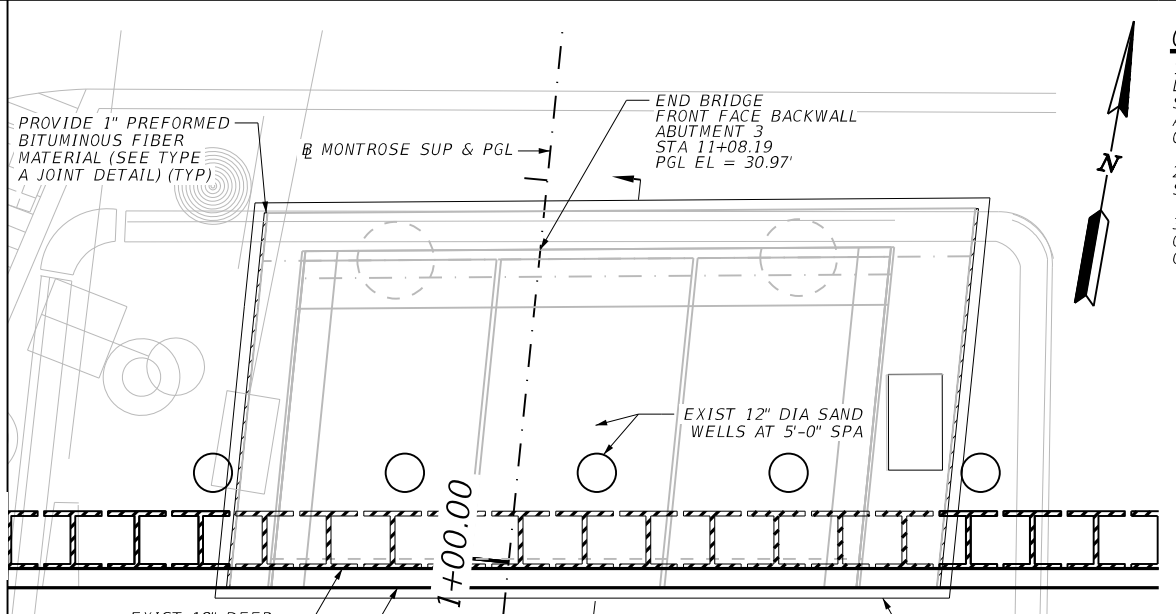
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO.	135 OF 355

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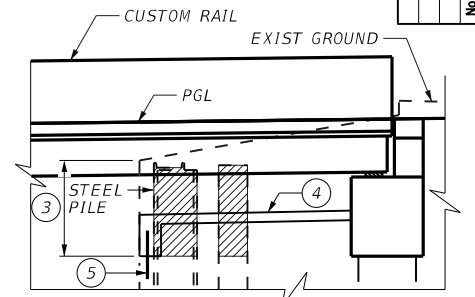
WALL 1 PLAN
NOT TO SCALE



WALL 2 PLAN
NOT TO SCALE

GENERAL NOTES

1. CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES AND STRUCTURES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEERS IN WRITING OF ANY CONFLICTS OR DISCREPANCIES.
2. FOR BORING LOG INFORMATION, SEE "BRIDGE BORING LOGS" SHEETS.
3. ALL DIMENSIONS ARE EITHER HORIZONTAL OR VERTICAL AND MUST BE CORRECTED FOR GRADE.



SECTION A-A

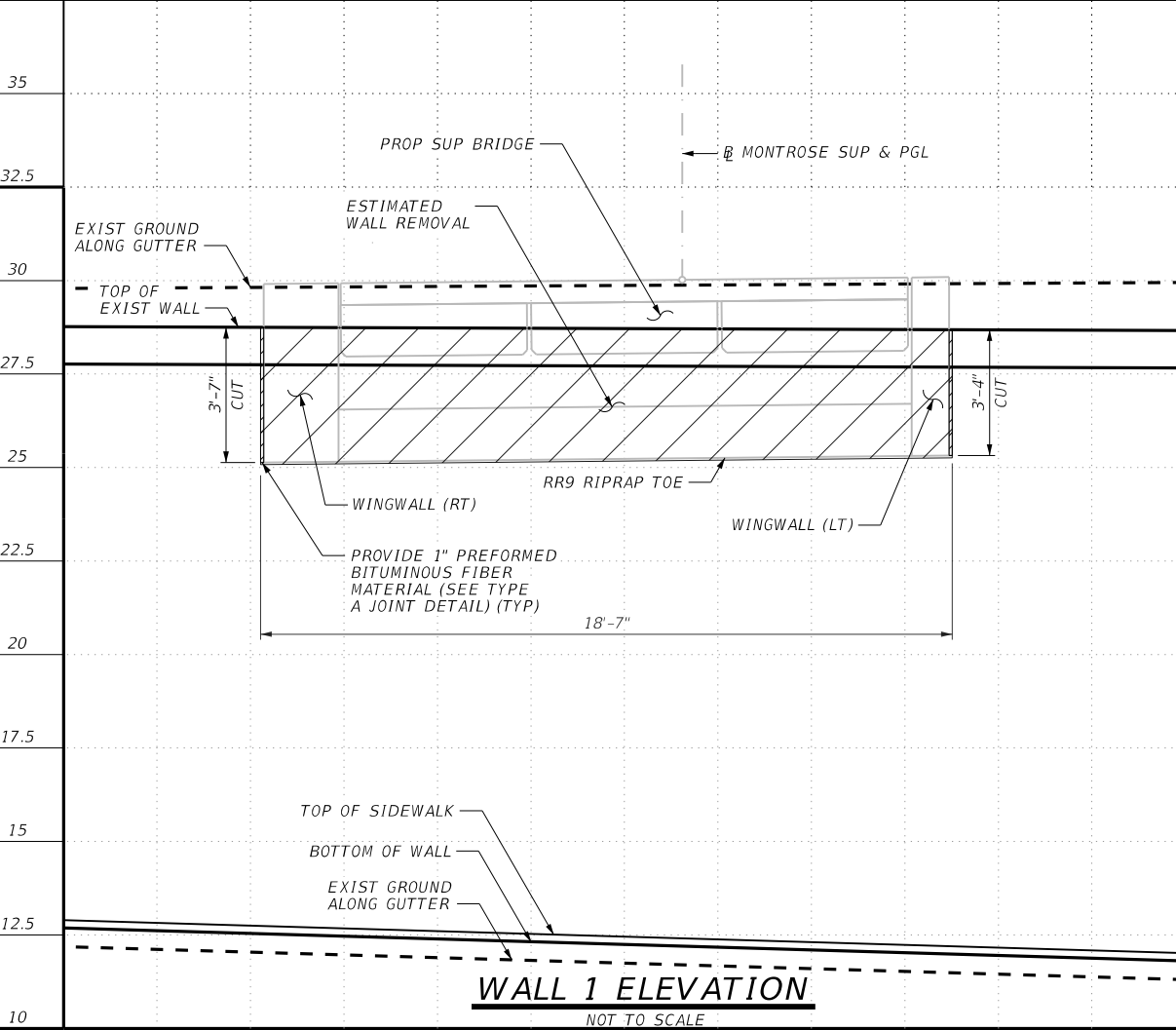
1. 1/2" BACKER ROD MUST BE COMPATIBLE WITH JOINT SEALANT. USE OF MULTIPLE PIECES TO CREATE A BACKER ROD CROSS SECTION IS NOT PERMITTED. TOP OF BACKER ROD MUST BE CONVEX AS SHOWN.
2. CLASS 4 - LOW-MODULUS SILICONE, NON-SAG THAT CONFORMS TO DMS-6310. INSTALL WHEN AMBIENT TEMPERATURE IS BETWEEN 55°F AND 85°F AND RISING. ENGINEER TO DETERMINE ALLOWABLE HOURS FOR SEALANT APPLICATION.

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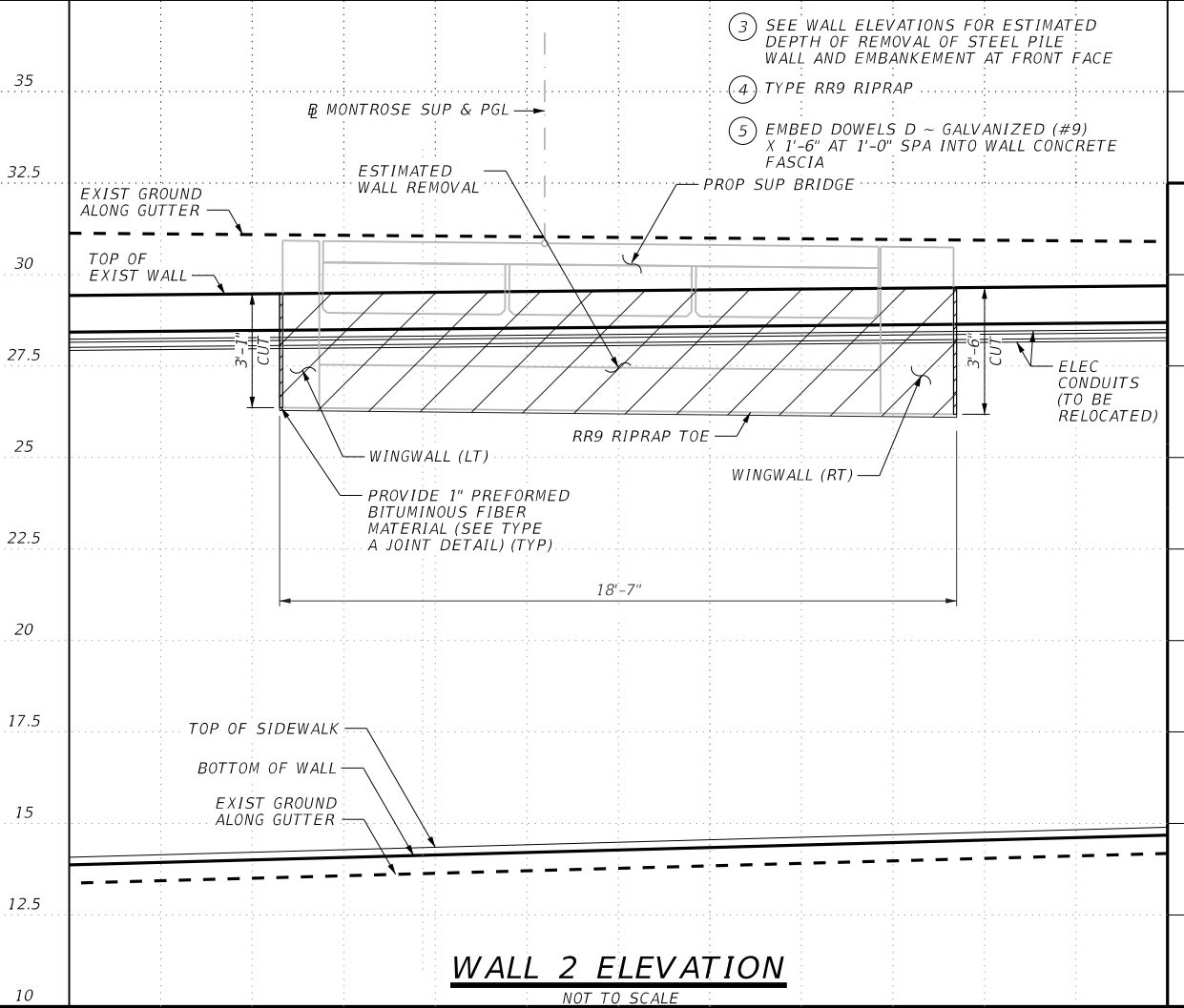
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WALL 1 ELEVATION
NOT TO SCALE



WALL 2 ELEVATION
NOT TO SCALE

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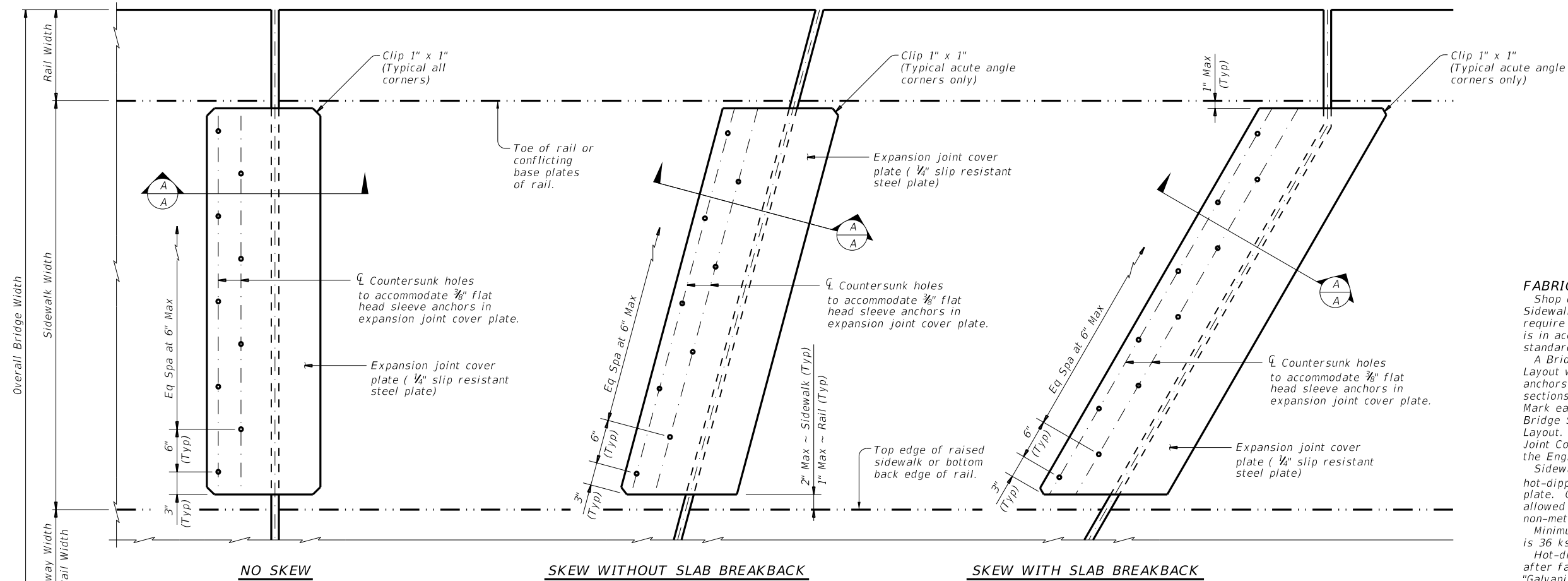
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BOULEVARD SUP BRIDGE OVER ALLEN PARKWAY WALL LAYOUT

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUDA HUANG	
SHEET NO. 136 OF 355	

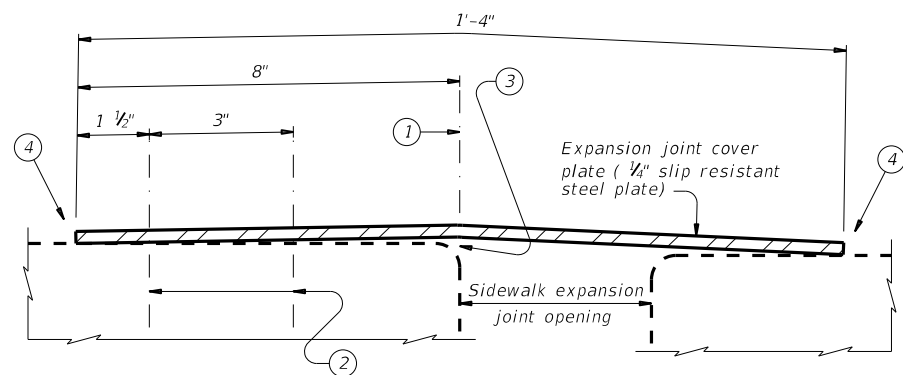
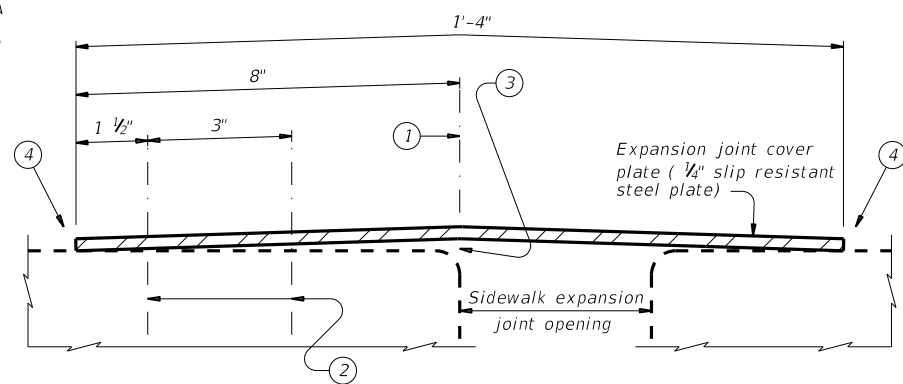
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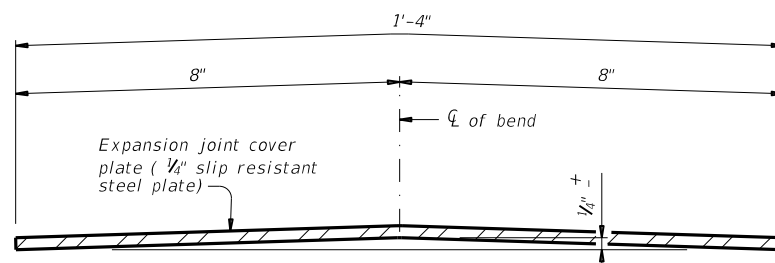
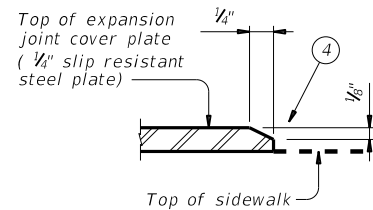
DATE: FILE:



PLAN



SECTION A-A



- ① Expansion joint cover plate and edge of expansion joint.
- ② 3/8" x 2 1/2" Min, Flat Head Sleeve Anchors, Stainless Steel. Countersink Flat Head Sleeve Anchors in 1/4" Slip Resistant Steel Plate.
- ③ It is not necessary to remove plate crown provided the plate is firmly secured to the sidewalk.
- ④ Transverse edges must be in contact with sidewalk surface after installation.

APPROVED SLIP RESISTANT PLATE	
Product	Manufacturer Website
Algrip™, Steel	www.algrip.com
Mebac® #3, Steel	www.harscoikg.com
SlipNOT® Grade 2, Steel	www.slipnot.com

Provide cover plates fabricated with a product from this list. No exceptions are permitted.

FABRICATION NOTES:

Shop drawings for the fabrication of Bridge Sidewalk Expansion Joint Cover Plate will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

A Bridge Sidewalk Expansion Joint Cover Plate Layout which identifies location side of sleeve anchors and orientation of all cover plate sections must be developed by the fabricator. Mark each steel section in accordance with the Bridge Sidewalk Expansion Joint Cover Plate Layout. A copy of the Bridge Sidewalk Expansion Joint Cover Plate Layout is to be provided to the Engineer.

Sidewalk expansion joint cover plates must be hot-dipped galvanized 1/4" slip resistant steel plate. Checker plate or diamond plate is not allowed nor are slip resistant tapes, films and non-metallic coatings.

Minimum required yield strength of steel plate is 36 ksi.

Hot-dip galvanize slip resistant steel plate after fabrication in accordance with Item 445, "Galvanizing".

Provide stainless steel flat head sleeve anchors meeting the requirements of ASTM F 593, Group I, Alloy 304. Countersink holes in slip-resistant plate for sleeve anchors. Drill holes in sidewalk as per sleeve anchor manufacturer's recommendations. Install sleeve anchors flush with, or slightly recessed below, top surface of sidewalk expansion joint cover plate.

GENERAL NOTES:

Sidewalk expansion joint cover plates can only accommodate up to a 7" maximum expansion joint opening.

Details provided are applicable to concrete walkway surfaces only.

Payment for sidewalk expansion joint cover plates are by the pound of "Structural Steel (Misc Non-Bridge)" as per Item 442, "Metal for Structures".

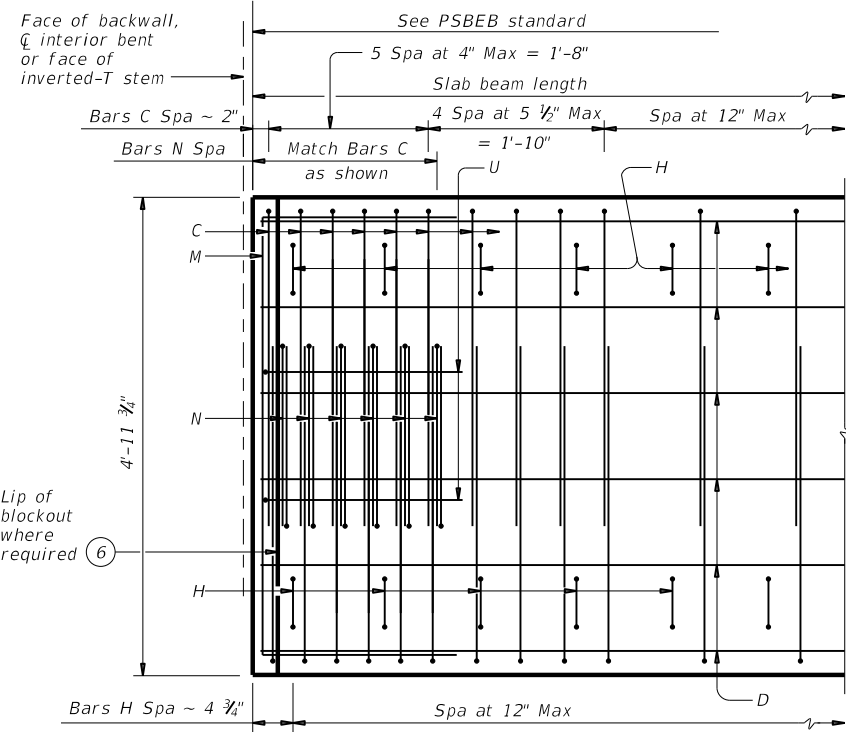
Estimated weight of one sidewalk expansion joint cover plate is 14 plf.

BRIDGE SIDEWALK EXPANSION JOINT COVER PLATE (ALL SKEWS)

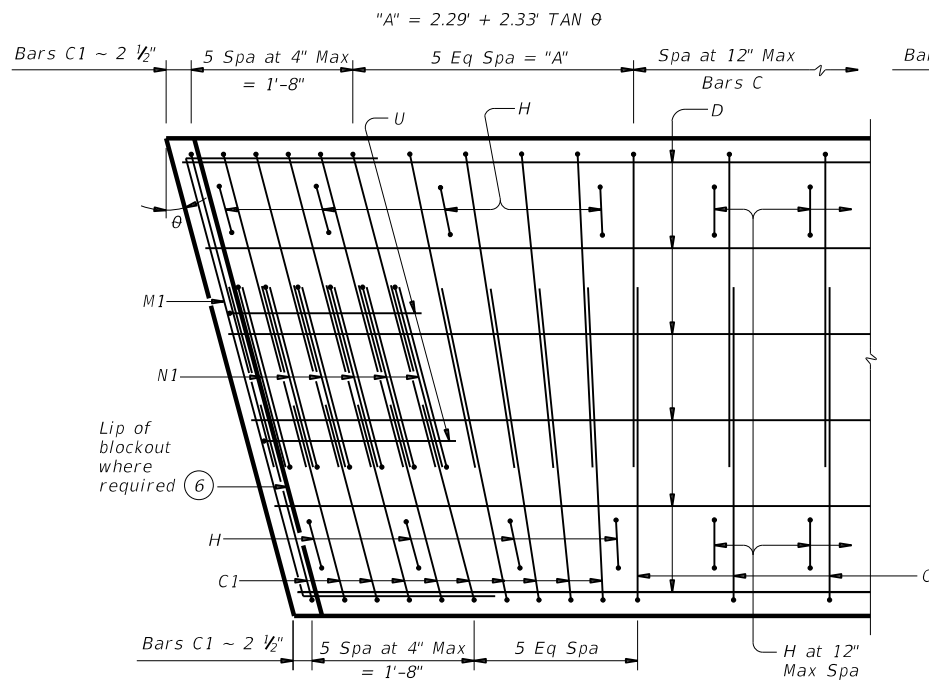
BS-EJCP

FILE: NS-BS-EJCP-20.dgn	DN: TxDOT	CK: TxDOT	OW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
8-20: Closer tolerances on cover plate.	DIST	COUNTY	SHEET NO.	

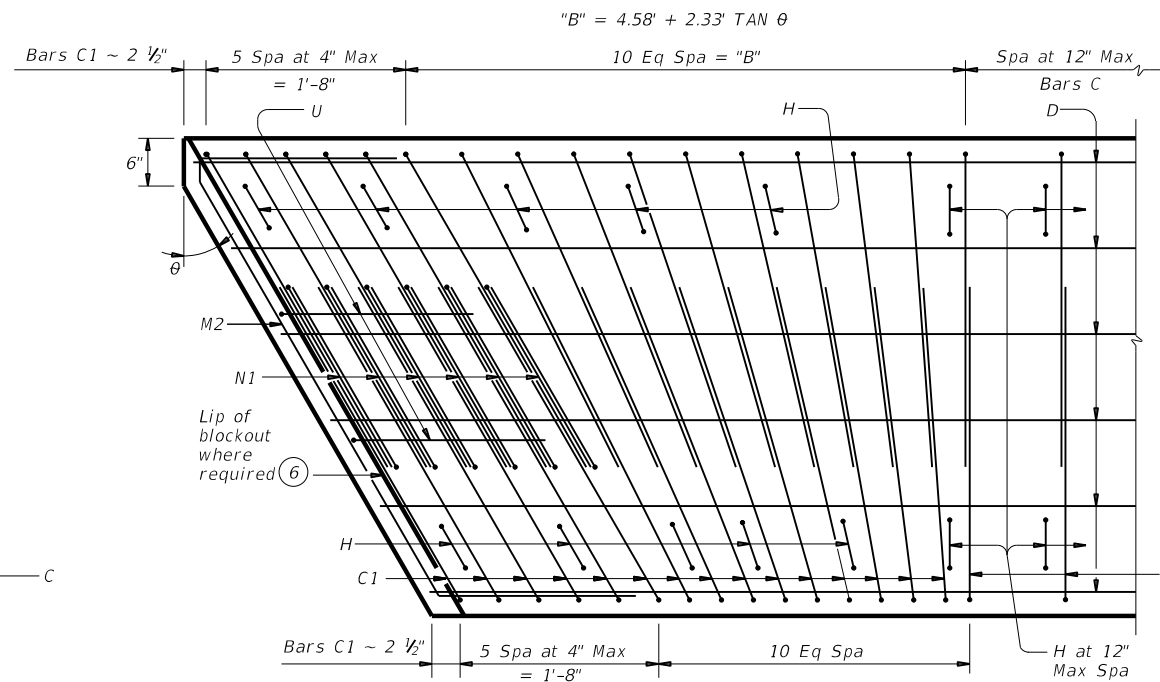
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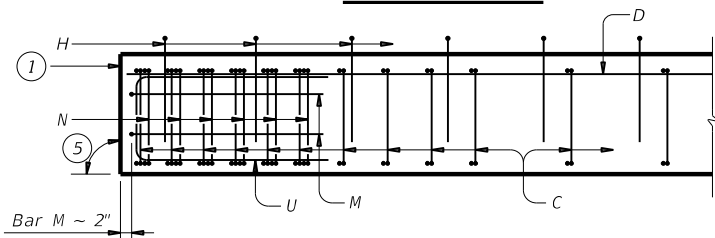
PART PLAN



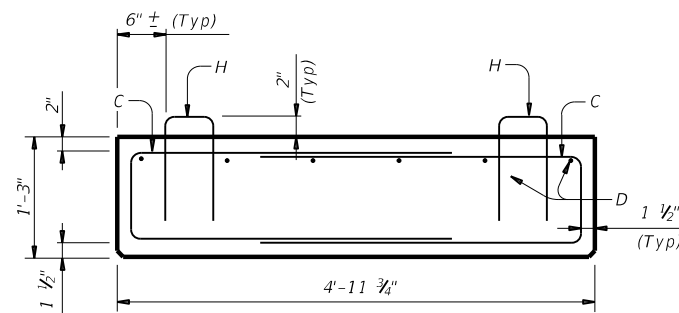
PART SKEW PLAN
(Showing θ over 0° to 15° skew)



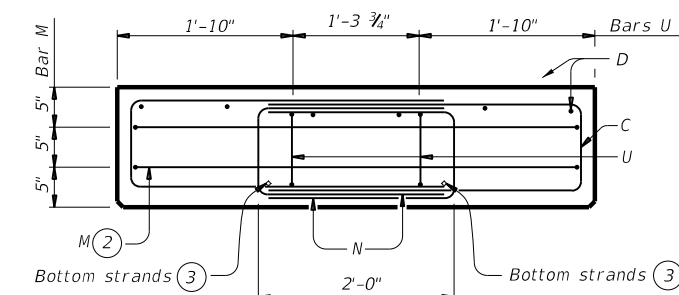
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ELEVATION

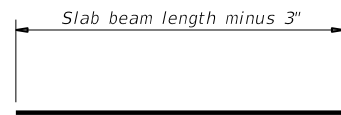


SECTION

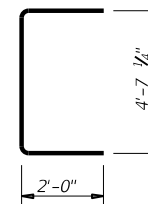


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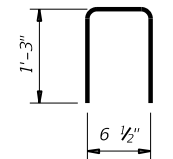
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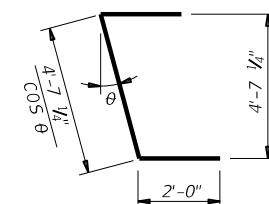
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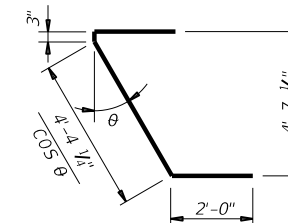
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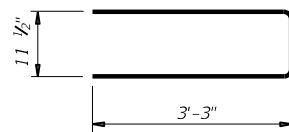
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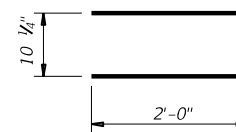
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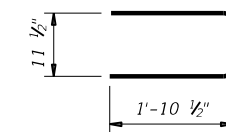
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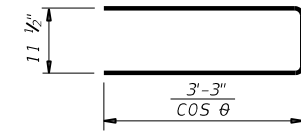
BARS C(#4)



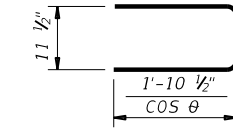
BARS U(#5)



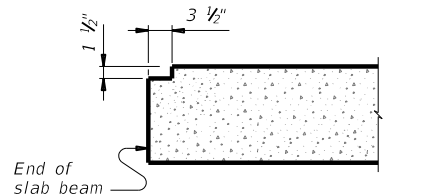
BARS N(#4)



BARS C1(#4)



BARS N1(#4)



ELEVATION OF BLOCKOUT

BEAM PROPERTIES		
Area	in ²	896.2
Y top	in	7.50
Y bott	in	7.50
I	in ⁴	16,805
Weight	lb/ft	934

GENERAL NOTES:

- Designed according to AASHTO LRFD Bridge Design Specifications.
- Provide Class H concrete. Provide Class H (HPC) if shown elsewhere in the plans.
- Provide Grade 60 reinforcing steel.
- An equal area of welded wire reinforcement (WWR) (ASTM 1064) may be substituted for bars C and D if approved by the Engineer.
- These details can be used for any skew angle up to a maximum of 30 degrees.
- Chamfer all exposed corners 3/4" or round to a 3/4" radius.
- Details are drawn showing right forward skew. See Bridge Layout for actual direction.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

- ① See End Mat Reinforcing detail.
- ② Adjust bars M vertically to avoid strands.
- ③ See sheet PSBND or PSBSD for strand locations.
- ④ Assumes 150 pcf weight density of concrete.
- ⑤ 90° at conventional interior bents. End of beam must be vertical at abutment backwall and inverted-T stem.
- ⑥ Blockout required at armor joint (AJ) and sealed expansion joint (SEJ) locations to accommodate joint anchorage.

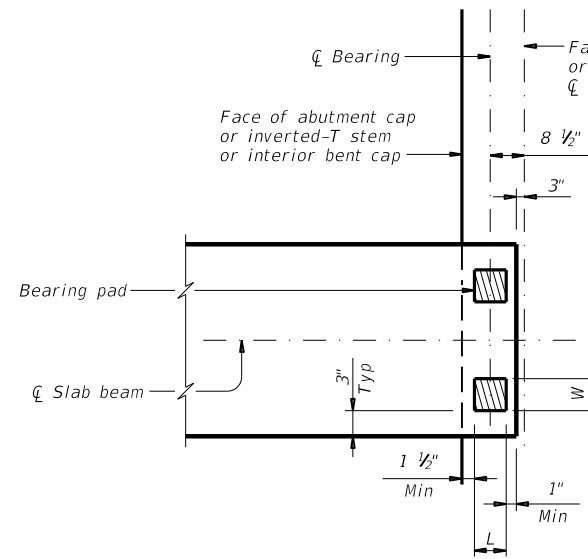
HL93 LOADING

Texas Department of Transportation
PRESTRESSED CONCRETE SLAB BEAM DETAILS (TYPE 5SB15)
PSB-5SB15

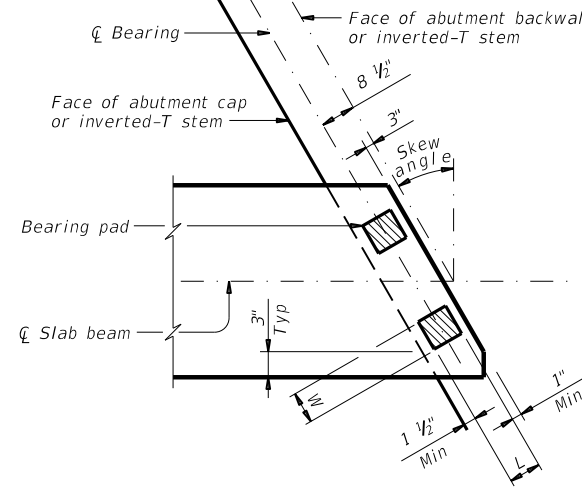
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©TxDOT January 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
DIST	COUNTY			SHEET NO.
				138

DATE: FILE:

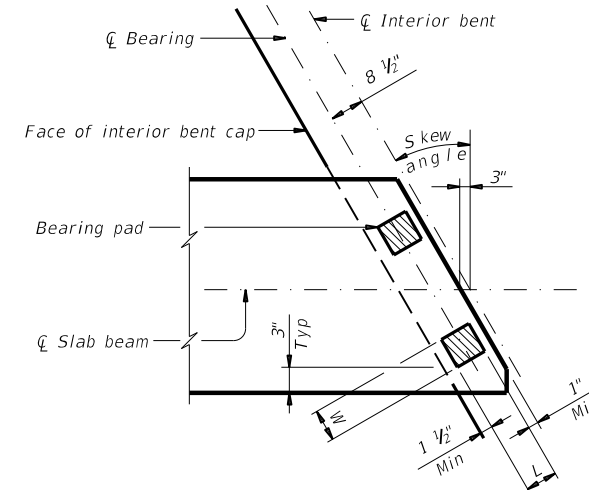
DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



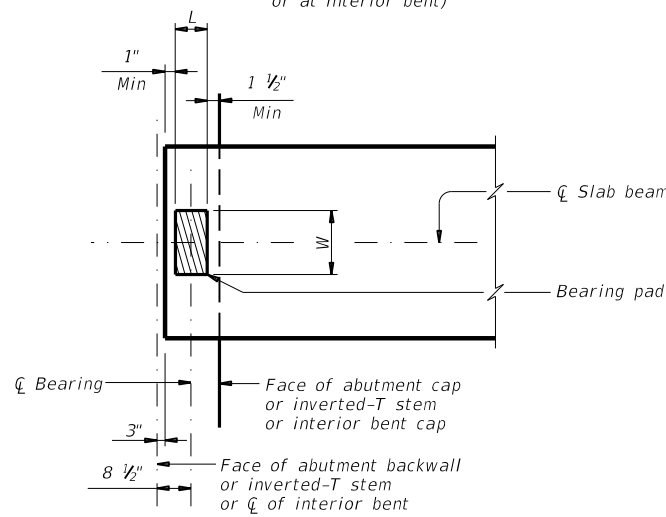
TWO-PAD DETAIL PLAN
(At abutment or inverted-T cap or at interior bent)



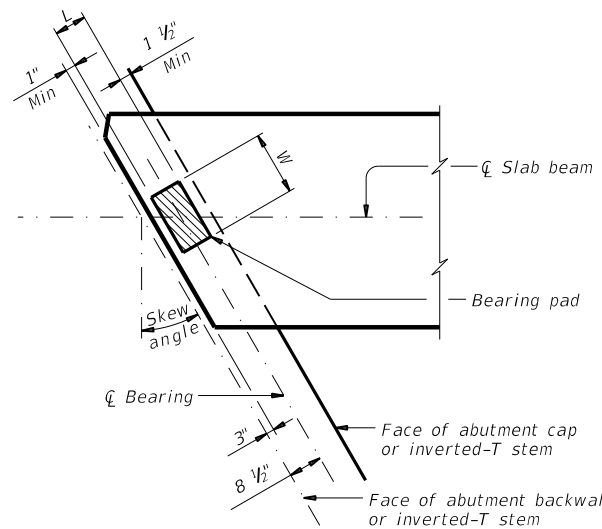
TWO-PAD DETAIL SKEW PLAN
(At abutment or inverted-T cap)



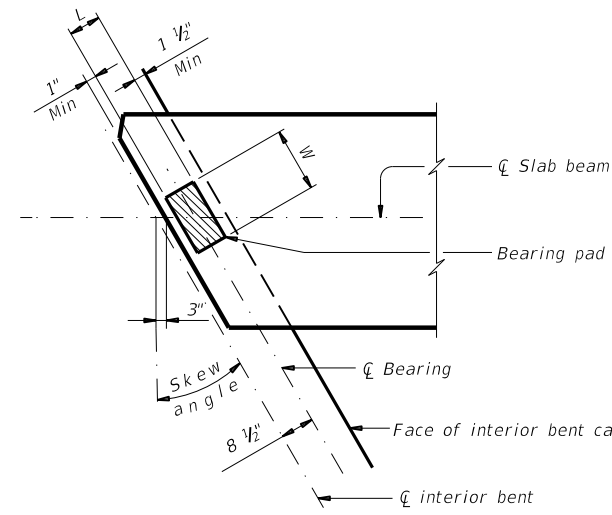
TWO-PAD DETAIL SKEW PLAN
(At interior bent)



ONE-PAD DETAIL PLAN
(At abutment or inverted-T cap or at interior bent)



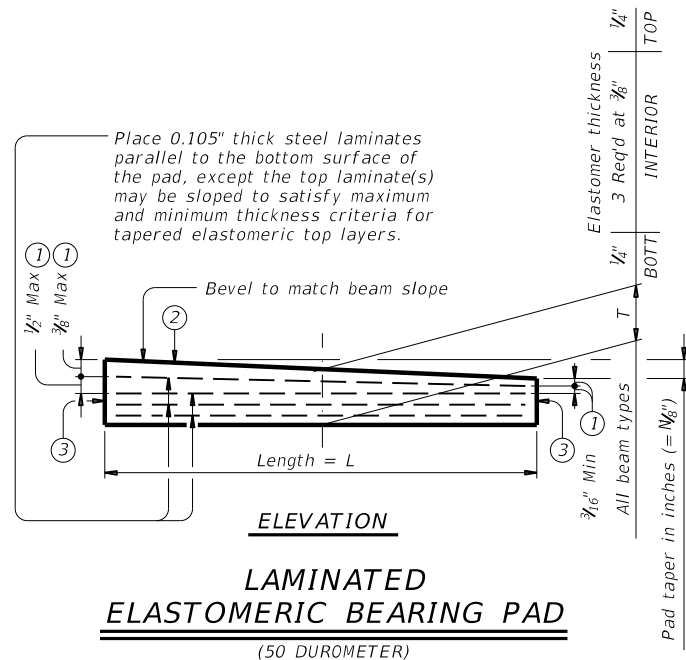
ONE-PAD DETAIL SKEW PLAN
(At abutment or inverted-T cap)



ONE-PAD DETAIL SKEW PLAN
(At interior bent)

ELASTOMERIC BEARING PAD PLACEMENT AND BEAM END DIAGRAMS

Place one bearing pad at forward station beam end.
Place two bearing pads at back station beam end.



LAMINATED ELASTOMERIC BEARING PAD
(50 DUROMETER)

- Maximum and minimum layer thicknesses shown are for elastomer only, on tapered layers.
- Indicate BEARING TYPE on all pads. For tapered pads, locate BEARING TYPE on the high side. The Fabricator must include the value of "N" (amount of taper in 1/8" increments) in this mark.
Examples: N=0, (for 0" taper)
N=1, (for 1/8" taper)
N=2, (for 1/4" taper)
(etc.)
Fabricated pad top surface slope must not vary from plan beam slope by more than $(\frac{0.0625}{\text{Length}})$ IN/IN.
- Locate permanent mark here.

TABLE OF BEARING PAD DIMENSIONS (ALL PRESTR CONC SLAB BM TYPES)

One-Pad (Ty SB1-"N") (2)			Two-Pad (Ty SB2-"N") (2)		
W	L	T	W	L	T
14"	7"	2"	7"	7"	2"

Pad sizes shown are applicable for the following conditions:

- All one, two and three span units where the minimum span length is not less than 25' and the maximum span is not more than 50'.
- Skews less than or equal to 30°.

GENERAL NOTES:

These details accommodate skew angles up to 30°.
Shop drawings for approval are required.
A bearing layout which identifies location and orientation of all bearings must be developed by the bearing fabricator. Permanently mark each bearing in accordance with the bearing layout. A copy of the bearing layout is to be provided to the Engineer.
Cost of furnishing and installing elastomeric bearings must be included in unit price bid for "Prestressed Concrete Slab Beams".

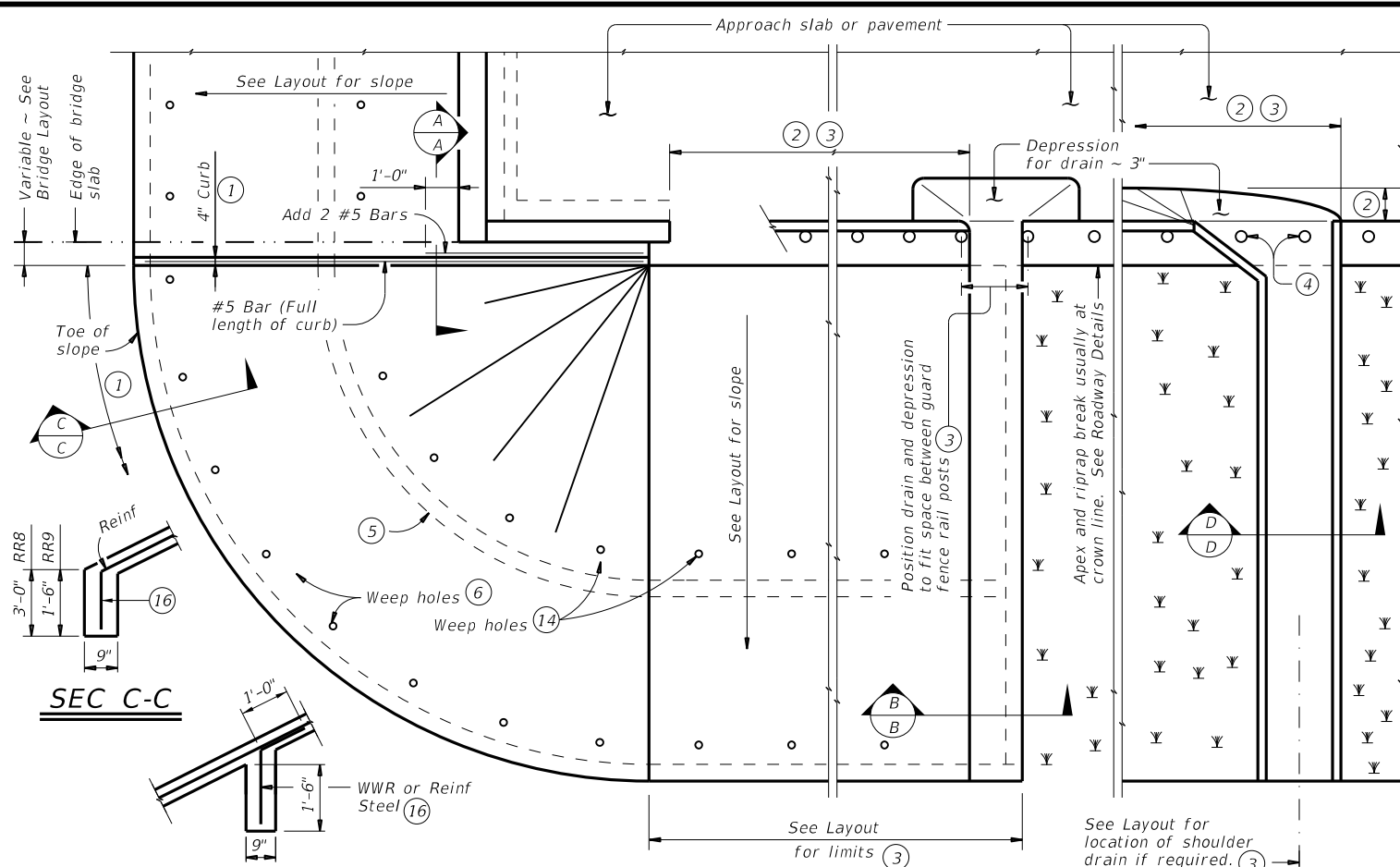
HL93 LOADING

		Bridge Division Standard	
ELASTOMERIC BEARING AND BEAM END DETAILS PRESTR CONCRETE SLAB BEAM			
PSBEB			
FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT
©TxDOT January 2017	CONT	SECT	JOB
REVISIONS		HIGHWAY	
DIST		COUNTY	
		SHEET NO.	
		139	

DATE: FILE:

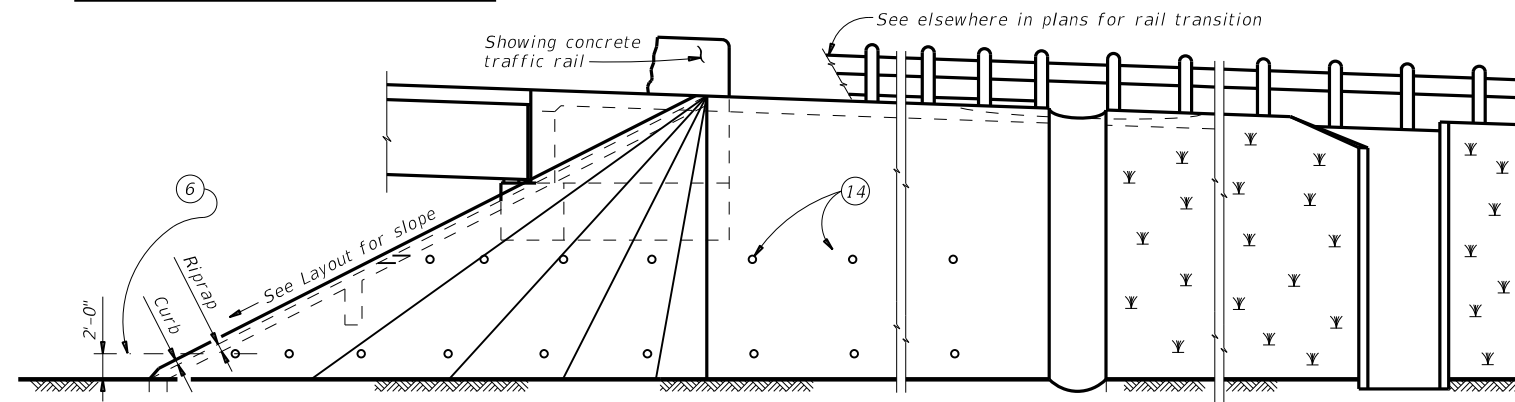
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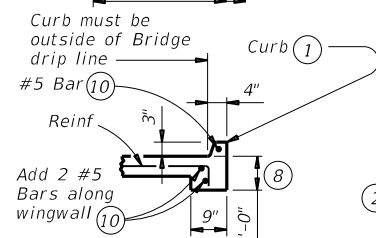


INTERMEDIATE TOEWALL 5

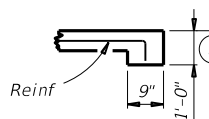
PLAN



ELEVATION

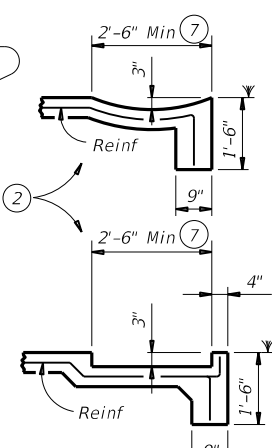


SEC A-A



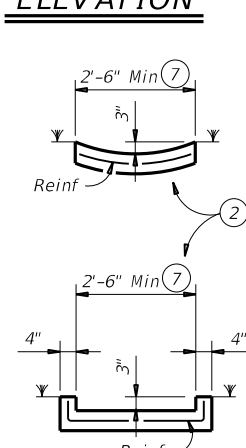
SEC B-B

(No drain)



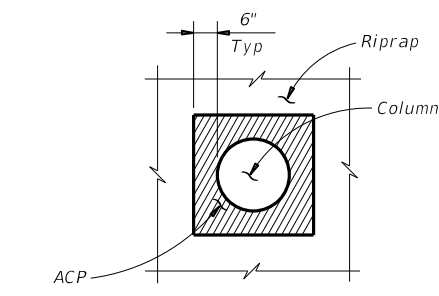
SEC B-B

(Shoulder drain integral with riprap)



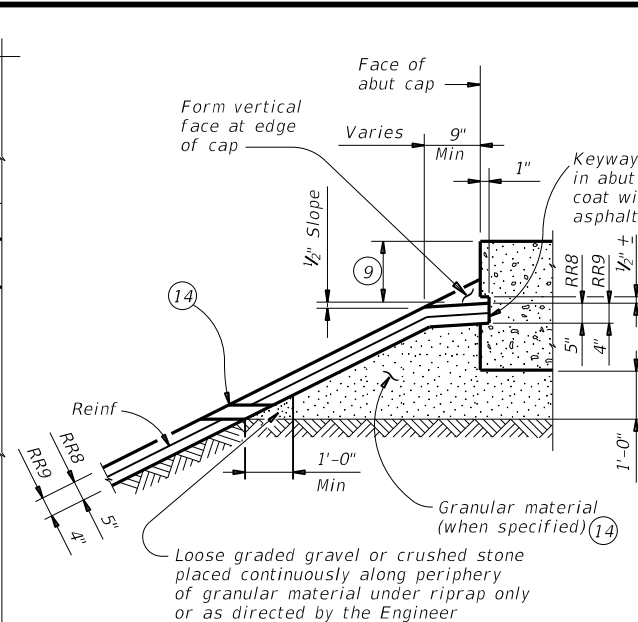
SEC D-D

(Shoulder drain)



RIPRAP DETAIL AT COLUMNS

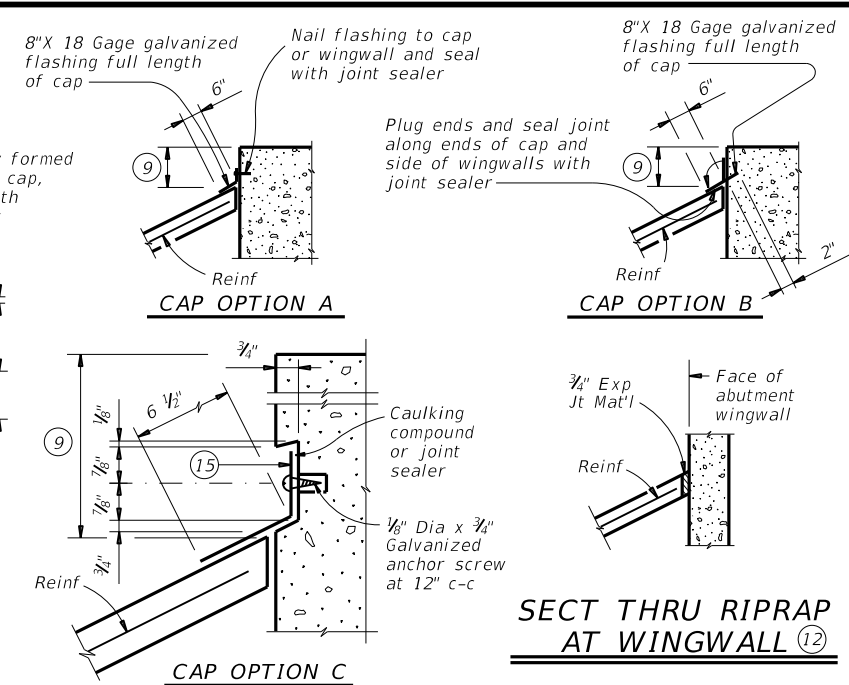
(As directed by the Engineer)



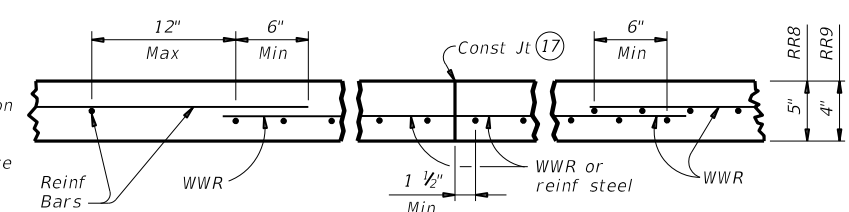
SHOWING KEYWAY OPTION

- 1 When riprap is shown extended around header on layout, extend slab and toewall as shown and eliminate 4" curb.
- 2 Limits and configuration of drains and depressions are as shown elsewhere in plans or as directed by the Engineer.
- 3 Location of shoulder drain must consider limitations imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.
- 4 See details elsewhere in plans for installation of guard fence posts through concrete riprap.
- 5 Provide intermediate toewall only when designated elsewhere in the plans or included in the specifications.
- 6 Provide lower level of 2" Dia weep holes at 10' c-c backed by 1 CF packet of gravel and galvanized hardware cloth at all locations unless directed by the Engineer to eliminate.
- 7 Use wider or other drain configurations if shown elsewhere in plans or if directed by the Engineer.
- 8 Wall extension may be reduced or modified if approved by the Engineer. Increase wall extension to 1'-6" whenever the optional intermediate toewall is called for in the plans.
- 9 Top of cap to top of riprap dimension varies as directed by the Engineer. Should be 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.
- 10 #5 bars shown are required even when synthetic fiber reinforcing option is selected.
- 11 Provide sealing option for joint between the face of cap and riprap as designated by the Engineer or as shown elsewhere on plans.
- 12 Flashing (shown in Cap Option A) may be used at wingwall in addition to Exp Jt Mat'l if shown on plans or directed by the Engineer.
- 13 Provide #3 reinforcing bars at 18" Spa c-c. Provide Welded Wire Reinforcement (WWR) as 6x6-D2.9xD2.9 or D3xD3. Combinations of WWR and reinforcing bars may be used if both are permitted. Use lap splices of a minimum 6 inches, measured from the transverse wire of WWR, and the ends of reinforcing bars.
- 14 If granular material is specified, provide upper level of 2" Dia weep holes at 10' c-c backed by galvanized hardware cloth.
- 15 8" x 18 Gage Galv Sheet Metal
- 16 Provide WWR or #3 bars, with 1'-0" extension into slope.
- 17 WWR or reinforcing steel is continuous through riprap construction joints. Provide WWR or reinforcing steel that extends 1'-1" minimum into adjacent riprap on each side of construction joint even if synthetic reinforcing fiber is utilized.

FOR CONTRACTOR'S INFORMATION ONLY:
 5" of RR8 = 0.015 CY/SF
 4" of RR9 = 0.012 CY/SF
 #3 Reinf at 18" c-c = 0.501 Lbs/SF
 6x6-D3xD3 = 0.408 Lbs/SF



SECTIONS THRU RIPRAP AT CAP 11



REINFORCEMENT DETAILS 13

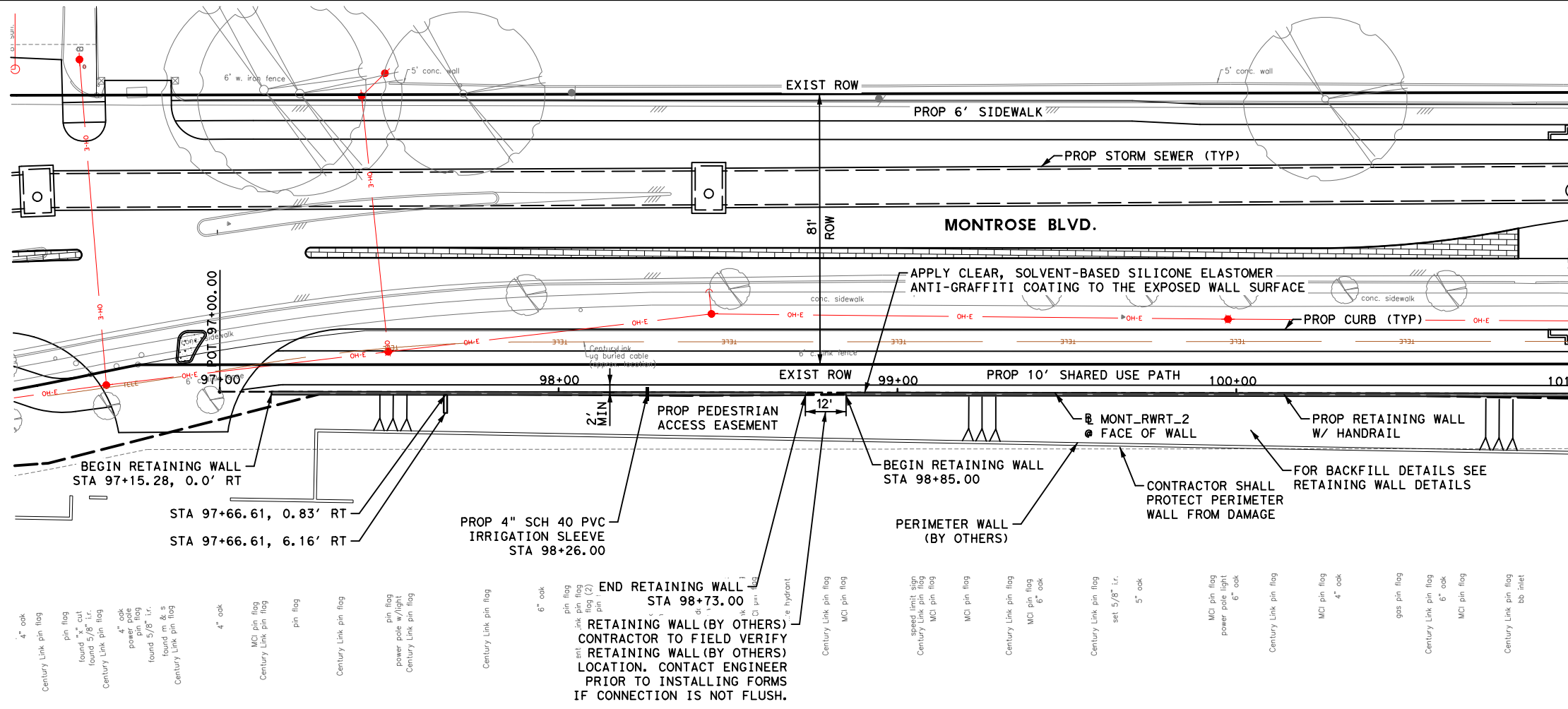
See General Notes for optional synthetic fiber reinforcement.

GENERAL NOTES:

- Provide Class "B" concrete (f'c = 2,000 psi) unless noted elsewhere in plans.
- Provide Grade 60 reinforcing steel.
- Provide deformed welded wire reinforcement (WWR) meeting ASTM A1064, unless otherwise shown.
- Provide reinforcing bars, deformed WWR, or any suitable combination of both types for riprap reinforcing, unless specified elsewhere in the plans.
- Optionally synthetic fibers may be used if approved by the Engineer. Provide synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) in lieu of steel reinforcing in riprap concrete.
- Install construction joints or grooved joints extending the full slant slope height at intervals of approximately 20 feet unless otherwise directed by the Engineer.
- Hardware cloth, loose grade stone behind weep holes, flashing, or other sealing material are subsidiary to the bid item "Riprap". See Layout for limits of riprap.
- RR8 is to be used on stream crossings.
- RR9 is to be used on other embankments.

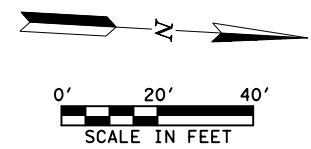
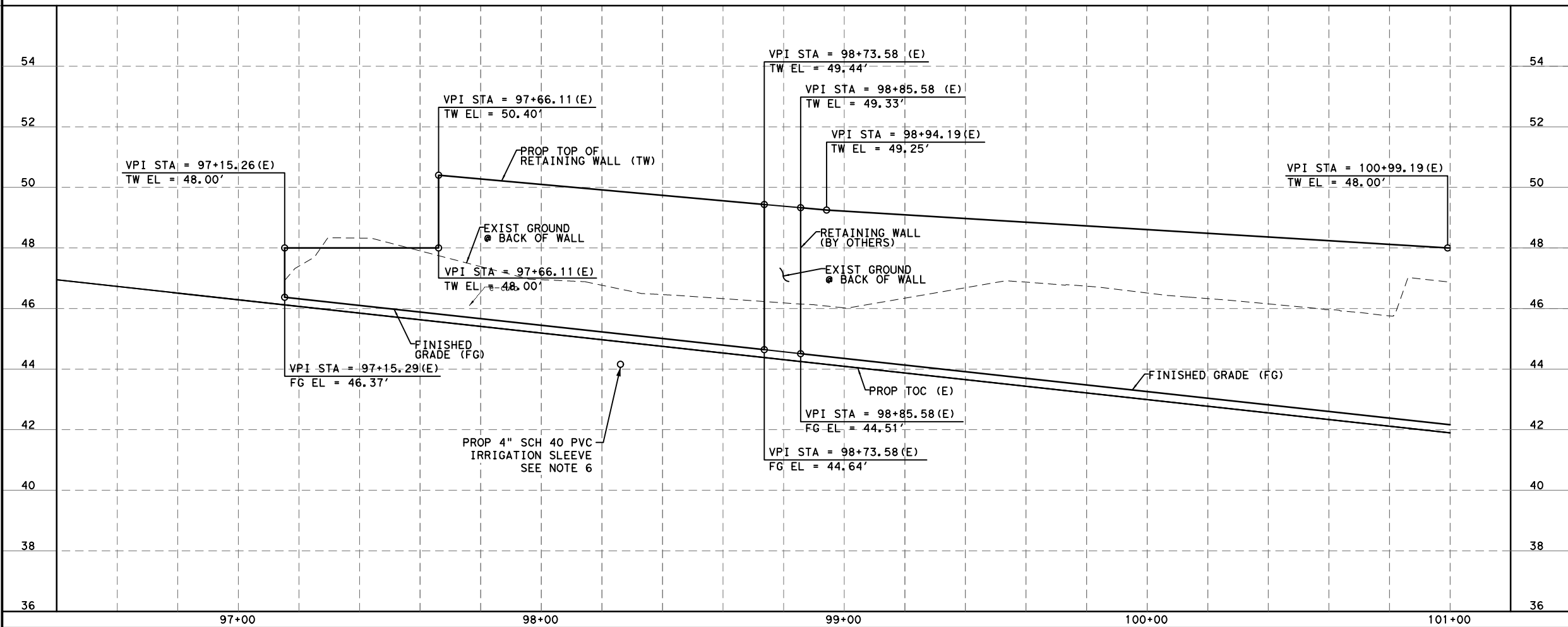
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CONCRETE RIPRAP AND SHOULDER DRAINS EMBANKMENTS AT BRIDGE ENDS (TYPES RR8 & RR9)			
CRR			
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©TxDOT April 2019	CON: REVISIONS	SECT:	JOB: HIGHWAY
DIST:	COUNTY:	SHEET NO. 140	

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BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTROSE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

- NOTE:**
- SEE RETAINING WALL DETAIL FOR ADDITIONAL INFORMATION.
 - SEE PLANTING PLAN FOR PLANTING DETAILS BETWEEN WALL AND SUP.
 - CONTRACTOR SHALL VERIFY ALL UTILITIES PRIOR TO EXCAVATION FOR RETAINING WALL INSTALLATION. NO SEPARATE PAY.
 - CONTRACTOR TO COORDINATE WITH ADJACENT PROPERTY OWNER AS NEEDED FOR WALL WITH DOOR AND PERIMETER WALL PROTECTION.
 - SEE HORIZONTAL CURVE DATA SHEET FOR ADDITIONAL INFORMATION.
 - IRRIGATION SLEEVES >2" SHALL BE 18" BELOW FINISHED GRADE. IRRIGATION SLEEVES < 2" SHALL BE 12" BELOW GRADE. FOR ADDITIONAL INFORMATION SEE RETAINING WALL DETAILS. INSTALL IRRIGATION SLEEVES WITH FORMWORK. COORDINATE WITH CONTRACTOR OF ADJACENT DEVELOPMENT FOR IRRIGATION PIPE INSTALLATION, WHICH SHALL OCCUR PRIOR TO POURING CONCRETE AND BACKFILLING.



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

SURVEYED BY:
KUO & ASSOCIATES, INC.

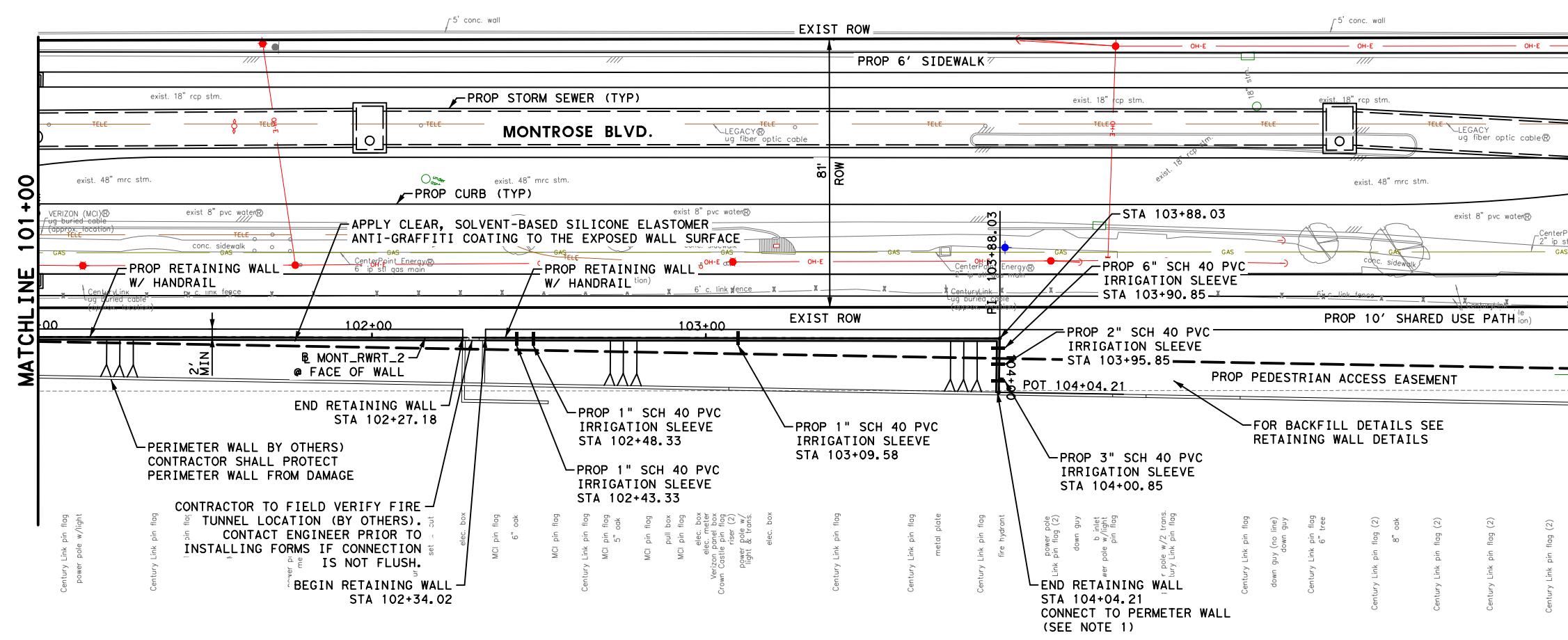
INTERIM REVIEW ONLY
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DAVID G. GIBNEY
 172563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
RETAINING WALL PLAN AND
PROFILE
BEGIN WALL TO STA 101+00
SHEET 1 OF 2**

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 141 OF 355	

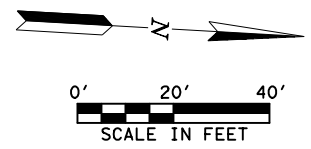
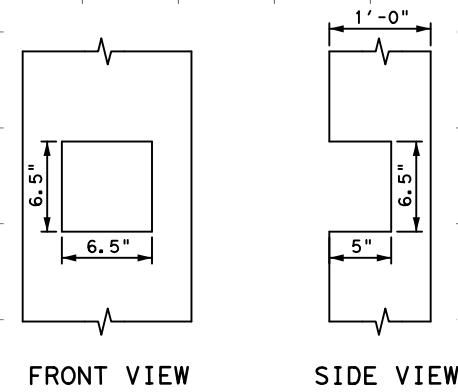
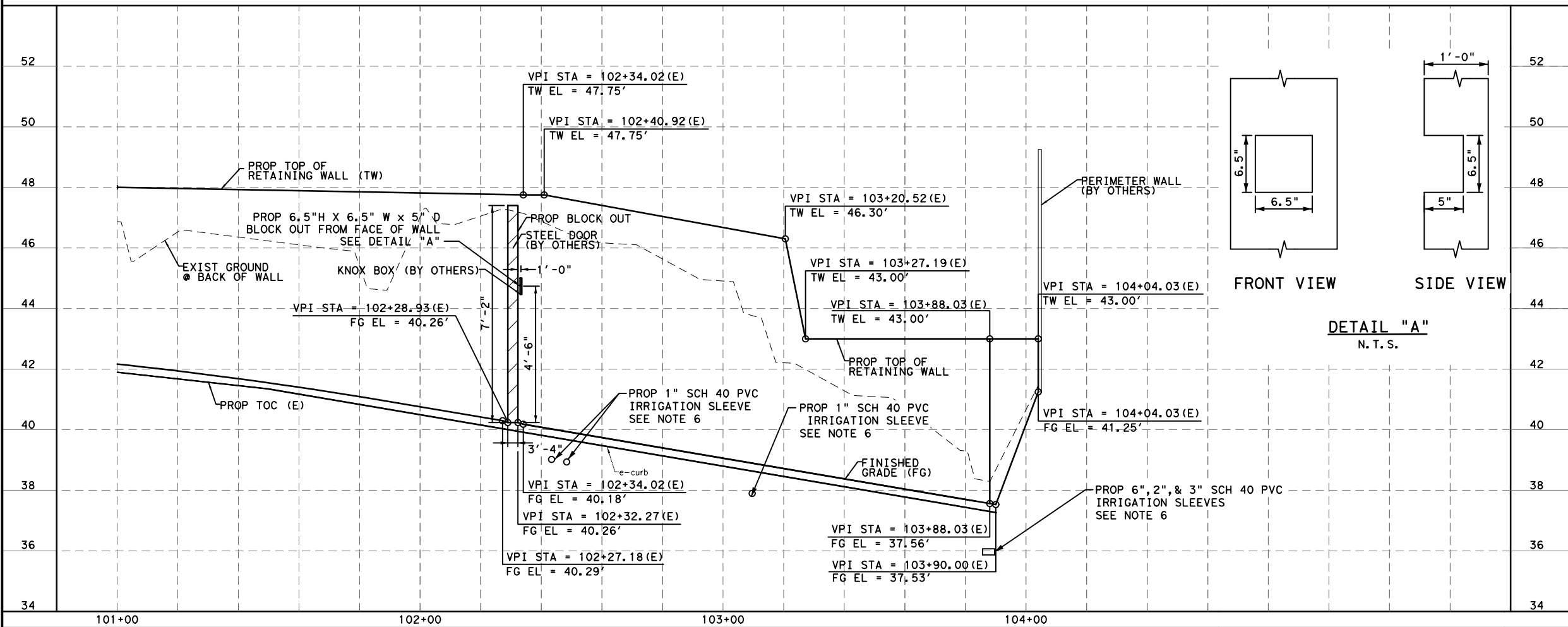
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BENCHMARK
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 ELEV. 49.20 FEET NAVD 1988 (GEOID '18) *
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

- NOTE:**
1. SEE RETAINING WALL DETAIL FOR ADDITIONAL INFORMATION.
 2. SEE PLANTING PLAN FOR PLANTING DETAILS BETWEEN WALL AND SUP.
 3. CONTRACTOR SHALL VERIFY ALL UTILITIES PRIOR TO EXCAVATION FOR RETAINING WALL INSTALLATION. NO SEPARATE PAY.
 4. CONTRACTOR TO COORDINATE WITH ADJACENT PROPERTY OWNER AS NEEDED FOR WALL WITH DOOR AND PERIMETER WALL PROTECTION.
 5. SEE HORIZONTAL CURVE DATA SHEET FOR ADDITIONAL INFORMATION.
 6. IRRIGATION SLEEVES >2" SHALL BE 18" BELOW FINISHED GRADE. IRRIGATION SLEEVES < 2" SHALL BE 12" BELOW GRADE. FOR ADDITIONAL INFORMATION SEE RETAINING WALL DETAILS. INSTALL IRRIGATION SLEEVES WITH FORMWORK COORDINATE WITH CONTRACTOR OF ADJACENT DEVELOPMENT FOR IRRIGATION PIPE INSTALLATION, WHICH SHALL OCCUR PRIOR TO POURING CONCRETE AND BACKFILLING.

APP.	
REVISIONS	
No.	DATE



MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge Engineering
 ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

INTERIM REVIEW ONLY
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 DAVID G. GIBNEY
 125563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
RETAINING WALL PLAN AND PROFILE
 STA 101+00 TO END WALL

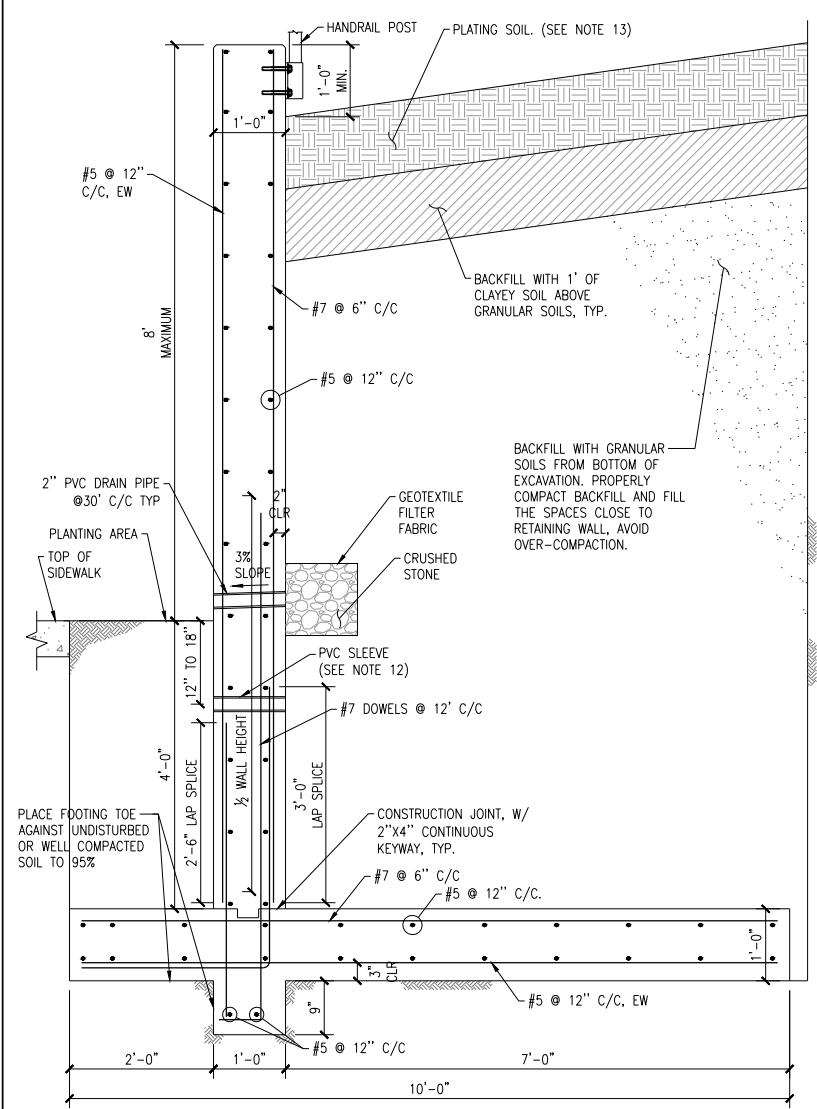
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 142 OF 355	

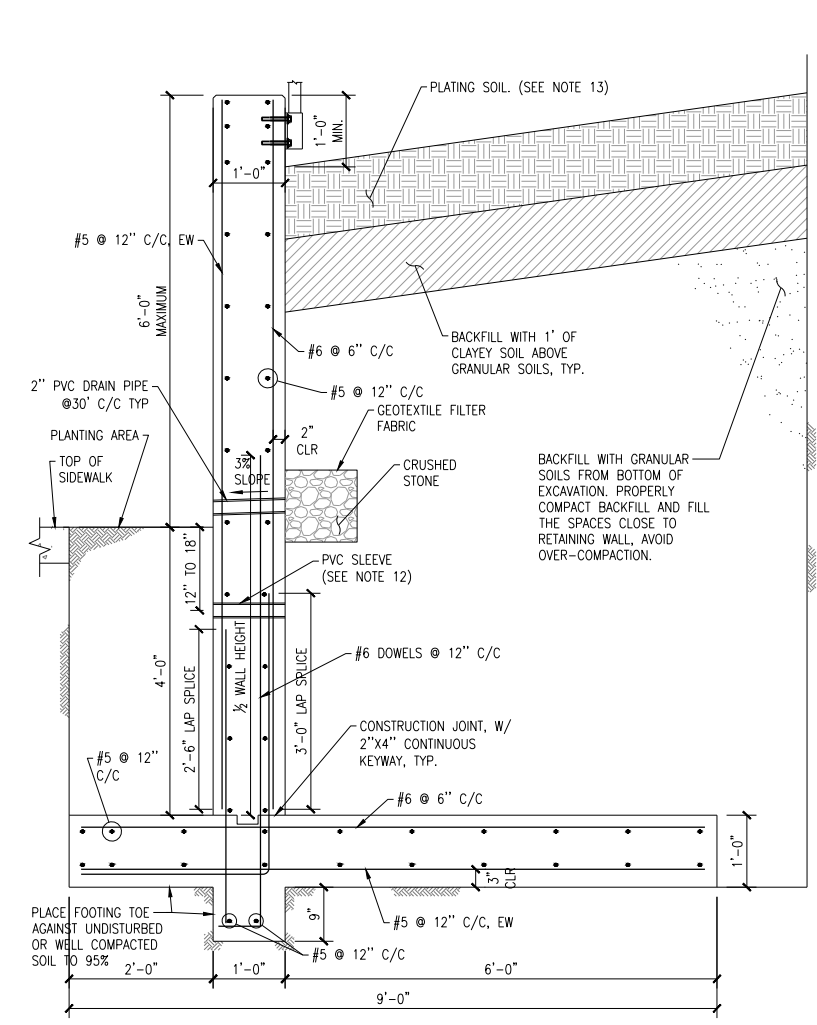
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PLOT STYLE: FN-MONO.CTB

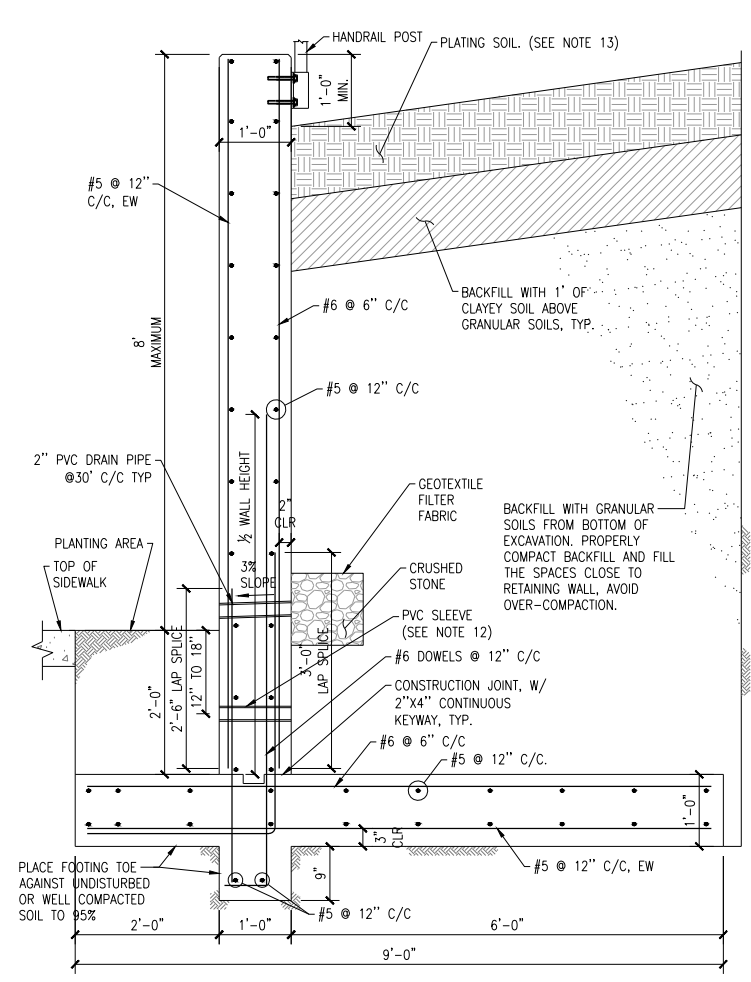
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① 8' MAXIMUM RETAINING WALL (DEEP FOOTING)
SCALE: 3/4" = 1' STA 100+09.19' TO STA 102+27.18'



② 6' MAXIMUM RETAINING WALL (DEEP FOOTING)
SCALE: 3/4" = 1' STA 97+15' TO STA 100+99.19'

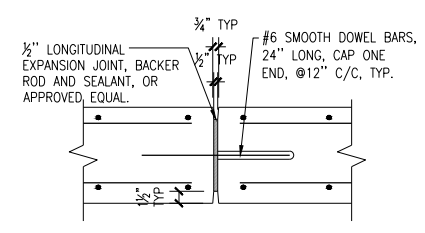


③ 8' MAXIMUM RETAINING WALL (SHALLOW FOOTING)
SCALE: 3/4" = 1' STA 102+34.02' TO STA 103+27.19'

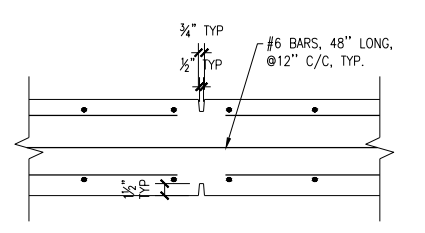
NOTES:

- CONCRETE STRENGTH AT 28 DAYS, $f_c=4,000$ PSI.
- STEEL REINFORCEMENT $f_y=60,000$ PSI.
- DESIGN IS BASED UPON:
SUPPORTING SOIL CONDITION:
SOIL TYPE: CLAY
ALLOWABLE BEARING STRENGTH: 3000 PSF

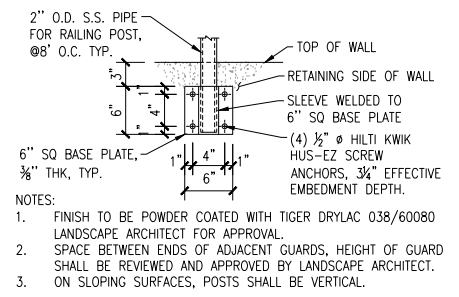
BACKFILL:
UNIT WEIGHT OF GRANULAR BACKFILL: 130 PCF
FRICTION ANGLE: 28°
LIVE LOAD SURCHARGE: 250 PSF
- REFER TO CIVIL DRAWINGS FOR WALL TOP ELEVATION. ADJUST HEIGHT OF WALL PER CIVIL DRAWINGS. MAINTAIN A MINIMUM 1 FOOT ABOVE ADJACENT SURFACE AND REMAIN AT A CONSTANT HEIGHT TO LIMITS REQUIRED BY CIVIL DRAWING, UNLESS OTHERWISE INSTRUCTED.
- A CONSTRUCTION JOINT SHALL BE PROVIDED FOR RETAINING WALL WITH DIFFERENT FOOTING DEPTHS. CONSTRUCT THE RETAINING WALL WITH DEEPER FOOTING FIRST, AND MINIMIZE DISTURBANCE OF SOIL SUPPORTING ADJACENT SHALLOWER FOOTING. BACKFILL AND COMPACT THE SOIL TO PROVIDE A SOUND SUBGRADE FOR THE SHALLOWER FOOTING.
- COORDINATE CONSTRUCTION AND CONTRACTION JOINT LOCATIONS WITH LANDSCAPE.
- THE MAXIMUM SPACING OF THE CONSTRUCTION AND CONTRACTION JOINTS ARE AS FOLLOWS:
CONSTRUCTION JOINT SPACING: 75'
CONTRACTION JOINT SPACING: 15'
CONTRACTION JOINT SHALL BE WITHIN 8' OF A CORNER BUT NOT CLOSER THAN 4' FROM CORNER. CONTRACTOR TO SUBMIT PROPOSED JOINT LAYOUT TO PROJECT MANAGER FOR APPROVAL.
- PERMIT 48 HOURS BETWEEN ADJACENT WALL POURS.
- PROVIDE BACKFILL PER GEOTECHNICAL RECOMMENDATIONS.
- PROVIDE GRAFFITI RESISTANT COATING CONSISTENT WITH ISMAILI CENTER PERIMETER WALLS.
- CHAMFER ALL RETAINING WALL EDGES WITH 1/2" CHAMFER.
- PROVIDE PVC SLEEVE FOR IRRIGATION LINE. FOR LOCATIONS, COORDINATE WITH RETAINING WALL PLAN AND PROFILE DRAWINGS FOR LOCATION AND SIZES, AND DEPTH OF INSTALL.
- FOR PLANTING SOIL TYPES AND DETAILS, COORDINATE WITH PLANTING PLANS.



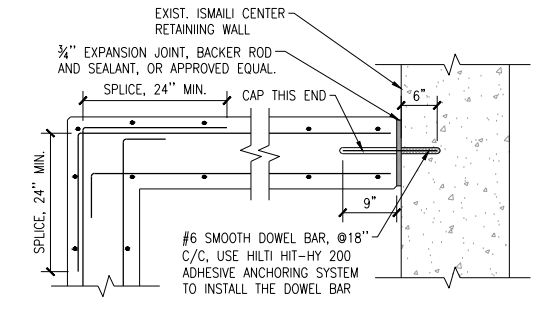
⑤ WALL CONSTRUCTION JOINT DETAIL
SCALE: 1" = 1'



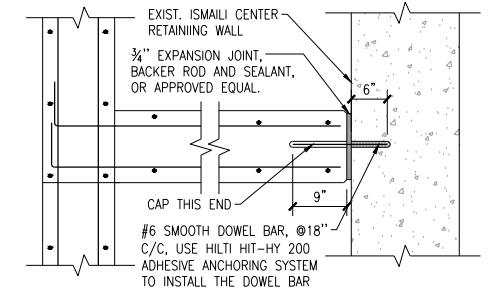
⑥ WALL CONTRACTION JOINT DETAIL
SCALE: 1" = 1'



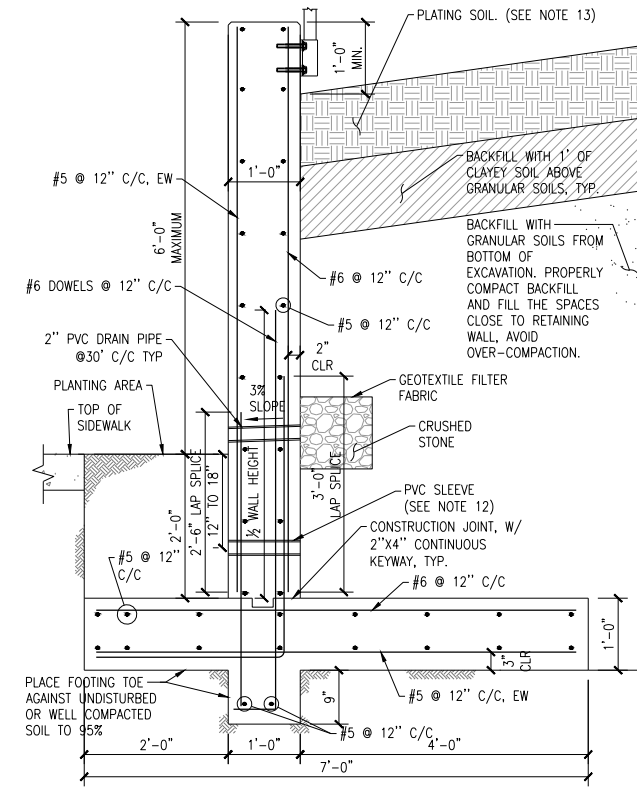
⑨ HANDRAIL POST BASE DETAIL
NTS



⑦ CONNECTION TO EXIST. RW DETAILS
SCALE: 3/4" = 1' STA 104+04.03'



⑧ CONNECTION TO EXIST. RW DETAILS
SCALE: 3/4" = 1' STA 97+67' (APPROXIMATE)



④ 6' MAXIMUM RETAINING WALL (SHALLOW FOOTING)
SCALE: 3/4" = 1' 103+27.19' TO 104+04.03'

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Aurora Technical Services, LLC
INTERIM REVIEW ONLY
Document incomplete: not intended for regulatory approval, permit, or construction.
Meng Liu
133764
2/13/2024

2121 SAGE RD, SUITE 150
Houston, Texas 77056
Texas PE Registered Firm F-2059

SURVEYED BY:
Kuo & Associates, Inc.

Aurora Technical Services, LLC
Texas Registered Engineering Firm
F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

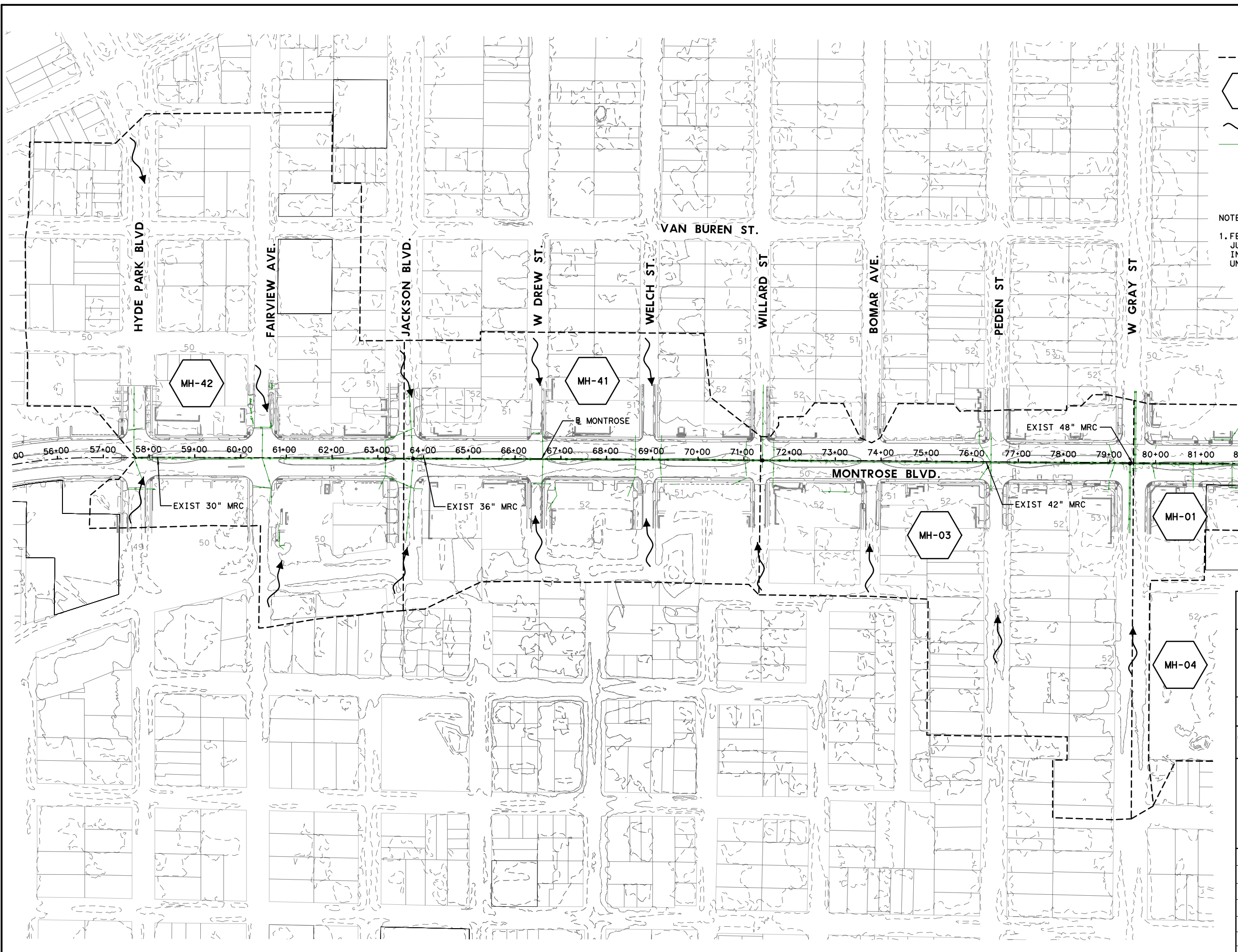
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

RETAINING WALL DETAILS

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 143 OF 355	

APP.	REVISIONS	DATE

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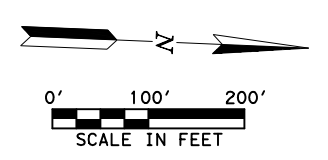


LEGEND

- EXIST DRAINAGE AREA BOUNDARY
- DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER

NOTE:
 1. FEMA FIRM 48201C0855L, REVISED JUNE 18, 2007, SHOWS PROJECT AREA IN AREA OF MINIMAX FLOOD HAZARD, UNSHADED ZONE X.

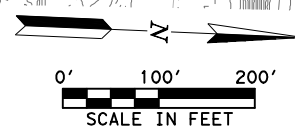
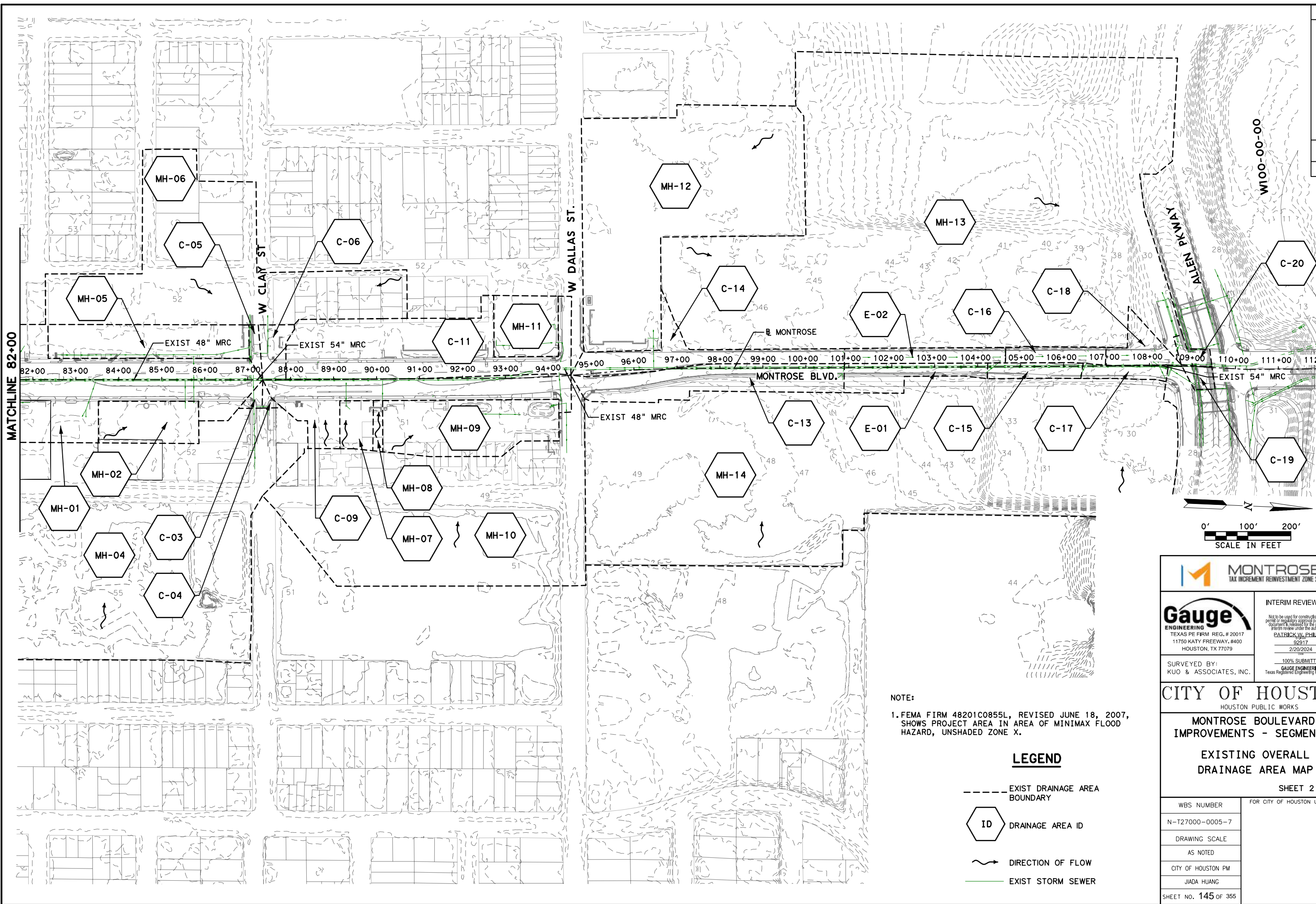
MATCHLINE 82+00



MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079 92917 2/20/2024	INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of: PATRICK W. PHILLIPS 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 EXISTING OVERALL DRAINAGE AREA MAP	
SHEET 1 OF 2	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 144 OF 355	

	REVISIONS
	No. DATE
	APP.

Pen Table: MONTR0SE.tbl
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NOTE:
 1. FEMA FIRM 48201C0855L, REVISED JUNE 18, 2007, SHOWS PROJECT AREA IN AREA OF MINIMAX FLOOD HAZARD, UNSHADED ZONE X.

- LEGEND**
- EXIST DRAINAGE AREA BOUNDARY
 - ID DRAINAGE AREA ID
 - ~ DIRECTION OF FLOW
 - EXIST STORM SEWER

No.	DATE	REVISIONS	APP.

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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 2/20/2024

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 Texas Registered Engineering Firm F-2017

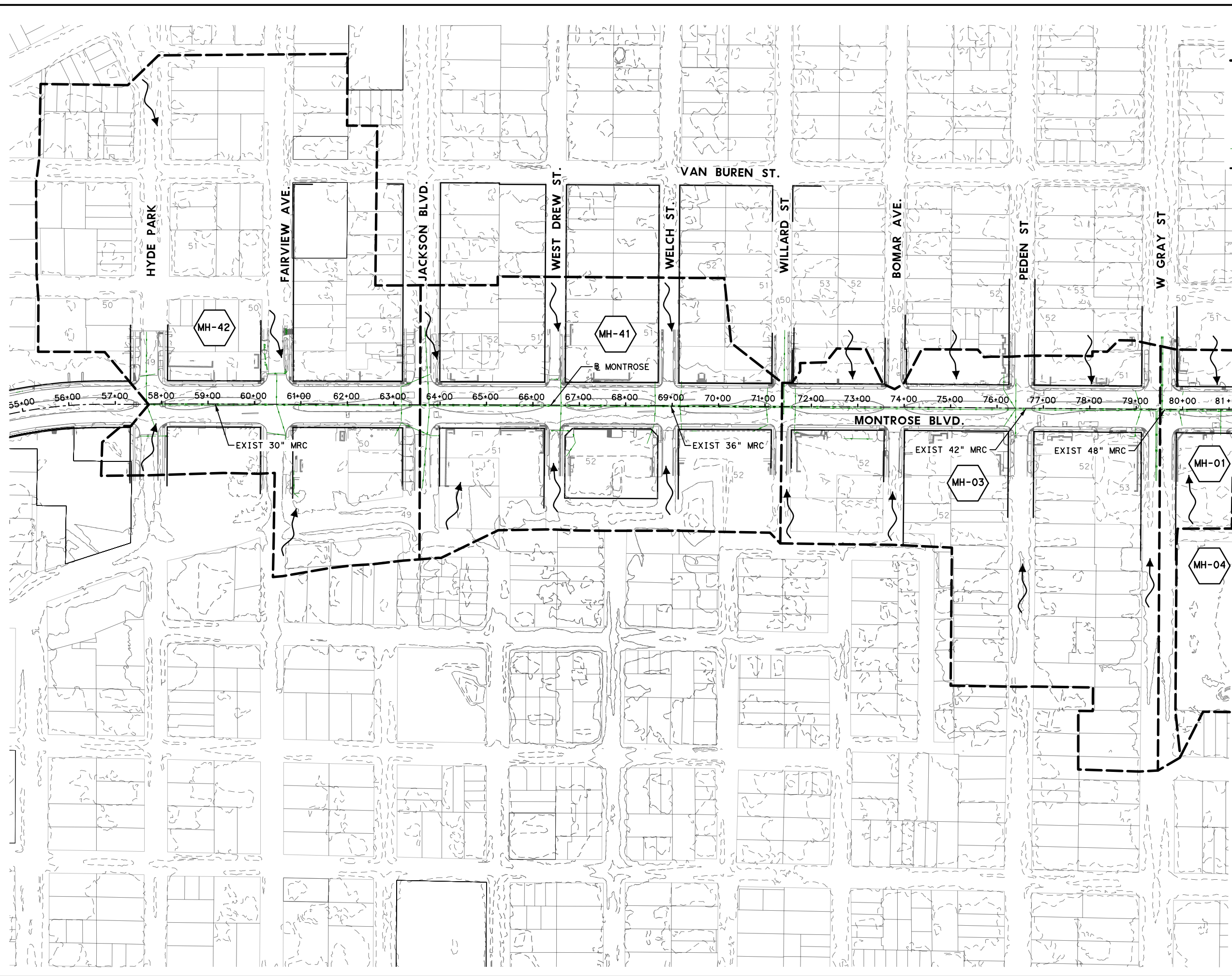
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
EXISTING OVERALL DRAINAGE AREA MAP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 145 OF 355	

BUFFALO BAYOU

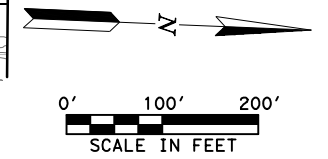
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 Plotted on: 2/20/2024 9:10:39 AM ahatamleh



LEGEND

- PROP DRAINAGE AREA BOUNDARY
- ID DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER
- PROP STORM SEWER

MATCHLINE 82+00



MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> PATRICK W. PHILLIPS 92917 2/20/2024
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

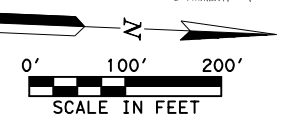
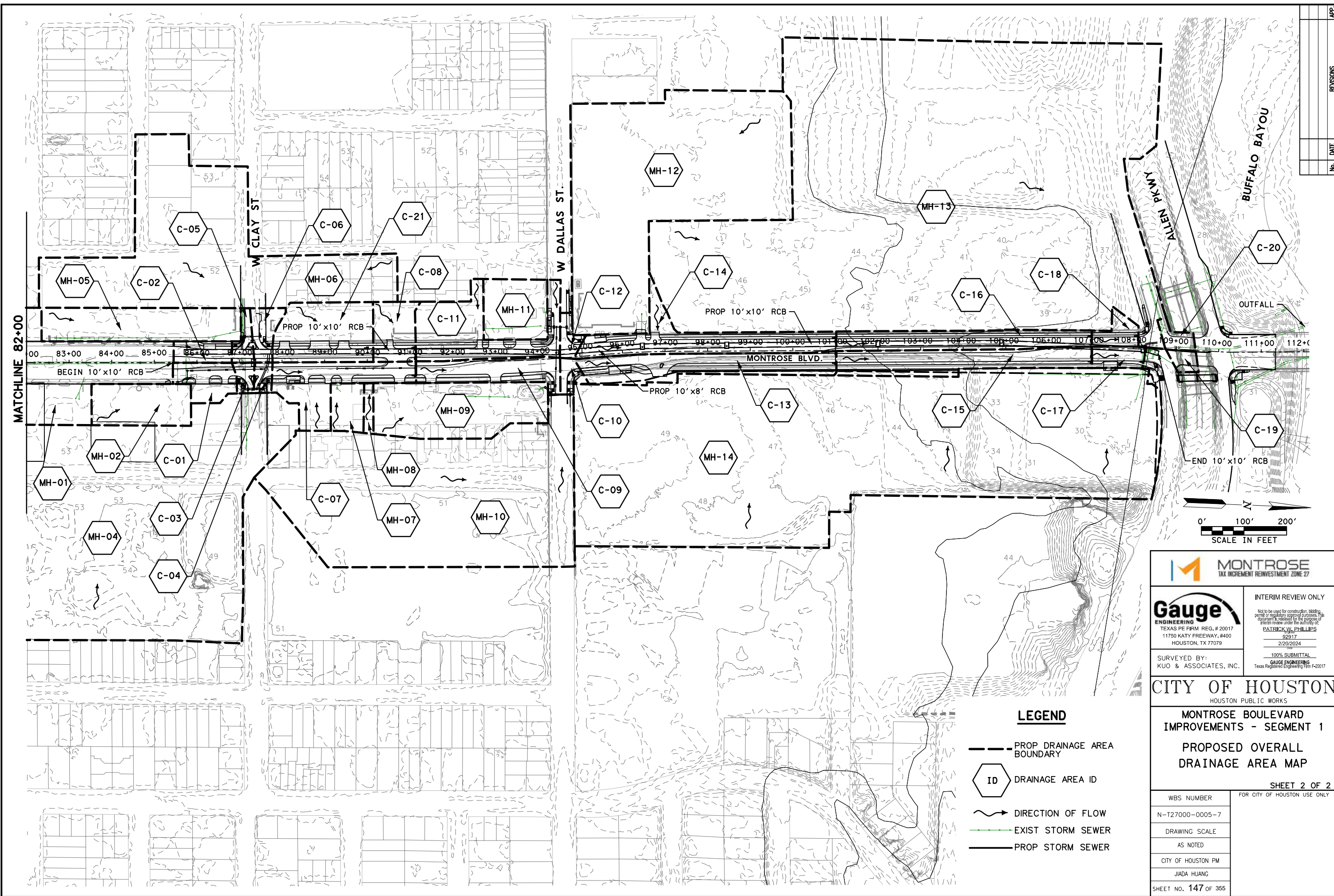
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
PROPOSED OVERALL DRAINAGE AREA MAP

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 146 OF 355	

No.	DATE	REVISIONS	APP.

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Plotted on: 2/20/2024 9:10:43 AM ahatamleh



MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 02917
 2/20/2024

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 Texas Registered Engineering Firm F-2017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

- LEGEND**
- PROP DRAINAGE AREA BOUNDARY
 - ID DRAINAGE AREA ID
 - ~> DIRECTION OF FLOW
 - - - EXIST STORM SEWER
 - PROP STORM SEWER

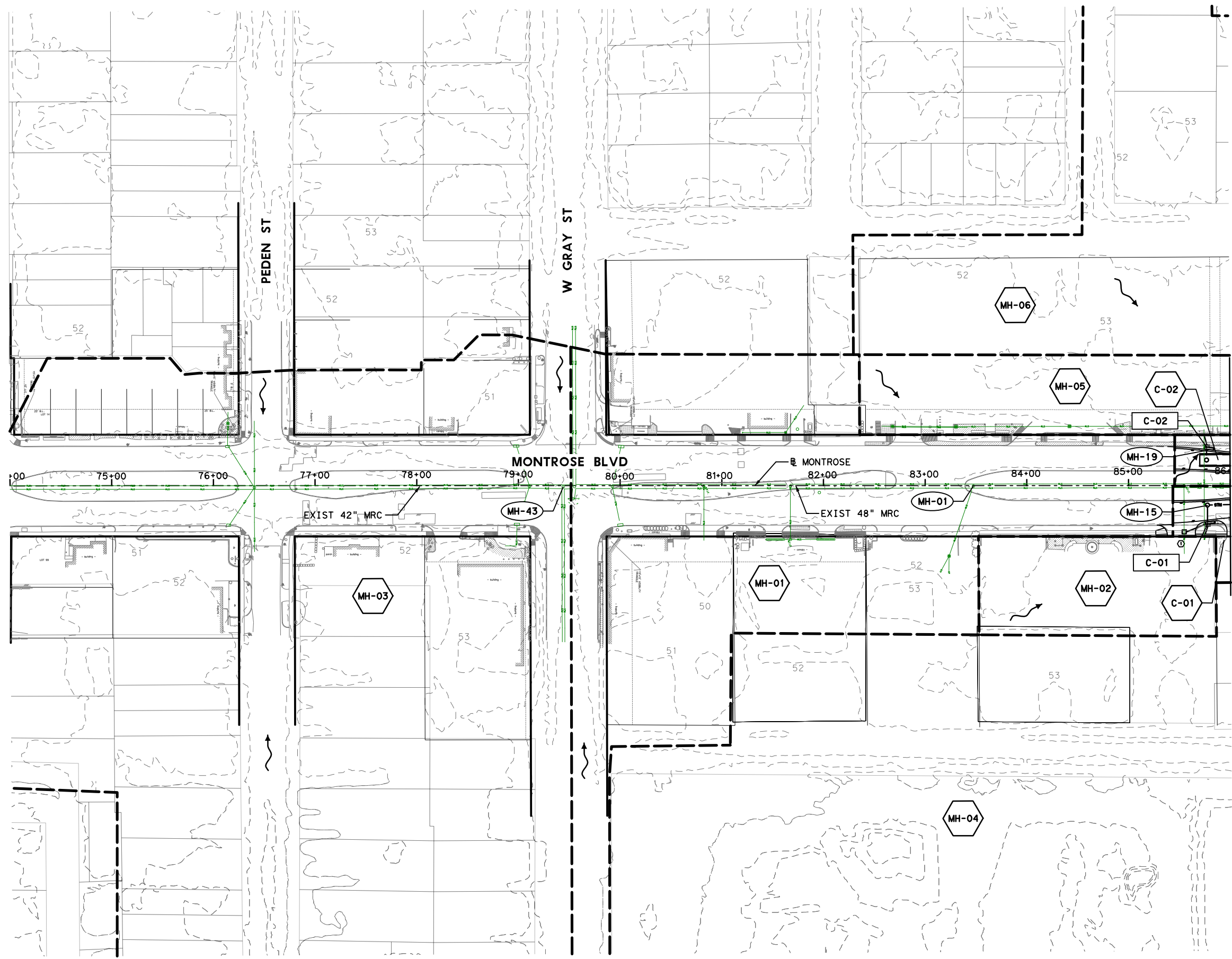
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
PROPOSED OVERALL DRAINAGE AREA MAP

SHEET 2 OF 2	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 147	OF 355

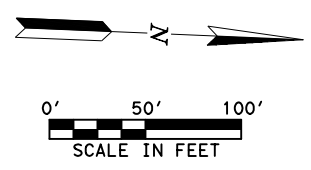
No.	DATE	REVISIONS	APP.

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LEGEND

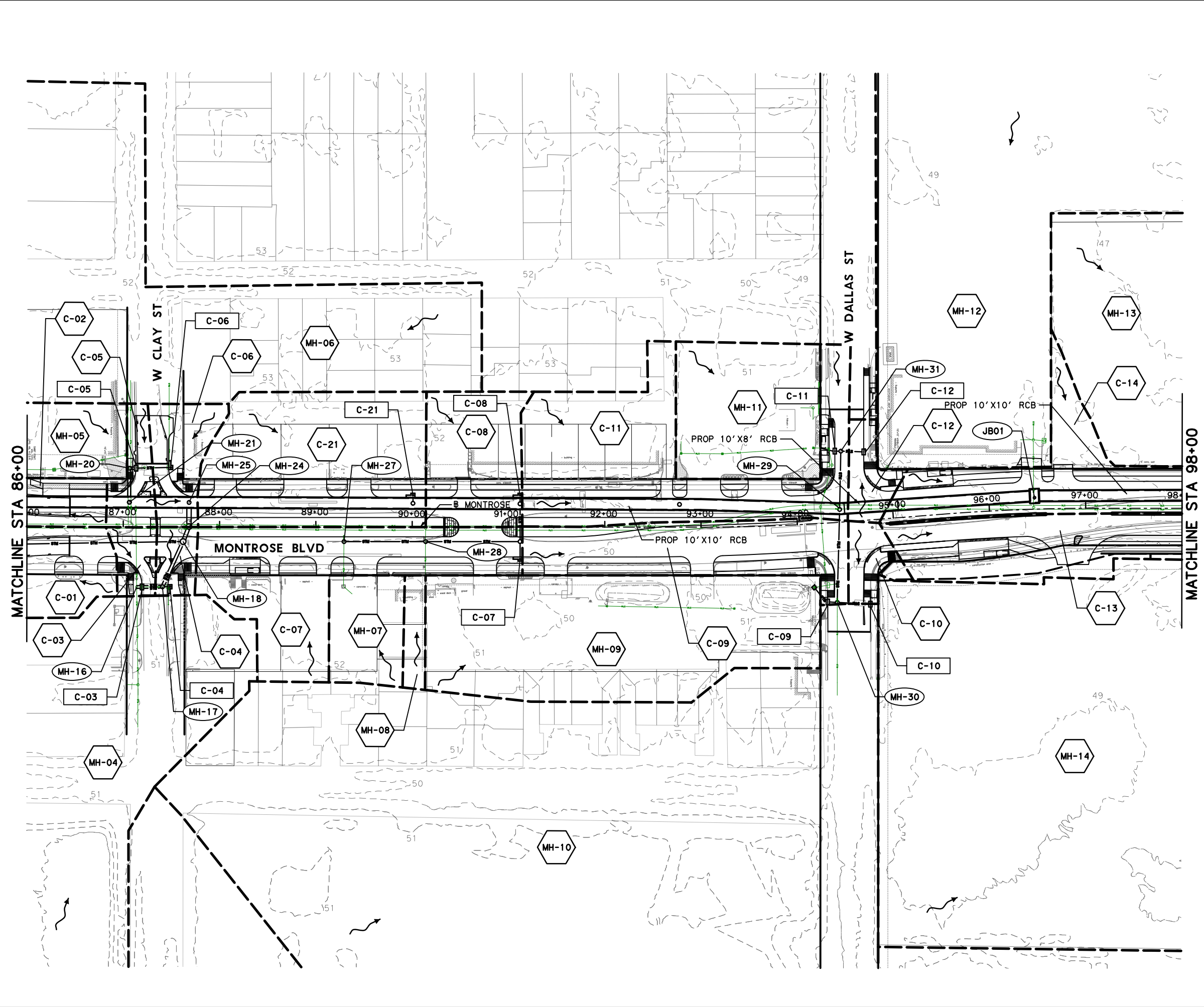
- PROP DRAINAGE AREA BOUNDARY
- DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP INLET
- PROP MANHOLE/JCT
- 1-FT CONTOURS



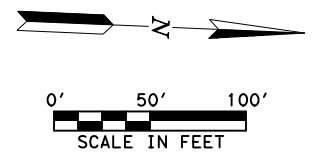
<p>Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of: PATRICK W. PHILLIPS 92917 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1	
DRAINAGE AREA MAP STA 74+00 TO STA 86+00	
SHEET 1 OF 3	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 148 OF 355	

	APP.
	REVISIONS
	No. DATE

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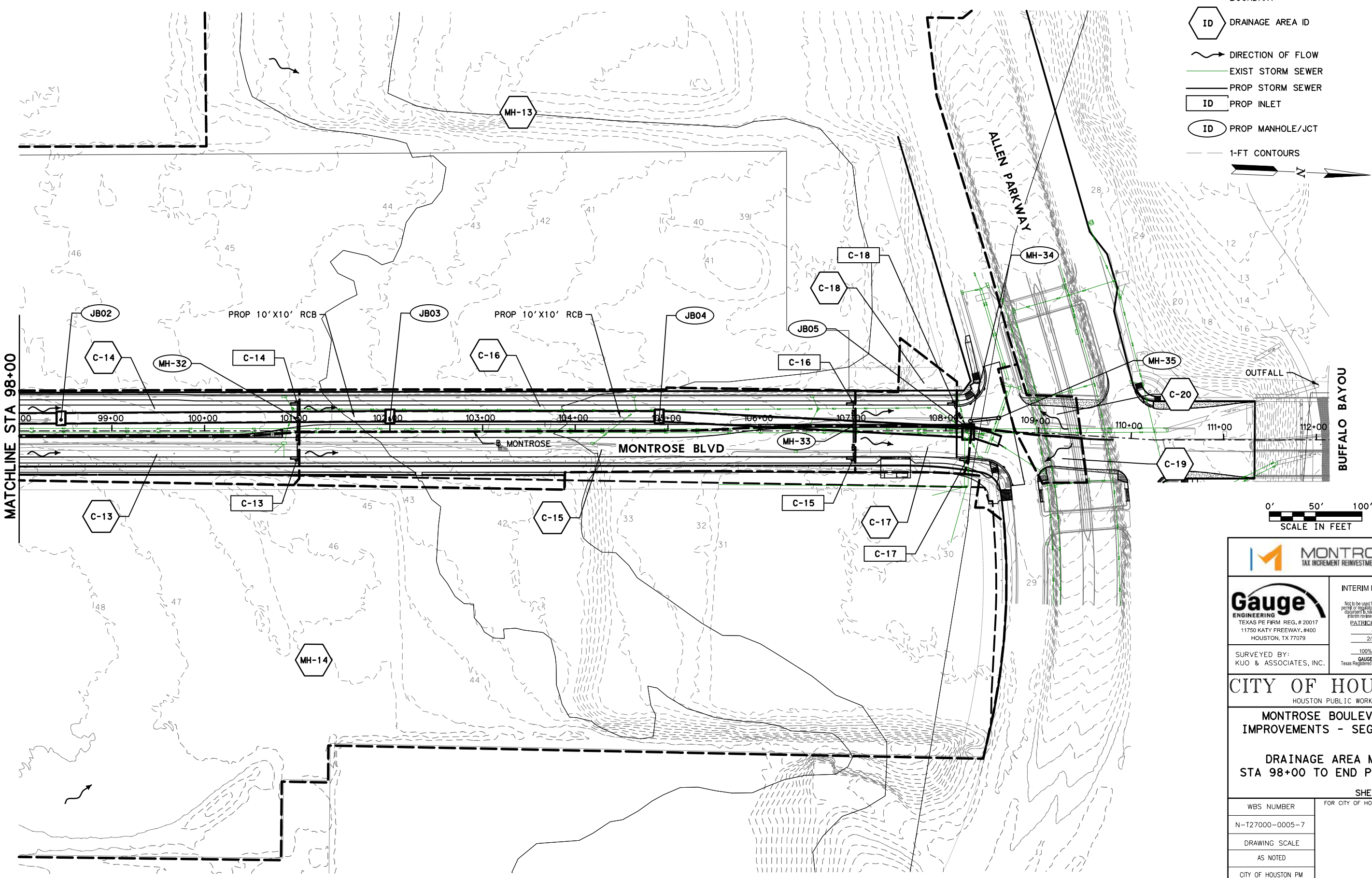
- LEGEND**
- PROP DRAINAGE AREA BOUNDARY
 - ID DRAINAGE AREA ID
 - DIRECTION OF FLOW
 - EXIST STORM SEWER
 - PROP STORM SEWER
 - ID PROP INLET
 - ID PROP MANHOLE/JCT
 - 1-FT CONTOURS



<p>Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p><small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is prepared for the purpose of interim review under the authority of:</small></p> <p>PATRICK V. PHILLIPS 92917 2/20/2024</p> <p><small>100% SUBMITTAL</small></p> <p>GAUGE ENGINEERING Texas Registered Engineering Firm F-2017</p>
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1</p>	
<p>DRAINAGE AREA MAP STA 86+00 TO 98+00</p>	
<p>SHEET 2 OF 3</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JIADA HUANG</p>	
<p>SHEET NO. 149 OF 355</p>	

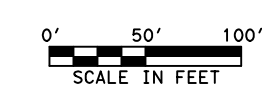
	APP.
	REVISIONS
	No. DATE

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LEGEND

- PROP DRAINAGE AREA BOUNDARY
- ID DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER
- PROP STORM SEWER
- ID PROP INLET
- ID PROP MANHOLE/JCT
- 1-FT CONTOURS



 GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> PATRICK W. PHILLIPS 92917 2/20/2024 <small>100% SUBMITTAL</small> GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-20017</small>
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1	
DRAINAGE AREA MAP STA 98+00 TO END PROJECT	
SHEET 3 OF 3	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 150 OF 355	

No.	DATE	REVISIONS	APP.

SYSTEM C

2-YEAR DRAINAGE AREA COMPUTATIONS						
ID	RUNOFF (C)	DRAINAGE AREA (AC)	TIME OF CONC. (MIN)	TIME USED (MIN)	INTENSITY (IN/HR)	DISCHARGE (CFS)
C-01	0.77	0.07	21.28	21.28	4.08	0.22
C-02	0.70	0.16	22.23	22.23	3.99	0.44
C-03	0.77	0.07	21.28	21.28	4.08	0.22
C-04	0.76	0.07	21.23	21.23	4.09	0.21
C-05	0.80	0.10	21.69	21.69	4.04	0.33
C-06	0.84	0.17	22.30	22.30	3.98	0.56
C-07	0.74	0.63	24.22	24.22	3.82	1.77
C-08	0.72	0.32	23.20	23.20	3.90	0.91
C-09	0.78	0.45	23.67	23.67	3.86	1.35
C-10	0.81	0.09	21.48	21.48	4.06	0.28
C-11	0.73	0.81	24.64	24.64	3.78	2.25
C-12	0.86	0.09	21.58	21.58	4.05	0.32
C-13	0.77	0.78	24.56	24.56	3.79	2.25
C-14	0.81	0.79	24.59	24.59	3.79	2.42
C-15	0.75	0.73	24.46	24.46	3.80	2.42
C-16	0.71	0.61	24.16	24.16	3.82	1.65
C-17	0.85	0.14	22.08	22.08	4.00	0.48
C-18	0.58	0.14	22.10	22.10	4.00	0.33
C-19	0.90	0.07	21.23	21.23	4.09	0.25
C-20	0.90	0.09	21.52	21.52	4.06	0.32
C-21	0.77	0.72	24.45	24.45	3.80	2.12
MH-01	0.18	15.83	31.26	31.26	3.32	9.69
MH-02	0.80	0.52	23.92	23.92	3.84	1.61
MH-03	0.73	11.41	30.35	30.35	3.38	28.23
MH-04	0.71	8.73	29.65	29.65	3.42	21.27
MH-05	0.80	0.84	24.70	24.70	3.78	2.54
MH-06	0.72	3.78	27.64	27.64	3.56	9.66
MH-07	0.70	0.20	22.54	22.54	3.96	0.56
MH-08	0.63	0.06	21.11	21.11	4.10	0.16
MH-09	0.76	1.13	25.22	25.22	3.74	3.24
MH-10	0.81	5.00	28.28	28.28	3.51	14.15
MH-11	0.80	0.49	23.81	23.81	3.85	1.50
MH-12	0.80	4.59	28.08	28.08	3.53	12.89
MH-13	0.45	15.10	31.13	31.13	3.33	22.74
MH-14	0.80	10.72	30.19	30.19	3.39	28.85
MH-41	0.77	9.37	29.83	29.83	3.41	24.49
MH-42	0.71	15.83	31.26	31.26	3.32	37.42

2-YEAR NODE CUMULATIVE							
ID	TYPE	WEIGHTED C-VALUE	CUMULATIVE DRAINAGE AREA (ac)	CUMULATIVE TC (min)	INTENSITY (in/hr)	USER SUPPLY Q	TOTAL DISCHARGE Q (cfs)
C-01	Curb	0.80	0.61	24.15	3.82	0.00	1.86
C-02	Curb	0.69	0.16	22.23	3.99	0.00	0.44
C-03	Curb	0.71	8.80	29.89	3.41	0.00	21.36
C-04	Curb	0.76	0.07	21.23	4.09	0.00	0.21
C-05	Curb	0.73	4.05	27.95	3.53	0.00	10.39
C-06	Curb	0.72	3.95	27.83	3.54	0.00	10.12
C-07	Curb	0.74	0.63	24.22	3.82	0.00	1.77
C-08	Curb	0.72	0.32	23.20	3.90	0.00	0.91
C-09	Curb	0.77	1.58	25.40	3.72	0.00	4.52
C-10	Curb	0.81	0.09	21.48	4.06	0.00	0.28
C-11	Curb	0.76	1.30	24.64	3.78	0.00	3.72
C-12	Curb	0.86	0.09	21.58	4.05	0.00	0.32
C-13	Curb	0.77	0.78	24.56	3.79	0.00	2.25
C-14	Curb	0.81	0.79	24.59	3.79	0.00	2.42
C-15	Curb	0.75	0.73	24.46	3.80	0.00	2.08
C-16	Curb	0.71	0.61	24.16	3.82	0.00	1.65
C-17	Curb	0.80	10.86	30.33	3.38	0.00	29.18
C-18	Curb	0.58	0.14	22.10	4.00	0.00	0.33
C-19	Curb	0.90	0.07	21.23	4.09	0.00	0.25
C-20	Curb	0.90	0.09	21.52	4.06	0.00	0.32
C-21	Curb	0.77	0.72	24.45	3.80	0.00	2.12
C-OUT	Outlet	0.71	98.66	43.54	2.76	0.00	192.44
JB01	Junction	0.75	69.49	39.31	2.91	0.00	150.89
JB02	Junction	0.75	69.49	39.75	2.91	0.00	150.89
JB03	Junction	0.75	71.06	41.43	2.86	0.00	151.71
JB04	Junction	0.75	71.06	42.29	2.86	0.00	151.71
JB05	Junction	0.71	98.66	43.02	2.76	0.00	192.44
MH-01	Junction	0.74	40.22	35.22	3.10	0.00	92.24
MH-02	Junction	0.80	0.52	23.92	3.84	0.00	1.61
MH-03	Junction	0.73	36.61	32.82	3.23	0.00	86.64
MH-04	Junction	0.71	8.73	29.65	3.42	0.00	21.27
MH-05	Junction	0.80	0.84	24.70	3.78	0.00	2.54
MH-06	Junction	0.72	3.78	27.64	3.56	0.00	9.66
MH-07	Junction	0.70	0.20	22.54	3.96	0.00	0.56
MH-08	Junction	0.63	0.06	21.11	4.10	0.00	0.16
MH-09	Junction	0.76	1.13	25.22	3.74	0.00	3.23
MH-10	Junction	0.81	5.00	28.28	3.51	0.00	14.15
MH-11	Junction	0.80	0.49	23.81	3.85	0.00	1.50
MH-12	Junction	0.80	4.59	28.08	3.52	0.00	12.89
MH-13	Junction	0.45	15.10	31.13	3.33	0.00	22.74
MH-14	Junction	0.79	10.72	30.19	3.39	0.00	28.85
MH-15	Junction	0.80	0.61	24.29	3.82	0.00	1.86
MH-16	Junction	0.71	8.73	29.86	3.42	0.00	21.27
MH-17	Junction	0.71	8.87	29.96	3.40	0.00	21.51
MH-18	Junction	0.72	9.48	30.08	3.39	0.00	23.12
MH-19	Junction	0.69	0.16	22.25	3.99	0.00	0.44
MH-20	Junction	0.74	4.89	28.01	3.53	0.00	12.75
MH-21	Junction	0.74	5.05	28.15	3.52	0.00	13.11
MH-22	Junction	0.74	40.22	35.61	3.10	0.00	92.24
MH-23	Junction	0.74	40.22	35.87	3.10	0.00	92.24
MH-24	Junction	0.74	49.69	36.02	3.06	0.00	111.91
MH-25	Junction	0.74	54.75	36.09	3.06	0.00	123.19
MH-26	Junction	0.74	56.69	37.38	3.00	0.00	125.01
MH-27	Junction	0.70	0.20	22.92	3.96	0.00	0.56
MH-28	Junction	0.69	0.26	23.75	3.86	0.00	0.69
MH-29	Junction	0.74	64.91	38.55	2.94	0.00	141.87
MH-30	Junction	0.80	6.67	28.63	3.49	0.00	18.53
MH-31	Junction	0.76	1.39	24.68	3.78	0.00	4.01
MH-32	Junction	0.75	71.06	40.54	2.86	0.00	151.71
MH-33	Junction	0.75	72.39	42.65	2.86	0.00	154.51
MH-34	Junction	0.46	15.19	32.04	3.33	0.00	23.01
MH-35	Junction	0.46	15.19	31.92	3.33	0.00	23.01
MH-36	Junction	0.46	15.19	31.88	3.33	0.00	23.01
MH-37	Junction	0.74	56.85	37.99	3.00	0.00	125.34
MH-38	Junction	0.74	55.47	36.96	3.06	0.00	124.90
MH-39	Junction	0.72	0.89	24.69	3.78	0.00	2.43
MH-40	Junction	0.74	64.91	38.94	2.94	0.00	141.87
MH-41	Junction	0.73	25.20	31.39	3.31	0.00	61.15
MH-42	Junction	0.71	15.83	31.26	3.32	0.00	37.43
MH-43	Junction	0.73	36.61	34.27	3.23	0.00	86.64
MH-45	Junction	0.71	98.66	43.07	2.76	0.00	192.44
MH-46	Junction	0.71	98.66	43.31	2.76	0.00	192.44
R-01	Junction	0.74	56.85	38.53	3.00	0.00	125.34
R-02	Junction	0.75	69.49	39.72	2.91	0.00	150.89
R-03	Junction	0.75	71.06	41.40	2.86	0.00	151.71
R-04	Junction	0.75	71.06	42.33	2.86	0.00	151.71

Rainfall Intensity Coefficients			
Rainfall	b	d (min.)	e
2-year	48.35	9.07	0.7244

NOTE

1. SEE PROPOSED DRAINAGE AREA MAP, DRAINAGE PLAN & PROFILE SHEETS, AND STORM SEWER LATERALS FOR ADDITIONAL INFORMATION.

<p>GAUGE ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is prepared for the purpose of interim review under the authority of:</small> PATRICK W. PHILLIPS 92917 2/20/2024 <small>100% SUBMITTAL</small> GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 PROPOSED 2-YEAR STORM SEWER COMPUTATIONS	
SHEET 1 OF 5	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JUADA HUANG	
SHEET NO 151 OF 355	

SYSTEM C CONTINUED



2-YEAR ON GRADE INLET CONFIGURATIONS													
ID	TYPE	DISCHARGE (CFS)	PONDED WIDTH (FT)	PONDED DEPTH (FT)	MAX ALLOW POND WIDTH (FT)	TRANSVERSE SLOPE %	LONGITUDINAL SLOPE %	LENGTH (FT)	WIDTH (FT)	DEPR. (FT)	CAPACITY (CFS)	BY PASS (CFS)	TO NODE
C-01	Curb	0.28	5.32	0.11	11.00	2.10	0.30	10.00	n/a	0.25	0.28	0.00	C-03
C-07	Curb	1.77	10.58	0.21	11.00	2.00	0.36	10.00	n/a	0.25	1.77	0.00	C-09
C-08	Curb	0.91	8.29	0.17	11.00	2.00	0.35	10.00	n/a	0.25	0.91	0.00	C-11
C-13	Curb	2.25	9.13	0.19	11.00	2.10	1.09	10.00	n/a	0.25	2.11	0.14	C-15
C-14	Curb	2.42	8.38	0.18	11.00	2.20	1.70	10.00	n/a	0.25	2.13	0.30	C-16
C-15	Curb	2.22	8.61	0.17	11.00	2.00	1.70	10.00	n/a	0.25	1.96	0.26	C-17
C-16	Curb	1.95	8.47	0.18	11.00	2.10	1.21	10.00	n/a	0.25	1.86	0.08	C-18
C-17	Curb	0.74	5.92	0.12	11.00	2.10	1.18	10.00	n/a	0.25	0.74	0.00	C-19
C-18	Curb	0.42	4.90	0.10	11.00	2.00	1.21	10.00	n/a	0.25	0.42	0.00	C-20
C-19	Curb	0.25	5.25	0.11	11.00	2.00	0.30	5.00	n/a	0.25	0.25	0.00	C-OUT
C-20	Curb	0.32	5.79	0.12	11.00	2.00	0.30	5.00	n/a	0.25	0.32	0.00	C-19

NOTE

1. SEE PROPOSED DRAINAGE AREA MAP, DRAINAGE PLAN & PROFILE SHEETS, AND STORM SEWER LATERALS FOR ADDITIONAL INFORMATION.

2-YEAR SAG INLET CONFIGURATIONS																			
ID	TYPE	DISCHARGE (CFS)	DISCHARGE (CFS)		PONDED WIDTH (FT)		MAX ALLOW POND WIDTH (FT)	SLOPE %		CURB LENGTH (FT)	GRATE LENGTH (FT)	WIDTH (FT)	GUTTER DEPR. (FT)	AREA (FT)	PERIM. (FT)	CAPACITY (CFS)	MAX ALLOW POND DEPTH (FT)	PONDED DEPTH (FT)	TRANSVERSE SLOPE (%)
			LEFT	RIGHT	LEFT	RIGHT		LEFT	RIGHT										
C-02	Curb	0.44	0.18	0.26	4.15	5.00	11.00	0.53	0.44	10.00	n/a	n/a	0.25	n/a	n/a	12.52	0.50	0.05	2.00
C-03	Curb	0.22	0.20	0.02	3.60	1.94	11.00	1.46	0.48	5.00	n/a	n/a	0.25	n/a	n/a	8.46	0.50	0.04	2.00
C-04	Curb	0.21	0.19	0.02	3.53	1.74	11.00	1.48	0.80	10.00	n/a	n/a	0.25	n/a	n/a	12.52	0.50	0.03	2.00
C-05	Curb	0.33	0.17	0.17	4.20	3.55	11.00	0.44	1.09	5.00	n/a	n/a	0.25	n/a	n/a	8.46	0.50	0.06	2.00
C-06	Curb	0.56	0.28	0.28	4.32	5.24	11.00	1.06	0.38	10.00	n/a	n/a	0.25	n/a	n/a	12.52	0.50	0.06	2.00
C-09	Curb	1.35	1.01	0.34	8.88	5.17	11.00	0.30	0.60	5.00	n/a	n/a	0.25	n/a	n/a	8.46	0.50	0.15	2.00
C-10	Curb	0.28	0.21	0.07	5.27	2.63	11.00	0.21	0.95	5.00	n/a	n/a	0.25	n/a	n/a	8.46	0.50	0.05	2.00
C-11	Curb	2.25	0.45	1.80	6.26	6.85	11.00	0.38	3.76	5.00	n/a	n/a	0.25	n/a	n/a	8.46	0.50	0.21	2.00
C-12	Curb	0.32	0.06	0.26	2.40	3.87	11.00	0.83	1.03	5.00	n/a	n/a	0.25	n/a	n/a	8.46	0.50	0.06	2.30
C-21	Curb	2.12	1.69	0.42	10.20	6.04	11.00	0.40	0.41	10.00	n/a	n/a	0.25	n/a	n/a	12.52	0.50	0.15	2.00

Pen Table: MONTR0SE.tbl
 Plot Driver: P:\TIRZ_27\1135-Montrose Blvd Improvements\4-0-Production-Working\4-1-CAD\Resource\Plot files\MONTR0SE.pltcfgr
 Plotted on: 2/20/2024 9:10:54 AM ahatamleh

 MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27	
 Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079 92917 2/20/2024	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> PATRICK W. PHILLIPS 92917 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-2017</small>
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 PROPOSED 2-YEAR STORM SEWER CONFIGURATIONS	
SHEET 2 OF 5	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 152 OF 355	



SYSTEM C CONTINUED

2-YEAR LINK CONFIGURATIONS											
ID	UPSTREAM ID	DOWNSTREAM ID	LENGTH (FT)	SHAPE	#	RISE (FT)	SPAN (FT)	n	SLOPE %	UPSTREAM INVERT (FT)	DOWNSTREAM INVERT (FT)
C-01	C-01	MH-15	14.88	Circular	1.00	2.00	n/a	0.013	0.16	43.07	43.04
C-02	C-02	MH-19	9.08	Circular	1.00	2.00	n/a	0.013	33.71	41.70	37.46
C-03	C-03	MH-17	19.54	Circular	1.00	3.00	n/a	0.012	0.33	38.51	38.43
C-04	C-04	MH-17	6.05	Circular	1.00	2.00	n/a	0.013	0.09	46.06	46.05
C-05	C-05	MH-20	5.50	Circular	1.00	2.50	n/a	0.013	0.10	39.20	39.19
C-06	C-06	C-05	34.25	Circular	1.00	2.00	n/a	0.013	0.44	39.87	39.70
C-07	C-07	MH-39	17.72	Circular	1.00	2.00	n/a	0.013	0.14	45.25	45.22
C-08	C-08	MH-26	5.42	Circular	1.00	2.00	n/a	0.013	0.11	44.99	44.98
C-09	C-09	MH-30	6.44	Circular	1.00	2.00	n/a	0.013	0.10	43.91	43.90
C-10	C-10	MH-30	32.66	Circular	1.00	2.00	n/a	0.013	0.16	43.74	43.68
C-11	C-11	MH-31	2.70	Circular	1.00	2.00	n/a	0.013	0.16	43.63	43.62
C-12	C-12	MH-31	21.92	Circular	1.00	2.00	n/a	0.013	0.15	44.15	44.11
C-13	C-13	MH-32	38.72	Circular	1.00	2.00	n/a	0.013	1.35	30.89	30.32
C-14	C-14	MH-32	16.36	Circular	1.00	2.00	n/a	0.013	0.14	36.89	36.86
C-15	C-15	MH-33	33.79	Circular	1.00	2.00	n/a	0.013	0.13	21.15	21.10
C-16	C-16	MH-33	21.17	Circular	1.00	2.00	n/a	0.013	0.16	27.82	27.78
C-17	C-17	JB05	32.64	Circular	1.00	4.00	n/a	0.013	0.03	14.02	14.01
C-18	C-18	JB05	33.48	Circular	1.00	3.00	n/a	0.013	0.14	23.67	23.62
C-19	C-19	JB05	91.23	Circular	1.00	3.00	n/a	0.013	11.75	27.16	16.26
C-20	C-20	MH-36	10.21	Circular	1.00	3.00	n/a	0.013	3.67	26.74	26.20
C-21	C-21	MH-38	7.02	Circular	1.00	2.00	n/a	0.013	0.17	45.45	45.43
JB01	JB01	R-02	147.32	Box	1.00	10.00	10.00	0.015	0.19	27.78	27.49
JB02	JB02	MH-32	252.97	Box	1.00	10.00	10.00	0.015	0.15	25.60	25.23
JB03	JB03	JB04	290.43	Box	1.00	10.00	10.00	0.015	0.15	21.07	20.63
JB04	JB04	R-04	18.61	Box	1.00	10.00	10.00	0.015	0.97	16.75	16.55
JB05	JB05	MH-45	34.43	Circular	1.00	4.50	n/a	0.013	0.13	-1.37	-1.42
R-01	R-01	MH-29	8.00	Circular	1.00	4.00	n/a	0.013	0.08	29.82	29.81
R-02	R-02	JB02	47.14	Circular	1.00	4.00	n/a	0.013	3.85	27.49	25.60
R-03	R-03	JB03	18.53	Circular	1.00	5.50	n/a	0.013	0.73	25.22	25.07
R-04	R-04	MH-33	185.07	Circular	1.00	4.50	n/a	0.013	0.05	16.55	16.45
MH-01	MH-01	MH-22	223.01	Circular	1.00	4.00	n/a	0.013	0.59	37.47	36.14
MH-02	MH-02	C-01	20.56	Circular	1.00	2.00	n/a	0.013	0.08	43.44	43.42
MH-03	MH-03	MH-43	799.30	Circular	1.00	3.50	n/a	0.013	0.15	38.98	37.77
MH-04	MH-04	MH-16	97.49	Circular	1.00	2.00	n/a	0.013	0.99	45.34	44.34
MH-05	MH-05	MH-20	9.99	Circular	1.00	2.00	n/a	0.013	51.75	46.27	39.03
MH-06	MH-06	C-06	87.51	Circular	1.00	1.25	n/a	0.013	0.01	48.62	48.61
MH-07	MH-07	MH-27	42.71	Circular	1.00	2.00	n/a	0.013	0.32	41.36	41.21
MH-08	MH-08	MH-28	31.92	Circular	1.00	2.00	n/a	0.013	0.03	43.48	43.47
MH-09	MH-09	C-09	14.35	Circular	1.00	2.00	n/a	0.013	0.06	43.92	43.91
MH-10	MH-10	MH-30	92.54	Circular	1.00	2.00	n/a	0.013	0.01	42.63	42.62
MH-11	MH-11	C-11	21.09	Circular	1.00	2.00	n/a	0.013	7.62	45.58	43.63
MH-12	MH-12	JB01	56.05	Circular	1.00	2.00	n/a	0.013	0.90	33.79	33.27
MH-13	MH-13	MH-36	105.24	Circular	1.00	3.50	n/a	0.013	0.05	21.43	21.38
MH-14	MH-14	C-17	24.39	Circular	1.00	4.00	n/a	0.013	0.07	14.04	14.02
MH-15	MH-15	MH-18	180.62	Circular	1.00	2.00	n/a	0.013	0.20	36.45	36.09
MH-16	MH-16	C-03	2.83	Circular	1.00	3.00	n/a	0.013	0.13	44.29	44.28
MH-17	MH-17	MH-18	47.61	Circular	1.00	3.00	n/a	0.012	0.58	38.43	38.13
MH-18	MH-18	MH-24	12.73	Circular	1.00	3.00	n/a	0.013	0.18	34.59	34.56
MH-19	MH-19	MH-21	125.88	Box	1.00	10.00	10.00	0.015	0.10	30.69	30.56
MH-20	MH-20	MH-21	31.27	Circular	1.00	2.00	n/a	0.013	0.17	36.37	36.31
MH-21	MH-21	MH-25	57.87	Box	1.00	10.00	10.00	0.015	0.10	30.56	30.50
MH-22	MH-22	MH-23	134.78	Circular	1.00	4.00	n/a	0.013	0.48	36.06	35.40
MH-23	MH-23	MH-24	51.03	Circular	1.00	4.50	n/a	0.013	0.13	35.22	35.15
MH-24	MH-24	MH-25	21.10	Circular	1.00	5.00	n/a	0.012	0.16	33.56	33.52
MH-25	MH-25	MH-38	228.51	Box	1.00	10.00	10.00	0.015	0.10	30.50	30.27
MH-26	MH-26	MH-37	161.57	Box	1.00	10.00	10.00	0.015	0.10	30.16	29.99
MH-27	MH-27	MH-28	80.77	Circular	1.00	2.00	n/a	0.013	0.19	41.21	41.05
MH-28	MH-28	MH-39	94.00	Circular	1.00	2.00	n/a	0.013	0.18	37.34	37.16
MH-29	MH-29	MH-40	85.88	Box	1.00	8.00	10.00	0.015	0.06	29.81	29.76
MH-30	MH-30	MH-29	93.87	Circular	1.00	2.00	n/a	0.013	0.14	36.71	36.57
MH-31	MH-31	MH-29	55.28	Circular	1.00	2.00	n/a	0.013	0.17	43.62	43.52
MH-32	MH-32	R-03	75.51	Box	1.00	10.00	10.00	0.015	0.01	25.23	25.22
MH-33	MH-33	JB05	122.47	Box	1.00	10.00	10.00	0.015	0.15	16.45	16.26
MH-34	MH-34	JB05	10.14	Circular	1.00	2.50	n/a	0.013	0.08	19.69	19.68
MH-35	MH-35	MH-34	26.71	Circular	1.00	3.50	n/a	0.013	0.20	19.75	19.69
MH-36	MH-36	MH-35	32.37	Circular	1.00	3.50	n/a	0.013	3.93	21.18	19.75
MH-37	MH-37	R-01	149.99	Box	1.00	10.00	10.00	0.015	0.11	29.99	29.82
MH-38	MH-38	MH-26	107.19	Box	1.00	10.00	10.00	0.015	0.10	30.27	30.16
MH-39	MH-39	MH-26	35.25	Circular	1.00	2.00	n/a	0.013	0.18	36.98	36.91
MH-40	MH-40	JB01	111.03	Box	1.00	10.00	10.00	0.015	0.12	29.76	29.62
MH-41	MH-41	MH-03	759.70	Circular	1.00	3.00	n/a	0.016	0.15	40.30	39.18
MH-42	MH-42	MH-41	55.94	Circular	1.00	2.50	n/a	0.013	0.27	40.96	40.80
MH-43	MH-43	MH-01	399.46	Circular	1.00	4.00	n/a	0.013	0.22	37.73	36.83
MH-45	MH-45	MH-46	174.08	Circular	1.00	4.50	n/a	0.013	0.20	-1.42	-1.77
MH-46	MH-46	C-OUT	168.94	Circular	1.00	4.50	n/a	0.013	0.44	-1.77	-2.52

NOTE

1. SEE PROPOSED DRAINAGE AREA MAP, DRAINAGE PLAN & PROFILE SHEETS, AND STORM SEWER LATERALS FOR ADDITIONAL INFORMATION.

Pen Table: MONTR0SE.tbl
 Plot Driver: P:\TIRZ_27\1135-Montrose Blvd Improvements\4-0-Production-Working\4-1-CAD\Resource\Plot files\MONTR0SE.pltcfgr
 Plotted on: 2/20/2024 9:10:58 AM ahatamleh

 <p>MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27</p>	
 <p>Gauge ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079 92917 2/20/2024</p>	<p>INTERIM REVIEW ONLY</p> <p><small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small></p> <p>PATRICK V. PHILLIPS Professional Engineer No. 92917 2/20/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017</p>
<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1</p> <p>PROPOSED 2-YEAR STORM SEWER CONFIGURATIONS</p>	
<p>SHEET 3 OF 5</p>	
<p>WBS NUMBER N-127000-0005-7</p> <p>DRAWING SCALE AS NOTED</p> <p>CITY OF HOUSTON PM JIADA HUANG</p> <p>SHEET NO 153 OF 355</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>



SYSTEM C CONTINUED

2-YEAR LINK COMPUTATIONS												
ID	UPSTREAM ID	DOWNSTREAM ID	US HGL	DS HGL	DISCHARGE (CFS)	CAPACITY (CFS)	SLOPE %	UNIFORM		ACTUAL		NOTES
								VELOCITY (FT/S)	DEPTH (FT)	VELOCITY (FT/S)	DEPTH (FT)	
C-01	C-01	MH-15	43.64	43.51	1.86	9.83	0.16	2.27	0.62	2.51	0.57	
C-02	C-02	MH-19	42.01	37.55	0.44	141.28	33.71	9.62	0.08	1.45	0.31	
C-03	C-03	MH-17	42.23	42.19	21.36	44.84	0.34	5.95	1.52	3.02	3.00	
C-04	C-04	MH-17	46.29	46.17	0.21	7.49	0.10	1.03	0.23	1.09	0.23	
C-05	C-05	MH-20	40.44	40.27	10.39	13.95	0.09	2.81	1.76	4.27	1.24	
C-06	C-06	C-05	41.67	40.84	10.12	16.22	0.44	5.13	1.20	3.40	1.80	
C-07	C-07	MH-39	45.90	45.68	1.77	9.15	0.14	2.15	0.62	2.00	0.65	
C-08	C-08	MH-26	45.45	45.31	0.91	8.15	0.11	1.62	0.47	1.68	0.46	
C-09	C-09	MH-30	45.05	44.65	4.52	7.72	0.09	2.36	1.17	2.45	1.14	
C-10	C-10	MH-30	44.00	43.87	0.28	9.78	0.16	1.30	0.24	1.14	0.26	
C-11	C-11	MH-31	44.84	44.72	3.72	9.77	0.17	2.79	0.88	1.88	1.21	
C-12	C-12	MH-31	44.73	44.72	0.32	9.47	0.15	1.31	0.26	0.43	0.58	
C-13	C-13	MH-32	31.60	30.72	2.25	28.27	1.35	5.11	0.40	2.27	0.71	
C-14	C-14	MH-32	37.65	37.40	2.42	9.23	0.14	2.32	0.73	2.20	0.76	
C-15	C-15	MH-33	24.08	24.07	2.08	8.79	0.14	2.23	0.67	0.66	2.00	
C-16	C-16	MH-33	28.45	28.23	1.65	9.80	0.17	2.23	0.57	1.96	0.63	
C-17	C-17	JB05	15.93	15.61	29.18	26.45	0.04	2.38	3.75	4.92	1.91	EXIST 48"
C-18	C-18	JB05	23.93	23.81	0.33	27.13	0.14	1.24	0.24	1.11	0.26	
C-19	C-19	JB05	27.37	16.34	0.25	245.99	11.76	5.28	0.08	1.16	0.21	SEE NOTE 2
C-20	C-20	MH-36	26.98	26.31	0.32	137.49	3.68	3.82	0.11	1.26	0.24	SEE NOTE 2
C-21	C-21	MH-38	46.15	45.94	2.12	10.14	0.17	2.42	0.65	2.16	0.70	
JB01	JB01	R-02	32.67	31.88	150.89	962.30	0.19	6.10	2.48	3.08	4.89	
JB02	JB02	MH-32	29.69	29.37	150.89	831.82	0.14	5.42	2.78	3.69	4.09	
JB03	JB03	JB04	25.81	25.68	151.71	849.92	0.15	5.60	2.71	3.20	4.74	
JB04	JB04	R-04	25.68	25.67	151.71	2150.82	0.97	10.53	1.44	1.70	8.93	
JB05	JB05	MH-45	6.01	5.66	192.44	77.42	0.83	12.41	4.50	12.10	4.50	
R-01	R-01	MH-29	38.58	37.96	125.34	44.61	0.66	10.23	4.00	9.97	4.00	RESTRICTOR
R-02	R-02	JB02	31.88	28.23	150.89	303.04	3.85	22.81	2.08	12.01	4.00	RESTRICTOR
R-03	R-03	JB03	29.08	28.23	151.71	308.80	0.73	12.24	2.84	8.51	3.86	RESTRICTOR
R-04	R-04	MH-33	25.67	24.07	151.71	48.65	0.51	9.79	4.50	9.54	4.50	RESTRICTOR
MH-01	MH-01	MH-22	42.89	41.91	92.24	118.27	0.58	9.76	2.82	7.34	4.00	SEE NOTE 2
MH-02	MH-02	C-01	44.07	43.86	1.61	7.02	0.08	1.72	0.67	1.89	0.63	SEE NOTE 2
MH-03	MH-03	MH-43	50.44	44.42	86.64	42.00	0.64	9.24	3.50	9.01	3.50	SEE NOTE 2
MH-04	MH-04	MH-16	47.90	45.89	21.27	24.16	0.98	8.12	1.55	6.77	2.00	SEE NOTE 2
MH-05	MH-05	MH-20	47.02	39.22	2.54	175.06	51.74	19.04	0.17	2.35	0.75	SEE NOTE 2
MH-06	MH-06	C-06	52.85	49.79	9.66	0.72	1.93	8.08	1.25	7.87	1.25	SEE NOTE 2
MH-07	MH-07	MH-27	41.71	41.59	0.56	13.79	0.32	2.03	0.29	1.51	0.35	SEE NOTE 2
MH-08	MH-08	MH-28	43.70	43.59	0.16	4.06	0.02	0.55	0.29	0.82	0.22	SEE NOTE 2
MH-09	MH-09	C-09	45.11	45.05	3.23	5.76	0.05	1.69	1.17	1.67	1.19	SEE NOTE 2
MH-10	MH-10	MH-30	44.94	43.97	14.15	2.48	0.34	4.62	2.00	4.50	2.00	SEE NOTE 2
MH-11	MH-11	C-11	46.15	43.85	1.50	67.17	7.62	8.32	0.21	2.02	0.57	SEE NOTE 2
MH-12	MH-12	JB01	35.64	34.40	12.89	23.03	0.89	7.10	1.12	4.24	1.85	SEE NOTE 2
MH-13	MH-13	MH-36	24.15	23.94	22.74	23.15	0.04	2.43	3.29	2.83	2.72	SEE NOTE 2
MH-14	MH-14	C-17	16.35	15.93	28.85	41.38	0.07	3.36	2.58	3.84	2.31	SEE NOTE 2
MH-15	MH-15	MH-18	41.80	41.78	1.86	10.75	0.19	2.42	0.59	0.59	2.00	SEE NOTE 2
MH-16	MH-16	C-03	46.23	45.76	21.27	25.78	0.13	3.83	2.20	4.39	1.94	SEE NOTE 2
MH-17	MH-17	MH-18	42.19	41.78	21.51	59.26	0.59	7.34	1.30	3.04	3.00	SEE NOTE 2
MH-18	MH-18	MH-24	41.78	41.14	23.12	30.39	0.19	4.56	2.02	3.27	3.00	SEE NOTE 2
MH-19	MH-19	MH-21	38.82	38.82	0.44	690.82	0.10	0.57	0.08	0.01	8.13	SEE NOTE 2
MH-20	MH-20	MH-21	38.99	38.82	12.75	10.04	0.27	4.16	2.00	4.06	2.00	SEE NOTE 2
MH-21	MH-21	MH-25	38.82	38.82	13.11	679.98	0.10	2.12	0.62	0.16	8.26	SEE NOTE 2
MH-22	MH-22	MH-23	41.91	41.30	92.24	106.56	0.48	8.97	3.05	7.34	4.00	SEE NOTE 2
MH-23	MH-23	MH-24	41.30	41.14	92.24	75.44	0.19	5.95	4.50	5.80	4.50	SEE NOTE 2
MH-24	MH-24	MH-25	41.14	38.82	111.91	121.16	0.16	6.48	4.11	5.70	5.00	SEE NOTE 2
MH-25	MH-25	MH-38	38.82	38.60	123.19	686.78	0.09	4.42	2.78	1.48	8.32	SEE NOTE 2
MH-26	MH-26	MH-37	38.60	38.59	125.01	699.70	0.09	4.49	2.78	1.48	8.44	SEE NOTE 2
MH-27	MH-27	MH-28	41.59	41.31	0.56	10.57	0.19	1.70	0.32	1.34	0.38	SEE NOTE 2
MH-28	MH-28	MH-39	38.62	38.61	0.69	10.43	0.17	1.75	0.37	0.33	1.28	SEE NOTE 2
MH-29	MH-29	MH-40	37.96	32.79	141.87	390.49	0.05	3.82	3.71	1.77	8.00	SEE NOTE 2
MH-30	MH-30	MH-29	39.94	38.12	18.53	9.20	0.58	6.05	2.00	5.90	2.00	SEE NOTE 2
MH-31	MH-31	MH-29	44.72	44.22	4.01	9.99	0.18	2.89	0.91	2.26	1.10	SEE NOTE 2
MH-32	MH-32	R-03	29.37	29.08	151.71	244.89	0.00	1.53	9.90	3.66	4.14	SEE NOTE 2
MH-33	MH-33	JB05	24.07	18.21	154.51	853.13	0.14	5.55	2.78	2.03	7.62	SEE NOTE 2
MH-34	MH-34	JB05	22.10	21.31	23.01	12.66	0.27	4.81	2.50	4.74	2.41	SEE NOTE 2
MH-35	MH-35	MH-34	22.24	22.10	23.01	47.84	0.19	4.63	1.80	3.14	2.49	SEE NOTE 2
MH-36	MH-36	MH-35	23.94	20.68	23.01	214.59	3.94	13.83	0.80	2.82	2.76	SEE NOTE 2
MH-37	MH-37	R-01	38.59	38.58	125.34	725.52	0.11	4.77	2.63	1.46	8.60	
MH-38	MH-38	MH-26	38.60	38.60	124.90	686.81	0.09	4.49	2.78	1.50	8.33	SEE NOTE 2
MH-39	MH-39	MH-26	38.61	38.60	2.43	10.28	0.18	2.53	0.69	0.88	1.63	SEE NOTE 2
MH-40	MH-40	JB01	32.79	32.67	141.87	768.51	0.12	5.10	2.78	4.68	3.03	SEE NOTE 2
MH-41	MH-41	MH-03	60.23	50.44	61.15	22.32	1.10	8.87	3.00	8.65	3.00	SEE NOTE 2
MH-42	MH-42	MH-41	61.64	60.23	37.43	22.80	0.72	7.82	2.50	7.63	2.50	SEE NOTE 2
MH-43	MH-43	MH-01	44.42	42.89	86.64	72.98	0.31	7.07	4.00	6.89	4.00	SEE NOTE 2
MH-45	MH-45	MH-46	5.66	3.82	192.44	93.54	0.83	12.41	4.50	12.10	4.50	SEE NOTE 2
MH-46	MH-46	C-OUT	3.82	1.98	192.44	140.40	0.83	12.41	4.50	12.10	4.50	SEE NOTE 2

NOTE



1. SEE PROPOSED DRAINAGE AREA MAP, DRAINAGE PLAN & PROFILE SHEETS, AND STORM SEWER LATERALS FOR ADDITIONAL INFORMATION.
2. EXISTING PIPE TO REMAIN.

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 <p>GAUGE ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p><small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small></p> <p>PATRICK W. PHILLIPS 92917 2/20/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017</p>
<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1</p> <p>PROPOSED 2-YEAR STORM SEWER COMPUTATIONS</p>	
<p>SHEET 4 OF 5</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JUADA HUANG</p>	
<p>SHEET NO 154 OF 355</p>	

WARNING MESSAGES

Link Capacity Exceeded for Link MH-42
 HGL Blowout upstream of Link MH-42 minimum freeboard not achieved
 Link Capacity Exceeded for Link MH-41
 HGL Blowout upstream of Link MH-41 minimum freeboard not achieved
 Link Capacity Exceeded for Link MH-03
 HGL Blowout upstream of Link MH-03 minimum freeboard not achieved
 Link Capacity Exceeded for Link MH-43
 Link Capacity Exceeded for Link MH-06
 HGL Blowout upstream of Link MH-06 minimum freeboard not achieved
 Link C-01 velocity less than minimum desired
 Link MH-15 velocity less than minimum desired
 Link MH-05 velocity greater than maximum desired
 Link MH-07 velocity less than minimum desired
 Link Capacity Exceeded for Link MH-23
 Link Capacity Exceeded for Link MH-20
 Link MH-19 velocity less than minimum desired
 Link MH-08 velocity less than minimum desired
 Link Capacity Exceeded for Link MH-24
 Link MH-21 velocity less than minimum desired
 Link MH-28 velocity less than minimum desired
 Link MH-25 velocity less than minimum desired
 Link MH-09 velocity less than minimum desired
 Link MH-39 velocity less than minimum desired
 Link MH-38 velocity less than minimum desired
 Link C-12 velocity less than minimum desired
 Link Capacity Exceeded for Link MH-10
 Link C-10 velocity less than minimum desired
 Link MH-26 velocity less than minimum desired
 Link Capacity Exceeded for Link MH-30
 Link Capacity Exceeded for Link R1
 Link R1 velocity greater than maximum desired
 Link Capacity Exceeded for Link R2
 Link R2 velocity greater than maximum desired
 Link Capacity Exceeded for Link MH-13
 Link MH-36 velocity greater than maximum desired
 Link Capacity Exceeded for Link MH-35
 Link Capacity Exceeded for Link MH-34
 Link Capacity Exceeded for Link R3
 Link R3 velocity greater than maximum desired
 Link Capacity Exceeded for Link JB05
 Link JB05 velocity greater than maximum desired
 Link Capacity Exceeded for Link MH-45
 Link MH-45 velocity greater than maximum desired
 Link Capacity Exceeded for Link MH-46
 Link MH-46 velocity greater than maximum desired

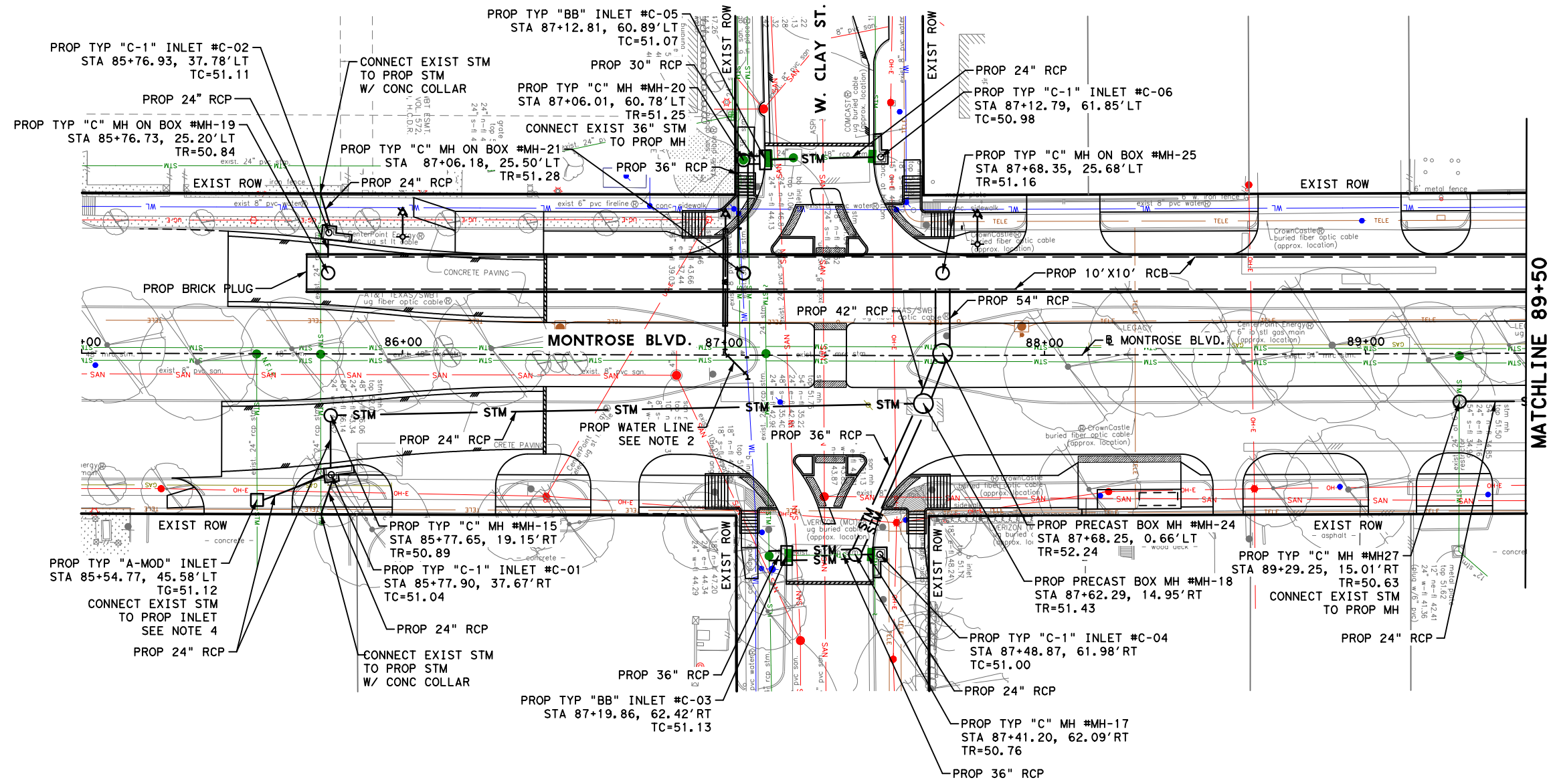
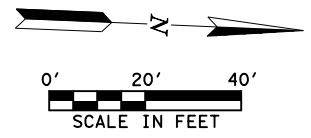
 MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27	
 Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of: PATRICK W. PHILLIPS 92917 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 PROPOSED 2-YEAR STORM SEWER COMPUTATIONS	
SHEET 5 OF 5	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 155 OF 355	

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BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTR0SE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

LEGEND:

- PROP STORM SEWER
- PROP ROADWAY FACE OF CURB
- EXIST STORM SEWER
- PROPOSED INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE



MATCHLINE 89+50

NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
 valid for one year.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

SURVEYED BY:
 KUO & ASSOCIATES, INC.

100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

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 JONAS H. JUBIL
 1403116
 2/20/2024

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

DRAINAGE PLAN

BEGIN PROJECT TO STA 89+50

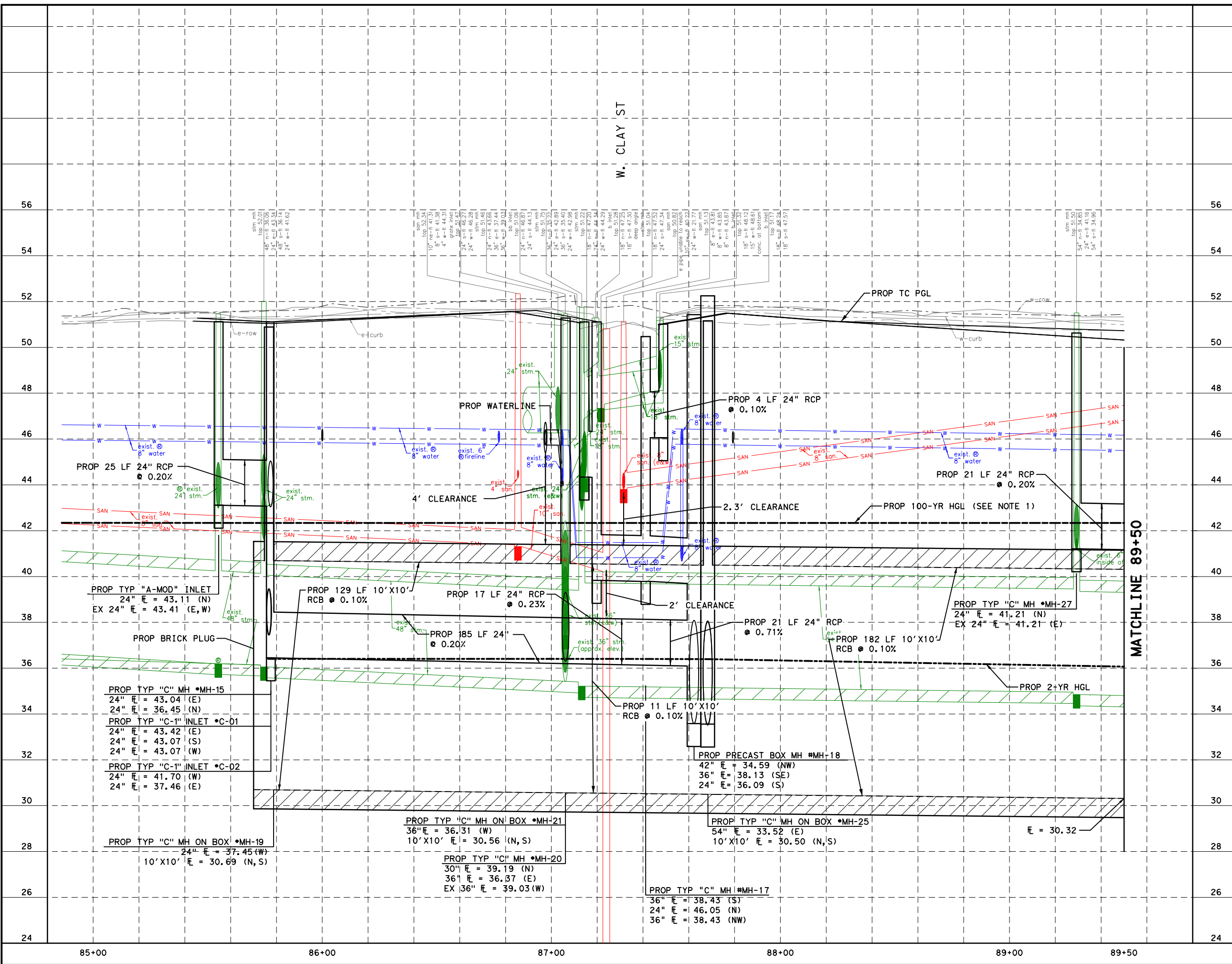
SHEET 1 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 156 OF 355	

- NOTES:**
- REFER TO ROADWAY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - CONTRACTOR TO FIELD VERIFY WATERLINE ELEVATION. CONTRACT ENGINEER IF THERE IS LESS THAN 2-FT OF CLEARANCE. NO. SEPARATE PAY.
 - CONTRACTOR TO INSTALL INLET WITH GRATE SLOTS PERPENDICULAR TO PATH OF SIDEWALK.

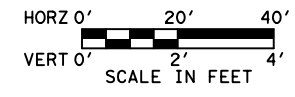
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No.	DATE

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NOTES

1. PROPOSED 100-YR HGL IS FROM SWMM MODEL.



NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature _____ Date _____ valid for one year.



Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 1403416
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 Texas Registered Engineering Firm F-20017

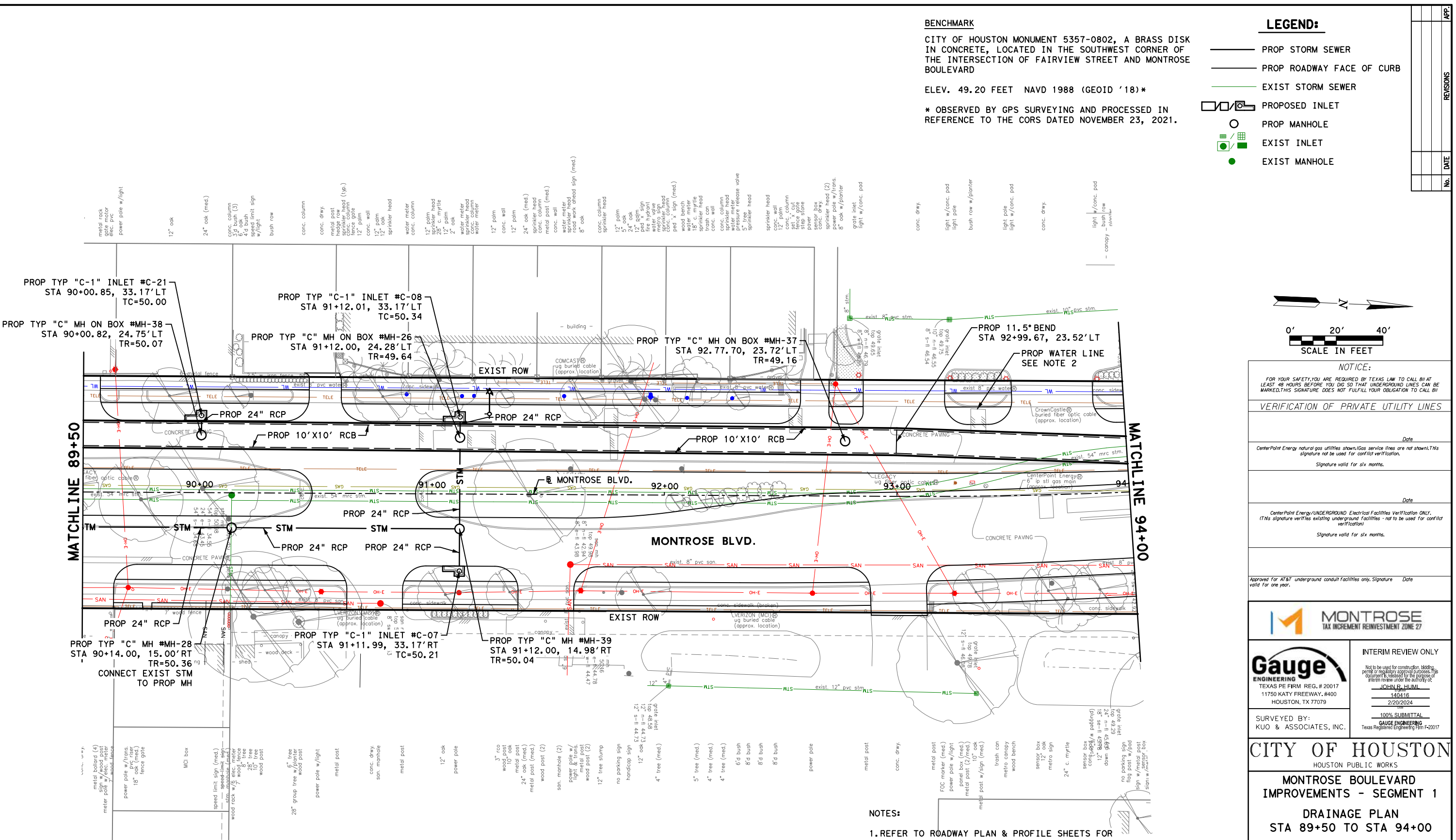
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
DRAINAGE PROFILE BEGIN PROJECT TO STA 89+50

SHEET 2 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 157 OF 355	

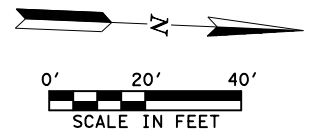
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No.	DATE



BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTROSE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

LEGEND:

- PROP STORM SEWER
- PROP ROADWAY FACE OF CURB
- EXIST STORM SEWER
- PROPOSED INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE



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Approved for All underground conduit facilities only. Signature Date valid for one year.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
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 140416
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 Texas Registered Engineering Firm F-2017

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 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
DRAINAGE PLAN
 STA 89+50 TO STA 94+00

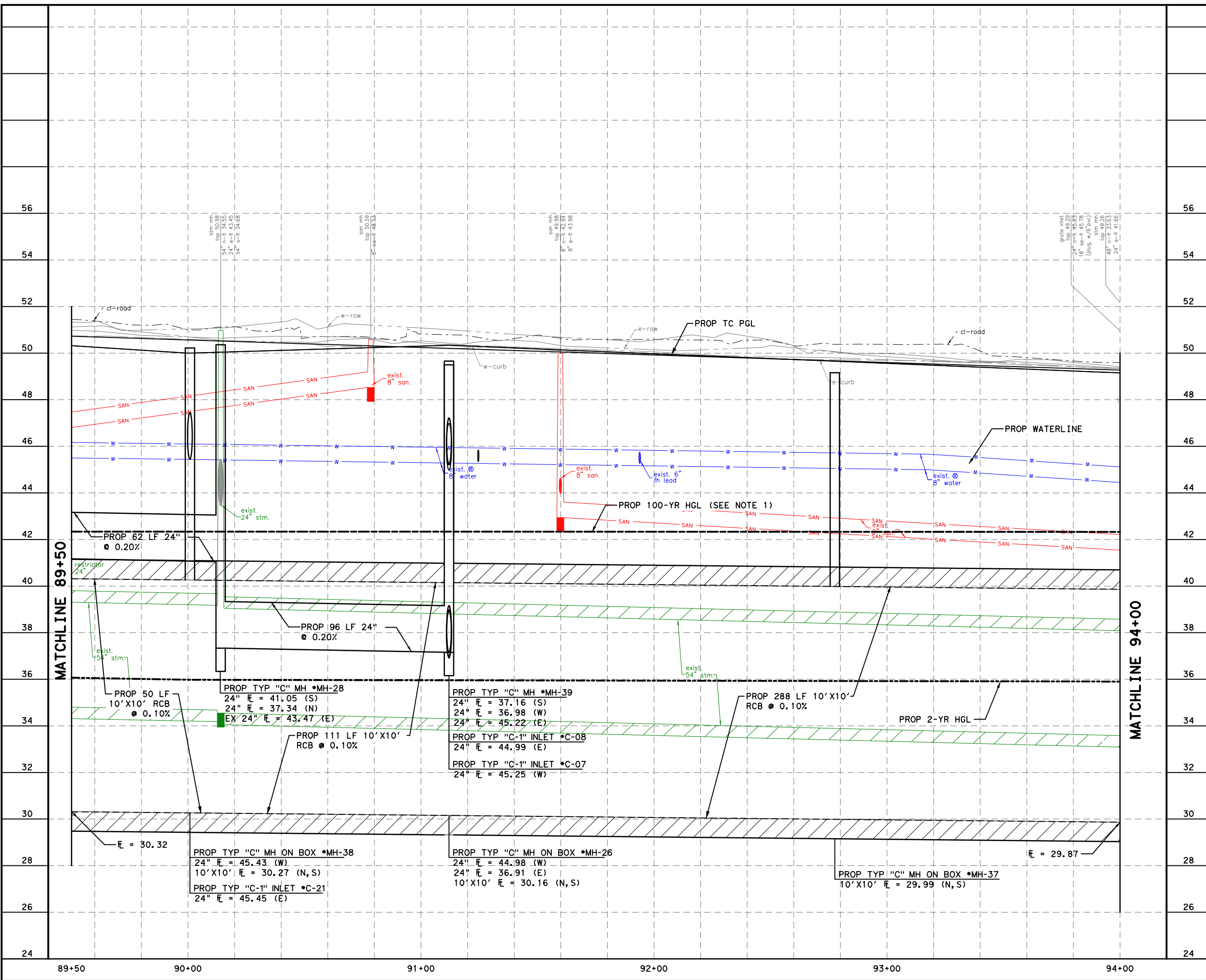
SHEET 3 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 158 OF 355	

- NOTES:**
- REFER TO ROADWAY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
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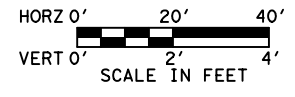
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NOTES

1. PROPOSED 100-YR HGL IS FROM SWMM MODEL.



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Approved for All underground conduit facilities only. Signature _____ Date _____
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 JCHEN, HJUBIL
 1/4/2024
 2/21/2024

SURVEYED BY:
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 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 DRAINAGE PROFILE STA 89+50 TO STA 94+00

SHEET 4 OF 12

WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JUADA HUANG
SHEET NO	159 OF 355

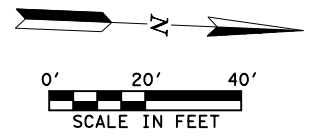
FOR CITY OF HOUSTON USE ONLY
REVISIONS
No. DATE
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BENCHMARK
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Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
 valid for one year.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

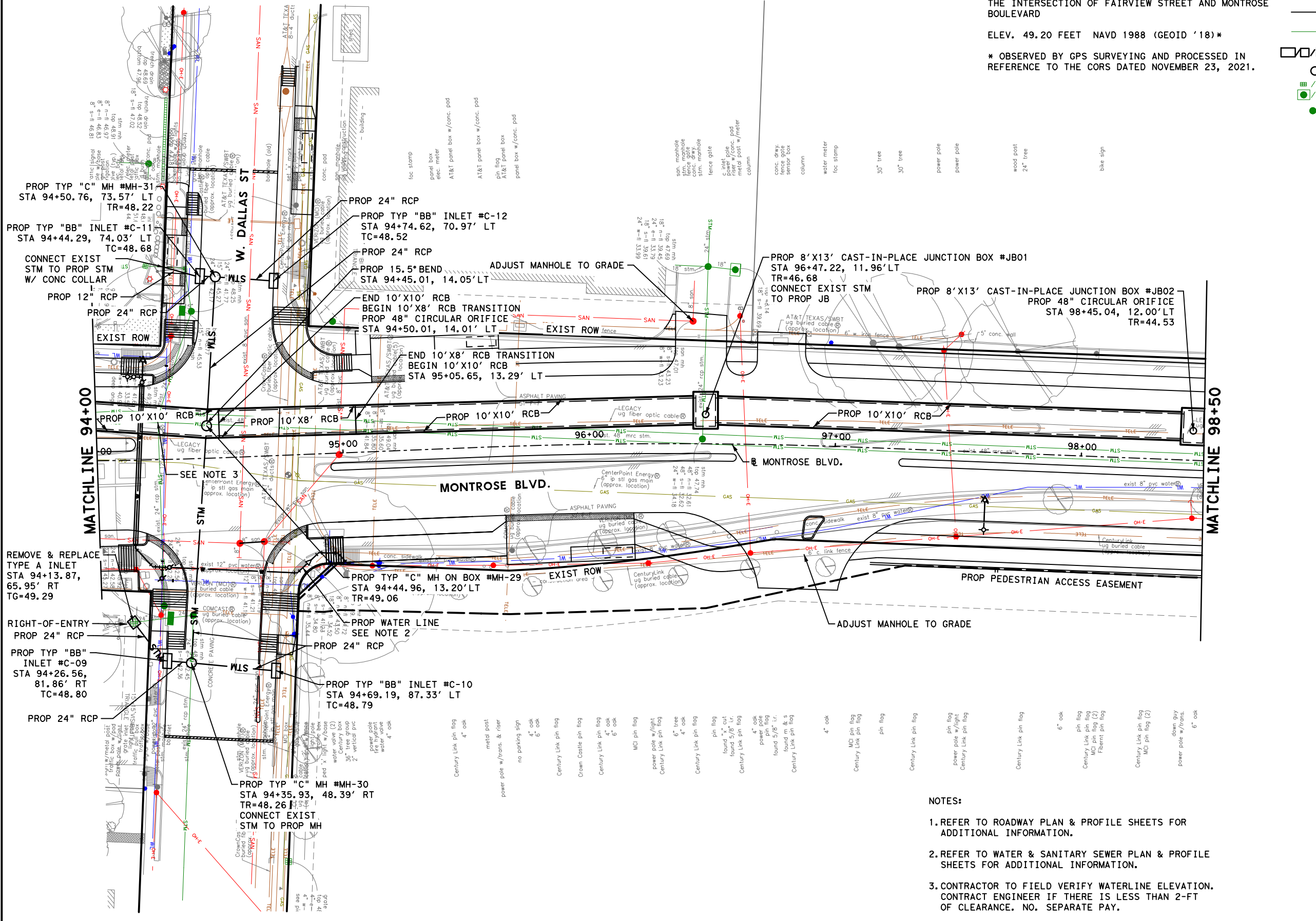
INTERIM REVIEW ONLY
 Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:
 CHEN, S. H. JULI
 140416
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
DRAINAGE PLAN
 STA 94+00 TO STA 98+50

SHEET 5 OF 12

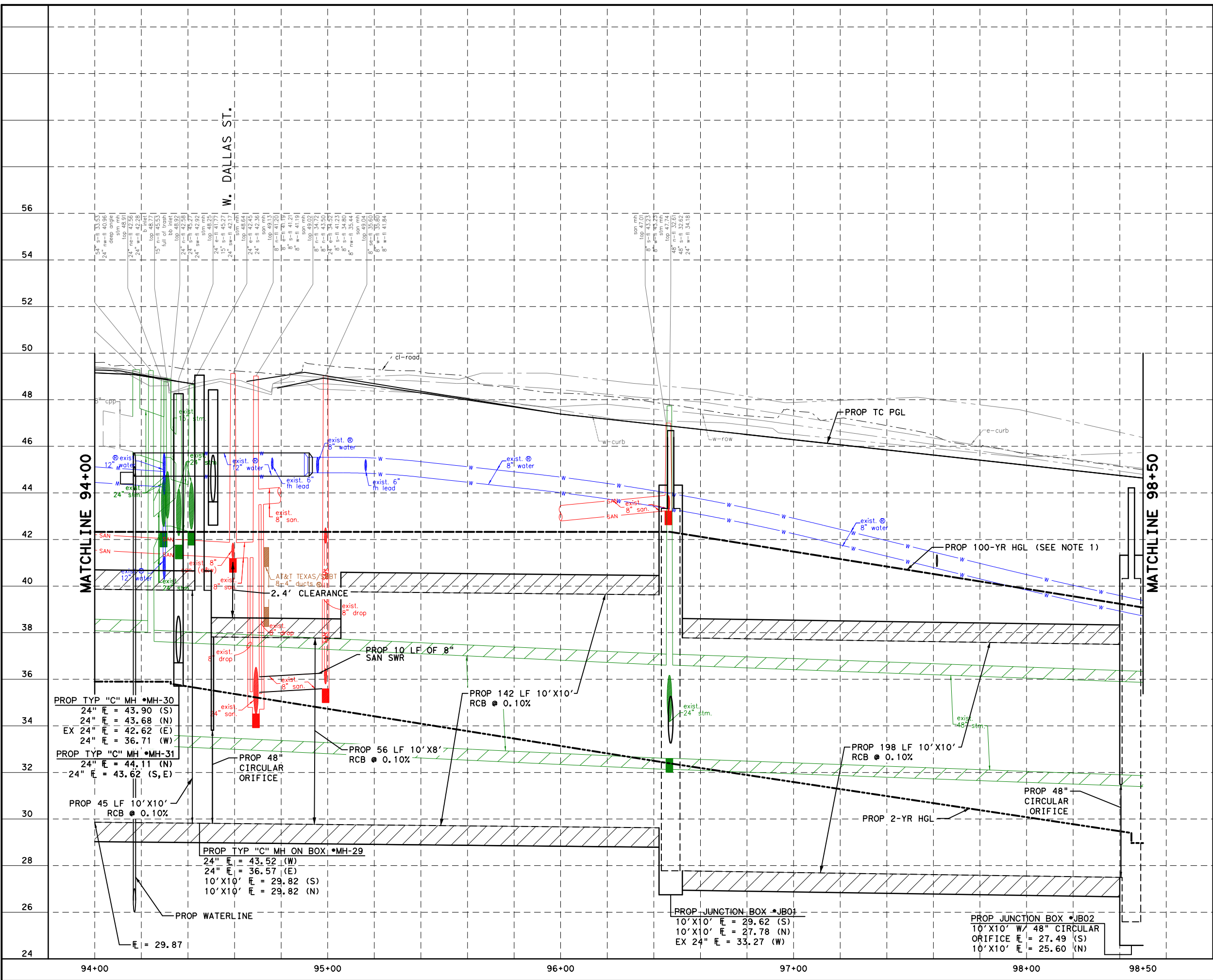
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N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 160 OF 355	



- NOTES:**
1. REFER TO ROADWAY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 2. REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 3. CONTRACTOR TO FIELD VERIFY WATERLINE ELEVATION. CONTRACT ENGINEER IF THERE IS LESS THAN 2-FT OF CLEARANCE. NO. SEPARATE PAY.

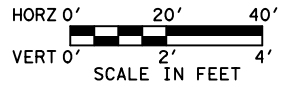
No.	DATE	REVISIONS	APP.

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NOTES

1. PROPOSED 100-YR HGL IS FROM SWMM MODEL.



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

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 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
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Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> JCHNLB, JHJUBJL 1/13/16 2/21/2024
	SURVEYED BY: KUO & ASSOCIATES, INC. 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-20017</small>

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
DRAINAGE PROFILE
STA 94+00 TO STA 98+50

SHEET 6 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 161 OF 355	

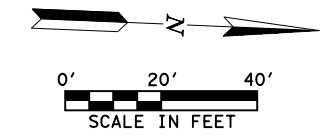
APP.	
REVISIONS	
No.	DATE

BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTR0SE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

LEGEND:

- PROP STORM SEWER
- PROP ROADWAY FACE OF CURB
- EXIST STORM SEWER
- PROPOSED INLET
- PROP MANHOLE
- ◻ EXIST INLET
- EXIST MANHOLE

No.	DATE	REVISIONS	APP.



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Date _____
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 Signature valid for six months.

Approved for All 6" underground conduit facilities only. Signature _____ Date _____
 valid for one year.

MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

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CHINLIS HUANG
 140416
 2/20/2024

100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

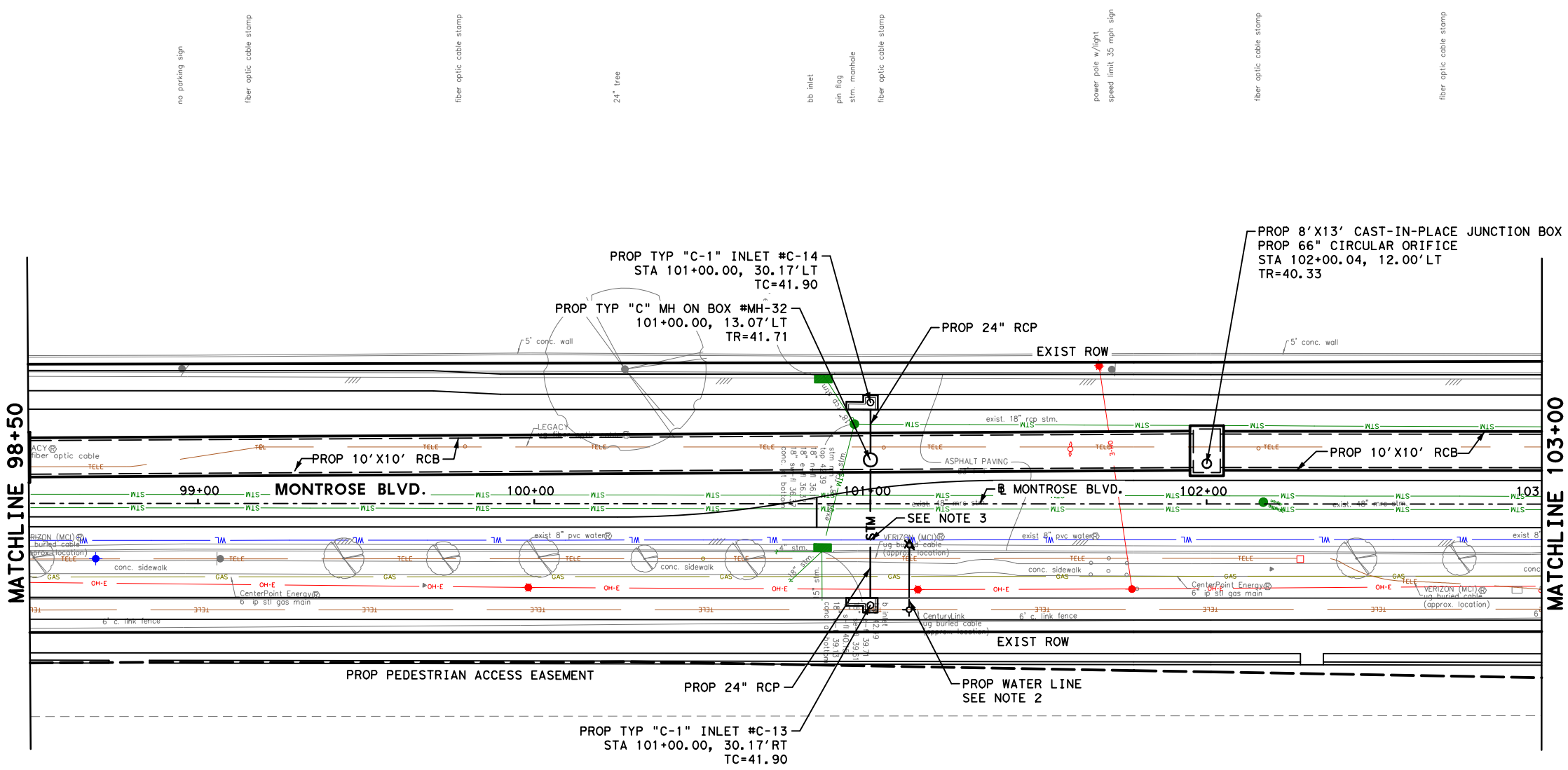
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTR0SE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**

**DRAINAGE PLAN
 STA 98+50 TO STA 103+00**

SHEET 7 OF 12

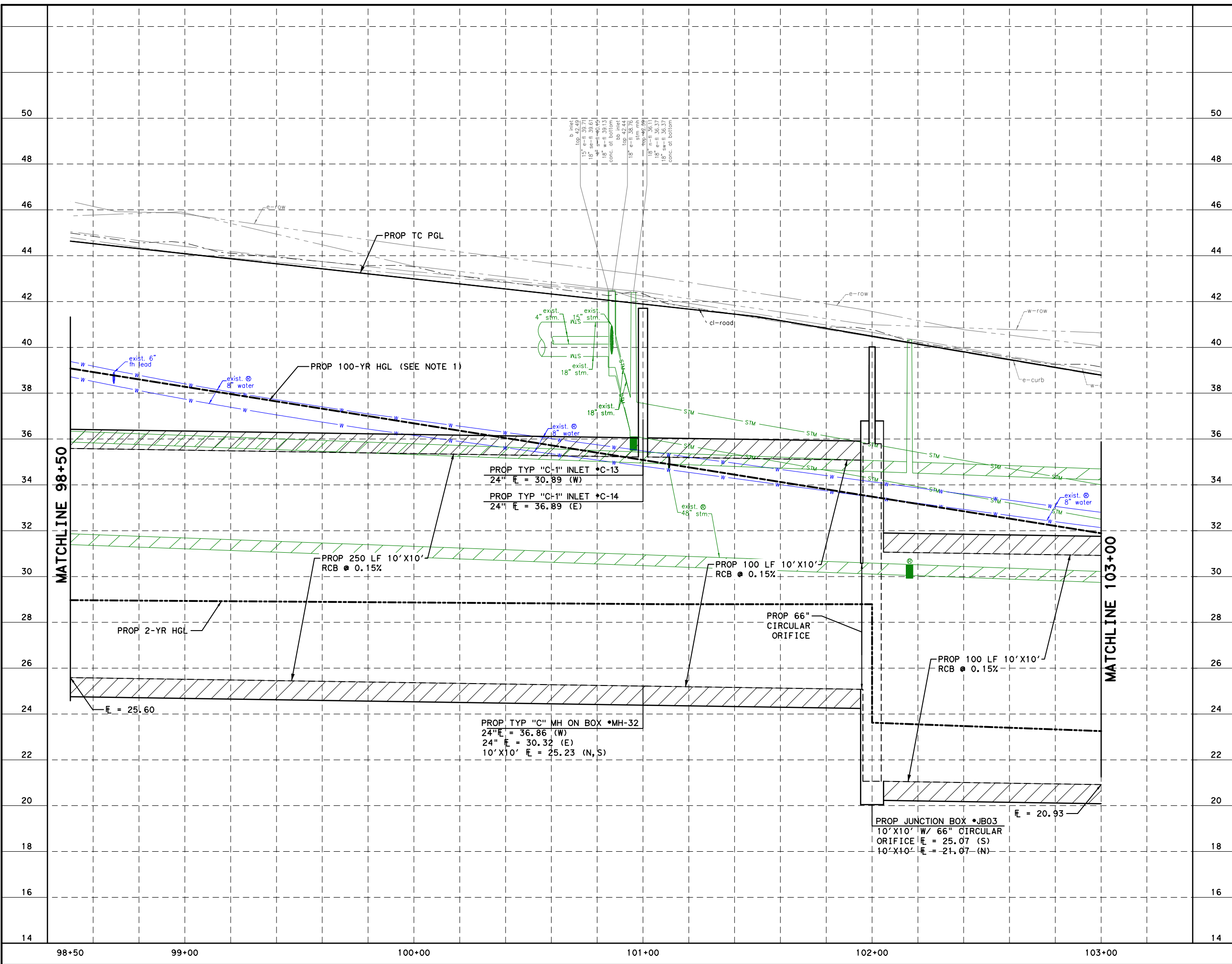
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 162 OF 355	



- Century Link pin flag
- MCI pin flag
- fire hydrant
- Century Link pin flag
- MCI pin flag
- speed limit sign
- Century Link pin flag
- MCI pin flag
- Century Link pin flag
- MCI pin flag
- 6" oak
- Century Link pin flag
- set 5/8" Lr.
- 5" oak
- MCI pin flag
- power pole light
- 6" oak
- Century Link pin flag
- MCI pin flag
- 4" oak
- gas pin flag
- Century Link pin flag
- 6" oak
- MCI pin flag
- Century Link pin flag
- bb inlet
- Century Link pin flag
- power pole w/light
- Century Link pin flag
- MCI pin flag
- MCI pin flag
- stamp (6)
- power pole w/trans.
- metal rider (2)
- MCI pin flag
- Century Link pin flag
- set "x" cut
- elec. box
- MCI pin flag
- 6" oak
- MCI pin flag
- Century Link pin flag
- MCI pin flag
- 5" oak
- MCI pin flag
- pull box
- MCI pin flag
- elec. box

- NOTES:**
- REFER TO ROADWAY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - CONTRACTOR TO FIELD VERIFY WATERLINE ELEVATION. CONTRACT ENGINEER IF THERE IS LESS THAN 2-FT OF CLEARANCE. NO. SEPARATE PAY.

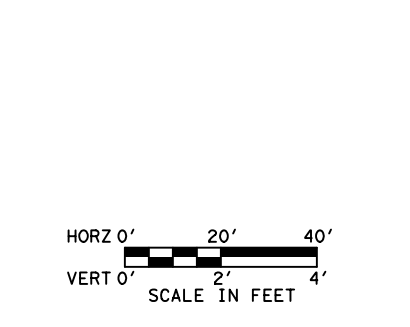
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NOTES

1. PROPOSED 100-YR HGL IS FROM SWMM MODEL.

No.	DATE	REVISIONS	APP.



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Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 1/23/24
 2/21/2024

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 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
DRAINAGE PROFILE
 STA 98+50 TO STA 103+00

SHEET 8 OF 12

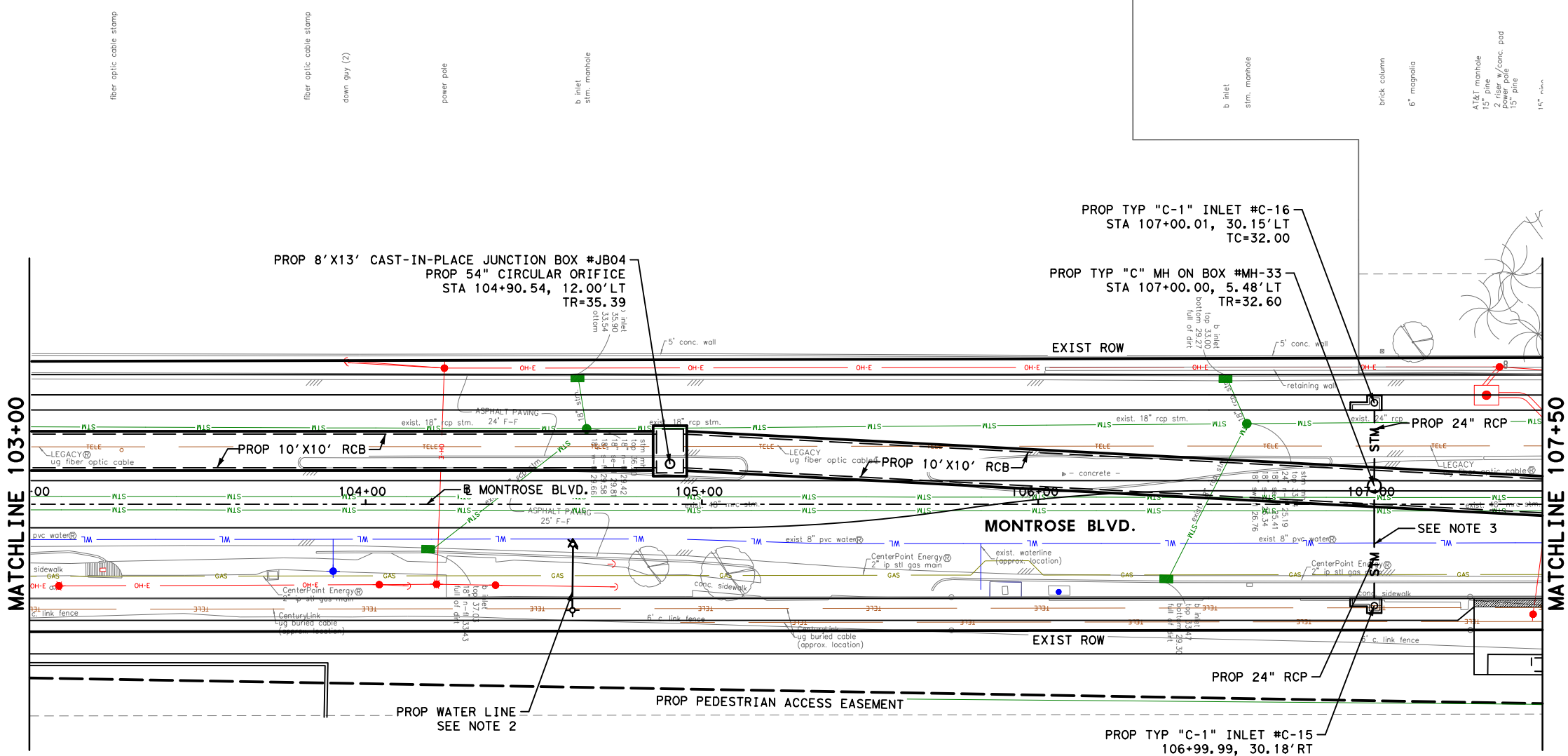
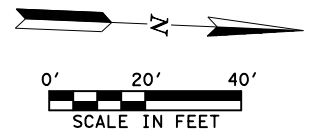
FOR CITY OF HOUSTON USE ONLY	
WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JUADA HUANG
SHEET NO. 163 OF 355	

APP.	REVISIONS	DATE	NO.

BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTR0SE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

LEGEND:

- PROP STORM SEWER
- PROP ROADWAY FACE OF CURB
- EXIST STORM SEWER
- PROPOSED INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE



- elec. meter
- Verizon panel box
- Crown Castle pin flag
- rise (2)
- light & camera
- elec. box
- Century Link pin flag
- Century Link pin flag
- metal plate
- Century Link pin flag
- fire hydrant
- power pole
- Century Link pin flag (2)
- down guy
- power pole pin flag
- power pole w/ 2 bases
- Century Link pin flag
- Century Link pin flag
- down guy (no line)
- down guy
- Century Link pin flag
- 6\"/>

- NOTES:**
- REFER TO ROADWAY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
 - REFER TO WATER & SANITARY SEWER PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
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MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 140416
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

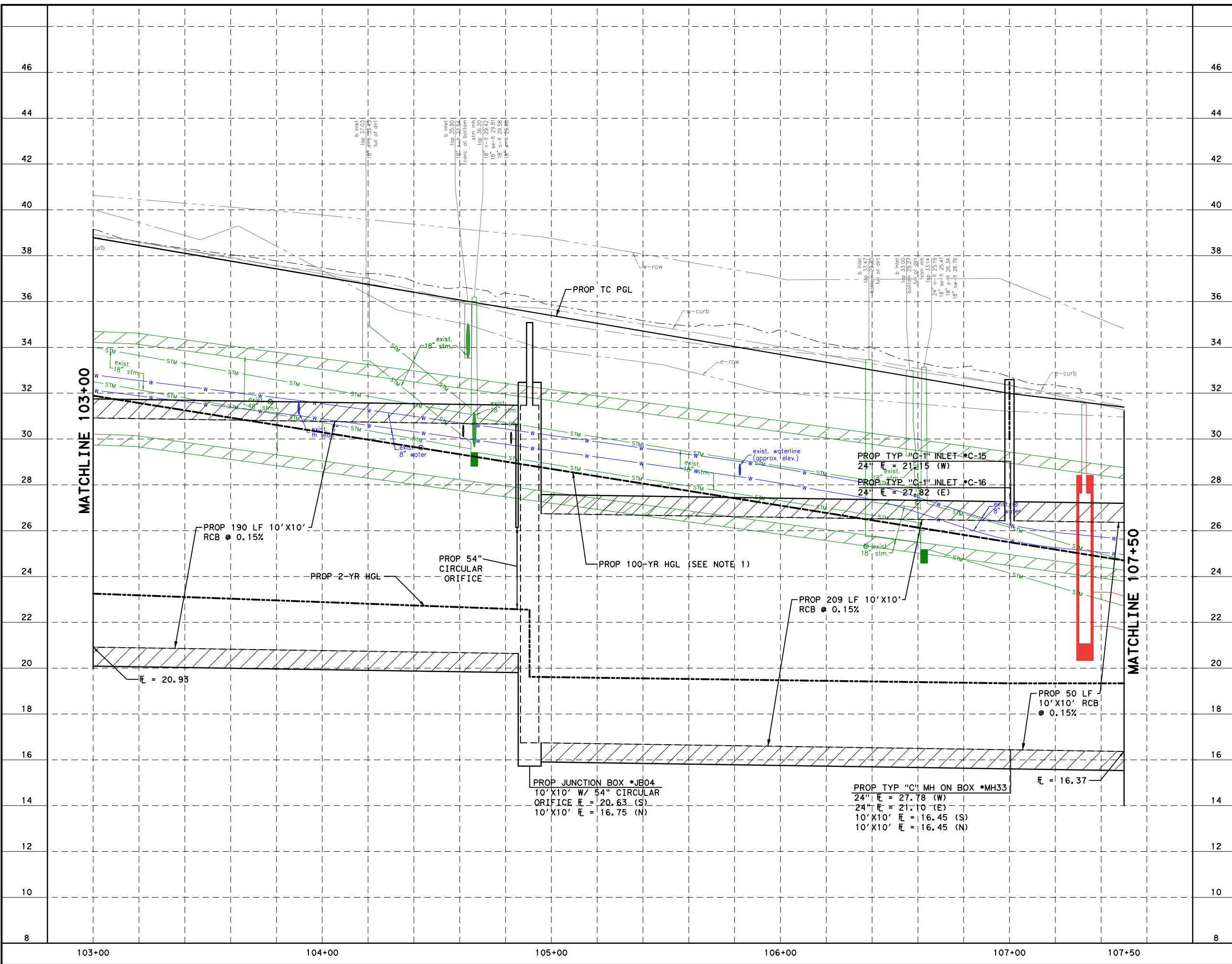
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
DRAINAGE PLAN
STA 103+00 TO STA 107+50

SHEET 9 OF 12

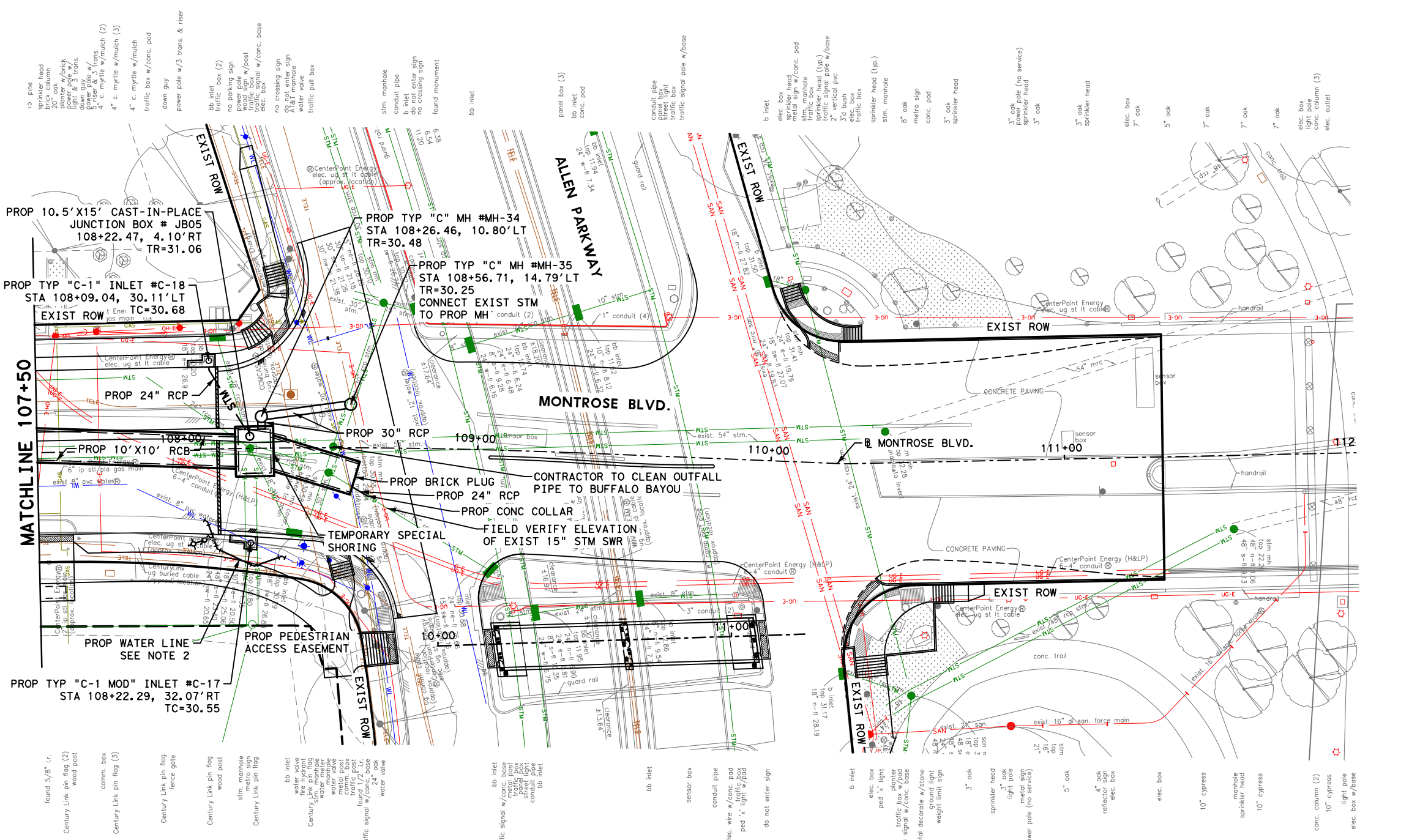
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 164 OF 355	

Pen Table: MONTROSE.tbl
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NOTES													
46	1. PROPOSED 100-YR HGL IS FROM SWMM MODEL.												
44													
42													
40													
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30	<p>VERIFICATION OF PRIVATE UTILITY LINES</p> <p>Date _____</p> <p>CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.</p> <p>Signature valid for six months.</p>												
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26	<p>Approved for AT&T underground conduit facilities only. Signature _____ Date _____ valid for one year.</p>												
22	<p>MONTROSE TAX INCREMENT REINVESTMENT ZONE 27</p>												
20	<p>Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p> <p>INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of: CHEN, HUIJUN 1/23/24 2/21/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017</p>												
18	<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>												
16	<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>												
14	<p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 DRAINAGE PROFILE STA 103+00 TO STA 107+50</p>												
12	<p>SHEET 10 OF 12</p>												
10	<table border="1"> <tr> <th>WBS NUMBER</th> <th>FOR CITY OF HOUSTON USE ONLY</th> </tr> <tr> <td>N-T27000-0005-7</td> <td></td> </tr> <tr> <td>DRAWING SCALE</td> <td></td> </tr> <tr> <td>AS NOTED</td> <td></td> </tr> <tr> <td>CITY OF HOUSTON PM</td> <td></td> </tr> <tr> <td>JIADA HUANG</td> <td></td> </tr> </table>	WBS NUMBER	FOR CITY OF HOUSTON USE ONLY	N-T27000-0005-7		DRAWING SCALE		AS NOTED		CITY OF HOUSTON PM		JIADA HUANG	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY												
N-T27000-0005-7													
DRAWING SCALE													
AS NOTED													
CITY OF HOUSTON PM													
JIADA HUANG													
8	<p>SHEET NO. 165 OF 355</p>												

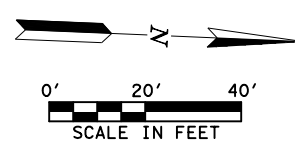
No.	DATE	REVISIONS	APP.



BENCHMARK
 CITY OF HOUSTON MONUMENT 5357-0802, A BRASS DISK IN CONCRETE, LOCATED IN THE SOUTHWEST CORNER OF THE INTERSECTION OF FAIRVIEW STREET AND MONTR0SE BOULEVARD
 ELEV. 49.20 FEET NAVD 1988 (GEOID '18)*
 * OBSERVED BY GPS SURVEYING AND PROCESSED IN REFERENCE TO THE CORS DATED NOVEMBER 23, 2021.

LEGEND:

- PROP STORM SEWER
- PROP ROADWAY FACE OF CURB
- EXIST STORM SEWER
- PROPOSED INLET
- PROP MANHOLE
- EXIST INLET
- EXIST MANHOLE



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MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge Engineering
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

SURVEYED BY:
 KUO & ASSOCIATES, INC.

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JOHN S. HAJJILI
 140416
 2/20/2024

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 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTR0SE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**

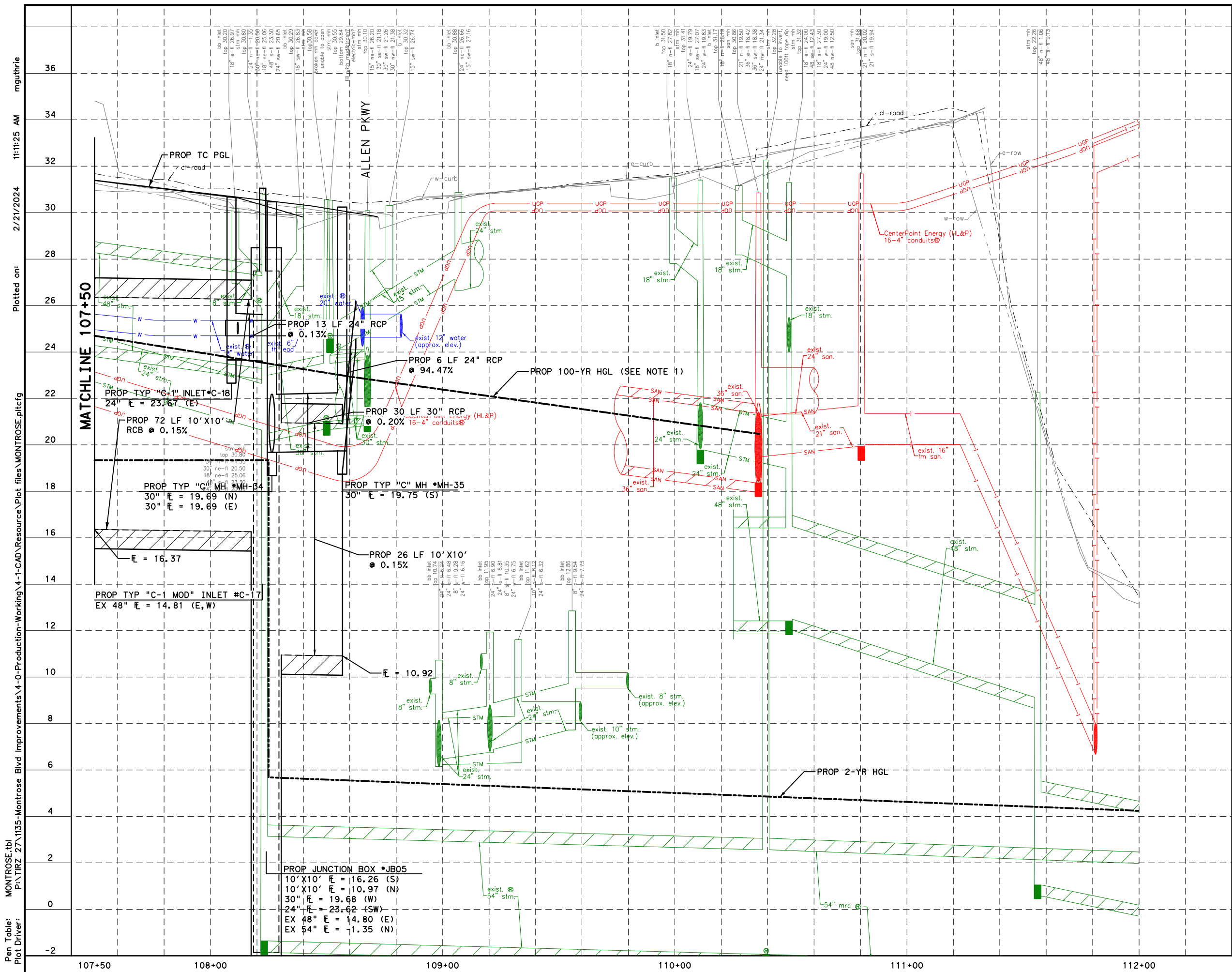
**DRAINAGE PLAN
 STA 107+50 TO END PROJECT**

SHEET 11 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 166 OF 355	

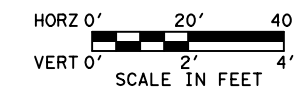
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NO.	DATE	REVISIONS	APP.



NOTES

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 CHEN, HUIJUN
 1/23/24
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
DRAINAGE PROFILE
STA 107+50 TO END PROJECT

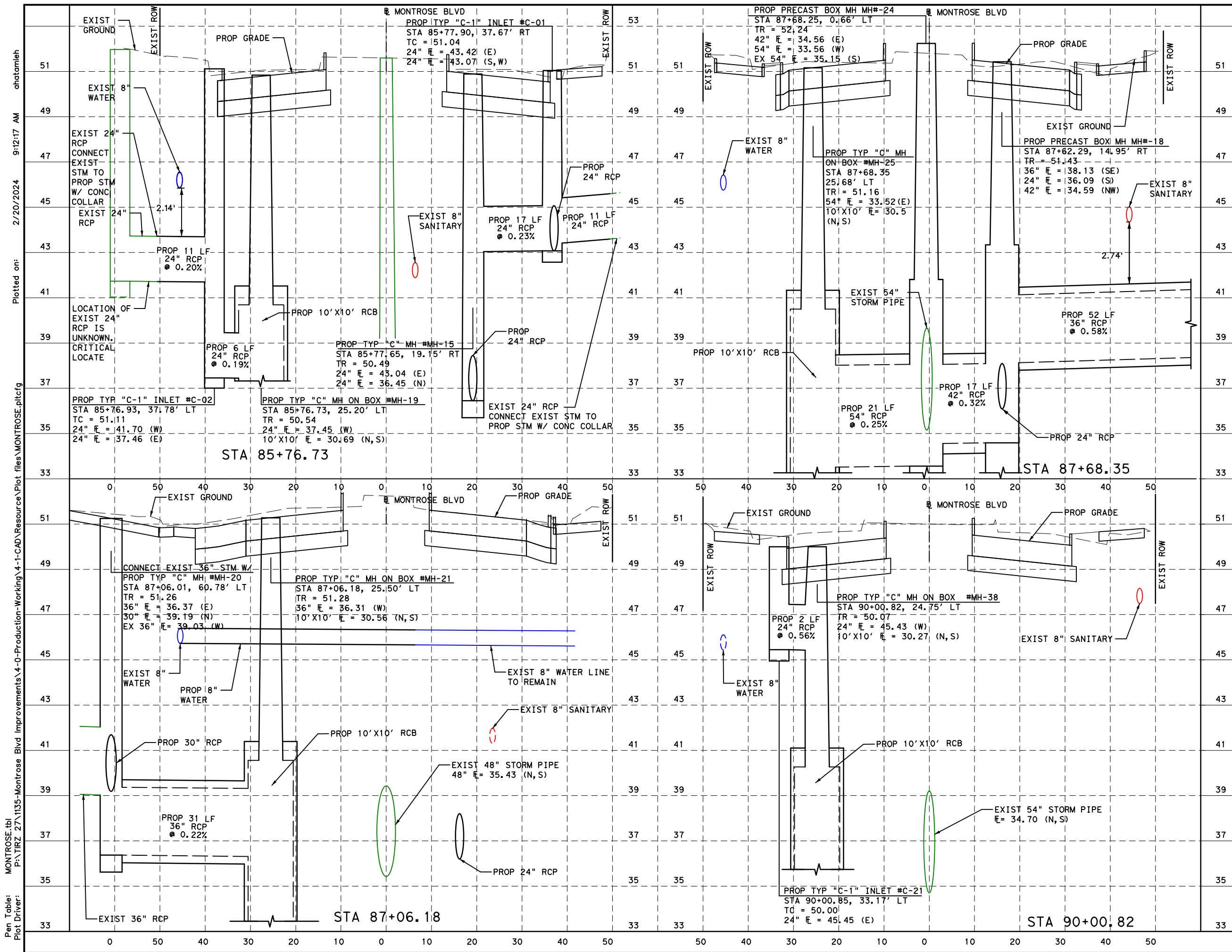
SHEET 12 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 167 OF 355	

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Plotted on: 2/21/2024 11:11:25 AM mguthrie

APP.	
REVISIONS	
No.	DATE



- NOTES:
1. SEE STORM SEWER COMPUTATIONS FOR MORE INFORMATION.
 2. SEE DRAINAGE MISC SEWER DETAILS FOR PIPE COLLAR, PIPE JUNCTION AND BENDING DETAILS.
 3. PIPE LENGTHS SHOWN ARE PAY LENGTHS.
 4. PIPES ARE CLASS III, UNLESS NOTED.
 5. CONTRACTOR TO FIELD VERIFY EXISTING PIPE CONNECTION FLOWLINES AT TIE-IN LOCATIONS. IF DIFFERENT THAN SHOWN, CONTRACTOR TO MAINTAIN DESIGNED SLOPES AS MINIMUM. SLOPES MAY BE STEEPENED.



INTERIM REVIEW ONLY

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CHIN-LEI HUANG
140116
2/20/2024

100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-2017

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

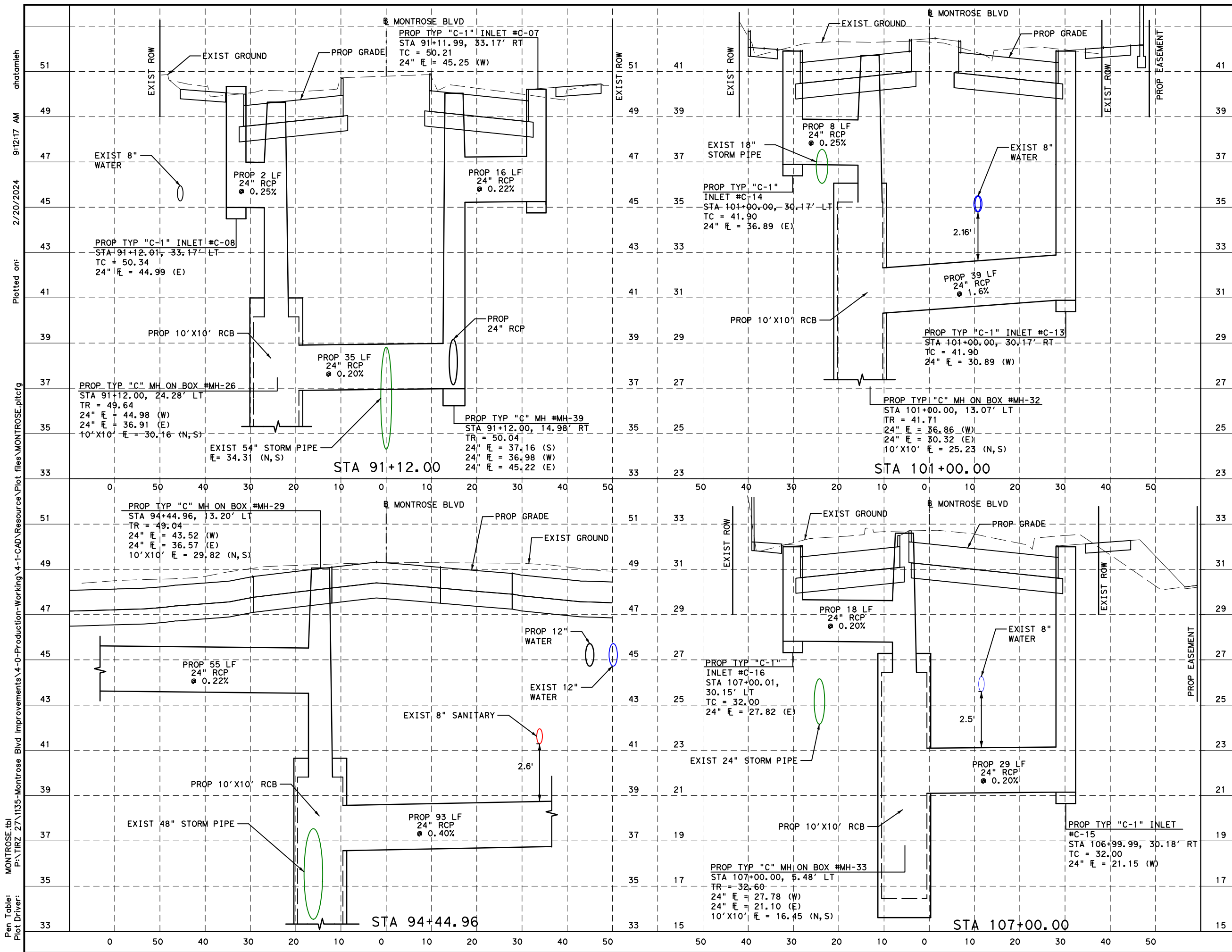
STORM SEWER LATERALS

SHEET 1 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 168 of 355	

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REVISIONS	No.	DATE	APP.



- NOTES:
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 2. SEE DRAINAGE MISC SEWER DETAILS FOR PIPE COLLAR, PIPE JUNCTION AND BENDING DETAILS.
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MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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JCH/LS - HJ/JUL
140116
2/20/2024

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Texas Registered Engineering Firm F-20017

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

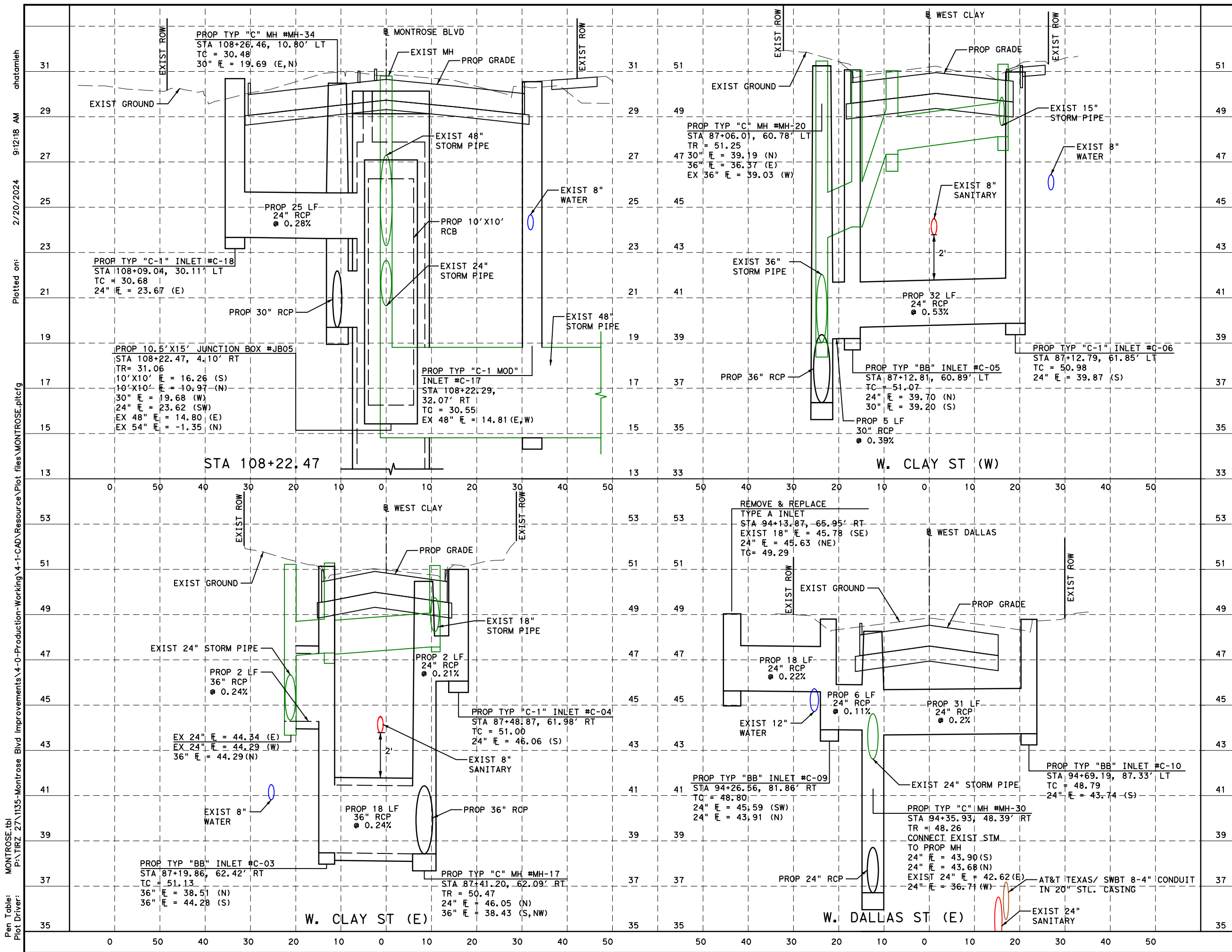
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
STORM SEWER LATERALS

SHEET 2 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 169 OF 355	

Pen Table: MONTROSE.tbl
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APP.	
REVISIONS	
No.	DATE



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- NOTES:
1. SEE STORM SEWER COMPUTATIONS FOR MORE INFORMATION.
 2. SEE DRAINAGE MISC SEWER DETAILS FOR PIPE COLLAR, PIPE JUNCTION AND BENDING DETAILS.
 3. PIPE LENGTHS SHOWN ARE PAY LENGTHS.
 4. PIPES ARE CLASS III, UNLESS NOTED.
 5. CONTRACTOR TO FIELD VERIFY EXISTING PIPE CONNECTION FLOWLINES AT TIE-IN LOCATIONS. IF DIFFERENT THAN SHOWN, CONTRACTOR TO MAINTAIN DESIGNED SLOPES AS MINIMUM. SLOPES MAY BE STEEPENED.

MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

INTERIM REVIEW ONLY

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

140116
2/20/2024

100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-2017

SURVEYED BY:
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1**

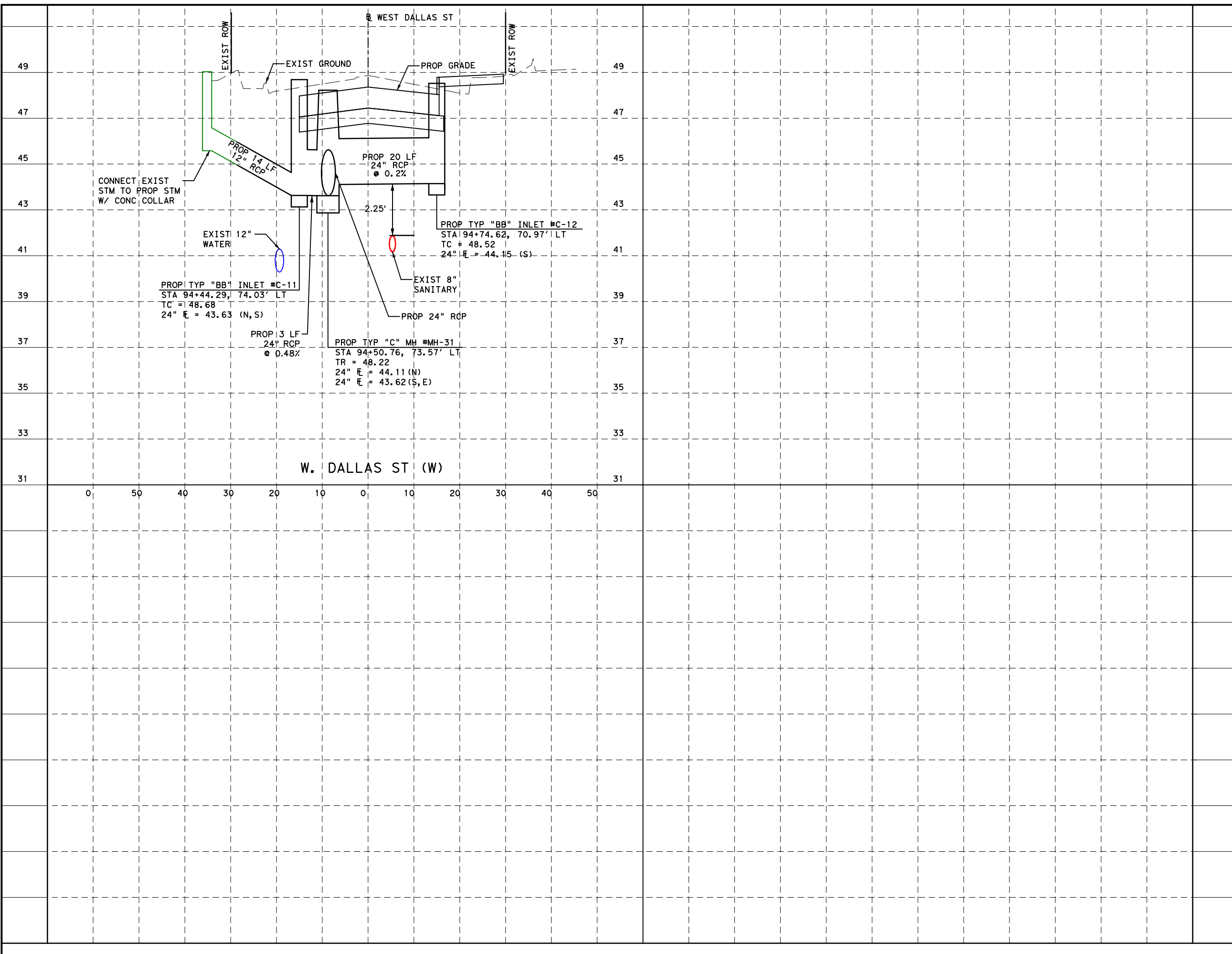
STORM SEWER LATERALS

SHEET 3 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 170 of 355	

REVISIONS	APP.
No.	DATE

Pen Table: MONTR0SE.tbl
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- NOTES:
1. SEE STORM SEWER COMPUTATIONS FOR MORE INFORMATION.
 2. SEE DRAINAGE MISC SEWER DETAILS FOR PIPE COLLAR, PIPE JUNCTION AND BENDING DETAILS.
 3. PIPE LENGTHS SHOWN ARE PAY LENGTHS.
 4. PIPES ARE CLASS III, UNLESS NOTED.
 5. CONTRACTOR TO FIELD VERIFY EXISTING PIPE CONNECTION FLOWLINES AT TIE-IN LOCATIONS. IF DIFFERENT THAN SHOWN, CONTRACTOR TO MAINTAIN DESIGNED SLOPES AS MINIMUM. SLOPES MAY BE STEEPENED.



Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

STORM SEWER LATERALS

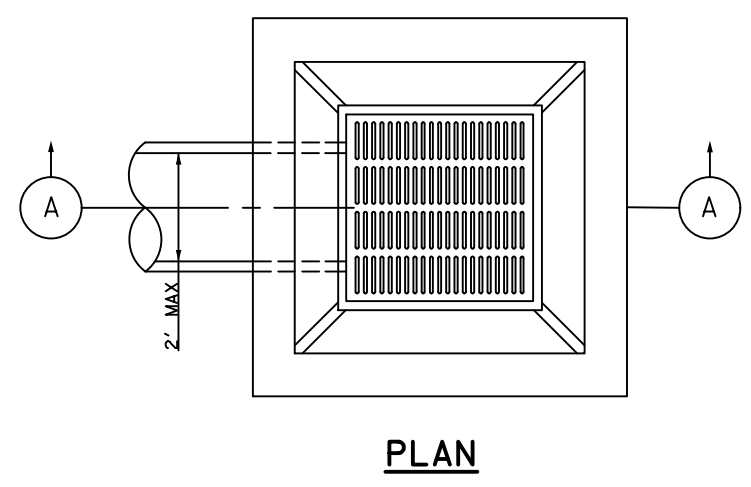
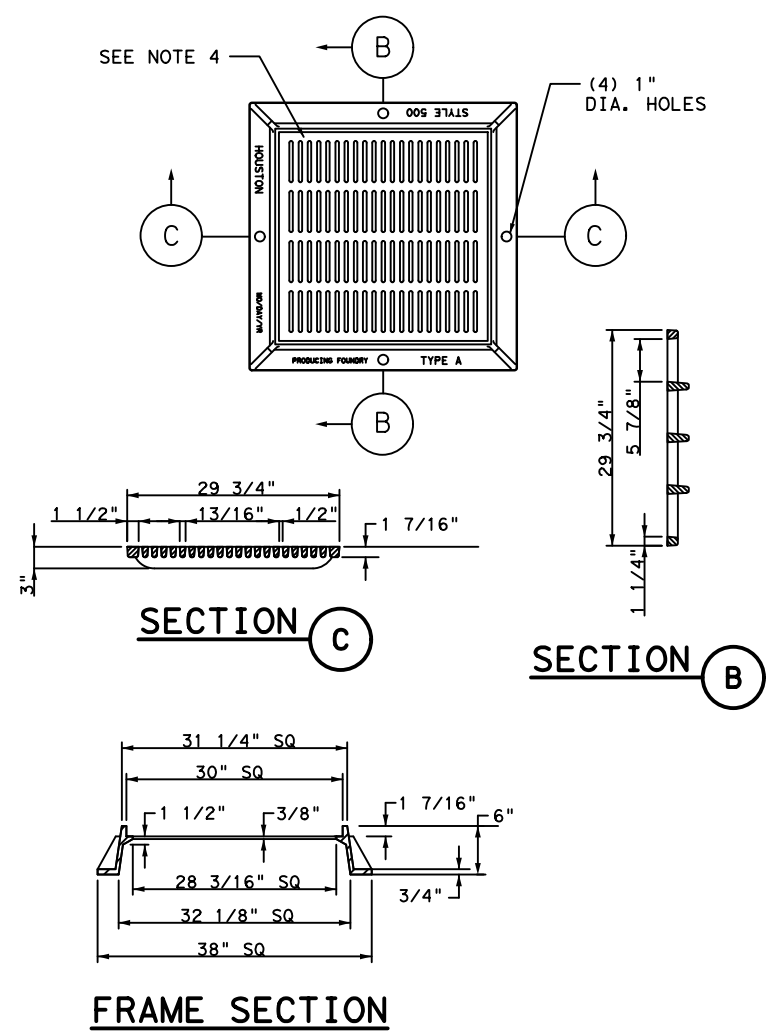
SHEET 4 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 171 of 355	

APP.	
REVISIONS	
No.	DATE

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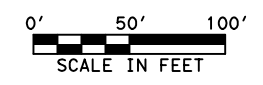
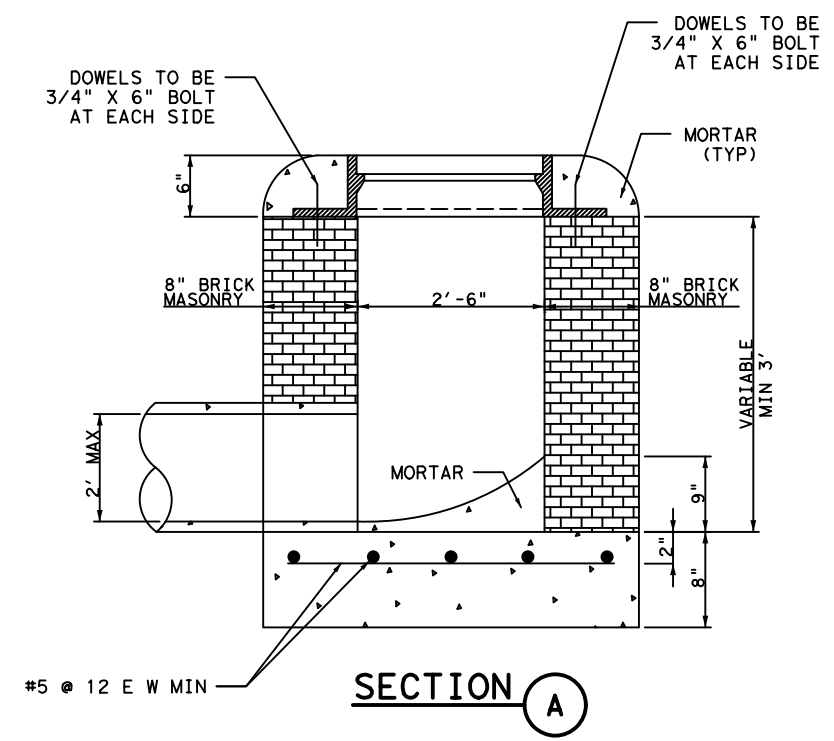
No.	DATE	REVISIONS	APP.



STORM SEWER TYPE "A-MOD" GRATE INLET
 N. T. S

NOTES:

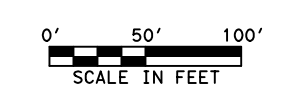
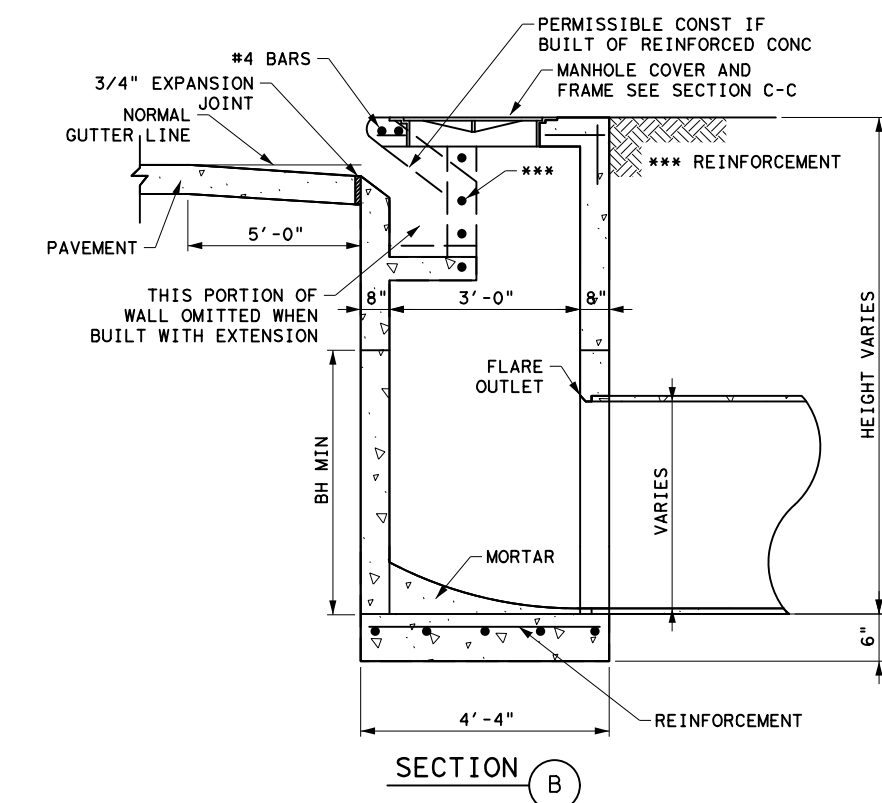
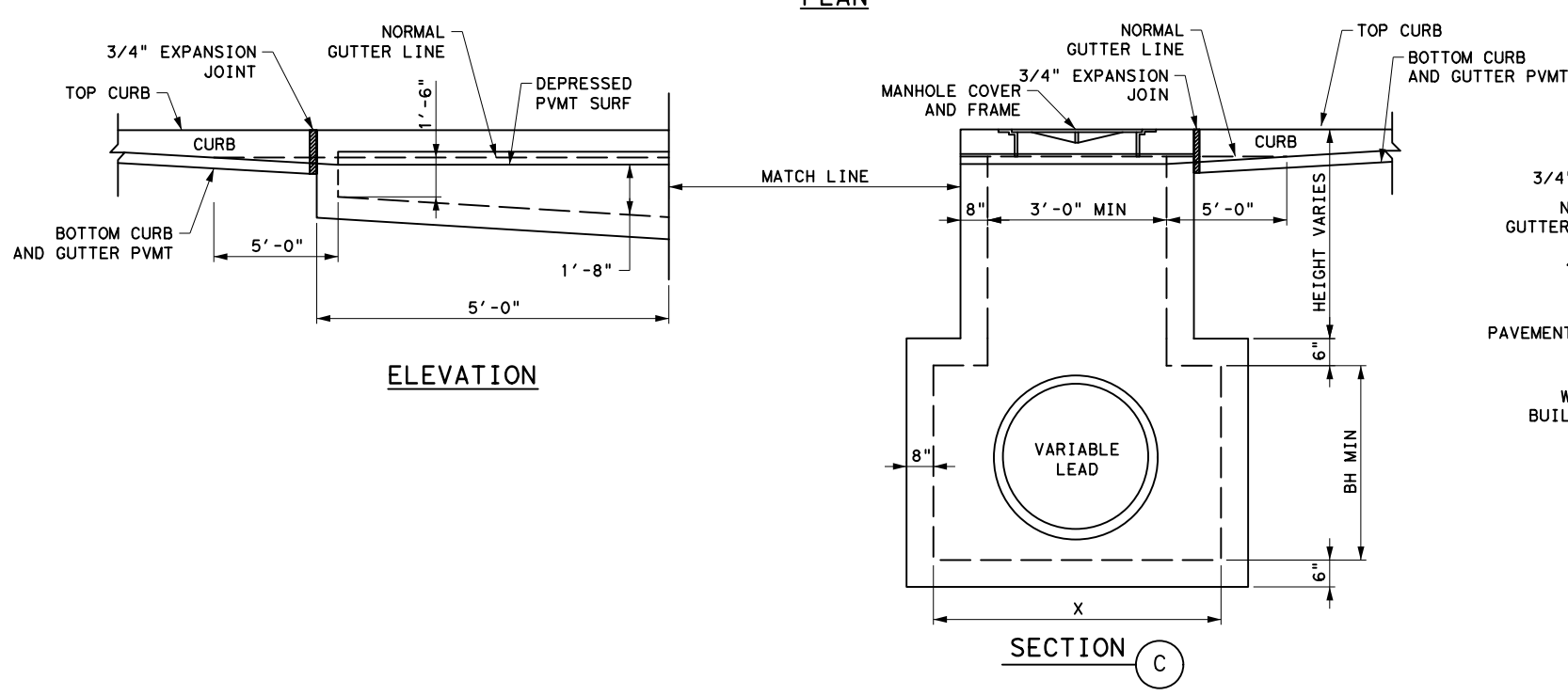
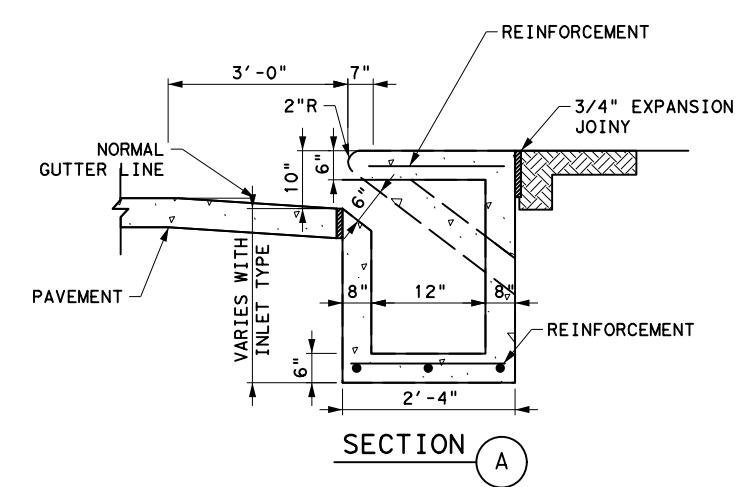
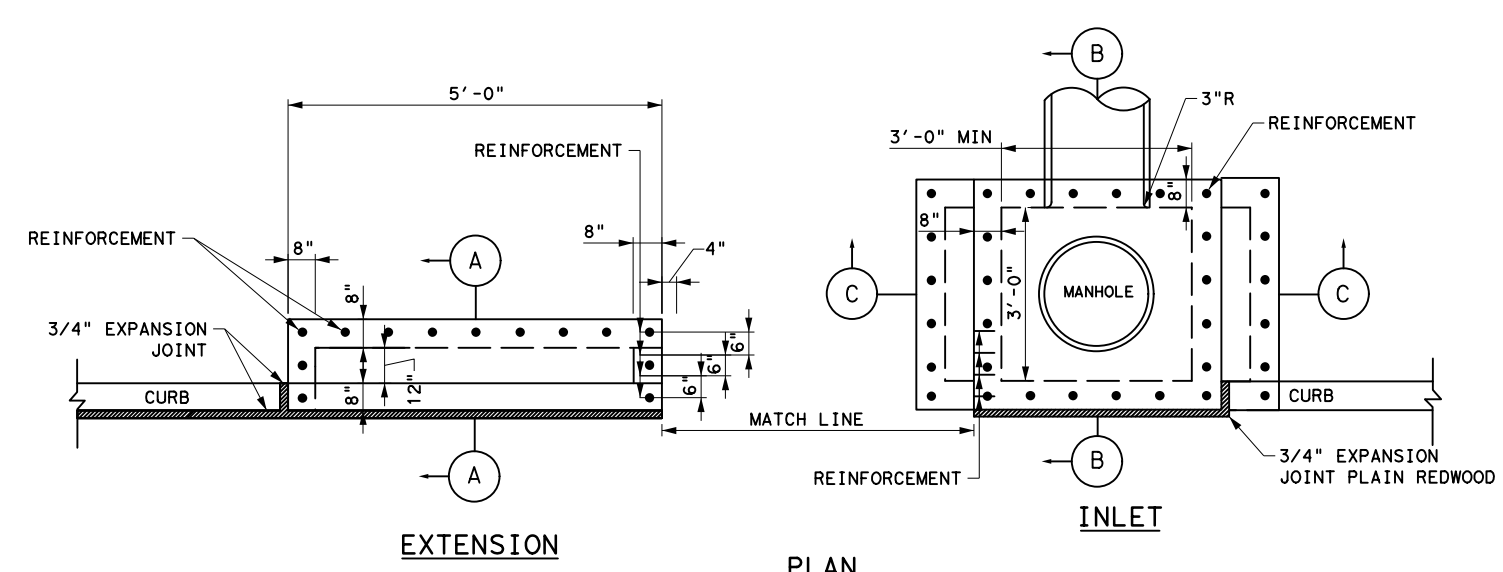
1. FOR TYPE "A-MOD" GRATE INLETS, WALLS TO BE 6" IF BUILT WITH REINFORCED CONCRETE.
2. FOR TYPE "A-MOD" GRATE INLETS, USE EJ V4880 GRATES OR EQUIVALENT



 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> JCHIN, S. HUJIB 140416 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-2017</small>
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 A-MODIFIED INLET DETAILS	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 172 OF 355	

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 Plotted on: 2/20/2024 3:44:49 PM ahatamlieh

NO.	DATE	REVISIONS	APP.



X	BH MIN	MAX HOLE DIA
FT.	FT.	IN.
3	3.50	36
4	4.50	48
5	5.50	60
6	6.50	72
8	8.50	96

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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125563
2/20/2024

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GAUGE ENGINEERING
Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

C-1 MODIFIED INLET DETAILS

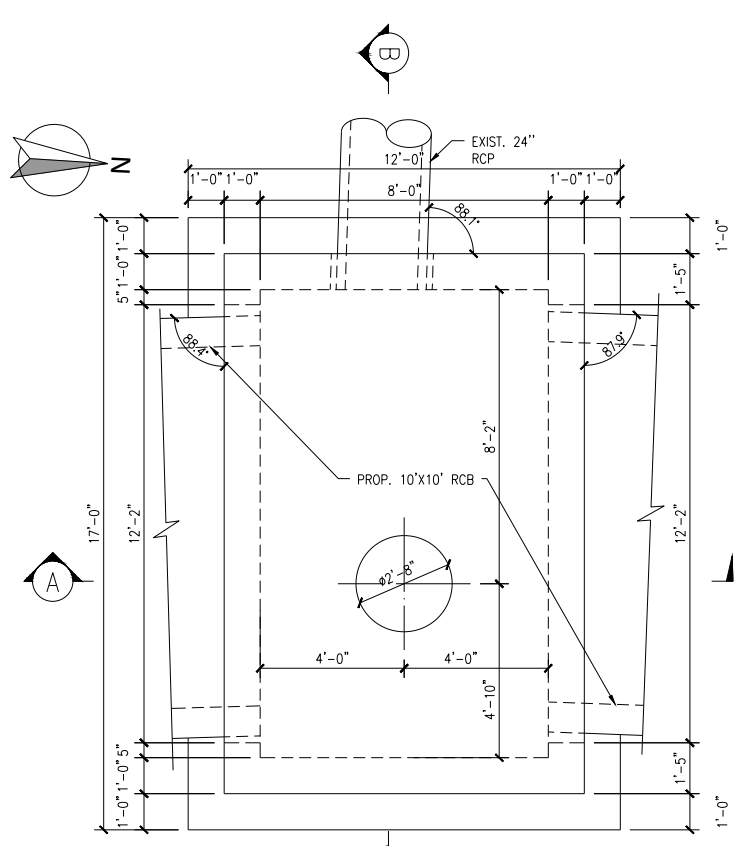
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 173 OF 355	

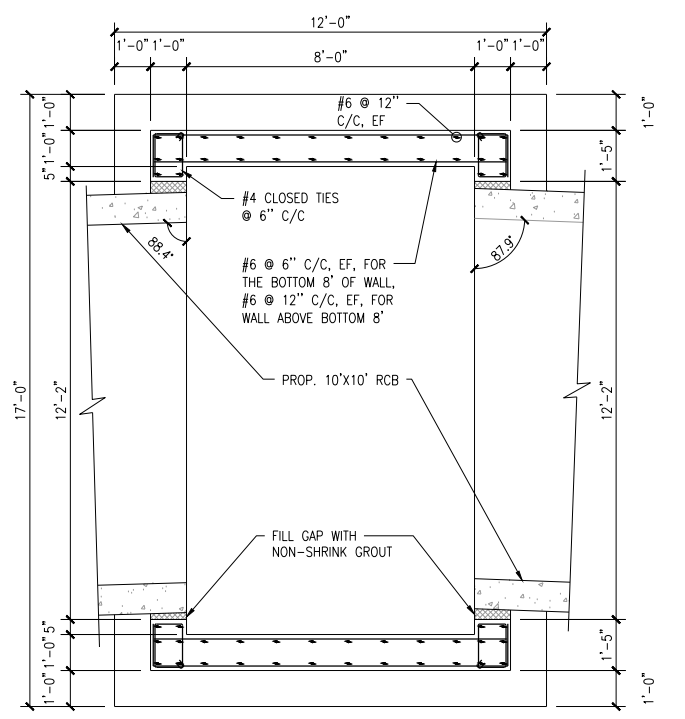
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PLOT STYLE: FN-MONO.CTB

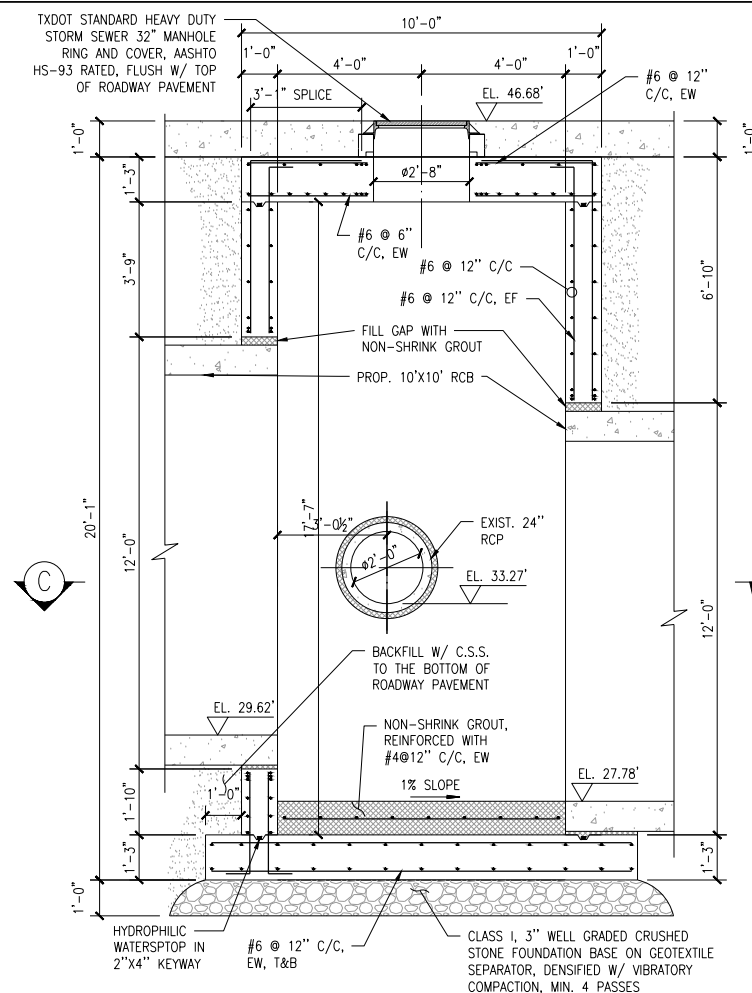
FILE PATH: I:\Gauge Engineering-Montrose\JBs Design 100%\Junction Boxes-100%-REV2.dwg



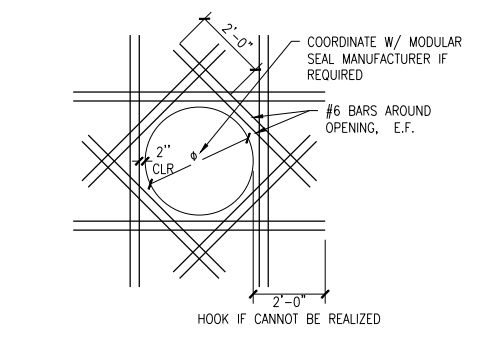
1 8'x13' JUNCTION BOX (JB1, STA 96+47)-PLAN
SCALE: 3/8" = 1'



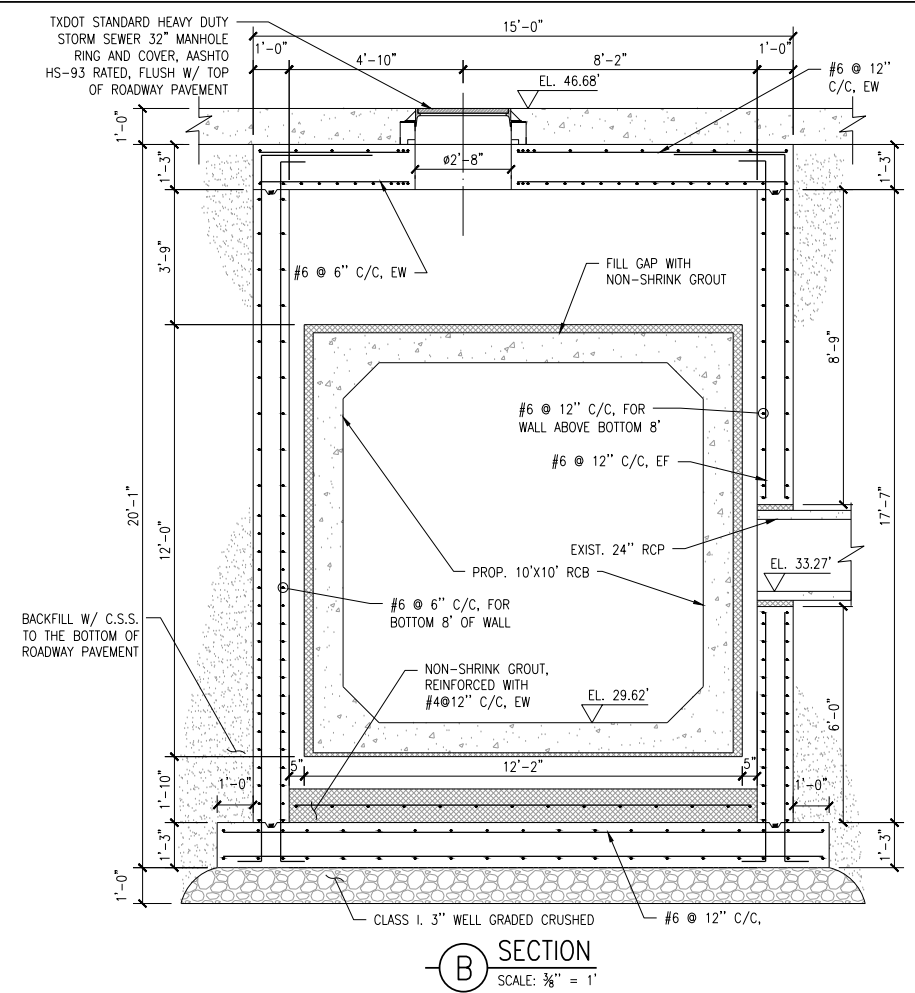
C SECTION
SCALE: 3/8" = 1'



A SECTION
SCALE: 3/8" = 1'



2 ADDITIONAL REINFORCEMENT AT TOP SLAB AND WALL OPENINGS
NTS



B SECTION
SCALE: 3/8" = 1'

GENERAL NOTES:

- ALL STRUCTURAL CONCRETE TO HAVE MIN. COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
- ALL CONCRETE REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60.
- DETAILING AND FABRICATION OF CONCRETE REINFORCEMENT AND ACCESSORIES SHALL BE IN ACCORDANCE WITH ACI-315 LATEST EDITION.
- LAP ALL CONTINUOUS REINFORCING BARS 48 DIAMETERS AT SPLICES, TEES, AND CORNERS, U.N.O.
- THE USE OF HEAT TO FACILITATE THE BENDING OF REINFORCING BARS WILL NOT BE PERMITTED.
- NO ENGINEERING DRAWING MAY BE REPRODUCED FOR USE AS SHOP DRAWINGS.
- DESIGN AND CONSTRUCTION SHALL CONFORM TO ACI-350-20.
- PRINCIPAL OPENINGS ARE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL EXAMINE THE CIVIL DRAWINGS FOR REQUIRED OPENINGS TO BE PROVIDED, WHETHER SHOWN ON THESE DRAWINGS OR NOT. VERIFY SIZE AND LOCATION OF ALL OPENINGS.
- SEE PLAN AND PROFILE SHEETS FOR RCB, RCP, JB, OUTFALL SIZES, FLOWLINE, AND LOCATIONS.
- EXCAVATIONS SHALL NOT BE MADE DURING INCLEMENT WEATHER, WATER ACCUMULATION IN EXCAVATION EXCEEDING 1 INCH SHALL BE PUMPED OUT BEFORE THE CONCRETE IS PLACED.
- ALL EXCAVATIONS AND BACKFILL OPERATIONS SHALL BE IN ACCORDANCE WITH THE LATEST OSHA EXCAVATION SAFETY STANDARDS.
- ALL SURFICIAL VEGETATION AND OTHER ORGANIC MATTER SHALL BE REMOVED BENEATH PROPOSED FOUNDATIONS AND SLABS-ON-GRADE PRIOR TO CONSTRUCTION. THE EXPOSED SURFACE SHALL BE PROOF-ROLLED WITH ANY SOFT OR WEAK AREAS REMOVED AND REPLACED WITH COMPACTED SELECT FILL. OVEREXCAVATION MAY BE REQUIRED.
- USE CEMENT STABILIZED SAND AS BACKFILL AROUND JUNCTION BOX STRUCTURE, TO TOP OF STRUCTURES. FOLLOW TXDOT SPECIFICATIONS ITEM 400 - EXCAVATION AND BACKFILL FOR STRUCTURES. THE AVERAGE 48-HOUR STRENGTH SHALL BE GREATER THAN 100 PSI WITH NO INDIVIDUAL STRENGTH TEST BELOW 70 PSI, AND ALL 7-DAY INDIVIDUAL STRENGTH TESTS (AVERAGE OF TWO SPECIMENS) ARE GREATER THAN OR EQUAL TO 100 PSI.
- PROVIDE A 3/4-INCH CHAMFER AT ALL EXPOSED EDGES OF CONCRETE, U.N.O.
- THE LOCATIONS OF CONSTRUCTION JOINTS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS.
- MINIMUM REINFORCING STEEL COVERAGE SHALL BE AS FOLLOWS:
TOP SLABS 1 1/2"
WALLS 1 1/2"
CONCRETE CAST PERMANENTLY AGAINST EARTH 3"
BASE SLABS 3" BOTTOM & SIDES
1 1/2" TOP

No.	DATE	REVISIONS	APP.

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Aurora Technical Services, LLC
2121 SAGE RD, SUITE 150
Houston, Texas 77056
Texas PE Registered Firm F-2059

INTERIM REVIEW ONLY
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Meng Liu
133764
2/19/2024

Aurora Technical Services, LLC
Texas Registered Engineering Firm F-2059

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

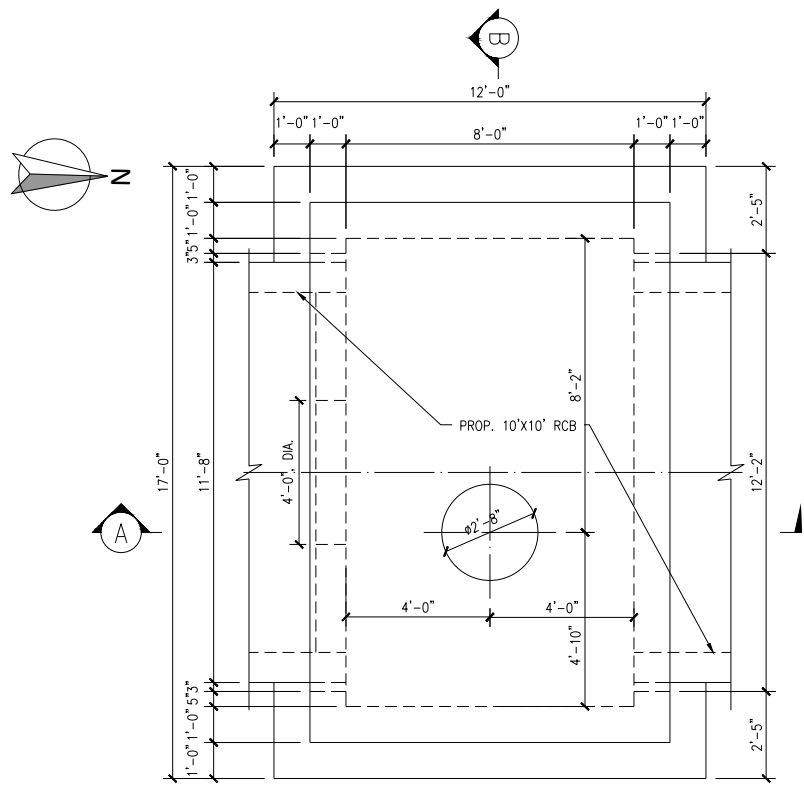
8'x13' JUNCTION BOX (JB1)

WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 174 of 355	

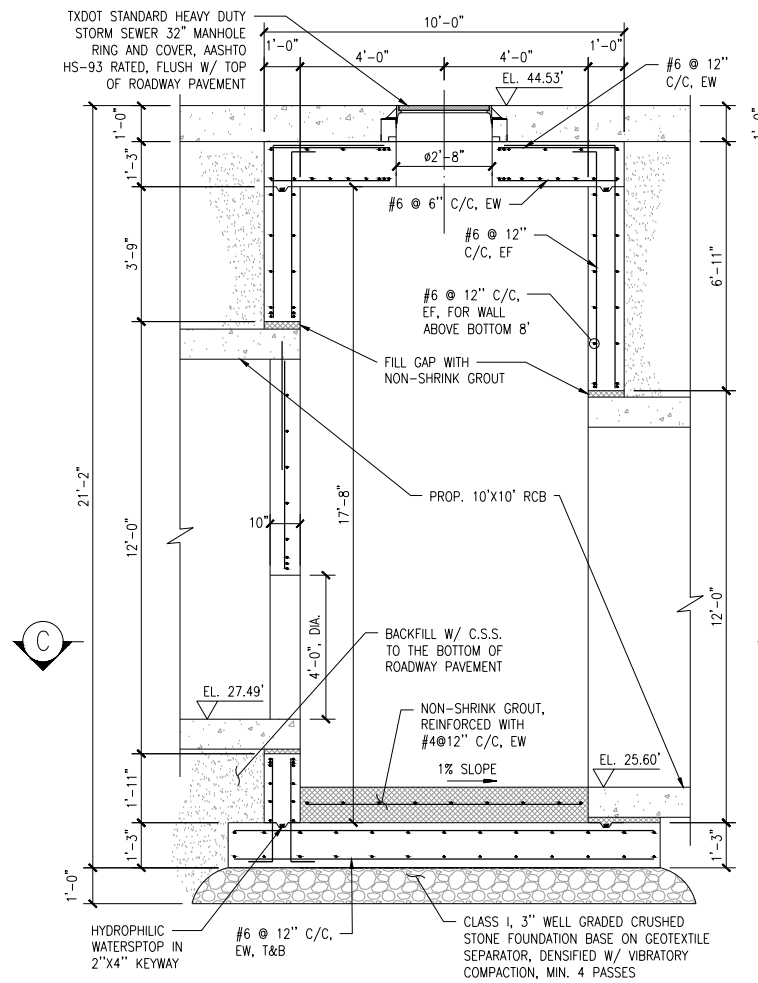
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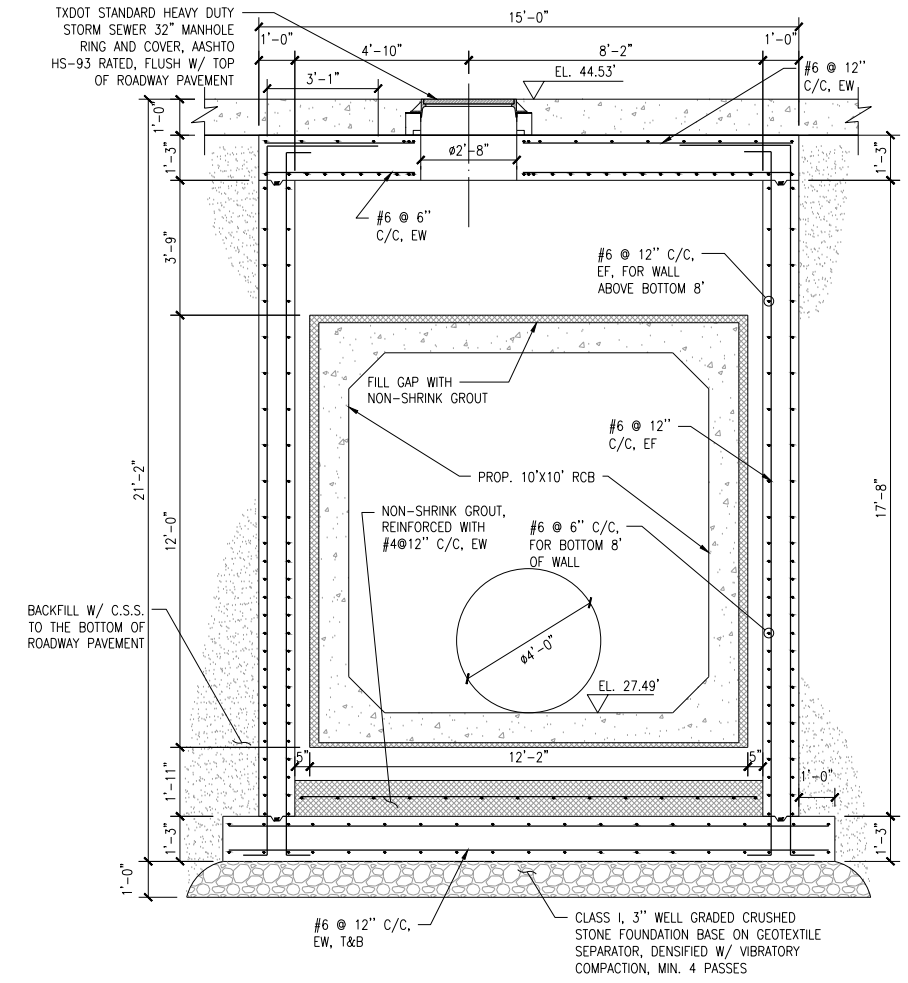
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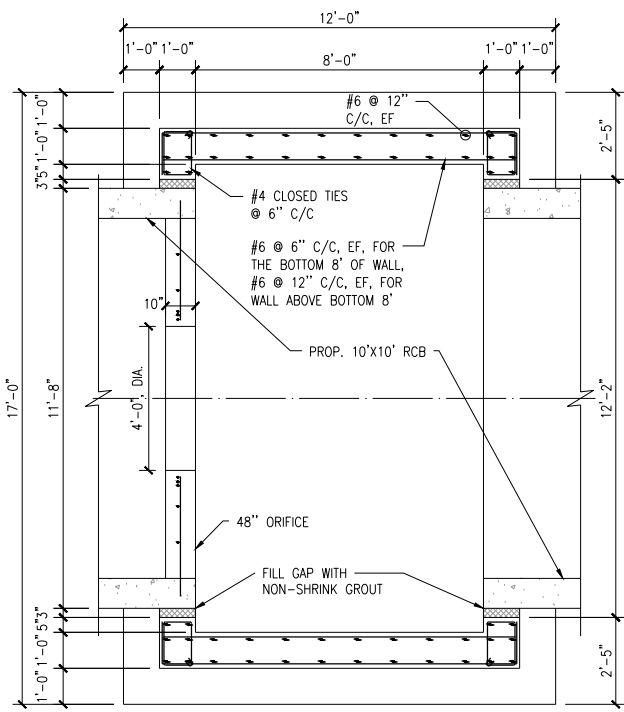
1 8'x13' JUNCTION BOX (JB2, STA 98+45)-PLAN
SCALE: 3/8" = 1'



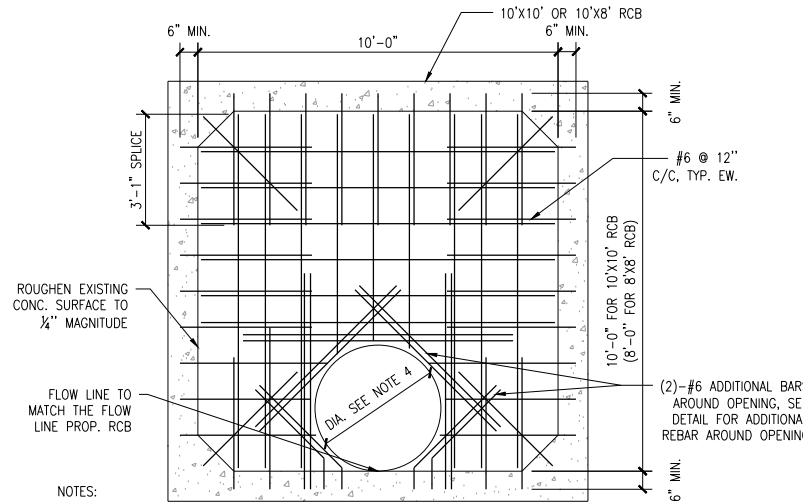
A SECTION
SCALE: 3/8" = 1'



B SECTION
SCALE: 3/8" = 1'



C SECTION
SCALE: 3/8" = 1'



2 TYPICAL ORIFICE DETAIL
NTS

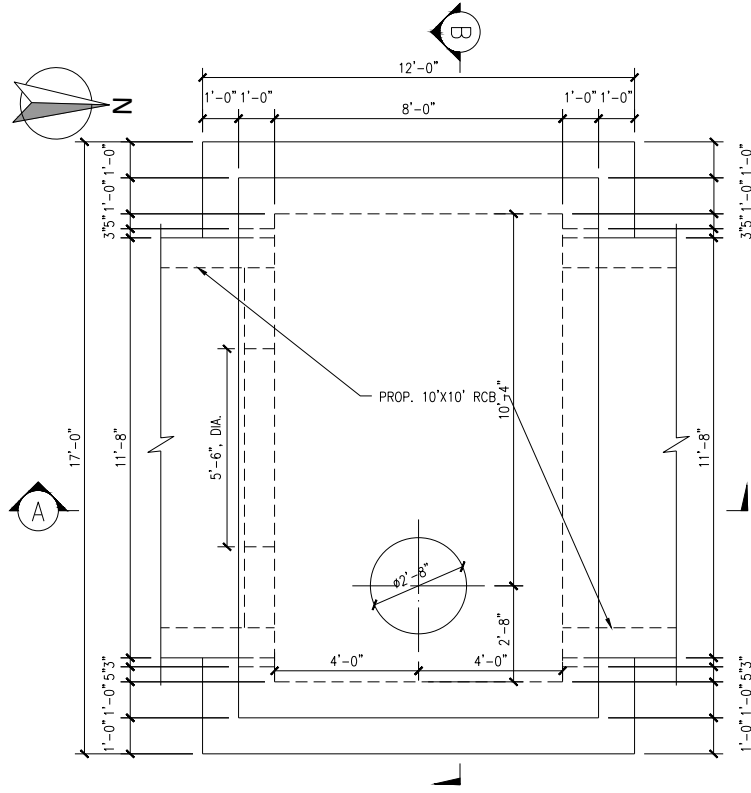
- NOTES:
- USE HILTI HIT-HY 200 ADHESIVE ANCHORING SYSTEM TO INSTALL THE REBARS FOR CONCRETE BUILT-UP, STRICTLY FOLLOW THE MANUFACTURER PROCEDURE. THE MINIMUM EMBEDMENT LENGTH OF THE REBARS IS 6".
 - USE MASTEREMACO S 440 MANUFACTURED BY BASF CONSTRUCTION CHEMICALS FOR ORIFICE WALL OR APPROVED EQUAL, STRICTLY FOLLOW THE MANUFACTURE PROCEDURE WHEN APPLYING.
 - POUR THE ORIFICE WALL AS A HORIZONTAL DIAPHRAGM.
 - THE DIAMETER OF THE ORIFICE IS 39" FOR 10'x8' RCB, AT STA. 94+50, 48" FOR 10'x10' RCB AT JB2, AT STA 98+45, 66" FOR 10'x10' RCB AT JB3, AT STA 120+00, 54" FOR 10'x10' RCB AT JB4, AT STA 104+90.
 - ALTERNATIVELY, THE CONTRACTOR MAY COMMUNICATE WITH THE PRECAST MANUFACTURER REGARDING THE LOCATION AND SIZE OF THE ORIFICE, AND LEAVE REINFORCEMENTS EXPOSED TO BE TIED/SPLICED WITH THE ORIFICE REINFORCEMENTS. OR, THE PRECAST MANUFACTURER MAY PROVIDE THE RCB SECTION WITH A PRECAST ORIFICE.

No.	DATE	REVISIONS	APP.

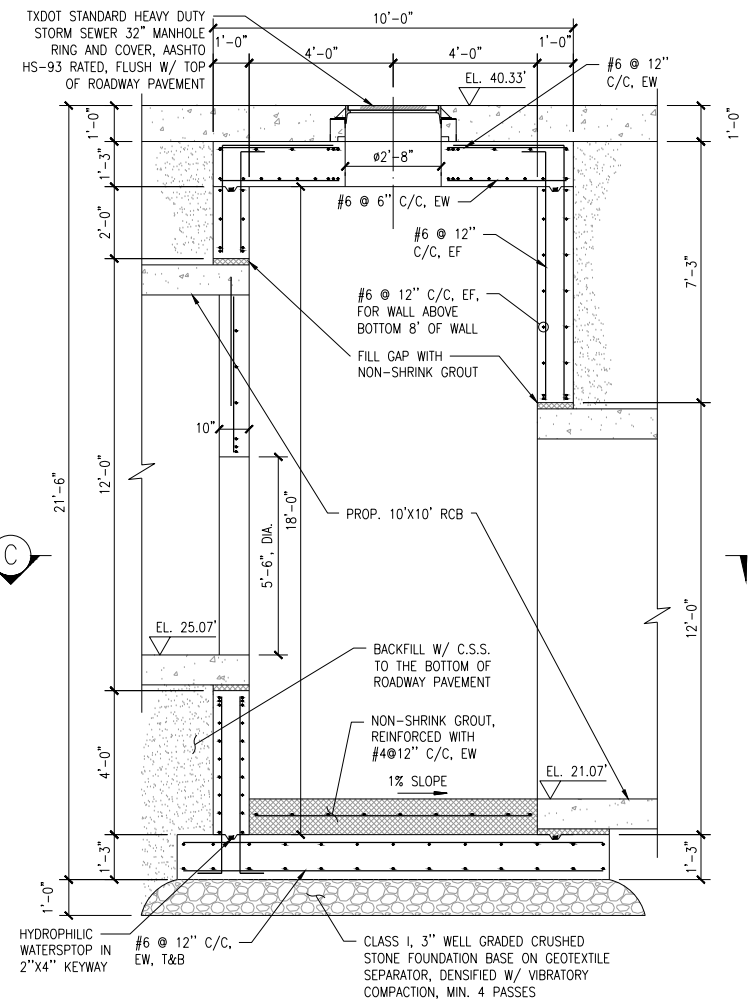
 2121 SAGE RD, SUITE 150 HOUSTON, TEXAS 77056 TEXAS PE REGISTERED FIRM F-2059	INTERIM REVIEW ONLY <small>Document incomplete: not intended for regulatory approval, permit, or construction.</small> Meng Liu 133764 2/19/2024
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 8'x13' JUNCTION BOX (JB2)	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 175 of 355	

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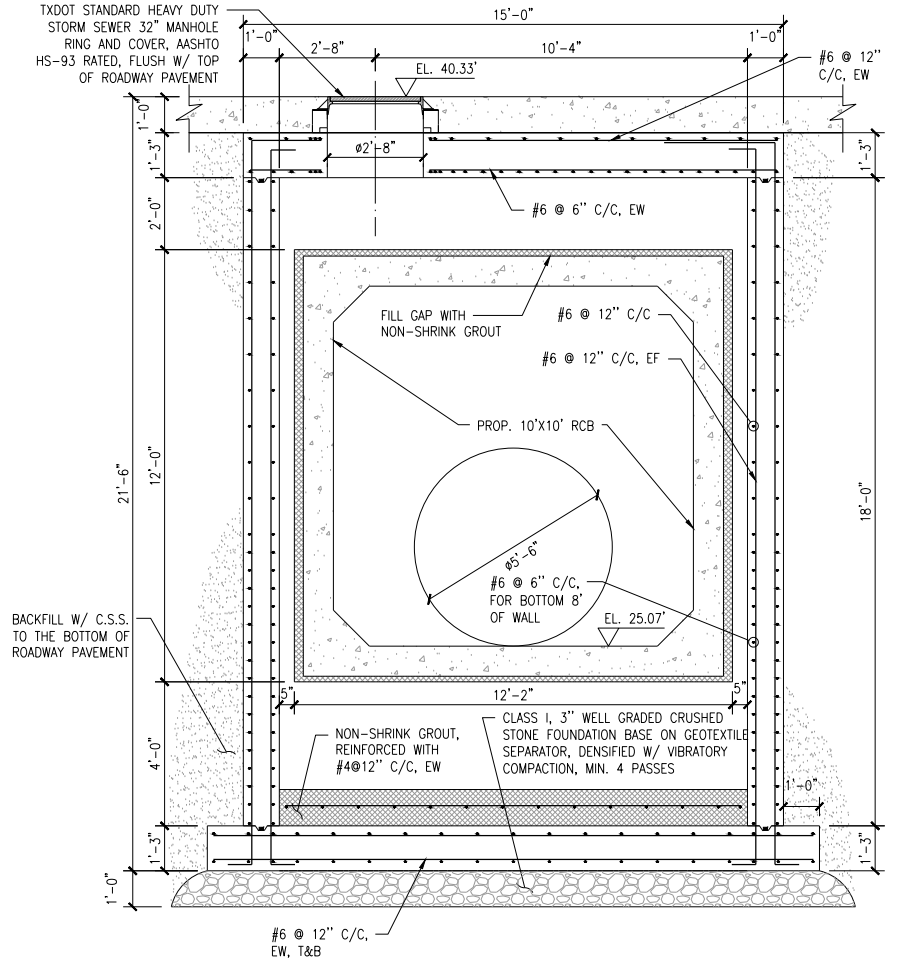
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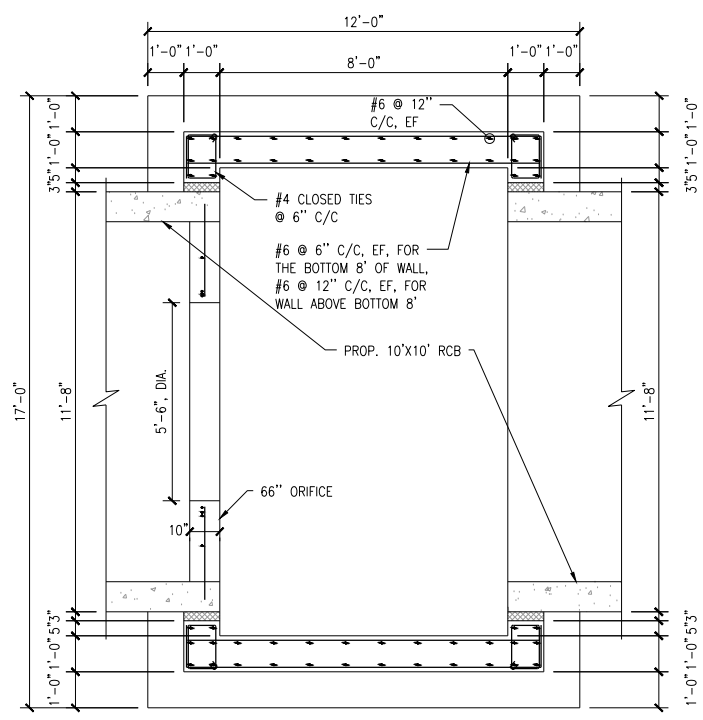
1 8'x13' JUNCTION BOX (JB3, STA 120+00)-PLAN
SCALE: 3/8" = 1'



A SECTION
SCALE: 3/8" = 1'



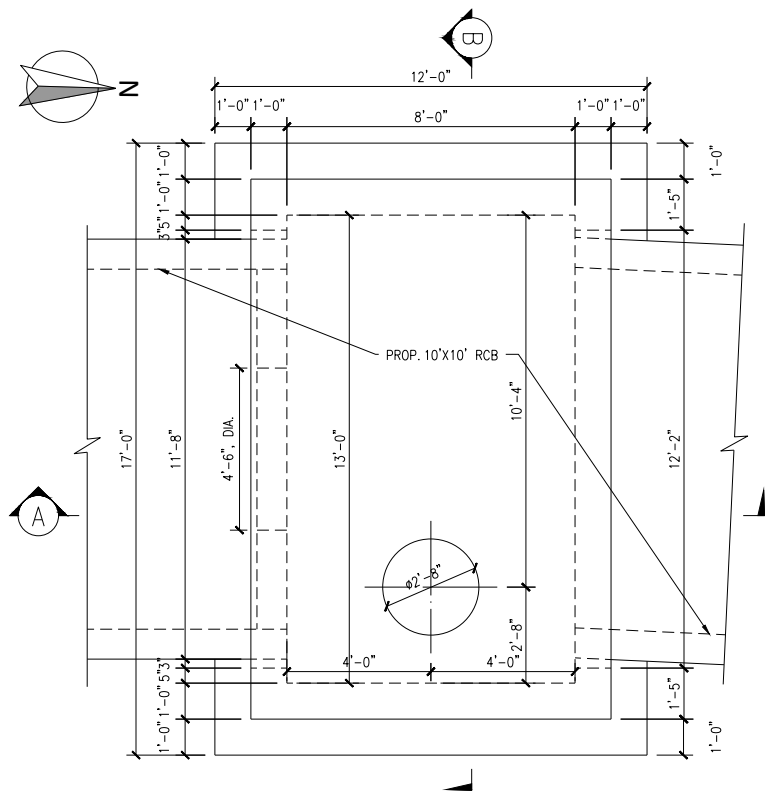
B SECTION
SCALE: 3/8" = 1'



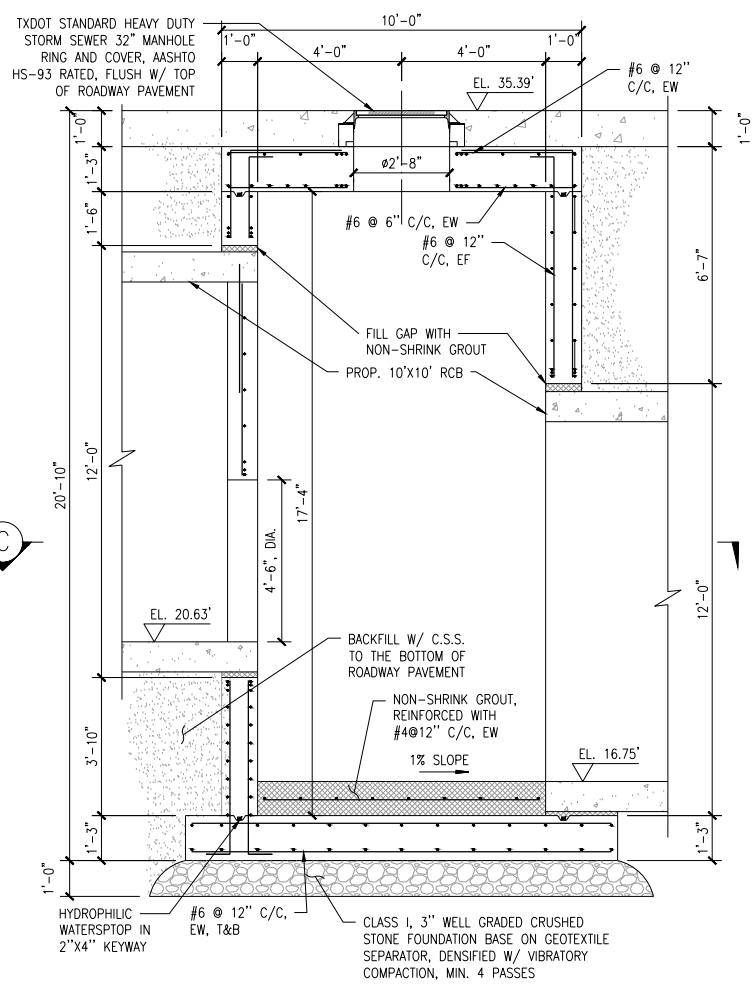
C SECTION
SCALE: 3/8" = 1'

No.	DATE	REVISIONS	APP.

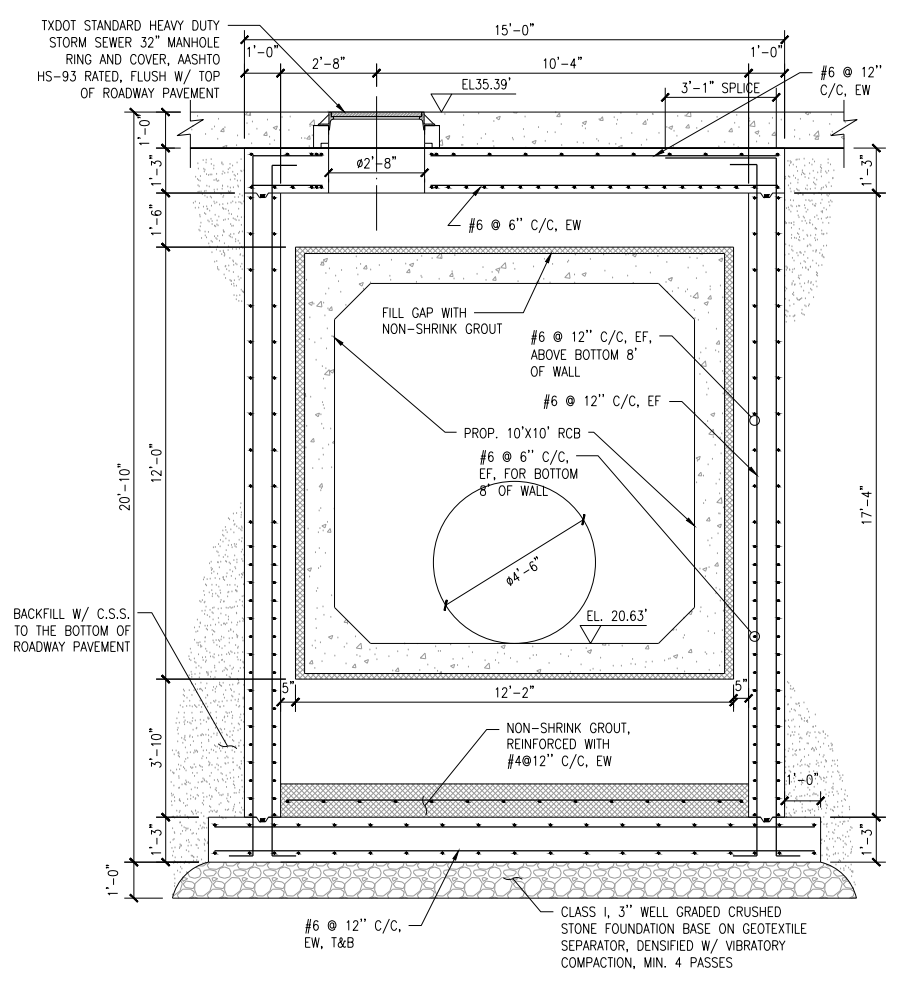
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<p>Aurora Technical Services, LLC 2121 SAGE RD, SUITE 150 Houston, Texas 77056 Texas PE Registered Firm F-2059</p>	<p>INTERIM REVIEW ONLY Document incomplete; not intended for regulatory approval, permit, or construction. Meng Liu 133764 2/19/2024</p> <p>Aurora Technical Services, LLC Texas Registered Engineering Firm F-2059</p>
<p>SURVEYED BY: KOU & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p> <p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1</p> <p>8'X13' JUNCTION BOX (JB3)</p>	
<p>WBS NUMBER N-T27000-0005-7</p> <p>DRAWING SCALE AS NOTED</p> <p>CITY OF HOUSTON PM JIADA HUANG</p> <p>SHEET NO. 176 of 355</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>



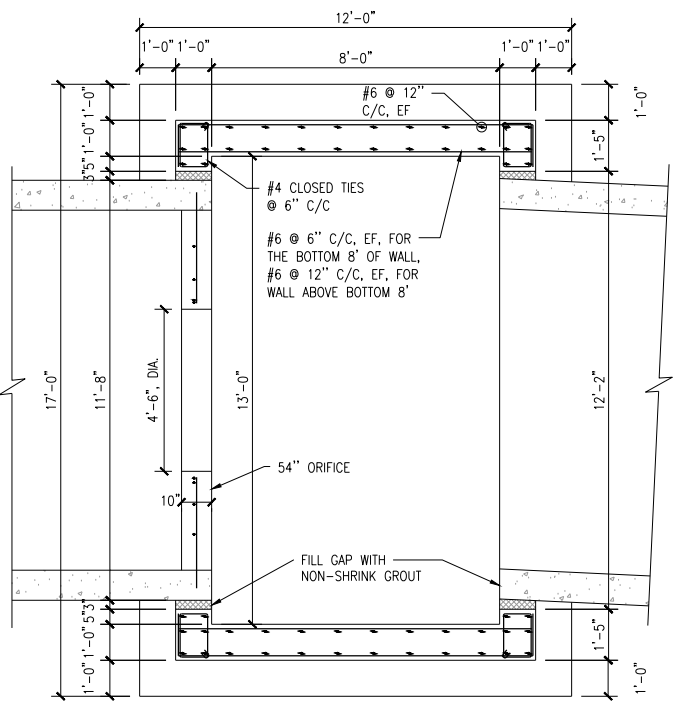
1 8'x13' JUNCTION BOX (JB4, STA 104+90)-PLAN
SCALE: 3/8" = 1'



A SECTION
SCALE: 3/8" = 1'



B SECTION
SCALE: 3/8" = 1'



C SECTION
SCALE: 3/8" = 1'

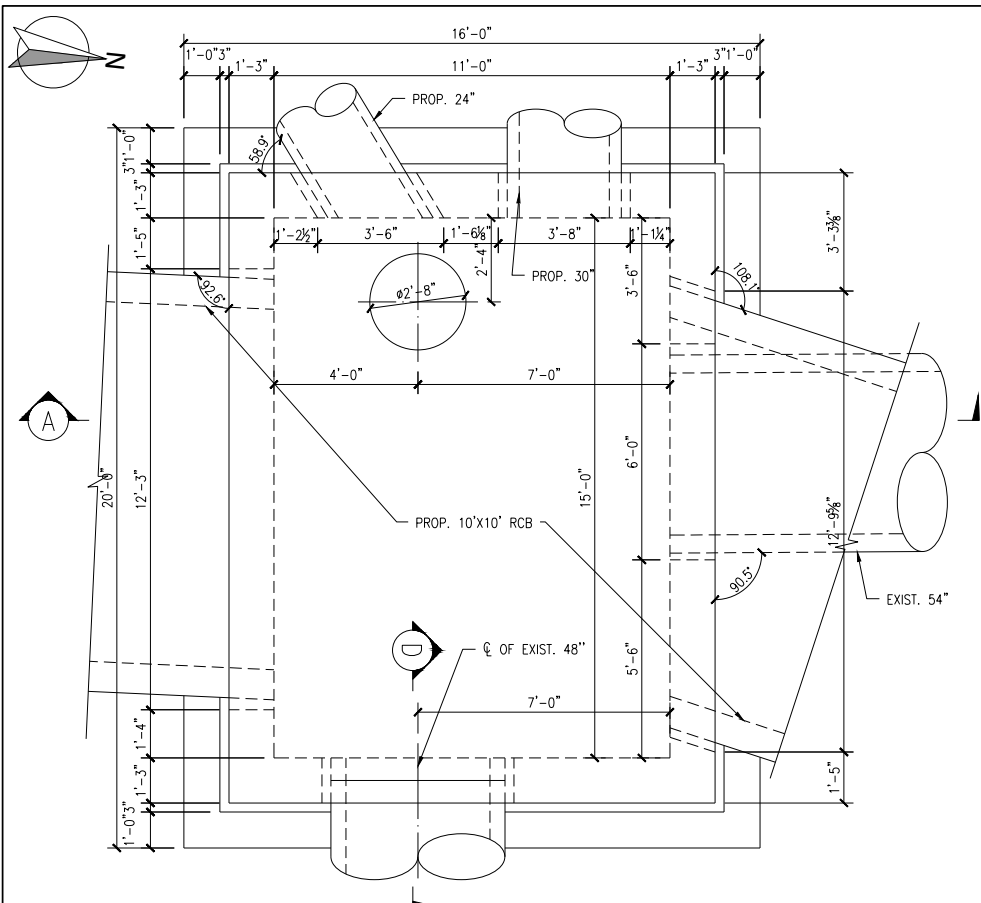
NO.	DATE	REVISIONS	APP.

 2121 SAGE RD, SUITE 150 HOUSTON, TEXAS 77056 TEXAS PE REGISTERED FIRM F-2059	INTERIM REVIEW ONLY <small>Document incomplete: not intended for regulatory approval, permit, or construction.</small> Meng Liu 133764 2/19/2024
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 8'X13' JUNCTION BOX (JB4)	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	CITY OF HOUSTON PM JIADA HUANG
SHEET NO. 177 OF 355	

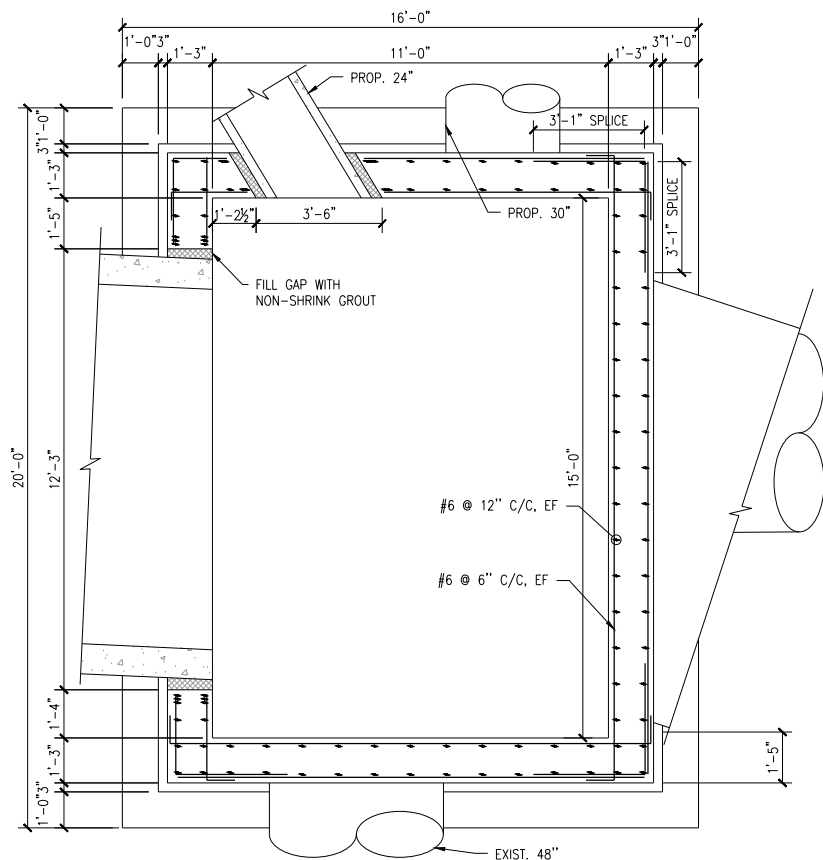
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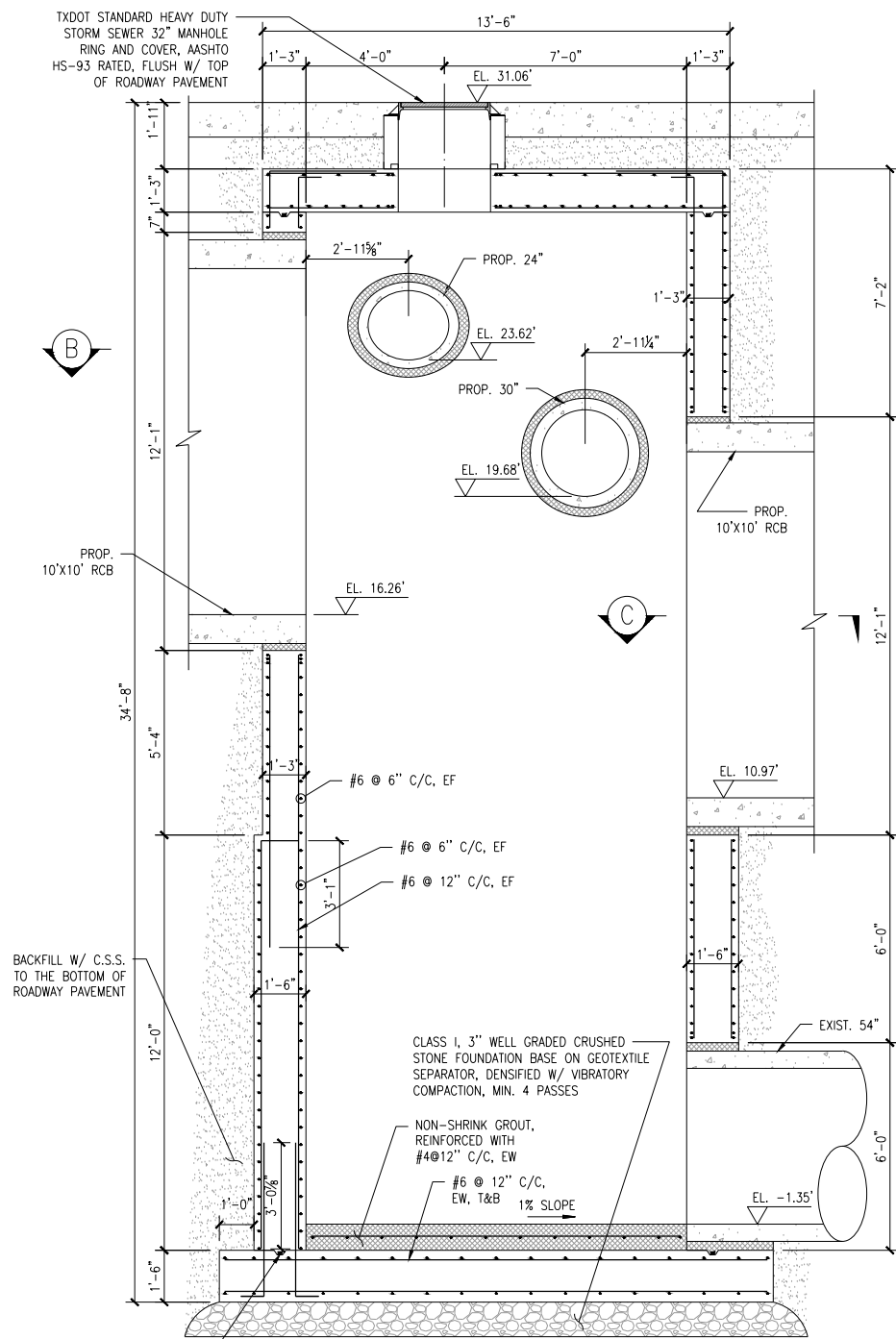
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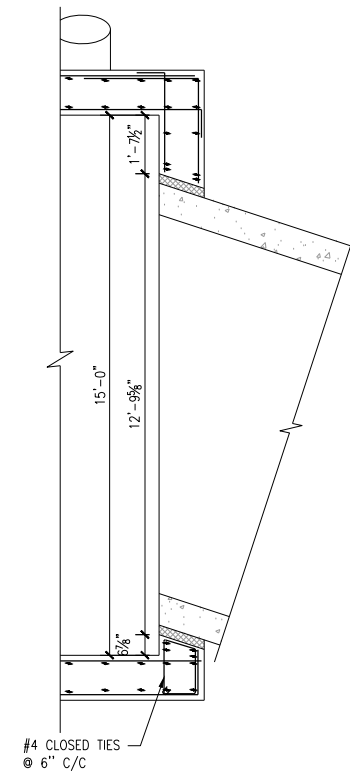
1 11'x15' JUNCTION BOX (JB5, STA 108+24)-PLAN
SCALE: 3/8" = 1'



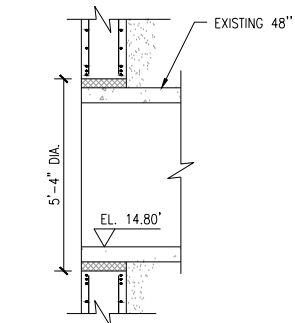
B SECTION
SCALE: 3/8" = 1'



A SECTION
SCALE: 3/8" = 1'



C SECTION
SCALE: 3/8" = 1'



D SECTION
SCALE: 3/8" = 1'

No.	DATE	REVISIONS	APP.

<p>MONTROSE TAX INCREMENT REINVESTMENT ZONE 27</p>	
<p>Aurora Technical Services, LLC 2121 SAGE RD, SUITE 150 HOUSTON, TEXAS 77056 Texas PE Registered Firm F-2059</p>	<p>INTERIM REVIEW ONLY Document incomplete; not intended for regulatory approval, permit, or construction. Meng Liu 133764 2/19/2024</p> <p>Aurora Technical Services, LLC Texas Registered Engineering Firm F-2059</p>
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p> <p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1</p> <p>11'X15' JUNCTION BOX (JB5)</p>	
<p>WBS NUMBER N-T27000-0005-7</p> <p>DRAWING SCALE AS NOTED</p> <p>CITY OF HOUSTON PM JIADA HUANG</p> <p>SHEET NO. 178 of 355</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>

No.	DATE	REVISIONS	APP.

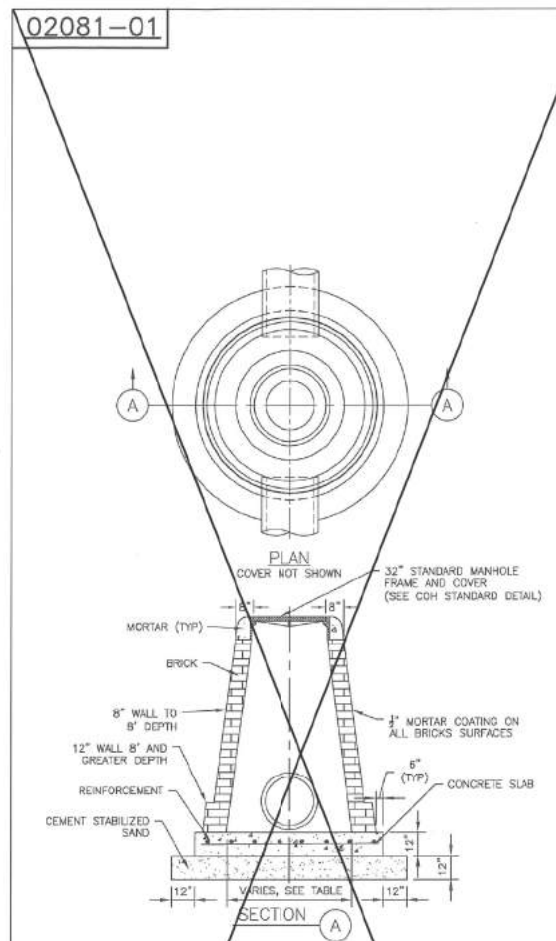


TABLE
SEWER SIZE VS MANHOLE SIZE

SEWER SIZE (INCHES)	MANHOLE BASE DIAMETER
42"	5'-0"
36"	4'-6"
30" AND LESS	4'-0"

STORM SEWER MANHOLE TYPE 'C' FOR 42" DIAMETER RCP AND SMALLER NTS

COH IS PHASING OUT BRICK. NEW DETAILS TO BE POSTED END OF 2019

REFER TO COH STANDARD DETAIL 02082-12 "STORM SEWER TYPE 'C' PRECAST ROUND MANHOLE"

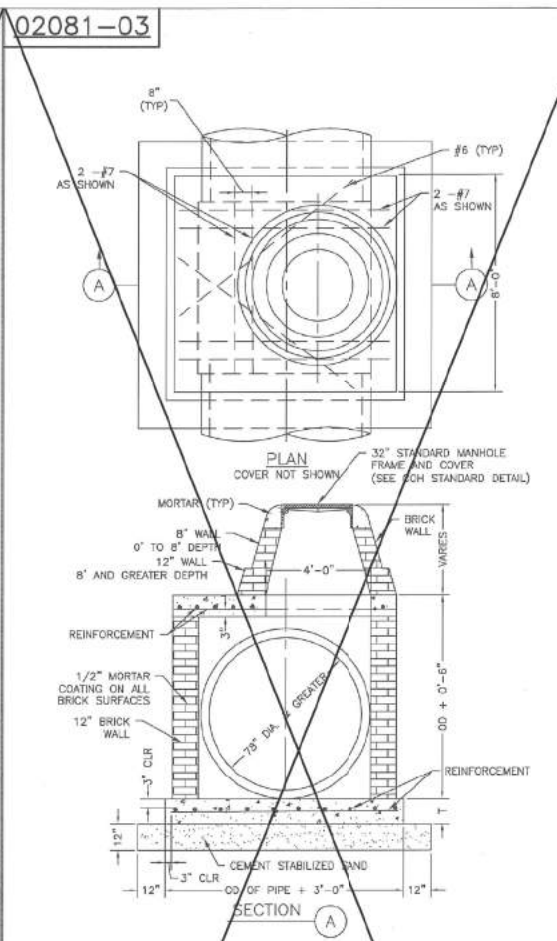


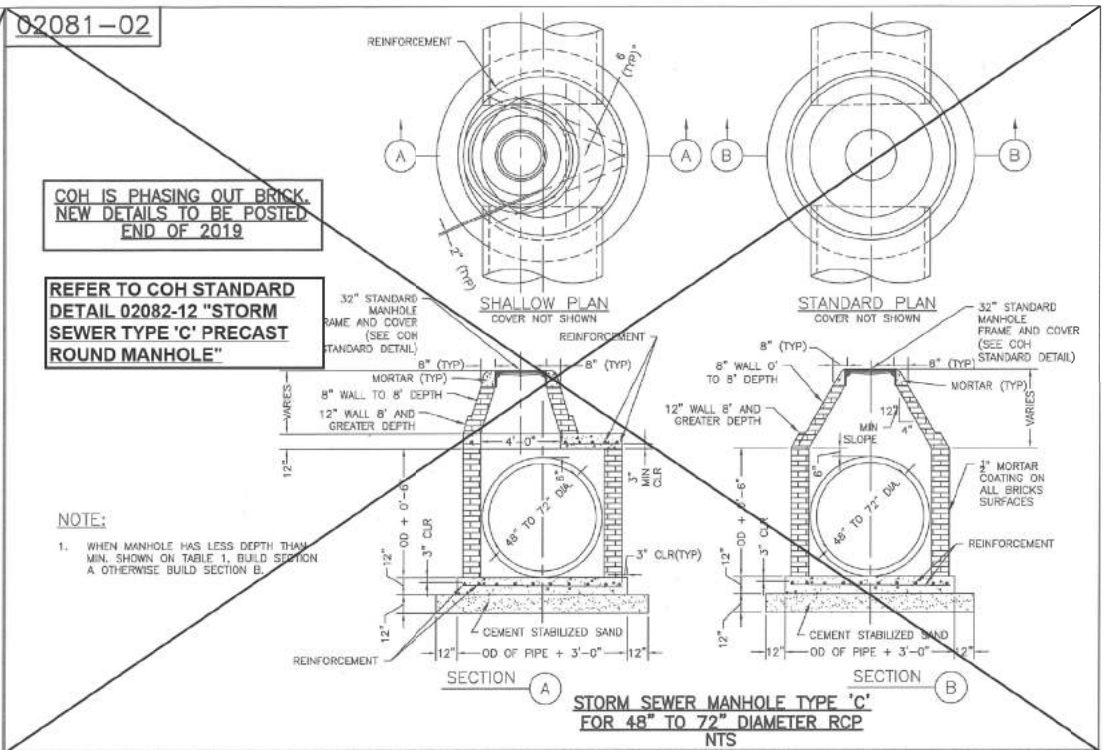
TABLE 1
PIPE DIAMETER VS SLAB THICKNESS

PIPE DIAMETER (INCHES)	SLAB THICKNESS T (INCHES)
78	12
84	12
90	13
96	14
102	14
108	15

STORM SEWER MANHOLE TYPE 'C' FOR 78" DIAMETER RCP AND GREATER NTS

COH IS PHASING OUT BRICK. NEW DETAILS TO BE POSTED END OF 2019

REFER TO COH STANDARD DETAIL 02082-13 "STORM SEWER PRECAST BOX MANHOLE"

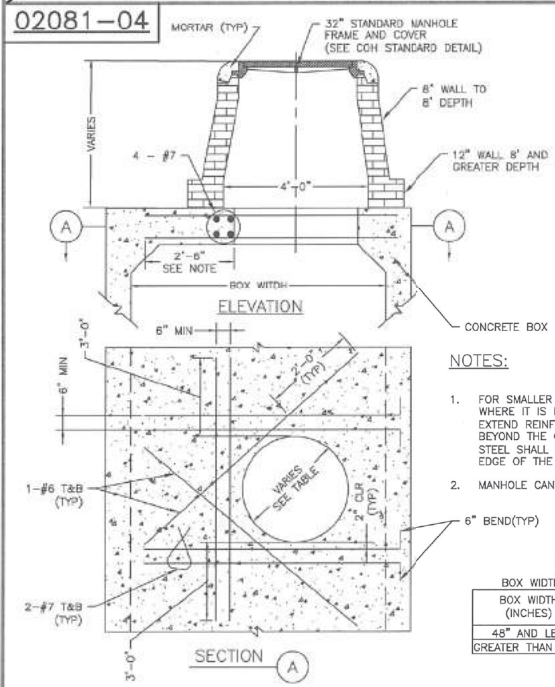


COH IS PHASING OUT BRICK. NEW DETAILS TO BE POSTED END OF 2019

REFER TO COH STANDARD DETAIL 02082-12 "STORM SEWER TYPE 'C' PRECAST ROUND MANHOLE"

NOTE:
1. WHEN MANHOLE HAS LESS DEPTH THAN MIN. SHOWN ON TABLE 1, BUILD SECTION A OTHERWISE BUILD SECTION B.

STORM SEWER MANHOLE TYPE 'C' FOR 48" TO 72" DIAMETER RCP NTS



COH IS PHASING OUT BRICK. NEW DETAILS TO BE POSTED END OF 2019

- NOTES:
- FOR SMALLER BOX SEWER WIDTHS, WHERE IT IS NOT POSSIBLE TO EXTEND REINFORCING STEEL 2'-6" BEYOND THE OPENING, REINFORCING STEEL SHALL BE EXTENDED 3" TO THE EDGE OF THE WALL.
 - MANHOLE CAN BE PRECAST

TABLE
BOX WIDTH VS OPENING SIZE

BOX WIDTH (INCHES)	OPENING SIZE (INCHES)
48" AND LESS	36"
GREATER THAN 48"	48"

STORM SEWER MANHOLE TYPE 'C' FOR PROPOSED CONCRETE BOX SEWER NTS

FIRM INFORMATION
ENGINEER'S SEAL
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER
02081-01 THROUGH 04

APPROVED BY:
CITY ENGINEER
APPROVED BY:
DEPUTY DIRECTOR

APPROVED BY:
DIRECTOR

EFFECTIVE DATE: JUL-01-2019
FOR CITY OF HOUSTON USE ONLY

SHEET NO.

MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079
1/4/2019
2/20/2024
100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-20017

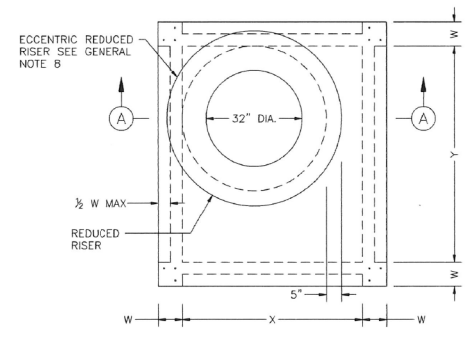
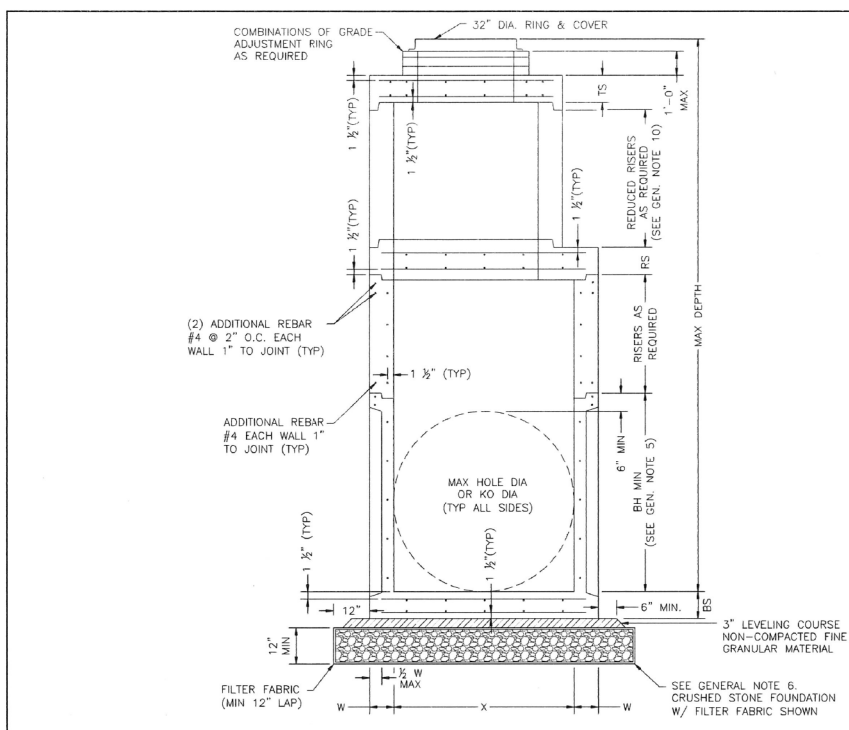
CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1
DRAINAGE STANDARDS

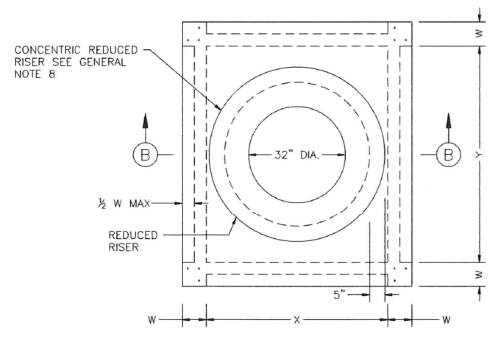
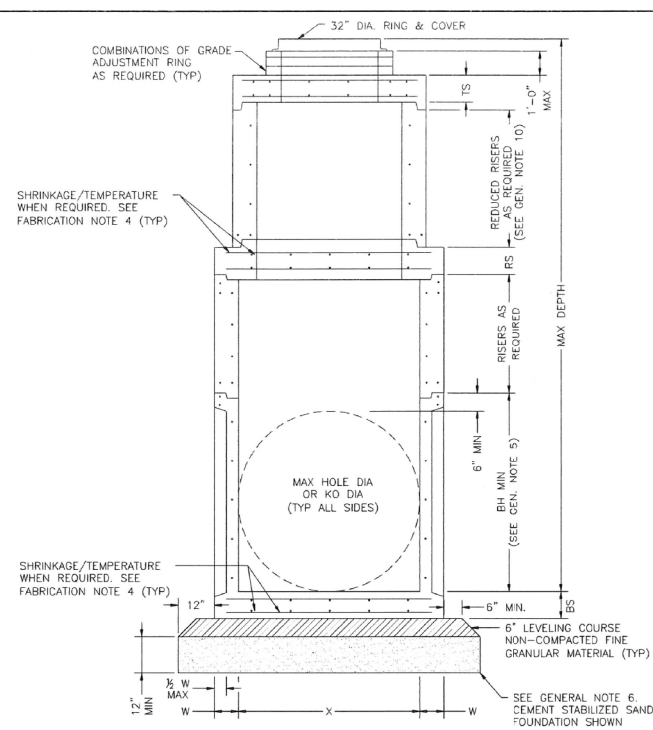
SHEET 1 OF 8

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 179 OF 355	

DESIGNER: THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.



PLAN VIEW A
COVER NOT SHOWN
ECCENTRIC MANHOLE
(PREFERRED CONFIGURATION)

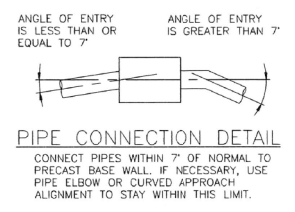


PLAN VIEW B
COVER NOT SHOWN
CONCENTRIC MANHOLE
(ALTERNATE CONFIGURATION)

TABLE 1
PRECAST BOX MANHOLE (PBM) MINIMUM REQUIREMENTS FOR 24 IN. TO 78 IN. INTERNAL DIA STORM SEWER PIPES

PBM	SIZE	BASE SLAB THICKNESS	BASE UNIT OR RISER THICKNESS	REDUCED RISER DIA	REDUCING SLAB THICKNESS	TOP SLAB THICKNESS	MAX DEPTH TO TOP OF BASE SLAB	MIN HEIGHT (SEE GEN. NOTE 5)	MAX HOLE DIA (SEE FAB. NOTE 11)	MAX KO DIA (SEE FAB. NOTE 11)
	X & Y	BS	W	RD	RS	TS	MAX DEPTH	BH MIN	MAX HOLE DIA	KO DIA
	FI	IN.	IN.	FI*	IN.	IN.	FT.	FT.	IN.	IN.
	3X3	6	6	N/A	N/A	9	25	3.50	36	36
	4X4	6	6	N/A	N/A	9	25	4.50	48	48
	3X5	6	6	N/A	N/A	9	25	3.50	36/60	36/60
	4X5	6	6	48 IN.	9	9	25	4.50	48/60	48/60
	5X5	6	6	48 IN.	9	9	25	5.50	60	60
	5X6	9	8	48 IN.	9	9	25	5.50	60/72	60/72
	6X6	9	8	48 IN.	9	9	25	6.50	72	72
	8X8	9	10	48 IN.	12	9	25	8.50	96	96

TABLE 1 NOTES:
 1. (†) ROUND MANHOLES ARE PREFERRED FOR THESE SIZES.
 2. (*) UNLESS OTHERWISE INDICATED.
 3. TABLE IS VALID FOR UP TO 25 FT OF INSTALLATION DEPTH.



- FABRICATION NOTES:**
1. PROVIDE CLASS "H" CONCRETE IN ACCORDANCE WITH TEXAS DEPARTMENT OF TRANSPORTATION ITEM 421 AND HAVING A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.
 2. PROVIDE GRADE 60 REINFORCING STEEL OR EQUIVALENT AREA OF WWR. PROVIDE CIRCUMFERENTIAL REINFORCING STEEL IN VERTICAL WALLS OF RISER AND CONE IN ACCORDANCE WITH ASTM C478.
 3. PROVIDE TYPICAL MINIMUM CONCRETE CLEAR COVER OF 1 1/2" TO REINFORCING STEEL AT INTERIOR OR EXTERIOR WALLS.
 4. SLABS WITH A THICKNESS OF 8" OR GREATER REQUIRE SHRINKAGE AND TEMPERATURE REINFORCING STEEL. PROVIDE STEEL AREA = 0.11 IN²/FT EACH WAY.
 5. MANUFACTURE BASE AND RISERS TO NEAREST 3" INCREMENT.
 6. DESIGN TONGUE AND GROOVE JOINTS FOR FULL CLOSURE ON BOTH SHOULDERS. MINIMUM SPIGOT DEPTH IS 3/4".
 7. PROVIDE LIFTING DEVICES IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 8. PROVIDE CAST IRON SOLID COVER, UNLESS NOTED OTHERWISE ELSEWHERE IN THE PLANS.
 9. MAXIMUM SPACING OF REINFORCEMENT IS 8".
 10. AT MANUFACTURER'S OPTION, PROVIDE CAST OR CORED HOLES OR THIN WALL PANELS (KO) TO THE MAXIMUM DIA SHOWN FOR EACH. WHEN NO PENETRATION IS REQUIRED, IT IS ACCEPTABLE TO PROVIDE A WALL WITH NO SECTIONAL REDUCTION.
 11. THREE DIFFERENT OPTIONS FOR CAPPING THE MANHOLE RISER NEAR THE FINISHED GRADE ARE ALLOWED. CONES CAN BE USED WHEN COVER IS SUFFICIENT TO ALLOW FOR PROPER PLACEMENT. FLAT LIDS ARE TO BE USED WHERE COVER IS LIMITED. REFER TO 02082-12 FOR OPTIONS.
 12. BASES AND RISERS MAY HAVE CAST, CUT OR THIN WALL PANEL (KO) THAT ARE ROUND AND DO NOT EXTEND INTO THE FLOOR, INTO WALLS, OR WITHIN 6" OF THE JOINT ABOVE OR BELOW.

- INSTALLATION NOTES:**
1. IF REQUIRED ELSEWHERE, INVERTS (BENCHING) TO BE PROVIDED BY CONTRACTOR. CONCRETE OR MORTAR USED FOR INVERT IS SUBSIDIARY TO MANHOLE. REFER TO CITY OF HOUSTON SPECIFICATION SECTION 02082 FOR INVERT (BENCHING) REQUIREMENTS.
 2. SEAL TONGUE AND GROOVE JOINTS WITH PREFORMED OR BULK MASTIC IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. TONGUE AND GROOVE JOINTS MAY BE GROUTED NO MORE THAN 1" BETWEEN EACH SECTION, OR 1/2 THE JOINT DEPTH, WHICHEVER IS GREATER.
 3. DO NOT GROUT RUBBER GASKET JOINTS WITHOUT MANUFACTURER'S RECOMMENDATION.
 4. FOR RIGID PIPE, CUT HOLE IN THIN WALL PANEL (KO) 4" MAX, 2" MIN LARGER THAN PIPE OD.
 5. FOR FLEXIBLE PIPE, CONSULT BOOT/SEAL MANUFACTURER'S SPECIFICATION FOR PLACEMENT TOLERANCE AND HOLE SIZE. CENTER PIPE IN HOLE AND INSTALL BOOT/SEAL PER MANUFACTURER'S SPECIFICATION.
 6. INITIAL INSTALLATION OF GRADE ADJUSTMENT RINGS IS LIMITED TO 1'-0" MAX AS SHOWN.
 7. GRADE ADJUSTMENT RINGS MAY BE INCREASED TO 1'-6" MAX WHEN FUTURE CONSTRUCTION AFFECTS FINAL GRADE OF STRUCTURE. MAKE ADJUSTMENTS GREATER THAN 1'-6" WITH ADDITIONAL RISERS. ADJUSTMENTS MAY BE MADE UP TO THE MAX DEPTH OF 25'-0". STRUCTURE MUST BE EVALUATED IF MAX DEPTH WILL BE EXCEEDED.

- GENERAL NOTES:**
1. SEE TABLE 1 FOR MINIMUM DESIGN REQUIREMENTS. CONCENTRIC RISER WITH RESPECT TO BASE (ALTERNATIVE CONFIGURATION) FALLS OUTSIDE THE SCOPE OF REQUIREMENTS PROVIDED. ENGINEER OF RECORD ACCEPTS RESPONSIBILITY FOR SAFETY AND ADEQUACY OF MANHOLE IF THE ALTERNATIVE CONFIGURATION IS USED.
 2. DESIGNED ACCORDING TO ASTM C478 AND/OR ASTM C913.
 3. PAYMENT FOR PRECAST MANHOLE PER SECTION 02082 "PRECAST CONCRETE MANHOLES."
 4. PRECAST BASE CONSISTS OF BASE SLAB, BASE UNIT, RISERS (AS REQUIRED), REDUCING SLAB (AS REQUIRED), AND REDUCED RISERS (AS REQUIRED).
 5. MIN HEIGHT SHOWN FOR STOCK BASE UNITS. USE STOCK BASE UNITS WHENEVER PRACTICAL. SMALLER HEIGHT BASE UNITS CAN BE USED IN SPECIAL INSTALLATION CIRCUMSTANCES, WHEN NOTED ELSEWHERE IN THE PLANS. ABSOLUTE MINIMUM HEIGHT OF BASE UNITS IS 2'-6".
 6. FOUNDATION/SUBGRADE TO BE DESIGNED BY ENGINEER AND MEET MINIMUM REQUIREMENTS ACCORDING TO SECTION 02082.
 7. ALL STORM WATER MANHOLES ARE TO BE PRECAST CONCRETE, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.
 8. ECCENTRIC REDUCED RISER WITH RESPECT TO BASE IS THE PREFERRED MANHOLE CONFIGURATION. CONCENTRIC REDUCED RISER WITH RESPECT TO BASE MANHOLE CONFIGURATION IS AN ALTERNATIVE DESIGN THAT WILL BE ACCEPTED BASED ON THE NEED OF THE CITY OF HOUSTON.
 9. MANHOLE SIZE SHALL CONSIDER ENGINEERING ECONOMY. THIS DETAIL IS NOT APPLICABLE TO BOX MANHOLES LARGER THAN 8'-FOOT BY 8'-FOOT.
 10. REFER TO STORM SEWER TYPE "C" PRECAST ROUND MANHOLE DETAIL (02082-12) FOR REDUCED RISER DESIGN REQUIREMENTS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

STORM SEWER PRECAST BOX MANHOLE
(NOT TO SCALE)

APPROVED BY: *Suhail Kawan* CITY ENGINEER
 APPROVED BY: *Carl Addelock* DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2021 DWG NO: 02082-13

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079
 140416
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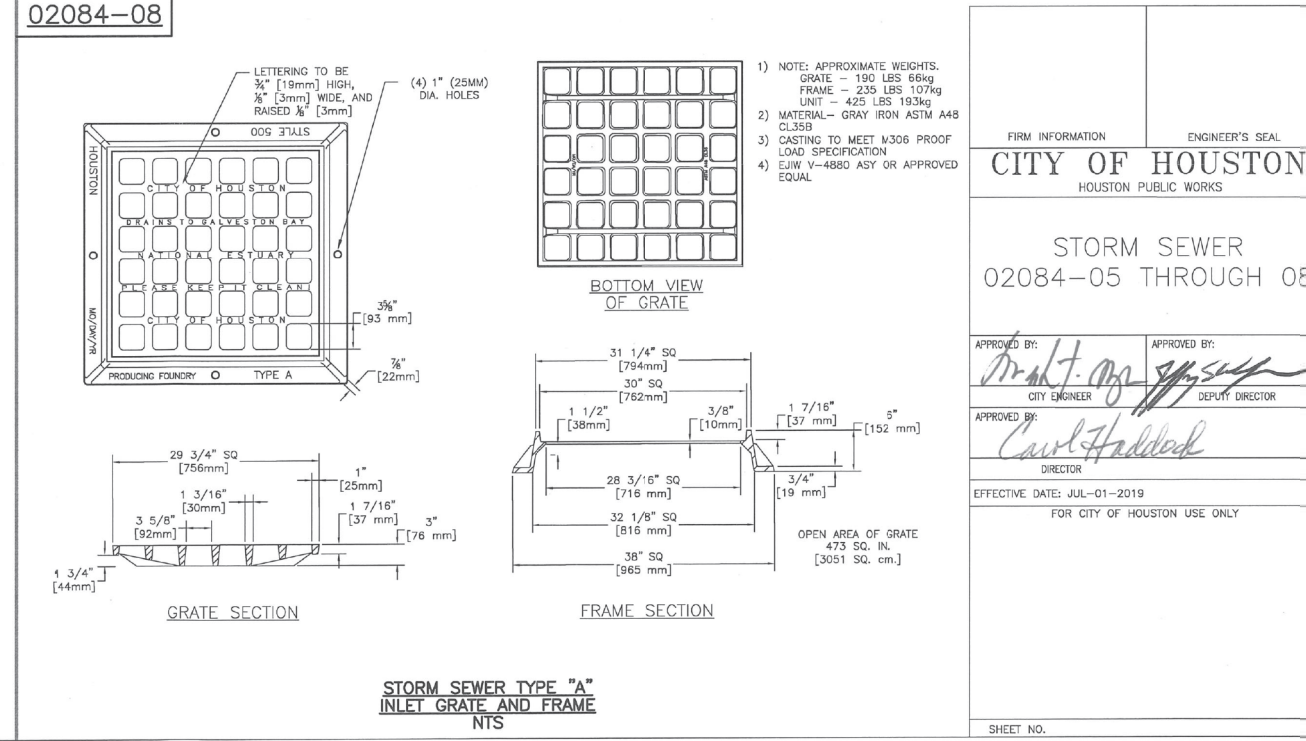
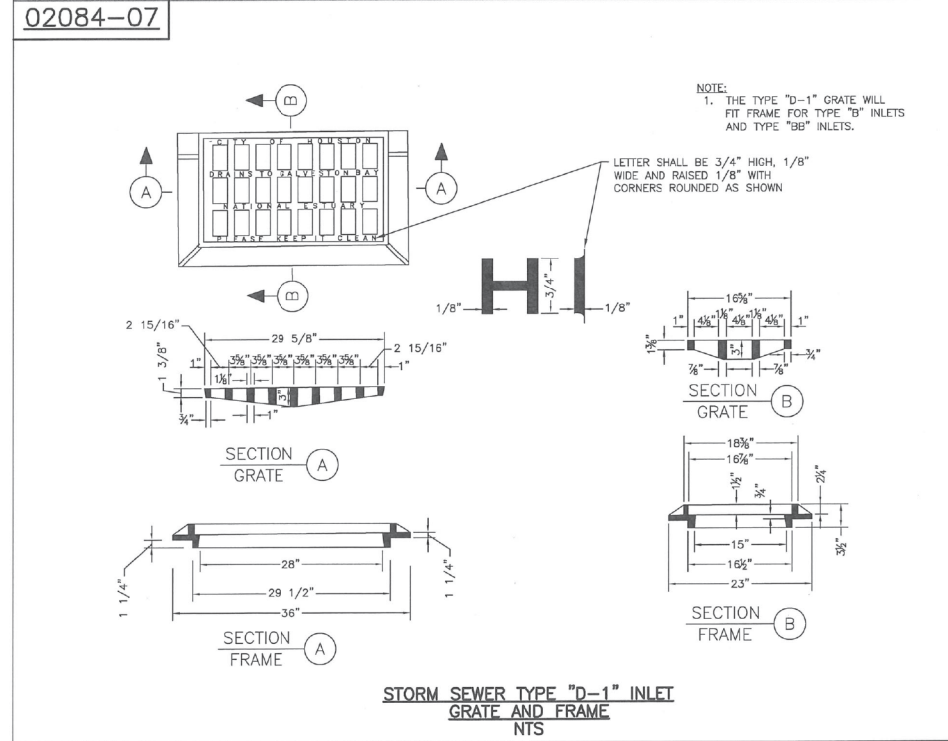
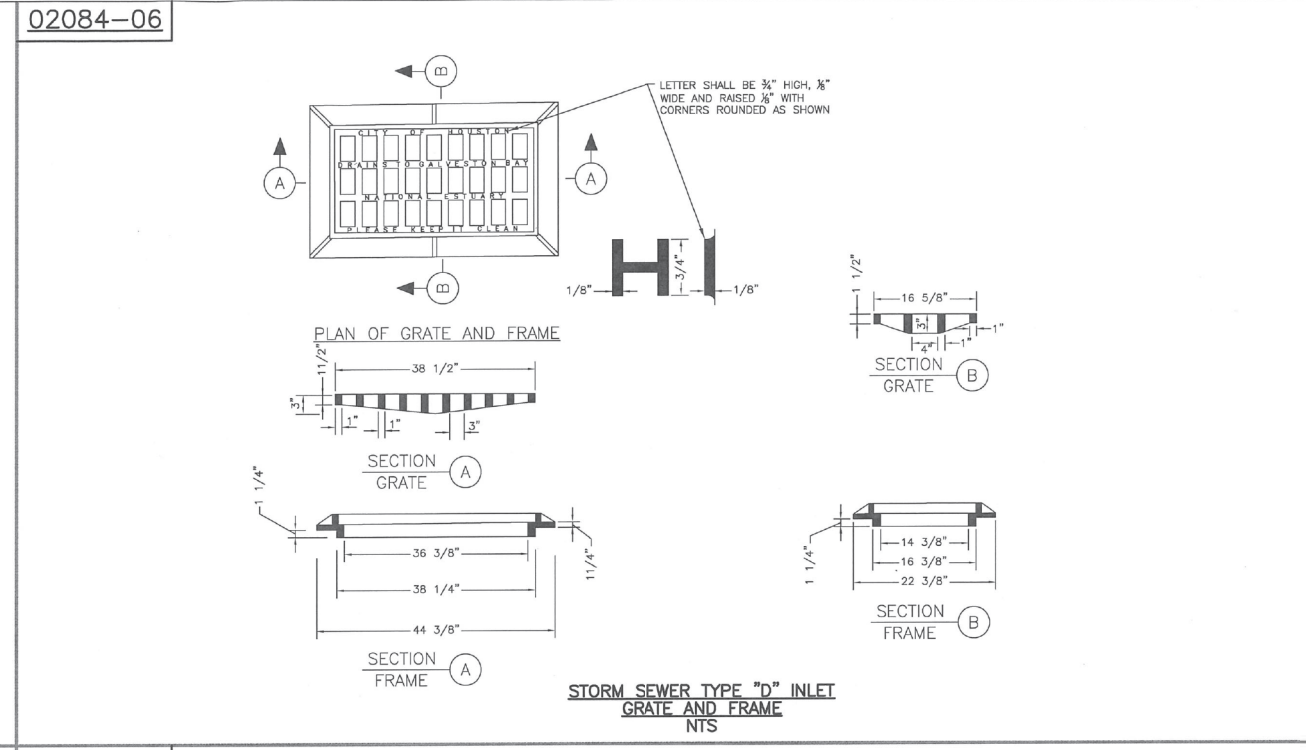
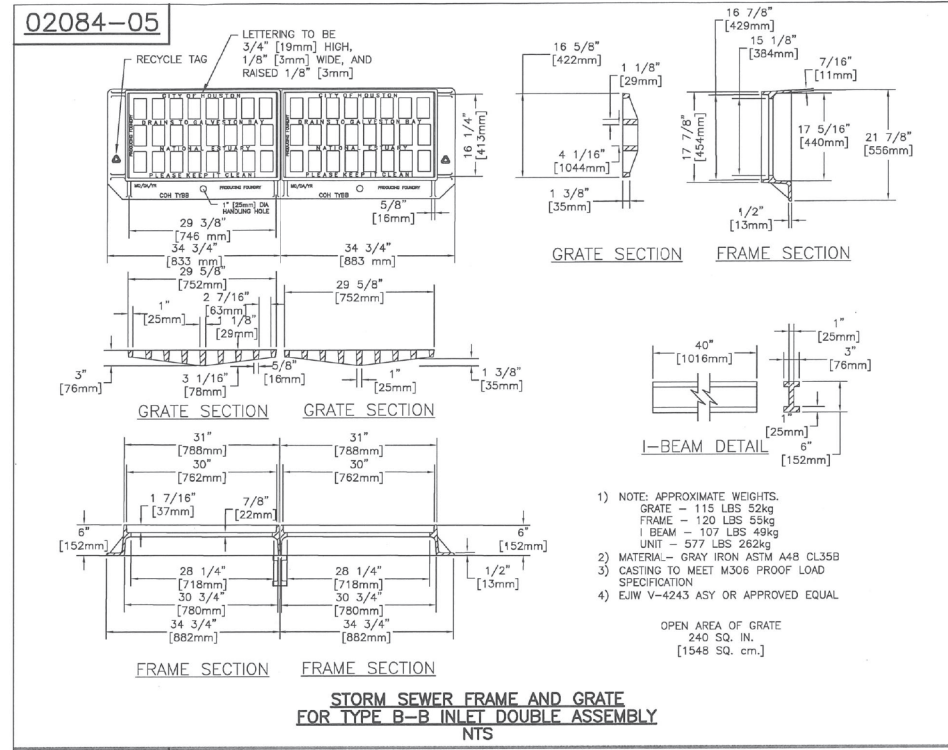
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 DRAINAGE STANDARDS

SHEET 2 OF 8

WBS NUMBER: N-T27000-0005-7
 DRAWING SCALE: AS NOTED
 CITY OF HOUSTON PM: JIADA HUANG
 SHEET NO: 180 OF 355

No.	DATE	REVISIONS	APP.

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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STORM SEWER 02084-05 THROUGH 08	
APPROVED BY: CITY ENGINEER	APPROVED BY: DEPUTY DIRECTOR
APPROVED BY: DIRECTOR	
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

DRAINAGE STANDARDS

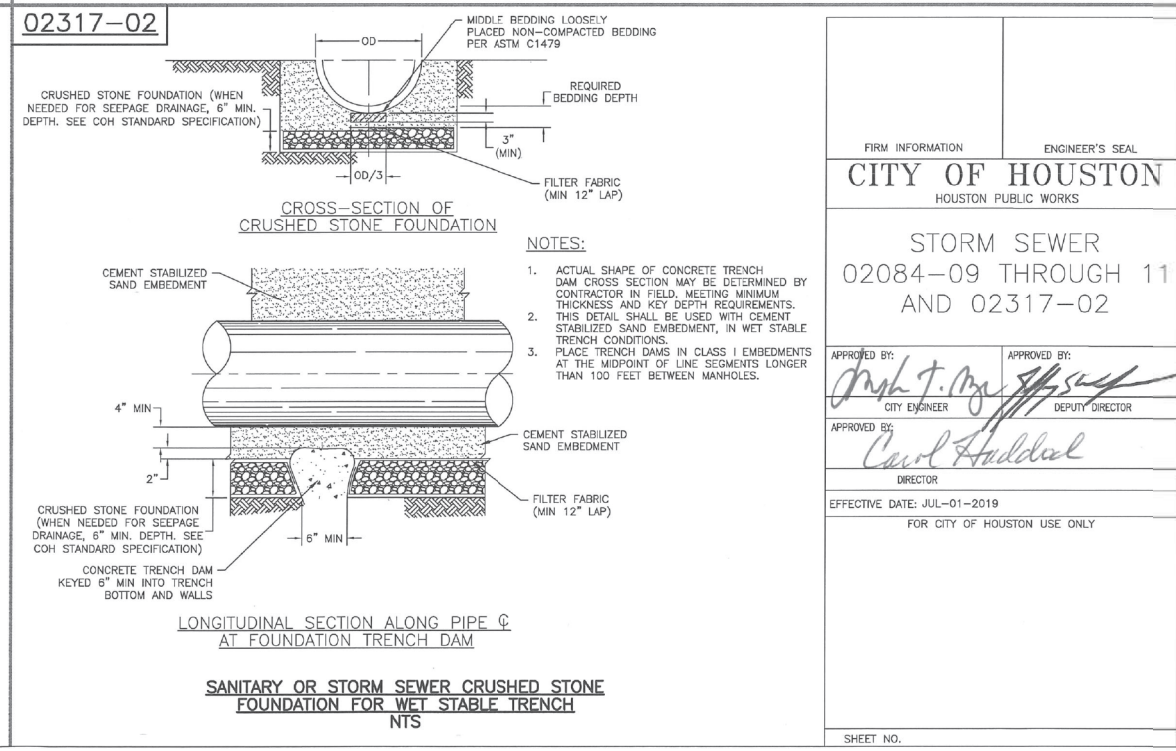
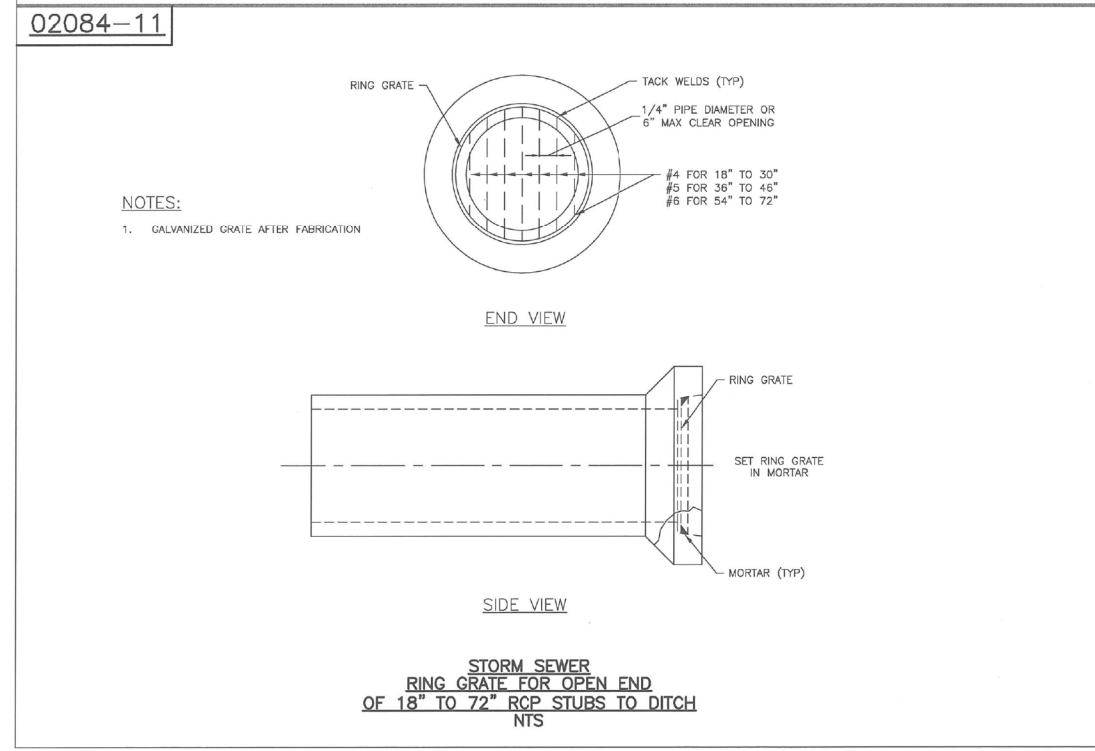
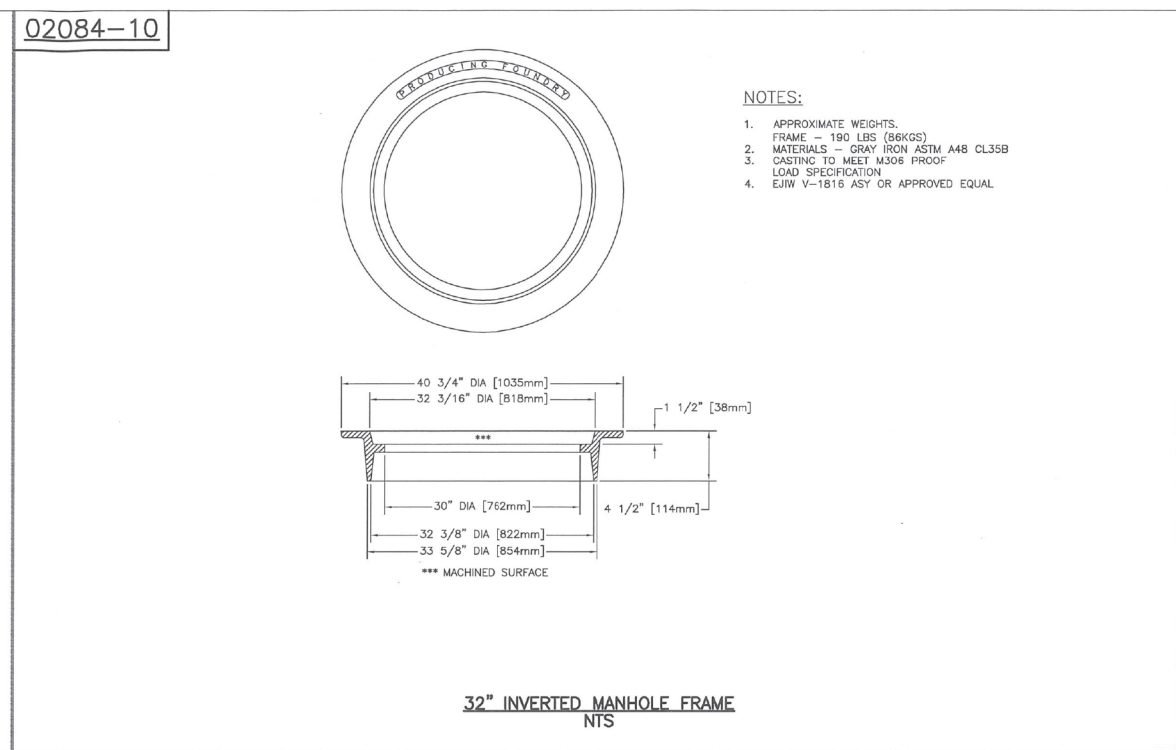
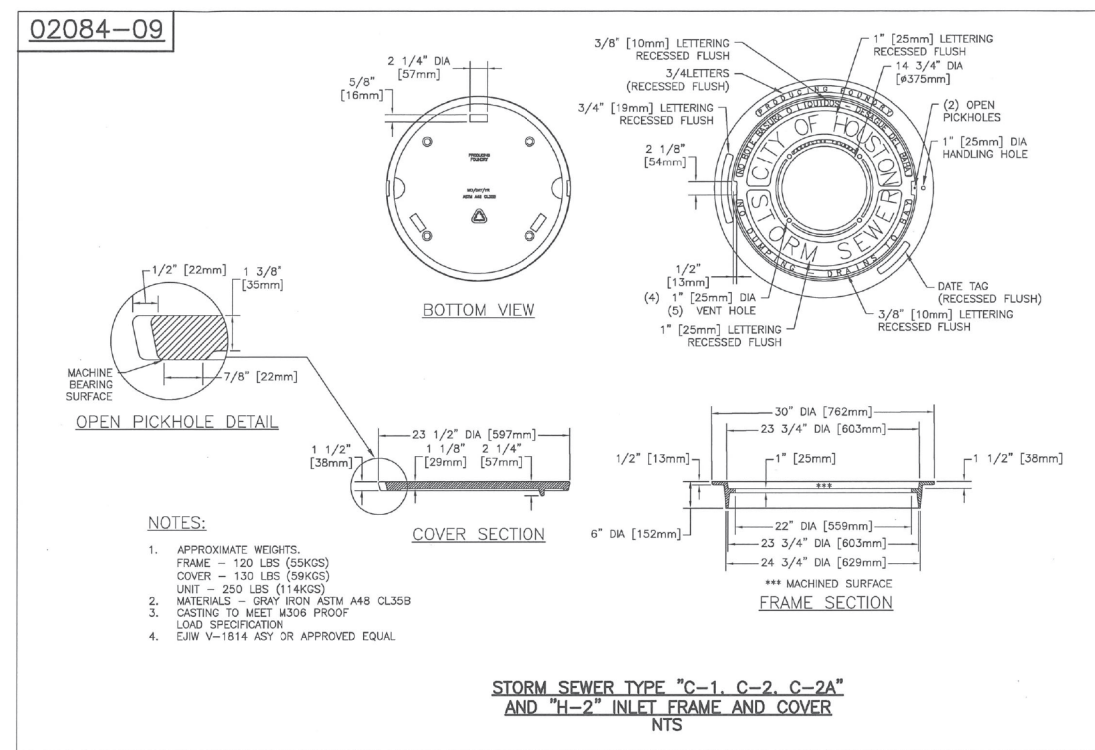
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JIADA HUANG	
SHEET NO. 182 OF 355	

REVISIONS	APP.
No.	DATE

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No.
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STORM SEWER 02084-09 THROUGH 11 AND 02317-02	
APPROVED BY: CITY ENGINEER <i>Paul T. May</i>	APPROVED BY: DEPUTY DIRECTOR <i>[Signature]</i>
APPROVED BY: DIRECTOR <i>Carol Haddad</i>	
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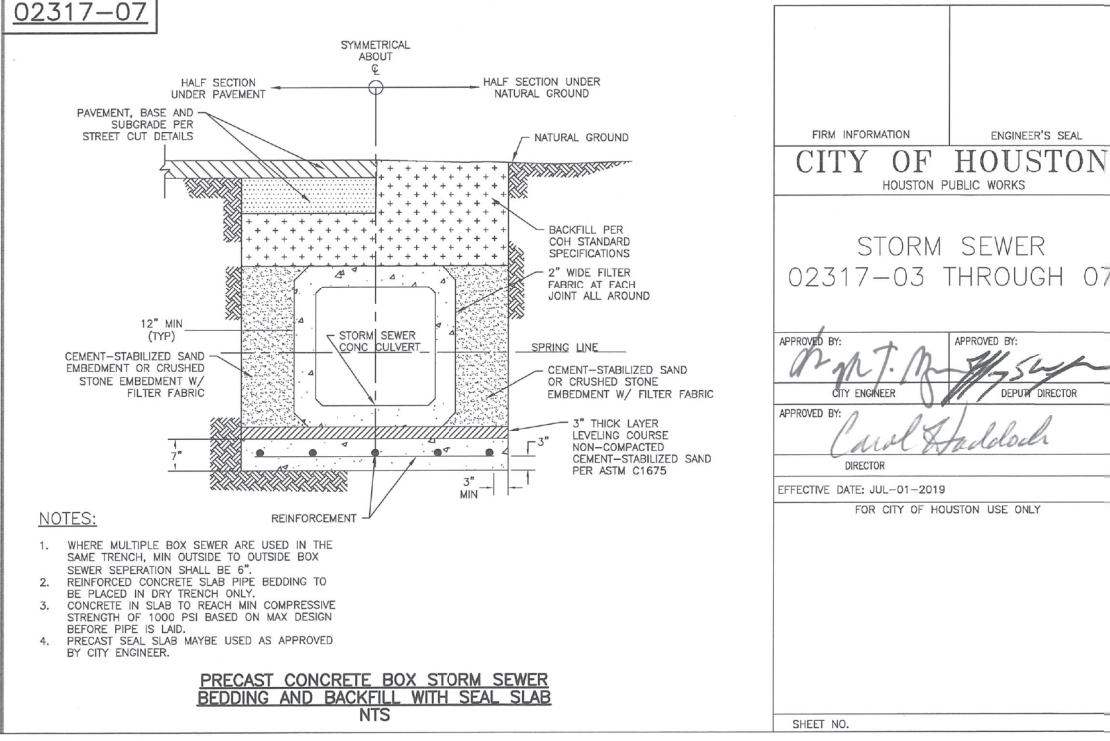
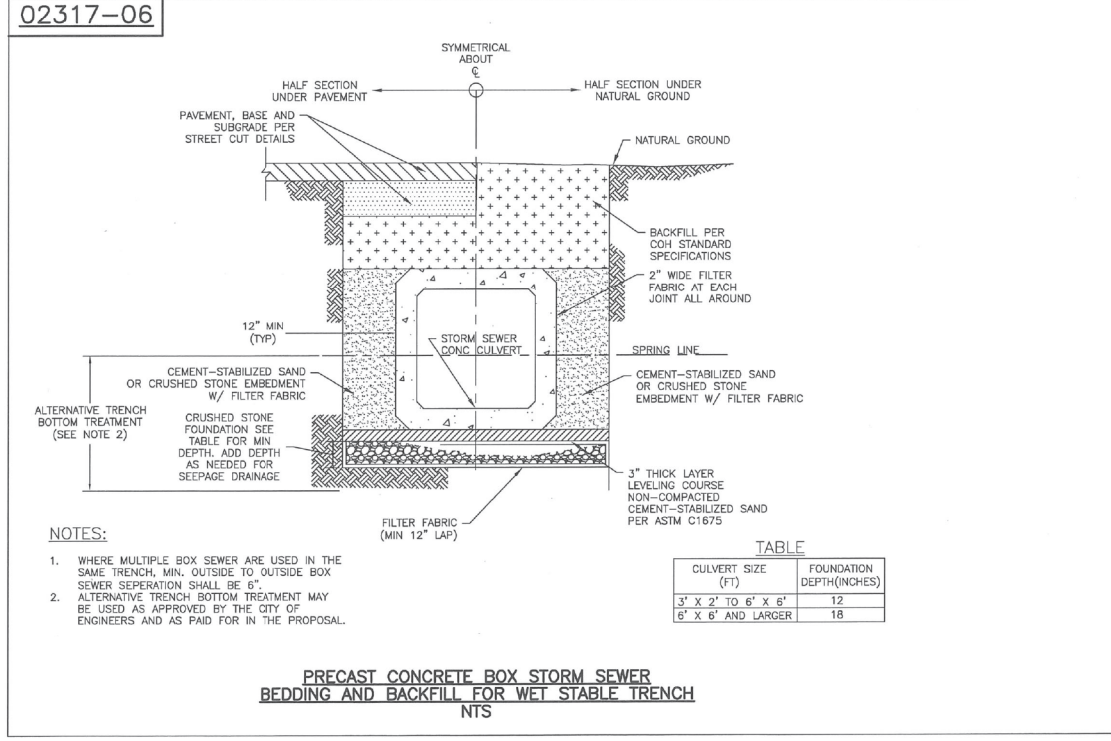
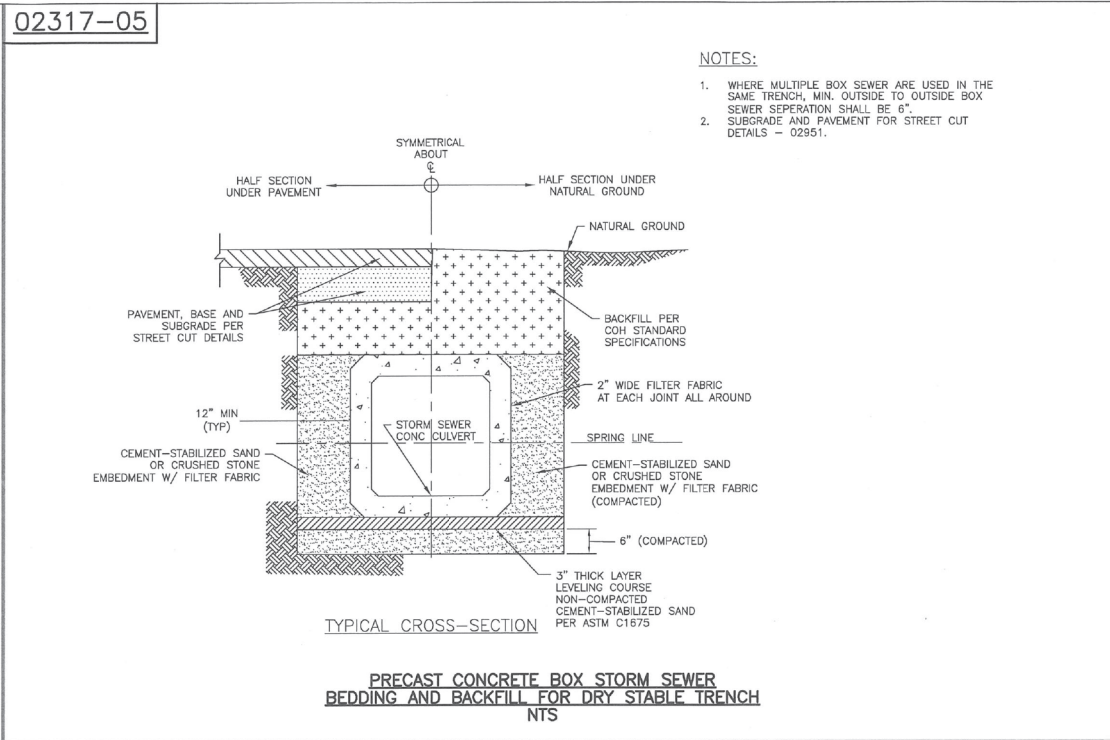
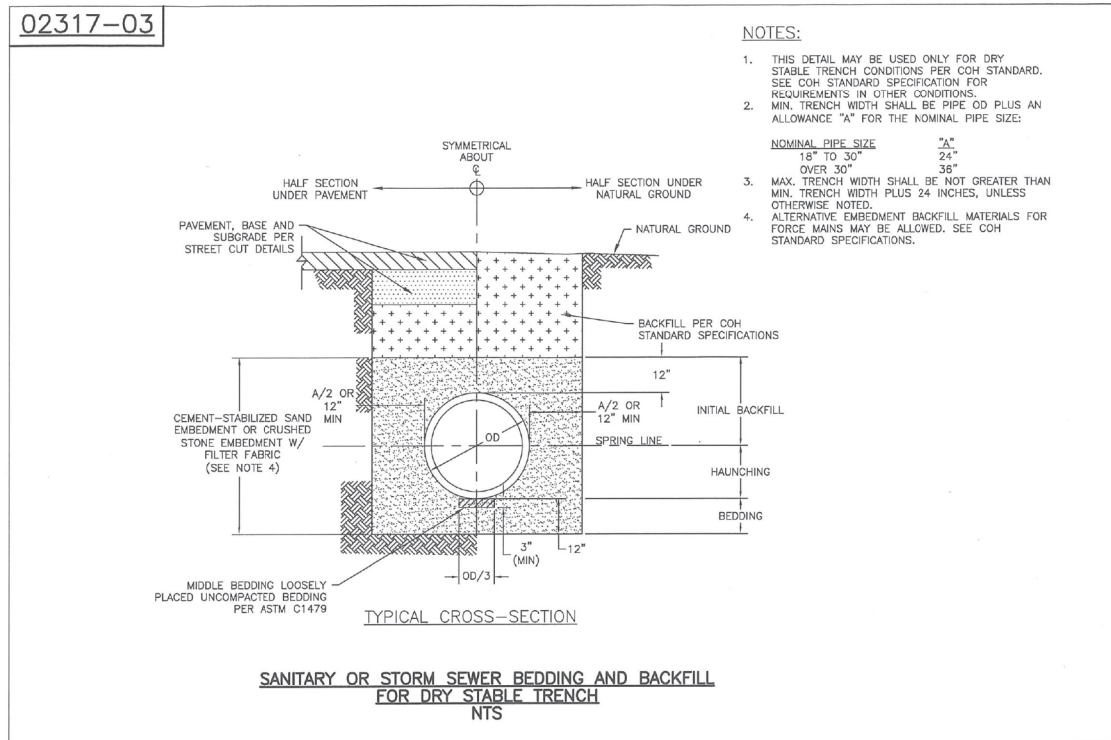
DRAINAGE STANDARDS

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SHEET NO. 183 OF 355	

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No.
DATE



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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STORM SEWER 02317-03 THROUGH 07	
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DEPUTY DIRECTOR
APPROVED BY: <i>[Signature]</i> DIRECTOR	
EFFECTIVE DATE: JUL-01-2019 FOR CITY OF HOUSTON USE ONLY	
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

DRAINAGE STANDARDS

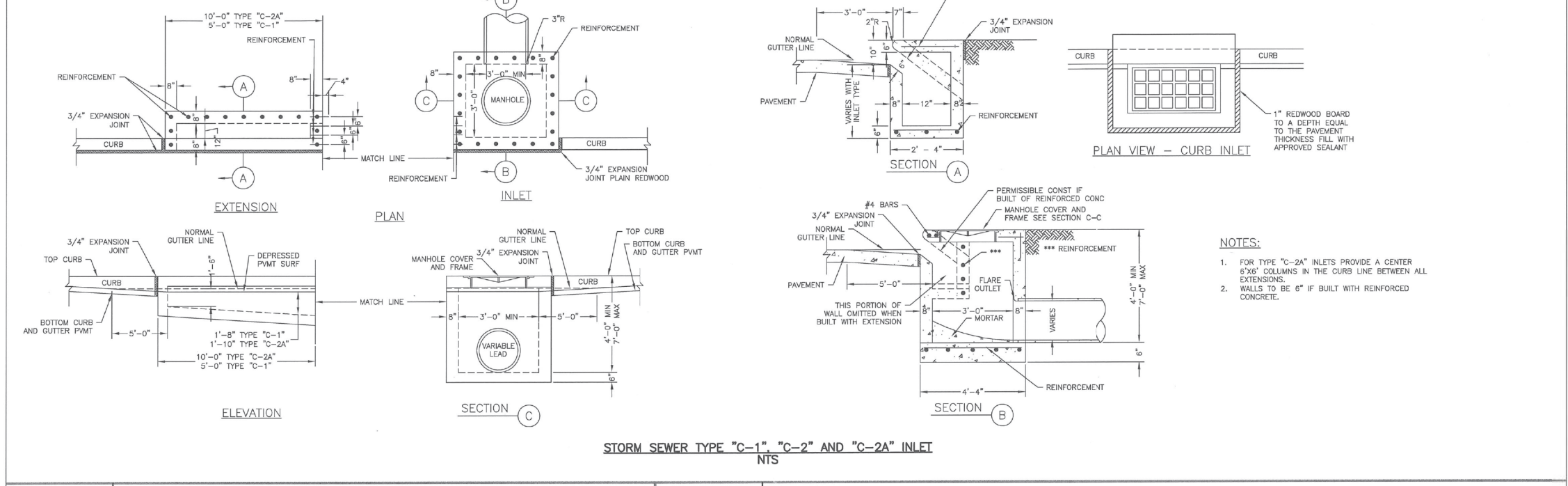
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CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 184 OF 355	

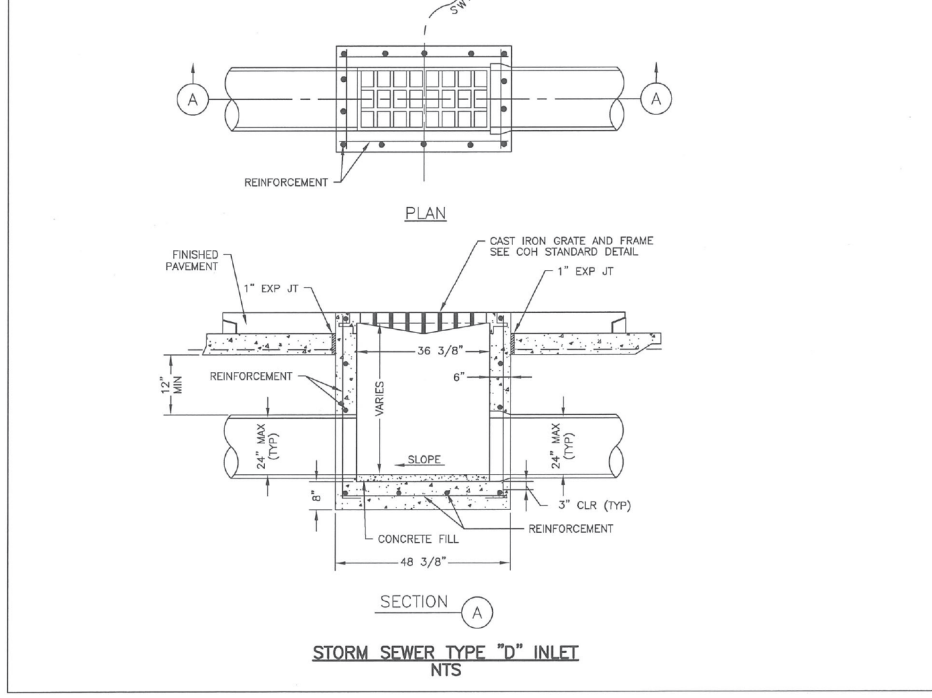
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REVISIONS	APP.
No.	DATE

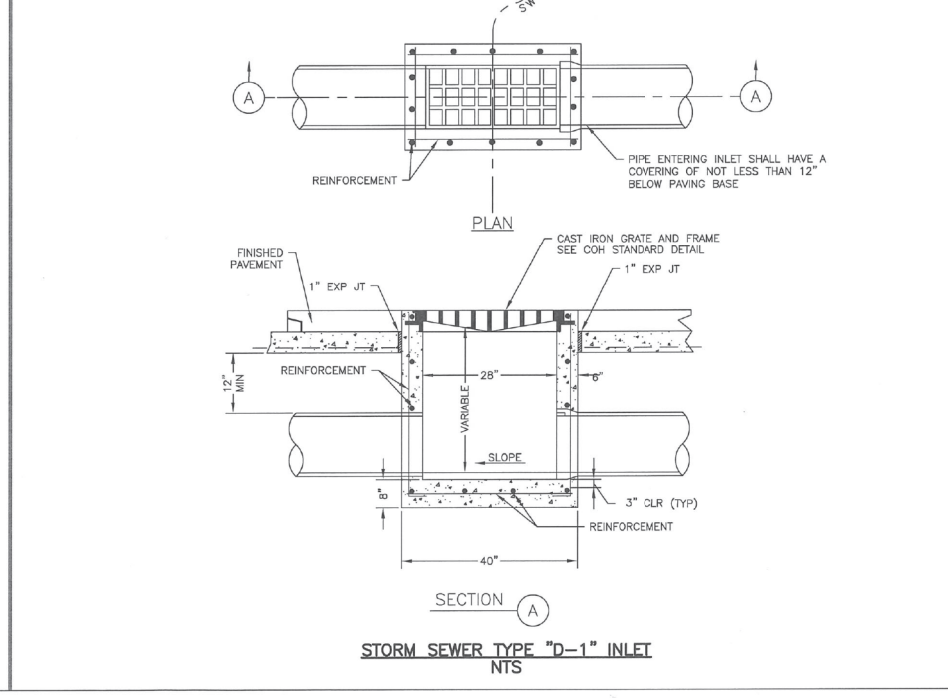
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02632-07



02632-08



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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STORM SEWER 02632-06 THROUGH 08	
APPROVED BY: CITY ENGINEER <i>Carol Haddock</i>	APPROVED BY: DEPUTY DIRECTOR <i>[Signature]</i>
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 IMPROVEMENTS - SEGMENT 1

DRAINAGE STANDARDS

SHEET 7 OF 8

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SHEET NO. 185 OF 355	

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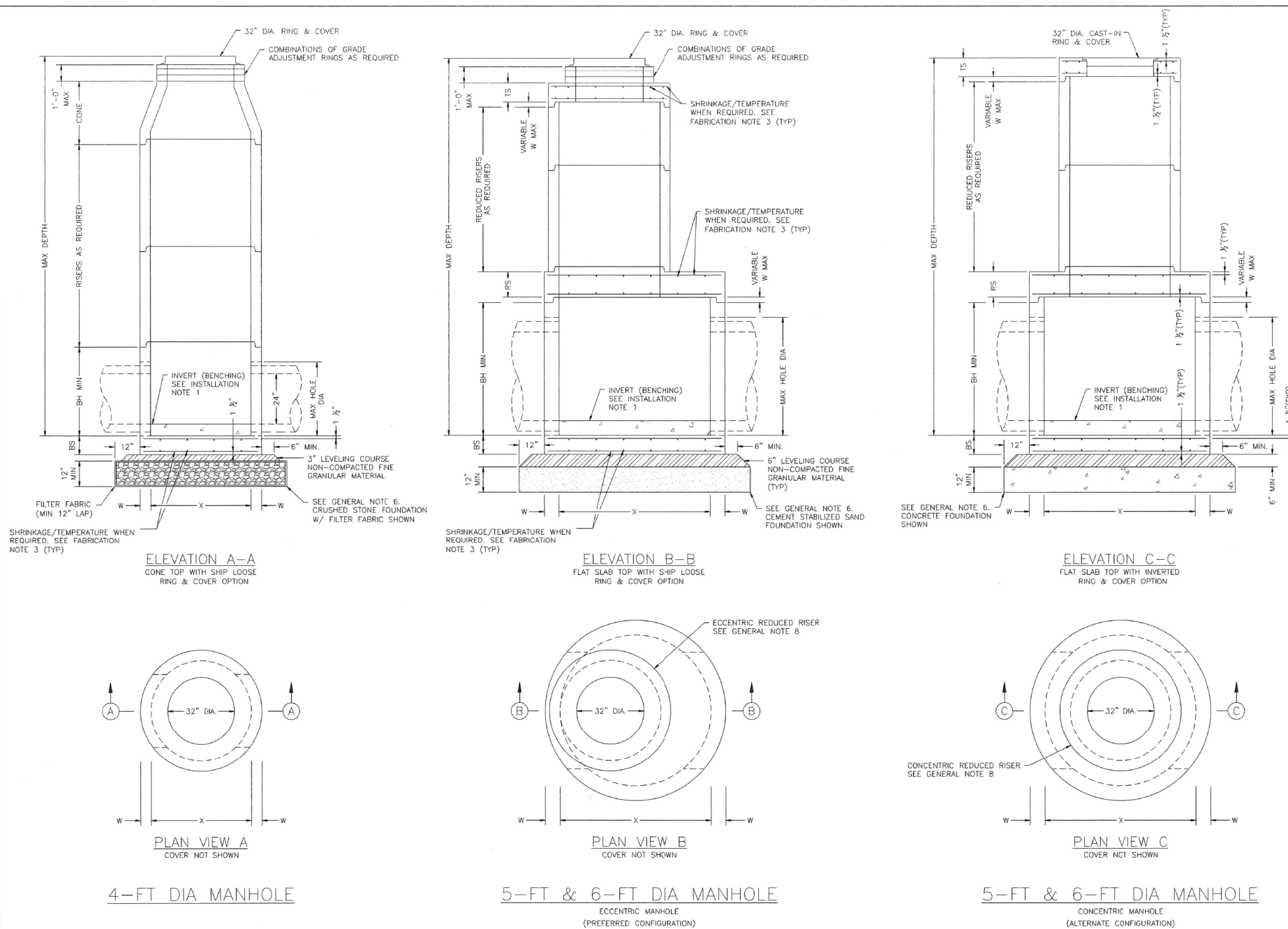


TABLE 1
 PRECAST ROUND MANHOLE (PRM) MINIMUM REQUIREMENTS FOR 24 IN. TO 42 IN. INTERNAL DIA STORM SEWER PIPES

PRM	SIZE	BASE SLAB THICKNESS	BASE UNIT OR RISER THICKNESS	REDUCED RISER DIA	REDUCING SLAB THICKNESS	TOP SLAB THICKNESS	MAX DEPTH TO TOP OF BASE SLAB	MIN HEIGHT	MAX HOLE DIA
	FT	IN.	IN.	IN.	IN.	IN.	FT	IN.	IN.
	4	9	5	—	—	9	25	42	35
	5	9	6	48	9	9	25	42	42
	6	9	7	48/60*	12	9	25	42	56

(* 60-IN REDUCED RISER IS TO BE USED WHEN DEEMED NECESSARY TO SATISFY WALL PENETRATION SPACING REQUIREMENTS.

FABRICATION NOTES:

1. PROVIDE CLASS "H" CONCRETE IN ACCORDANCE WITH TEXAS DEPARTMENT OF TRANSPORTATION ITEM 421 AND HAVING A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.
2. PROVIDE GRADE 60 REINFORCING STEEL OR EQUIVALENT AREA OF WWR. PROVIDE CIRCUMFERENTIAL REINFORCING STEEL IN VERTICAL WALLS OF BASE, RISER AND CONE IN ACCORDANCE WITH ASTM C478.
3. SLABS WITH A THICKNESS OF 8" OR GREATER REQUIRE SHRINKAGE AND TEMPERATURE REINFORCING STEEL. PROVIDE STEEL AREA = 0.11 IN²/FT EACH WAY.
4. MANUFACTURE BASE AND RISERS TO NEAREST 3" INCREMENT.
5. DESIGN TONGUE AND GROOVE JOINTS FOR FULL CLOSURE ON BOTH SHOULDERS. MINIMUM SPIGOT DEPTH IS 3/4".
6. PROVIDE LIFTING DEVICES IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. PROVIDE CAST IRON SOLID COVER, UNLESS NOTED OTHERWISE ELSEWHERE IN THE PLANS.
8. THREE DIFFERENT OPTIONS FOR CAPPING THE MANHOLE RISER NEAR THE FINISHED GRADE ARE SHOWN. CONES CAN BE USED WHEN COVER IS SUFFICIENT TO ALLOW FOR PROPER PLACEMENT. FLAT LIDS ARE TO BE USED WHERE COVER IS LIMITED.

INSTALLATION NOTES:

1. IF REQUIRED ELSEWHERE, INVERTS (BENCHING) TO BE PROVIDED BY CONTRACTOR. CONCRETE OR MORTAR USED FOR INVERT IS SUBSIDIARY TO THIS ITEM. REFER TO CITY OF HOUSTON SPECIFICATION SECTION 02082 FOR INVERT (BENCHING) REQUIREMENTS.
2. SEAL TONGUE AND GROOVE JOINTS WITH PREFORMED OR BULK MASTIC IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. TONGUE AND GROOVE JOINTS MAY BE GROUTED NO MORE THAN 1" BETWEEN EACH SECTION, OR 1/2 THE JOINT DEPTH, WHICHEVER IS GREATER.
3. DO NOT GROUT RUBBER GASKET JOINTS WITHOUT MANUFACTURER'S RECOMMENDATION.
4. INITIAL INSTALLATION OF GRADE ADJUSTMENT RINGS IS LIMITED TO 1'-0" MAX AS SHOWN.
5. GRADE ADJUSTMENT RINGS MAY BE INCREASED TO 1'-6" MAX WHEN FUTURE CONSTRUCTION AFFECTS FINAL GRADE OF STRUCTURE. MAKE ADJUSTMENTS GREATER THAN 1'-6" WITH ADDITIONAL RISERS. ADJUSTMENTS MAY BE MADE UP TO THE MAX DEPTH OF 25'-0". STRUCTURE MUST BE EVALUATED IF MAX DEPTH WILL BE EXCEEDED.

GENERAL NOTES:

1. SEE TABLE 1 FOR MINIMUM DESIGN REQUIREMENTS. CONCENTRIC RISER WITH RESPECT TO BASE (ALTERNATIVE CONFIGURATION) FALLS OUTSIDE THE SCOPE OF REQUIREMENTS PROVIDED. ENGINEER OF RECORD ACCEPTS RESPONSIBILITY FOR SAFETY AND ADEQUACY OF MANHOLE IF THE ALTERNATIVE CONFIGURATION IS USED.
2. DESIGNED ACCORDING TO ASTM C478.
3. PAYMENT FOR PRECAST MANHOLE PER SECTION 02082 "PRECAST CONCRETE MANHOLES".
4. PIPE OD + PLACEMENT TOLERANCE MUST BE EQUAL OR LESS THAN MAX HOLE DIA. FOR RIGID PIPE, PLACEMENT TOLERANCE IS 4" MAX, 2" MIN. FOR FLEXIBLE PIPE, CONSULT BOOT/SEAL MANUFACTURER'S SPECIFICATION FOR PLACEMENT TOLERANCE.
5. STORM WATER SEWER PIPE INTERNAL DIA SHALL NOT BE LESS THAN 24".
6. FOUNDATION/SUBGRADE TO BE DESIGNED BY ENGINEER AND MEET MINIMUM REQUIREMENTS ACCORDING TO SECTION 02082.
7. ALL STORM WATER MANHOLES ARE TO BE PRECAST CONCRETE, UNLESS OTHERWISE NOTED ELSEWHERE IN THE PLANS.
8. ECCENTRIC REDUCED RISER WITH RESPECT TO BASE IS THE PREFERRED MANHOLE CONFIGURATION. CONCENTRIC REDUCED RISER WITH RESPECT TO BASE MANHOLE CONFIGURATION IS AN ALTERNATIVE DESIGN THAT WILL BE ACCEPTED BASED ON THE NEEDS OF THE CITY OF HOUSTON.
9. CONES MAY BE CONCENTRIC OR ECCENTRIC. REDUCTION CONES ARE ACCEPTABLE. REFER TO MANUFACTURER FOR CONE DIMENSIONS.
10. MANHOLE SIZE SHALL CONSIDER ENGINEERING ECONOMY. THIS DETAIL IS NOT APPLICABLE TO ROUND MANHOLES LARGER THAN 6-FOOT DIA.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**STORM SEWER TYPE 'C'
 PRECAST ROUND MANHOLE**

(NOT TO SCALE)

APPROVED BY:
Sulhail Kanwar
 CITY ENGINEER

APPROVED BY:
Carl Stalldale
 DIRECTOR OF
 HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2021 DWG NO: 02082-12

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 Texas Registered Engineering Firm F-2017

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**

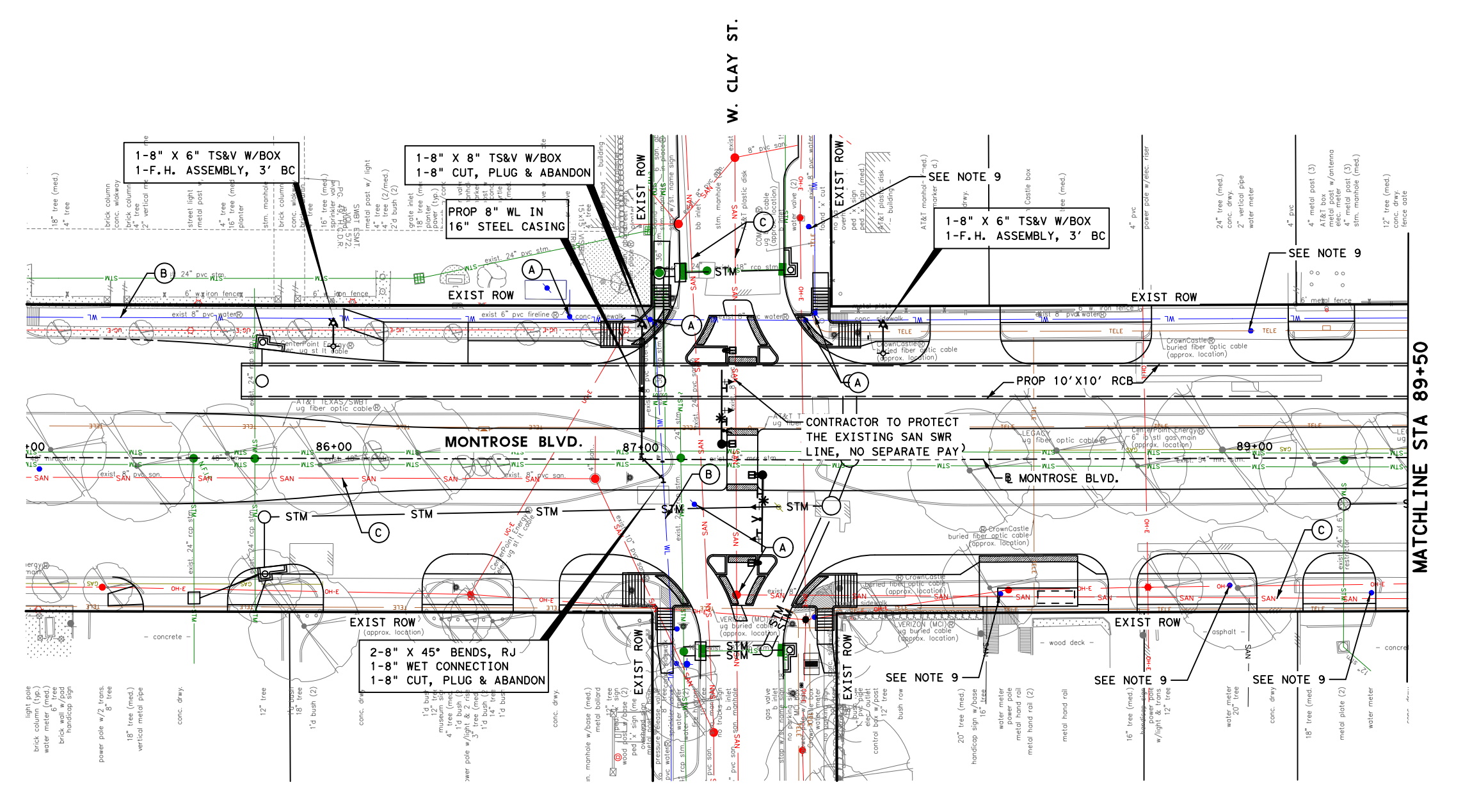
DRAINAGE STANDARDS

SHEET 8 OF 8

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 SHEET NO: 186 OF 355

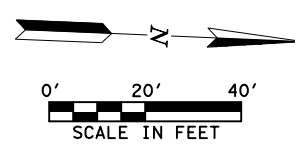
No.	DATE	REVISIONS	APP.

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LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
- ▣ D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- A ADJUST TO GRADE
- B EXIST WATER LINE TO REMAIN
- C EXIST SAN SWR TO REMAIN



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
 valid for one year.

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4. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

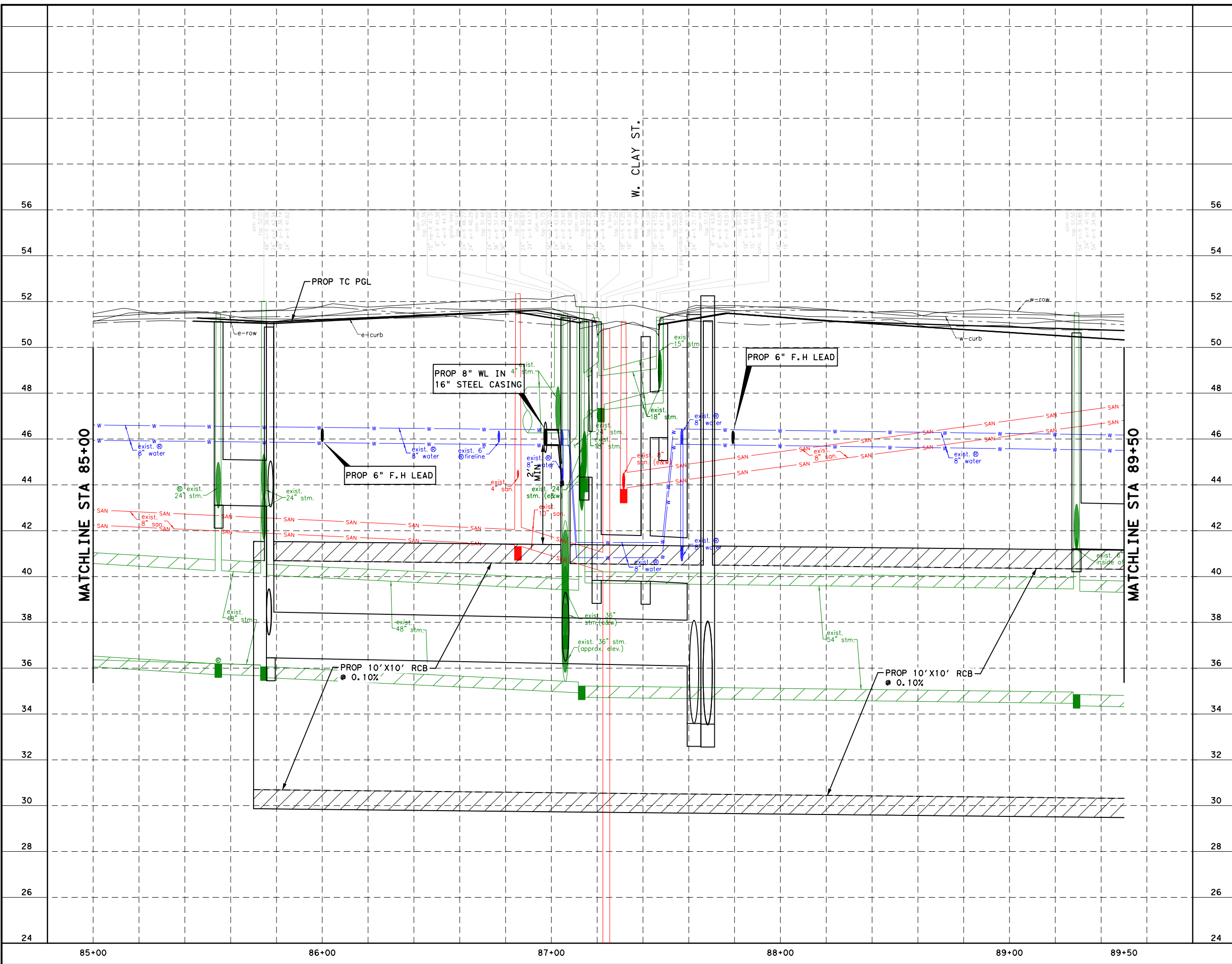
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PLAN
BEGIN PROJECT TO STA 89+50

SHEET 1 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 187	DF 355

NO.	DATE	REVISIONS	APP.

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LEGEND	
	PROPOSED SAN SWR
	PROPOSED WATER LINE
	EXIST SAN SWR LEADS
	D.I.P. W RESTRAINED JOINTS
	CRITICAL LOCATION
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	EXIST WATER LINE TO REMAIN
	EXIST SAN SWR TO REMAIN

HORZ 0' 20' 40'
 VERT 0' 2' 4'
 SCALE IN FEET

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UNDERGROUND ELECTRICAL FACILITIES VERIFICATION ONLY
 (This signature verifies existing underground facilities - not to be used for conflict verification)
 Date _____
 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____ valid for one year.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

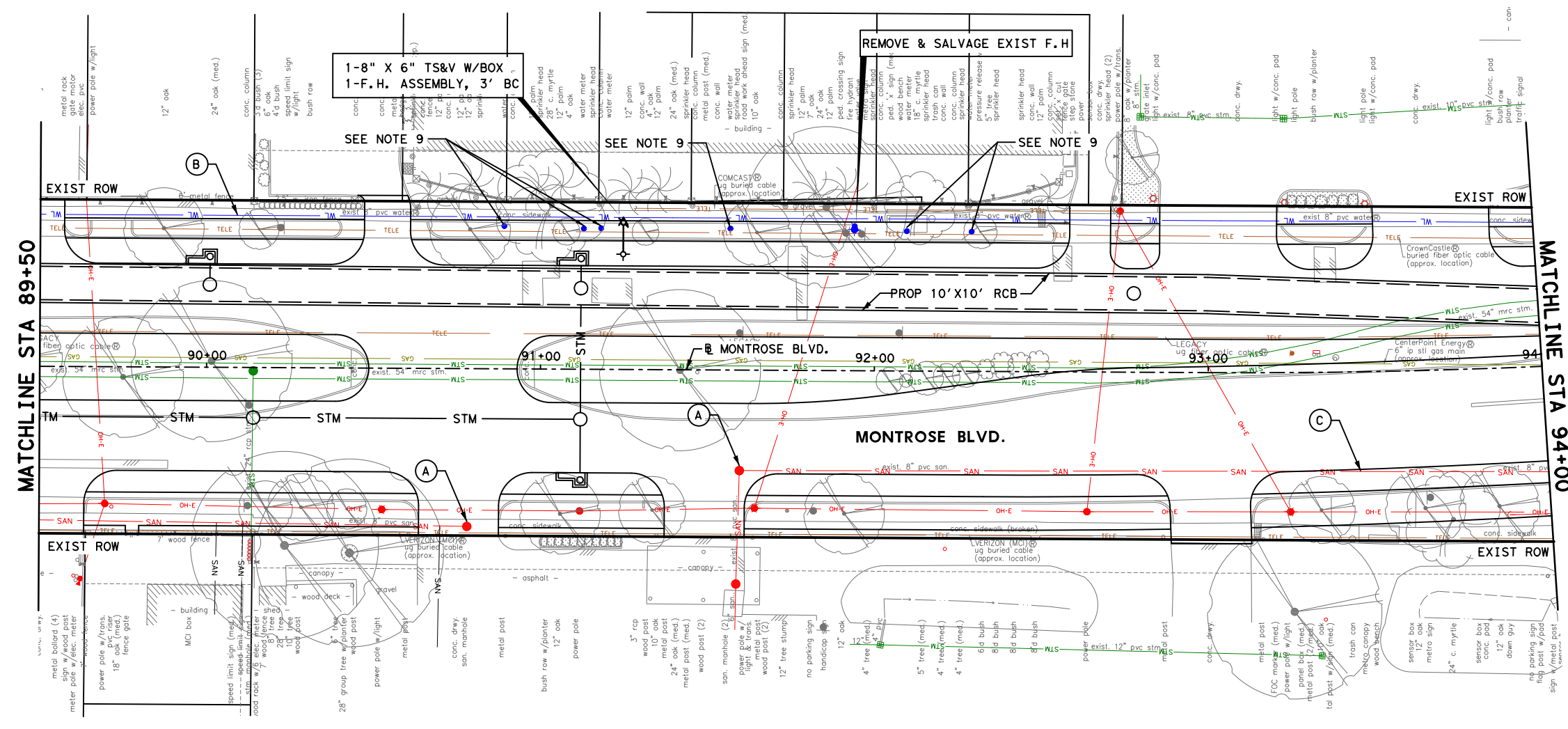
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PROFILE
STA 85+00 TO STA 89+50

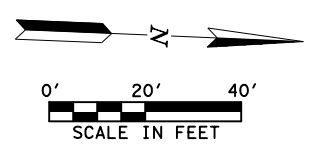
SHEET 2 OF 12

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CITY OF HOUSTON PM	JIADA HUANG
SHEET NO.	188 OF 355



LEGEND

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- SAN — EXIST SAN SWR LEADS
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PLAN
 STA 89+50 TO STA 94+00

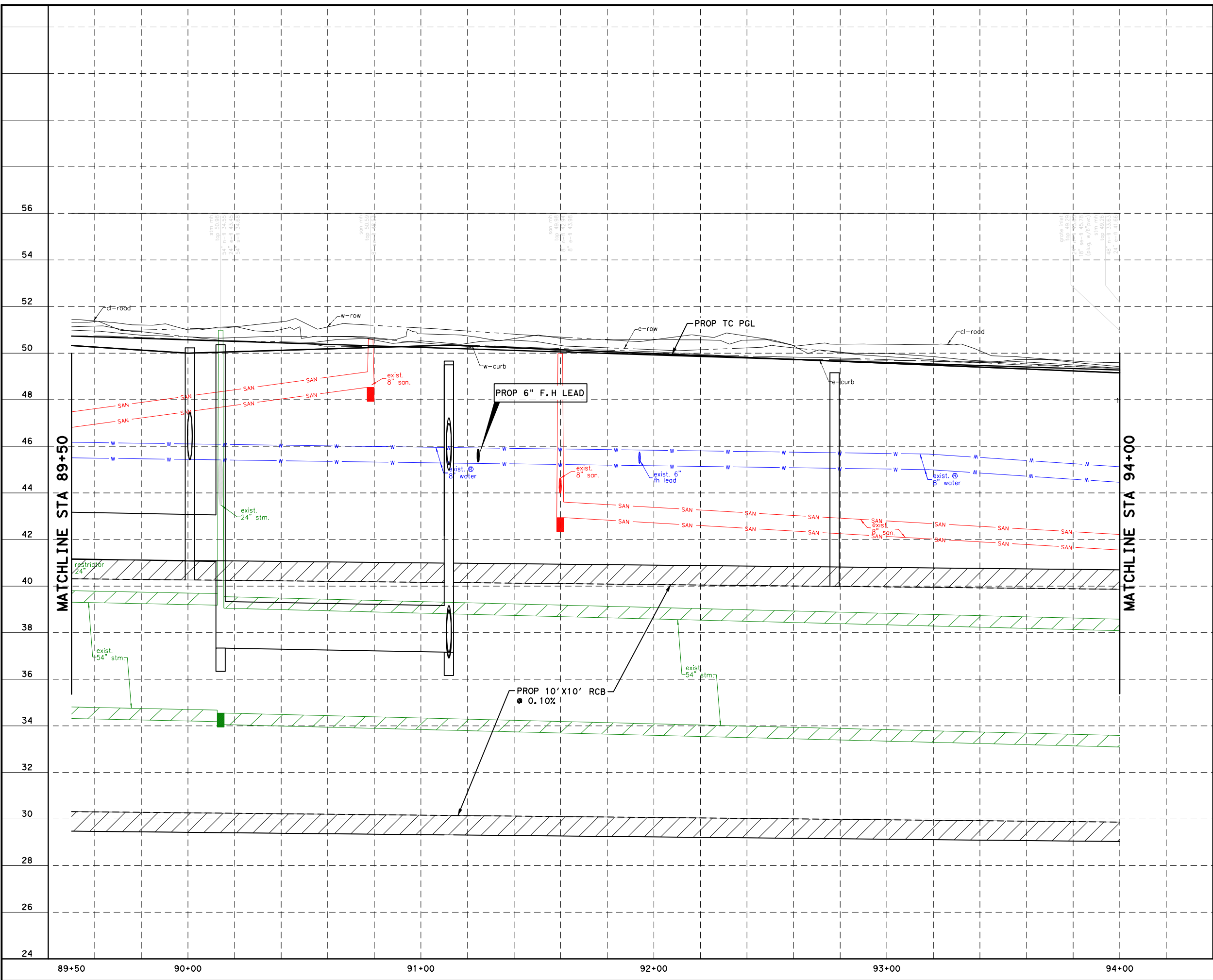
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JIADA HUANG	
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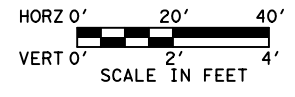
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LEGEND	
	PROPOSED SAN SWR
	PROPOSED WATER LINE
	EXIST SAN SWR LEADS
	D.I.P. W RESTRAINED JOINTS
	CRITICAL LOCATION
	ADJUST TO GRADE
	EXIST WATER LINE TO REMAIN
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VERIFICATION OF PRIVATE UTILITY LINES

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 Signature valid for six months.

Date _____
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Approved for All underground conduit facilities only. Signature _____ Date _____
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PROFILE
STA 89+50 TO STA 94+00

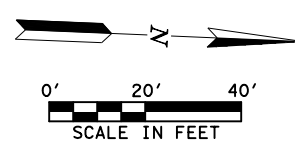
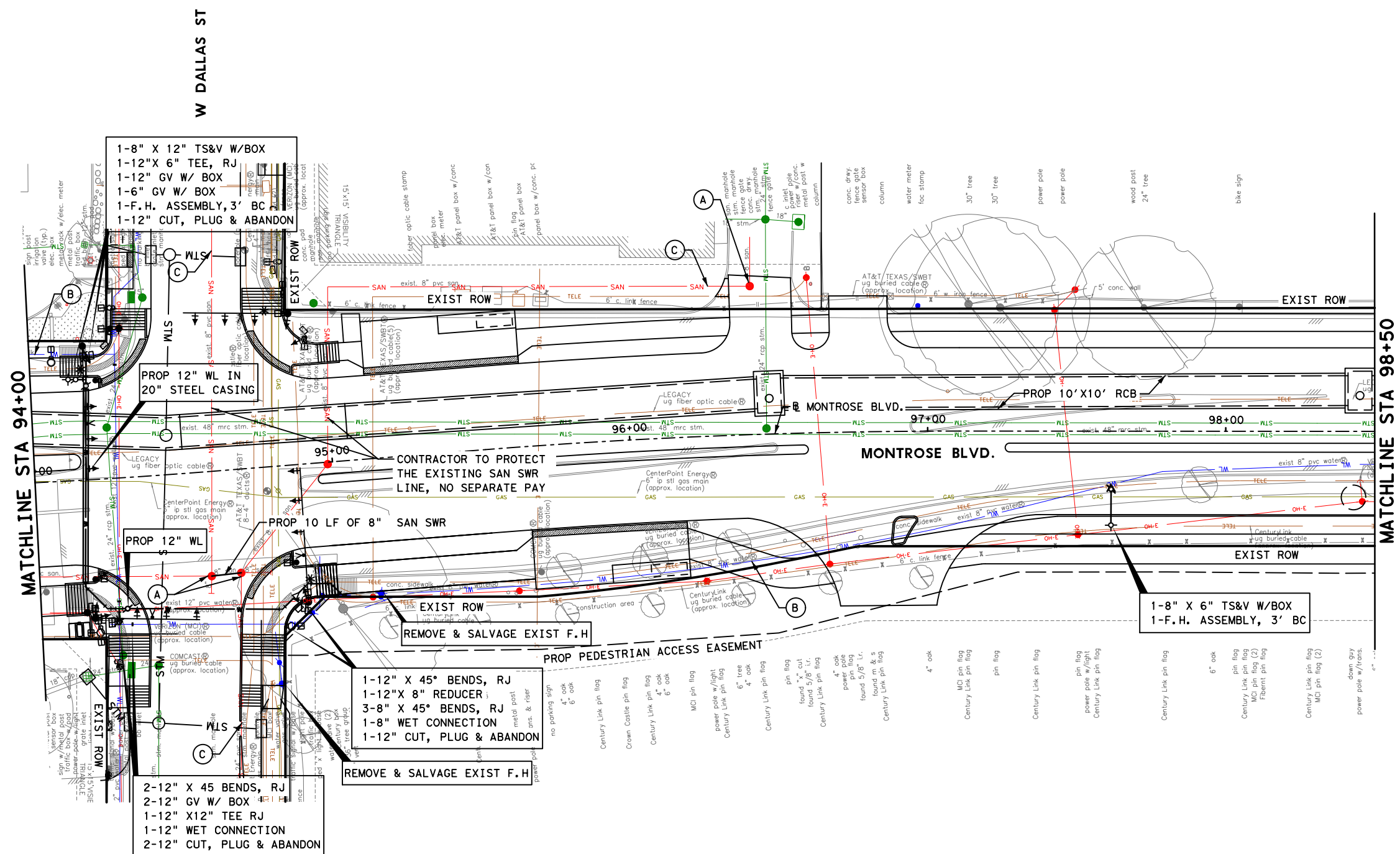
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SHEET NO	190 OF 355

LEGEND

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- SAN — EXIST SAN SWR LEADS
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- CRITICAL LOCATION
- (A) ADJUST TO GRADE
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No.	DATE	REVISIONS	APP.



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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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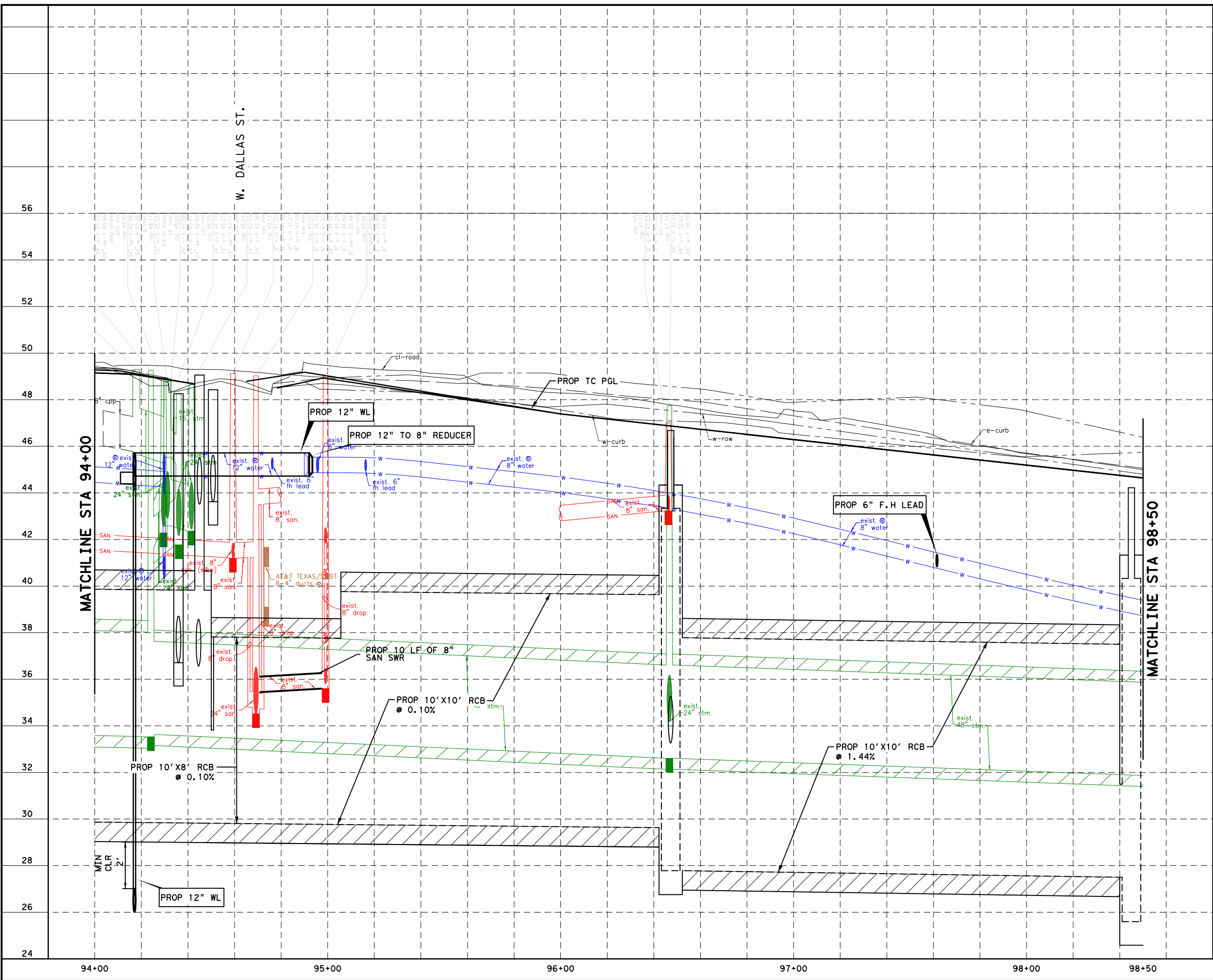
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WATER & SANITARY PLAN
 STA 98+50 TO STA 103+00

SHEET 5 OF 12

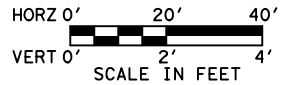
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	EXIST SAN SWR LEADS
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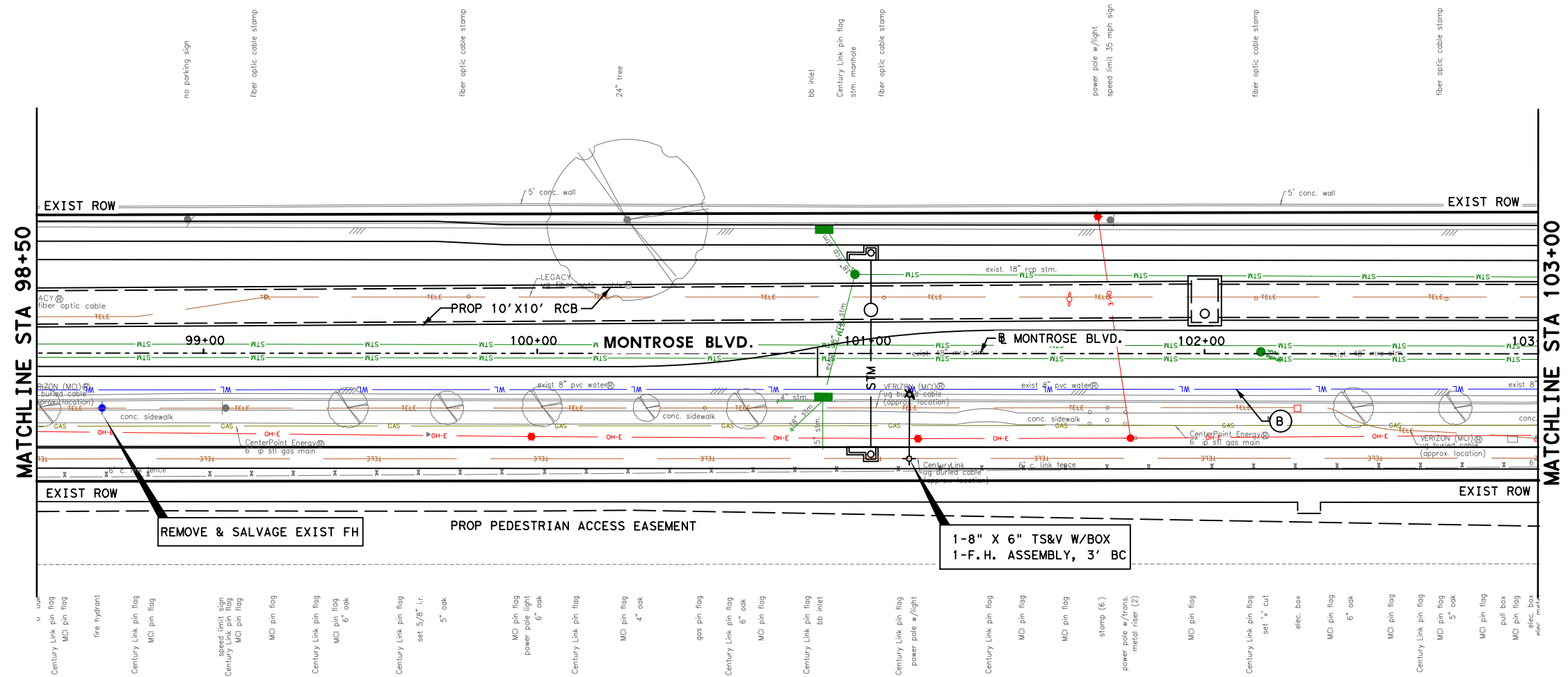
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PROFILE
 STA 94+00 TO STA 98+50

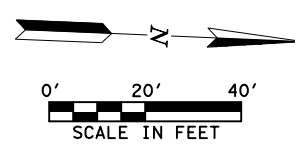
SHEET 6 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 192 OF 355	



LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
- ▣ D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
- A ADJUST TO GRADE
- B EXIST WATER LINE TO REMAIN
- C EXIST SAN SWR TO REMAIN



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
 valid for one year.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

INTERIM REVIEW ONLY
 Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:
 KARAM QADDOO
 125611
 2/20/2024

100% SUBMITTAL
GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

- NOTE:**
1. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME PROVIDE TEMPORARY CONNECTION AS NECESSARY FOR CONSTRUCTIONS.
 2. SANITARY SEWER LEADS ARE SHOWN AT APPROXIMATE LOCATION. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY.
 3. REFER TO STM SWR SHEETS FOR MORE INFORMATION.
 4. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
 5. IF SAN SWR LINE IS IN SERVICES, PROVIDE CONNECTION. IF NOT, PROVIDE PLUG & CLAMP.
 6. MAINTAIN SANITARY SEWER SERVICES TO ALL CUSTOMERS AT ALL TIMES DURING CONSTRUCTIONS.
 7. PLACE ONE FULL SECTION (MIN. 18') OF PROPOSED SS/WL CENTERED AT WL/SS CROSSING PROVIDE RESTRAINED JOINTS ON SS/WL, SPACED AT LEAST 9 FT HORIZONTALLY FROM CL OF WL/SS. MAINTAIN MIN 2 FT VERTICAL CLEARANCE.
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 12. ADJUST ALL EXIST SANITARY SEWER CLEAN-OUTS TO GRADE AND REPLACE VALVE BOX.

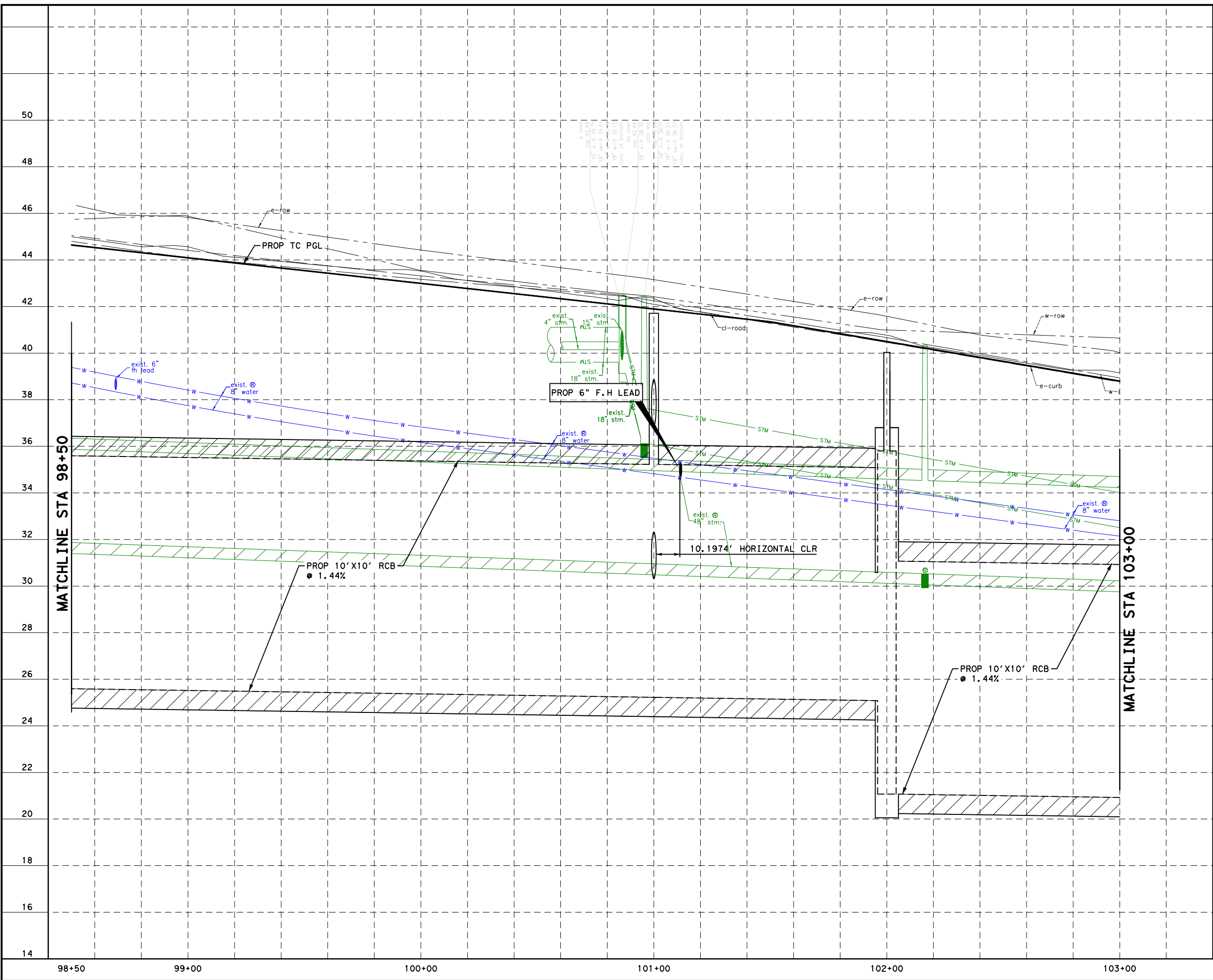
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PLAN
 STA 98+50 TO STA 103+00

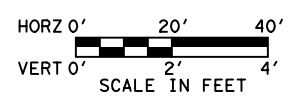
SHEET 7 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 193 OF 355	

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LEGEND	
	PROPOSED SAN SWR
	PROPOSED WATER LINE
	EXIST SAN SWR LEADS
	D.I.P. W RESTRAINED JOINTS
	CRITICAL LOCATION
	ADJUST TO GRADE
	EXIST WATER LINE TO REMAIN
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INTERIM REVIEW ONLY
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 KARIM QADDO
 1/25/11
 2/20/2024
 100% SUBMITTAL

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PROFILE
STA 98+50 TO STA 103+00

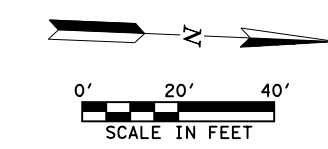
SHEET 8 OF 12

FOR CITY OF HOUSTON USE ONLY	
WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JUADA HUANG
SHEET NO	194 OF 355

LEGEND

- SAN — PROPOSED SAN SWR
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- SAN — EXIST SAN SWR LEADS
- ▣ D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
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REVISIONS	DATE	APP.



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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 KARAM QADDOO
 125611
 2/20/2024

SURVEYED BY:
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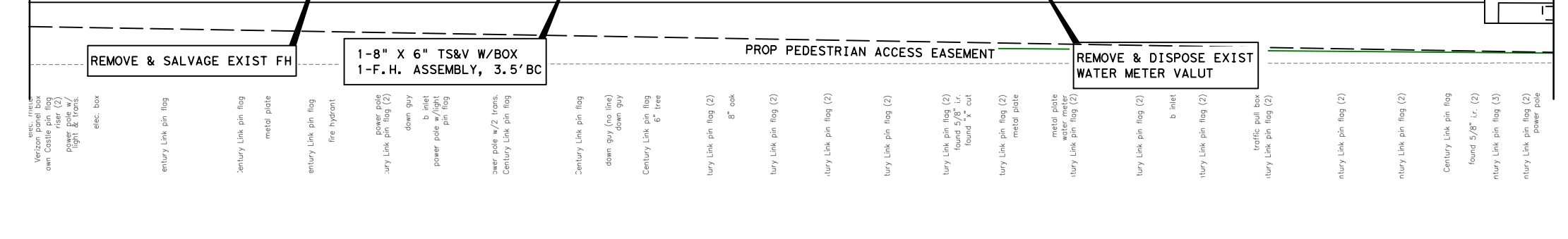
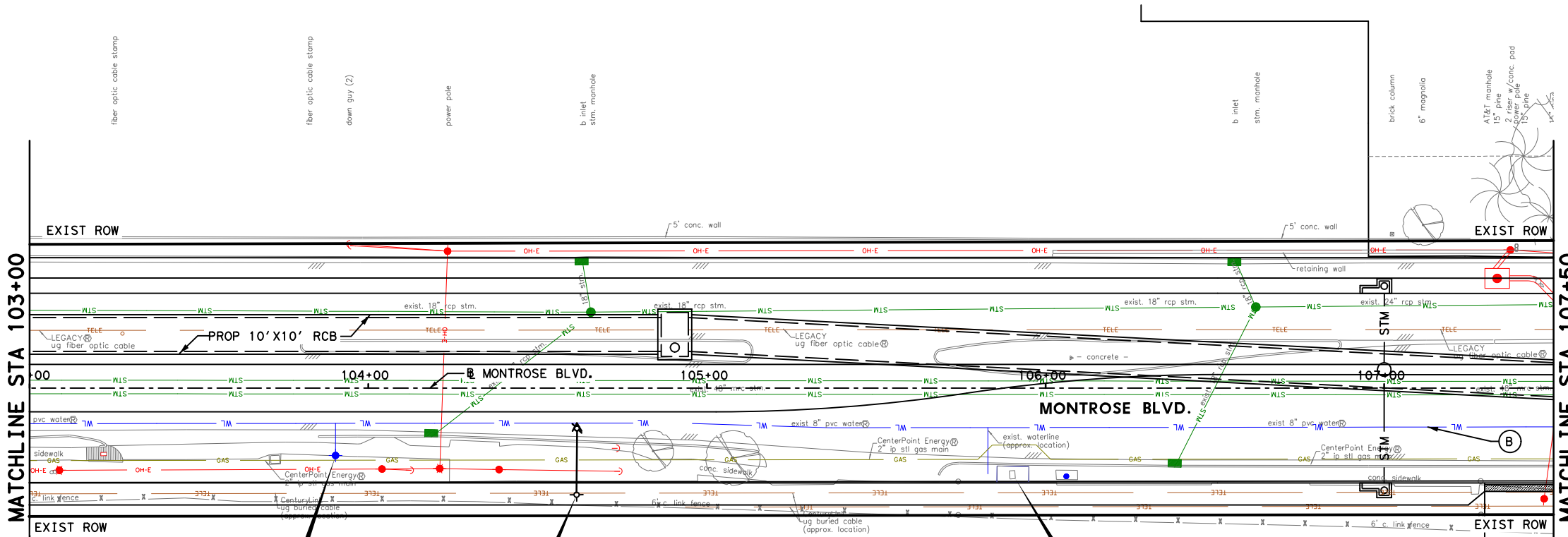
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 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PLAN
STA 103+00 TO STA 107+50

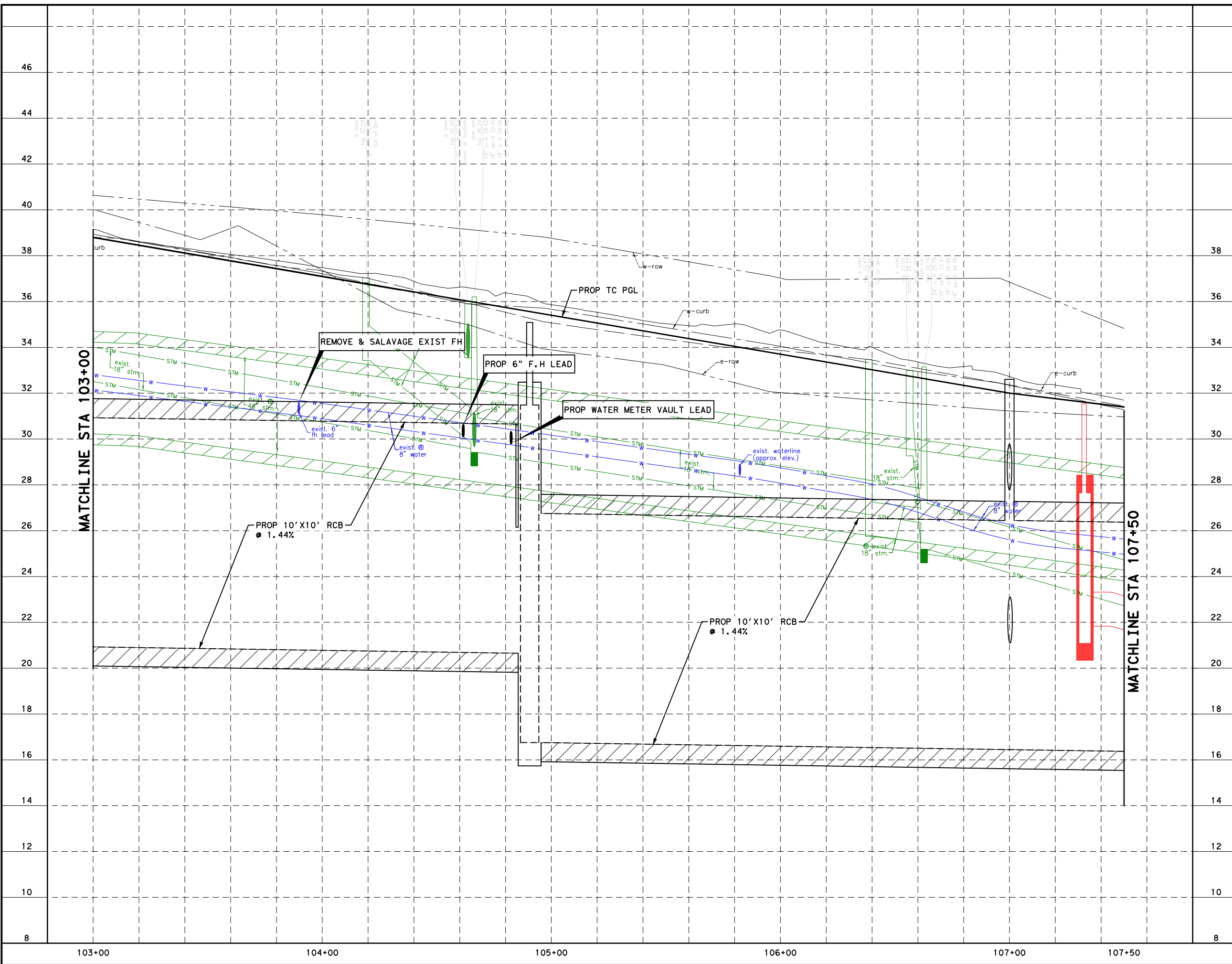
SHEET 9 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 195 OF 355	



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 2. SANITARY SEWER LEADS ARE SHOWN AT APPROXIMATE LOCATION. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY.
 3. REFER TO STM SWR SHEETS FOR MORE INFORMATION.
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LEGEND	
— SAN —	PROPOSED SAN SWR
— W —	PROPOSED WATER LINE
— SAN —	EXIST SAN SWR LEADS
⊠	D.I.P. W RESTRAINED JOINTS
○	CRITICAL LOCATION
Ⓐ	ADJUST TO GRADE
Ⓑ	EXIST WATER LINE TO REMAIN
Ⓒ	EXIST SAN SWR TO REMAIN

HORIZ 0'	20'	40'
VERT 0'	2'	4'

SCALE IN FEET

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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

INTERIM REVIEW ONLY
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 KARAM QADDOO
 125611
 2/20/2024

100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PROFILE
STA 103+00 TO STA 107+50

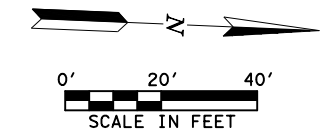
SHEET 10 OF 12

WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO.	196 OF 355

LEGEND

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- SAN — EXIST SAN SWR LEADS
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REVISIONS	DATE	APP.



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Montrose
TAX INCREMENT REINVESTMENT ZONE 27

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KARIM QADDO
 125611
 2/20/2024

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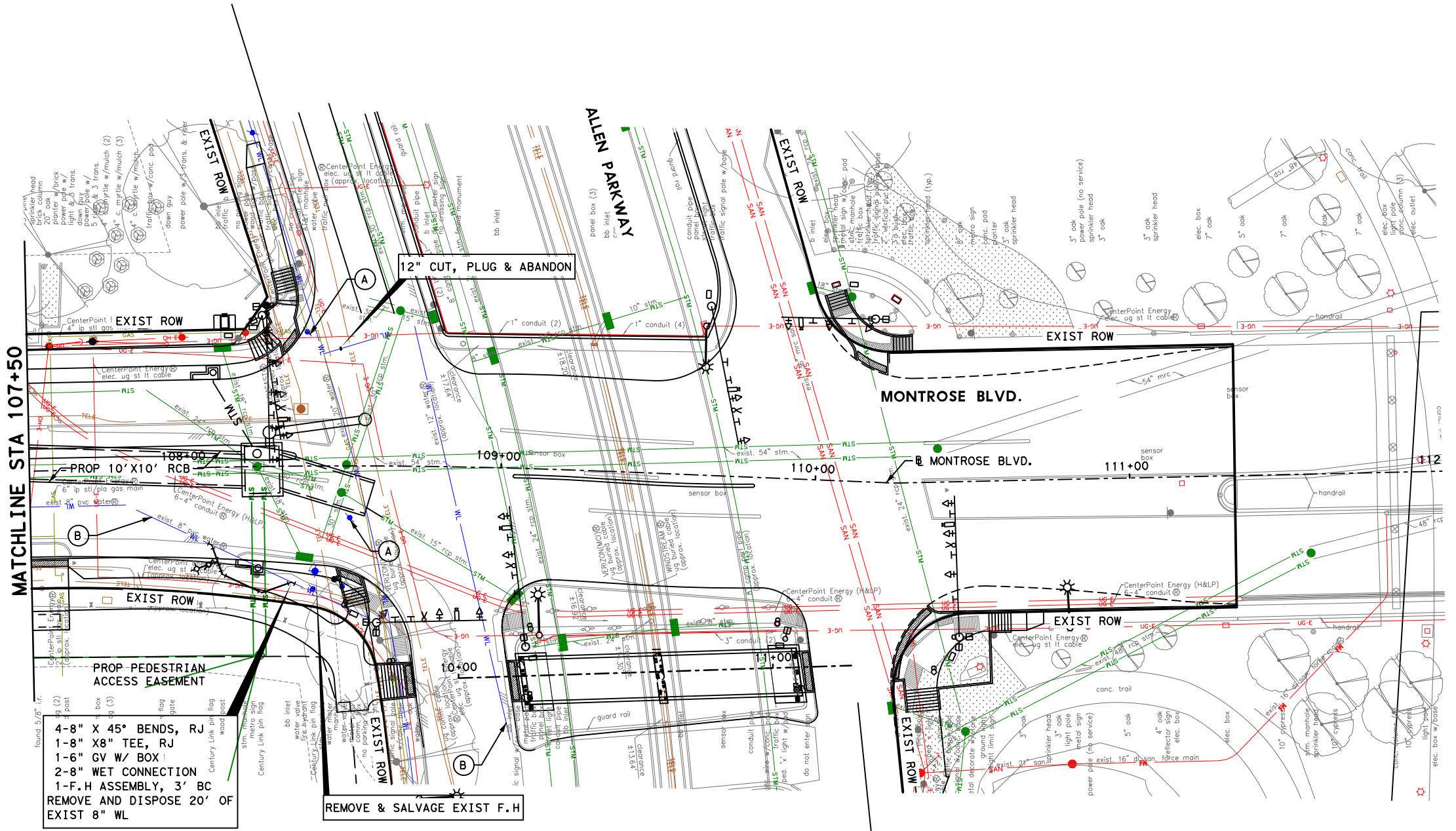
GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PLAN
STA 107+50 TO END PROJECT

SHEET 11 OF 12

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 197	DF 355

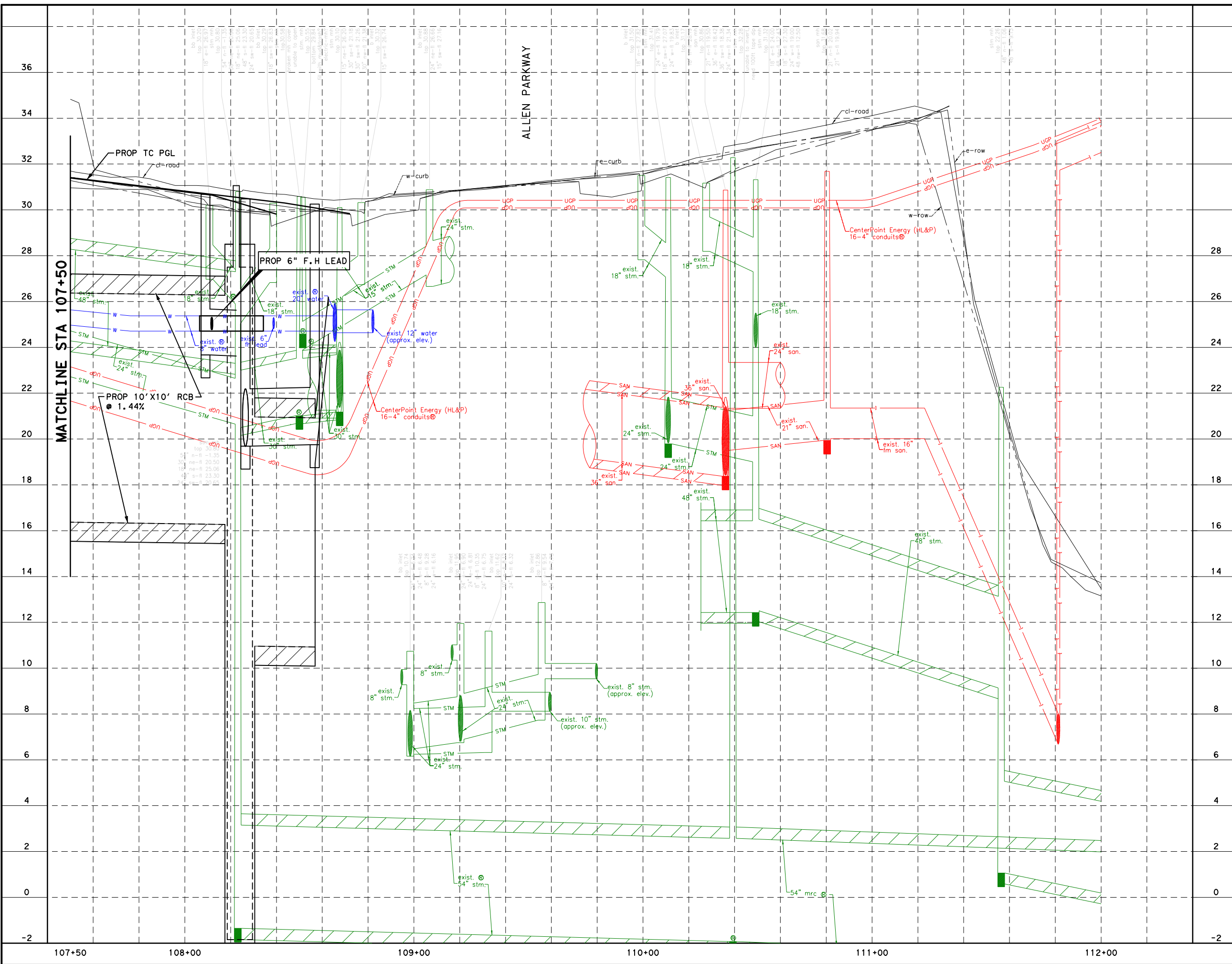


- 4-8" X 45° BENDS, RJ**
1-8" X8" TEE, RJ
1-6" GV W/ BOX
2-8" WET CONNECTION
1-F.H ASSEMBLY, 3' BC
REMOVE AND DISPOSE 20' OF EXIST 8" WL

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LEGEND	
	PROPOSED SAN SWR
	PROPOSED WATER LINE
	EXIST SAN SWR LEADS
	D.I.P. W RESTRAINED JOINTS
	CRITICAL LOCATION
	ADJUST TO GRADE
	EXIST WATER LINE TO REMAIN
	EXIST SAN SWR TO REMAIN

HORIZ 0' 20' 40'
 VERT 0' 2' 4'
 SCALE IN FEET

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Gauge Engineering
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 125611
 2/20/2024

100% SUBMITTAL
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 Texas Registered Engineering Firm F-20017

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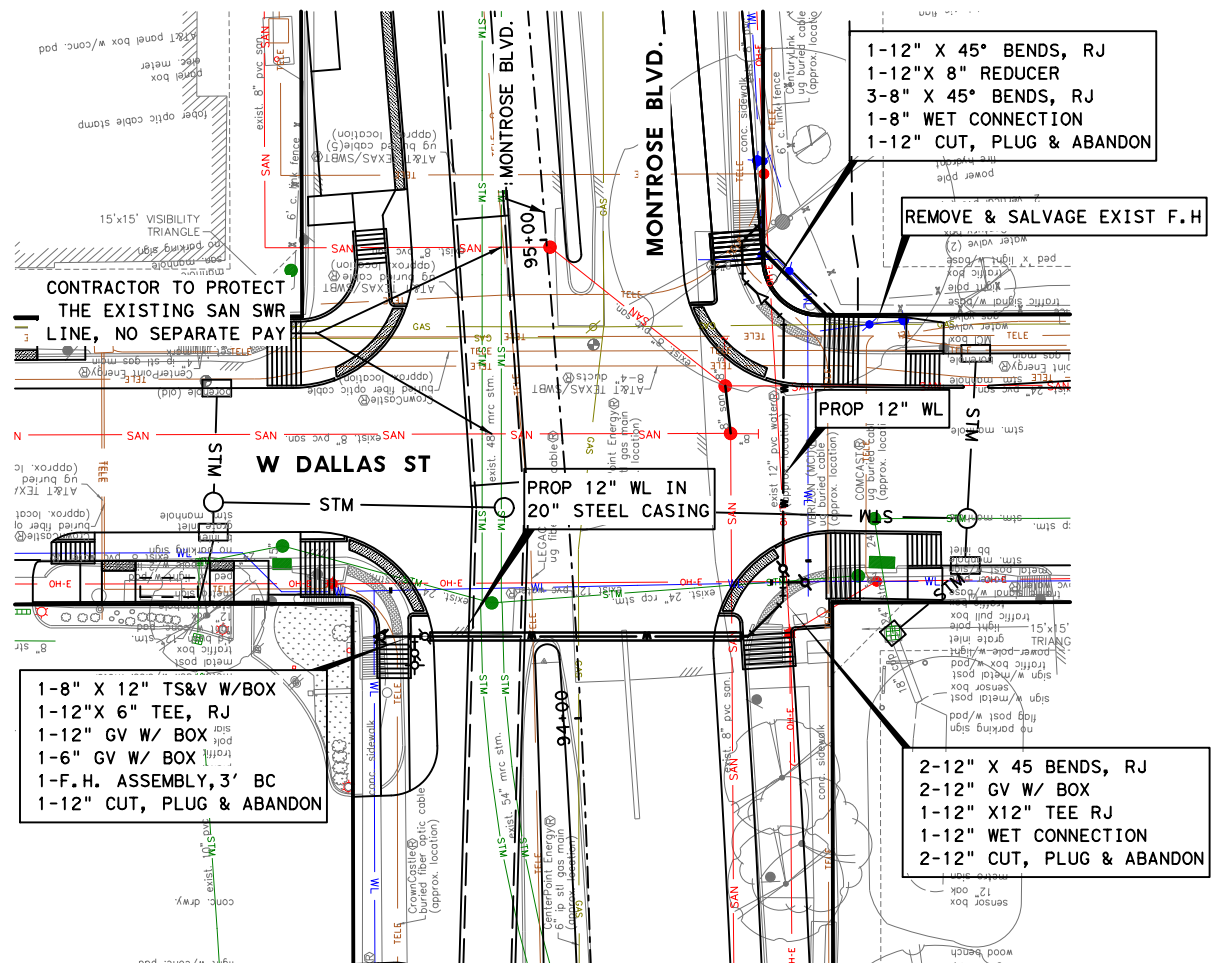
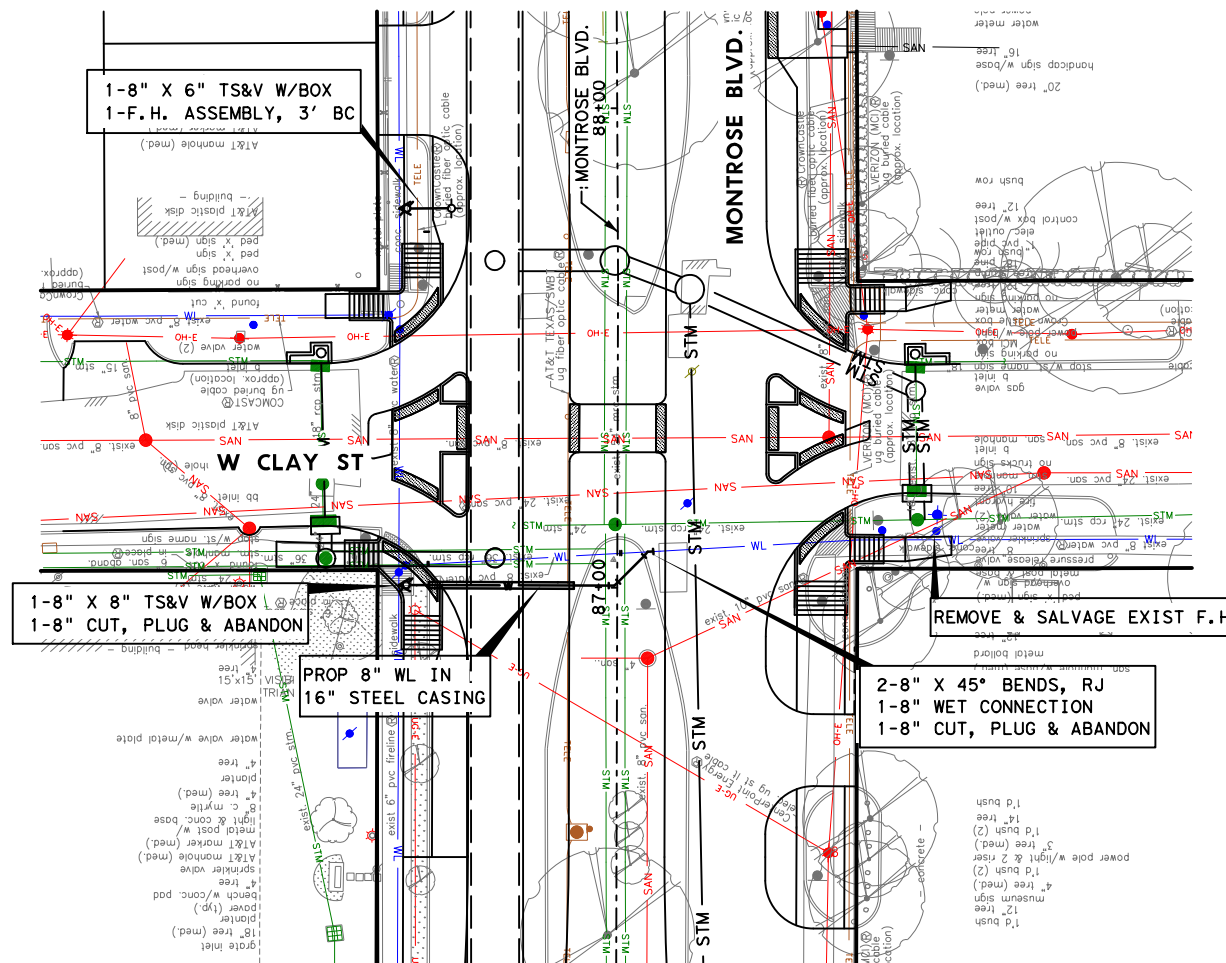
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
WATER & SANITARY PROFILE
STA 107+50 TO END PROJECT

SHEET 12 OF 12

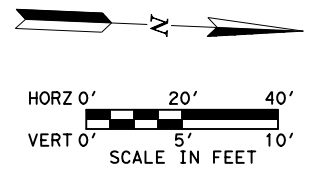
FOR CITY OF HOUSTON USE ONLY	
WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO	198 OF 355

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LEGEND

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 Texas Registered Engineering Firm F-2017

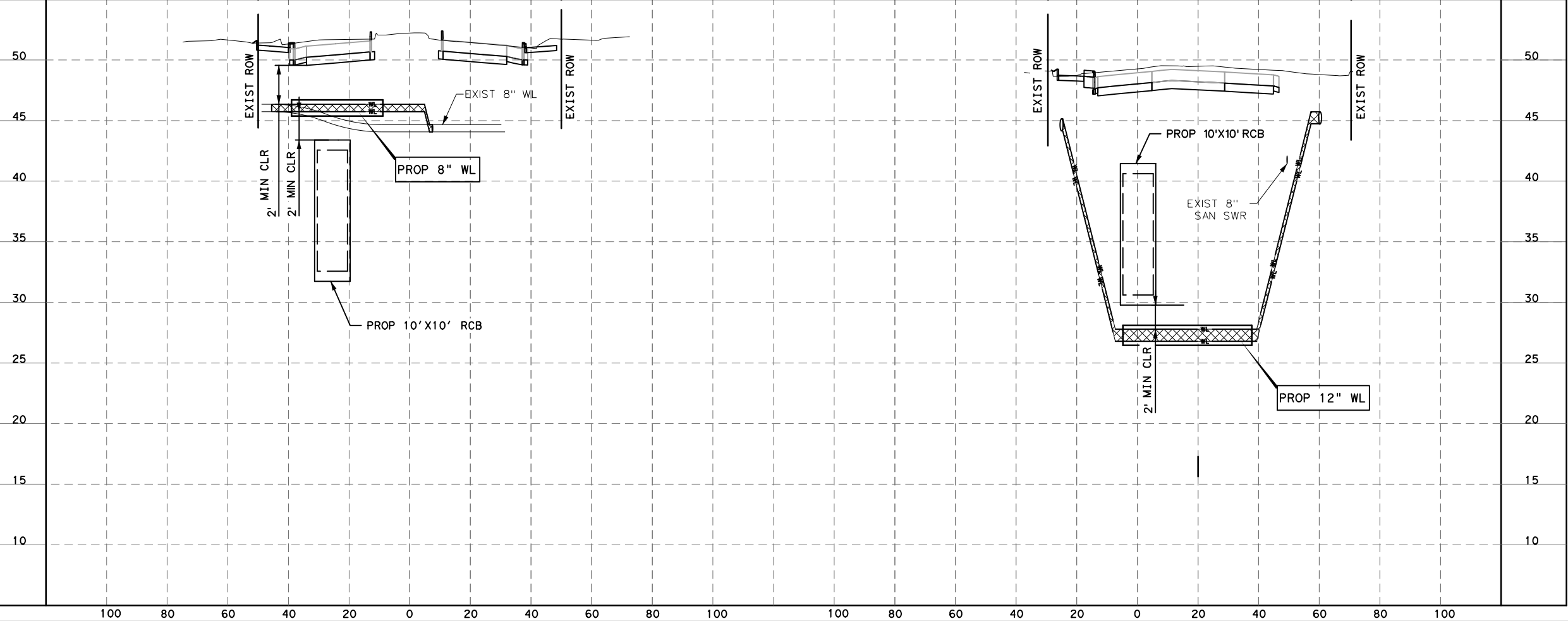
CITY OF HOUSTON
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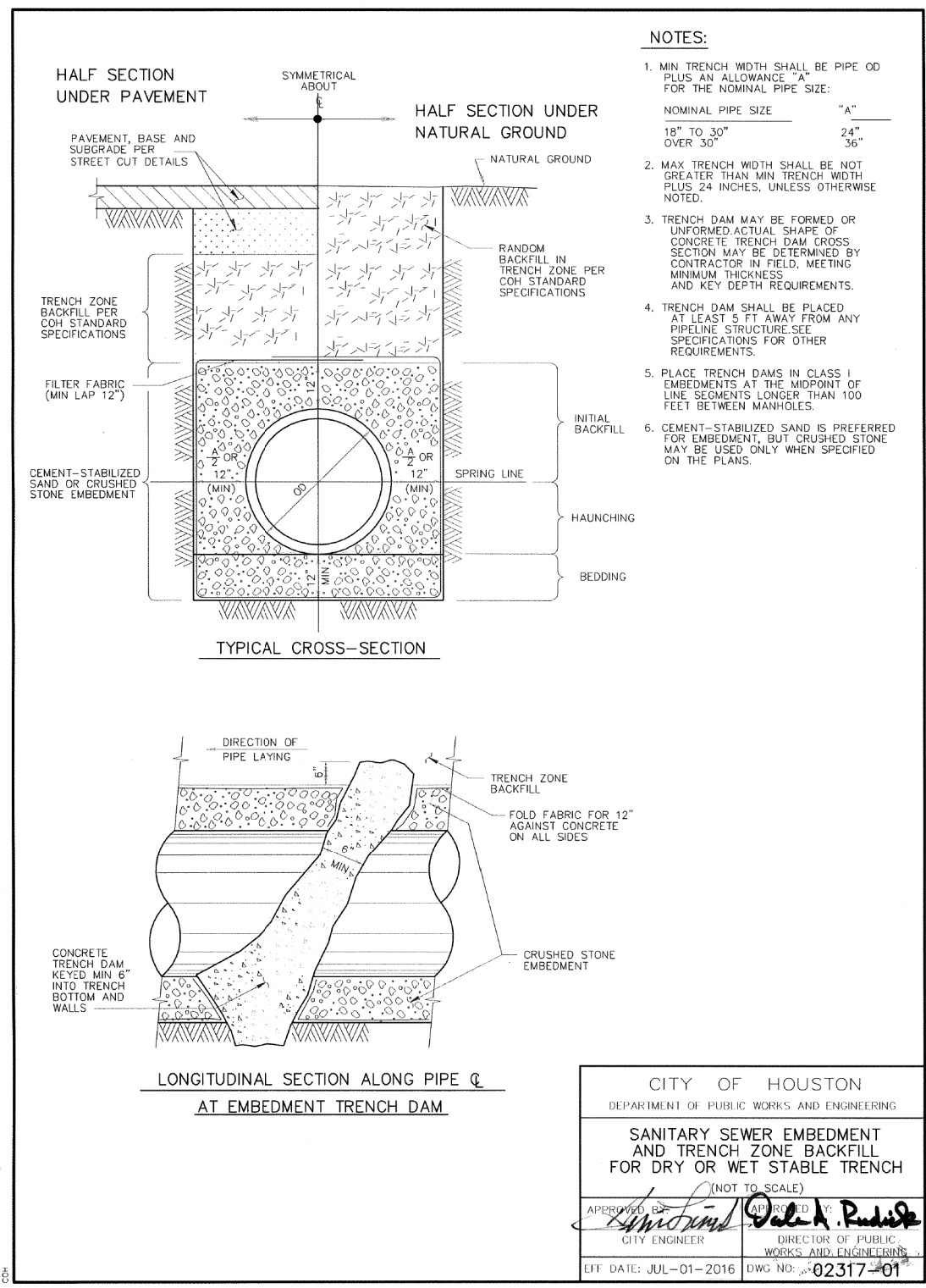
MONTRROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

WATER & SAN SWR CROSSING

SHEET 1 OF 1

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CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 199 OF 355	



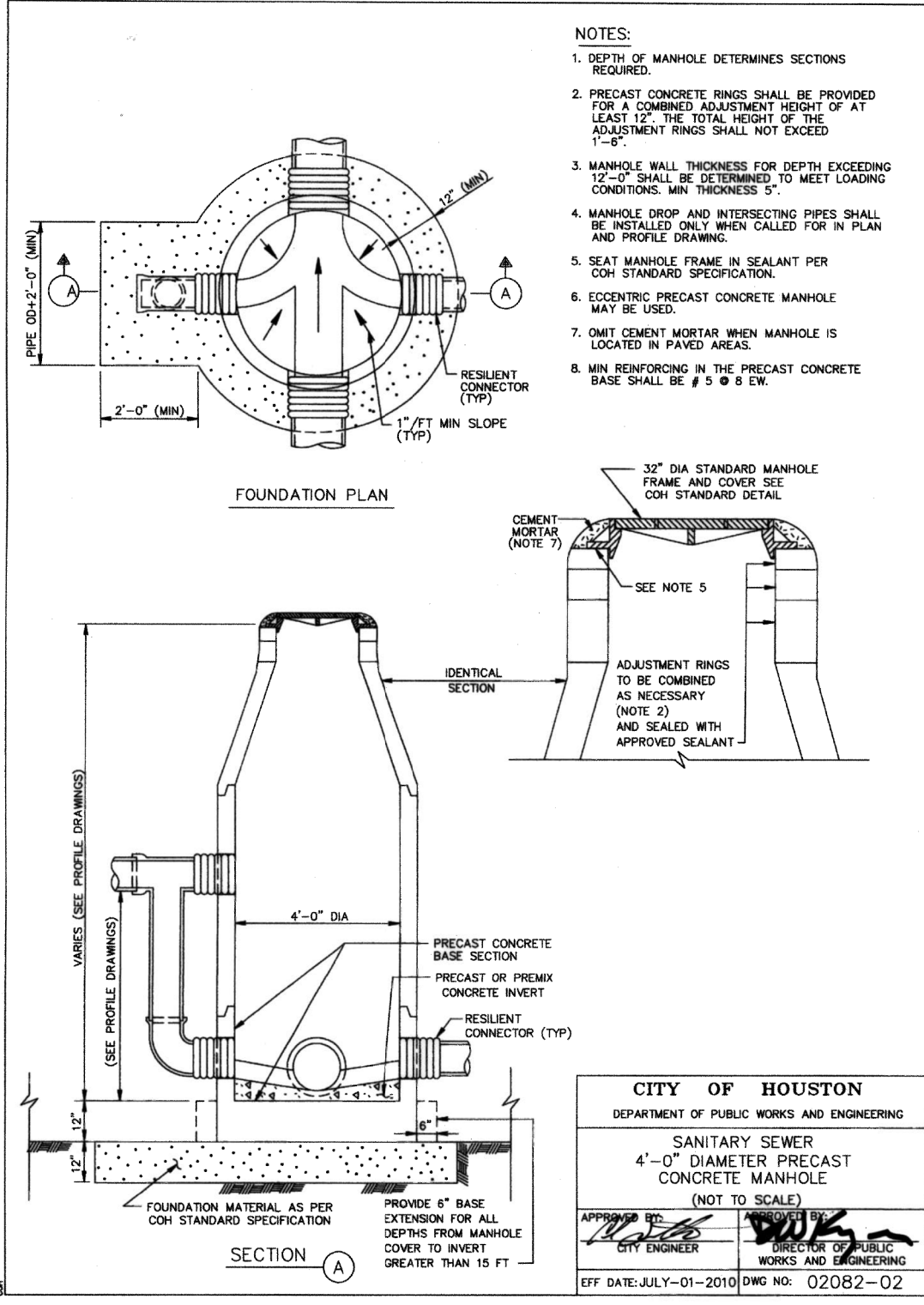


CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SANITARY SEWER EMBEDMENT AND TRENCH ZONE BACKFILL FOR DRY OR WET STABLE TRENCH
 (NOT TO SCALE)

APPROVED BY: *[Signature]* CITY ENGINEER
 APPROVED BY: *[Signature]* DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JUL-01-2016 DWG NO: 02317-01



CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SANITARY SEWER 4'-0" DIAMETER PRECAST CONCRETE MANHOLE
 (NOT TO SCALE)

APPROVED BY: *[Signature]* CITY ENGINEER
 APPROVED BY: *[Signature]* DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010 DWG NO: 02082-02

MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
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SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

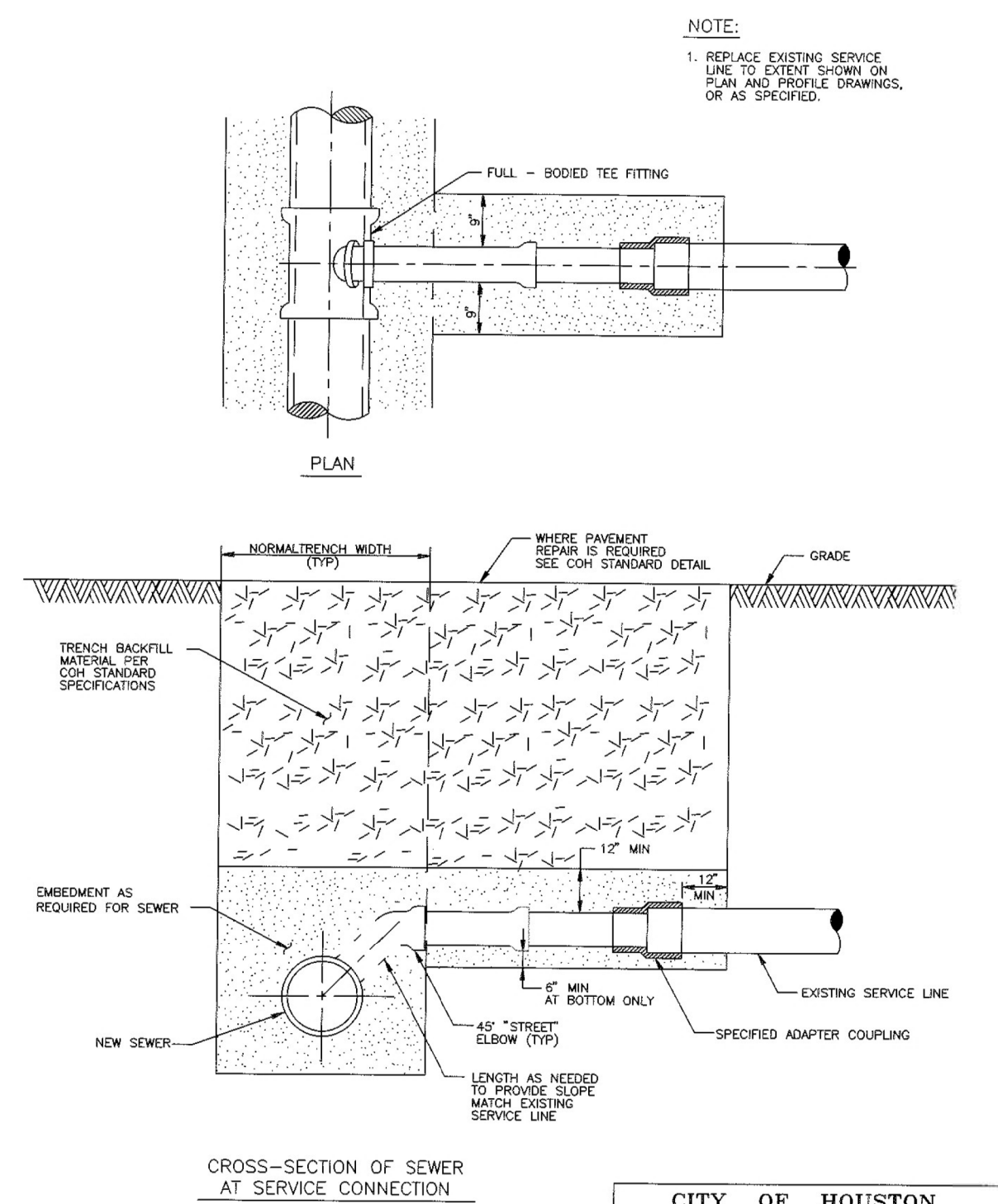
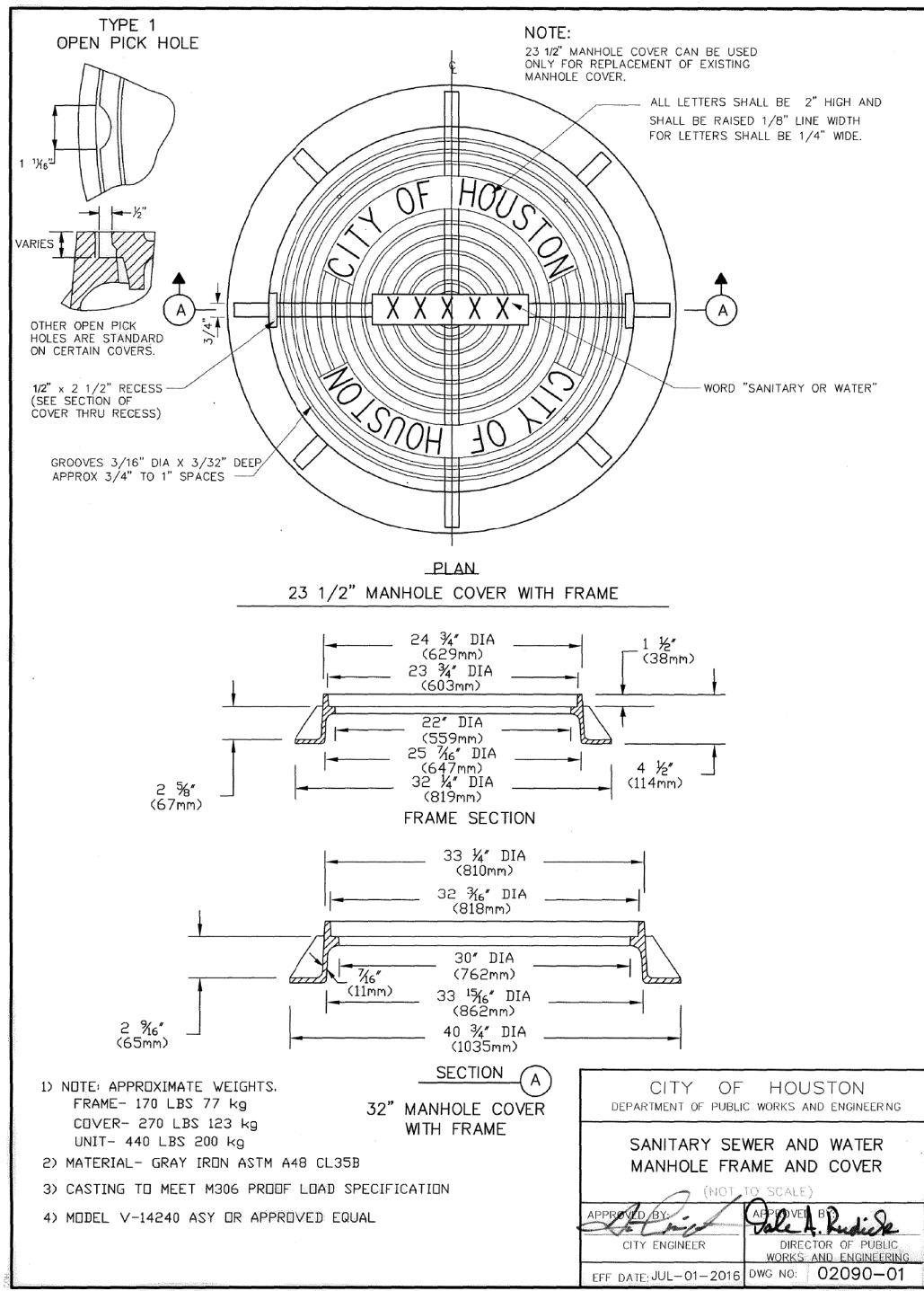
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
SANITARY SEWER STANDARDS

SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 200 OF 355	

APP.	
REVISIONS	
No.	DATE

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 Plotted on: 2/20/2024 9:13:48 AM ahatamleh



CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
 ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER SERVICE RECONNECTION ON NEW OR REPLACEMENT SEWER (NOT TO SCALE)

APPROVED BY: *[Signature]* CITY ENGINEER
 APPROVED BY: *[Signature]* DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: OCT-01-2002 DWG NO: 02534-04

MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

INTERIM REVIEW ONLY
 Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:
 KARIM QADDO
 125611
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
SANITARY SEWER STANDARDS

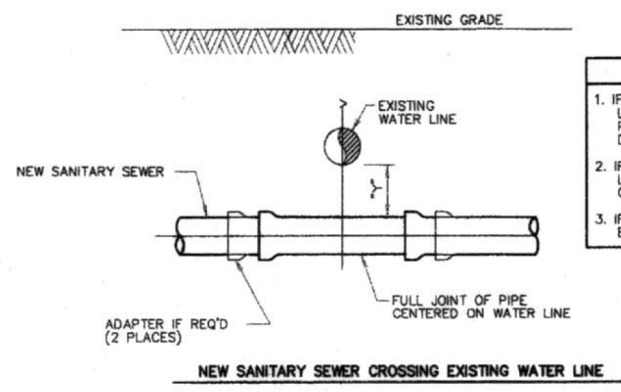
SHEET 2 OF 3

WBS NUMBER: N-T27000-0005-7
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 CITY OF HOUSTON PM: JUADA HUANG
 SHEET NO. 201 OF 355

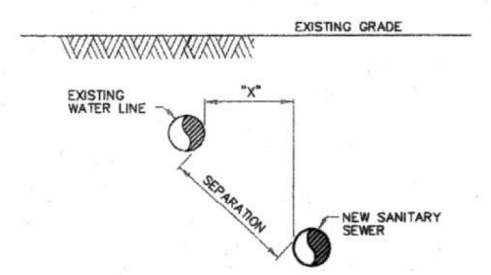
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REVISIONS	
No.	DATE

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 Plotted on: 2/20/2024 9:13:55 AM ahatamlieh

No.	DATE	REVISIONS	APP.



- INSTALLATION REQUIREMENTS**
- IF "Y" IS GREATER THAN 1' AND "Y" IS LESS THAN 2', USE MINIMUM 18 FT JOINT OF PRESSURE-RATED PIPE PER COH STANDARD DRAWING.
 - IF "Y" IS GREATER THAN 2' AND "Y" IS LESS THAN 9', USE GRAVITY SEWER PIPE IN CEMENT-STABILIZED SAND EMBEDMENT.
 - IF "Y" IS GREATER THAN 9', USE STANDARD EMBEDMENT AND NORMAL JOINT SPACING.



- INSTALLATION REQUIREMENTS**
- IF SEPARATION IS LESS THAN 9', USE PRESSURE-RATED PIPE MH TO MH. "X" MUST BE AT LEAST 4 FT. VERTICAL SEPARATION MUST BE AT LEAST 2 FT.
 - IF SEPARATION IS 9' OR GREATER, USE STANDARD PIPE AND EMBEDMENT.

INSTALLING SANITARY SEWERS CROSSING OR PARALLEL TO WATER LINES

NOTES:

- SANITARY SEWER MUST BE BELOW WATER LINE WHEREVER POSSIBLE. WHEN WATERLINE IS BELOW THE SANITARY SEWER PROVIDE MINIMUM 2 FT SEPARATION AND INSTALL PIPE IN ACCORDANCE TO CHAPTER 7 TABLE 7.3 OF COH DESIGN MANUAL.
- WHEN PRESSURE-RATED PIPE IS REQUIRED, PROVIDE PIPE WITH MINIMUM 150 psi PRESSURE RATING.
- ADAPTERS MUST BE FACTORY MOLDED OR FABRICATED, WITH RING STIFFNESS AT LEAST EQUAL TO THE ADJOINING SANITARY SEWER PIPE, AND USING RESILIENT GASKET OR SEAL MATERIAL. FLEXIBLE RUBBER "BOOT" TYPE ADAPTERS WILL NOT BE ACCEPTED.
- INSTALL FORCE MAINS SAME AS FOR GRAVITY SEWER, USING SPECIFIED PRESSURE PIPE.
- "Y" MUST ALWAYS BE GREATER THAN OR EQUAL TO 1 FT FOR PRESSURE RATED SS AND 2 FT FOR NON-PRESSURE RATED SS.
- "X" MUST BE GREATER THAN OR EQUAL TO 4 FT.
- ALTERNATIVES MAY BE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
- SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE CONNECTIONS - REFER TO PLUMBING CODE FOR APPLICABLE REQUIREMENTS.

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

**SANITARY SEWER
 INSTALLING SANITARY SEWERS
 CROSSING OR PARALLEL TO WATER LINES
 (NOT TO SCALE)**

APPROVED: [Signature] CITY ENGINEER
 [Signature] DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JUL-01-2010 DWG NO: 02531-05

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

INTERIM REVIEW ONLY
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 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1
 SANITARY SEWER
 STANDARDS**

SHEET 3 OF 3

FOR CITY OF HOUSTON USE ONLY

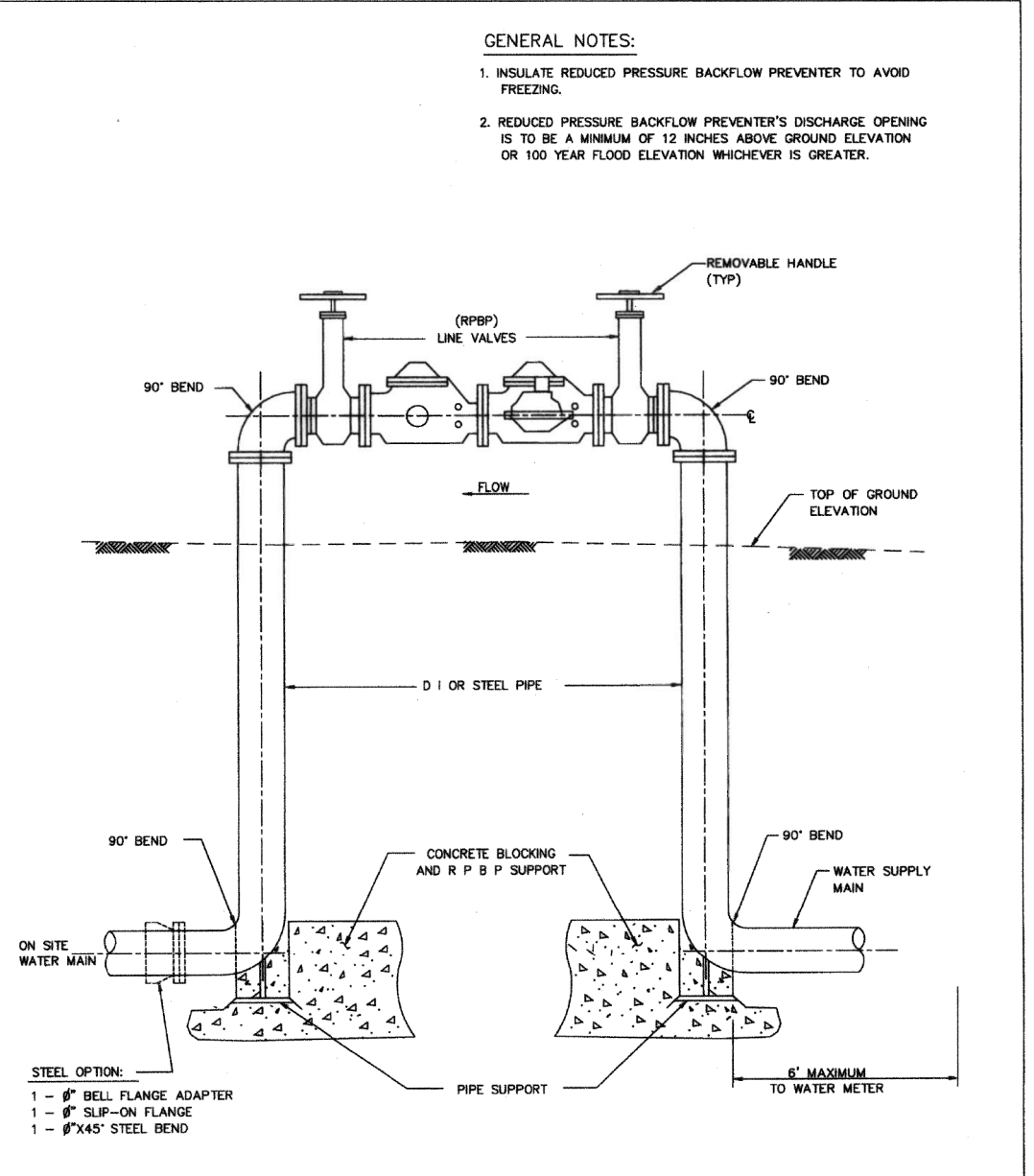
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 CITY OF HOUSTON PM: JUADA HUANG
 SHEET NO. 202 OF 355

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APP.	
REVISIONS	
No.	DATE

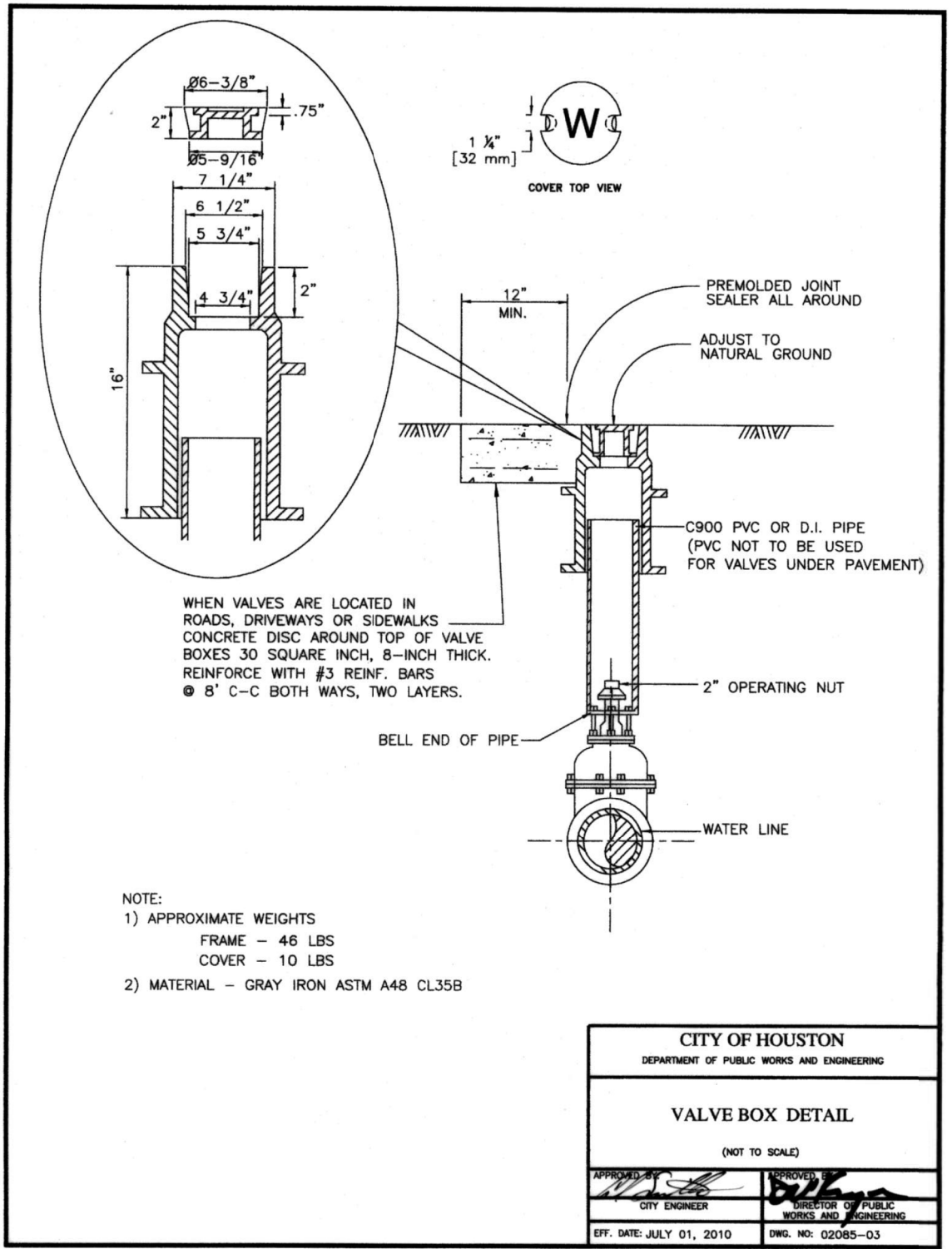
GENERAL NOTES:

1. INSULATE REDUCED PRESSURE BACKFLOW PREVENTER TO AVOID FREEZING.
2. REDUCED PRESSURE BACKFLOW PREVENTER'S DISCHARGE OPENING IS TO BE A MINIMUM OF 12 INCHES ABOVE GROUND ELEVATION OR 100 YEAR FLOOD ELEVATION WHICHEVER IS GREATER.



- STEEL OPTION:**
- 1 - 6" BELL FLANGE ADAPTER
 - 1 - 6" SLIP-ON FLANGE
 - 1 - 4x4" STEEL BEND

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
REDUCED PRESSURE BACKFLOW - PREVENTER (R P B P) (NOT TO SCALE)	
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02523-01



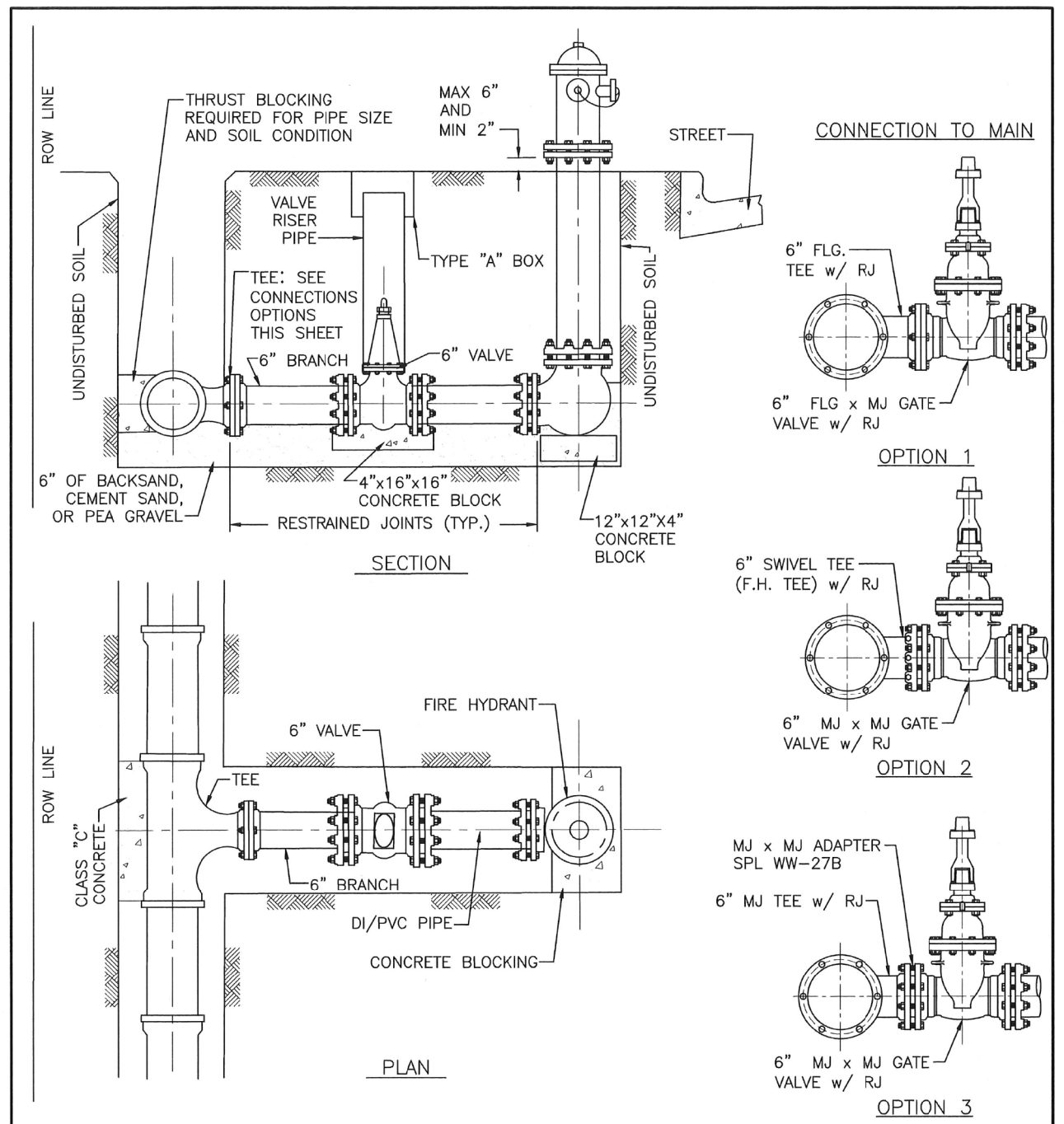
WHEN VALVES ARE LOCATED IN ROADS, DRIVEWAYS OR SIDEWALKS CONCRETE DISC AROUND TOP OF VALVE BOXES 30 SQUARE INCH, 8-INCH THICK. REINFORCE WITH #3 REINF. BARS @ 8' C-C BOTH WAYS, TWO LAYERS.

- NOTE:**
- 1) APPROXIMATE WEIGHTS
 FRAME - 46 LBS
 COVER - 10 LBS
 - 2) MATERIAL - GRAY IRON ASTM A48 CL35B

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
VALVE BOX DETAIL (NOT TO SCALE)	
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF. DATE: JULY 01, 2010	DWG. NO: 02085-03

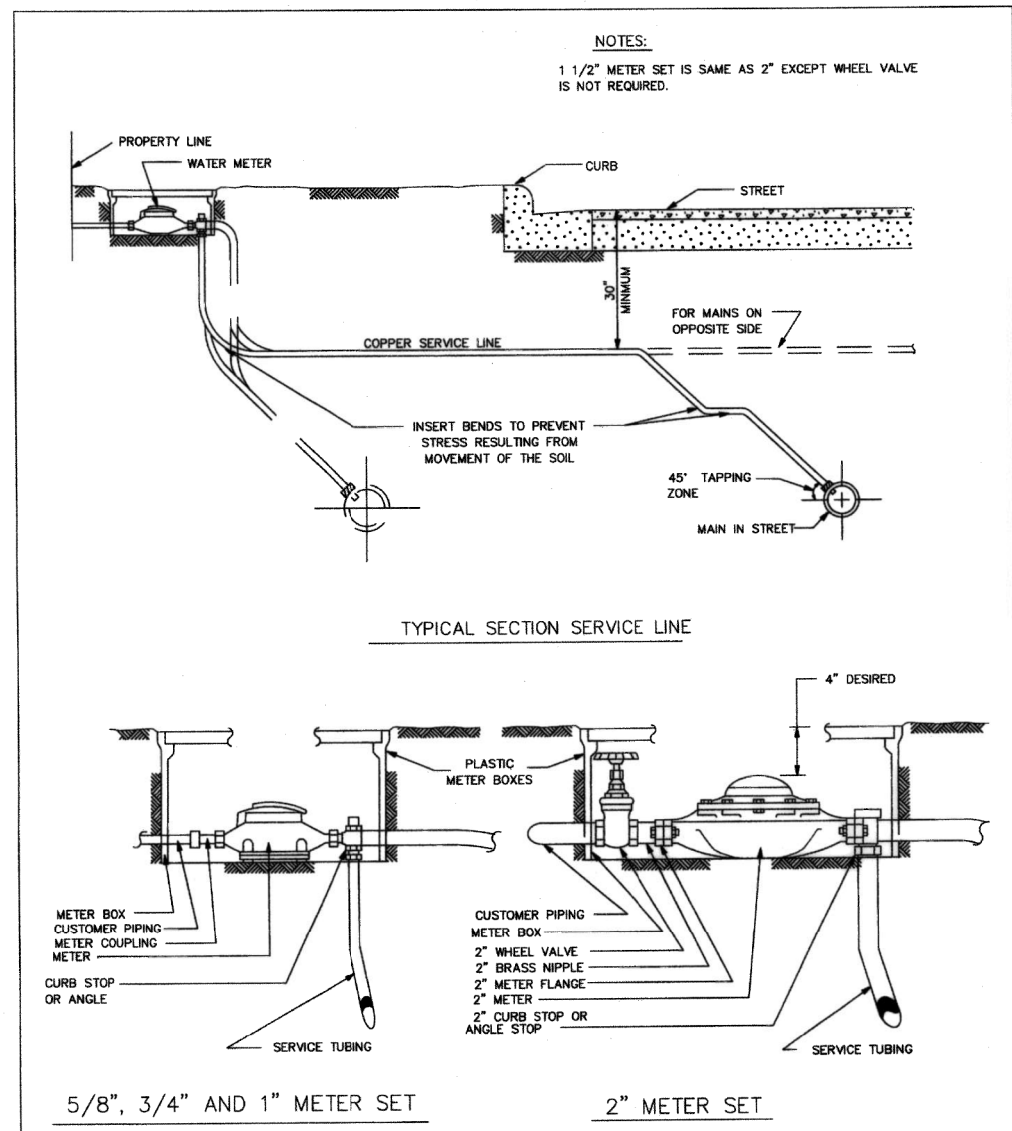
MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY
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SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 WATER LINE STANDARDS	
SHEET 1 OF 3	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 203 OF 355	

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 Plotted on: 2/20/2024 9:14:10 AM ahatamleh



- NOTES:**
1. LOCATE FIRE HYDRANTS AT POINT OF CURVATURE (PC) OR POINT OF TANGENCY (PT) OF THE INTERSECTION CURB RADIUS, 3 FEET BEHIND CURB OR PROJECTED FUTURE CURB.
 2. ON OPEN-DITCH ROADWAYS, SET THE FIRE HYDRANTS WITH IN 5 FEET OF RIGHT-OF-WAY LINES.
 3. FIRE HYDRANT STEAMER NOZZLE SHALL FACE THE STREET.
 4. LOCATE HYDRANT VALVE IMMEDIATELY ADJACENT TO WATER LINE.
 5. ALL PIPING TO BE RESTRAINED JOINTS.

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
STANDARD FIRE HYDRANT DETAIL (NOT TO SCALE)	
APPROVED BY: <i>Sehail Kanwar</i> CITY ENGINEER	APPROVED BY: <i>Carl Holbeck</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL -01 -2021	DWG NO: 02520-01



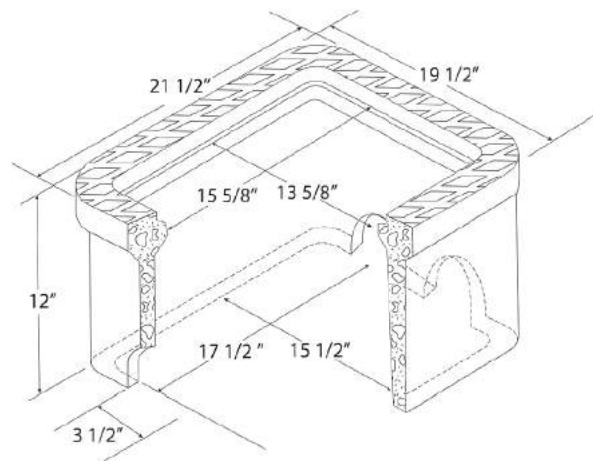
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
TYPICAL METER SETTINGS (NOT TO SCALE)	
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02526-01

Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 WATER LINE STANDARDS	
SHEET 2 OF 3	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 204 OF 355	

No.	DATE	REVISIONS	APP.

No.	DATE	REVISIONS	APP.

Concrete Meter Boxes



Description:

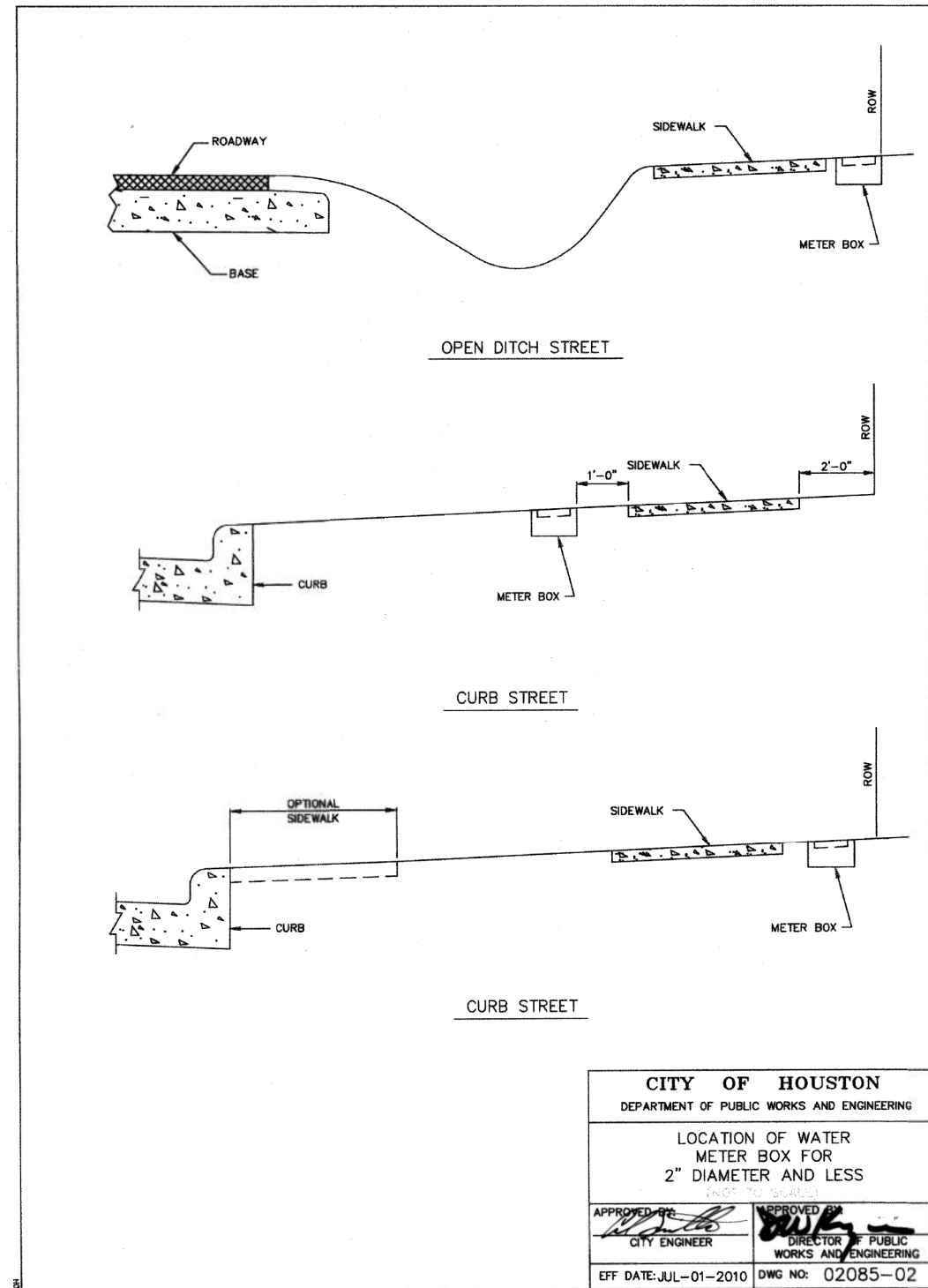
Accommodates a side-by-side installation of two 5/8" X 3/4 meters and shut-offs. This means two houses can be serviced with only one tapping of the main and only one service line from the main to the meter box. All boxes are made of lightweight aggregate, cement, and sand for easier handling and maximum strength. This box has a skid resistant top.

Weights:

12" Depth - 78 lbs.

Pallet Quantities:

12" Depth - 20/Pallet



CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
LOCATION OF WATER METER BOX FOR 2" DIAMETER AND LESS <small>(NOT TO SCALE)</small>	
APPROVED BY: <i>[Signature]</i> CITY ENGINEER	APPROVED BY: <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02085-02

MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27	
 Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small>
	KARIM QADDO 125611 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-2017</small>
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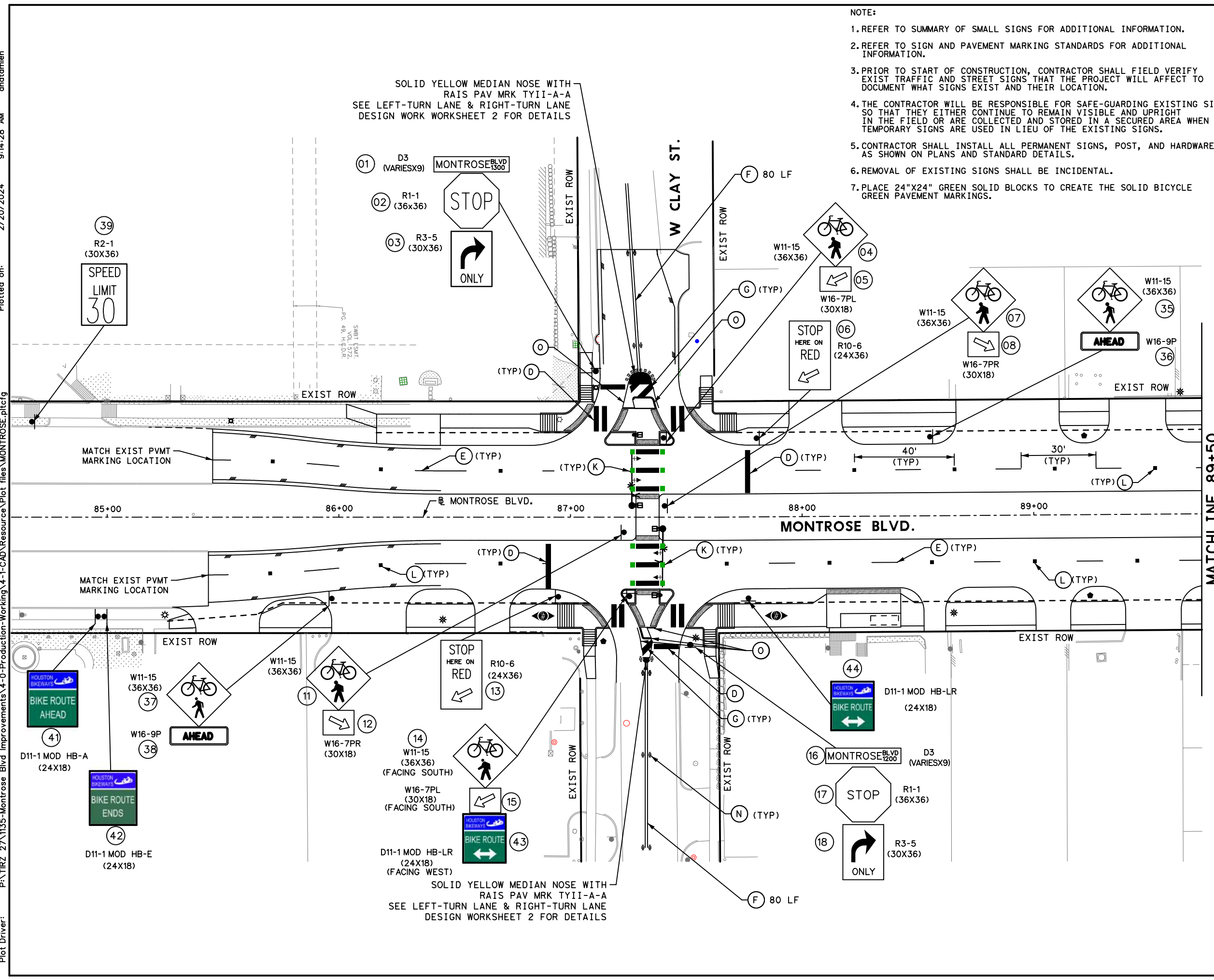
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 WATER LINE STANDARDS	
SHEET 3 OF 3	

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 205 OF 355	

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- NOTE:
- REFER TO SUMMARY OF SMALL SIGNS FOR ADDITIONAL INFORMATION.
 - REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
 - PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY EXIST TRAFFIC AND STREET SIGNS THAT THE PROJECT WILL AFFECT TO DOCUMENT WHAT SIGNS EXIST AND THEIR LOCATION.
 - THE CONTRACTOR WILL BE RESPONSIBLE FOR SAFE-GUARDING EXISTING SIGNS SO THAT THEY EITHER CONTINUE TO REMAIN VISIBLE AND UPRIGHT IN THE FIELD OR ARE COLLECTED AND STORED IN A SECURED AREA WHEN TEMPORARY SIGNS ARE USED IN LIEU OF THE EXISTING SIGNS.
 - CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POST, AND HARDWARE AS SHOWN ON PLANS AND STANDARD DETAILS.
 - REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.
 - PLACE 24"X24" GREEN SOLID BLOCKS TO CREATE THE SOLID BICYCLE GREEN PAVEMENT MARKINGS.

- LEGEND**
- RIGHT-OF-WAY
 - PROP CURB
 - (A) PAV MRK (W) (4") (SLD)
 - (B) PAV MRK (W) (6") (SLD)
 - (C) PAV MRK (W) (12") (SLD)
 - (D) PAV MRK (W) (24") (SLD)
 - (E) PAV MRK (W) (4") (BRK)
 - (F) REFL PAV MRK TY I (Y) (4") (DBL SLD)
 - (G) REFL PAV MRK TY I (Y) (24") (SLD)
 - (H) REFL PAV MRK (W) ARROW
 - (I) REFL PAV MRK (W) WORD
 - (J) PAV MRK (W) TRIANGLE
 - (K) PREFAB PAV MRK TY C (GRN) (SLD) (BLOCK)
 - (L) RAIS PAV MRK TY I-C
 - (M) RAIS PAV MRK TY II-C-R
 - (N) RAIS PAV MRK TY II-A-A
 - (O) REFL PAV MRK TY I (Y) (4") (SLD)
 - (P) PAV MRK (Y) (12") (SLD)
 - (Q) MEDIAN NOSE PAINT (Y)
 - BIKE DOT SYMBOL



MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 DAVID G. CHEANEY
 172563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
SIGNING & PVMT MARKING PLAN
BEGIN PROJECT TO STA 89+50

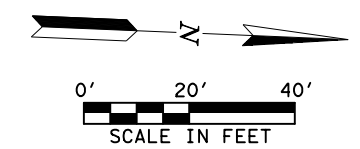
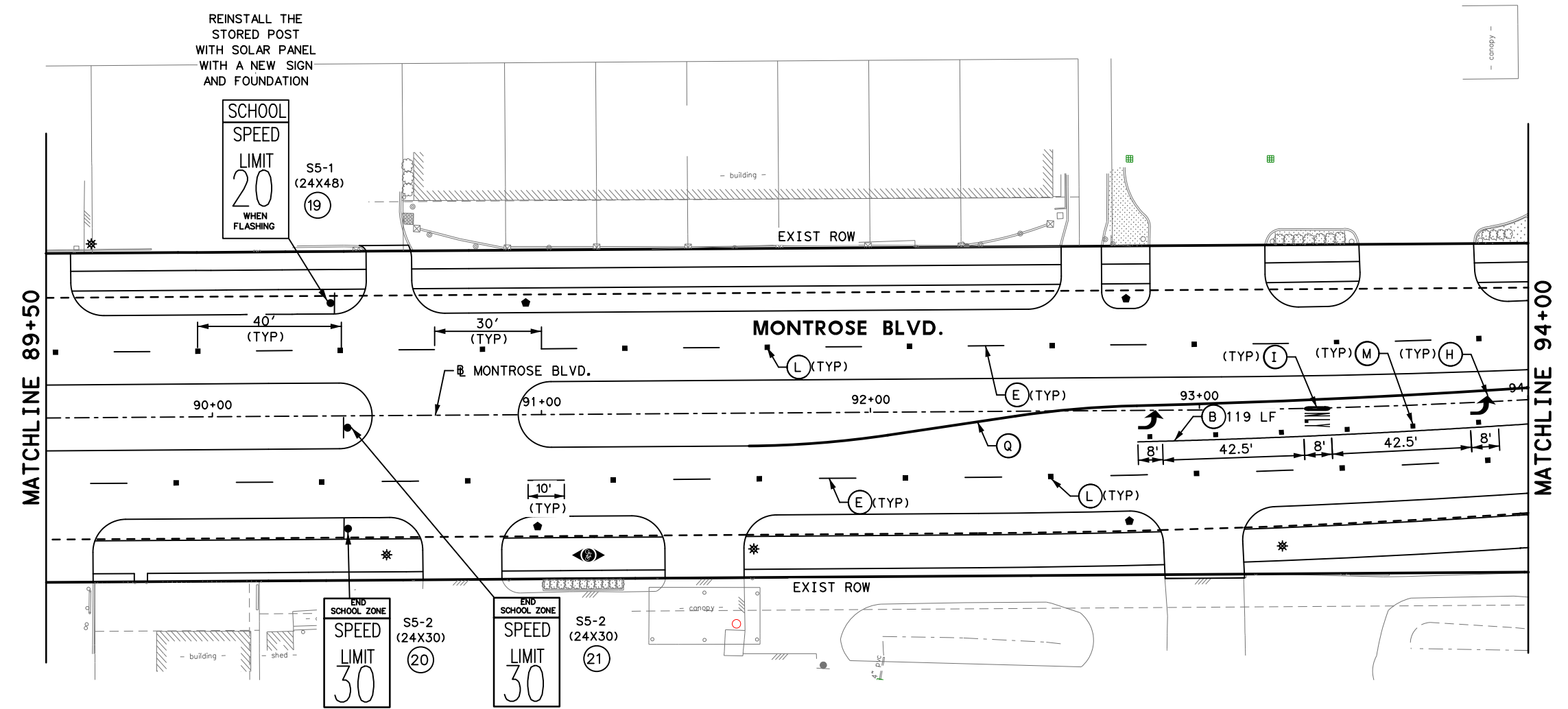
SHEET 1 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 206 OF 355	

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 - REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
 - PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY EXIST TRAFFIC AND STREET SIGNS THAT THE PROJECT WILL AFFECT TO DOCUMENT WHAT SIGNS EXIST AND THEIR LOCATION.
 - THE CONTRACTOR WILL BE RESPONSIBLE FOR SAFE-GUARDING EXISTING SIGNS SO THAT THEY EITHER CONTINUE TO REMAIN VISIBLE AND UPRIGHT IN THE FIELD OR ARE COLLECTED AND STORED IN A SECURED AREA WHEN TEMPORARY SIGNS ARE USED IN LIEU OF THE EXISTING SIGNS.
 - CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POST, AND HARDWARE AS SHOWN ON PLANS AND STANDARD DETAILS.
 - REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.
 - PLACE 24"X24" GREEN SOLID BLOCKS TO CREATE THE SOLID BICYCLE GREEN PAVEMENT MARKINGS.

- LEGEND**
- RIGHT-OF-WAY
 - PROP CURB
 - (A) PAV MRK (W) (4") (SLD)
 - (B) PAV MRK (W) (6") (SLD)
 - (C) PAV MRK (W) (12") (SLD)
 - (D) PAV MRK (W) (24") (SLD)
 - (E) PAV MRK (W) (4") (BRK)
 - (F) REFL PAV MRK TY I (Y) (4") (DBL SLD)
 - (G) REFL PAV MRK TY I (Y) (24") (SLD)
 - (H) REFL PAV MRK (W) ARROW
 - (I) REFL PAV MRK (W) WORD
 - (J) PAV MRK (W) TRIANGLE
 - (K) PREFAB PAV MRK TY C (GRN) (SLD) (BLOCK)
 - (L) RAIS PAV MRK TY I-C
 - (M) RAIS PAV MRK TY II-C-R
 - (N) RAIS PAV MRK TY II-A-A
 - (O) REFL PAV MRK TY I (Y) (4") (SLD)
 - (P) PAV MRK (Y) (12") (SLD)
 - (Q) MEDIAN NOSE PAINT (Y)
 - ◆ BIKE DOT SYMBOL



MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

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 TEXAS PE FIRM REG. # 20017
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 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

SIGNING & PVMT MARKING PLAN
 STA 89+50 TO STA 94+00

SHEET 2 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 207 OF 355	

APP.	
REVISIONS	
No.	DATE

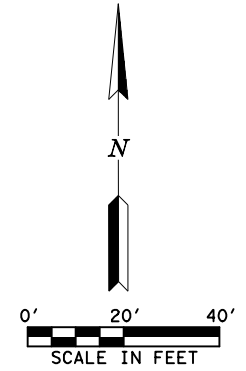
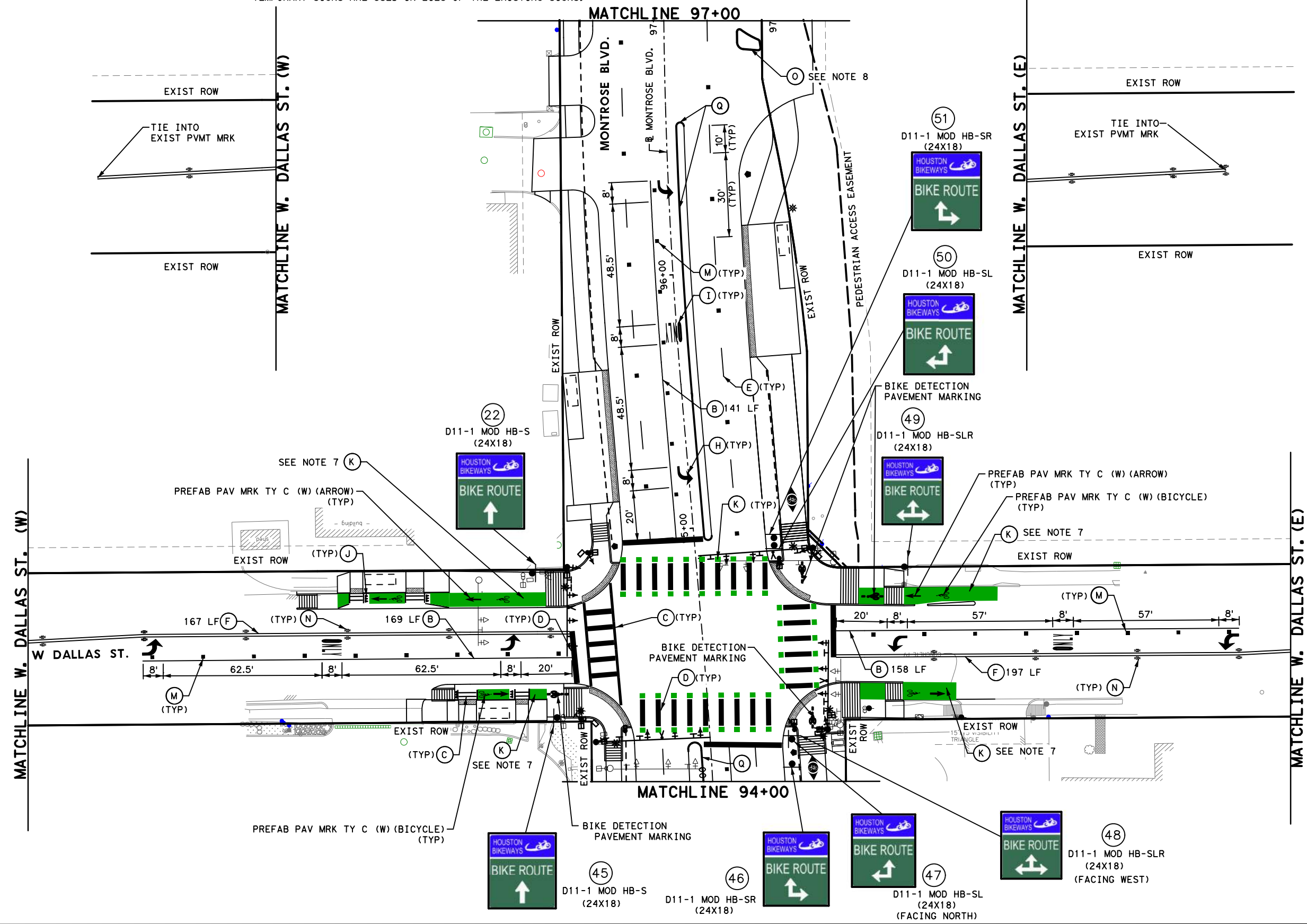
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- REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.
- PLACE 24"X24" GREEN SOLID BLOCKS TO CREATE THE SOLID BICYCLE GREEN PAVEMENT MARKINGS.
- CURB SHALL BE PAINTED YELLOW.

LEGEND

- RIGHT-OF-WAY
- PROP CURB
- (A) PAV MRK (W) (4") (SLD)
- (B) PAV MRK (W) (6") (SLD)
- (C) PAV MRK (W) (12") (SLD)
- (D) PAV MRK (W) (24") (SLD)
- (E) PAV MRK (W) (4") (BRK)
- (F) REFL PAV MRK TY I (Y) (4") (DBL SLD)
- (G) REFL PAV MRK TY I (Y) (24") (SLD)
- (H) REFL PAV MRK (W) ARROW
- (I) REFL PAV MRK (W) WORD
- (J) PAV MRK (W) TRIANGLE
- (K) PREFAB PAV MRK TY C (GRN) (SLD) (BLOCK)
- (L) RAIS PAV MRK TY I-C
- (M) RAIS PAV MRK TY II-C-R
- (N) RAIS PAV MRK TY II-A-A
- (O) REFL PAV MRK TY I (Y) (4") (SLD)
- (P) PAV MRK (Y) (12") (SLD)
- (Q) MEDIAN NOSE PAINT (Y)
- ◆ BIKE DOT SYMBOL



MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27

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 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

SIGNING & PVMT MARKING PLAN
 STA 94+00 TO STA 98+50

SHEET 3 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 208 OF 355	

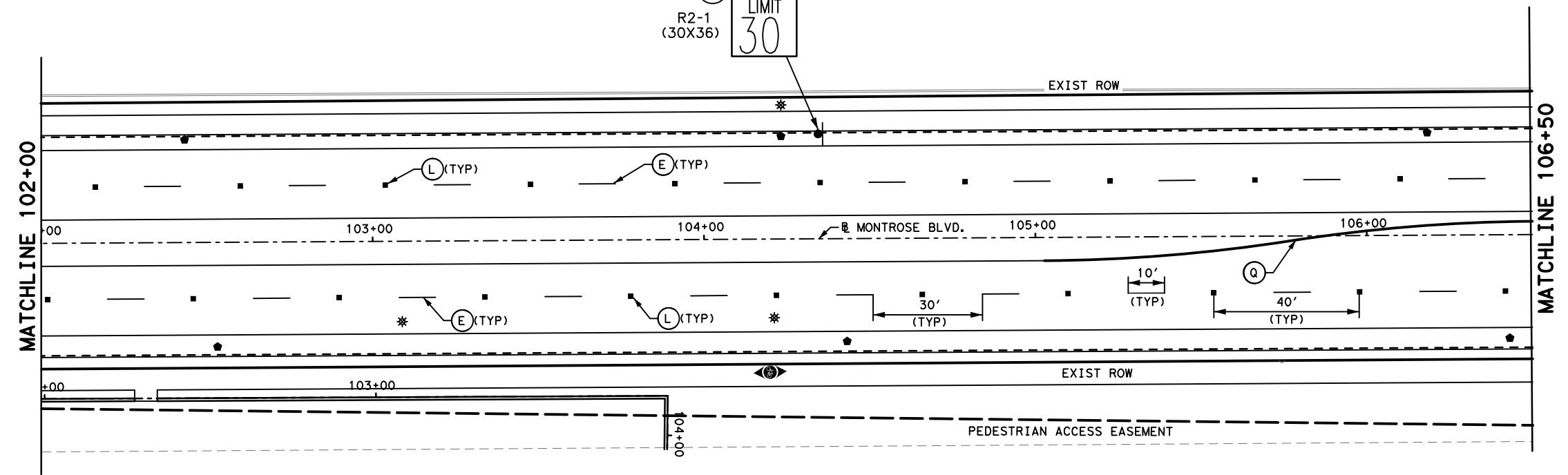
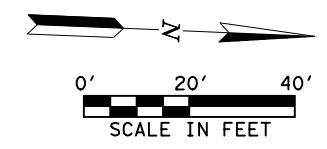
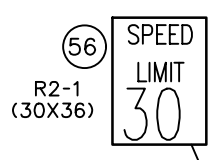
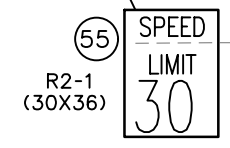
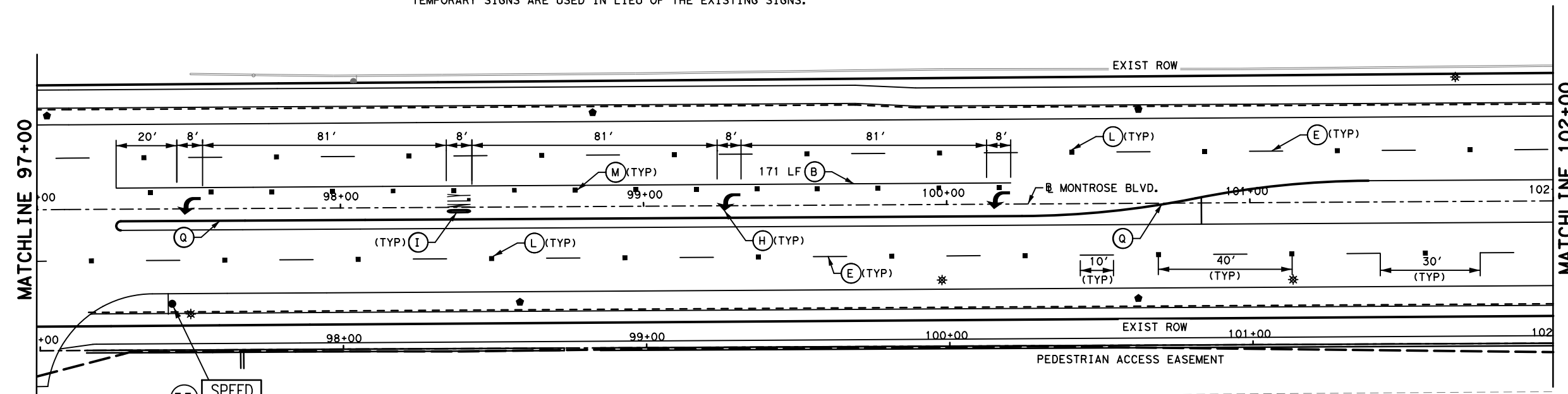
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 Plotted on: 2/20/2024 9:14:35 AM ahatamleh

- NOTE:**
- REFER TO SUMMARY OF SMALL SIGNS FOR ADDITIONAL INFORMATION.
 - REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
 - PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL FIELD VERIFY EXIST TRAFFIC AND STREET SIGNS THAT THE PROJECT WILL AFFECT TO DOCUMENT WHAT SIGNS EXIST AND THEIR LOCATION.
 - THE CONTRACTOR WILL BE RESPONSIBLE FOR SAFE-GUARDING EXISTING SIGNS SO THAT THEY EITHER CONTINUE TO REMAIN VISIBLE AND UPRIGHT IN THE FIELD OR ARE COLLECTED AND STORED IN A SECURED AREA WHEN TEMPORARY SIGNS ARE USED IN LIEU OF THE EXISTING SIGNS.
 - CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POST, AND HARDWARE AS SHOWN ON PLANS AND STANDARD DETAILS.
 - REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.
 - PLACE 24"X24" GREEN SOLID BLOCKS TO CREATE THE SOLID BICYCLE GREEN PAVEMENT MARKINGS.

LEGEND

- RIGHT-OF-WAY
- PROP CURB
- (A) PAV MRK (W) (4") (SLD)
- (B) PAV MRK (W) (6") (SLD)
- (C) PAV MRK (W) (12") (SLD)
- (D) PAV MRK (W) (24") (SLD)
- (E) PAV MRK (W) (4") (BRK)
- (F) REFL PAV MRK TY I (Y) (4") (DBL SLD)
- (G) REFL PAV MRK TY I (Y) (24") (SLD)
- (H) REFL PAV MRK (W) ARROW
- (I) REFL PAV MRK (W) WORD
- (J) PAV MRK (W) TRIANGLE
- (K) PREFAB PAV MRK TY C (GRN) (SLD) (BLOCK)
- (L) RAIS PAV MRK TY I-C
- (M) RAIS PAV MRK TY II-C-R
- (N) RAIS PAV MRK TY II-A-A
- (O) REFL PAV MRK TY I (Y) (4") (SLD)
- (P) PAV MRK (Y) (12") (SLD)
- (Q) MEDIAN NOSE PAINT (Y)
- ◆ BIKE DOT SYMBOL

No.	DATE	REVISIONS	APP.



MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING

TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

INTERIM REVIEW ONLY

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DAVID G. CHEZANEY
175563
2/20/2024

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GAUGE ENGINEERING
Texas Registered Engineering Firm F-20017

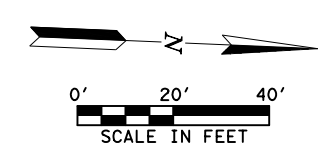
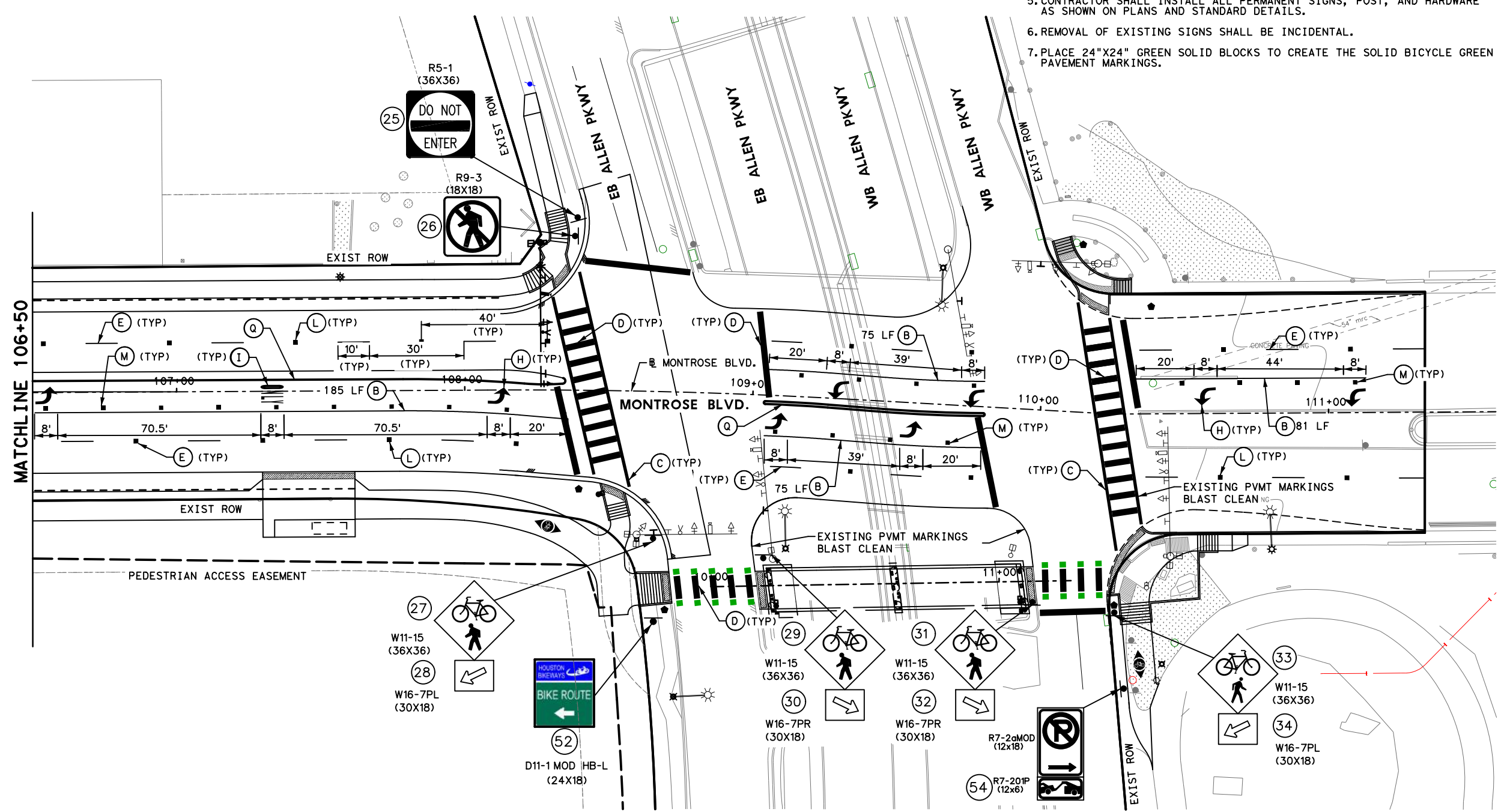
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1
SIGNING & PVMT MARKING PLAN
 STA 97+00 TO STA 106+50

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 209 OF 355	

Pen Table: MONTR0SE.tbl
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 - REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.
 - PLACE 24"X24" GREEN SOLID BLOCKS TO CREATE THE SOLID BICYCLE GREEN PAVEMENT MARKINGS.

- LEGEND**
- RIGHT-OF-WAY
 - PROP CURB
 - (A) PAV MRK (W) (4") (SLD)
 - (B) PAV MRK (W) (6") (SLD)
 - (C) PAV MRK (W) (12") (SLD)
 - (D) PAV MRK (W) (24") (SLD)
 - (E) PAV MRK (W) (4") (BRK)
 - (F) REFL PAV MRK TY I (Y) (4") (DBL SLD)
 - (G) REFL PAV MRK TY I (Y) (24") (SLD)
 - (H) REFL PAV MRK (W) ARROW
 - (I) REFL PAV MRK (W) WORD
 - (J) PAV MRK (W) TRIANGLE
 - (K) PREFAB PAV MRK TY C (GRN) (SLD) (BLOCK)
 - (L) RAIS PAV MRK TY I-C
 - (M) RAIS PAV MRK TY II-C-R
 - (N) RAIS PAV MRK TY II-A-A
 - (O) REFL PAV MRK TY I (Y) (4") (SLD)
 - (P) PAV MRK (Y) (12") (SLD)
 - (Q) MEDIAN NOSE PAINT (Y)
 - ◆ BIKE DOT SYMBOL



<p>GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>INTERIM REVIEW ONLY</p> <p>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is prepared for the purpose of interim review under the authority of:</p> <p>DAVID G. CHEANEY 175563 2/20/2024</p> <p>100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017</p>
<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1</p>	
<p>SIGNING & PVMT MARKING PLAN STA 106+50 TO END PROJECT</p>	
<p>SHEET 5 OF 5</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JUADA HUANG</p>	
<p>SHEET NO. 210 OF 355</p>	

SUMMARY OF SMALL SIGNS

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PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN TEXT	DIMENSION	SQUARE POST	SIGNAL MOUNT	ROUND POST (PERMISSION NEEDED FROM CITY TRAFFIC ENGINEER)	NUMBER OF POSTS (1 OR 2)	SIGN AREA SQ. FT. (FOR INFORMATION ONLY NOT INTENDED FOR BID)	SIGN POST SIZE (TABLE A)
1 OF 3										
	1	D3-POST MOUNTED STREET NAME	MONTR0SE	VARIES	X			1	VARIES	
	2	R1-1	STOP	36X36	X			1	9	
	3	R3-5	LEFT/ RIGHT TURN ONLY	30X36	X			1	7.5	
	4	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	
	5	W16-7PL	DIAGONAL ARROW (LEFT)	30X18	X			1	3.75	
	6	R10-6	STOP HERE ON RED	24X36	X			1	6	
	7	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	
	8	W16-7PR	DIAGONAL ARROW (RIGHT)	36X36	X			1	9	
	9	R3-17	BIKE LANE	36X36	X			1	9	
	10	R3-17	BIKE LANE	36X36	X			1	9	
	11	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	
	12	W16-7PR	DIAGONAL ARROW (RIGHT)	30X18	X			1	3.75	
	13	R10-6	STOP HERE ON RED	24X36	X			1	6	
	14	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	

No.	DATE	REVISIONS	APP.

MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

GAUGE ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 2/20/2024
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 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
SMALL SIGN SUMMARY

SHEET 1 OF 3

WBS NUMBER
 N-T27000-0005-7
 DRAWING SCALE
 AS NOTED
 CITY OF HOUSTON PM
 JIADA HUANG
 SHEET NO. 211 OF 355

FOR CITY OF HOUSTON USE ONLY

SUMMARY OF SMALL SIGNS

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN TEXT	DIMENSION	SQUARE POST	SIGNAL MOUNT	ROUND POST (PERMISSION NEEDED FROM CITY TRAFFIC ENGINEER)	NUMBER OF POSTS (1 OR 2)	SIGN AREA SQ. FT. (FOR INFORMATION ONLY NOT INTEDED FOR BID)	SIGN POST SIZE (TABLE A)
2 OF 3										
	15	W16-7PL	DIAGONAL ARROW (LEFT)	30X18	X			1	3.75	
	16	D3-POST MOUNTED STREET NAME	MONTROSE	VARIES	X			1	VARIES	
	17	R1-1	STOP	36X36	X			1	9	
	18	R3-5	LEFT/ RIGHT TURN ONLY	30X36	X			1	7.5	
	19	S5-1	SCHOOL SPEED LIMIT XX WHEN FLASHING	24X48	X			1	8	
	20	S5-2	END SCHOOL ZONE	24X30	X			1	5	
	21	S5-2	END SCHOOL ZONE	24X30	X			1	5	
	22	D11-1 MOD HB-S	BIKE ROUTE	24X18	X			1	3	
	23	R3-17	BIKE LANE	24X18	X			1	3	
	24	R2-1	SPEED LIMIT	30X36	X			1	7.5	
	25	R5-1	DO NOT ENTER	36X36	X			1	9	
	26	R9-3	NO PEDESTRIAN CROSSING (SYMBOL)	18X18	X			1	2.25	
	27	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	

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No.	DATE	REVISIONS	APP.

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
SMALL SIGN SUMMARY

SHEET 2 OF 3

WBS NUMBER
 N-T27000-0005-7
 DRAWING SCALE
 AS NOTED
 CITY OF HOUSTON PM
 JIADA HUANG
 SHEET NO. 212 OF 355

FOR CITY OF HOUSTON USE ONLY

SUMMARY OF SMALL SIGNS

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PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN TEXT	DIMENSION	SQUARE POST	SIGNAL MOUNT	ROUND POST (PERMISSION NEEDED FROM CITY TRAFFIC ENGINEER)	NUMBER OF POSTS (1 OR 2)	SIGN AREA SQ. FT. (FOR INFORMATION ONLY NOT INTEDED FOR BID)	SIGN POST SIZE (TABLE A)
3 OF 3										
	28	W16-7PL	DIAGONAL ARROW (LEFT)	30X18	X			1	3.75	
	29	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	
	30	W16-7PR	DIAGONAL ARROW (RIGHT)	30X18	X			1	3.75	
	31	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	
	32	W16-7PR	DIAGONAL ARROW (RIGHT)	30X18	X			1	3.75	
	33	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	
	34	W16-7PL	DIAGONAL ARROW (LEFT)	30X18	X			1	3.75	
	35	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	
	36	W16-9P	AHEAD (PLAQUE)	36X36	X			1	9	
	37	W11-15	BICYCLE/ PEDESTRIAN	36X36	X			1	9	
	38	W16-9P	AHEAD (PLAQUE)	36X36	X			1	9	
	39	R2-1	SPEED LIMIT	30X36	X			1	7.5	
	40	R2-1	SPEED LIMIT	30X36	X			1	7.5	
	41	D11-1 MOD HB-A	BIKE ROUTE AHEAD	24X18	X			1	3	
	42	D11-1 MOD HB-E	BIKE ROUTE ENDS	24X18	X			1	3	
	43	D11-1 MOD HB-LR	BIKE ROUTE	24X18	X			1	3	
	44	D11-1 MOD HB-LR	BIKE ROUTE	24X18	X			1	3	
	45	D11-1 MOD HB-S	BIKE ROUTE	24X18	X			1	3	
	46	D11-1 MOD HB-SR	BIKE ROUTE	24X18	X			1	3	
	47	D11-1 MOD HB-SL	BIKE ROUTE	24X18	X			1	3	
	48	D11-1 MOD HB-SLR	BIKE ROUTE	24X18	X			1	3	
	49	D11-1 MOD HB-SLR	BIKE ROUTE	24X18	X			1	3	
	50	D11-1 MOD HB-SL	BIKE ROUTE	24X18	X			1	3	
	51	D11-1 MOD HB-SR	BIKE ROUTE	24X18	X			1	3	
	52	D11-1 MOD HB-L	BIKE ROUTE	24X18	X			1	3	
	53	R7-2a MOD	PARKING RESTRICTION	12X18	X			1	3	
	54	R7-201P	TOW AWAY ZONE (PLAQUE)	12X06	X			1	3	
	55	R2-1	SPEED LIMIT	30X36	X			1	7.5	
	56	R2-1	SPEED LIMIT	30X36	X			1	7.5	

No.	DATE	REVISIONS	APP.

MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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 Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
SMALL SIGN SUMMARY

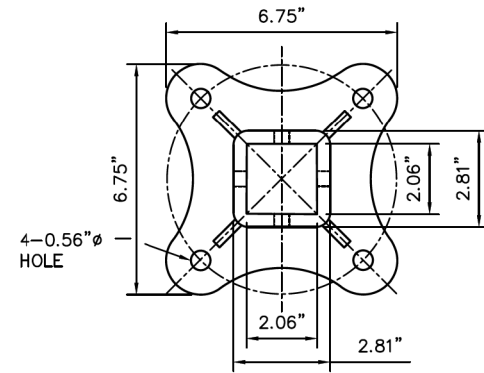
SHEET 3 OF 3

WBS NUMBER
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 DRAWING SCALE
 AS NOTED
 CITY OF HOUSTON PM
 JIADA HUANG
 SHEET NO. 213 OF 355

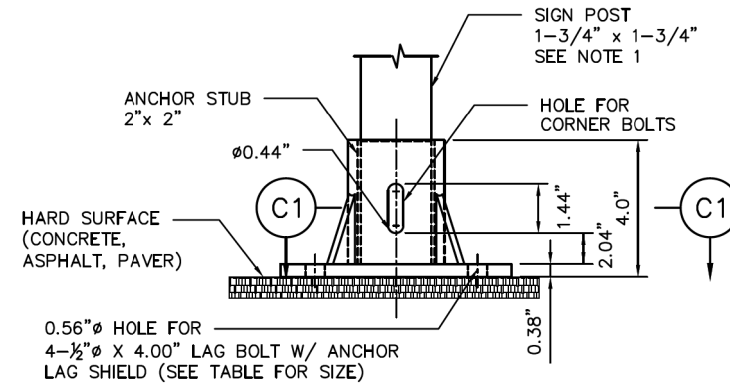
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DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

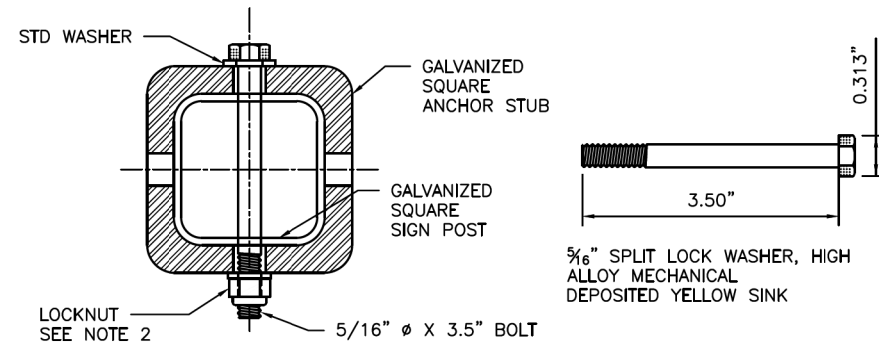


TOP VIEW

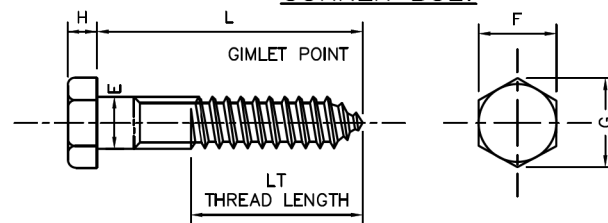


SIDE VIEW

TYPICAL HARD SURFACE INSTALLATION GALVANIZED SIGN BASE



SECTION C1
CORNER BOLT



DIAMETER	E		F		G		H		L	LT
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN		
1/2"	0.515"	0.482"	0.750"	0.725"	0.866"	0.826"	0.364"	0.302"	4.00"	3.84"

MATERIAL: PER A307 GRADE A
 COATING: HOT DIP ZINC PER ASTM F2329 OR IN ACCORDANCE WITH CLASS C OF ASTM A153 AND CLASS D FOR 3/8" DIAMETER AND LESS

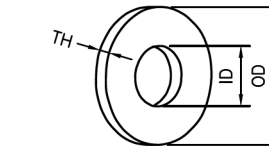
4" HEX LAG SCREWS, HOT DIPPED GALVANIZED

NOTES:

- REFER TO COH STD DWG 01554-01 FOR SIGN AND POST REQUIREMENTS.
- REFER TO DETAIL "C5" ON COH STD DWG 01554-01 FOR NUT AND BOLT REQUIREMENTS.

BASE PLATE NOTES:

- MATERIAL: ASTM A-536 GRADE 65-45-12 DUCTILE IRON
- HOT DIP GALVANIZE PER ASTM A-153
- ALL DIMENSIONS ARE IN INCHES

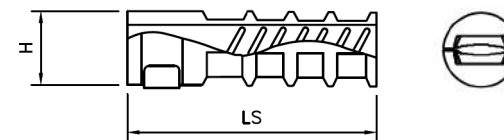


SAE FLAT WASHERS

SIZE	ID		OD			THICKNESS - TH			
	BASIC	TOLERANCE	BASIC	TOLERANCE		BASIC	MAX	MIN	
		PLUS		MINUS	PLUS				MINUS
1/2"	0.531	0.015"	0.005"	1.062"	0.030"	0.007"	0.95"	0.121"	0.74"

DIMENSIONS: ASME B18.21.1, TYPE A PLAIN WASHERS
 MATERIAL: CARBON STEEL
 FINISH: Fe/Zn 3AT PER ASTM F1941

1/2" FLAT WASHERS, LOW CARBON, SAE, ZINC PLATED



TH	LS	H	L
1/2"	3.00"	0.75"	4.00"

ANCHOR LAG SHIELD - ZINC ALLOY

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS STANDARD

**SIGN BASE
 HARD SURFACE
 MOUNTING DETAILS**
 (SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Suhail Kanwar</i> 5E1F880C841F3478 CITY ENGINEER	DocuSigned by: <i>Carl Hallock</i> A03C410372B3453 DIRECTOR OF HPW
DocuSigned by: <i>KHANG NGUYEN</i> 66A29EF0A7934CD CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 01554-02

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**

**SIGN BASE
 HARD SURFACE
 MOUNTING DETAILS**

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 215 OF 355	

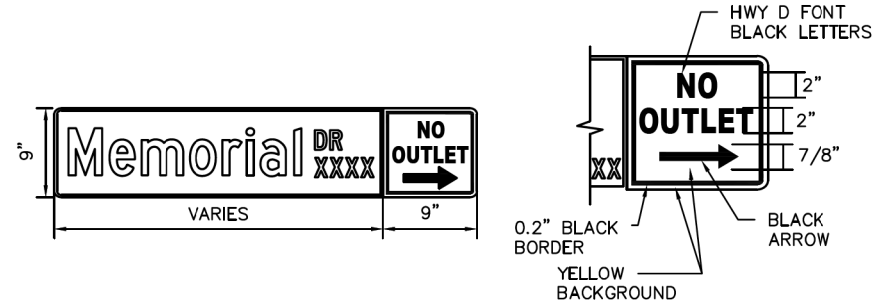
REVISIONS	DATE	APP.

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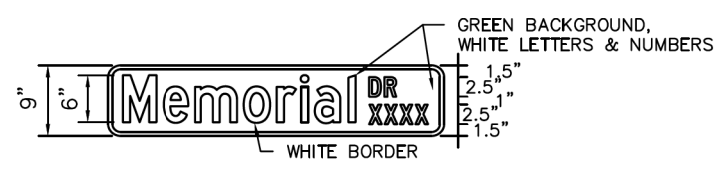
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POST MOUNTED STREET NAME SIGN W/ NO OUTLET SIGN



D3 - POST MOUNTED STREET NAME SIGN



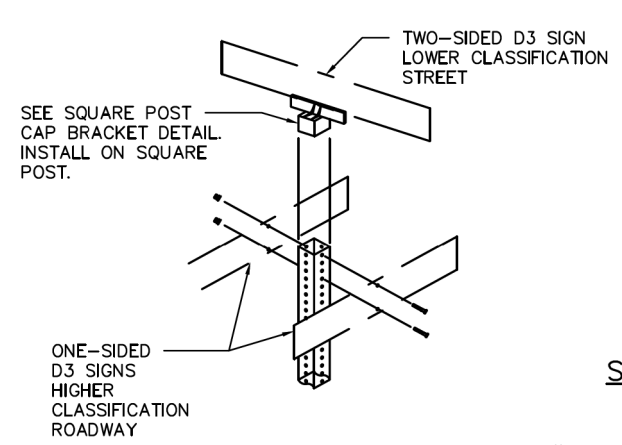
OVERHEAD STREET NAME SIGN DETAIL



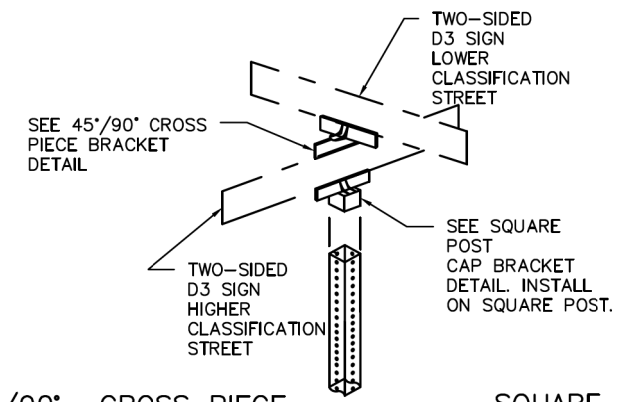
D3 - STREET NAME SIGN

	POST-MOUNTED SIGN	OVERHEAD SIGN
HEIGHT	9"	24"
LENGTH	30" MIN 48" MAX 6" INCREMENTS OF LENGTH	10" MAX 2' INCREMENT OF LENGTH
THICKNESS	0.125"	0.080"
SUBSTRATE	ALLUMINUM ALLOY, 5052-H38 (ASTM B-209)	
SIGN FACE MATERIALS	GREEN FILM OVER DIAMOND GRADE VIP SHEETING	
LEGENDS AND SYMBOLS	HIGHWAY GOTHIC SERIES D (USUAL) HIGHWAY GOTHIC SERIES C OR B FOR MAXIMUM LENGTH SIGN BLACK	
COLOR	LETTERS-WHITE REFLECTIVE BORDER-WHITE REFLECTIVE BACKGROUND-GREEN REFLECTIVE	

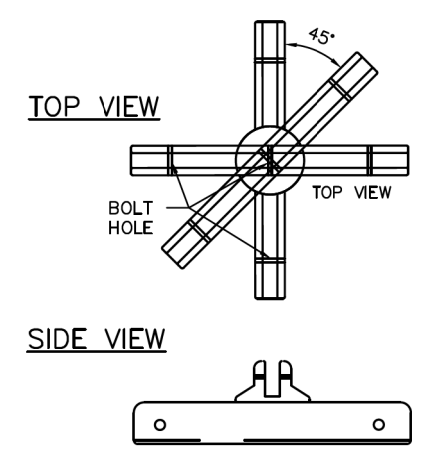
D3 SIGNS GREATER THAN 42" PLATES IN LENGTH



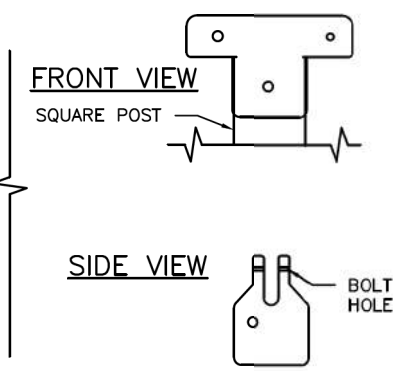
D3 SIGNS LESS THAN OR EQUAL TO 42" PLATES IN LENGTH



45°/90° CROSS PIECE SIGN BRACKET



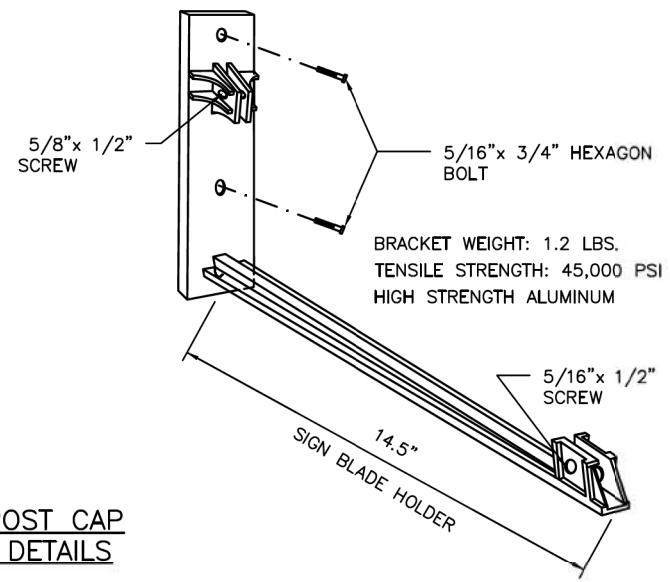
SQUARE POST CAP BRACKET DETAILS



NOTES:

1. TYPICAL SIGN PLATE SHOULD BE 30" MAX.
2. LONGER SIGN PLATE MUST BE APPROVED BY THE CITY TRAFFIC ENGINEER.

SIGNAL POLE MOUNTING DETAIL



CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STREET NAME SIGN AND SIGN MOUNTING
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Sulail Kanwar</i> 9E8B80C641F547E CITY ENGINEER	DocuSigned by: <i>Carl Hallock</i> 893CA10B7263453 DIRECTOR OF HPW
DocuSigned by: <i>HANG NGUYEN</i> 9A29EFDA7584CD CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 01554-03

MONTR0SE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

INTERIM REVIEW ONLY
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DAVID G. CHEANEY
172563
2/20/2024
100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
STREET NAME SIGN AND SIGN MOUNTING

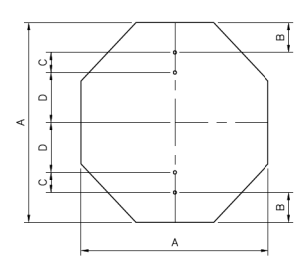
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 216 OF 355	

REVISIONS	APP.
No.	DATE

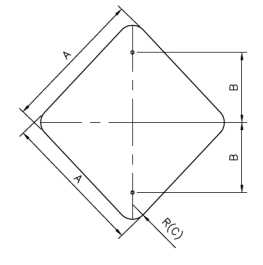
DocuSign Envelope ID: CB71C116-8716-4899-A5EE-0D272C056AF6

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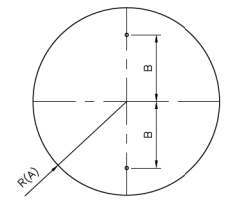
OCTAGONAL

A	B	C	D	T
24	3	3	12	0.08
36	3	3	24	0.08



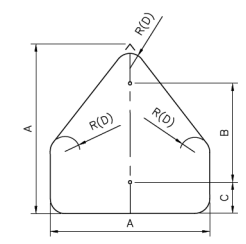
DIAMOND

A	B	C	T
24	12	1 1/2	0.08
30	15	1 1/2	0.08
36	18	1 1/2	0.08



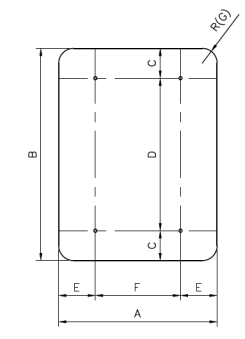
CIRCLE

A	B	T
15	15	0.08
18	12	0.08



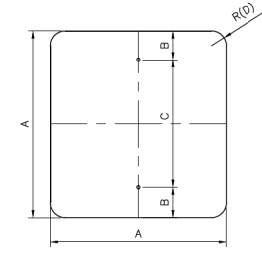
PENTAGON (SCHOOL)

A	B	C	D	T
36	24	3	1 1/2	0.08



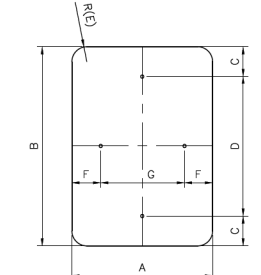
VERTICAL RECTANGLE

A	B	C	D	E	F	G	T
36	48	6	36	3	24	1 1/2	0.08
48	60	6	48	3	30	1 1/2	0.08
18	30	3	24	-	-	1 1/2	0.08



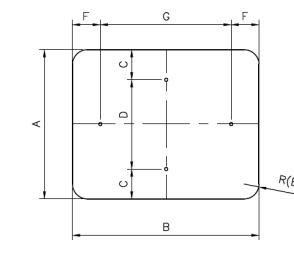
SQUARE (A)

A	B	C	D	T
18	3	12	1 1/2	0.08
24	3	18	1 1/2	0.08
36	3	30	1 1/2	0.08



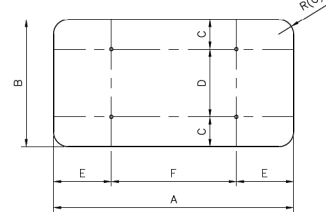
VERTICAL/HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
12	18	1 1/2	15	1 1/2	1 1/2	9	0.08
12	36	3	30	1 1/2	1 1/2	9	0.08
18	24	3	18	1 1/2	1 1/2	15	0.08
24	30	3	24	1 1/2	3	18	0.08
24	36	3	30	1 1/2	3	18	0.08
24	48	3	36	1 1/2	3	18	0.08
30	36	3	30	1 1/2	3	24	0.08



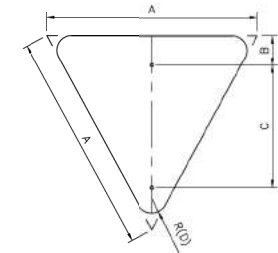
HORIZONTAL/VERTICAL RECTANGLE

A	B	C	D	E	F	G	T
12	6	-	-	1 1/2	1	4	0.08
18	6	-	-	1 1/2	1	4	0.08
12	9	1	10	1 1/2	-	-	0.08
24	12	1 1/2	9	1 1/2	2	8	0.08
24	18	3	12	1 1/2	2	14	0.08
30	24	3	18	1 1/2	3	18	0.08
36	12	1 1/2	9	1 1/2	2	8	0.08



HORIZONTAL RECTANGLE

A	B	C	D	E	F	G	T
36	24	3	18	6	24	1 1/2	0.08
48	24	3	18	9	30	1 1/2	0.08
48	36	6	24	9	30	1 1/2	0.08
60	24	3	18	12	36	1 1/2	0.08
60	36	6	24	12	36	1 1/2	0.08



EQUILATERAL TRIANGLE

A	B	C	D	T
36	3	21	1 1/2	0.08

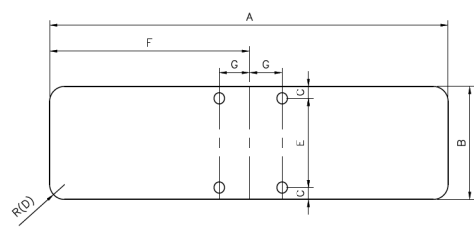


TABLE - D3 SIGNS (BRACKETS)

A	B	C	D	E	F	G	T
30	9	5/16	1 1/2	8 3/8	15	1 3/4	0.125
36	9	5/16	1 1/2	8 3/8	18	1 3/4	0.125
42	9	5/16	1 1/2	8 3/8	21	1 3/4	0.125
48	9	5/16	1 1/2	8 3/8	24	1 3/4	0.125

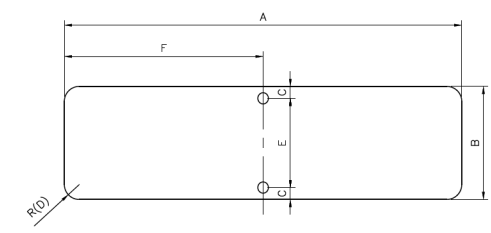


TABLE - D3 SIGNS

A	B	C	D	E	F	T
30	9	1 1/2	1 1/2	6	15	0.125
36	9	1 1/2	1 1/2	6	18	0.125
42	9	1 1/2	1 1/2	6	21	0.125
48	9	1 1/2	1 1/2	6	24	0.125

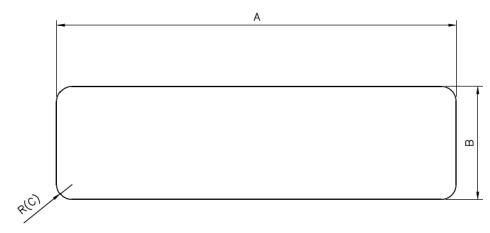
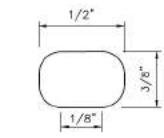


TABLE - D1 SIGNS

A	B	C	T
60	24	1 1/2	0.08
72	24	1 1/2	0.08
84	24	1 1/2	0.08
96	24	1 1/2	0.08

NOTES:

1. A 30" LONG OR GREATER PLATE SHALL BE USED WHEN A "NO OUTLET" SUPPLEMENT IS REQUIRED.
2. THE CITY OF HOUSTON "STOP" AND "YIELD" SIGNS SHALL BE A MINIMUM 36". SPECIAL PERMISSION FROM THE CITY TRAFFIC ENGINEER IS REQUIRED FOR LESS THAN 36" SIGNS.
3. ALL PUNCHED HOLES ARE 3/8"x 1/2" OVAL.
4. ALL CORNER RADII ARE 1 1/2".
5. ALL DIMENSIONS ARE IN INCHES.
6. T = THICKNESS



APPROVED BY: <i>Suhail Kaniwar</i> CITY ENGINEER	APPROVED BY: <i>LIANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Stalder</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01554-06
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
GROUND MOUNTED SIGN SIZES	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

GAUGE ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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DAVID G. CHEZANEY
 175563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
GROUND MOUNTED SIGN SIZES

SHEET 1 OF 1

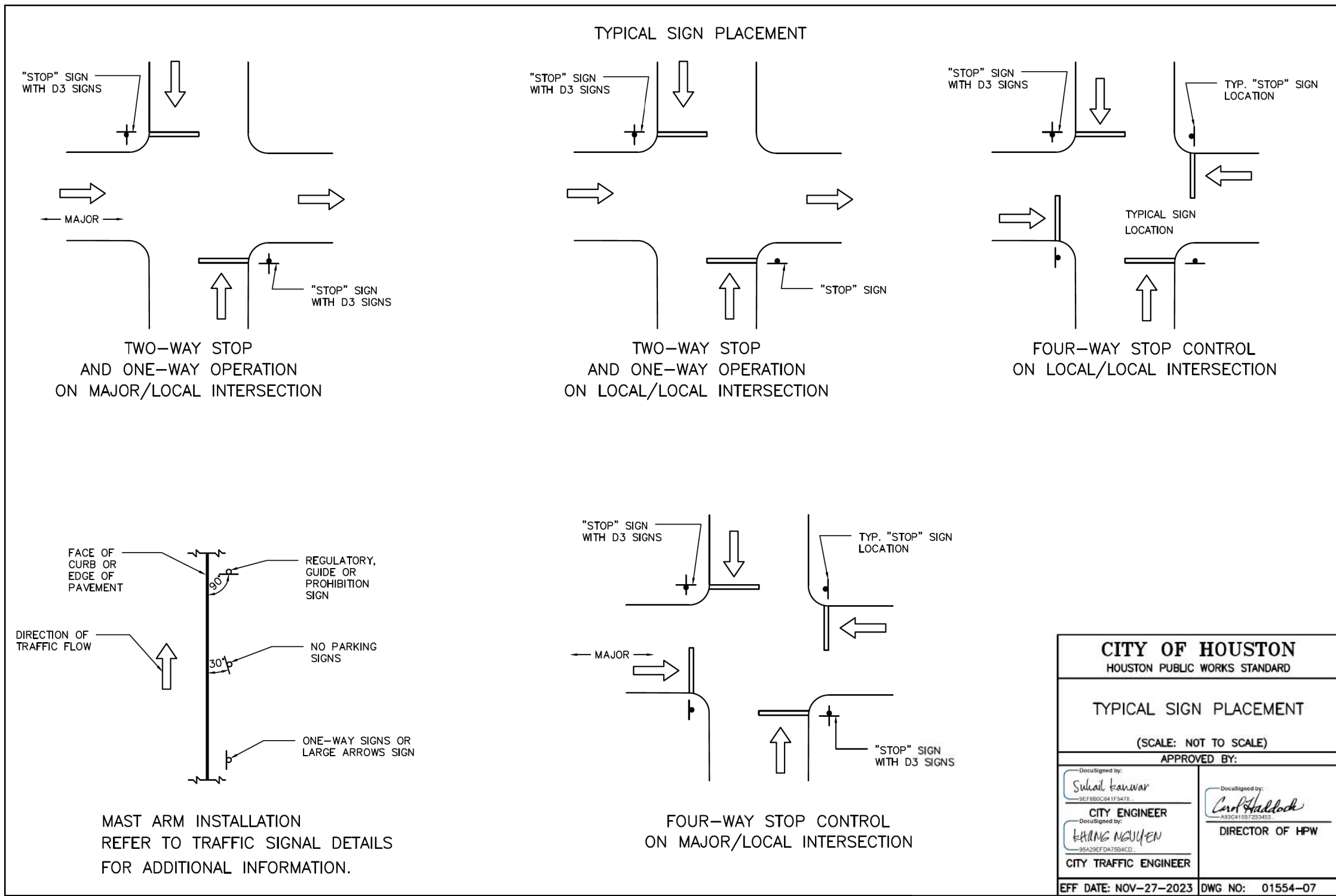
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WBS NUMBER	N-127000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO	217 OF 355

No.	DATE	REVISIONS	APP.

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS STANDARD

TYPICAL SIGN PLACEMENT

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Suhail Kanwar</i> 9EF8B0C641F3478 CITY ENGINEER	DocuSigned by: <i>Carl Haddock</i> A33C41007203403 DIRECTOR OF HPW
DocuSigned by: <i>Khang Nguyen</i> 98A20EFDA7504CD CITY TRAFFIC ENGINEER	

EFF DATE: NOV-27-2023 DWG NO: 01554-07

MONTR0SE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 DAVID G. CHEZANEY
 172563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD
 IMPROVEMENTS - SEGMENT 1
 TYPICAL SIGN PLACEMENT

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 218 OF 355	

No.	DATE	REVISIONS	APP.




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REGULATORY SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
STOP	R1-1	36x36
YIELD	R1-2	36x36x36
ALL WAY PLAQUE	R1-3P	18x6
YIELD HERE TO PEDESTRIANS	R1-5a	36x48
EXCEPT RIGHT TURN (PLAQUE)	R1-10P(1)	24x18
EXCEPT BUSES (PLAQUE)	R1-10P(2)	24x18
SPEED LIMIT	R2-1	30x36
MINIMUM SPEED LIMIT (PLAQUE)	R2-4P	24x30
NO RIGHT TURNS	R3-1	36x36
NO LEFT TURNS	R3-2	36x36
NO U-TURNS	R3-4	36x36
LEFT/RIGHT TURN ONLY	R3-5	30x36
THRU ONLY	R3-5a	30x36
LEFT TURN/THRU	R3-6	30x36
LEFT/RIGHT LANE MUST TURN LEFT/RIGHT	R3-7	36x36
ADVANCE INTERSECTION LANE CONTROL (VARIES)	R3-8	VARIESx30
TWO-WAY LEFT TURN ONLY (OVERHEAD)	R3-9a	30x36
TWO-WAY LEFT TURN LANE (POST MOUNTED)	R3-9b	24x36
BEGIN	R3-9eP	30x12
END	R3-9dP	30x12
REVERSIBLE LANE CONTROL (SYMBOL)	R3-9e	108x48
REVERSIBLE LANE CONTROL (POST MOUNTED)	R3-9f	36x54
ADVANCE REVERSIBLE LANE CONTROL TRANSITION	R3-9g,9h	108x36
END REVERSIBLE LANE	R3-9i	108x48
BIKE LANE	R3-17	24x18
SLOWER TRAFFIC KEEP RIGHT	R4-3	24x30
BEGIN RIGHT TURN LANE YIELD TO BIKES	R4-4	36x30
KEEP RIGHT	R4-7	24x30
KEEP LEFT	R4-8	24x30
DO NOT DRIVE ON SHOULDER	R4-17	24x30
DO NOT PASS ON SHOULDER	R4-18	24x30
DO NOT ENTER	R5-1	36x36
WRONG WAY	R5-1a	42x30
NO TRUCKS (SYMBOL)	R5-2(1)	24x24
NO THRU TRUCKS (TEXT)	R5-2(2)	24x30
ONE WAY (LONG)	R6-1	54x18
ONE WAY	R6-2	30x36
ROUNDBOULT DIRECTIONAL (2 CHEVRONS)	R6-4	30x24
ROUNDBOULT CIRCULATION (PLAQUE)	R6-5P	30x30
BEGIN ONE WAY	R6-6	30x36
END ONE WAY	R6-7	30x36
PARKING RESTRICTION (ARROW)	R7-2(1)	12x18
PARKING RESTRICTION (TO CORNER)	R7-2(2)	12x18
PARKING RESTRICTION (BUS ZONE)	R7-2(3)	12x18

REGULATORY SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
PARKING RESTRICTION (VALET ZONE)	R7-2(4)	12x18
PARKING RESTRICTION (PEAK PERIOD)	R7-2(5)	12x18
PARKING RESTRICTION (EMERGENCY VEH. ONLY)	R7-2(6)	12x18
PARKING RESTRICTION (TAXI ZONE)	R7-2(7)	12x18
PARKING RESTRICTION (NO STOPPING OR STANDING)	R7-2(8)	12x18
PARKING RESTRICTION (JITNEY STOP)	R7-2(9)	12x18
PARKING RESTRICTION (PED-CAB ZONE)	R7-2(10)	12x18
PARKING RESTRICTION (LIMO ZONE)	R7-2(11)	12x18
PARKING RESTRICTION (COMMERCIAL VEH. ZONE)	R7-2(12)	12x18
PARKING RESTRICTION (FED/CITY AUTHORIZED VEH. ONLY)	R7-2(13)	12x18
PARKING RESTRICTION (U.S. MARSHAL PARKING ONLY)	R7-2(14)	12x18
PARKING RESTRICTION (EMERGENCY)	R7-2(15)	12x18
PARKING TIME LIMIT (VARIES)	R7-108	12x18
HANDICAPPED PARKING	R7-8T	12x18
TOW AWAY ZONE (PLAQUE)	R7-201P	12x6
PARKING METER (COH)	R7-110	12x18
ON TRACKS (PLAQUE)	R8-3eP	24x18
CROSS ONLY AT CROSSWALKS (SYMBOL)	R9-2	12x18
NO PEDESTRIAN CROSSING (SYMBOL)	R9-3	18x18
NO PEDESTRIAN CROSSING	R9-3a	12x18
PEDESTRIAN CROSSING	R9-8	36x18
SIDEWALK CLOSED	R9-9	24x12
SIDEWALK CLOSED--USE OTHER SIDE	R9-10	24x12
SIDEWALK CLOSED CROSS HERE	R9-11a	24x12
PUSH BUTTON FOR PEDESTRIAN CROSSING	R10-3e	9x15
LEFT ON GREEN ARROW ONLY	R10-5	30x36
STOP HERE ON RED	R10-6	24x36
DO NOT BLOCK INTERSECTION	R10-7	24x30
LEFT/RIGHT TURN SIGNAL	R10-10	30x36
NO TURN ON ROAD (TEXT)	R10-11a	36x48
LEFT TURN YIELD ON GREEN	R10-12	30x36
CROSSWALK, STOP ON RED	R10-23	24x30
KEEP OFF MEDIAN	R11-1	24x30
ROAD CLOSED	R11-2	48x30
ROAD CLOSED LOCAL TRAFFIC ONLY	R11-3a	60x30
BRIDGE OUT LOCAL TRAFFIC ONLY	R11-3b	60x30
ROAD CLOSED TO THRU TRAFFIC	R11-4	60x30
WEIGHT LIMIT XX TONS	R12-1	24x30
AXLE WEIGHT LIMIT XX TONS/LBS	R12-2	24x30
NO TRUCKS OVER XX TONS/LBS EMPTY WEIGHT	R12-3	24x36
WEIGHT LIMIT XX TONS PER AXLE XX TONS GROSS	R12-4	36x24
LOAD ZONED BRIDGE	R12aT	VARIESx36
TRUCK ROUTE	R14-1	24x18
GRADE CROSSING (CROSSBUCK)	R15-1	48x9
NUMBER OF TRACKS (PLAQUE)	R15-2P	27x18

REGULATORY SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
RIGHT ANGLE TURN	CW1-1	36x36
HORIZONTAL CURVE	CW1-2	36x36
REVERSE RIGHT ANGLE TURNS	CW1-3	36x36
REVERSE HORIZONTAL CURVES	CW1-4	36x36
REVERSE CURVE (2 LANES)	CW1-4b	36x36
REVERSE CURVE (MORE THAN 2 LANES)	CW1-4c	36x36
ONE-DIRECTION LARGE ARROW	CW1-6	48x24
UPWARD SLOPING ARROW	CW1-6aT	36x36
CHEVRON	CW1-8	18x24
STOP AHEAD	CW3-1	36x36
SIGNAL AHEAD	CW3-3	36x36
BE PREPARED TO STOP	CW3-4	36x36
ROAD NARROWS	CW5-1	36x36
NARROW BRIDGE	CW5-2	36x36
TWO-WAY TRAFFIC FLOW	CW6-3	36x36
TWO-WAY TRAFFIC	CW6-4	12x18
BUMP	CW8-1	36x36
DIP	CW8-2	36x36
SOFT SHOULDER	CW8-4	36x36
TRUCK CROSSING	CW8-6	36x36
ROUGH ROAD	CW8-8	36x36
UNEVEN LANES	CW8-11	36x36
LEFT LANE ENDS	CW9-1(1)	36x36
RIGHT LANE ENDS	CW9-1(2)	36x36
DOUBLE ARROW	CW12-1	30x30
ADVISORY SPEED (PLAQUE)	CW13-1P	24x24
XX FEET (PLAQUE)	CW16-2P	24x18
AHEAD (PLAQUE)	CW16-3	24x12
ROAD WORK AHEAD	CW20-1	36x36
DETOUR AHEAD	CW20-2	36x36
ROAD CLOSED AHEAD	CW20-3	36x36
ONE LANE ROAD	CW20-4	36x36
LEFT LANE CLOSED	CW20-5(1)	36x36
RIGHT LANE CLOSED	CW20-5(2)	36x36
FLAGGER (SYMBOL)	CW20-7	36x36
NARROW LANES AHEAD	CW20-8T	36x36
SHOULDER WORK AHEAD	CW21-5	36x36
UTILITY WORK AHEAD	CW21-7	36x36
DOUBLE REVERSE CURVE (1 LANE)	CW24-1	36x36
DOUBLE REVERSE CURVE (2 LANE)	CW24-1a	36x36
DOUBLE REVERSE CURVE (3 LANE)	CW24-1b	36x36
END ROAD WORK	G20-2	36x18
DETOUR WITH ARROWS	M4-9	30x24
END DETOUR	M4-8a	24x18
PEDESTRIAN DETOUR	M4-9b	30x24
DETOUR	M4-10	48x18

APPROVED BY:  Sultan Ibrahim CITY ENGINEER	APPROVED BY:  HANG NGUYEN CITY TRAFFIC ENGINEER
APPROVED BY:  Carol Hubbard DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01554-08
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TYPICAL CITY OF HOUSTON SIGNS	
SHEET 1 OF 2 FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

 MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
 Gauge ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for the purpose of interim review under the authority of:</small> DAVID G. CHEANEY 172563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TYPICAL CITY OF HOUSTON SIGNS	
SHEET 1 OF 2	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 219 OF 355	

No.	DATE	REVISIONS

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WARNING SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
RIGHT ANGLE TURN CURVE	W1-1	30x30
RIGHT ANGLE TURN WITH SPEED LIMIT	W1-1a	36x36
HORIZONTAL CURVE	W1-2	30x30
HORIZONTAL CURVE WITH SPEED LIMIT	W1-2a	36x36
REVERSE RIGHT ANGLE TURN	W1-3	30x30
REVERSE HORIZONTAL CURVE	W1-4	30x30
WINDING ROAD	W1-5	30x30
ONE DIRECTION LARGE ARROW	W1-6	48x24
TWO DIRECTION LARGE ARROW	W1-7	48x24
CHEVRON ALIGNMENT	W1-8	18x24
HAIRPIN CURVE	W1-11	30x30
TRUCK ROLLOVER	W1-13	36x36
CROSS ROAD	W2-1	30x30
SIDE STREET T-INTERSECTION (SYMBOL)	W2-2	30x30
T- INTERSECTION (SYMBOL)	W2-4	30x30
Y- INTERSECTION (SYMBOL)	W2-5	30x30
ROUNDBABOUT (SYMBOL)	W2-6	30x30
STOP AHEAD	W3-1	30x30
SIGNAL AHEAD	W3-3	30x30
REDUCED SPEED LIMIT AHEAD	W3-5	36x36
MERGE	W4-1	36x36
LANE ENDS	W4-2	36x36
ADDED LANE	W4-3	36x36
CROSS TRAFFIC DOES NOT STOP (PLAQUE)	W4-4P	24x12
ROAD NARROWS	W5-1	36x36
NARROW BRIDGE	W5-2	36x36
DIVIDED HIGHWAY	W6-1	36x36
DIVIDED HIGHWAY ENDS	W6-2	36x36
TWO WAY TRAFFIC (SYMBOL)	W6-3	36x36
BUMP	W8-1	30x30
DIP	W8-2	30x30
PAVEMENT ENDS	W8-3	36x36
SOFT SHOULDER	W8-4	36x36
TRUCK CROSSING	W8-6	36x36
LOOSE GRAVEL	W8-7	36x36
ROUGH ROAD	W8-8	36x36
UNEVEN LANES	W8-11	36x36
WATCH FOR ICE ON BRIDGE	W8-13T	36x36
SHOULDER DROP-OFF (SYMBOL)	W8-17	30x30
SHOULDER DROP-OFF (PLAQUE)	W8-17P	24x18

WARNING SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
FLOOD GAUGE	W8-19	12X72
NO SHOULDER	W8-23	36x36
SHOULDER ENDS	W8-25	36x36
LEFT LANE ENDS	W9-1(1)	36x36
RIGHT LANE ENDS	W9-1(2)	36x36
LANE ENDS MERGE LEFT	W9-2(1)	36x36
LANE ENDS MERGE RIGHT	W9-2(2)	36x36
GRADE CROSSING ADVANCE WARNING	W10-1	30 DIA
NO TRAIN HORN	W10-9	36x36
NO TRAIN HORN (PLAQUE)	W10-9P	30x24
BICYCLE	W11-1	30x30
PEDESTRIAN	W11-2	36x36
EMERGENCY VEHICLE	W11-8	30x30
HANDICAPPED	W11-9	30x30
TRUCK	W11-10	30x30
EMERGENCY SIGNAL AHEAD (PLAQUE)	W11-12P	36x30
BICYCLE/PEDESTRIAN	W11-15	30x30
TRAIL CROSSING (PLAQUE)	W11-15P	24x18
DOUBLE ARROW	W12-1	30x30
LOW CLEARANCE WITH ARROWS	W12-2	36x36
LOW CLEARANCE	W12-2a	78x24
LOADED ZONED BRIDGE	W12-5T	36x36
ADVISORY SPEED (PLAQUE)	W13-1P	18x18
NO OUTLET	W14-2	24x24
NO OUTLET WITH ARROW	W14-2a	36x6
SHARE THE ROAD (PLAQUE)	W16-1P	18x24
XX FEET (PLAQUE)	W16-2P	24x18
NEXT XX FEET (PLAQUE)	W16-4P	30x24
SUPPLEMENTAL LEFT ARROW (PLAQUE)	W16-5P(1)	24x18
SUPPLEMENTAL RIGHT ARROW (PLAQUE)	W16-5P(2)	24x18
DIAGONAL ARROW (PLAQUE)	W16-7P	24x12
AHEAD (PLAQUE)	W16-9P	24x12
WHEN FLASHING (PLAQUE)	W16-13P	24x18
ROUNDBABOUT (PLAQUE)	W16-17	24x12
SPEED HUMP	W17-1	30x30
TYPE 3 OBJECT MARKER (LEFT)	OM3-L	12x36
TYPE 3 OBJECT MARKER (RIGHT)	OM3-R	12x36
TYPE 3 OBJECT MARKER (CENTER)	OM3-C	12x36
TYPE 4 OBJECT MARKER	OM4-1	18x18

BICYCLE SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
STOP	R1-1	18x18
STREET NAME	D3-1	VARIESx6
YIELD	R1-2	18x18x18
TO REQUEST GREEN WAIT ON SYMBOL	R10-22	12x18
YIELD TO PEDESTRIAN	R9-5	18x18
NO PARKING BIKE LANE	R7-3	12x18
BIKE ROUTE	D11-1	24x18
BIKE ROUTE TO DOWNTOWN	D11-1c	24x18
BIKE SIGN AUXILIARY SIGNS	M4-1, M4-14	12x6
BICYCLE ROUTE ROUTE ARROW SIGNS	M5-1,2, M6-1,2,3,4,5,6,7	12x9
WALK YOUR BIKE (CUSTOM SIGN)	R9-3 C&H	12x18
YIELD TO PED/BIKE (CUSTOM SIGN)	R1-5PB	36x36
TURNING VEHICLES YIELD TO PED/BIKE (CUSTOM SIGN)	R10-15PB	36x36
STOP FOR PED/BIKE (CUSTOM SIGN)	R1-5PBb	36x36
TURNING VEHICLES STOP FOR PED/BIKE (CUSTOM SIGN)	R10-15PBa	36x36
CROSSWALK STOP ON RED (CUSTOM SIGN)	R10-23 (CoT)	42x30
PEDESTRIAN CROSSING (CUSTOM SIGN)	W11-2 (HAWK)	48x30
LOOK BOTH WAYS (CUSTOM SIGN)	W4-4Pa (BIKE) W4-4Pb (BIKE)	VARIES
TURN WIDE (CUSTOM SIGN)	R3-3 (BIKE)	30x36
BIKE MERGE AHEAD (CUSTOM SIGN)	W11-1 (MERGE)	36x36

SCHOOL SIGNS		
SIGN	SIGN DESIGNATION	SIZE (IN.)
SCHOOL	S1-1(FYG)	36x36
X:XX TO X:XX AM AND PM (PLAQUE)	S4-1P	24x10
SCHOOL (PLAQUE)	S4-3P(FYG)	24x8
WHEN FLASHING (PLAQUE)	S4-4P	24x10
REDUCED SCHOOL SPEED LIMIT AHEAD	S4-5a(FYG)	36x36
SCHOOL SPEED LIMIT XX WHEN FLASHING	S5-1(FYG)	24x48
END SCHOOL ZONE	S5-2	24x30
END SCHOOL ZONE (PLAQUE)	S5-2aTP	24x10
CELL PHONE USE PROHIBITED	S7-1T	24x18
TURN ARROW (PLAQUE)	SW16-5P(FYG)	24x12
ADVANCE TURN ARROW (PLAQUE)	SW16-6P(FYG)	24x12
DIAGONAL ARROW (PLAQUE)	SW16-7P(FYG)	24x12
AHEAD (PLAQUE)	S16-9P(FYG)	24x12

FYG- FLUORESCENT YELLOW-GREEN BACKGROUND COLOR

APPROVED BY: <i>Sahad Hussain</i> CITY ENGINEER	APPROVED BY: <i>LEIANC NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hubbard</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01554-09
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TYPICAL CITY OF HOUSTON SIGNS	
SHEET 2 OF 2	
FOR CITY OF HOUSTON USE ONLY	
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 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEANEY 172563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 TYPICAL CITY OF HOUSTON SIGNS	
SHEET 2 OF 2	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 220 OF 355	

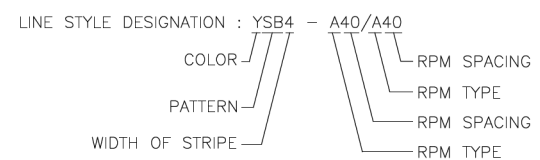
No.	DATE	REVISIONS	APP.

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DESCRIPTION AND APPLICATION OF PAVEMENT MARKING LINES				
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.
WS	WHITE	SOLID	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.
			12"	PERPENDICULAR CROSSWALK LINES.
			24"	STOP BARS AT INTERSECTIONS (SIGNALIZED AND UNSIGNALIZED).
WG	WHITE	GUIDE (2' STRIPE W/6' GAP)	6"	HATCHING AT HIGH VISIBILITY CROSSWALKS.
			6"	GUIDE LINES THROUGH INTERSECTIONS.
			6"	TAPER LINES FOR TURN LANES.
YS	YELLOW	SOLID	4"	GUIDE LINES FOR BICYCLE LANES.
			6"	EDGE LINES TO DELINEATE THE LEFT EDGE OF A DIVIDED ROADWAY, A ONE-WAY ROAD, OR RAMP.
			12", 24"	BI-DIRECTIONAL BICYCLE LANE PAVEMENT MARKING.
YDS	YELLOW	DOUBLE SOLID	4" - (4") - 4" (GAP)	DIAGONAL HATCHING USED IN GORES BETWEEN OPPOSING DIRECTION OF TRAVEL LANES.
YDB	YELLOW	DOUBLE BROKEN	4" - (4") - 4" (GAP)	CENTERLINE THAT SEPARATES OPPOSING TRAVEL LANES AND DELINEATION OF MEDIAN ISLANDS.
YB	YELLOW	BROKEN (10' STRIPE W/30' GAP)	4"	DEFINES THE EDGES OF CENTER REVERSIBLE LANES THAT ARE USED AS TWLTLs DURING INTERMITTENT PERIODS.
YB (BIKE)	YELLOW	BROKEN (3' STRIPE W/9' GAP)	4"	SEPARATES 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 BICYCLE TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN ONE DIRECTION AND PROHIBITED IN THE OPPOSITE DIRECTION.
BICYCLE GREEN	GREEN	SOLID COLORED PAVEMENT	VARIES	USED FOR EDGE OF TWO-WAY LEFT TURN LANES (TWLTL).
				PED/BIKE CROSSING
YIELD LINE	WHITE	TRIANGLE	16" x 24"	VEHICLE / BIKE/ CONFLICT AREA
				MID-BLOCK CROSSING.

DESCRIPTION AND APPLICATION OF REFLECTIVE RAISED PAVEMENT MARKERS (RPM)			
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.



GENERAL PAVEMENT MARKING NOTES:

- 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 PROJECT'S COMPLETION.
- 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).
- THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
- THE DESIGN SPEED FOR THE ROAD IS: _____. THE POSTED SPEED LIMIT IS: _____.
- ALL LANE DIMENSIONS ARE FROM CENTER OF LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
- THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS AND SYMBOLS.
- THE FINAL LONGITUDINAL STRIPINGS SHALL BE 60 MIL (0.060") 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.
- ALL FINAL TRANSVERSE MARKINGS SHALL BE 90 MIL (0.090") HOT-SPRAYED THERMOPLASTIC. ALL PAVEMENT ARROWS AND LEGENDS SHALL ALSO BE 90 MIL (0.090") HOT-SPRAYED THERMOPLASTIC. PREFORMED THERMOPLASTIC APPLICATIONS MAY BE USED IF ONLY APPROVED BY THE CITY TRAFFIC ENGINEER.
- 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.
- 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.
- 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.
- ALL REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED IN ACCORDANCE TO CITY OF HOUSTON STANDARD SPECIFICATION 02762. APPLYING OVER EXISTING PAVEMENT MARKINGS DOES NOT CONSTITUTE AS APPROVED OBLITERATION METHOD.
- THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT OF PAVEMENT MARKING PLANS WITHIN 30 DAYS AFTER COMPLETION OF PAVEMENT MARKING IMPLEMENTATION.
- BLUE RPMs MAY BE PLACED ADJACENT TO FIRE HYDRANTS WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
- FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID BY THE PROJECT OWNER/DEVELOPER.
- FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY TRANSPORTATION & DRAINAGE OPERATION REPRESENTATIVE (713-803-3054).

APPROVED BY: <i>Sudal Kallur</i> CITY ENGINEER	APPROVED BY: <i>HABIB AGHAJEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-01
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
PAVEMENT MARKINGS GENERAL NOTES AND LEGENDS	
FOR CITY OF HOUSTON USE ONLY	
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NOT TO SCALE	

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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DAVID G. CHEZANEY
1/25/2024
2/20/2024

100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-2017

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1**

**PAVEMENT MARKINGS GENERAL
NOTES AND LEGENDS**

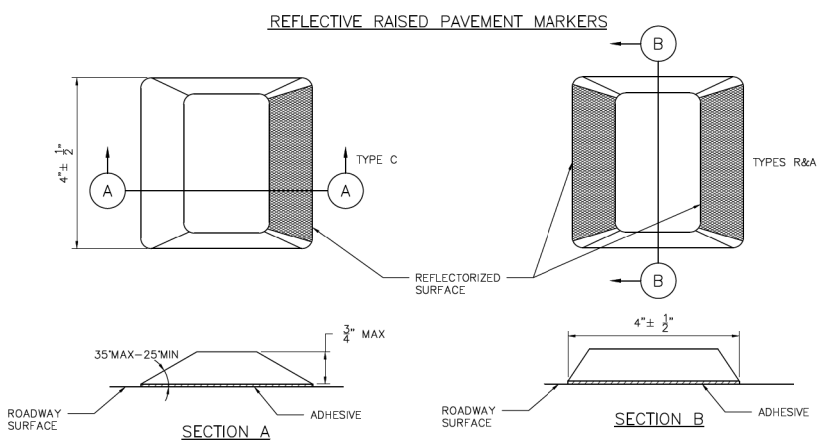
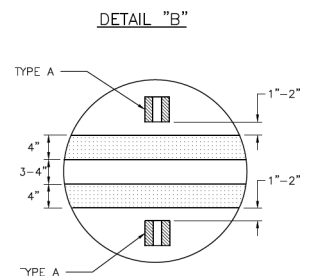
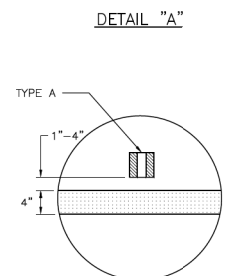
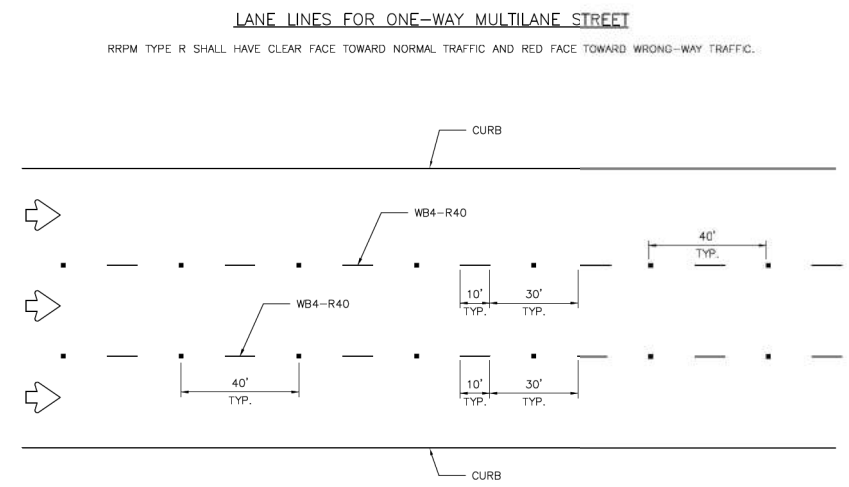
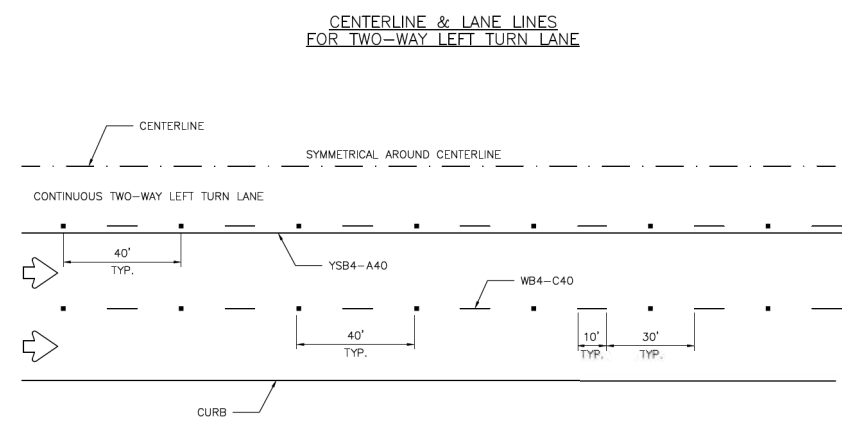
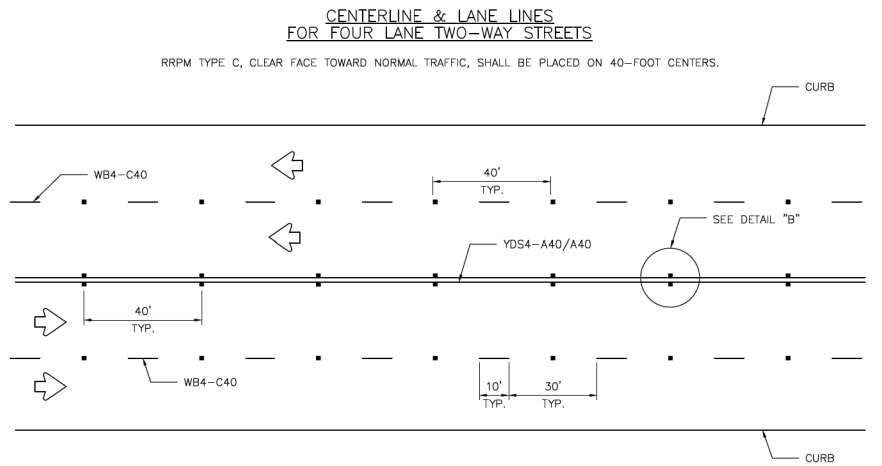
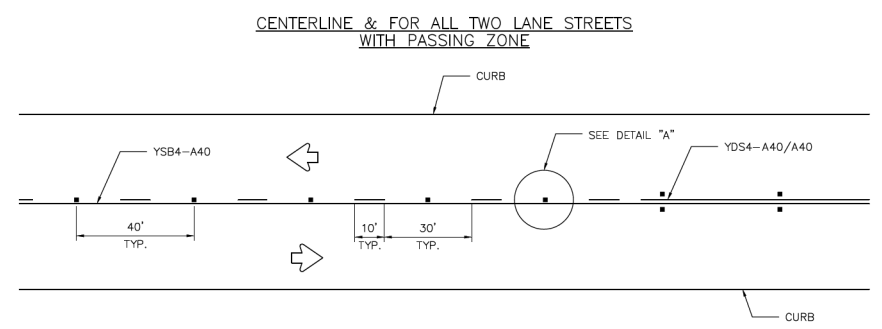
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 221 OF 355	

REVISIONS	APP.
No.	DATE

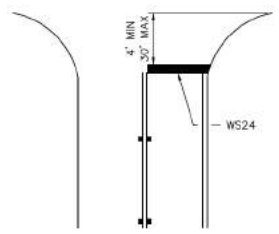
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- GENERAL NOTES:**
1. EDGELINE ADJACENT TO CURB AND GUTTER IS NOT REQUIRED IN ALL CASES, HOWEVER SHALL BE PLACED AS DIRECTED BY CITY TRAFFIC ENGINEER.
 2. THE TRAVELED WAY INCLUDES ONLY THAT PORTION OF THE ROADWAY USED FOR VEHICULAR TRAVEL AND NOT THE PARKING LANES, SIDEWALKS, BERMS AND SHOULDERS. THE TRAVELED WAYS SHALL BE MEASURED FROM THE INSIDE OF EDGELINE TO INSIDE OF EDGELINE OF A TWO LANE ROADWAY.
 3. ALL RAISED PAVEMENT MARKERS PLACED IN BROKEN LINES SHALL BE PLACED IN LINE WITH AND MIDWAY BETWEEN THE STRIPES.
 4. ON CONCRETE PAVEMENTS THE RAISED PAVEMENT MARKERS SHOULD BE PLACED TO ONE SIDE OF THE LONGITUDINAL JOINTS.
 5. ALL PAVEMENT MARKING MATERIAL SHALL MEET THE REQUIRED MATERIAL SPECIFICATIONS AS SPECIFIED BY CITY OF HOUSTON STANDARD SPECIFICATIONS.

GUIDE FOR PLACEMENT OF STOP LINES & CENTERLINE



APPROVED BY: <i>Suhail Fakhour</i> CITY ENGINEER	APPROVED BY: <i>LEUNG HUANG</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-05

CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE	
FOR CITY OF HOUSTON USE ONLY	
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Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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DAVID G. CHEZANEY
 172563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1
 STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE

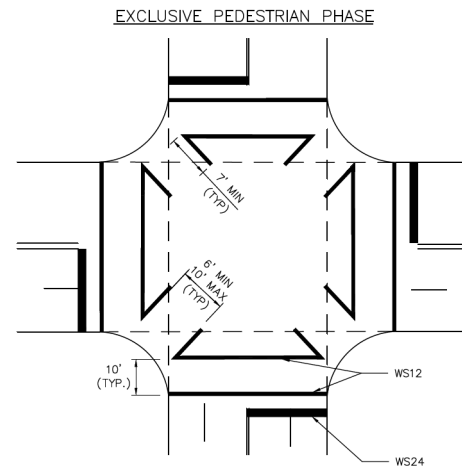
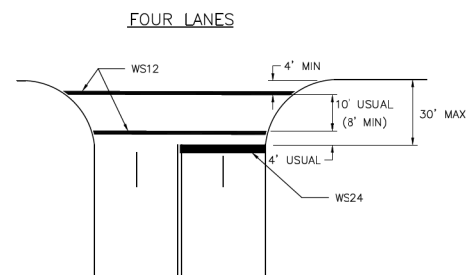
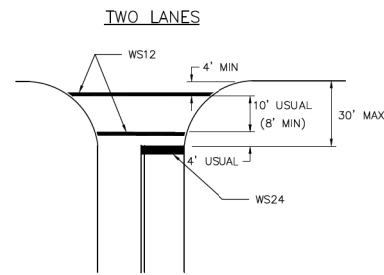
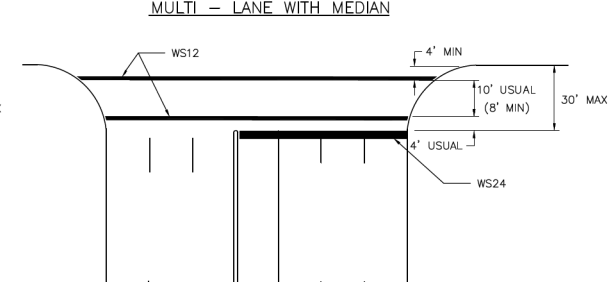
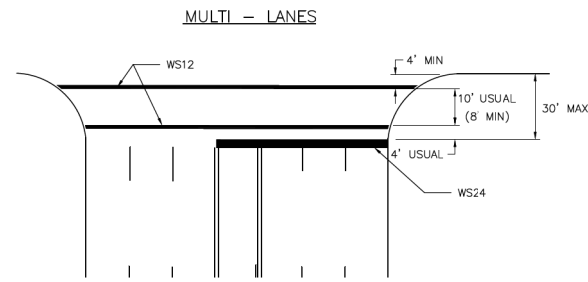
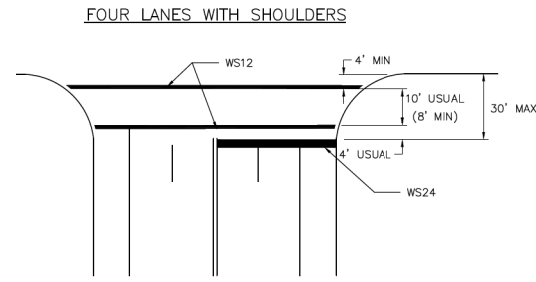
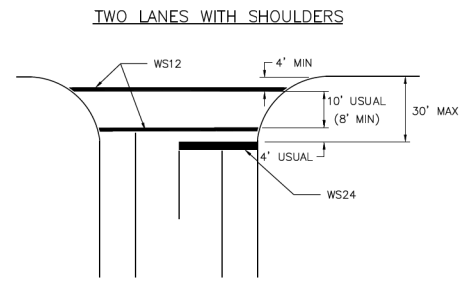
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 222 OF 355	

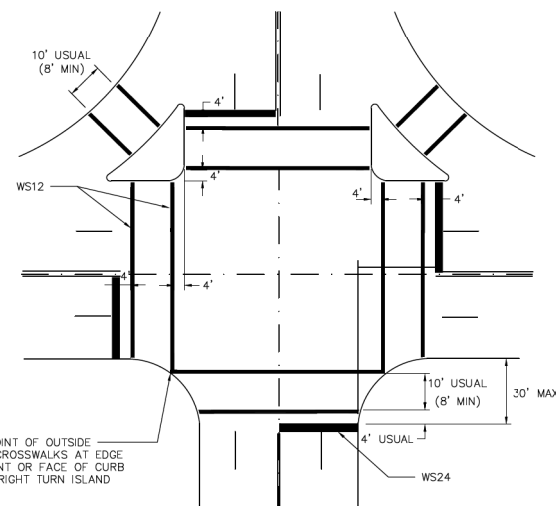
No.	DATE	REVISIONS	APP.

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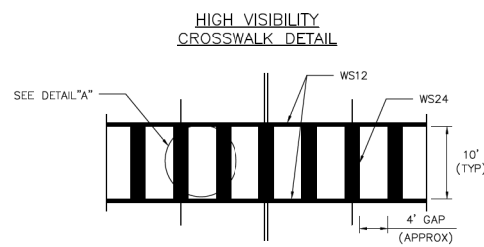
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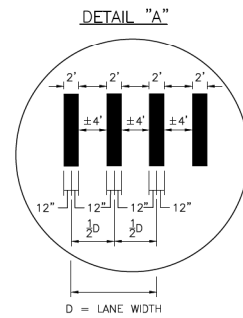
INTERSECTION WITH RIGHT-TURN ISLANDS



COMMON POINT OF OUTSIDE EDGES OF CROSSWALKS AT EDGE OF PAVEMENT OR FACE OF CURB WHERE NO RIGHT TURN ISLAND EXIST.



TYPICALLY USED AT SIGNALIZED AND NON-SIGNALIZED CROSSINGS ON COLLECTOR AND ARTERIAL ROADWAYS AND AT LOCATIONS REQUIRING EXTRA EMPHASIS.



- NOTES:**
- CROSSWALKS AND STOP LINES SHALL BE WHITE
 - "D" IS EQUAL TO ONE HALF THE WIDTH OF TRAVEL LANE.

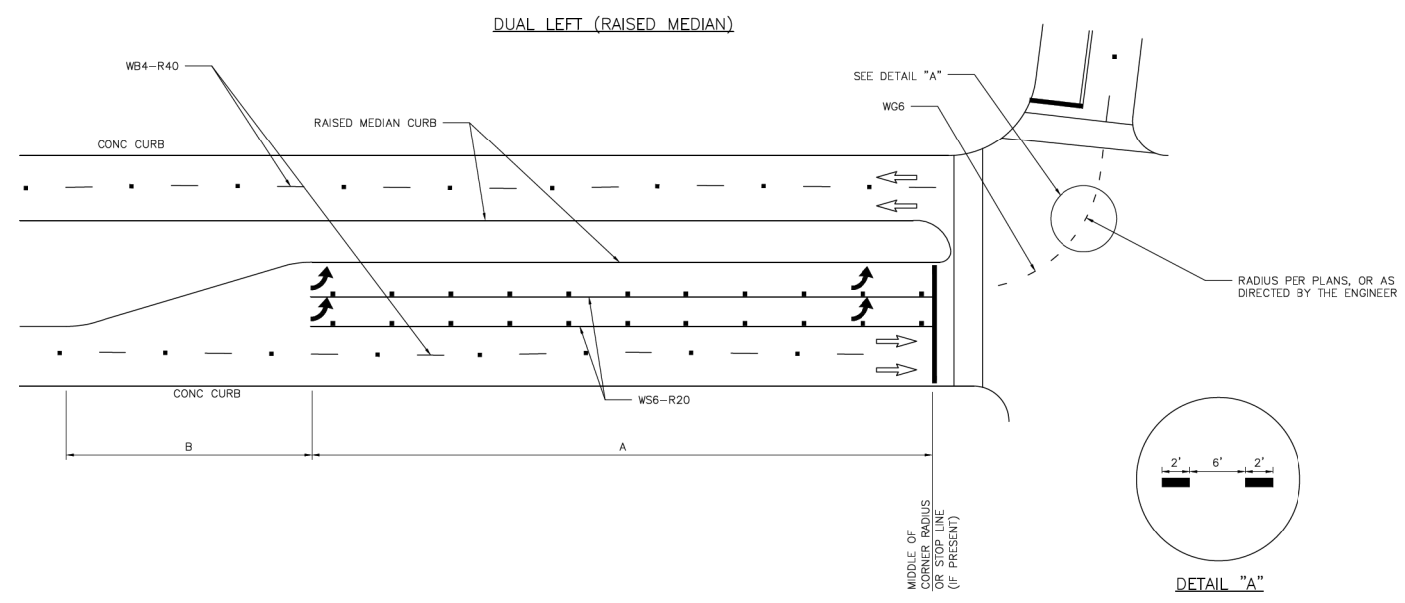
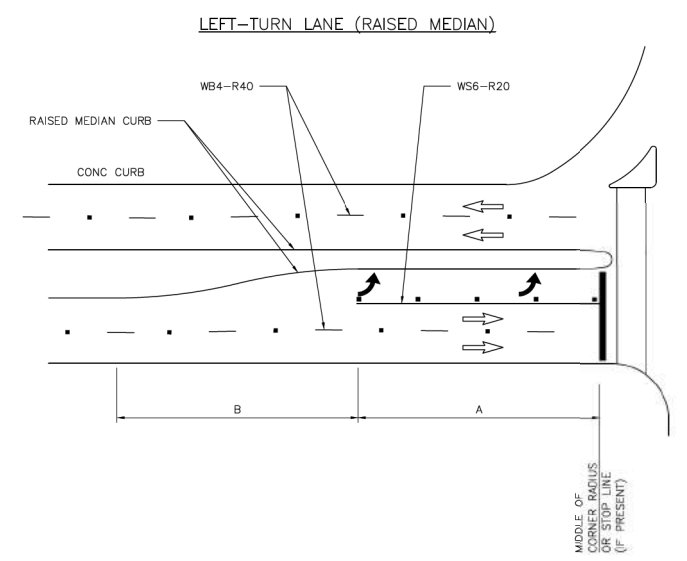
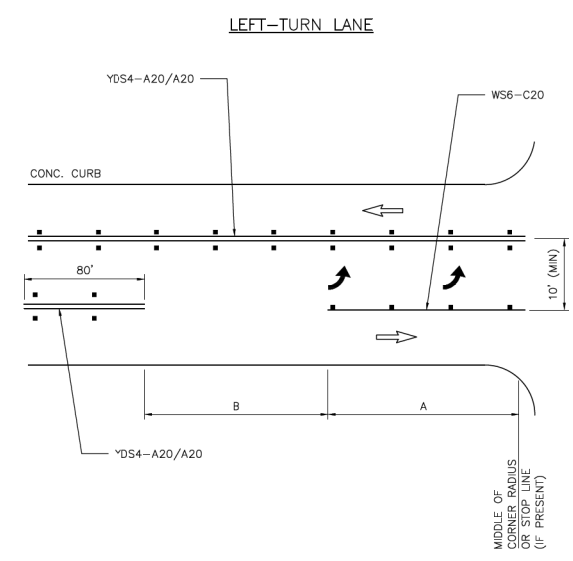
APPROVED BY: <i>Suhail Hassan</i> CITY ENGINEER	APPROVED BY: <i>KARIM NGHEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-12
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
TYPICAL CROSSWALK DETAILS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEANEY 175563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 TYPICAL CROSSWALK DETAILS	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 223 OF 355	

REVISIONS	APP.
No.	DATE

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- GENERAL NOTES:**
1. THE DIMENSIONS GIVEN FOR DUAL LEFT (RAISED MEDIAN) ON THIS SHEET ARE ALSO APPLICABLE FOR DUAL RIGHT-TURN LANES.
 2. STORAGE LENGTHS LONGER THAN THE MINIMUMS LISTED ON THIS DRAWING MAY BE DETERMINED USING TRAFFIC ENGINEERING ANALYSIS.
 3. FOR THE PLACEMENT OF PAVEMENT ARROWS AND WORDS REFER TO 02760-02 - LEFT/RIGHT TURN "ONLY" AND ARROW SPACING.
 4. REFER TO APPLICABLE STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKERS FOR POSITION GUIDANCE AND LEFT-TURN & RIGHT-TURN LANE STANDARD PAVEMENT MARKINGS WITH REFLECTIVE RAISED PAVEMENT MARKINGS.
 5. REFER TO BICYCLE LANE PAVEMENT MARKINGS STANDARD FOR TYPE AND PLACEMENT.

- LEFT TURN BAY NOTES:**
1. LEFT TURN BAY DIMENSIONS
 - A = 150' MINIMUM AT INTERSECTION OF TWO (2) MAJOR STREETS WHEN PRACTICAL.
 - = 100' MINIMUM AT ALL OTHER INTERSECTIONS.
 - B = 100' MINIMUM ON STRAIGHT ROADWAYS.
 - *TAPER LENGTH MAY BE SHORTER IF IT IS ON A HORIZONTAL CURVE TO THE LEFT.
 - *TAPER LENGTH MAY BE LONGER IF CURVE IS TO THE RIGHT.
 2. DIMENSIONS SHALL BE ADJUSTED AS DETERMINED BY CITY OF HOUSTON TRAFFIC ENGINEER.
 3. REFER TO CITY OF HOUSTON INFRASTRUCTURE DESIGN MANUAL (FIGURE 10.8) FOR DETAILS.

APPROVED BY: <i>Sigal Hanover</i> CITY ENGINEER	APPROVED BY: <i>LeBing Nguyen</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hubbard</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-13
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
LEFT-TURN LANE & RIGHT-TURN LANE DESIGN	
SHEET 01 OF 02 FOR CITY OF HOUSTON USE ONLY.	
DRAWING SCALE	
NOT TO SCALE	

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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DAVID G. CHEZANEY
172563
2/20/2024
100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD
IMPROVEMENTS - SEGMENT 1
LEFT-TURN LANE & RIGHT-TURN
LANE DESIGN

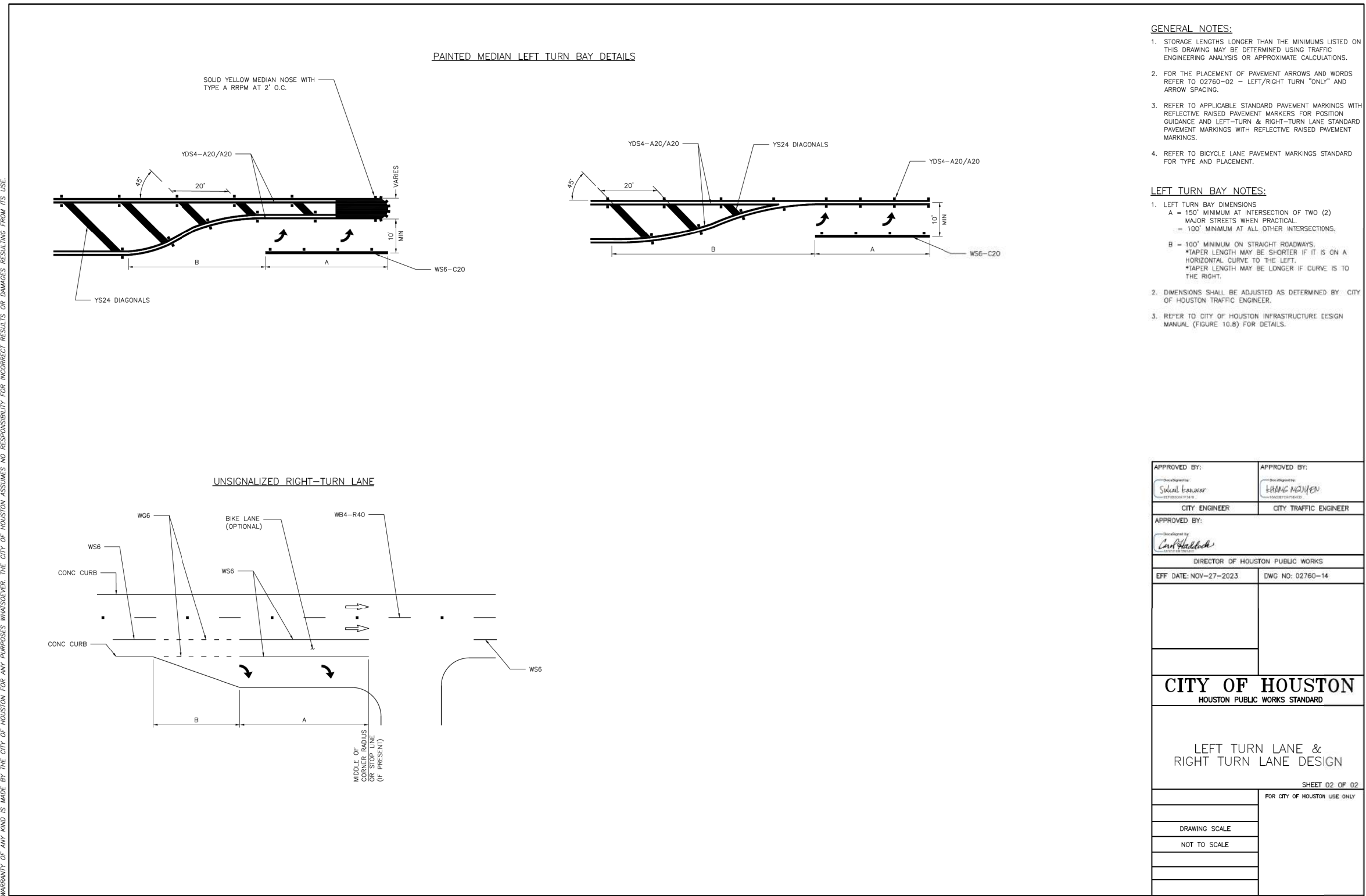
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 224 OF 355	

No.	DATE	REVISIONS	APP.

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APPROVED BY: <i>Suzan Egan</i> CITY ENGINEER	APPROVED BY: <i>HANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Chris Hallock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-14
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
LEFT TURN LANE & RIGHT TURN LANE DESIGN	
SHEET 02 OF 02	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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DAVID G. CHEZANEY
 172563
 2/20/2024
 100% SUBMITTAL
GAUGE ENGINEERING
 Texas Registered Engineering Firm F-2017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 LEFT-TURN LANE & RIGHT-TURN LANE DESIGN

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO 225 OF 355	

No.	DATE	REVISIONS	APP.

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TRUCKS 9.5' (±.5) 4"	NEXT 7.5' (±.5) 4"	YIELD 7.0' (±.5) 4"	MERGE 8.0' (±.5) 4"	EXIT 6.5' (±.5) 4"	STOP 6.0' (±.5) 4"	ONLY 6.0' (±.5) 4"
SCHOOL 9.5' (±.5) 4"	SIGNAL 8.5' (±.5) 4"	TURN 6.5' (±.5) 4"	LANE 6.5' (±.5) 4"	ENDS 7.5' (±.5) 4"	PED 5.0' (±.5) 4"	
ZONE 6.5' (±.5) 4"	AHEAD 8.0' (±.5) 4"	RIGHT 8.5' (±.5) 4"	LEFT 6.5' (±.5) 4"	ROUTE 8.0' (±.5) 4"	X-ING 8.0' (±.5) 4"	
1234567890 8.0' (±.5) 4"	MPH 6.0' (±.5) 4"	BUS 6.0' (±.5) 4"	HERE 8.0' (±.5) 4"			

APPROVED BY: <i>Suhail Ibrahim</i> CITY ENGINEER	APPROVED BY: <i>DAVID G. CHEZANEY</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hedrick</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-03
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
STANDARD PAVEMENT MARKING - (WORDS)	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

 MONTR0SE TAX INCREMENT REINVESTMENT ZONE 27	
 Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEZANEY 125563 2/20/2024 <small>100% SUBMITTAL</small> GAUGE ENGINEERING Texas Registered Engineering Firm F-2017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1	
STANDARD PAVEMENT MARKING - (WORDS)	
SHEET 1 OF 1	
WBS NUMBER N-127000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 226 OF 355	

No.	DATE	REVISIONS	APP.

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NOTES FOR PAVEMENT MARKINGS "SYMBOLS" AND "ARROWS":

- 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.
- THESE DETAILS ARE STANDARD SIZE FOR NORMAL INSTALLATION; SIZES MAY BE REDUCED APPROXIMATELY ONE-THIRD DEPENDING ON CONDITIONS. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR REDUCTION BELOW ONE-THIRD OF STANDARD SIZES.
- THE LONGITUDINAL SPACE BETWEEN MARKINGS SHOULD BE 30 FEET, OR AS INDICATED ON THE PLANS.
- MARKINGS CONSIDERED APPROPRIATE FOR USE WHEN WARRANTED INCLUDE THE FOLLOWING:
 - A. REGULATOR
 - STOP
 - RIGHT (LEFT) TURN ONLY, SYMBOL ARROWS.
 - B. WARNING
 - STOP AHEAD
 - SIGNAL AHEAD
 - SCHOOL
 - SCHOOL X-ING
 - PED X-ING
 - R X R (SEE SHEET 02760-08 DETAILS)
 OTHER WORDS OR SYMBOLS MAY BE NECESSARY UNDER CERTAIN CONDITIONS. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR SPECIAL CONDITIONS.
- UNCONTROLLED USE OF PAVEMENT MARKINGS CAN RESULT IN DRIVER CONFUSION. WORD AND SYMBOL MARKINGS SHOULD BE NO MORE THAN THREE LINES.
- 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).
- 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 VII OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
- SPACING BETWEEN STANDARD SIZE LETTERS SHOULD BE 4 INCHES (MIN). 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".
- LANE-USE ARROW MARKINGS MAY BE USED TO CONVEY EITHER GUIDANCE OR MANDATORY MESSAGES. SINGLE TURN ARROWS USED TO CONVEY A MANDATORY MOVEMENT MUST BE ACCOMPANIED STANDARD SIGNS AND THE PAVEMENT MARKING WORD "ONLY".
- PAVEMENT MARKINGS ARE TO BE LOCATED AS SPECIFIED IN THE DESIGN PLANS.

REFLECTIVE PM TY C PREFORM SOLID GREEN

APPROVED BY: <i>Sahar Khanwar</i> CITY ENGINEER	APPROVED BY: <i>HANG HOUGH</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-04
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
STANDARD PAVEMENT MARKING - SYMBOLS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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DAVID G. CHEANEY
 125563
 2/20/2024
 100% SUBMITTAL
 GAUGE ENGINEERING
 Texas Registered Engineering Firm F-20017

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

STANDARD PAVEMENT MARKING - SYMBOLS

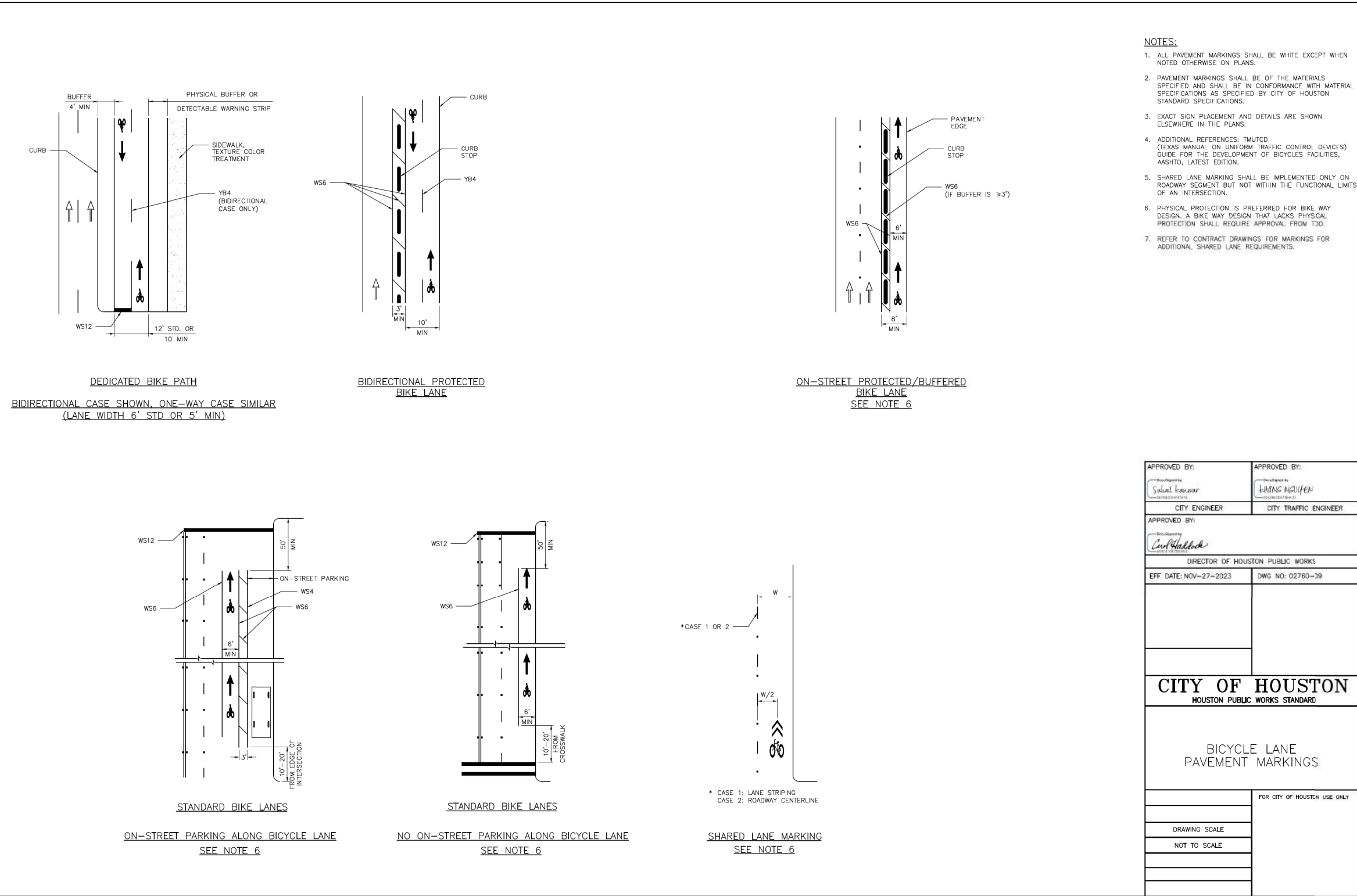
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 227 OF 355	

No.	DATE	REVISIONS	APP.

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- NOTES:**
1. ALL PAVEMENT MARKINGS SHALL BE WHITE EXCEPT WHEN NOTED OTHERWISE ON PLANS.
 2. PAVEMENT MARKINGS SHALL BE OF THE MATERIALS SPECIFIED AND SHALL BE IN CONFORMANCE WITH MATERIAL SPECIFICATIONS AS SPECIFIED BY CITY OF HOUSTON STANDARD SPECIFICATIONS.
 3. EXACT SIGN PLACEMENT AND DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.
 4. ADDITIONAL REFERENCES: TMUTCD (TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) GUIDE FOR THE DEVELOPMENT OF BICYCLES FACILITIES, AASHTO, LATEST EDITION.
 5. SHARED LANE MARKING SHALL BE IMPLEMENTED ONLY ON ROADWAY SEGMENT BUT NOT WITHIN THE FUNCTIONAL LIMITS OF AN INTERSECTION.
 6. PHYSICAL PROTECTION IS PREFERRED FOR BIKE WAY DESIGN. A BIKE WAY DESIGN THAT LACKS PHYSICAL PROTECTION SHALL REQUIRE APPROVAL FROM TxDOT.
 7. REFER TO CONTRACT DRAWINGS FOR MARKINGS FOR ADDITIONAL SHARED LANE REQUIREMENTS.

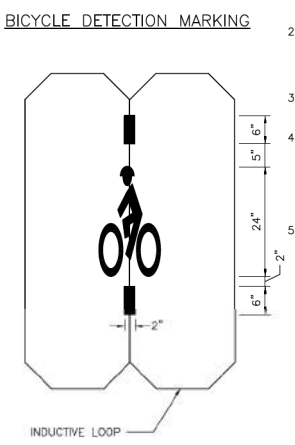
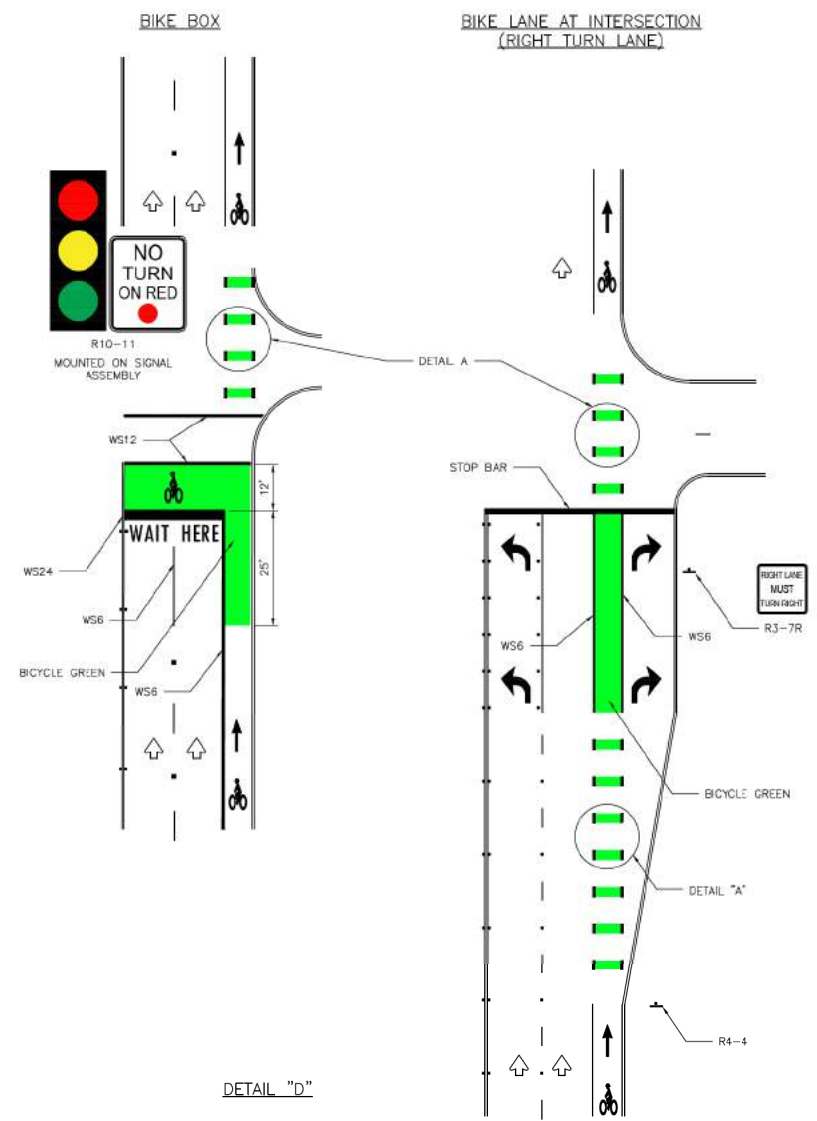
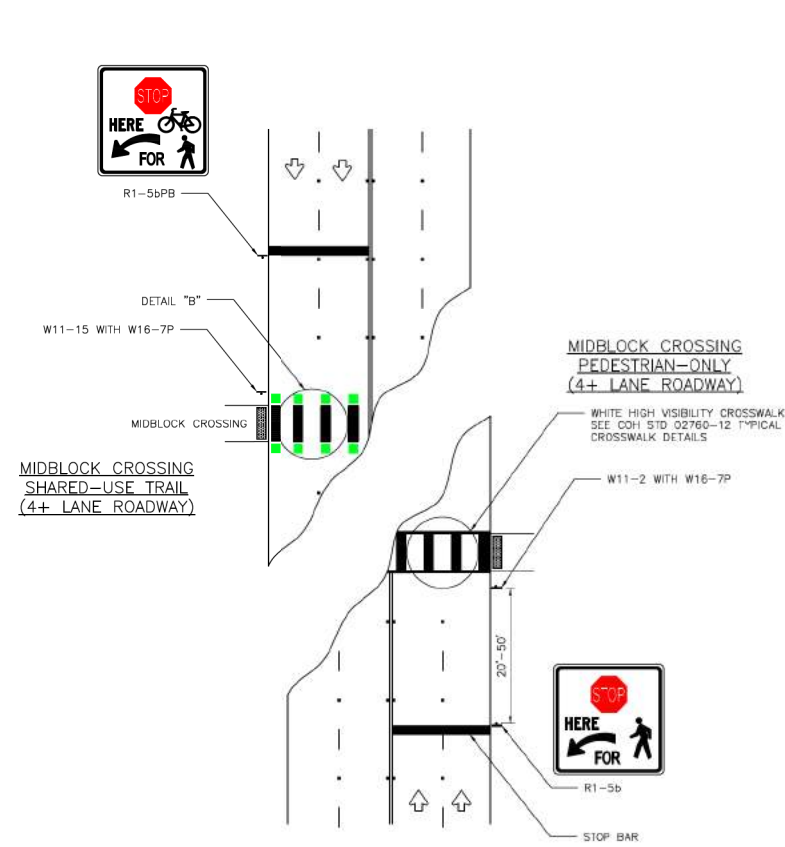
APPROVED BY: <i>Srinivas Kanna</i> CITY ENGINEER	APPROVED BY: <i>LEUNG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carroll</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-39
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
BICYCLE LANE PAVEMENT MARKINGS	
FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEZANEY 125563 2/20/2024
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1	
BICYCLE LANE PAVEMENT MARKINGS	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 228 OF 355	

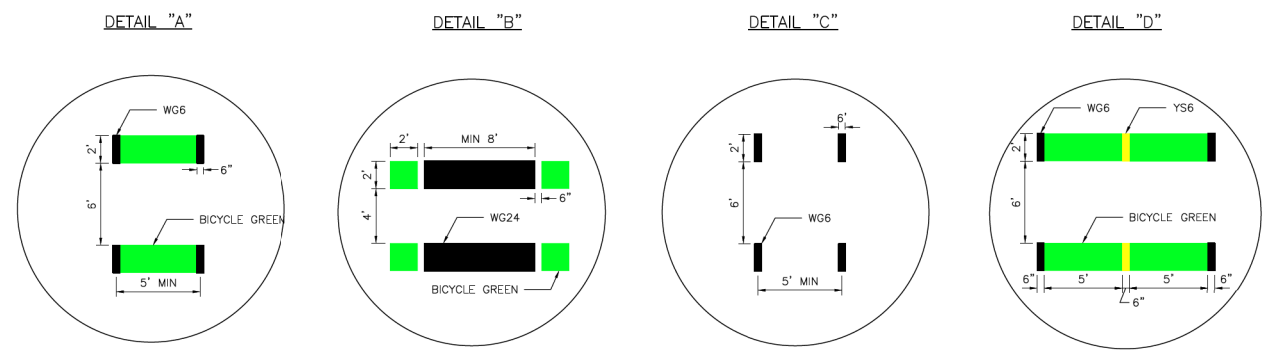
No.	DATE	REVISIONS	APP.

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USE OF TREATMENTS ON THIS SHEET MUST BE PRE-APPROVED BY THE CITY TRAFFIC ENGINEER



- NOTE:**
- ALL PAVEMENT MARKINGS SHALL BE WHITE EXCEPT WHEN NOTED OTHERWISE ON PLANS.
 - PAVEMENT MARKINGS SHALL BE OF THE MATERIALS SPECIFIED AND SHALL BE IN CONFORMANCE WITH MATERIAL SPECIFICATIONS AS SPECIFIED BY CITY OF HOUSTON STANDARD SPECIFICATIONS.
 - WHERE NOT SHOWN ON THIS SHEET, SIGN PLACEMENT AND DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.
 - ADDITIONAL REFERENCES (LATEST EDITION):
 1. TMUTCD (TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES)
 2. GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, AASHTO
 3. URBAN BIKEWAY DESIGN GUIDE, NACTO
 - FOR PLACEMENT OF PAVEMENT ARROWS AND WORDS SEE COH STD 02760-13 & 02760-14 LEFT-TURN LANE & RIGHT TURN LANE DESIGN.



APPROVED BY: <i>Sulaim Hanaway</i> CITY ENGINEER	APPROVED BY: <i>TRANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hubbard</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 02760-10
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
BICYCLE INTERSECTION TREATMENTS	
SHEET 01 OF 02 FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
NOT TO SCALE	

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG.# 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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DAVID G. CHEZANEY
172563
2/20/2024
100% SUBMITTAL
GAUGE ENGINEERING
Texas Registered Engineering Firm F-20017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

BICYCLE INTERSECTION TREATMENTS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 229 OF 355	

No.	DATE	REVISIONS	APP.

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APPROVED BY: <i>Sahar Khanwar</i> CITY ENGINEER	APPROVED BY: <i>WANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Haddock</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01554-05A
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
HOUSTON BIKEWAY SIGNAGE	
SHEET 01 OF 02 FOR CITY OF HOUSTON USE ONLY	
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

HOUSTON BIKEWAY SIGNAGE

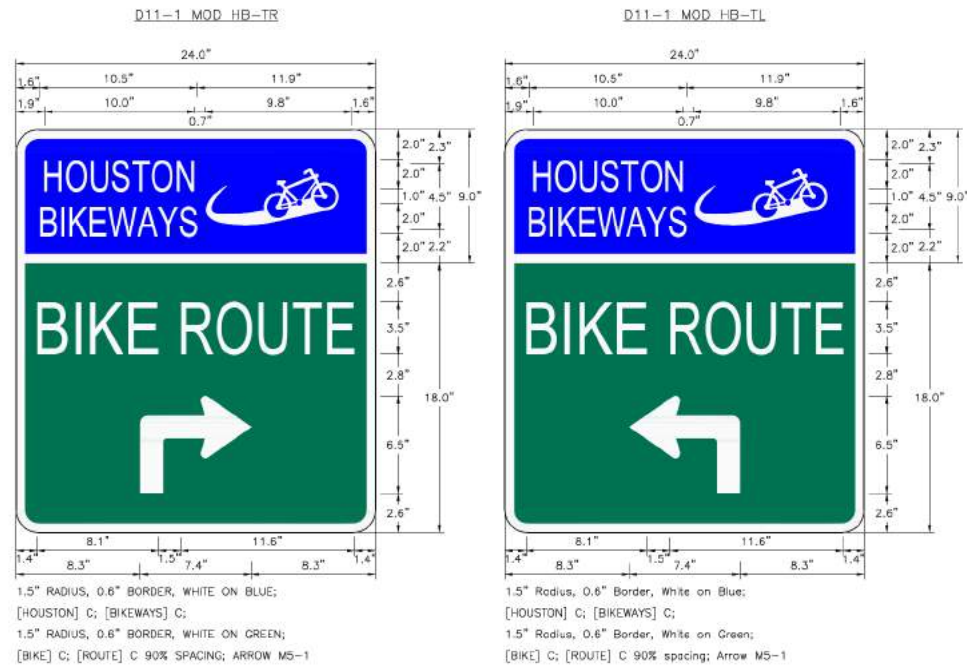
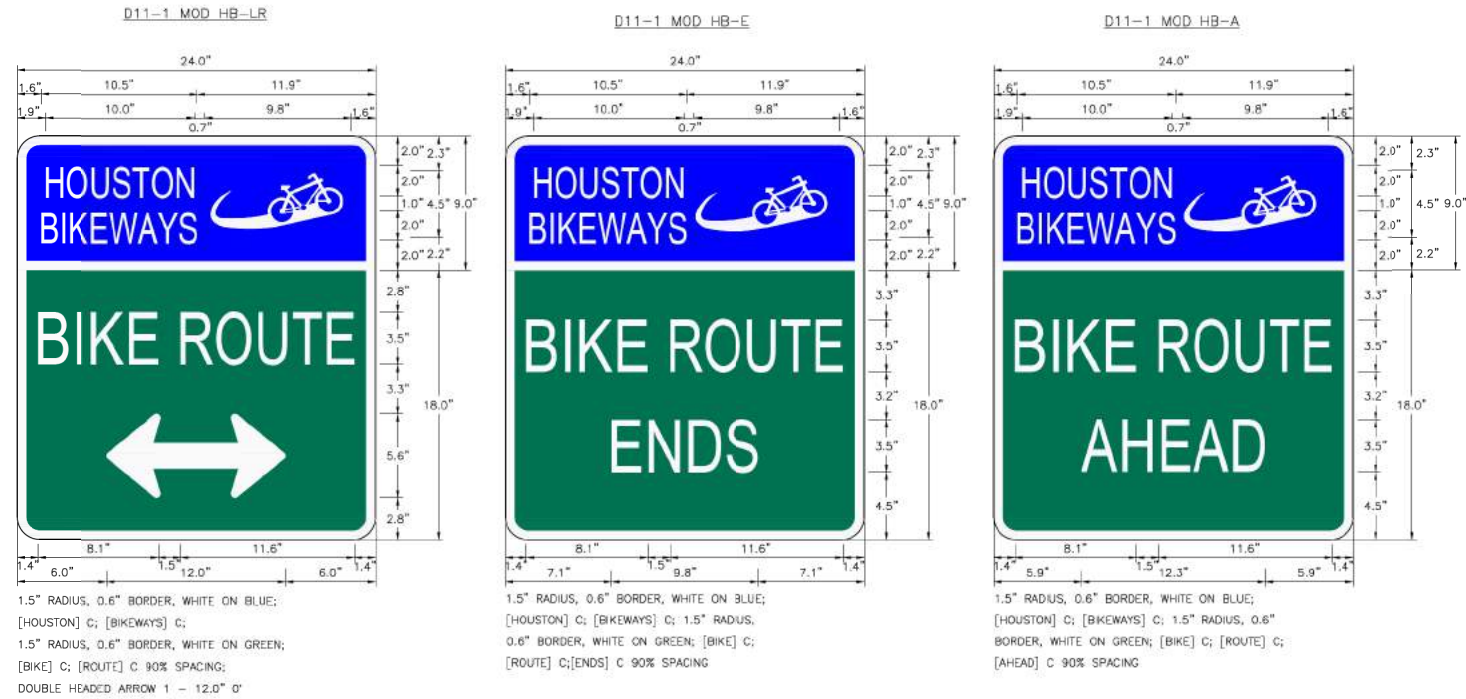
SHEET 1 OF 2

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AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
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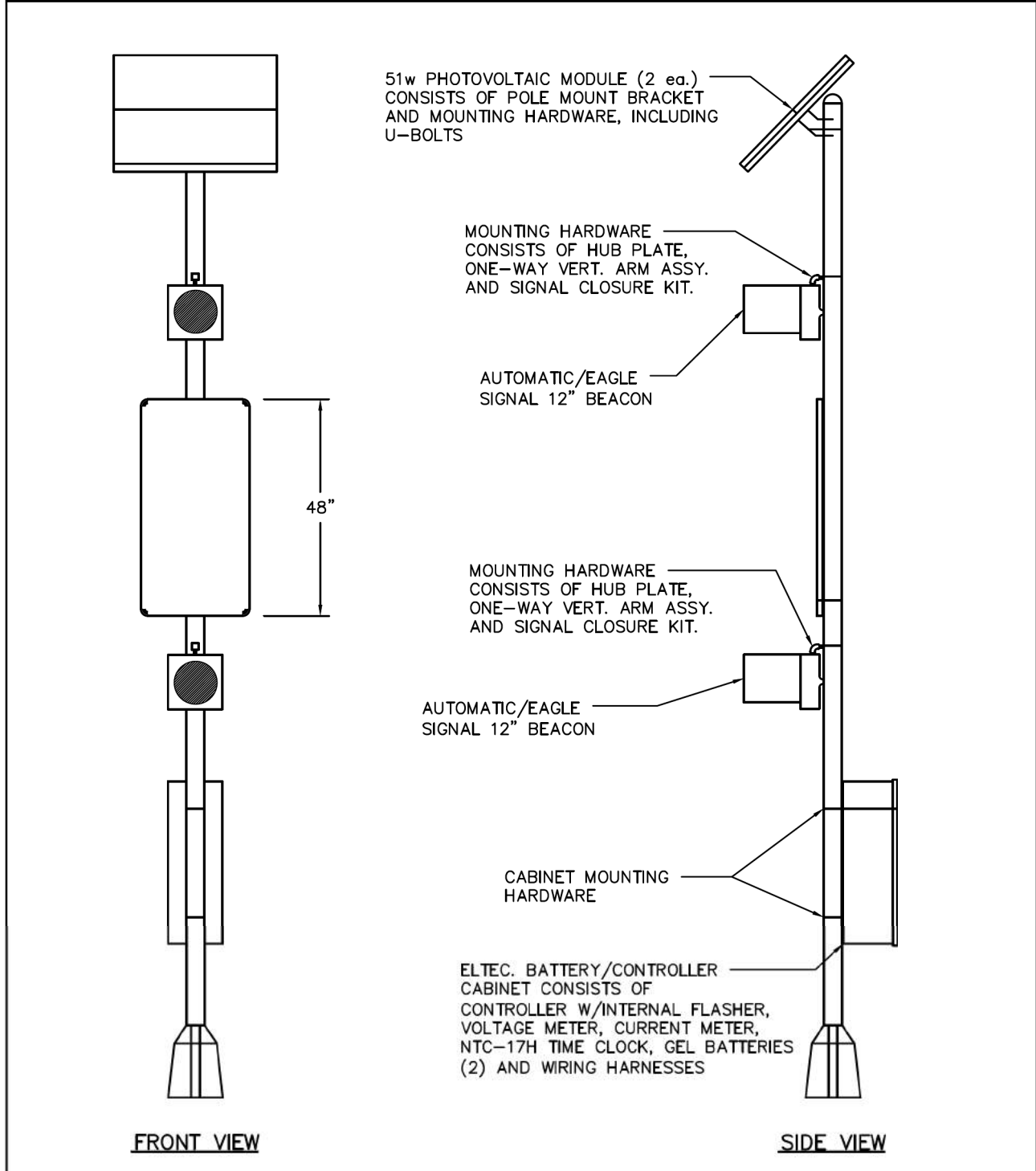


APPROVED BY: <i>Suzal Kassar</i> CITY ENGINEER	APPROVED BY: <i>LIANG NGUYEN</i> CITY TRAFFIC ENGINEER
APPROVED BY: <i>Carl Hubbard</i> DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01554-05B
CITY OF HOUSTON HOUSTON PUBLIC WORKS STANDARD	
HOUSTON BIKEWAY SIGNAGE	
SHEET 02 OF 02 FOR CITY OF HOUSTON USE ONLY	
DRAWING SCALE	
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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG.# 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEZANEY 175563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-20017
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MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1 HOUSTON BIKEWAY SIGNAGE	
SHEET 2 OF 2	
WBS NUMBER N-127000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 231 OF 355	

No.	DATE	REVISIONS	APP.

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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS STANDARD

SOLAR POWERED SCHOOL ZONE FLASHING BEACON
 (SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: <i>Suhail Kanwar</i> 9EF8B0C841F5478 CITY ENGINEER	DocuSigned by: <i>KANG NGUYEN</i> 65A28EFD75B4CD CITY TRAFFIC ENGINEER	DocuSigned by: <i>Carol Haddock</i> A93C410B72B3453 DIRECTOR OF HPW
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EFF DATE: NOV-27-2023 DWG NO: 16712-03

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of: DAVID G. CHEANEY 172563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineering Firm F-2017
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 SOLAR POWERED SCHOOL ZONE FLASHING BEACON	
SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 232 OF 355	



No.	DATE	REVISIONS	APP.

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1. ALL EQUIPMENT / MATERIALS AND CONSTRUCTION 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.
2. ALL ELECTRICAL WORK SHALL BE IN CONFORMANCE WITH THE PROVISIONS AND REQUIREMENTS OF THE CITY ELECTRICAL CODE.
3. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
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.
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.
6. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REPRESENTATIVE TO ARRANGE FOR METER AND ELECTRICAL SERVICE CONNECTION FROM THE POWER COMPANY.
7. ALL PEDESTRIAN PUSH BUTTON ASSEMBLIES SHALL MEET ADA REQUIREMENTS. THE SIGNS THAT SHALL BE USED ARE IDENTIFIED IN THE TMUTCD AS R10-3E. CITY OF HOUSTON STANDARDS FOR PEDESTRIAN FACILITIES SHALL BE MET IN ADDITION TO ANY TEXAS ACCESSIBILITY STANDARDS BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATION (TDLR).
8. PEDESTRIANS PUSH BUTTONS SHALL BE SEPARATED BY A MINIMUM OF 10 FEET. EXCEPTIONS ONLY AS SPECIFIED BY THE ENGINEER WITH AUTHORIZATION FROM THE APPROVED CITY OF HOUSTON REPRESENTATIVE.
9. 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.
10. 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.
11. NO POLES SHALL BE LOCATED IN WHEELCHAIR RAMPS OR SUCH THAT THEY ARE AN OBSTRUCTION TO PEDESTRIANS OR WHEELCHAIRS.
12. THE TOP OF THE POLE FOUNDATION SHALL BE LEVELED 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. GROUTING SHALL BE USED TO FILL ANY GAP BETWEEN THE POLE BASE AND FOUNDATION.
13. POLES SHALL BE LOCATED SUCH THAT ALL PORTIONS OF THE POLES AND ATTACHED EQUIPMENT HAVE CLEARANCES FROM OVERHEAD UTILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL UTILITY AND THE NATIONAL ELECTRICAL SAFETY CODE (NEC).
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.
15. UNDERGROUND CONDUIT FOR SIGNAL CABLE SHALL BE EITHER RIGID STEEL, HOT-DIPPED GALVANIZED CONDUIT OR SCHEDULE 80 ELECTRICAL PVC CONDUIT OF THE DIAMETER SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. ALL COUPLINGS AND CONNECTIONS SHALL BE TIGHT AND WATERPROOF.
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.
17. ONLY NEW CONDUIT AND CABLE SHALL BE INSTALLED.
18. CONDUIT INSTALLED UNDER EXISTING PAVED DRIVEWAYS, ROADWAYS OR SIDEWALKS, WHICH ARE NOT SCHEDULED TO BE RECONSTRUCTED AS PART OF THIS PROJECT, SHALL BE INSTALLED BY MEANS OF BORING. THE CONTRACTOR SHALL NOT CUT OPEN ANY STREET OR DRIVEWAY FOR CONDUIT INSTALLATION WITHOUT THE PRIOR APPROVAL OF THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REPRESENTATIVE.
19. CONDUIT NOT PLACED UNDER PAVED DRIVEWAYS, ROADWAY PAVEMENT OR SIDEWALK MAY BE PLACED BY CUTTING A TRENCH, INSTALLING THE CONDUIT AND BACKFILLING. ANY TRENCHING FOR CONDUIT WIDER THAN THREE (3) INCHES SHALL BE RESODDED.

20. PULL BOXES SHALL NOT BE INSTALLED WITHIN CONCRETE CURB ACCESS RAMPS. IN ADDITION, ANY PULL BOXES INSTALLED BEHIND CURBS SHALL BE INSTALLED BETWEEN THE CURB AND THE PROPOSED / FUTURE SIDEWALK OR BEYOND THE PROPOSED / FUTURE SIDEWALK. AN EXCEPTION TO THIS NOTE WOULD BE PULL BOXES INSTALLED IN A MEDIAN. ANY PULL BOXES INSTALLED ALONG AN UNCURBED ROADWAY SHALL BE INSTALLED ADJACENT TO, BUT NOT WITHIN, THE SHOULDER. DRAINAGE AREAS SHOULD BE AVOIDED WHEN PLACING JUNCTION BOXES.
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.
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.
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. THE HIGH VOLTAGE CABLES SHOULD BE SEPARATED FROM THE LOW VOLTAGE CABLES AS MUCH AS POSSIBLE.
27. 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.
28. 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.
29. DETECTION LOOP SAW CUTS SHALL BE FLUSHED WITH WATER UNDER PRESSURE AND THEN DRIED WITH AIR UNDER PRESSURE.
30. 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.
31. THE EMERGENCY VEHICLE PRE-EMPTION SENSOR CABLE SHALL BE OPTICOM DETECTOR CABLE MODEL NO. 138. THE CABLE SHALL NOT BE SPLICED.
32. ALL VEHICLE AND PEDESTRIAN INDICATIONS SHALL BE LED.
33. 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.
34. THE TRAFFIC SIGNAL OPERATION AT EXISTING SIGNALIZED INTERSECTIONS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT.
35. 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.
36. ALL CROSSWALK MARKINGS SHALL BE 10-FT. WIDE FOLLOWING CITY OF HOUSTON STANDARD DETAILS
37. ALL CONSTRUCTION SIGNING AND CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
38. THE CONTRACTOR SHALL USE A BICYCLE TO TEST ALL BICYCLE DETECTION ZONES (VIVDS AND LOOP DETECTION).
39. CONTRACTOR WILL PROTECT EXISTING SIGNAL POLES DURING CONSTRUCTION THAT ARE TO REMAIN IN PLACE.

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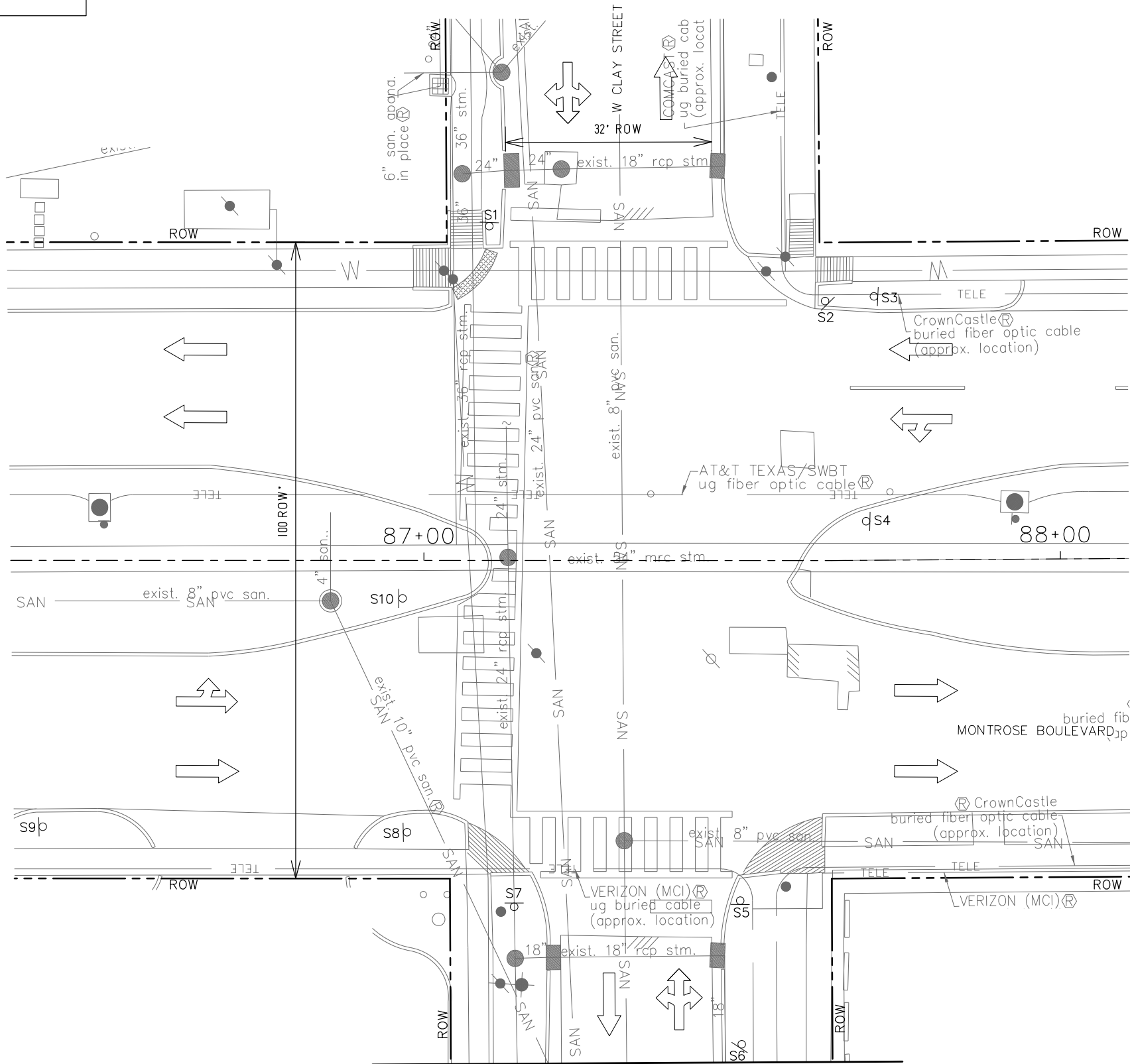
	
 TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purposes of interim review under the authority of:</small> BRADLEY G. ZEAVES 91759 2/16/2024 100% SUBMITTAL TEI Planning + Design Texas Registered Engineering Firm F-3158
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1	
TRAFFIC SIGNAL GENERAL NOTES SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
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SHEET NO. 234 OF 355	

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EXISTING SPEED LIMITS
 MONTROSE BOULEVARD = 35 MPH
 W CLAY STREET = 30 MPH

EXISTING SIGNS

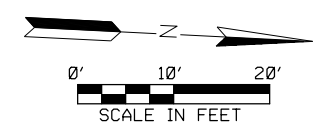
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- S2 = R7-2(1)(R) NO PARKING SIGN
- S3 = S1-1 SCHOOL SIGN, W16-7P(L) DIAGONAL ARROW PLAQUE
- S4 = S1-1 SCHOOL SIGN, W16-7P(R) DIAGONAL ARROW PLAQUE
- S5 = R1-1 STOP SIGN, STREET NAME SIGN "Montrose BLVD 1200", STREET NAME SIGN "W Clay ST 1000"
- S6 = R7-2(1)(LR) NO PARKING SIGN, R7-201P TOW AWAY ZONE PLAQUE
- S7 = R5-2(2) "NO THRU TRUCKS"
- S8 = S1-1 SCHOOL SIGN, W16-7P(L) DIAGONAL ARROW PLAQUE
- S9 = "MUSEUM OF PRINTING HISTORY" WAYFINDING SIGN
- S10 = S1-1 SCHOOL SIGN, W16-7P(R) DIAGONAL ARROW PLAQUE



MATCHLINE W CLAY ST A-A

LEGEND

- ➔ VEHICLE SIGNAL HEAD
- ⊠ VIVDS VEHICLE DETECTOR ZONE
- ⊠ VIVDS BIKE DETECTOR ZONE
- ⊠ VIVDS DETECTOR
- ⊠ OPTICOM
- ⊠ POLE W/ MAST ARM
- ⊠ PEDESTRIAN SIGNAL HEAD
- ⊠ PEDESTRIAN PUSH BUTTON
- ⊠ PEDESTRIAN POLE
- ⊠ PULL BOX - TYPE A
- ⊠ PULL BOX - TYPE B
- ⊠ PULL BOX - TYPE C
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- ✱ LUMINAIRE
- ⊠ MAST ARM SIGN
- ⊠ CONTROLLER CABINET WITH BBU
- ⊠ ELECTRICAL SERVICE



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
 valid for one year.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

teip
 Planning + Design
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 HOUSTON, TX 77002

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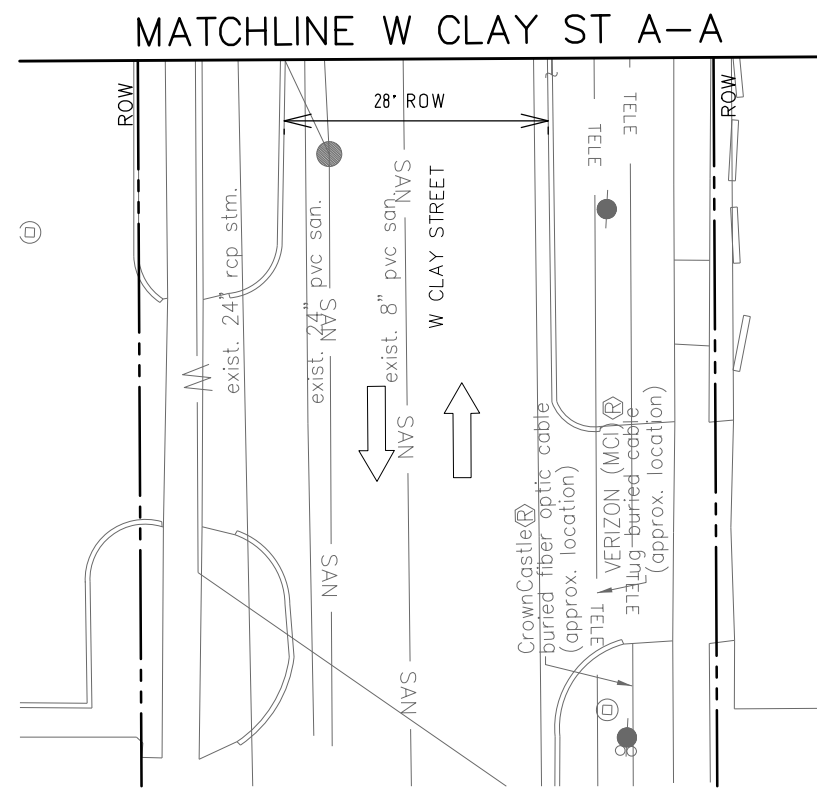
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 HOUSTON PUBLIC WORKS

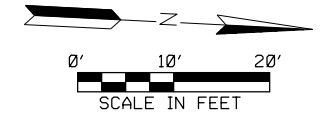
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT MONTROSE BLVD AT W CLAY ST SIGNAL
EXISTING CONDITIONS
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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JIADA HUANG	
SHEET NO. 235 OF 355	

APP.	
REVISIONS	
No.	DATE



LEGEND	
	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE



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 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
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MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

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91779
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Texas Registered Engineering Firm F-3158

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HOUSTON PUBLIC WORKS

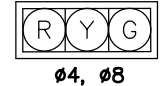
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W CLAY ST SIGNAL
 EXISTING CONDITIONS
 SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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SHEET NO. 236 OF 355	

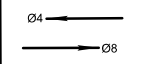

No.	DATE	REVISIONS	APP.

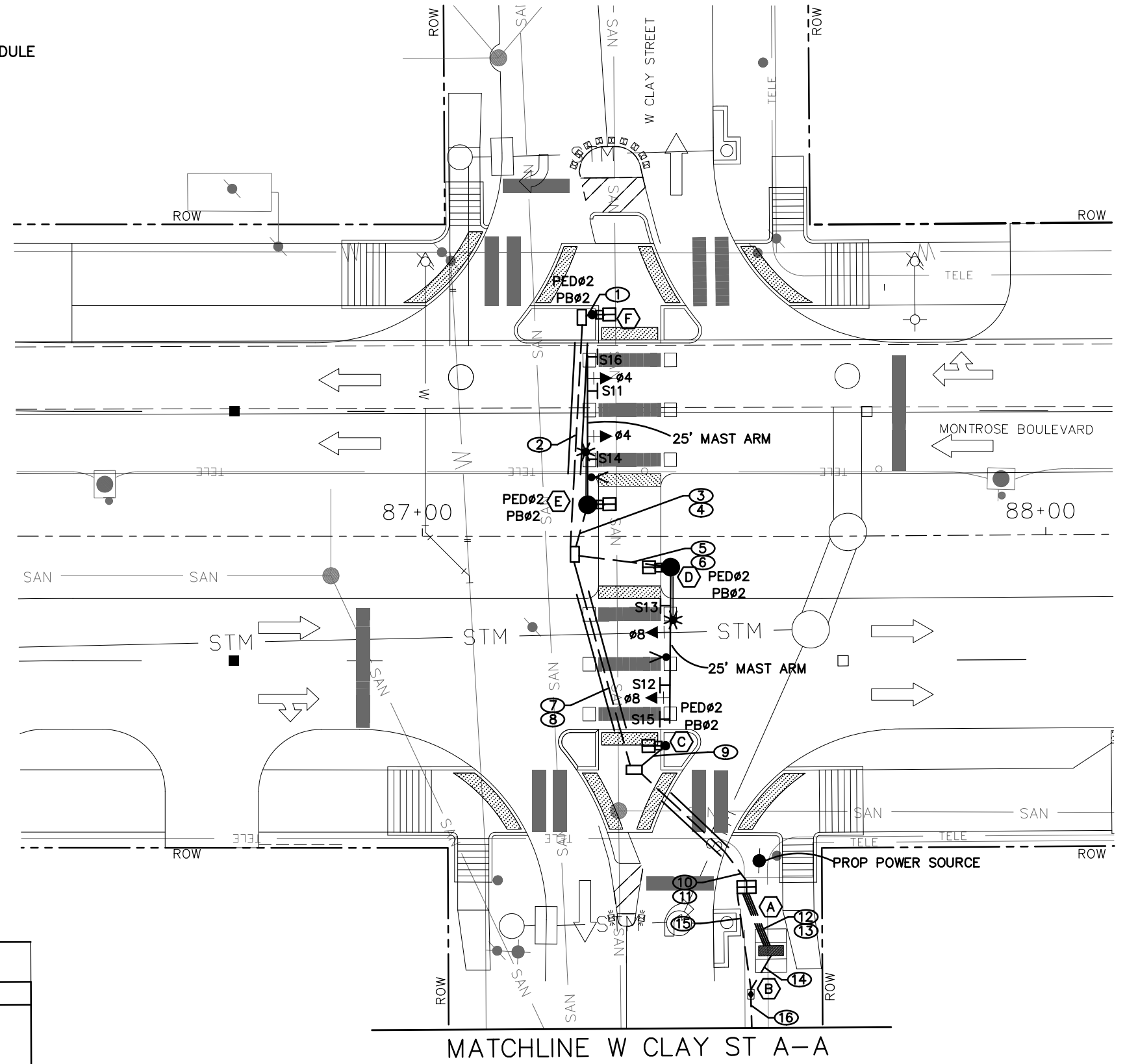
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PROPOSED SPEED LIMITS
 MONTROSE BOULEVARD = 30 MPH
 W CLAY STREET = 30 MPH

PROPOSED SIGNAL HEAD SCHEDULE
 ONE-WAY
 3-SECTION HORIZONTAL
 12" LED H3 SIGNAL HEAD


PROPOSED SIGN SCHEDULE
 S11 = STREET NAME "W Clay ST",
 BLOCK NUMBER 1100
 S12 = STREET NAME "W Clay ST",
 BLOCK NUMBER 1000
 S13 = R3-2 "NO LEFT TURNS"
 S14 = R3-2 "NO LEFT TURNS"
 S15 = R10-11 "NO TURN ON RED"
 S16 = R10-11 "NO TURN ON RED"

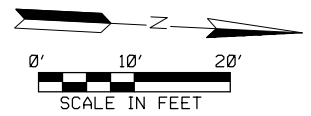
PROPOSED TRAFFIC SIGNAL PHASING	
Ø4 + Ø8	Ø2PED
	



MATCHLINE W CLAY ST A-A

LEGEND

	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature _____ Date _____
 valid for one year.




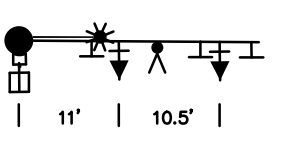
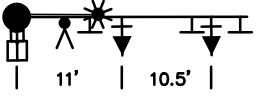

 TEI Planning + Design TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is intended for informational purposes only. Interim review under the authority of:</small> BRADLEY G. ZAVES 91759 2/16/2024
	SURVEYED BY: KUO & ASSOCIATES, INC. 100% SUBMITTAL TEI Planning + Design Texas Registered Engineering Firm F-3158

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W CLAY ST SIGNAL LAYOUT
 SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 237 OF 355	

POLE SCHEDULE



POLE NUMBER	POLE TYPE	ATTACHMENTS		SIGNALS		LUMINAIRE TYPE	PED PB TYPE/SIGN	REMARKS	LOCATION	STANDARDS
		STRAIN	LUMIN	MTG.	FACE					
	15' PED POLE	-	-	1-PED	1-CDP	-	POLARA NAVIGATOR R10-3e(L)	-	STA 87+39.0 OFF 33.6' RT	02893-02 02893-03 02893-07
	TYPE 1	25' MAST ARM	YES	2-ASTROBRAC 1-PED	2-H3 1-CDP	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	POLARA NAVIGATOR R10-3e(R)	SIGN 12 - STREET NAME SIGN 13 - R3-2 (36"x36") SIGN 15 - R10-11 PRE-EMPT SENSOR	STA 87+39.8 OFF 5.0' RT	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09
	TYPE 1	25' MAST ARM	YES	2-ASTROBRAC 1-PED	2-H3 1-CDP	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	POLARA NAVIGATOR R10-3e(R)	SIGN 11 - STREET NAME SIGN 14 - R3-2 (36"x36") SIGN 16 - R10-11 PRE-EMPT SENSOR	STA 87+26.5 OFF 5.0' LT	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09
	15' PED POLE	-	-	1-PED	1-CDP	-	POLARA NAVIGATOR R10-3e(L)	-	STA 87+27.3 OFF 35.5' LT	02893-02 02893-03 02893-07

LEGEND


- VEHICLE SIGNAL HEAD
- WVDS VEHICLE DETECTOR ZONE
- WVDS BIKE DETECTOR ZONE
- WVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
- PULL BOX - TYPE B
- PULL BOX - TYPE C
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- LUMINAIRE
- MAST ARM SIGN
- CONTROLLER CABINET WITH BBU
- ELECTRICAL SERVICE

REVISIONS	DATE	APP.


TRAFFIC SIGNAL CONTROLLER

CABINET	TYPE	CONTROLLER	AUX. CONTROL	REMARKS	LOCATION	STANDARDS
	UL TYPE 3R	METERED SERVICE PEDESTAL WITH 30 AMP & 60 AMP CIRCUIT BREAKERS STREET LIGHTS PHOTOCELL TO ADD TO SERVICE PANEL	-	PROVIDE METER SOCKET WINDOW 4"H X 6"W	STA 87+53.8 OFF 60.1' RT	02893-14
	TYPE 340 ITS	2070LX CONTROLLER WITH 2070-1C CPU MODULE, GPS SERIAL COMMUNICATIONS MODULE, AND UPS BBS	-	- STANDARD SPECS 16730, 16731 - UNINTERRUPTED POWER SUPPLY STANDARD SPEC 16732 - GPS SERIAL COMMUNICATION MODULE STANDARD SPEC 16785 - CELLULAR COMMUNICATION COMMUNICATION INSTALLATION DETAILS - FIELD HARDENED ETHERNET SWITCH (SIX COPPER PORTS ONLY) - STANDARD SPECIFICATION 16733	STA 87+55.9 OFF 66.5' RT	02893-10C

NOTES:
 1. METER SERVICE ADDRESS: 1092 1/2 W CLAY STREET. ESID: #1008901025003780050123
 2. SIGNAL POLES TO BE POWDER COATED - DARK GREEN.



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27



Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002

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BRADLEY G. FEAVES
91759
2/16/2024
100% SUBMITTAL
TEI Planning + Design
Texas Registered Engineering Firm F-3158

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W CLAY ST SIGNAL
POLE SCHEDULE
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 239 OF 355	

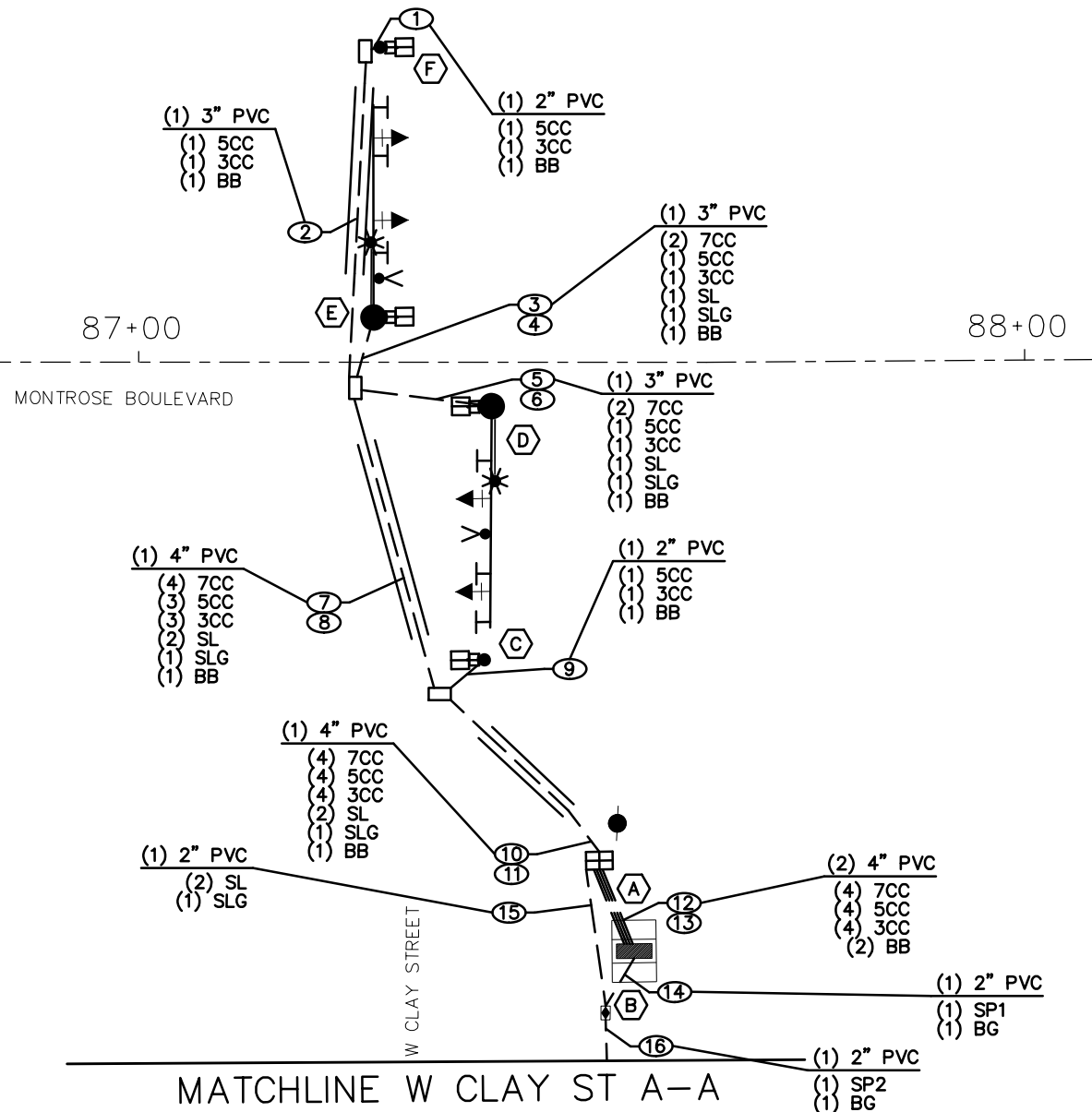
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HIGH VOLTAGE CIRCUIT

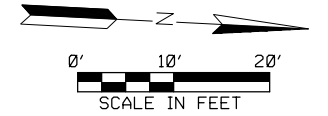
(X)Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
 (X) = NUMBER OF CABLES (SIGNAL)
 CC = #14 AWG SOLID CONDUCTOR CABLE
 SL = STREET LIGHTING, 2-#10 AWG XHHW
 BB = BARE BOND #8 AWG SOLID
 BG = BARE GROUND, #8 AWG SOLID
 SLG = STREET LIGHT GROUNDING FOR LUMINAIRE
 #12 AWG XHHW
 SP = SIGNAL POWER (SEE NOTES BELOW)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

NOTE:
 SP1 SHALL CONSIST OF: 6 - #4 AWG XHHW
 2 - WHITE,
 1 - BLACK
 1 - RED,
 2 - GREEN

SP2 SHALL CONSIST OF: 3 - #4 AWG XHHW



LEGEND	
	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

tei
Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002

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 BRADLEY G. LEAVES
 91759
 2/16/2024
 100% SUBMITTAL
 TEL Planning + Design
 Texas Registered Engineering Firm F-3158

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W CLAY ST SIGNAL
HIGH VOLTAGE WIRING
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 240 OF 355	

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REVISIONS	DATE	APP.

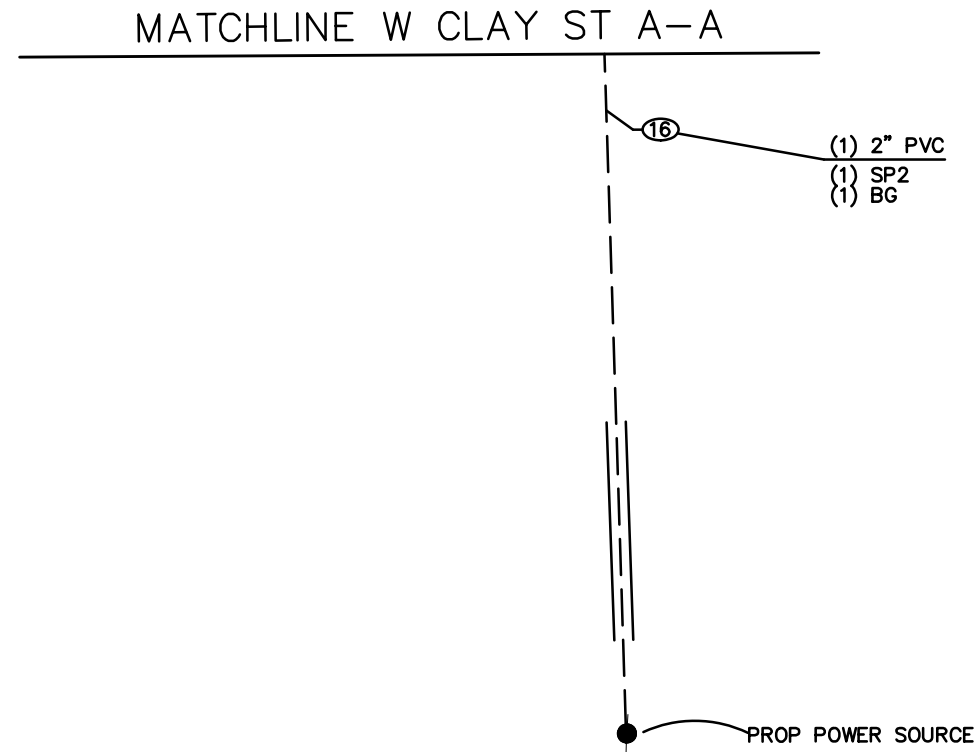
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HIGH VOLTAGE CIRCUIT

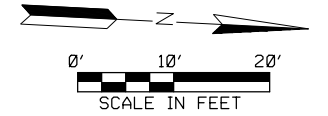
(X)Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
 (X) = NUMBER OF CABLES (SIGNAL)
 CC = #14 AWG SOLID CONDUCTOR CABLE
 SL = STREET LIGHTING, 2-#10 AWG XHHW
 BB = BARE BOND #8 AWG SOLID
 BG = BARE GROUND, #8 AWG SOLID
 SLG = STREET LIGHT GROUNDING FOR LUMINAIRE
 #12 AWG XHHW
 SP = SIGNAL POWER (SEE NOTES BELOW)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

NOTE:
 SP1 SHALL CONSIST OF: 6 - #4 AWG XHHW
 2 - WHITE,
 1 - BLACK
 1 - RED,
 2 - GREEN

SP2 SHALL CONSIST OF: 3 - #4 AWG XHHW



LEGEND	
	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE

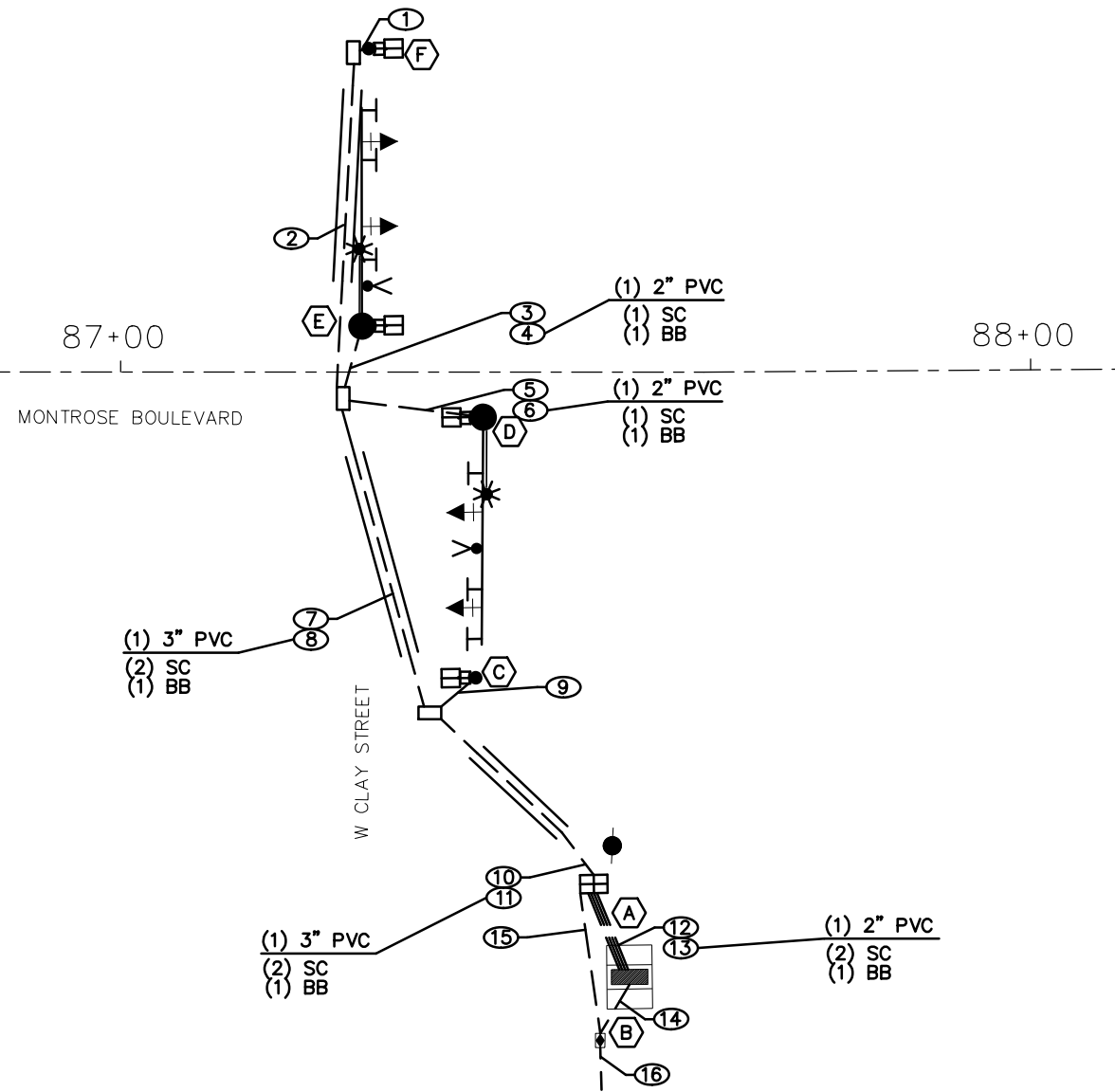


 TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purposes of interim review under the authority of:</small> BRADLEY G. EAVES, <small>Professional Engineer</small> 91759 2/16/2024 <small>100% SUBMITTAL</small> TEI Planning + Design <small>Texas Registered Engineering Firm F-3158</small>
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 MONTROSE BLVD AT W CLAY ST SIGNAL HIGH VOLTAGE WIRING SHEET 2 OF 2	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 241 OF 355	

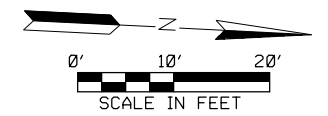
REVISIONS	DATE	APP.

LOW VOLTAGE CIRCUIT

(X)Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
 DLC = DETECTOR LEAD-IN CABLE, #14 AWG (IMSA 50-2-1984)
 SC = #20 3CC-SHIELDED CABLE (3M MODEL 138)
 CAT5 = CAT5E #24 AWG
 RLW = ROADWAY LOOP DETECTOR WIRE, #14 AWG (IMSA 51-5-1985)
 BB = BARE BOND #8 AWG SOLID



LEGEND	
	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE

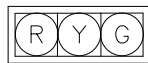


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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 MONTROSE BLVD AT W CLAY ST SIGNAL LOW VOLTAGE WIRING SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 242 OF 355	

No.	DATE	REVISIONS	APP.

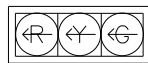
EXISTING SIGNAL HEAD SCHEDULE

ONE-WAY
3-SECTION HORIZONTAL
12" LED H3 SIGNAL HEAD



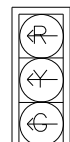
Ø2, Ø4, Ø6, Ø8

ONE-WAY
3-SECTION HORIZONTAL
12" LED H3L SIGNAL HEAD



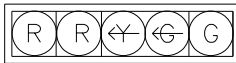
Ø3, Ø7

ONE-WAY
3-SECTION VERTICAL
12" LED V3L SIGNAL HEAD



Ø3, Ø7

ONE-WAY
5-SECTION HORIZONTAL
12" LED H5LT SIGNAL HEAD



Ø1+Ø6, Ø2+Ø5

EXISTING SPEED LIMITS
MONTROSE BOULEVARD = 35 MPH
W DALLAS STREET = 30 MPH

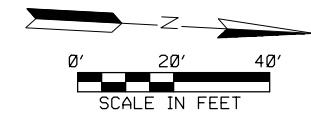
S1 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2300 AND 2400
S2 = "LEFT ON GREEN ARROW ONLY"
S3 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 1000 AND 900
S4 = "LEFT TURN YIELD ON GREEN"
S5 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2400 AND 2300
S6 = "LEFT ON GREEN ARROW ONLY"
S7 = STREET NAME "Montrose BLVD", BLOCK NUMBERS 900 AND 1000
S8 = "LEFT TURN YIELD ON GREEN"

EXISTING TRAFFIC SIGNAL PHASING

Ø2 + Ø5	Ø2 + Ø6	Ø1 + Ø6	Ø3 + Ø8	Ø4 + Ø8	Ø4 + Ø7

LEGEND

- VEHICLE SIGNAL HEAD
- VVDS VEHICLE DETECTOR ZONE
- VVDS BIKE DETECTOR ZONE
- VVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
- PULL BOX - TYPE B
- PULL BOX - TYPE C
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- LUMINAIRE
- MAST ARM SIGN
- CONTROLLER CABINET WITH BBU
- ELECTRICAL SERVICE



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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
Signature valid for six months.

Date _____
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____
valid for one year.



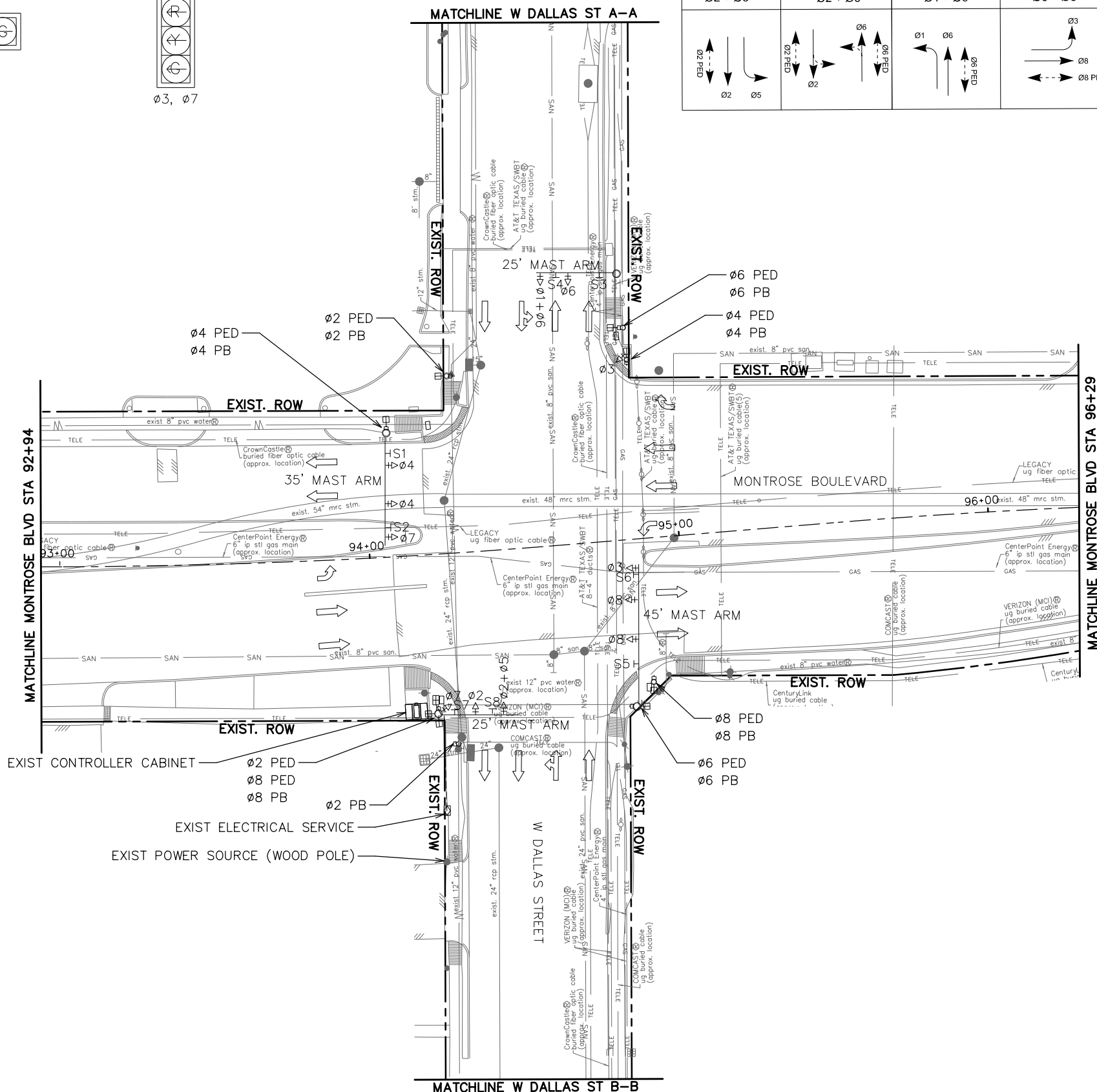
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2/16/2024
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TEI Planning + Design
Texas Registered Engineering Firm F-158

SURVEYED BY:
KWO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W DALLAS ST SIGNAL
EXISTING CONDITIONS
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 243 OF 355	



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APP.	REVISIONS	No.	DATE

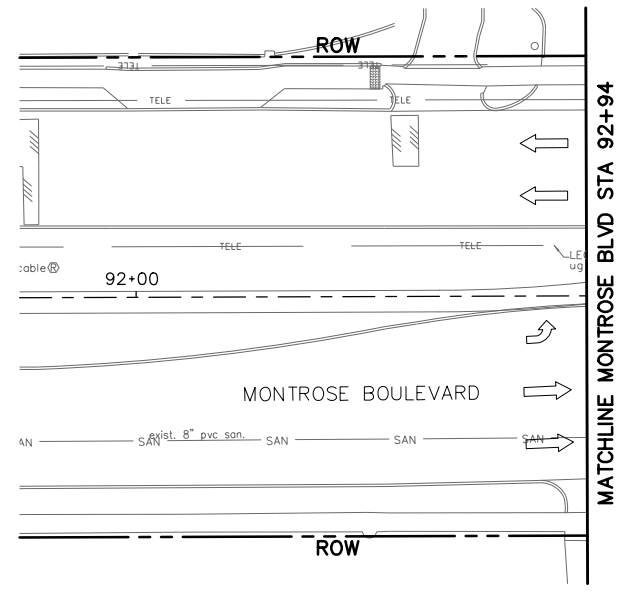
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2/16/2024

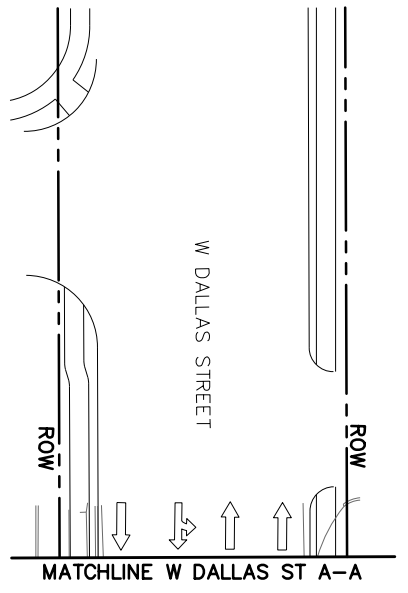
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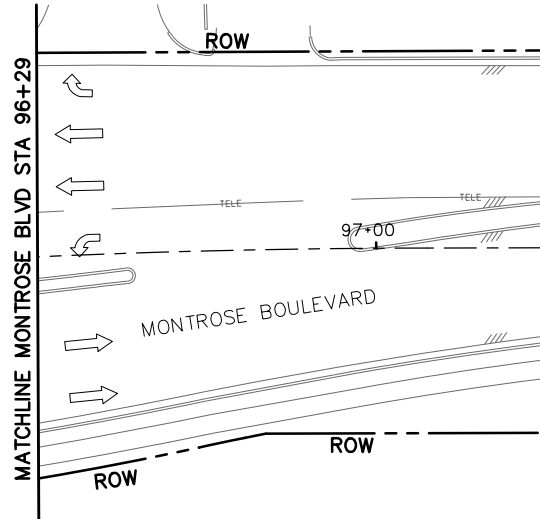
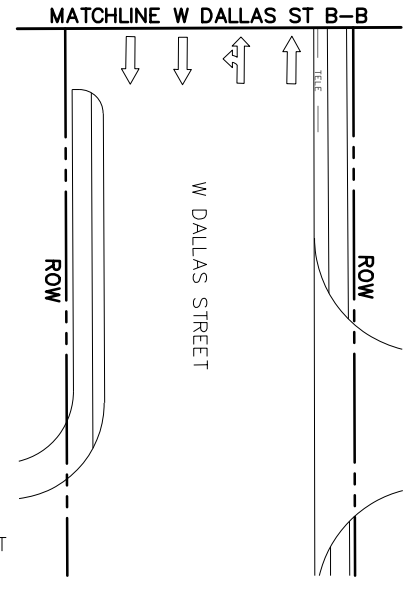
EXISTING SPEED LIMITS
MONTROSE BOULEVARD = 35 MPH
W DALLAS STREET = 30 MPH



MARCONI STREET

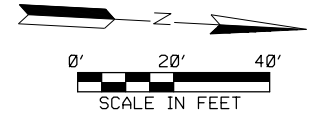


COLUMBUS STREET



LEGEND

- VEHICLE SIGNAL HEAD
- VVDS VEHICLE DETECTOR ZONE
- VVDS BIKE DETECTOR ZONE
- VVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
- PULL BOX - TYPE B
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- CONDUIT (TRENCH)
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tei
Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002

INTERIM REVIEW ONLY
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BRADLEY G. FEAVES
91759
2/16/2024
100% SUBMITTAL
TEI Planning + Design
Texas Registered Engineering Firm F-3158

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W DALLAS ST SIGNAL
EXISTING CONDITIONS
SHEET 2 OF 2

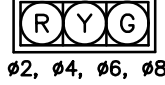
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 244 OF 355	

No.	DATE	REVISIONS	APP.

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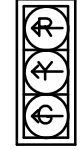
PROPOSED SIGNAL HEAD SCHEDULE

ONE-WAY
 3-SECTION HORIZONTAL
 12" LED H3 SIGNAL HEAD



02, 04, 06, 08

ONE-WAY
 3-SECTION VERTICAL
 12" LED V3L SIGNAL HEAD



01, 03, 05, 07

ONE-WAY
 3-SECTION VERTICAL
 12" LED BIKE SIGNAL HEAD
 W/ YELLOW BACKPLATE



R10-10b
 18"x24"

02B, 06B, 08B

ONE-WAY
 3-SECTION HORIZONTAL
 12" LED H3L SIGNAL HEAD



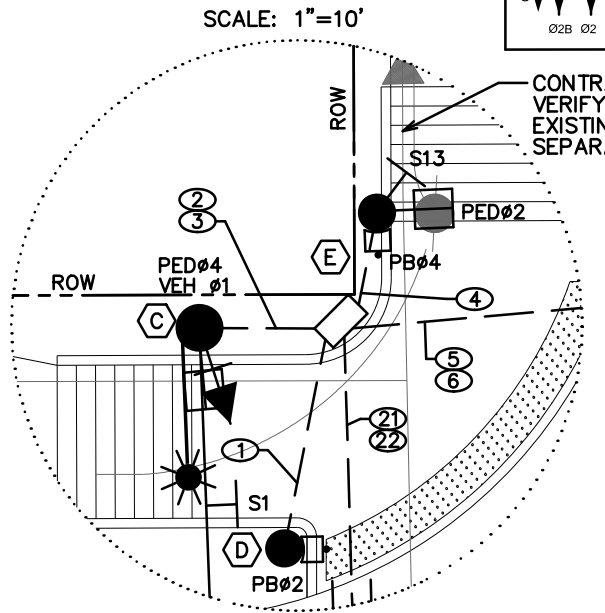
01, 03, 05, 07

PROPOSED SIGN SCHEDULE

- S1 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2300 AND 2400
- S2 = R10-11a "NO RIGHT TURN ON RED"
- S3 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S4 = STREET NAME "Montrose Blvd", BLOCK NUMBERS 1000 AND 900
- S5 = R10-11a "NO RIGHT TURN ON RED"
- S6 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S7 = STREET NAME "W Dallas ST", BLOCK NUMBERS 2400 AND 2300
- S8 = R10-11a "NO RIGHT TURN ON RED"
- S9 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S10 = STREET NAME "Montrose Blvd", BLOCK NUMBERS 900 AND 1000
- S11 = R10-11a "NO RIGHT TURN ON RED"
- S12 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S13 = R10-22 "TO REQUEST GREEN WAIT ON BIKE"
- S14 = R10-22 "TO REQUEST GREEN WAIT ON BIKE"
- S15 = R10-22 "TO REQUEST GREEN WAIT ON BIKE"
- S16 = R10-22 "TO REQUEST GREEN WAIT ON BIKE"

PROPOSED TRAFFIC SIGNAL PHASING

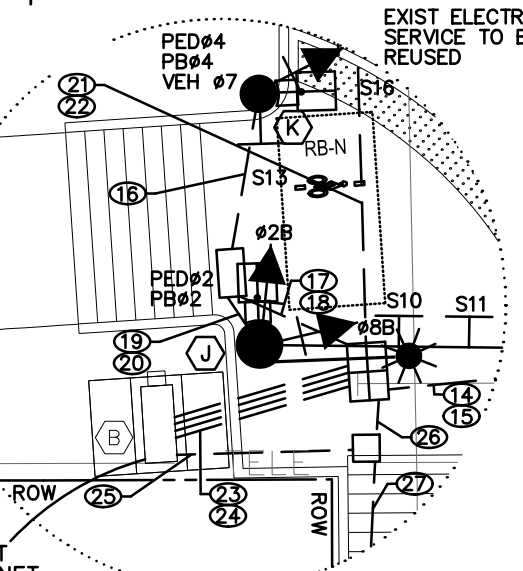
02 + 05	02 + 06	01 + 06	03 + 08	04 + 08	04 + 07



SCALE: 1"=10'

CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING WL, NO SEPARATE PAY

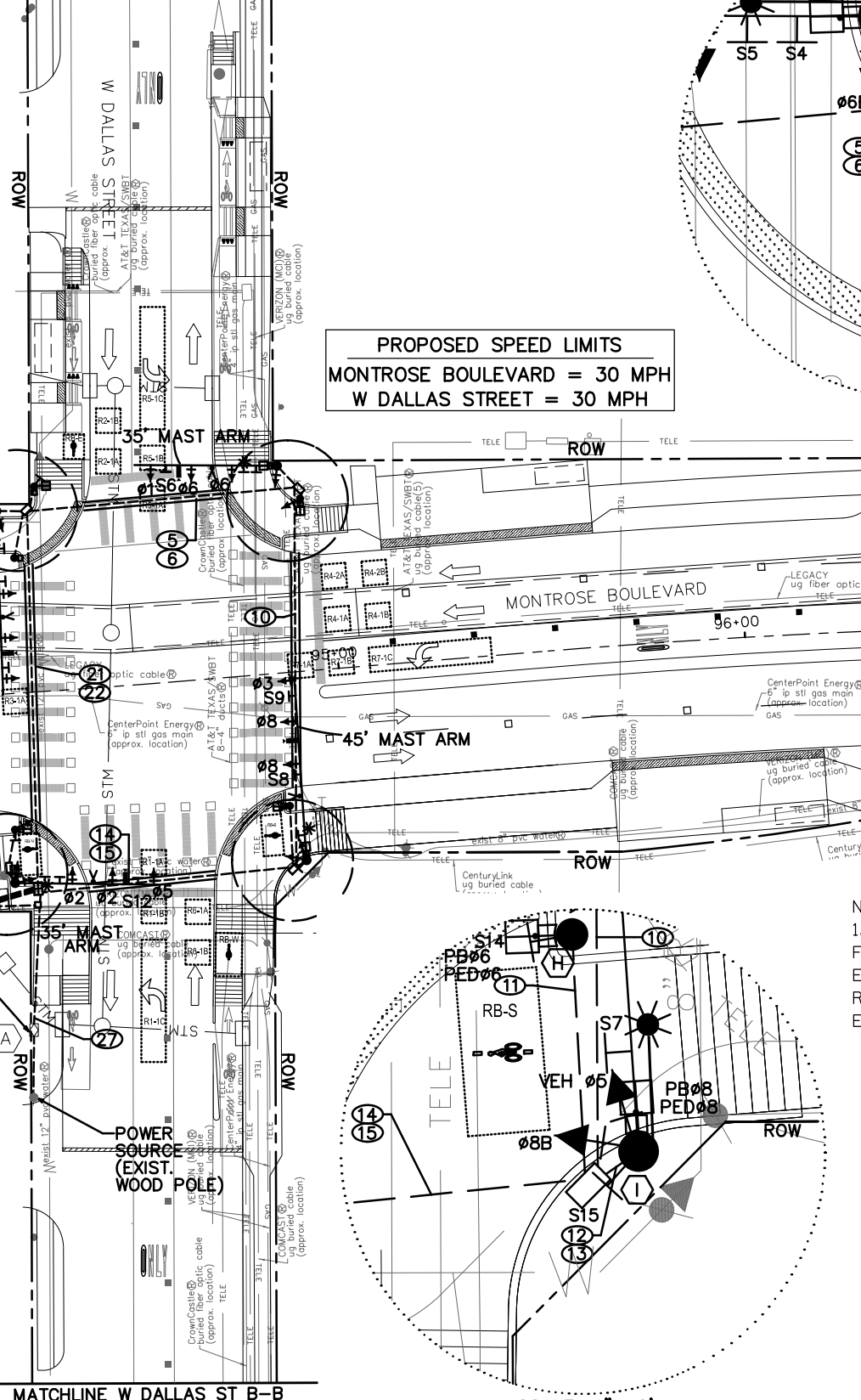
MATCHLINE MONTROSE BLVD STA 92+96



SCALE: 1"=10'

EXIST CABINET WITH BBU TO BE REUSED

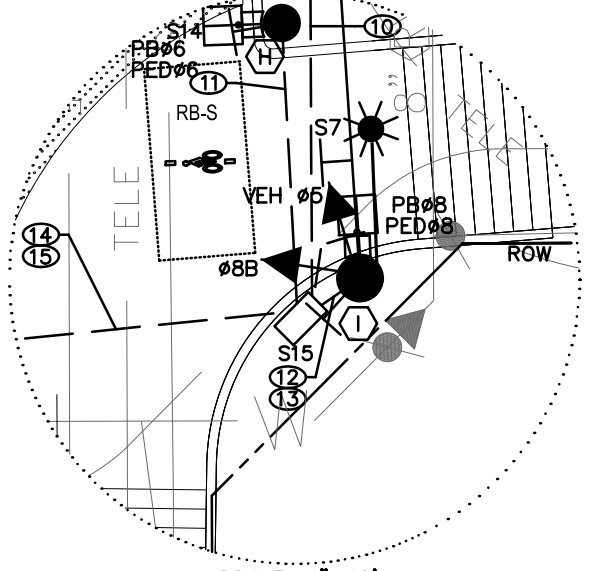
MATCHLINE W DALLAS ST B-B



PROPOSED SPEED LIMITS
 MONTROSE BOULEVARD = 30 MPH
 W DALLAS STREET = 30 MPH

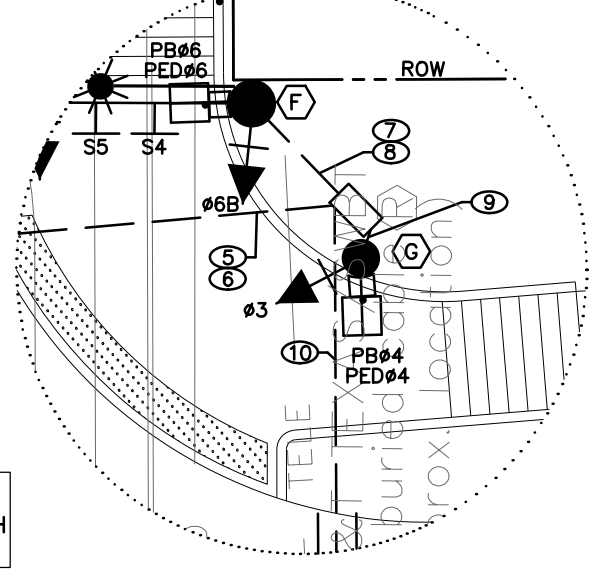
MATCHLINE W DALLAS ST B-B

NOTES:
 1. NEW WIRES TO BE PULLED FOR ALL SIGNAL ELEMENTS. EXIST CONDUITS MAY BE REUSED WITH APPROVAL FROM ENGINEER.



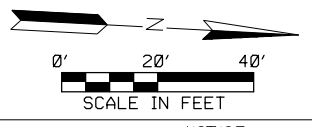
SCALE: 1"=10'

SCALE: 1"=10'



LEGEND

	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

VERIFICATION OF UNDERGROUND ELECTRICAL FACILITIES

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for AT&T underground conduit facilities only. Signature _____ Date _____ valid for one year.



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	100% SUBMITTAL TEI Planning + Design Texas Registered Engineering Firm F-3158

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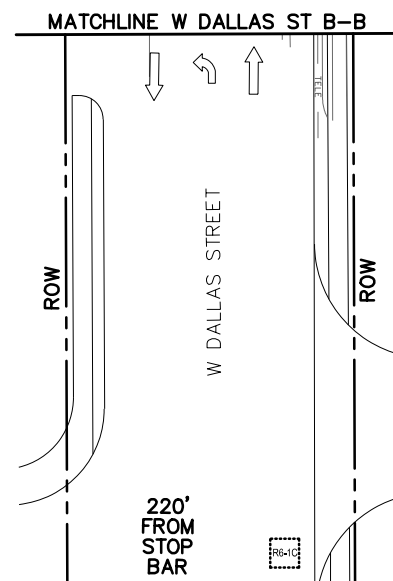
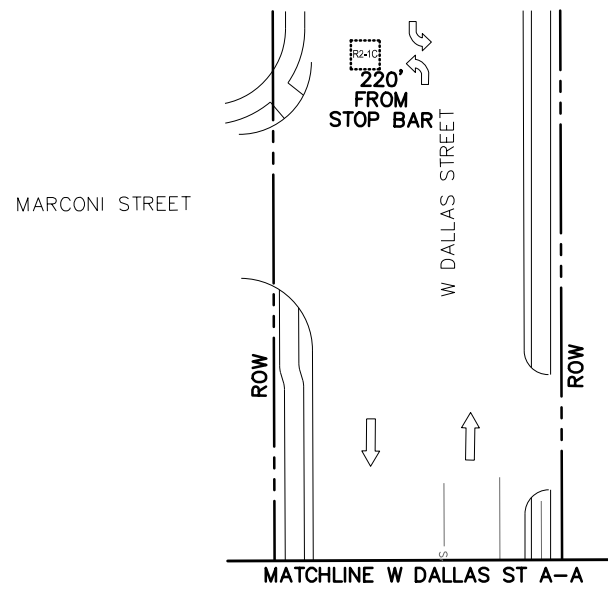
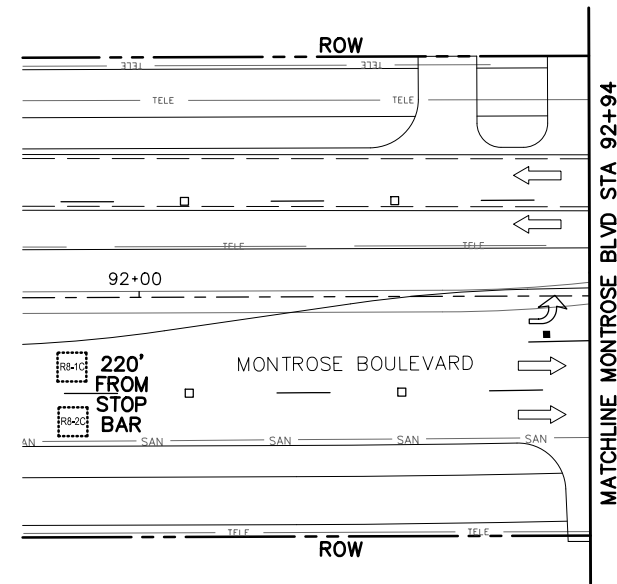
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 MONTROSE BLVD AT W DALLAS ST SIGNAL LAYOUT
 SHEET 1 OF 2

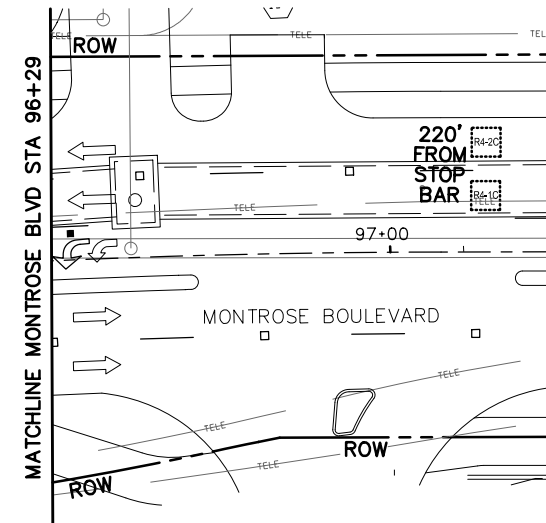
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JUADA HUANG	
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APP.	
REVISIONS	
No.	DATE

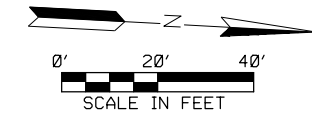
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PROPOSED SPEED LIMITS
 MONTROSE BOULEVARD = 30 MPH
 W DALLAS STREET = 30 MPH



LEGEND	
	VEHICLE SIGNAL HEAD
	VVDS VEHICLE DETECTOR ZONE
	VVDS BIKE DETECTOR ZONE
	VVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
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CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W DALLAS ST SIGNAL LAYOUT
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 246 OF 355	

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POLE SCHEDULE

POLE NUMBER	POLE TYPE	ATTACHMENTS		SIGNALS		LUMINAIRE TYPE	PED PB TYPE/SIGN	REMARKS	LOCATION	STANDARDS
		STRAIN	LUMIN	MTG.	FACE					
	TYPE 2	45'	YES	3-ASTROBRAC 1-SIDE OF POLE 1-PED	2-H3 1-H3L 1-V3L 1-CDP	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	-	SIGN 1 - STREET NAME SIGN 2 - R10-11a (36"x48") SIGN 3 - R10-5 (30"x36") VIVDS PRE-EMPT SENSOR	STA 94+18.2 OFF 44.9' LT	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09 02893-12
	5' PED POLE	-	-	-	-	-	-	-	STA 94+22.0 OFF 33.2' LT	02893-02 02893-03 02893-07
	15' PED POLE	-	-	1-PED	1-CDP	-	-	SIGN 13 - R10-22 (12"x18")	STA 94+27.8 OFF 50.3' LT	02893-02 02893-03 02893-07
	TYPE 1	35'	YES	3-ASTROBRAC 1-SIDE OF POLE 1-PED	2-H3 1-H3L 1-B3 1-CDP	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	POLARA NAVIGATOR R10-3e(R)	SIGN 4 - STREET NAME SIGN 5 - R10-11a (36"x48") SIGN 6 - R10-5 (30"x36") VIVDS PRE-EMPT SENSOR	STA 94+88.9 OFF 50.7' LT	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09 02893-12
	20' TRAFFIC SIGNAL POLE	-	-	1-SIDE OF POLE 1-PED	1-V3L 1-CDP	-	-	-	STA 94+93.9 OFF 42.2' LT	02893-02 02893-03 02893-04A 02893-04B 02893-05
	15' PED POLE	-	-	1-PED	1-CDP	-	-	SIGN 14 - R10-22 (12"x18")	STA 94+85.3 OFF 32.7' RT	02893-02 02893-03 02893-07
	TYPE 2	45'	YES	3-ASTROBRAC 2-SIDE OF POLE 1-PED	2-H3 1-H3L 1-V3L 1-B3 1-CDP	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	POLARA NAVIGATOR R10-3e(R)	SIGN 7 - STREET NAME SIGN 8 - R10-11a (36"x48") SIGN 9 - R10-5 (30"x36") SIGN 15 - R10-22 (12"x18") VIVDS PRE-EMPT SENSOR	STA 94+88.3 OFF 46.3' RT	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09 02893-12
	TYPE 1	35'	YES	3-ASTROBRAC 2-SIDE OF POLE 1-PED	2-H3 1-H3L 2-B3 1-CDP	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	POLARA NAVIGATOR R10-3e(L)	SIGN 10 - STREET NAME SIGN 11 - R10-11a (36"x48") SIGN 12 - R10-5 (30"x36") PRE-EMPT SENSOR VIVDS	STA 94+16.5 OFF 49.5' RT	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09 02893-12
	20' TRAFFIC SIGNAL POLE	-	-	1-SIDE OF POLE 1-PED	1-V3L 1-CDP	-	-	SIGN 16 - R10-22 (12"x18")	STA 94+17.5 OFF 36.5' RT	02893-02 02893-03 02893-04A 02893-04B 02893-05

DETECTION ZONES		
ITEM BY DIRECTION	LOCATION	OFFSET
EASTBOUND R2-1A LEADING EDGE R2-1B LEADING EDGE R2-1C LEADING EDGE R5-1A LEADING EDGE R5-1B LEADING EDGE R5-1C LEADING EDGE	AT STOP BAR 10' UPSTREAM OF STOP BAR 220' UPSTREAM OF STOP BAR 10' DOWNSTREAM OF STOP BAR AT STOP BAR 10' UPSTREAM OF STOP BAR	CENTERED IN LANE
RB-E LEADING EDGE	TOP OF RAMP	CENTERED IN BIKE LANE
WESTBOUND R6-1A LEADING EDGE R6-1B LEADING EDGE R6-1C LEADING EDGE R1-1A LEADING EDGE R1-1B LEADING EDGE R1-1C LEADING EDGE	AT STOP BAR 10' UPSTREAM OF STOP BAR 220' UPSTREAM OF STOP BAR 10' DOWNSTREAM OF STOP BAR AT STOP BAR 10' UPSTREAM OF STOP BAR	CENTERED IN LANE
RB-W LEADING EDGE	TOP OF RAMP	CENTERED IN BIKE LANE
NORTHBOUND R8-1A LEADING EDGE R8-1B LEADING EDGE R8-1C LEADING EDGE R8-2A LEADING EDGE R8-2B LEADING EDGE R8-2C LEADING EDGE R3-1A LEADING EDGE R3-1B LEADING EDGE R3-1C LEADING EDGE	AT STOP BAR 10' UPSTREAM OF STOP BAR 220' UPSTREAM OF STOP BAR AT STOP BAR 10' UPSTREAM OF STOP BAR 220' UPSTREAM OF STOP BAR 10' DOWNSTREAM OF STOP BAR AT STOP BAR 10' UPSTREAM OF STOP BAR	CENTERED IN LANE
RB-N LEADING EDGE	9' DOWNSTREAM OF BOTTOM OF RAMP	CENTERED IN SHARED USE PATH
SOUTHBOUND R4-1A LEADING EDGE R4-1B LEADING EDGE R4-1C LEADING EDGE R4-2A LEADING EDGE R4-2B LEADING EDGE R4-2C LEADING EDGE R7-1A LEADING EDGE R7-1B LEADING EDGE R7-1C LEADING EDGE	AT STOP BAR 10' UPSTREAM OF STOP BAR 220' UPSTREAM OF STOP BAR AT STOP BAR 10' UPSTREAM OF STOP BAR 220' UPSTREAM OF STOP BAR 10' DOWNSTREAM OF STOP BAR AT STOP BAR 10' UPSTREAM OF STOP BAR	CENTERED IN LANE
RB-S LEADING EDGE	9' DOWNSTREAM OF BOTTOM OF RAMP	CENTERED IN SHARED USE PATH

LEGEND	
	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE

TRAFFIC SIGNAL CONTROLLER

CABINET	TYPE	CONTROLLER	AUX. CONTROL	REMARKS	LOCATION	STANDARDS
	340	MODEL 2070N NEMA	-	EXISTING CABINET TO REMAIN	EXIST	-
	GROUND MOUNTED	-	-	EXISTING SERVICE PEDESTAL TO REMAIN	EXIST	02893-14

NOTES:

1. SIGNAL POLES TO BE POWDER COATED - DARK GREEN.

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

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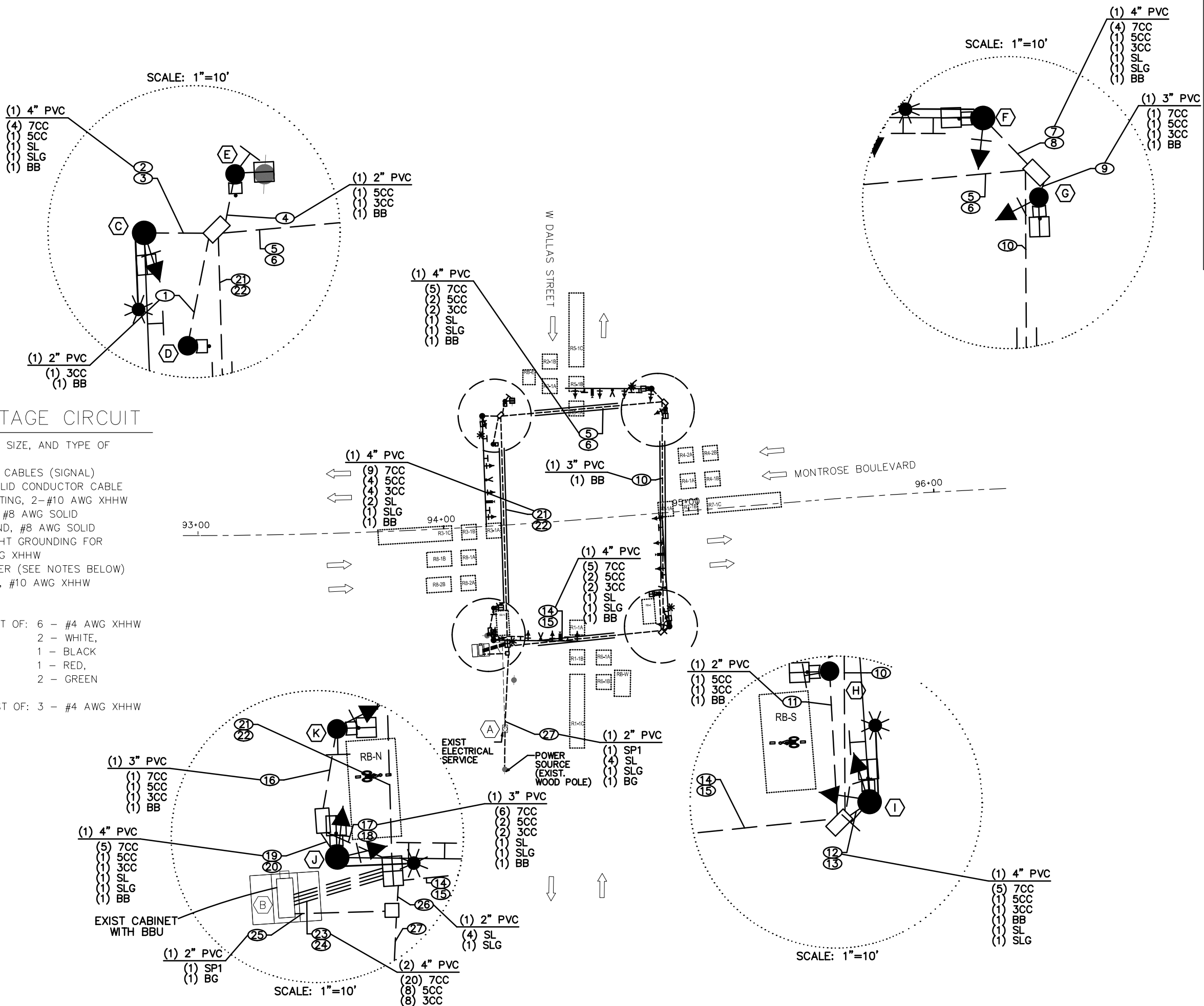
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HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT W DALLAS ST
SIGNAL POLE SCHEDULE
SHEET 1 OF 1

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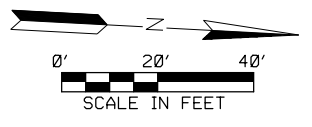
HIGH VOLTAGE CIRCUIT

(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 = BARE GROUND, #8 AWG SOLID
 SLG = STREET LIGHT GROUNDING FOR LUMINAIRE #12 AWG XHHW
 SP = SIGNAL POWER (SEE NOTES BELOW)
 PC = PHOTO CELL, #10 AWG XHHW

NOTE:
 SP1 SHALL CONSIST OF: 6 - #4 AWG XHHW
 2 - WHITE,
 1 - BLACK
 1 - RED,
 2 - GREEN

SP2 SHALL CONSIST OF: 3 - #4 AWG XHHW

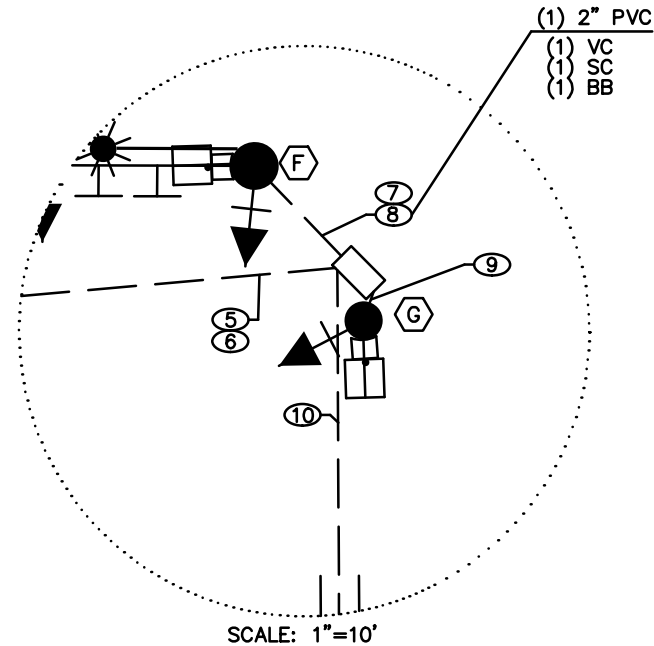
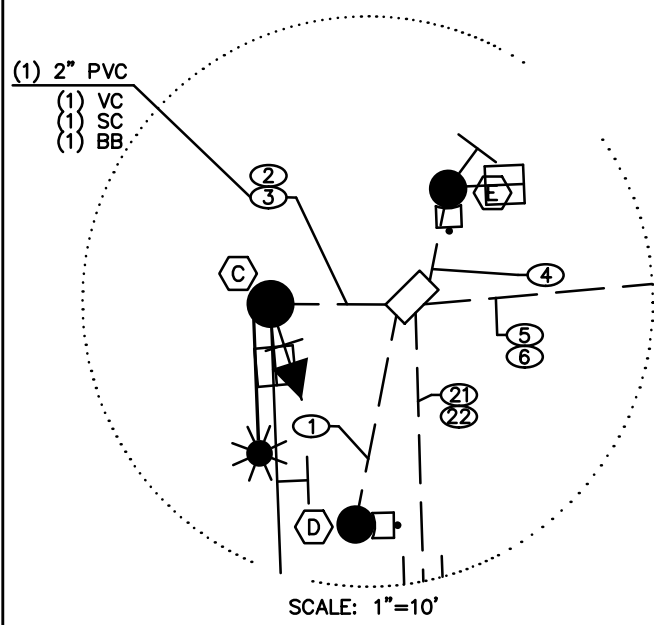
LEGEND	
	VEHICLE SIGNAL HEAD
	WVDs VEHICLE DETECTOR ZONE
	WVDs BIKE DETECTOR ZONE
	WVDs DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 MONTROSE BLVD AT W DALLAS ST SIGNAL HIGH VOLTAGE WIRING SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 248 OF 355	

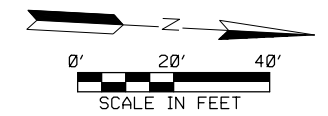
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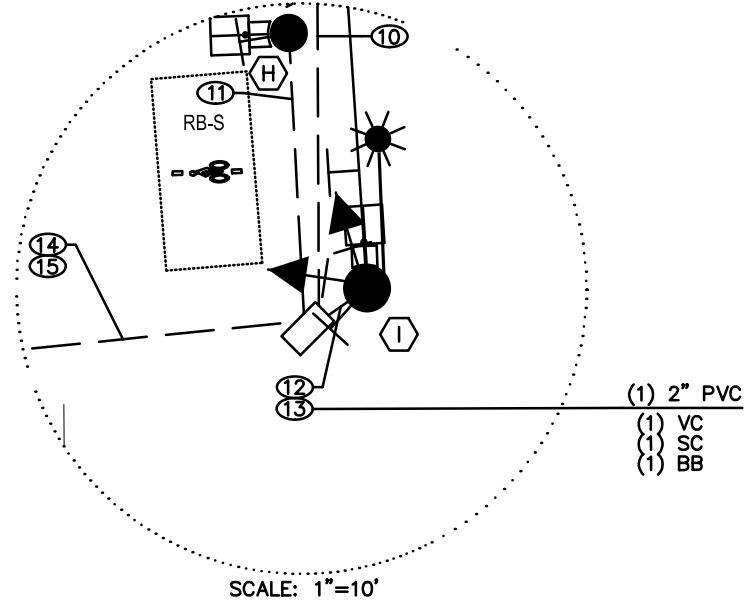
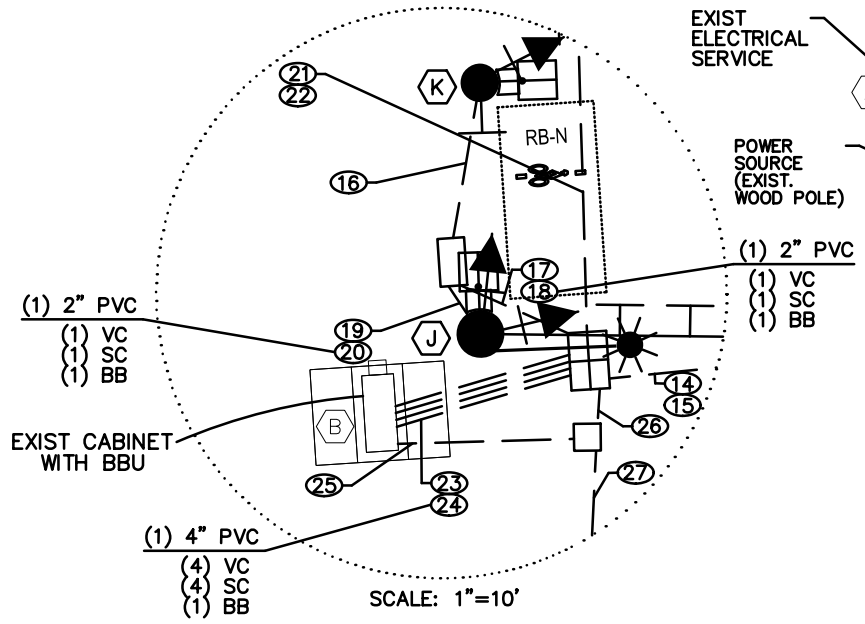
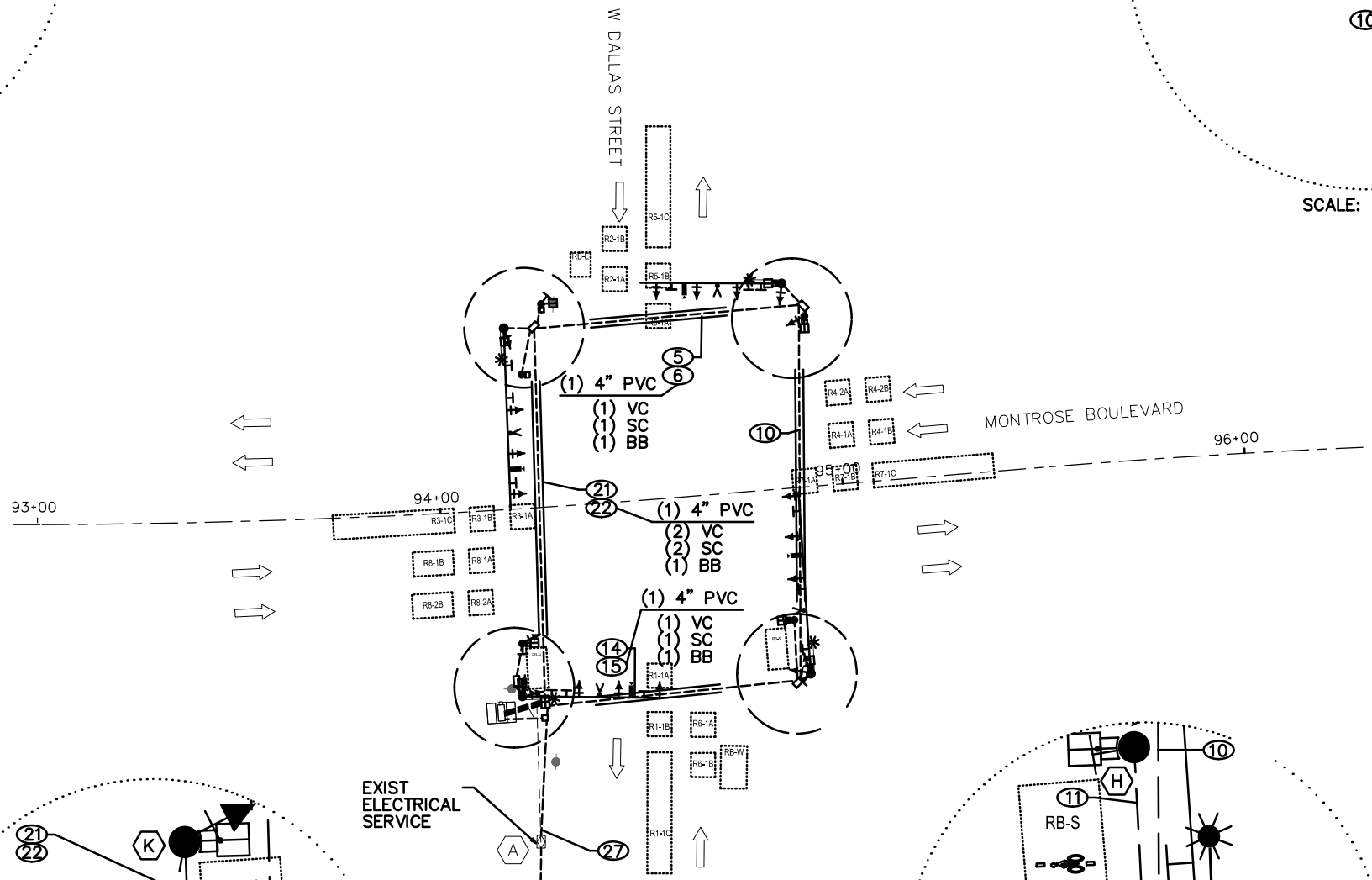
LEGEND

- ➔ VEHICLE SIGNAL HEAD
- ▭ VIVDS VEHICLE DETECTOR ZONE
- ▭ VIVDS BIKE DETECTOR ZONE
- ▭ VIVDS DETECTOR
- ⚡ OPTICOM
- ⦿ POLE W/ MAST ARM
- ▭ PEDESTRIAN SIGNAL HEAD
- ▭ PEDESTRIAN PUSH BUTTON
- ⦿ PEDESTRIAN POLE
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- ▭ PULL BOX - TYPE B
- ▭ PULL BOX - TYPE C
- CONDUIT (TRENCH)
- === CONDUIT (BORE)
- ⚡ LUMINAIRE
- ⦿ MAST ARM SIGN
- ▭ CONTROLLER CABINET WITH BBU
- ⦿ ELECTRICAL SERVICE



LOW VOLTAGE CIRCUIT

(X)Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
 DLC = DETECTOR LEAD-IN CABLE, #14 AWG (IMSA 50-2-1984)
 SC = #20 3CC-SHIELDED CABLE (3M MODEL 138)
 VC = VIVDS CABLE
 CAT5 = CAT5E #24 AWG
 RLW = ROADWAY LOOP DETECTOR WIRE, #14 AWG (IMSA 51-5-1985)
 BB = BARE BOND #8 AWG SOLID

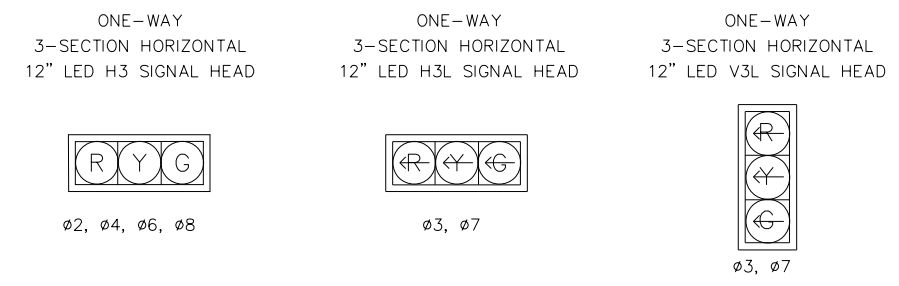


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SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 MONTROSE BLVD AT W DALLAS ST SIGNAL LOW VOLTAGE WIRING SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 249 OF 355	

REVISIONS	DATE	APP.

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EXISTING SIGNAL HEAD SCHEDULE



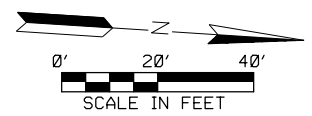
EXISTING SPEED LIMITS
 MONTROSE BOULEVARD = 35 MPH
 ALLEN PARKWAY = 35 MPH

EXISTING TRAFFIC SIGNAL PHASING

Ø4 + Ø7	Ø4 + Ø8	Ø3 + Ø8	Ø2	Ø6

LEGEND

- ➔ VEHICLE SIGNAL HEAD
- ⊞ VIVDS VEHICLE DETECTOR ZONE
- ⊞ VIVDS BIKE DETECTOR ZONE
- ⊞ VIVDS DETECTOR
- ⊞ OPTICOM
- ⊞ POLE W/ MAST ARM
- ⊞ PEDESTRIAN SIGNAL HEAD
- ⊞ PEDESTRIAN PUSH BUTTON
- ⊞ PEDESTRIAN POLE
- ⊞ PULL BOX - TYPE A
- ⊞ PULL BOX - TYPE B
- ⊞ PULL BOX - TYPE C
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- ✱ LUMINAIRE
- ⊞ MAST ARM SIGN
- ⊞ CONTROLLER CABINET WITH BBU
- ⊞ ELECTRICAL SERVICE



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All 6" underground conduit facilities only. Signature _____ Date _____
 valid for one year.



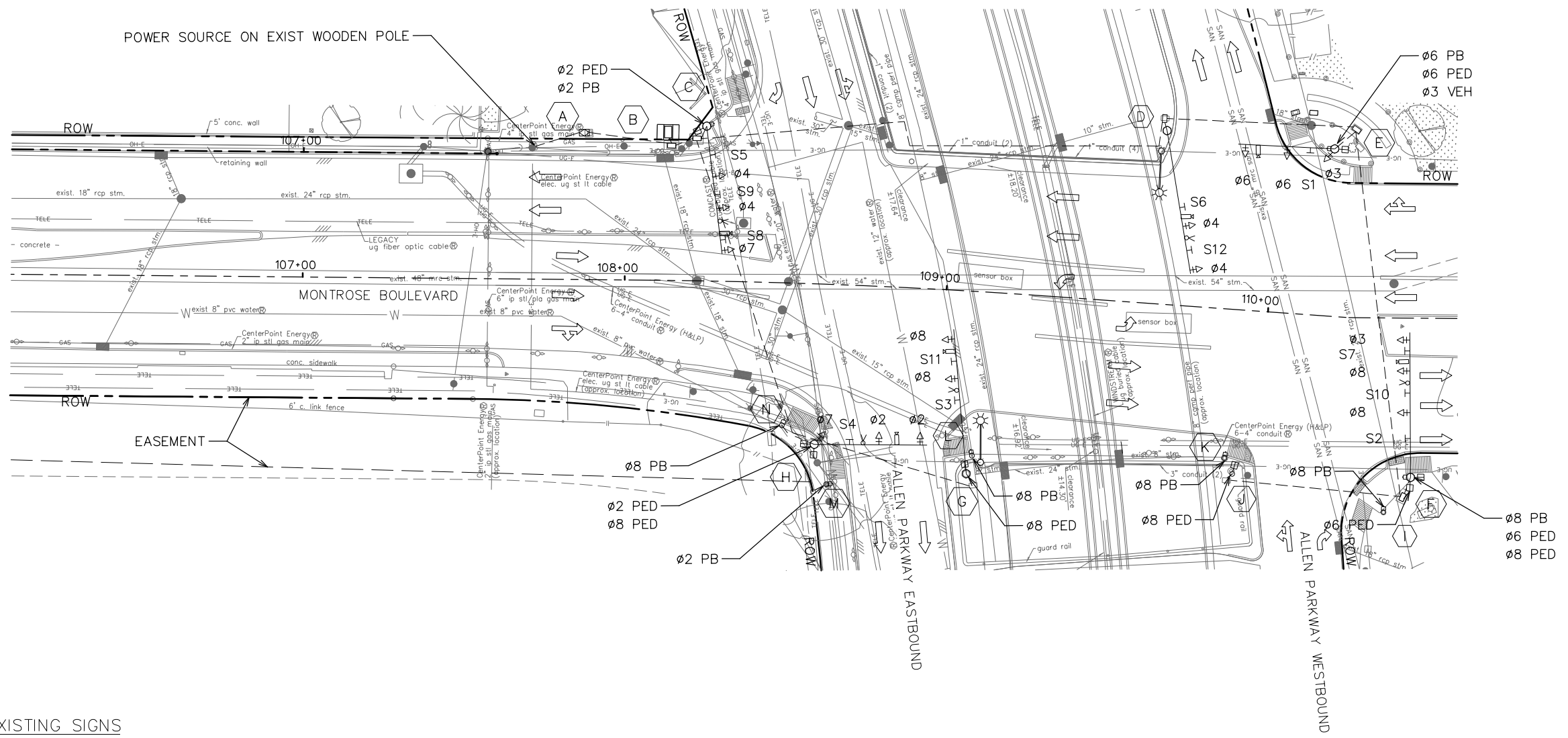
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 TEXAS PE FIRM REG. #F-3158
 712 MAIN STREET, SUITE #950
 HOUSTON, TX 77002

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 91759
 2/16/2024
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 TEL Planning + Design
 Texas Registered Engineering Firm F-3158

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1
 MONTROSE BLVD AT ALLEN PKWY
 SIGNAL
 EXISTING CONDITIONS
 SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 250 OF 355	



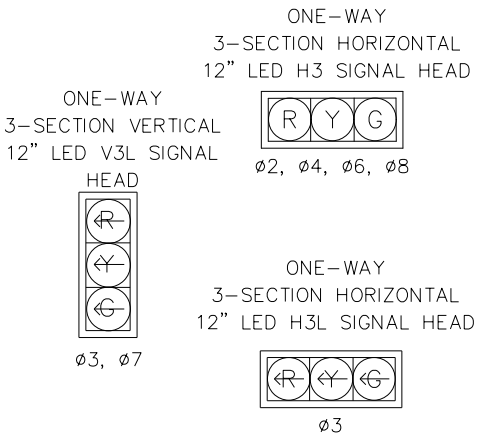
- EXISTING SIGNS
- S1 = STREET NAME SIGN "Montrose Blvd"
 - S2 = STREET NAME SIGN "Allen Pkwy"
 - S3 = STREET NAME SIGN "Allen Pkwy"
 - S4 = STREET NAME SIGN "Montrose Blvd"
 - S5 = STREET NAME SIGN "Allen Pkwy"
 - S6 = STREET NAME SIGN "Allen Pkwy"
 - S7 = R10-5 "LEFT ON GREEN ARROW ONLY"
 - S8 = R10-5 "LEFT ON GREEN ARROW ONLY"
 - S9 = R6-1L "ONE WAY"
 - S10 = R6-1L "ONE WAY"
 - S11 = R6-1R "ONE WAY"
 - S12 = R6-1R "ONE WAY"

NOTES:
 1. EXIST DETECTION ZONES NOT SHOWN.

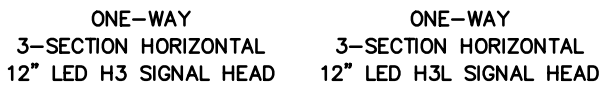
APP.	REVISIONS	DATE

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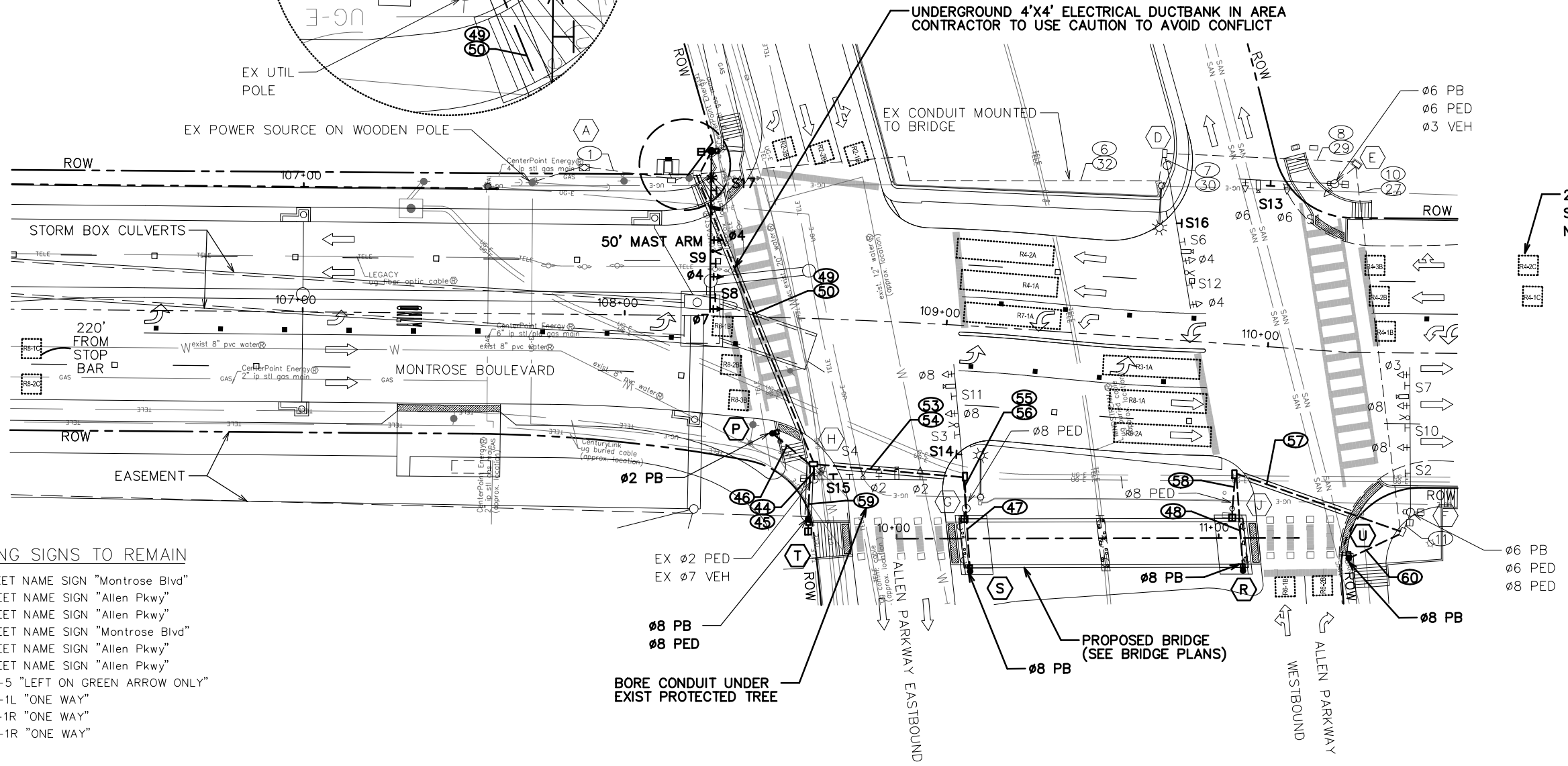
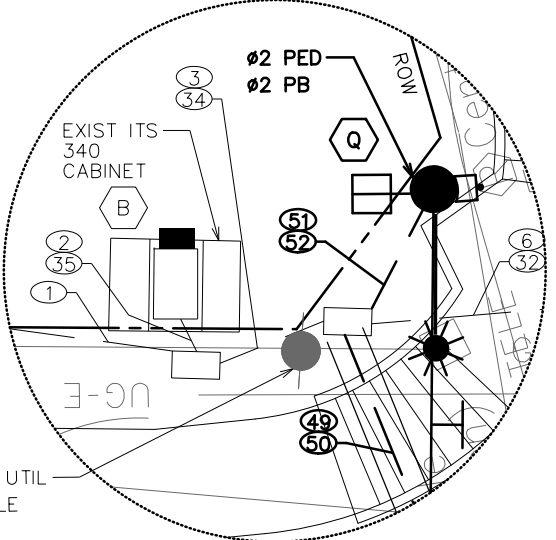
EXISTING SIGNAL HEAD SCHEDULE



PROPOSED SIGNAL HEAD SCHEDULE



SCALE: 1"=10'



EXISTING SIGNS TO REMAIN

- S1 = STREET NAME SIGN "Montrose Blvd"
- S2 = STREET NAME SIGN "Allen Pkwy"
- S3 = STREET NAME SIGN "Allen Pkwy"
- S4 = STREET NAME SIGN "Montrose Blvd"
- S5 = STREET NAME SIGN "Allen Pkwy"
- S6 = STREET NAME SIGN "Allen Pkwy"
- S7 = R10-5 "LEFT ON GREEN ARROW ONLY"
- S10 = R6-1L "ONE WAY"
- S11 = R6-1R "ONE WAY"
- S12 = R6-1R "ONE WAY"

PROPOSED SIGNS

- S8 = R10-5 "LEFT ON GREEN ARROW ONLY"
 - S9 = R6-2L "ONE WAY"
 - S13 = R10-11a "NO RIGHT TURN ON RED"
 - S14 = R10-11a "NO RIGHT TURN ON RED"
 - S15 = R10-11a "NO RIGHT TURN ON RED"
 - S16 = R10-11a "NO RIGHT TURN ON RED"
 - S17 = STREET NAME SIGN "ALLEN PKWY"
- BLOCK NUMBERS 2300 AND 2400

PROPOSED SPEED LIMITS

MONTROSE BOULEVARD NORTH OF ALLEN = 35 MPH
 MONTROSE BOULEVARD SOUTH OF ALLEN = 30 MPH
 ALLEN PARKWAY FRONTAGE ROADS = 35 MPH

- NOTES:
1. LOUVRES TO BE INSTALLED ON VEHICLE SIGNAL HEADS ON POLE F AND POLE Q. ADJUST LOUVRES TO PREVENT VIEWING FROM THE UPSTREAM STOP BAR.
 2. NEW CABLES TO BE RUN FOR POLE H, POLE G, AND POLE J.
 3. EXISTING POLES C, I, K, L, M, AND N TO BE REMOVED.
 4. SEE BRIDGE PLANS FOR MOUNTING DETAILS OF POLE R AND POLE S ON BRIDGE.
 5. ROTATE PED HEADS ON POLE G AND POLE J TO ALIGN WITH NEW SUP BRIDGE.

LEGEND

	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE



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VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature _____ Date valid for one year.



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	SURVEYED BY: KUO & ASSOCIATES, INC. 100% SUBMITTAL TEI Planning + Design Texas Registered Engineering Firm F-3158

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT ALLEN PKWY SIGNAL LAYOUT
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 251 OF 355	

APP.
REVISIONS
No.
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POLE SCHEDULE

POLE NUMBER	POLE TYPE	ATTACHMENTS		SIGNALS		LUMINAIRE TYPE	PED PB TYPE/SIGN	REMARKS	LOCATION	STANDARDS
		STRAIN	LUMIN	MTG.	FACE					
D	EXIST	45' MAST ARM	NO	2-ASTROBRAC	2-H3	-	-	SIGN 16 - R10-11a (36"x48") SIGN 6 - STREET NAME SIGN 12 - R6-2R PRE-EMPT SENSOR VIVDS	EXIST	-
E	EXIST	30' MAST ARM	NO	2-ASTROBRAC 1-SIDE OF POLE 1-CDP	2-H3 1-V3L 1-PED	-	POLARA NAVIGATOR R10-3e(R)	SIGN 13 - R10-11a (36"x48") SIGN 1 - STREET NAME PRE-EMPT SENSOR VIVDS	EXIST	-
F	EXIST	45' MAST ARM	NO	3-ASTROBRAC 2-CDP	2-H3 1-H3L 2-PED	-	POLARA NAVIGATOR R10-3e(L)	SIGN 2 - STREET NAME SIGN 7 - R10-5 SIGN 10 - R6-1L PRE-EMPT SENSOR VIVDS LOUVRES	EXIST	-
G	EXIST	45' MAST ARM	NO	2-ASTROBRAC 1-CDP	2-H3 1-PED	-	-	SIGN 14 - R10-11a (36"x48") SIGN 3 - STREET NAME SIGN 11 - R6-1R PRE-EMPT SENSOR VIVDS	EXIST	-
H	EXIST	35' MAST ARM	NO	2-ASTROBRAC 1-SIDE OF POLE 1-CDP	2-H3 1-V3L 1-PED	-	-	SIGN 15 - R10-11a (36"x48") SIGN 4 - STREET NAME PRE-EMPT SENSOR VIVDS	EXIST	-
J	15' PED POLE	-	-	1-CDP	1-PED	-	-	-	EXIST	-
P	5' PED POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3e(R)	-	STA 108+47 OFF 36.0' RT	02893-02 02893-03 02893-07
Q	TYPE 2	50' MAST ARM	YES	3-ASTROBRAC 1-CDP	1-H3L 2-H3 1-PED	106 WATT SYSTEM MAX LED COBRA HEAD LUMINAIRE	POLARA NAVIGATOR R10-3e(L)	SIGN 8 - R10-5 (30"x36") SIGN 9 - R6-2L (30"x36") PRE-EMPT SENSOR VIVDS SIGN 17 - STREET NAME	STA 108+26 OFF 51.7' LT	02893-02 02893-03 02893-04A 02893-04B 02893-05 02893-09 02893-12
R	5' PED POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3e(R)	-	SEE BRIDGE PLANS	02893-02 02893-03 02893-07
S	5' PED POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3e(R)	-	SEE BRIDGE PLANS	02893-02 02893-03 02893-07
T	15' PED POLE	-	-	1-CDP	1-PED	-	POLARA NAVIGATOR R10-3e(R)	-	STA 108+59 OFF 62.2' RT	02893-02 02893-03 02893-07
U	5' PED POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3e(R)	-	STA 110+26 OFF 64.0' RT	02893-02 02893-03 02893-07

DETECTION ZONES		
ITEM BY DIRECTION	LOCATION	OFFSET
EASTBOUND R2-1B LEADING EDGE R2-2B LEADING EDGE R2-3B LEADING EDGE	AT STOP BAR	CENTERED IN LANE
WESTBOUND R6-1B LEADING EDGE R6-2B LEADING EDGE	AT STOP BAR	CENTERED IN LANE
NORTHBOUND R3-1A LEADING EDGE R8-1A LEADING EDGE R8-2A LEADING EDGE R8-1B LEADING EDGE R8-2B LEADING EDGE R8-3B LEADING EDGE R8-1C LEADING EDGE R8-2C LEADING EDGE	AT STOP BAR AT STOP BAR AT STOP BAR AT STOP BAR AT STOP BAR AT STOP BAR 220' FROM STOP BAR 220' FROM STOP BAR	CENTERED IN LANE
SOUTHBOUND R4-1A LEADING EDGE R4-2A LEADING EDGE R4-1B LEADING EDGE R4-2B LEADING EDGE R4-3B LEADING EDGE R4-1C LEADING EDGE R4-2C LEADING EDGE R7-1A LEADING EDGE	AT STOP BAR AT STOP BAR AT STOP BAR AT STOP BAR AT STOP BAR 220' FROM STOP BAR 220' FROM STOP BAR	CENTERED IN LANE

LEGEND

- VEHICLE SIGNAL HEAD
- VIVDS VEHICLE DETECTOR ZONE
- VIVDS BIKE DETECTOR ZONE
- VIVDS DETECTOR
- OPTICOM
- POLE W/ MAST ARM
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSH BUTTON
- PEDESTRIAN POLE
- PULL BOX - TYPE A
- PULL BOX - TYPE B
- PULL BOX - TYPE C
- CONDUIT (TRENCH)
- CONDUIT (BORE)
- LUMINAIRE
- MAST ARM SIGN
- CONTROLLER CABINET WITH BBU
- ELECTRICAL SERVICE

APP.	
REVISIONS	
No.	DATE

TRAFFIC SIGNAL CONTROLLER

CABINET	TYPE	CONTROLLER	AUX. CONTROL	REMARKS	LOCATION	STANDARDS
B	ITS 340	2070LX CONTROLLER WITH 2070-1C CPU MODULE	-	EXIST FIELD HARDENED ETHERNET SWITCH EXIST CELLULAR MODEM, BLUETOOTH READER, AND ANTENNA PROP UPS BBS PROP GPS SERIAL COMMUNICATIONS MODULE	EXIST	16732
A	GROUND MOUNTED	-	-	PROP PHOTOCELL	EXIST	-

NOTES:
 1. EXIST VIVDS SYSTEM AND CAMERAS TO BE REUSED.

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

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 HOUSTON, TX 77002

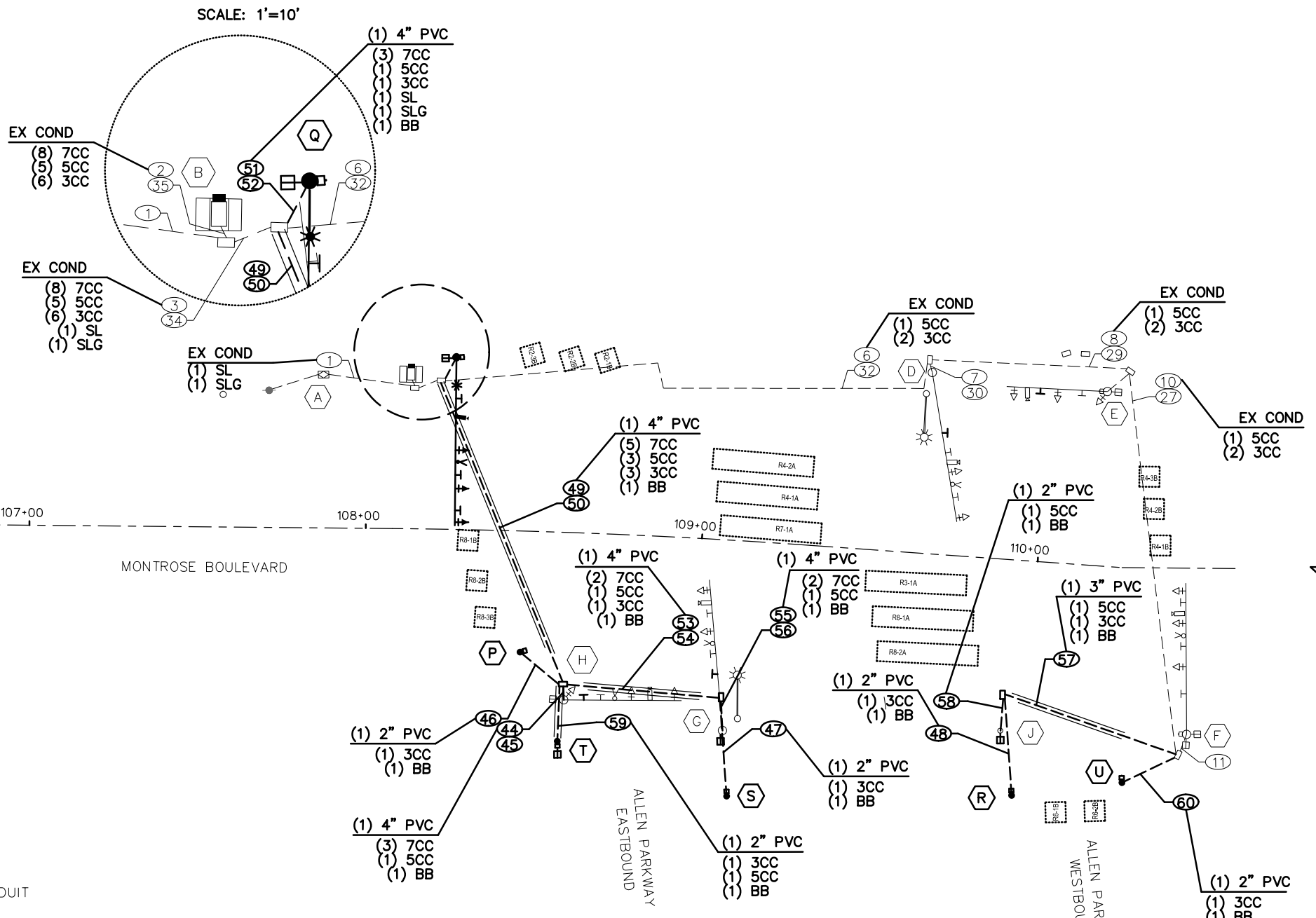
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 91759
 2/16/2024
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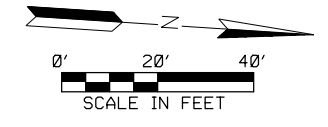
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
MONTROSE BLVD AT ALLEN PKWY SIGNAL
POLE SCHEDULE SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 252 OF 355	



LEGEND	
	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
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	CONDUIT (TRENCH)
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	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE



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 = BARE GROUND, #8 AWG SOLID
 SLG = STREET LIGHT GROUNDING FOR LUMINAIRE #12 AWG XHHW
 SP = SIGNAL POWER (SEE NOTES BELOW)
 PC = PHOTO CELL, #10 AWG XHHW

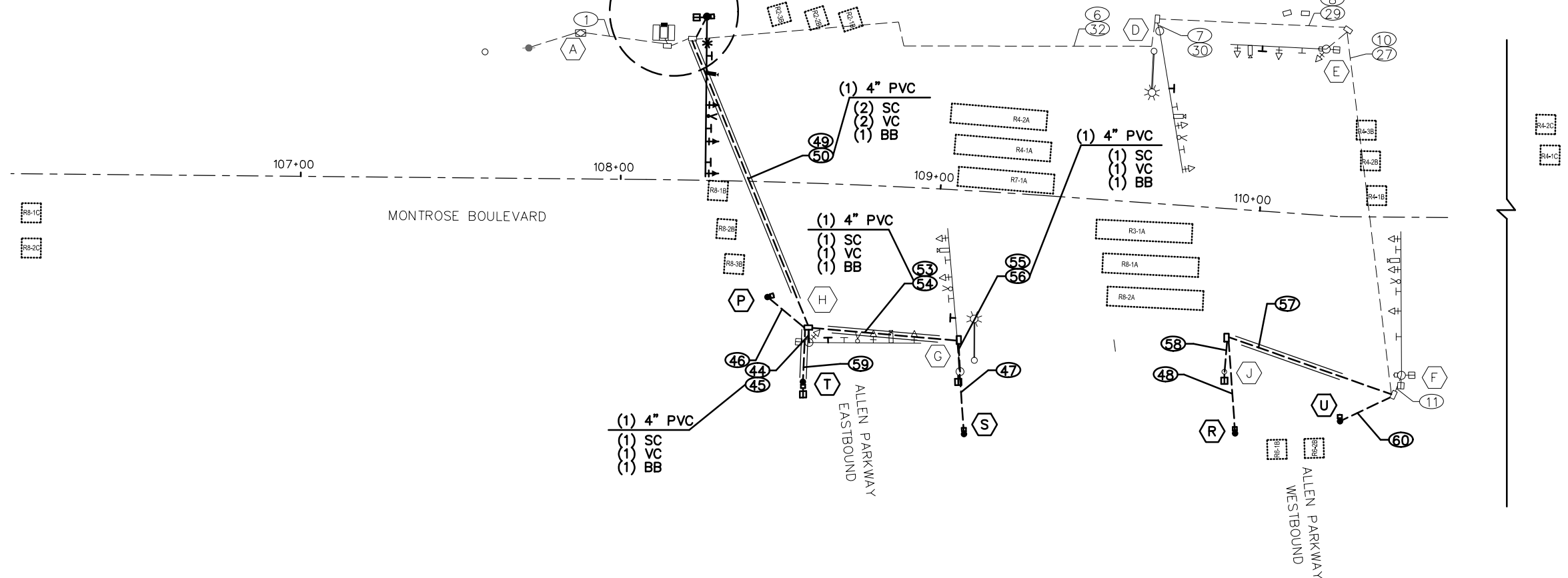
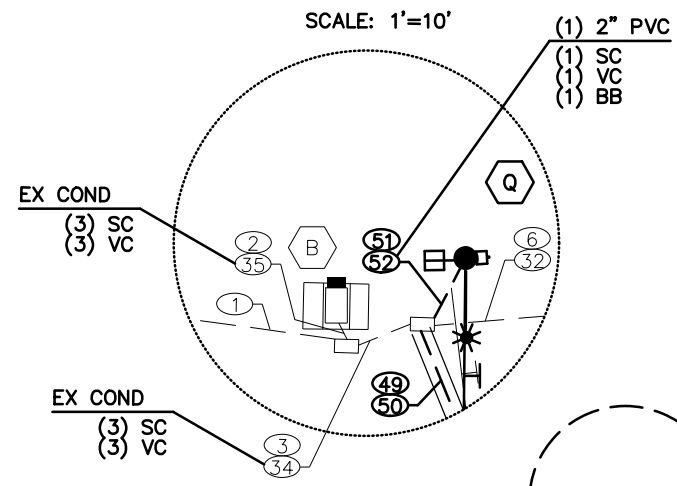
NOTE:
 SP1 SHALL CONSIST OF: 6 - #4 AWG XHHW
 2 - WHITE,
 1 - BLACK
 1 - RED,
 2 - GREEN

SP2 SHALL CONSIST OF: 3 - #4 AWG XHHW

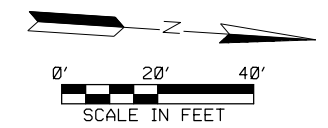
NOTES:
 1. ONLY RELEVANT EXISTING RUNS SHOWN. EXISTING WIRING IN CONDUITS NOT SHOWN.
 2. NEW CABLES TO BE RUN FOR POLE H, POLE G, AND POLE J.
 3. SEE BRIDGE PLANS FOR ROUTING OF CONDUITS ON BRIDGE.

 TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purposes of interim review under the authority of:</small> BRADLEY G. LEAVES 91759 2/16/2024 100% SUBMITTAL TEI Planning + Design Texas Registered Engineering Firm F-3158
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 MONTROSE BLVD AT ALLEN PKWY SIGNAL HIGH VOLTAGE WIRING SHEET 1 OF 1	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 253 OF 355	

APP.	REVISIONS	DATE



LEGEND	
	VEHICLE SIGNAL HEAD
	VIVDS VEHICLE DETECTOR ZONE
	VIVDS BIKE DETECTOR ZONE
	VIVDS DETECTOR
	OPTICOM
	POLE W/ MAST ARM
	PEDESTRIAN SIGNAL HEAD
	PEDESTRIAN PUSH BUTTON
	PEDESTRIAN POLE
	PULL BOX - TYPE A
	PULL BOX - TYPE B
	PULL BOX - TYPE C
	CONDUIT (TRENCH)
	CONDUIT (BORE)
	LUMINAIRE
	MAST ARM SIGN
	CONTROLLER CABINET WITH BBU
	ELECTRICAL SERVICE



LOW VOLTAGE CIRCUIT

(X)Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
 DLC = DETECTOR LEAD-IN CABLE, #14 AWG (IMSA 50-2-1984)
 SC = #20 3CC-SHIELDED CABLE (3M MODEL 138)
 VC = VIVDS CABLE
 CAT5 = CAT5E #24 AWG
 RLW = ROADWAY LOOP DETECTOR WIRE, #14 AWG (IMSA 51-5-1985)
 BB = BARE BOND #8 AWG SOLID

- NOTES:**
- ONLY RELEVANT EXISTING RUNS SHOWN. EXISTING WIRING IN CONDUITS NOT SHOWN.
 - NEW CABLES TO BE RUN FOR POLE H, POLE G, AND POLE J.
 - SEE BRIDGE PLANS FOR ROUTING OF CONDUITS ON BRIDGE.

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DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 254 OF 355	

REVISIONS	DATE	APP.

	NEW	EXISTING	SIGNAL TYPES
TRAFFIC SIGNAL POLE	○	○	
PEDESTAL POLE	○	○	
POLE W/MAST ARM	○	○	
VEHICLE SIGNAL HEAD	↓	↓	V3, V3L, V3U, H3, H3L
VEHICLE SIGNAL HEAD W/BACK PLATE	↓	↓	H3U, R Y G
PEDESTRIAN SIGNAL HEAD	⊞	⊞	H4TL, H4LF
PEDESTRIAN PUSH BUTTON	⊞	⊞	H5L, H5R
PULL BOX - TYPE A	◇	◇	V4LF, V5R, V5L, B3
PULL BOX - TYPE B	□	□	
PULL BOX - TYPE C	⊞	⊞	
PULL BOX - TYPE B W/EXTENSION	⊞	⊞	
CONDUIT	—	—	
VIDEO DETECTION CAMERA	⊞	⊞	
PRE-EMPT SENSOR	⊞	⊞	
LUMINAIRE	⊞	⊞	
LUMINAIRE W/PHOTO CELL	⊞	⊞	
CONTROLLER CABINET	⊞	⊞	
METERED POWER PEDESTAL	⊞	⊞	
POLE MOUNTED METER	⊞	⊞	
FIBER OPTIC CONDUIT	—	—	
MAST ARM SIGN	⊞	⊞	

NOTE:
 ALL TRAFFIC SIGNAL HEAD TYPES HAVE 12-INCH LENSES.

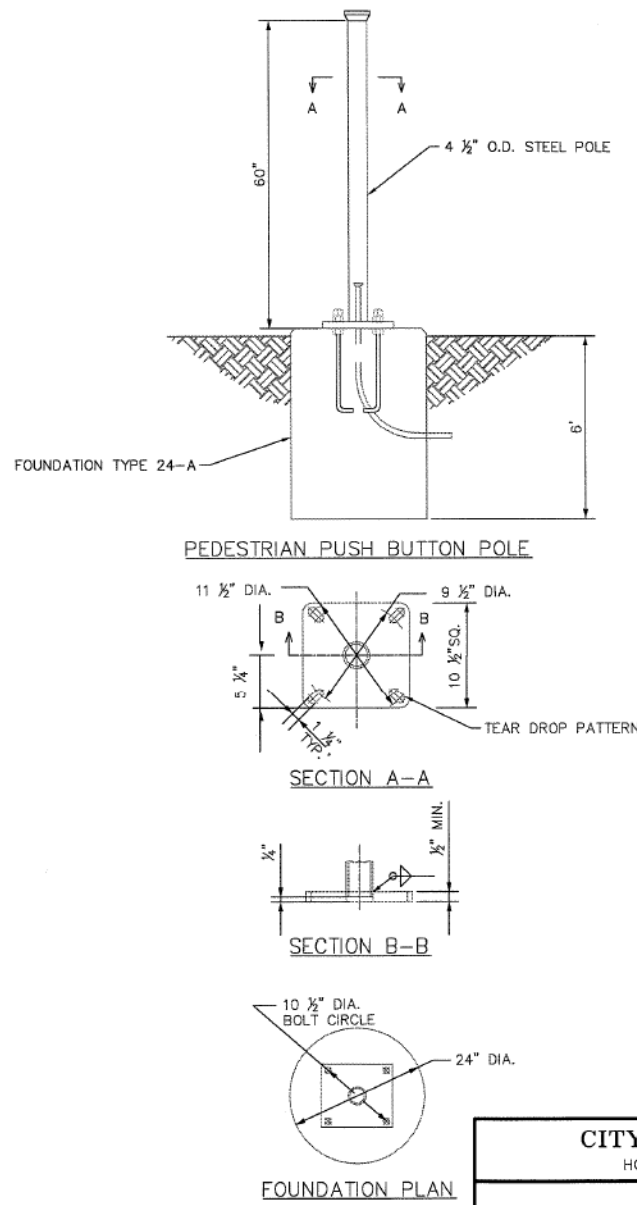
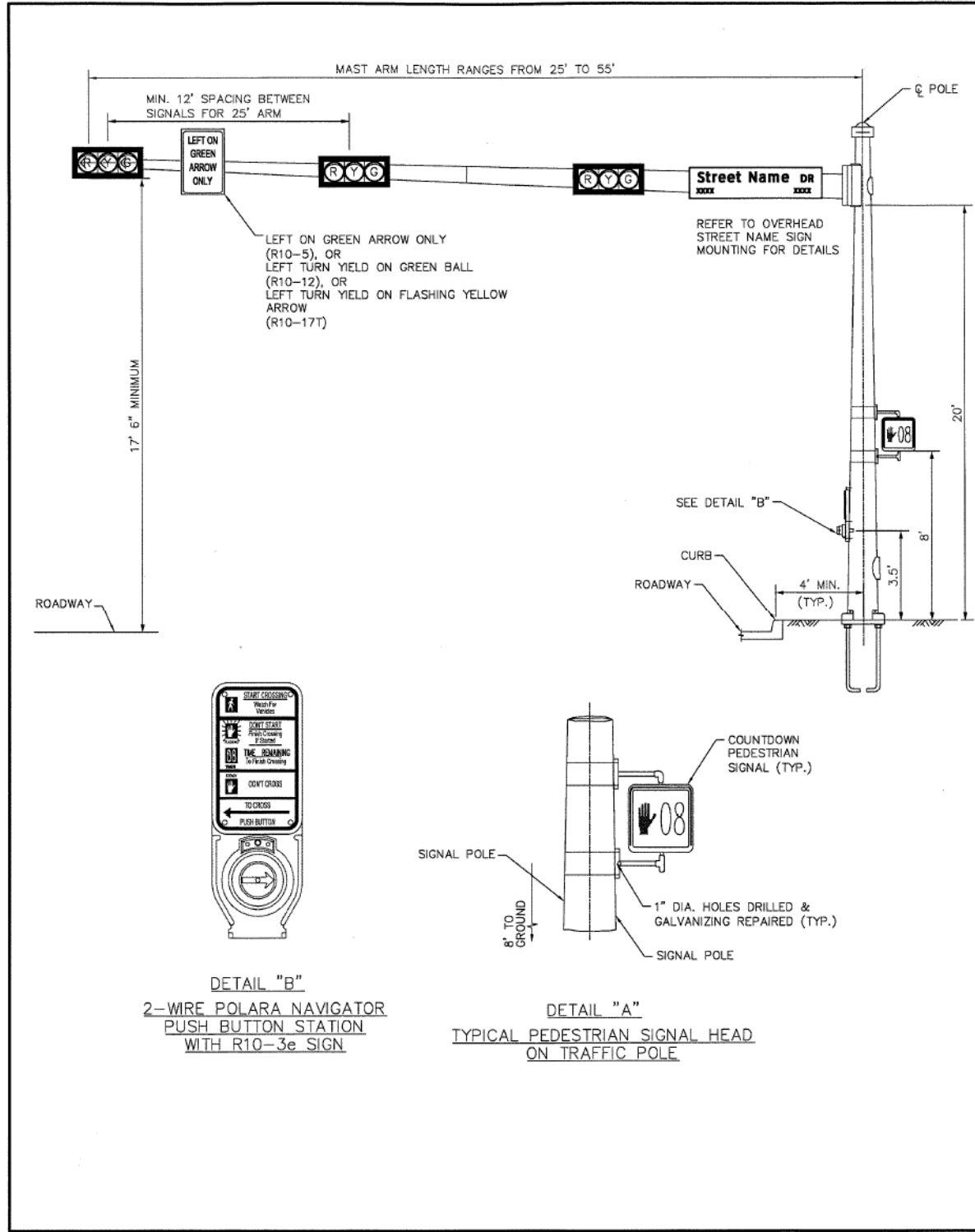
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

HARDWARE LEGENDS
 (NOT TO SCALE)

<i>[Signature]</i> CITY TRAFFIC ENGINEER CITY ENGINEER	<i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2018	DWG NO: 02893-02

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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 CITY OF HOUSTON TRAFFIC SIGNAL DETAILS SHEET 1 OF 16	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JUADA HUANG
SHEET NO. 255 OF 355	

No.	DATE	REVISIONS	APP.



- NOTE:**
1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS STATED ON "PEDESTAL POLE WITH DRILLED SHAFT FOUNDATION" STANDARD.
 2. REFER TO "PEDESTAL POLE WITH DRILLED SHAFT FOUNDATION" STANDARD DETAIL FOR ANCHOR BOLT DETAILS.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

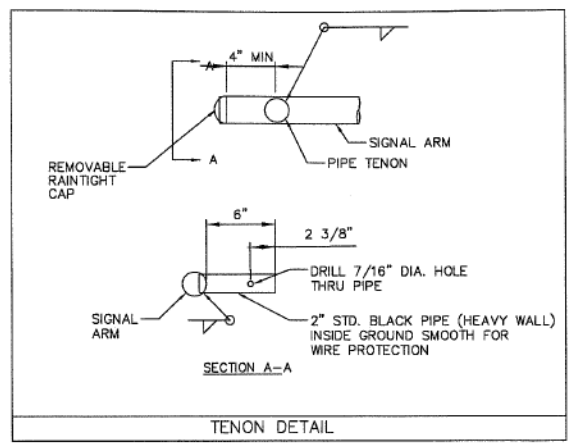
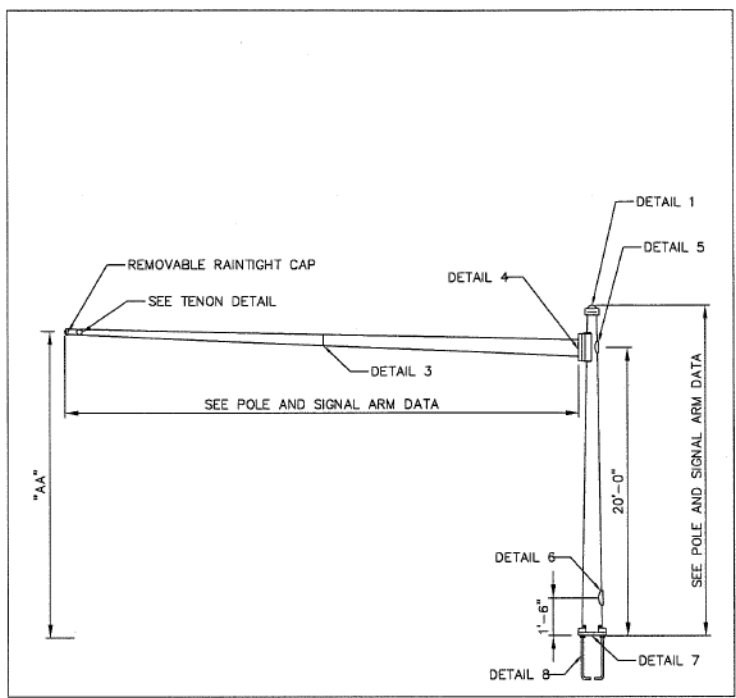
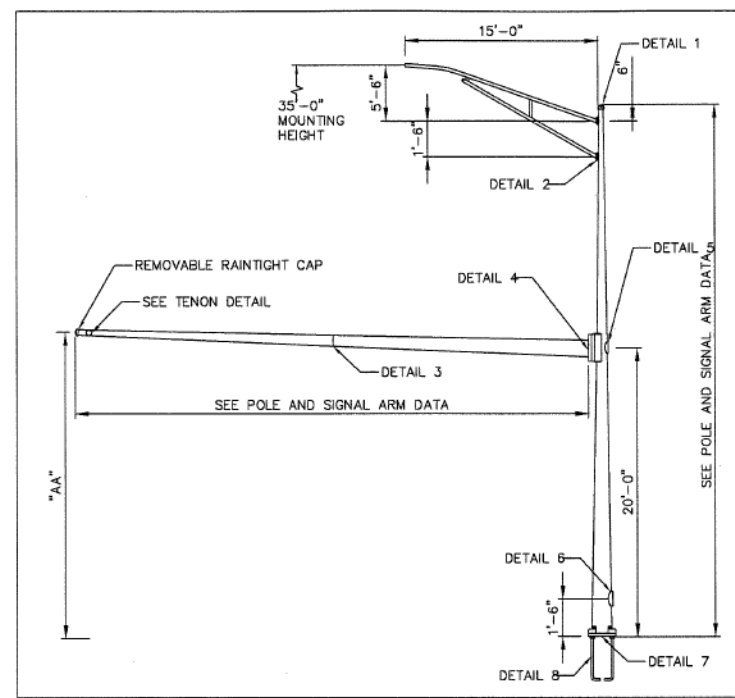
**TYPICAL MAST ARM /
POLE FIXTURE CONFIGURATION**
(NOT TO SCALE)

 CITY ENGINEER EFF DATE: JUL-01-2018	 DIRECTOR OF HOUSTON PUBLIC WORKS DWG NO: 02893-03
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 MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purposes of interim review under the authority of:</small> BRADLEY G. LEAVES 91759 2/16/2024 100% SUBMITTAL TEL Planning + Design <small>Texas Registered Engineering Firm F-3158</small>
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WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM JUADA HUANG	
SHEET NO. 256 OF 355	

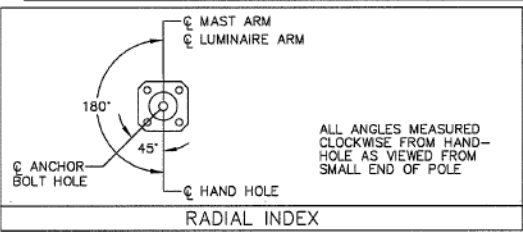
No.	DATE	REVISIONS	APP.

No.	DATE	REVISIONS	APP.



COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)	COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE SHAFT - 3 GAUGE	A595 GR.A	55	MAST ARM CONN. BOLTS	A325*	36
POLE SHAFT - 0.375"	A572 GR.55	55	LUM. ARM CONN. BOLTS	SAE GR.5	36
MAST ARM SHAFT	A595 GR.A	55	ANCHOR BOLTS	F1554 GR.55	55
LUMINAIRE ARM SHAFT	2" SCH.80 PIPE		GALVANIZING	A123 & A153	
ARM ATTACHMENT PLATE	A36	36			
BASEPLATE	A36	36			

*LUBRICATE IN FIELD IF NECESSARY IN LIEU OF THE REQUIREMENTS IN A325.



ALTHOUGH RARE, VIBRATIONS SEVERE ENOUGH TO CAUSE DAMAGE CAN OCCASIONALLY OCCUR IN STRUCTURES OF ALL TYPES. BECAUSE THEY ARE INFLUENCED BY MANY INTERACTING VARIABLES, VIBRATIONS ARE GENERALLY UNPREDICTABLE. THE USER'S MAINTENANCE PROGRAM SHOULD INCLUDE OBSERVATION FOR EXCESSIVE VIBRATION AND EXAMINATION FOR ANY STRUCTURAL DAMAGE OR BOLT LOOSENING. ARMS SHALL BE VISUALLY INSPECTED IN 5 TO 20 MPH WIND CONDITIONS AFTER SIGNAL HEAD INSTALLATION AND, IF VERTICAL MOVEMENTS WITH A TOTAL EXCURSION (MAXIMUM POSITIVE TO MAXIMUM NEGATIVE) OF MORE THAN APPROXIMATELY 8 INCHES ARE OBSERVED AT ARM TIP, DAMPING DEVICES OR OTHER MEANS SHALL BE FITTED TO THE ARM (S). THE NECESSARY DAMPING DEVICE (S) OR OTHER REMEDIAL MEASURES SHALL BE AS RECOMMENDED BY THE CONTRACTOR. EXCESSIVE VIBRATIONS SHALL NOT BE ALLOWED TO CONTINUE FOR MORE THAN 2 DAYS.

VIBRATION DISCLAIMER

DESIGNATION KEY			POLE TUBE					POLE BASE				ANCHOR BOLT				SIGNAL ARM TUBE					
POLE SERIES	POLE TYPE	SIGNAL ARM SPAN (FT)	BASE DIA. (IN)	TOP DIA. (IN) WITH LUM ARM	TOP DIA. (IN) WITHOUT LUM ARM	LENGTH (FT) WITH LUM ARM	LENGTH (FT) WITHOUT LUM ARM	GAUGE OR THK. (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE / SLOT "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	HOOK "H" (IN)	THREAD LENGTH "U" (IN)	FIXED END DIA. (IN)	FREE END DIA. (IN)	GAUGE OR THICK (IN)	SPAN (FT)	TIP HEIGHT "AA" (FT)
HOU	1	25	13.00	8.80	10.00	30.00	21.50	3	19.00	18.00	2.25	2.50	2.25	89.00	7.00	12.00	8.00	3.50	7	25.00	20.2
		9.00															4.80	7	30.00	20.3	
		10.00															5.10	7	35.00	20.3	
HOU	2	40	13.00	8.80	10.00	30.00	21.50	0.375	19.00	18.00	2.25	2.50	2.25	89.00	7.00	12.00	10.50	4.90	7	40.00	20.3
		10.14															3.84	3	45.00	20.4	
		11.00															4.00	3	50.00	20.4	
		11.50															4.16	DET 3	55.00	20.5	

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TRAFFIC SIGNAL STRUCTURES
(SHEET 1 OF 2)

(NOT TO SCALE)

[Signature]
CITY TRAFFIC ENGINEER

[Signature]
CITY ENGINEER

[Signature]
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018 DWG NO: 02893-04A

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

teip
Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002

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2/16/2024
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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
CITY OF HOUSTON TRAFFIC SIGNAL DETAILS
SHEET 3 OF 16

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 257 OF 355	

DETAIL 1 POLE TOP

DETAIL 2 LUMINAIRE ARM ATTACHMENT

DETAIL 3 SIGNAL ARM SLIP JOINT

ITEM	BASE SECTION		END SECTION	
	LENGTH	GAUGE	LENGTH	GAUGE
55.00'	26.42'	3	30.71'	7

DETAIL 4 SIGNAL ARM ATTACHMENT

POLE TYPE	"A"	"B"	"C"	"D"	"E"	"F"
1	17.75"	17.75"	14.50"	14.50"	1.50"	1.25" X 4.50"
2	18.75"	18.75"	15.00"	15.00"	1.75"	1.50" X 5.25"

DETAIL 5 HANDHOLE

POLE TYPE	A	B	C	D
1	7 GA.	3.00"	5.00"	1.50"
2	0.50"	4.00"	6.00"	2.50"

DETAIL 6 HANDHOLE

POLE TYPE	A	B	C
1	7.56"	5.19"	0.280"
2	7.31"	5.63"	0.432"

DETAIL 7 POLE BASE

DETAIL 8 ANCHOR BOLT

DESIGN NOTE:
 DESIGNS ARE BASED ON THE LOADING CHART SHOWN ON THIS DRAWING AND ARE IN ACCORDANCE WITH MATERIALS AND ALLOWABLE STRESS REQUIREMENTS OF THE 1994 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" FOR A 90 MPH WIND ZONE WITH A 1.3 GUST FACTOR.

MAXIMUM LOADING INFORMATION

DEVICE	DESCRIPTION	PROJ. AREA (FT ²)	WEIGHT (LBS)
(A)	12"-5 SEC. SIGNAL WITH BACKPLATES	13.33	96
(B)	30" X 36" SIGNAL ARM MOUNTED SIGN	7.50	15
(C)	12"-3 SEC. SIGNAL WITH BACKPLATES	8.67	53
(D)	VIVOS CAMERA	1.00	15
(E)	24" X 72" STREET NAME SIGN	12.00	30
(F)	PEDESTRIAN SIGNAL	4.00	40

25' & 30' MAST ARMS

35', 40', & 45' MAST ARMS

50' & 55' MAST ARMS

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TRAFFIC SIGNAL STRUCTURES
(SHEET 2 OF 2)

(NOT TO SCALE)

CITY TRAFFIC ENGINEER
 CITY ENGINEER

DIRECTOR OF
 HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018 DWG NO: 02893-048

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
CITY OF HOUSTON TRAFFIC SIGNAL DETAILS
SHEET 4 OF 16

WBS NUMBER: N-T27000-0005-7

DRAWING SCALE: AS NOTED

CITY OF HOUSTON PM: JIADA HUANG

SHEET NO. 258 OF 355

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TEI Planning + Design
Texas Registered Engineering Firm F-1158

No.	DATE	REVISIONS	APP.

POLE MARK	DRILLED SHAFT DIA.	REINFORCING STEEL		DRILLED SHAFT LENGTH -feet	BOLT CIRCLE DIA.	FOUNDATION DESIGN LOADS (1)			TYPICAL APPLICATION
		VERT. BARS	SPIRAL & PITCH			MOMENT K-ft.	SHEAR KIPS	TORQUE K-ft.	
HOU 1	30"	8-#9	#3 @ 9"	14'-0"	18"	72.2	3.4	51.9	MAST ARM ASSEMBLY (25'-35') IN COHESIVE SOILS
HOU 2	30"	8-#9	#3 @ 9"	18'-0"	18"	89.9	4.0	98.0	MAST ARM ASSEMBLY (40'-55') IN COHESIVE SOILS MAST ARM ASSEMBLY (25'-55') IN NON-COHESIVE SOILS

FOUNDATION DESIGN TABLE NOTES:

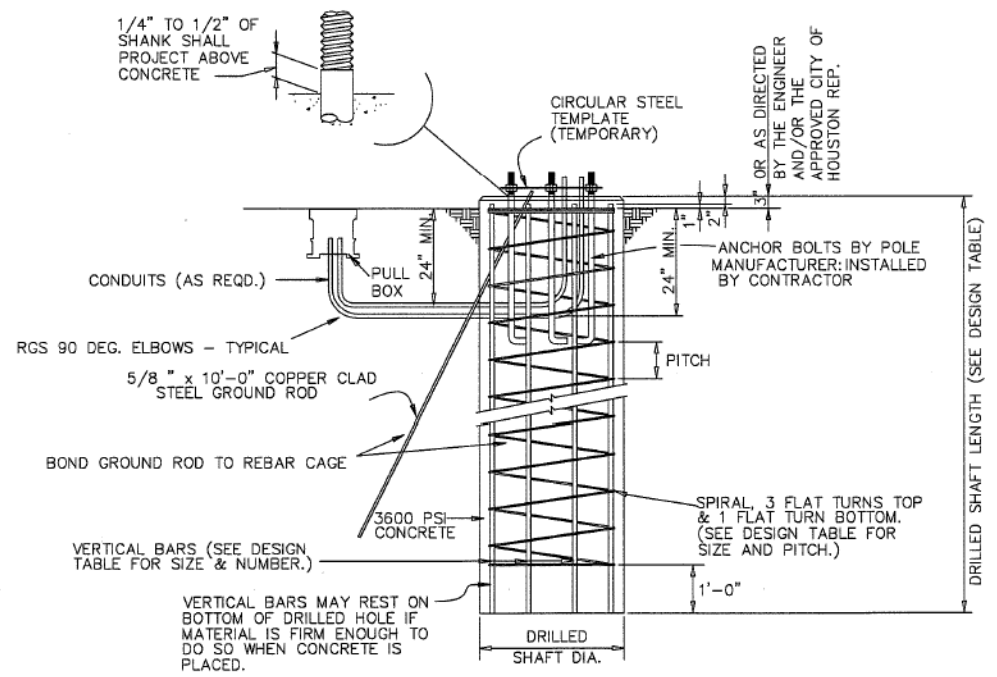
- (1) FOUNDATION DESIGN LOADS ARE THE ALLOWABLE MOMENTS, SHEARS AND TORQUES AT THE TOP OF THE FOUNDATION.
- (2) CONSTRUCT IN ACCORDANCE WITH CITY OF HOUSTON SPECIFICATION SECTION 02465, "DRILLED SHAFT FOUNDATIONS".
- (3) FOUNDATION DESIGN IS BASED UPON AN UNDRAINED SHEAR STRENGTH OF 1500 PSF FOR COHESIVE SOILS AND A TEXAS CONE PENETROMETER MINIMUM OF 10 BLOWS/FOOT IN NON-COHESIVE SOILS. WHERE COHESIVE AND NON-COHESIVE LAYERS EXIST WITHIN THE SPECIFIED SHAFT LENGTH, THE NON-COHESIVE SOILS SHALL GOVERN. LOWER SOIL PARAMETERS WILL REQUIRE A SPECIAL DESIGN.

GENERAL NOTES:

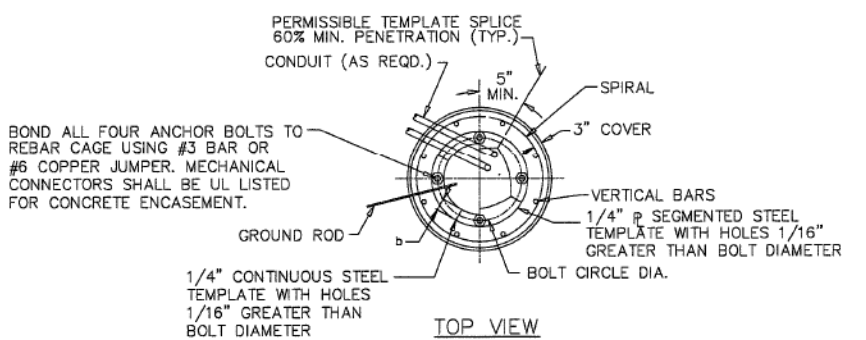
1. DESIGN IS FOR CITY OF HOUSTON STANDARD TRAFFIC SIGNAL MAST ARM SUPPORT STRUCTURES BY VALMONT INDUSTRIES, INC.
2. DESIGN CONFORMS TO 2001 AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" AND INTERIM REVISIONS THERETO, FOR A 90 MPH WIND ZONE WITH A 1.3 GUST FACTOR AND ACI "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-02)".
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
4. CONCRETE SHALL BE 6 SACK, 3600 PSI.
5. ALL ANCHOR BOLTS SHALL BE GALVANIZED THE ENTIRE LENGTH OF BOLT. EXPOSED NUTS AND WASHERS SHALL ALSO BE GALVANIZED.

INSTALLATION PROCEDURE

THREADS OF ANCHOR BOLTS SHALL BE COATED WITH PIPE JOINT COMPOUND PRIOR TO INSTALLATION OF UPPER NUTS WHEN ERECTING POLE. AFTER POLE IS PLUMBED AND IN PERMANENT ALIGNMENT, THE EXPOSED THREADS OF PAINTED BOLTS SHALL BE CLEANED AND AN ADDITIONAL COATING OF ZINC-RICH PAINT APPLIED TO SEAL THE BOLT THREAD-NUT JOINT.



FOUNDATION DETAILS



TOP VIEW

NOTE:

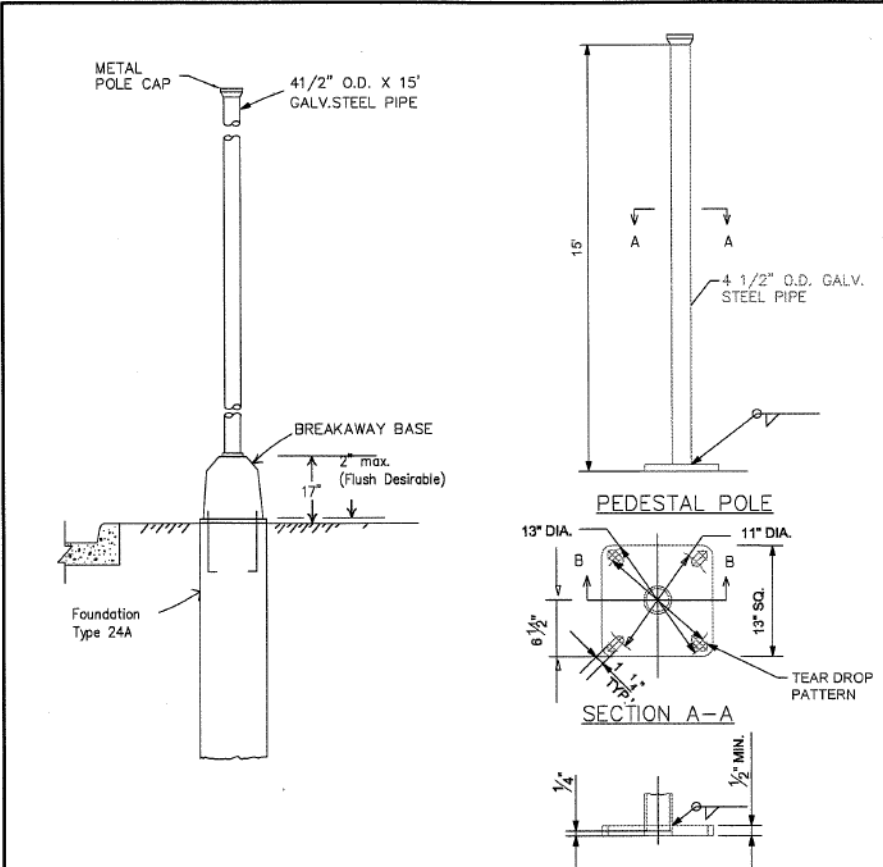
1. b = MINIMUM STEEL TEMPLATE WIDTH EQUAL TO TWO TIMES ANCHOR BOLT DIAMETER.
2. STEEL TEMPLATE MAY BE OF CONTINUOUS WIDTH OR SEGMENTED WIDTH.
3. SEE FOUNDATION DESIGN TABLE FOR BOLT CIRCLE DIAMETER.
4. BOLTS SHOULD BE CHECKED FOR PLUMB AFTER CONCRETE IS POURED AND BEFORE INITIAL SET.

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
POLE FOUNDATION DETAILS (NOT TO SCALE)	
<i>[Signature]</i> CITY TRAFFIC ENGINEER CITY ENGINEER	<i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2018	DWG NO: 02893-05

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
tei Planning + Design TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purposes of interim review under the authority of:</small> BRADLEY G. ZAVES 91759 2/16/2024 100% SUBMITTAL TEI Planning + Design Texas Registered Engineering Firm F-3158
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WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 259 OF 355	

REVISIONS	DATE	APP.

REVISIONS	DATE	APP.



- NOTES:**
1. DETAILS DEPICTED ON THIS SHEET SHOW A TYPICAL PEDESTAL POLE ASSEMBLY WITH A DRILLED SHAFT FOUNDATION.
 2. USE 24 IN. DRILLED SHAFT FOUNDATION AS SHOWN.
 3. PROVIDE BREAKAWAY FUSE HOLDER WITH DOUBLE-POLE HOUSING. ENSURE FUSE HOLDER IS POLARIZED, WATER-RESISTANT, UL RECOGNIZED, AND RATED FOR 30A MAXIMUM CURRENT CAPACITY AT 600V OR LESS. PROVIDE BREAKAWAY FUSE HOLDER FROM MANUFACTURERS PRE-QUALIFIED BY THE TRAFFIC OPERATIONS DIVISION. SEE HTTP://WWW.DOT.STATE.TX.US/BUSINESS/PRODUCER_LIST.HTM FOR LIST OF PRE-QUALIFIED MANUFACTURERS. CATEGORY IS "ROADWAY ILLUMINATION AND ELECTRICAL SUPPLIES." PROVIDE 10 AMP TIME DELAY FUSES.
 4. POLE SHAFT SHALL BE ONE PIECE. ALUMINUM CONDUIT WILL NOT DEVELOP THE NECESSARY STRENGTH AND WILL NOT BE ALLOWED. IN HIGH WINDS, USE A POLE AND BASE COLLAR ASSEMBLY TO ADD STRENGTH AND PREVENT LOOSENING ON CONNECTION.
 5. PER MANUFACTURER'S RECOMMENDATIONS, ENGAGE ALL THREADS ON THE PEDESTAL POLE BASE AND PIPE UNLESS THE PIPE IS FULLY SEATED INTO BASE.
 6. PROVIDE NON-FUSED WATERTIGHT BREAKAWAY ELECTRICAL CONNECTORS FOR BREAKAWAY POLES.(BUSSMANN HET, LITTELFUSE LET, FERRAZ-SHAWMUT FEBN, OR APPROVED EQUAL).
 7. PROVIDE SIGNAL HEADS AND MOUNTING AS SHOWN ELSEWHERE ON THE PLANS.

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		DRILLED SHAFT LENGTH-ft	ANCHOR BOLT DESIGN			FOUNDATION DESIGN LOAD		
		VERT BARS	SPIRAL & PITCH		ANCHOR BOLT DIA	F _y (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips
24-A	24"	4- #5	#2 at 12"	6	3/4"	36	*13"	1	10	1

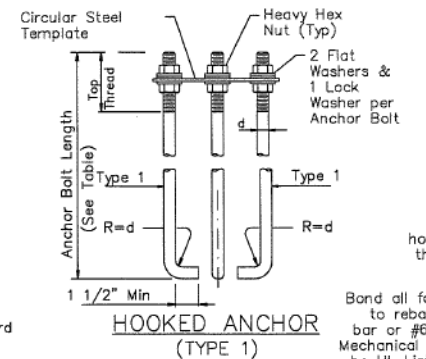
*10 1/2" B.C. FOR PUSH BUTTON POLE

ANCHOR BOLT ASSEMBLY INSTALLATION PROCEDURE

Threads of anchor bolts shall be coated with pipe joint compound prior to installation of upper nuts when erecting pole. After pole is plumbed and in permanent alignment, the exposed threads of painted bolts shall be cleaned and an additional coating of zinc-rich paint applied to seal the bolt thread-nut joint.

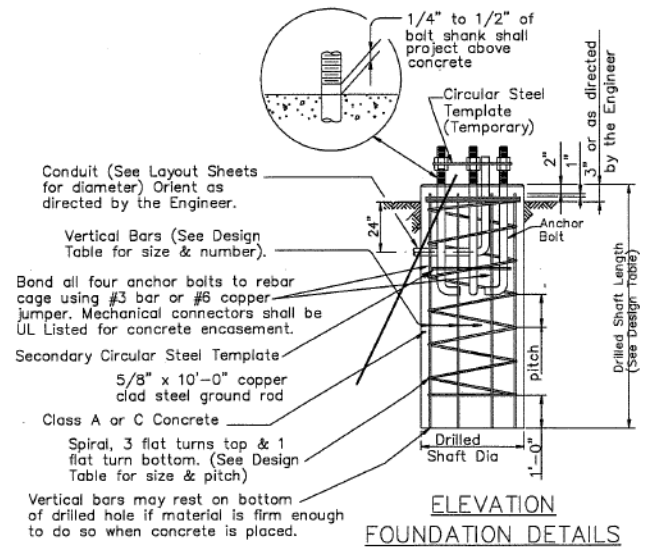
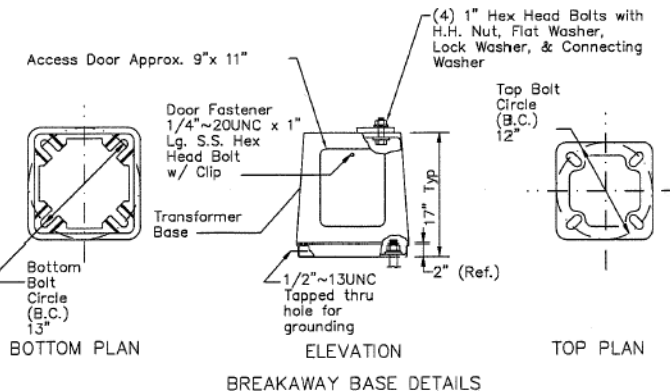
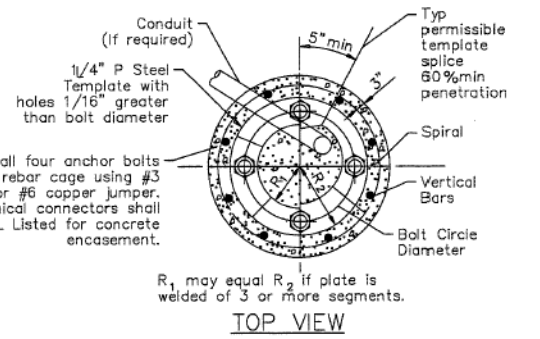
GENERAL NOTES

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto. Concrete shall be Class A or C. Threads for anchor bolts and nuts shall be rolled or cut threads of unified national coarse thread series except for A193B7 bolts which shall have 8 pitch thread series. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing. Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize all anchor bolts unless otherwise noted. Exposed nuts shall be galvanized or coated with zinc-rich paint. Washers shall be galvanized. Templates and embedded nuts need not be galvanized.



BOLT DIA IN.	BOLT LENGTH	TOP THREAD	BOTT THREAD	BOLT CIRCLE	R ₂	R ₁
3/4"	1'-6"	3"	—	13"	7 1/8"	5 5/8"

③ Min dimensions given, longer bolts are acceptable.



CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

PEDESTAL POLE WITH DRILLED SHAFT FOUNDATION
 (NOT TO SCALE)

CITY TRAFFIC ENGINEER: *[Signature]*
 CITY ENGINEER

DIRECTOR OF HOUSTON PUBLIC WORKS: *[Signature]*

EFF DATE: JUL-01-2018 DWG NO: 02893-07

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

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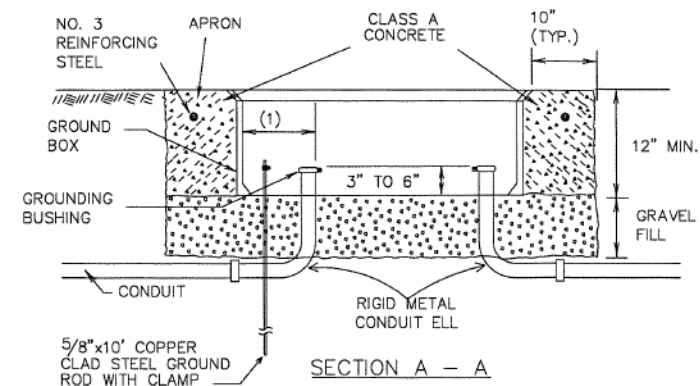
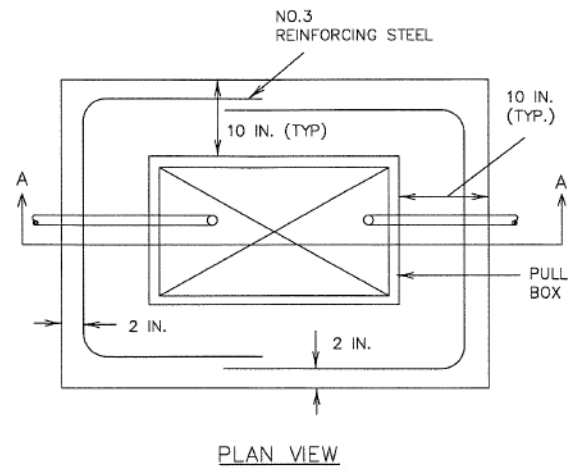
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 CITY OF HOUSTON TRAFFIC SIGNAL DETAILS
 SHEET 6 OF 16

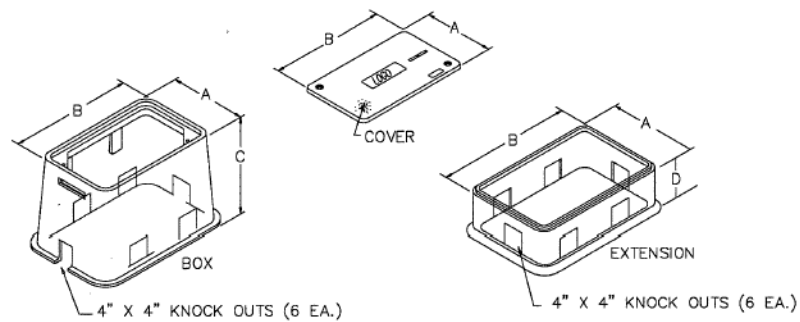
WBS NUMBER: N-T27000-0005-7
 DRAWING SCALE: AS NOTED
 CITY OF HOUSTON PM: JUADA HUANG
 SHEET NO. 260 OF 355

No.	DATE	REVISIONS	APP.

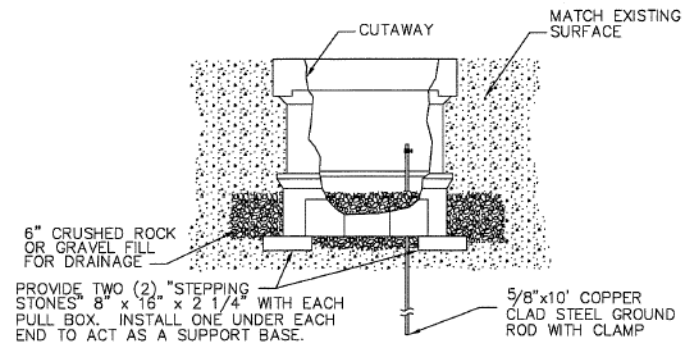


APRON FOR PULL BOXES

- (1) FINAL POSITION OF END OF CONDUIT SHALL NOT EXCEED ONE-HALF THE DISTANCE TO THE SIDE OF BOX OPPOSITE THE CONDUIT ENTRY.
- (2) PLACE GRAVEL "UNDER" THE BOX, NOT "IN" THE BOX. GRAVEL SHOULD NOT ENCRoACH ON THE INTERIOR VOLUME OF THE BOX.
- (3) INSTALL BUSHING ON THE UPPER END OF ALL ELLS.
- (4) PROVIDE A 5/8" GROUND ROD IN ALL PULL BOXES AND CONNECT IT TO ANY AND ALL EQUIPMENT GROUNDING CONDUCTORS USING A LISTED CONNECTOR.
- (5) MAINTAIN SUFFICIENT SPACE BETWEEN ALL CONDUITS SO AS TO ALLOW FOR PROPER INSTALLATION OF BUSHINGS.
- (6) ALL CONDUITS SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
- (7) ALL CONDUITS INSTALLED IN THE GROUND BOX SHALL BE SEALED AFTER COMPLETION OF CONDUCTOR INSTALLATION AND ANY REQUIRED PULL TESTS. SILICONE SHALL NOT BE USED AS THE SEALANT.



NOMINAL DIMENSIONS FOR TRAFFIC SIGNAL PULL BOXES				
Type	A	B	C	D
DETECTOR TYPE A	13"	18"	24"	12"
TRAFFIC SIGNAL TYPE B	17"	30"	24"	12"
COMMUNICATION TYPE C	26"	38"	24"	12"



SIDE VIEW ELECTRICAL PULL BOX ASSEMBLY

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

PULL BOXES

(NOT TO SCALE)

 CITY ENGINEER EFF DATE: JUL-01-2018	 DIRECTOR OF HOUSTON PUBLIC WORKS DWG NO: 02893-08
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MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

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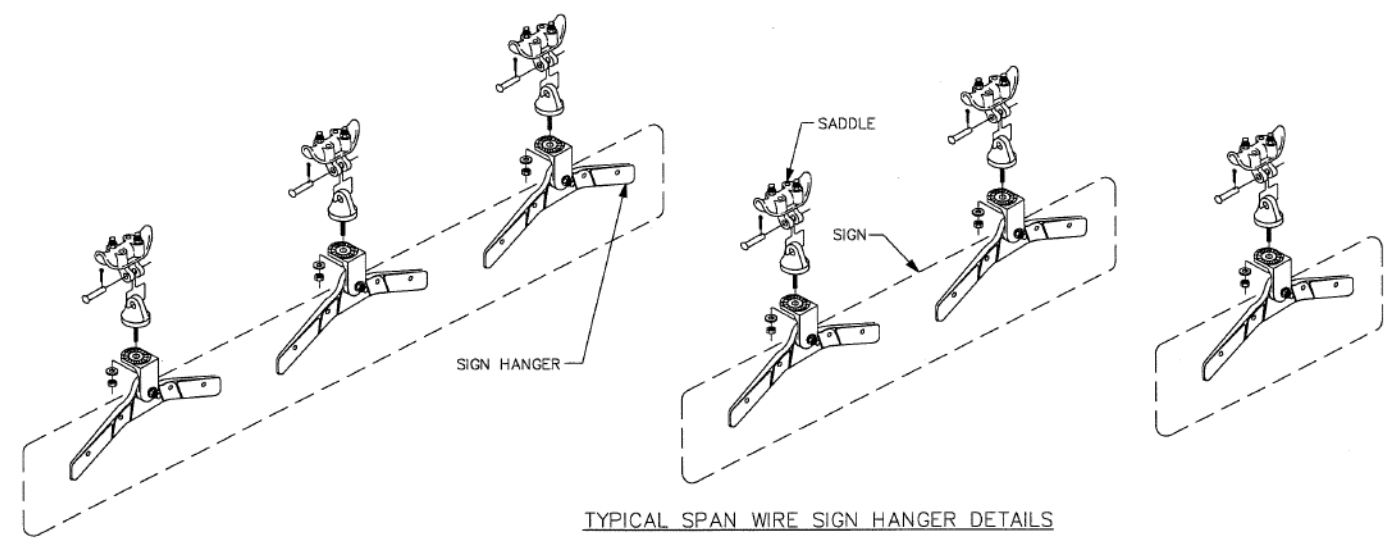
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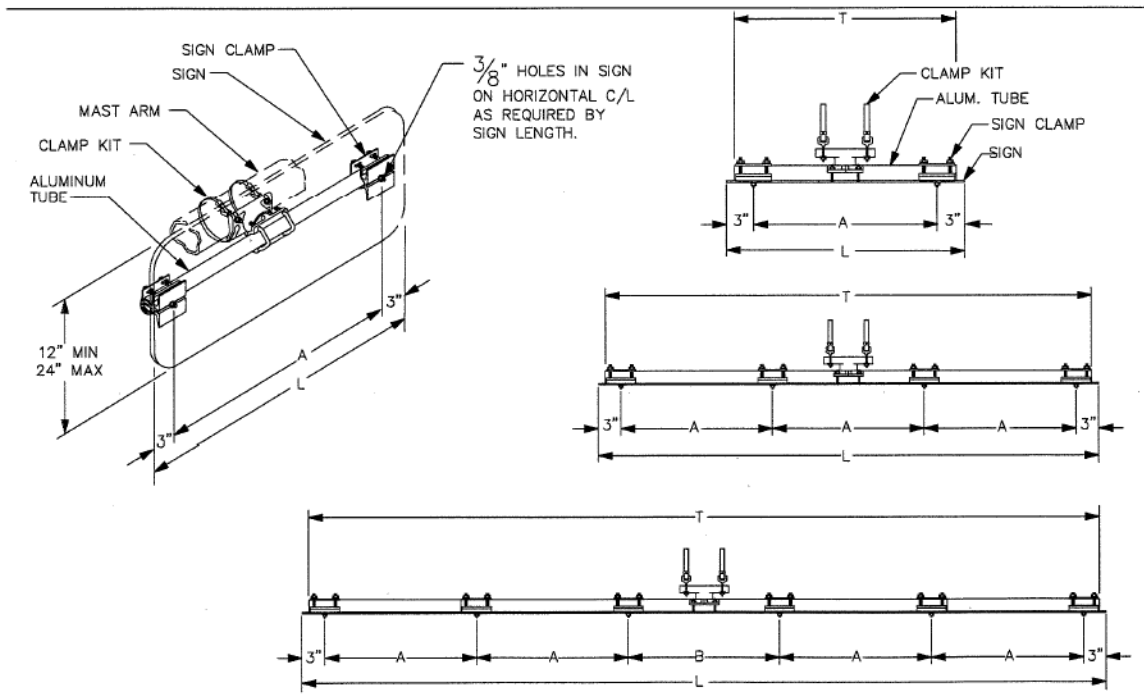
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
CITY OF HOUSTON TRAFFIC SIGNAL DETAILS
SHEET 7 OF 16

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CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 261 OF 355	

No.	DATE	REVISIONS	APP.



- 1) CONTRACTOR SHALL USE PELCO PARTS OR AN APPROVED EQUAL.
- 2) CONTRACTOR SHALL FURNISH ALL HARDWARE FOR A COMPLETE INSTALLATION.
- 3) THE 90 DEGREE SPAN WIRE CLAMPS (SADDLES) ARE ATTACHED TO TETHERS (SWAY CABLES).
- 4) CONTRACTOR SHALL FURNISH ONE (1) ADJUSTABLE FREE SWINGING SIGN HANGERS PER STREET NAME SIGN SMALLER THAN 3'-0". SIGNS 3'-0" TO 6'-0" REQUIRE TWO (2) HANGERS. SIGNS LARGER THAN 6'-0" REQUIRE THREE (3) HANGERS.
- 5) SEE SIGN MOUNTING SERIES FOR STREET NAME SIGN DETAILS.



SIGNS (1'-6" TO 3'-0" LONG)

SIGN LENGTH (L)	TUBE LENGTH (T)	A
1'-6"	16"	12"
2'-0"	22"	18"
2'-6"	28"	24"
3'-0"	34"	30"

Maximum Sign Height: 48"

SIGNS (3'-6" TO 8'-0" LONG)

SIGN LENGTH (L)	TUBE LENGTH (T)	A
3'-6"	40"	12"
4'-0"	46"	14"
4'-6"	52"	16"
5'-0"	58"	18"
5'-6"	64"	20"
6'-0"	70"	22"
6'-6"	76"	24"
7'-0"	82"	26"
7'-6"	88"	28"
8'-0"	94"	30"

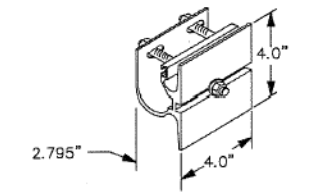
Maximum Sign Height: 24"

SIGNS (8'-6" TO 10'-0" LONG)

SIGN LENGTH (L)	TUBE LENGTH (T)	A	B
8'-6"	100"	19"	20"
9'-0"	106"	20"	22"
9'-6"	112"	21"	24"
10'-0"	118"	22"	26"

Maximum Sign Height: 16"

Sign square footage not to exceed rotational resistance capacity defined by mounting hardware manufacturer.



CITY OF HOUSTON
HOUSTON PUBLIC WORKS

OVERHEAD STREET NAME SIGN MOUNTING DETAILS
(NOT TO SCALE)

Mark F. Meyer
CITY TRAFFIC ENGINEER
CITY ENGINEER

Carl H. ...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018 DWG NO: 02893-09

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

teip
Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002

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BRADLEY G. LEAVES
91779
2/16/2024
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TEI Planning + Design
Texas Registered Engineering Firm F-3158

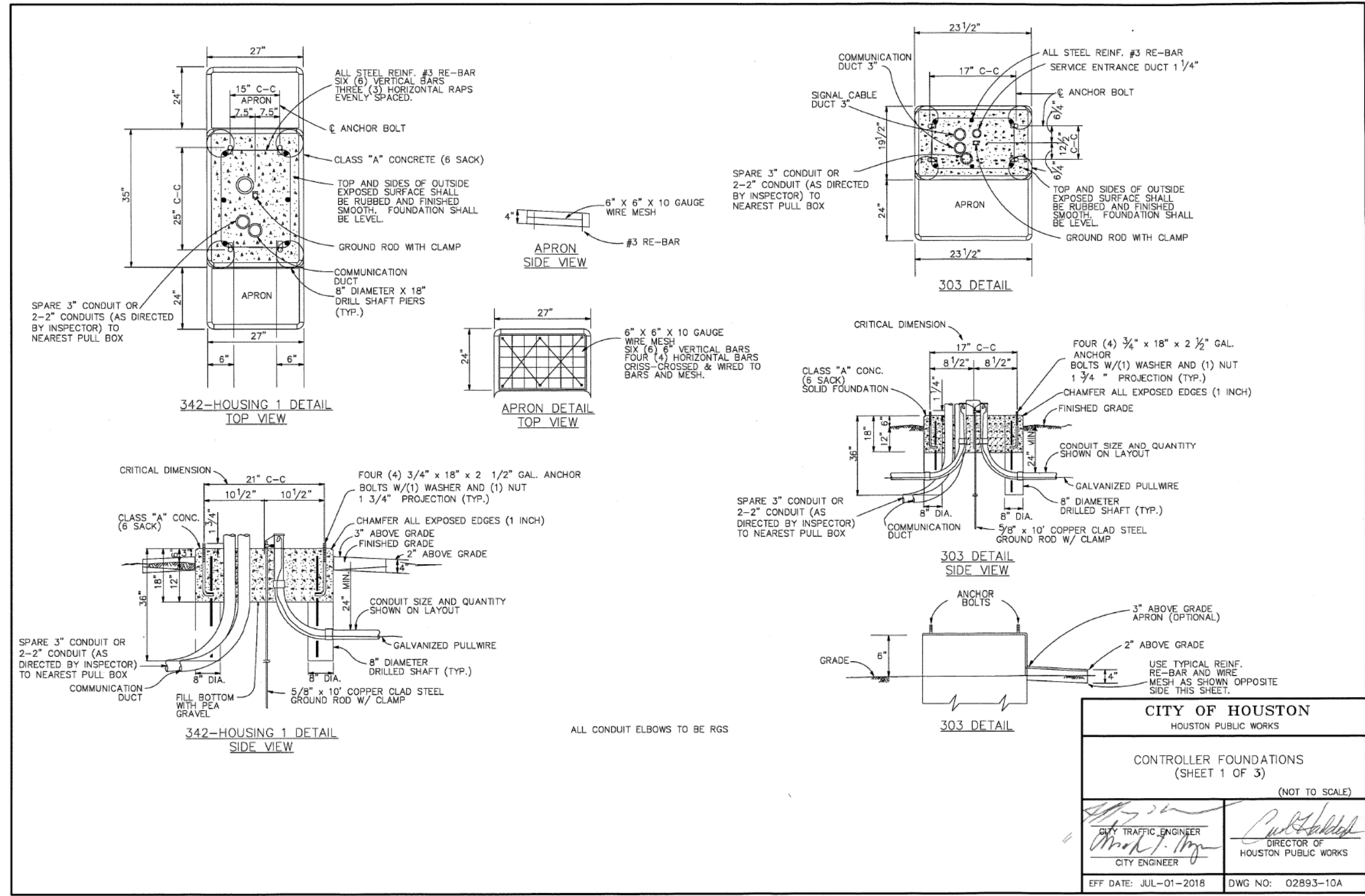
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HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
CITY OF HOUSTON TRAFFIC SIGNAL DETAILS
SHEET 8 OF 16

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 262 OF 355	

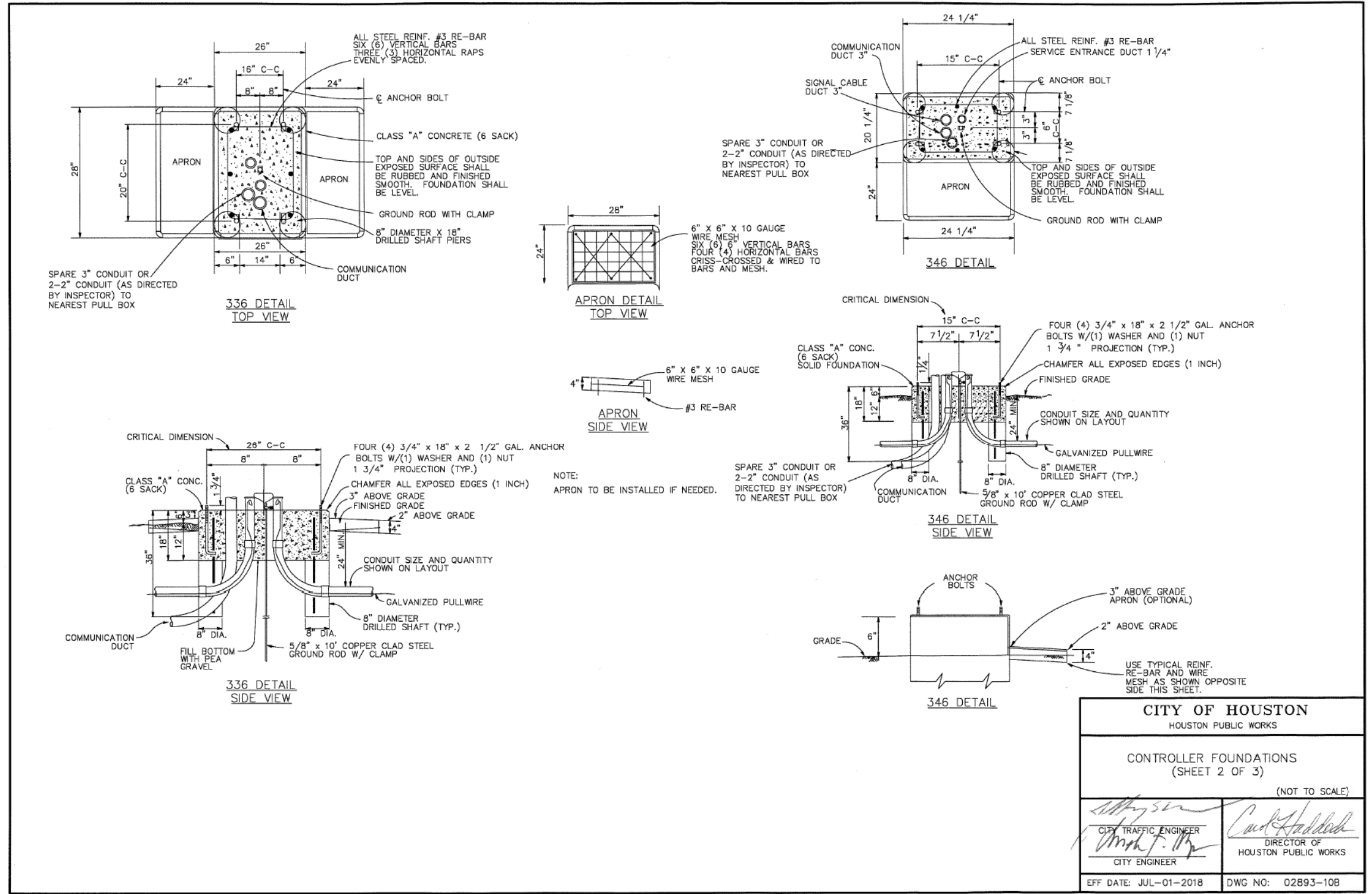
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
CONTROLLER FOUNDATIONS (SHEET 1 OF 3)	
(NOT TO SCALE)	
<i>[Signature]</i> CITY TRAFFIC ENGINEER CITY ENGINEER	<i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2018	DWG NO: 02893-10A

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
tei Planning + Design TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> BRADLEY G. LEAVES 91759 2/16/2024 100% SUBMITTAL <small>TEI Planning + Design Texas Registered Engineering Firm F-3158</small>
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 CITY OF HOUSTON TRAFFIC SIGNAL DETAILS SHEET 9 OF 16	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 263 OF 355	

No.	DATE	REVISIONS	APP.



CITY OF HOUSTON HOUSTON PUBLIC WORKS	
CONTROLLER FOUNDATIONS (SHEET 2 OF 3)	
(NOT TO SCALE)	
<i>[Signature]</i> CITY TRAFFIC ENGINEER CITY ENGINEER	<i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2018	DWG NO: 02893-10B

MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

tei
Planning + Design
TEXAS PE FIRM REG. #F-3158
712 MAIN STREET, SUITE #950
HOUSTON, TX 77002
91759
2/16/2024

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

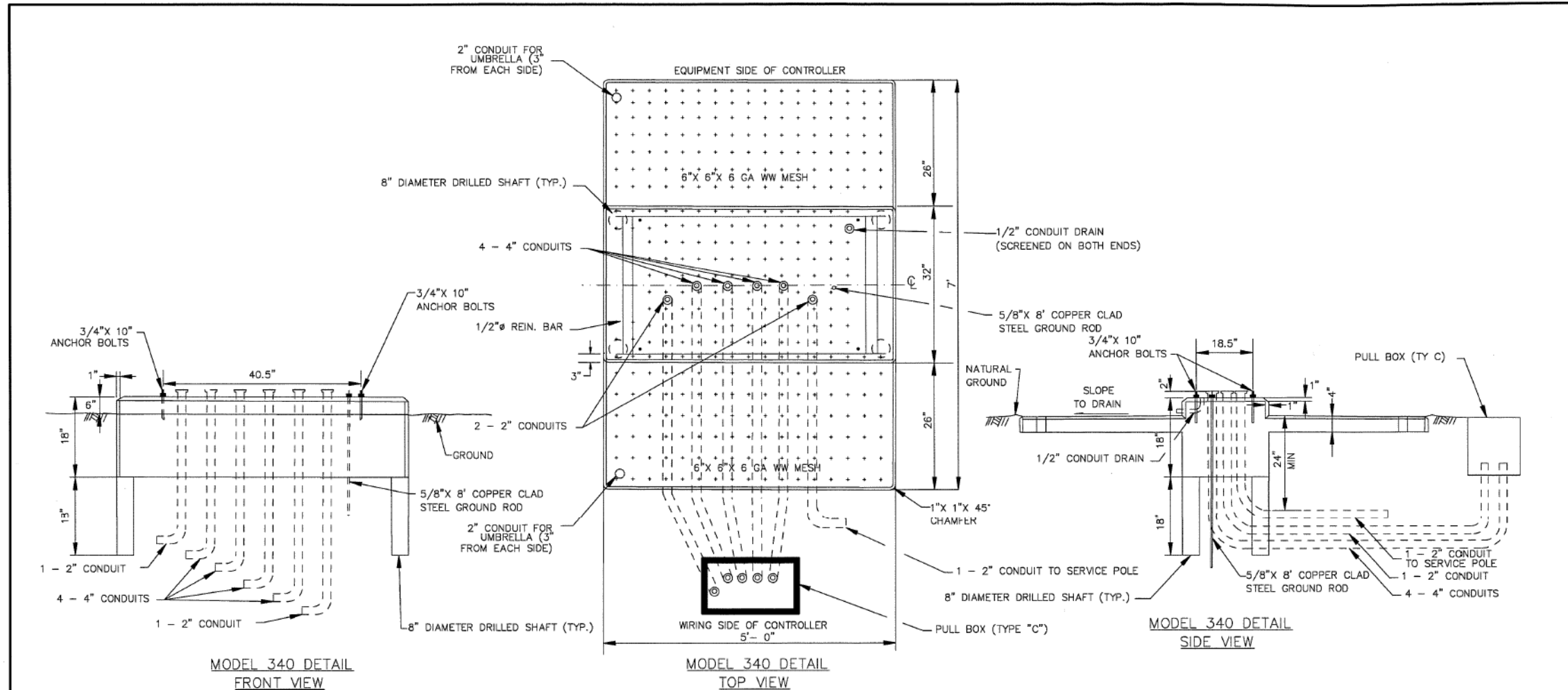
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CITY OF HOUSTON TRAFFIC SIGNAL DETAILS

SHEET 10 OF 16

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AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 264 OF 355	

No.	DATE	REVISIONS	APP.



ALL CONDUIT ELBOWS TO BE RGS

CONTROLLER FOUNDATION NOTES:

1. ALL CONCRETE TO BE IN ACCORDANCE WITH CITY OF HOUSTON SPECIFICATION SECTION 03310.
2. SET THE TOP OF THE STEP OF THE CONTROLLER FOUNDATION NO LOWER THAN THE LEVEL OF THE PAVEMENT SURFACE. ANY NECESSARY ADJUSTMENT SHALL BE APPROVED BY THE ENGINEER.
3. CENTER THE CABINET ON THE FOUNDATION.
4. THE FOUNDATION SHALL BE SUPPORTED BY UNDISTURBED SOIL OR BY SOIL THAT HAS BEEN COMPACTED TO 90% PROCTOR DENSITY IN 6" LIFTS.

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
CONTROLLER FOUNDATIONS (SHEET 3 OF 3)	
(NOT TO SCALE)	
 CITY TRAFFIC ENGINEER CITY ENGINEER	 DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2018	DWG NO: 02893-10C

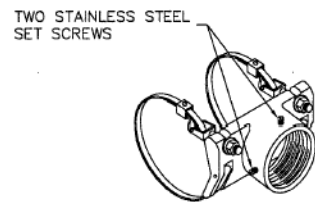
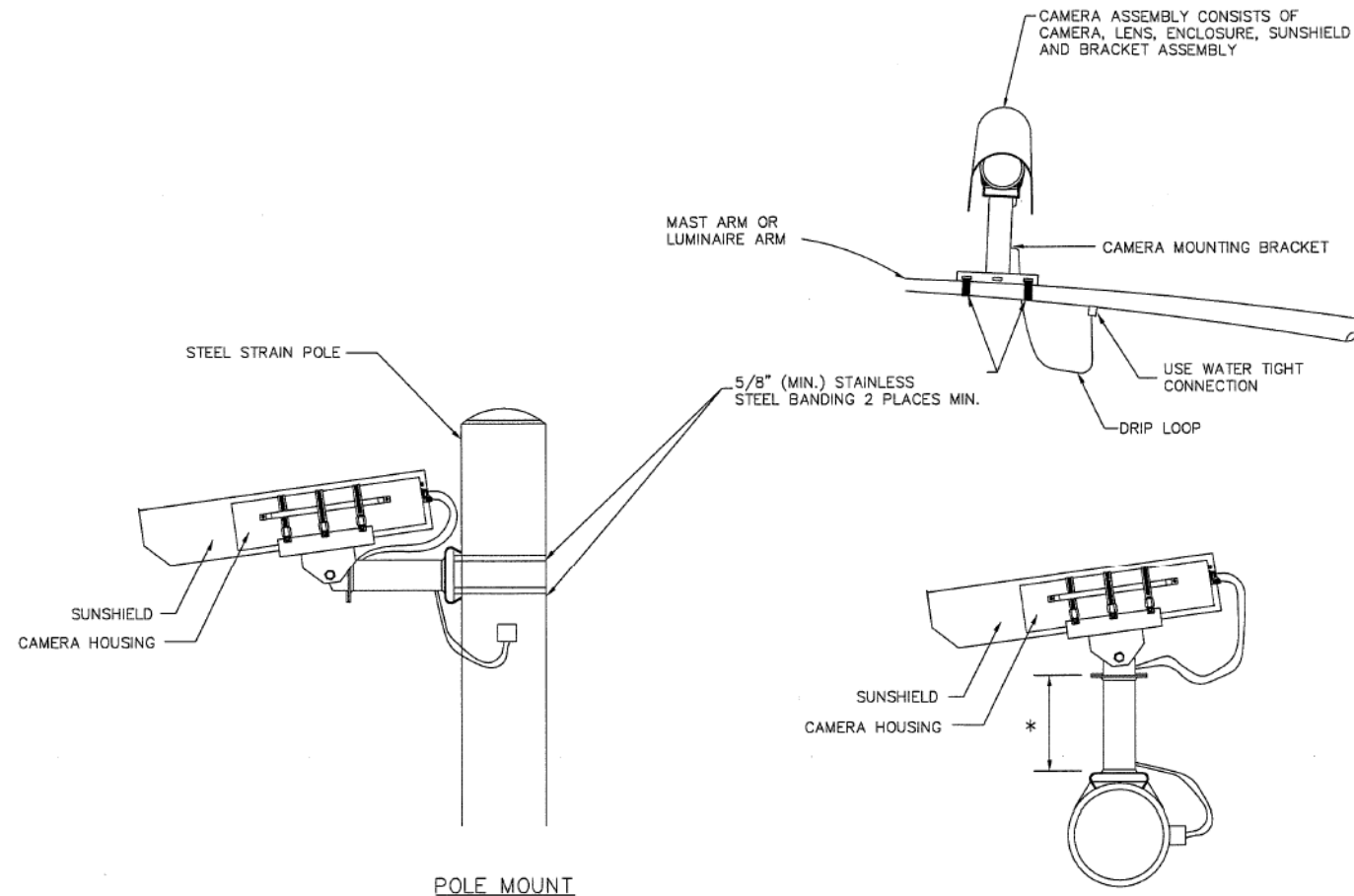
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 TEI Planning + Design TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purposes of interim review under the authority of:</small> BRADLEY G. LEAVES 91759 2/16/2024 100% SUBMITTAL TEI Planning + Design <small>Texas Registered Engineering Firm F-3158</small>
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 CITY OF HOUSTON TRAFFIC SIGNAL DETAILS SHEET 11 OF 16	
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JUADA HUANG	
SHEET NO. 265 OF 355	

No.	DATE	REVISIONS	APP.

No.	DATE	REVISIONS	APP.

VIDEO DETECTION NOTES

1. VIDEO DETECTION PROCESSOR UNIT SHALL BE INSTALLED INSIDE CONTROLLER CABINET.
2. VIDEO DETECTION CAMERA & BRACKET SHALL BE INSTALLED AS DETAILED OR AS DIRECTED BY THE VIDEO DETECTION SUPPLIER.
3. CAMERAS SHALL BE MOUNTED AS FAR OVER THE ROADWAY AS POSSIBLE.
4. 5/8" (MIN.) STAINLESS STEEL BANDING MATERIAL SHALL BE USED TO INSTALL CAMERA MOUNTS.
5. WHEN AIMING CAMERA, HORIZON SHALL NOT BE VISIBLE IN THE FIELD OF VIEW.
6. CAMERA ENCLOSURE ASSEMBLY SHALL BE ROTATABLE AFTER INSTALLATION TO PROVIDE PROPER ALIGNMENT.
7. ALL CABLE ENTRY AND EXIT POINTS IN THE MAST ARM AND/OR POLES SHALL BE WATER TIGHT.

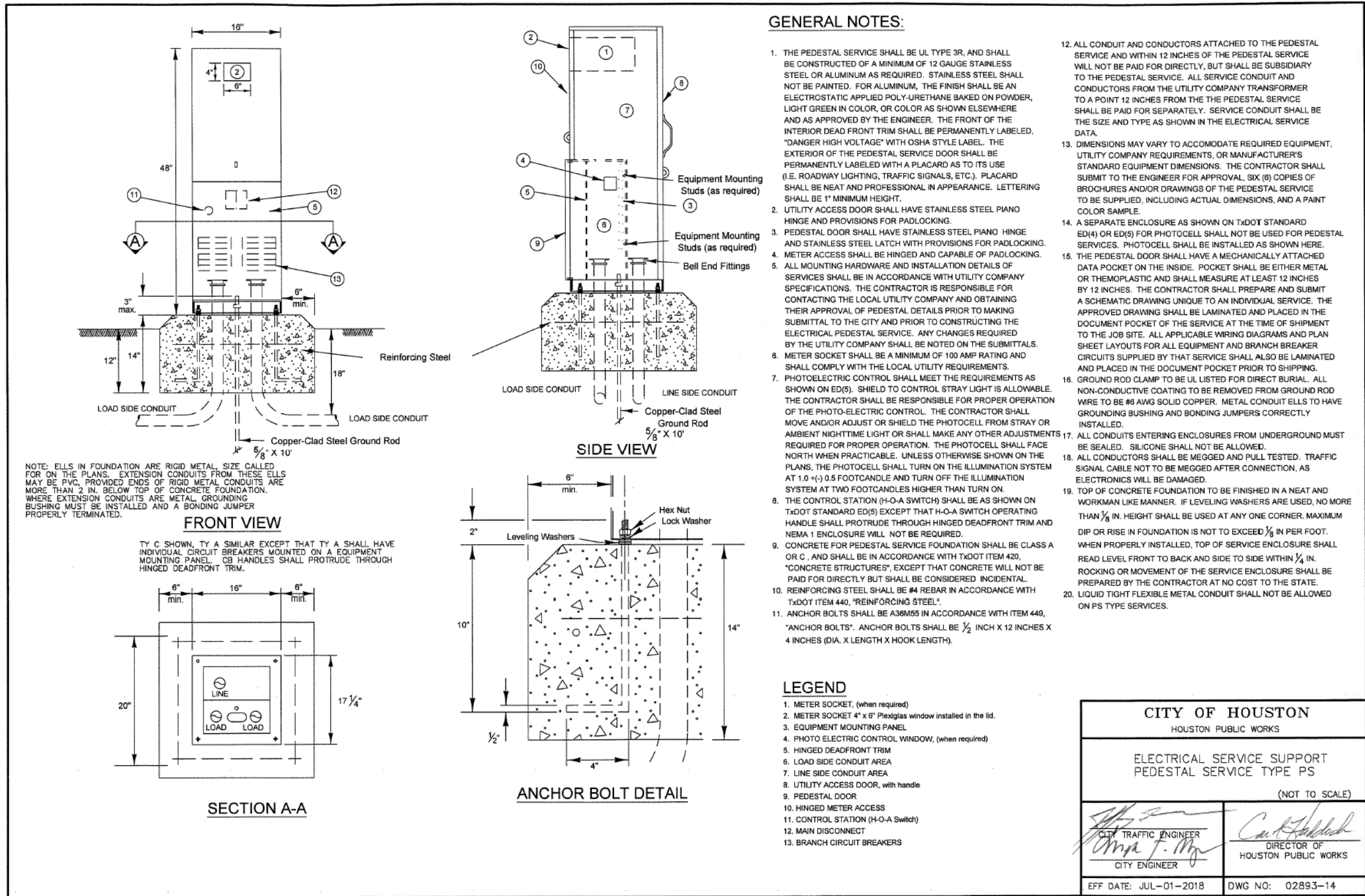


BAND MOUNT BRACKET DETAIL

* 4.0' PIPE EXTENSION WHEN MOUNTED ON TRAFFIC SIGNAL MAST ARM

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
VIDEO CAMERA MOUNTING DETAILS (NOT TO SCALE)	
<i>[Signature]</i> CITY TRAFFIC ENGINEER CITY ENGINEER	<i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2018	DWG NO: 02893-12

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WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 266 OF 355	



GENERAL NOTES:

1. THE PEDESTAL SERVICE SHALL BE UL TYPE 3R, AND SHALL BE CONSTRUCTED OF A MINIMUM OF 12 GAUGE STAINLESS STEEL OR ALUMINUM AS REQUIRED. STAINLESS STEEL SHALL NOT BE PAINTED. FOR ALUMINUM, THE FINISH SHALL BE AN ELECTROSTATIC APPLIED POLY-URETHANE BAKED ON POWDER, LIGHT GREEN IN COLOR, OR COLOR AS SHOWN ELSEWHERE AND AS APPROVED BY THE ENGINEER. THE FRONT OF THE INTERIOR DEAD FRONT TRIM SHALL BE PERMANENTLY LABELED, "DANGER HIGH VOLTAGE" WITH OSHA STYLE LABEL. THE EXTERIOR OF THE PEDESTAL SERVICE DOOR SHALL BE PERMANENTLY LABELED WITH A PLACARD AS TO ITS USE (I.E. ROADWAY LIGHTING, TRAFFIC SIGNALS, ETC.). PLACARD SHALL BE NEAT AND PROFESSIONAL IN APPEARANCE. LETTERING SHALL BE 1" MINIMUM HEIGHT.
2. UTILITY ACCESS DOOR SHALL HAVE STAINLESS STEEL PIANO HINGE AND PROVISIONS FOR PADLOCKING.
3. PEDESTAL DOOR SHALL HAVE STAINLESS STEEL PIANO HINGE AND STAINLESS STEEL LATCH WITH PROVISIONS FOR PADLOCKING.
4. METER ACCESS SHALL BE HINGED AND CAPABLE OF PADLOCKING.
5. ALL MOUNTING HARDWARE AND INSTALLATION DETAILS OF SERVICES SHALL BE IN ACCORDANCE WITH UTILITY COMPANY SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE LOCAL UTILITY COMPANY AND OBTAINING THEIR APPROVAL OF PEDESTAL DETAILS PRIOR TO MAKING SUBMITTAL TO THE CITY AND PRIOR TO CONSTRUCTING THE ELECTRICAL PEDESTAL SERVICE. ANY CHANGES REQUIRED BY THE UTILITY COMPANY SHALL BE NOTED ON THE SUBMITTALS.
6. METER SOCKET SHALL BE A MINIMUM OF 100 AMP RATING AND SHALL COMPLY WITH THE LOCAL UTILITY REQUIREMENTS.
7. PHOTOELECTRIC CONTROL SHALL MEET THE REQUIREMENTS AS SHOWN ON ED(5). SHIELD TO CONTROL STRAY LIGHT IS ALLOWABLE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER OPERATION OF THE PHOTO-ELECTRIC CONTROL. THE CONTRACTOR SHALL MOVE AND/OR ADJUST OR SHIELD THE PHOTOCELL FROM STRAY OR AMBIENT NIGHTTIME LIGHT OR SHALL MAKE ANY OTHER ADJUSTMENTS REQUIRED FOR PROPER OPERATION. THE PHOTOCELL SHALL FACE NORTH WHEN PRACTICABLE. UNLESS OTHERWISE SHOWN ON THE PLANS, THE PHOTOCELL SHALL TURN ON THE ILLUMINATION SYSTEM AT 1.0 (+/-) 0.5 FOOTCANDLES HIGHER THAN TURN ON.
8. THE CONTROL STATION (H-O-A SWITCH) SHALL BE AS SHOWN ON TxDOT STANDARD ED(5) EXCEPT THAT H-O-A SWITCH OPERATING HANDLE SHALL PROTRUDE THROUGH HINGED DEADFRONT TRIM AND NEMA 1 ENCLOSURE WILL NOT BE REQUIRED.
9. CONCRETE FOR PEDESTAL SERVICE FOUNDATION SHALL BE CLASS A OR C, AND SHALL BE IN ACCORDANCE WITH TxDOT ITEM 420, "CONCRETE STRUCTURES", EXCEPT THAT CONCRETE WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED INCIDENTAL.
10. REINFORCING STEEL SHALL BE #4 REBAR IN ACCORDANCE WITH TxDOT ITEM 440, "REINFORCING STEEL".
11. ANCHOR BOLTS SHALL BE A36M55 IN ACCORDANCE WITH ITEM 449, "ANCHOR BOLTS". ANCHOR BOLTS SHALL BE 1/2 INCH X 12 INCHES X 4 INCHES (DIA. X LENGTH X HOOK LENGTH).
12. ALL CONDUIT AND CONDUCTORS ATTACHED TO THE PEDESTAL SERVICE AND WITHIN 12 INCHES OF THE PEDESTAL SERVICE WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO THE PEDESTAL SERVICE. ALL SERVICE CONDUIT AND CONDUCTORS FROM THE UTILITY COMPANY TRANSFORMER TO A POINT 12 INCHES FROM THE THE PEDESTAL SERVICE SHALL BE PAID FOR SEPARATELY. SERVICE CONDUIT SHALL BE THE SIZE AND TYPE AS SHOWN IN THE ELECTRICAL SERVICE DATA.
13. DIMENSIONS MAY VARY TO ACCOMMODATE REQUIRED EQUIPMENT, UTILITY COMPANY REQUIREMENTS, OR MANUFACTURER'S STANDARD EQUIPMENT DIMENSIONS. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, SIX (6) COPIES OF BROCHURES AND/OR DRAWINGS OF THE PEDESTAL SERVICE TO BE SUPPLIED, INCLUDING ACTUAL DIMENSIONS, AND A PAINT COLOR SAMPLE.
14. A SEPARATE ENCLOSURE AS SHOWN ON TxDOT STANDARD ED(4) OR ED(5) FOR PHOTOCELL SHALL NOT BE USED FOR PEDESTAL SERVICES. PHOTOCELL SHALL BE INSTALLED AS SHOWN HERE.
15. THE PEDESTAL DOOR SHALL HAVE A MECHANICALLY ATTACHED DATA POCKET ON THE INSIDE. POCKET SHALL BE EITHER METAL OR THERMOPLASTIC AND SHALL MEASURE AT LEAST 12 INCHES BY 12 INCHES. THE CONTRACTOR SHALL PREPARE AND SUBMIT A SCHEMATIC DRAWING UNIQUE TO AN INDIVIDUAL SERVICE. THE APPROVED DRAWING SHALL BE LAMINATED AND PLACED IN THE DOCUMENT POCKET OF THE SERVICE AT THE TIME OF SHIPMENT TO THE JOB SITE. ALL APPLICABLE WIRING DIAGRAMS AND PLAN SHEET LAYOUTS FOR ALL EQUIPMENT AND BRANCH BREAKER CIRCUITS SUPPLIED BY THAT SERVICE SHALL ALSO BE LAMINATED AND PLACED IN THE DOCUMENT POCKET PRIOR TO SHIPPING.
16. GROUND ROD CLAMP TO BE UL LISTED FOR DIRECT BURIAL. ALL NON-CONDUCTIVE COATING TO BE REMOVED FROM GROUND ROD WIRE TO BE #6 AWG SOLID COPPER. METAL CONDUIT ELLS TO HAVE GROUNDING BUSHING AND BONDING JUMPERS CORRECTLY INSTALLED.
17. ALL CONDUITS ENTERING ENCLOSURES FROM UNDERGROUND MUST BE SEALED. SILICONE SHALL NOT BE ALLOWED.
18. ALL CONDUCTORS SHALL BE MEGGED AND PULL TESTED. TRAFFIC SIGNAL CABLE NOT TO BE MEGGED AFTER CONNECTION, AS ELECTRONICS WILL BE DAMAGED.
19. TOP OF CONCRETE FOUNDATION TO BE FINISHED IN A NEAT AND WORKMAN LIKE MANNER. IF LEVELING WASHERS ARE USED, NO MORE THAN 1/8 IN. HEIGHT SHALL BE USED AT ANY ONE CORNER. MAXIMUM DIP OR RISE IN FOUNDATION IS NOT TO EXCEED 1/8 IN PER FOOT. WHEN PROPERLY INSTALLED, TOP OF SERVICE ENCLOSURE SHALL READ LEVEL FRONT TO BACK AND SIDE TO SIDE WITHIN 1/4 IN. ROCKING OR MOVEMENT OF THE SERVICE ENCLOSURE SHALL BE PREPARED BY THE CONTRACTOR AT NO COST TO THE STATE.
20. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL NOT BE ALLOWED ON PS TYPE SERVICES.

LEGEND

1. METER SOCKET, (when required)
2. METER SOCKET 4" x 6" Plexiglas window installed in the lid.
3. EQUIPMENT MOUNTING PANEL
4. PHOTO ELECTRIC CONTROL WINDOW, (when required)
5. HINGED DEADFRONT TRIM
6. LOAD SIDE CONDUIT AREA
7. LINE SIDE CONDUIT AREA
8. UTILITY ACCESS DOOR, with handle
9. PEDESTAL DOOR
10. HINGED METER ACCESS
11. CONTROL STATION (H-O-A Switch)
12. MAIN DISCONNECT
13. BRANCH CIRCUIT BREAKERS

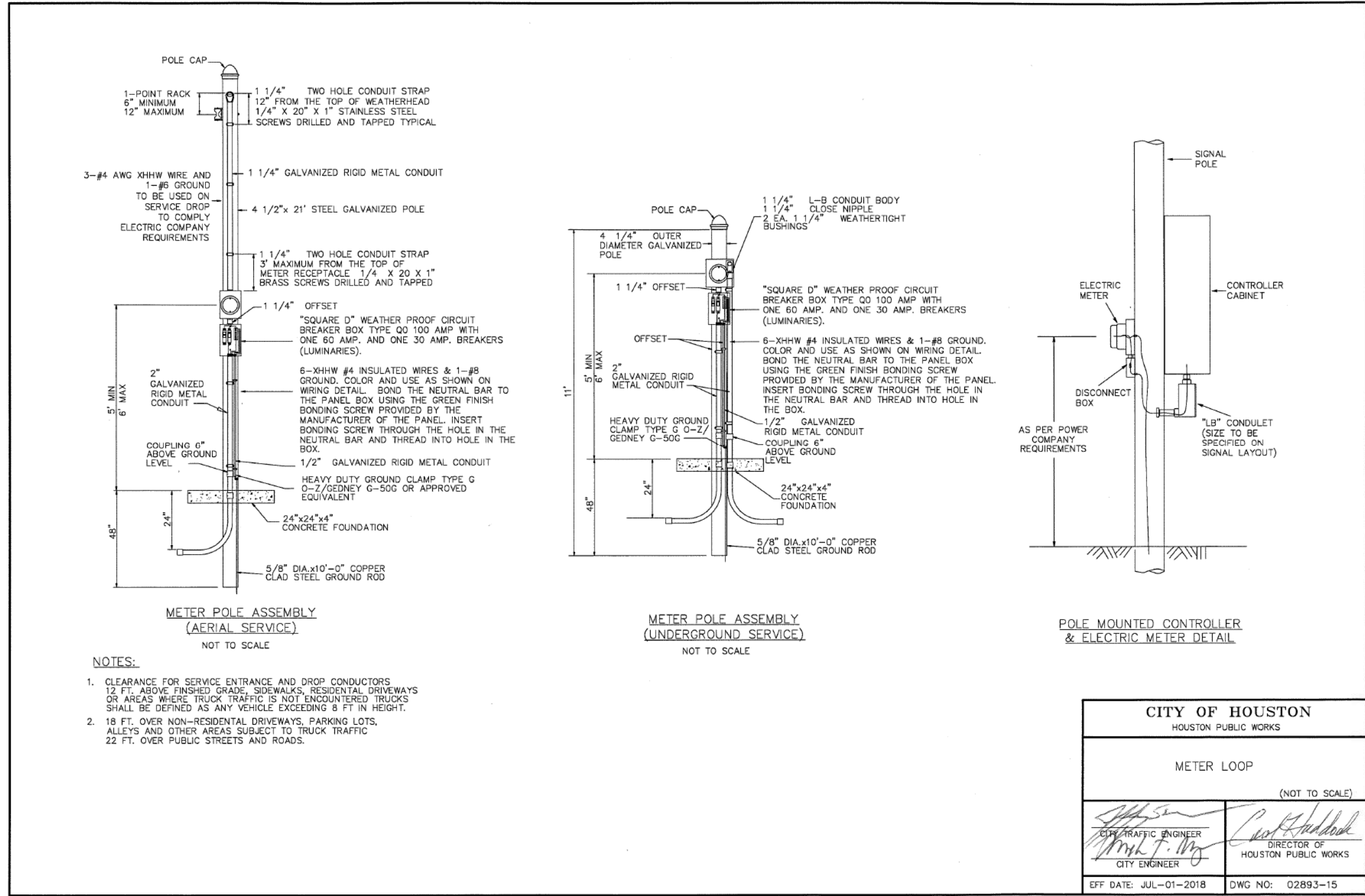
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
ELECTRICAL SERVICE SUPPORT PEDESTAL SERVICE TYPE PS	
(NOT TO SCALE)	
<i>[Signature]</i> CITY ENGINEER	<i>[Signature]</i> DIRECTOR OF HOUSTON PUBLIC WORKS
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SHEET NO. 267 OF 355	

No.	DATE	REVISIONS	APP.

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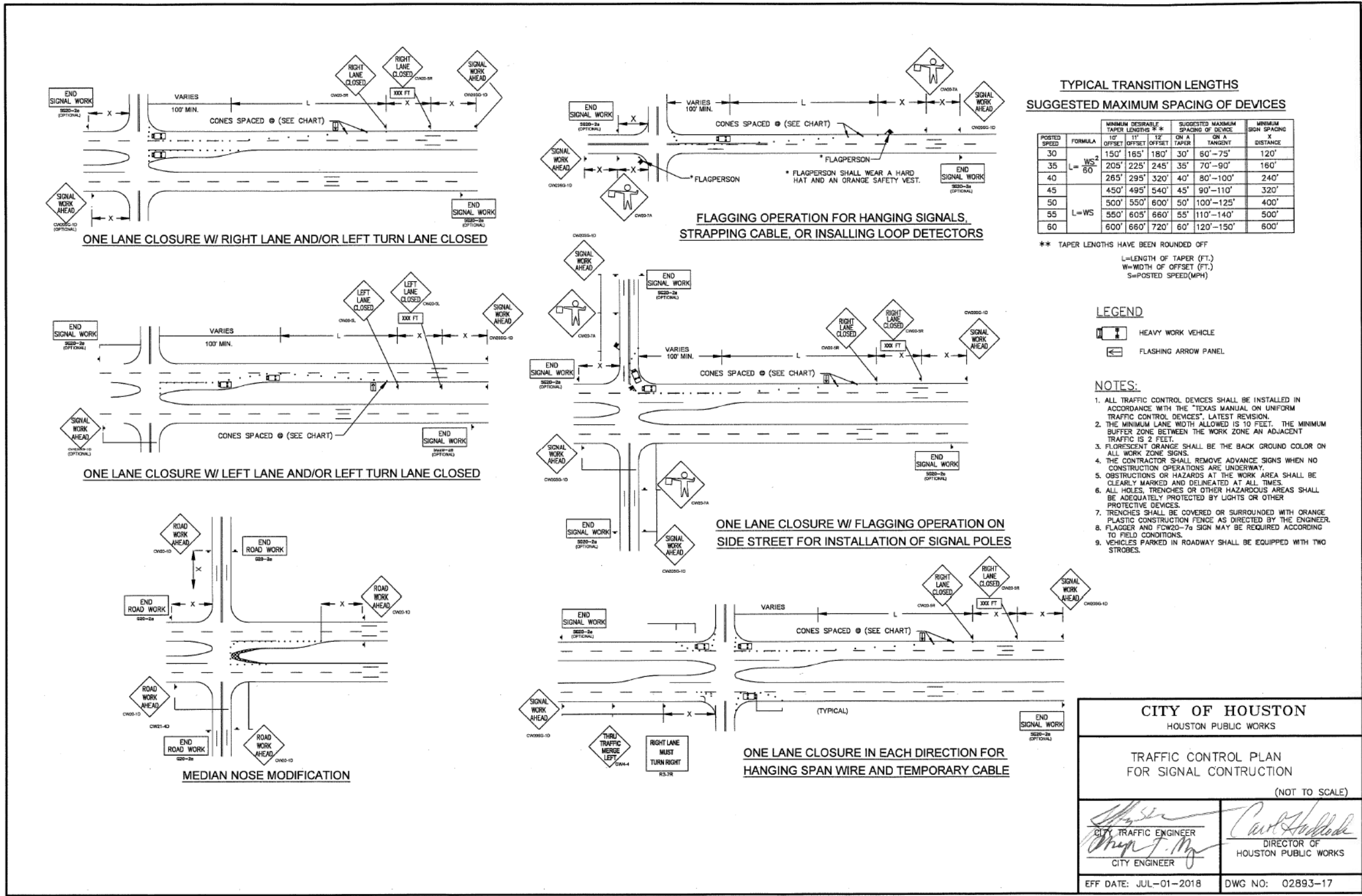


- NOTES:**
- CLEARANCE FOR SERVICE ENTRANCE AND DROP CONDUCTORS 12 FT. ABOVE FINISHED GRADE. SIDEWALKS, RESIDENTAL DRIVEWAYS OR AREAS WHERE TRUCK TRAFFIC IS NOT ENCOUNTERED TRUCKS SHALL BE DEFINED AS ANY VEHICLE EXCEEDING 8 FT IN HEIGHT.
 - 18 FT. OVER NON-RESIDENTAL DRIVEWAYS, PARKING LOTS, ALLEYS AND OTHER AREAS SUBJECT TO TRUCK TRAFFIC
 22 FT. OVER PUBLIC STREETS AND ROADS.

CITY OF HOUSTON HOUSTON PUBLIC WORKS	
METER LOOP (NOT TO SCALE)	
 CITY ENGINEER	 DIRECTOR OF HOUSTON PUBLIC WORKS
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SHEET NO 268 OF 355	

No.	DATE	REVISIONS	APP.



CITY OF HOUSTON
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TRAFFIC CONTROL PLAN
 FOR SIGNAL CONSTRUCTION
 (NOT TO SCALE)

[Signature]
 CITY TRAFFIC ENGINEER

[Signature]
 DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018 DWG NO: 02893-17

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
 CITY OF HOUSTON TRAFFIC SIGNAL DETAILS
 SHEET 15 OF 16

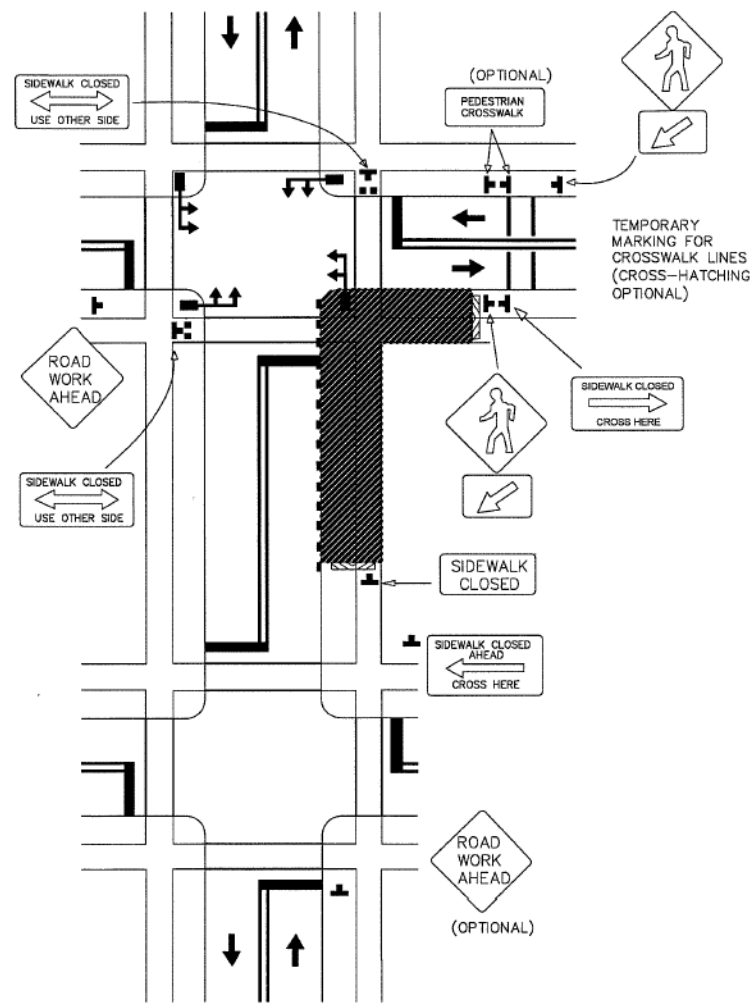
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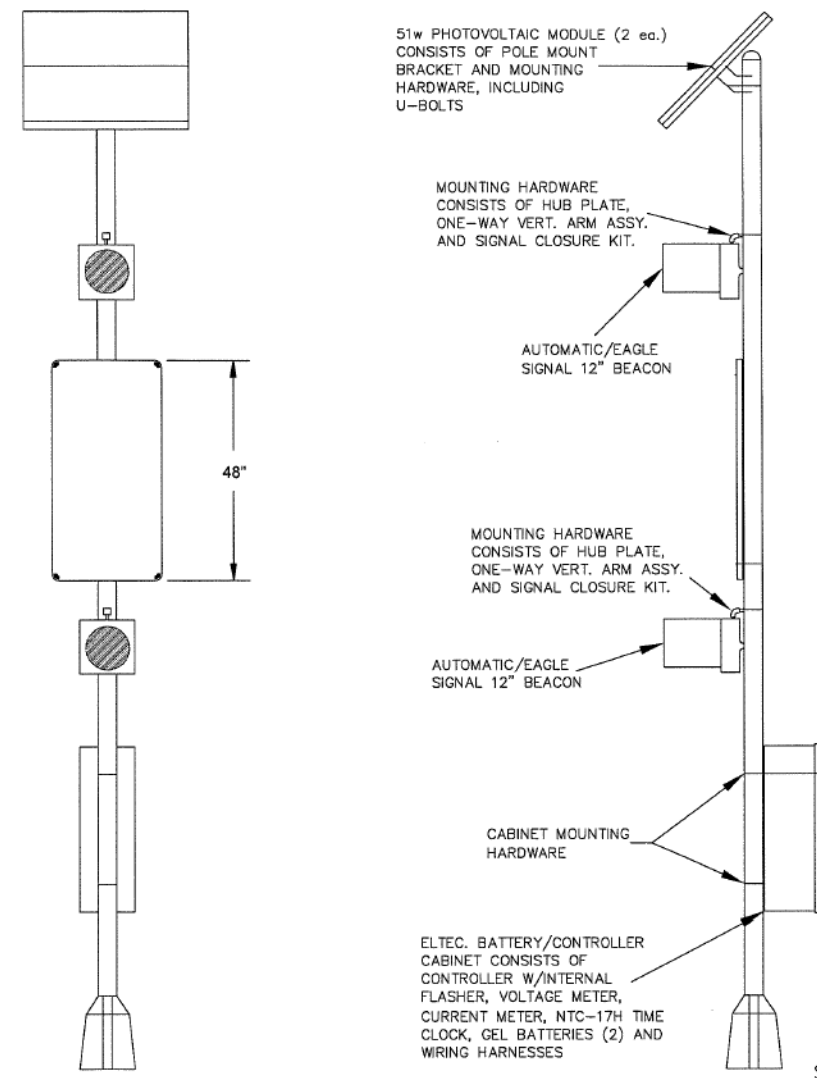
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CROSSWALK CLOSURES AND PEDESTRIAN DETOURS



SOLAR SCHOOL ZONE FLASHING BEACON

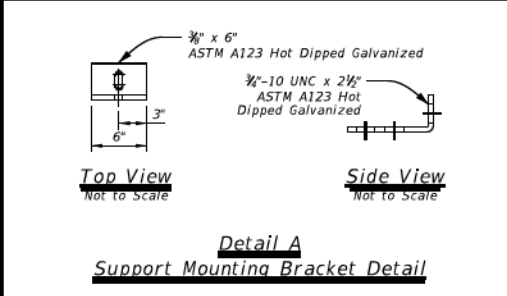
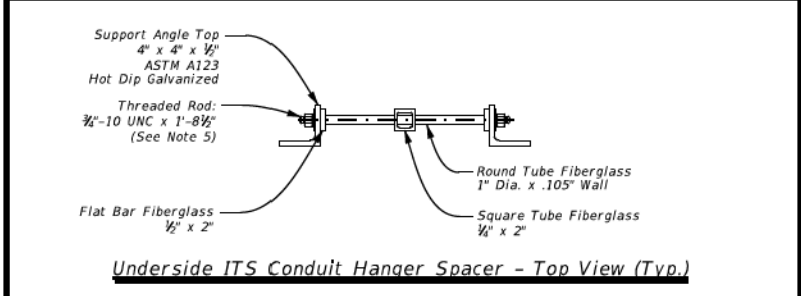
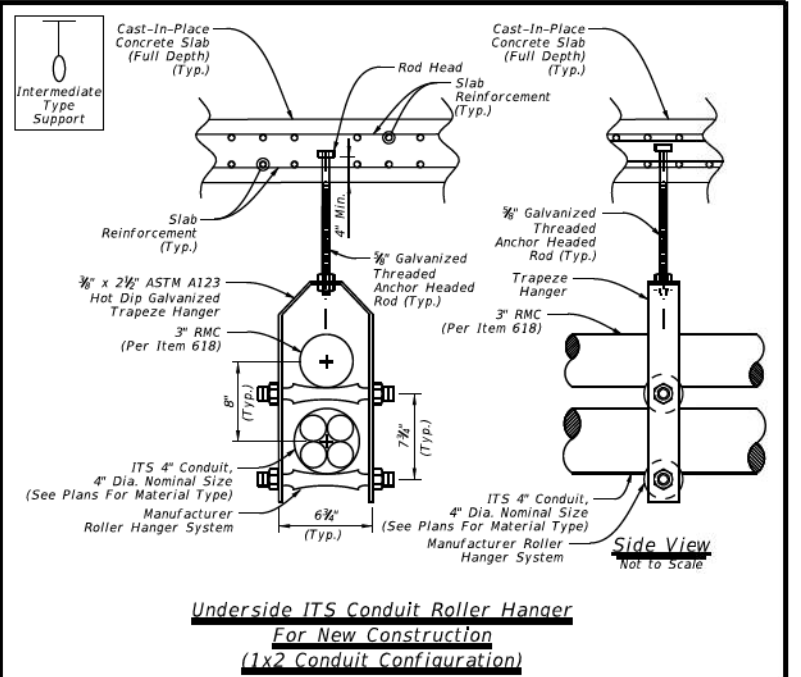
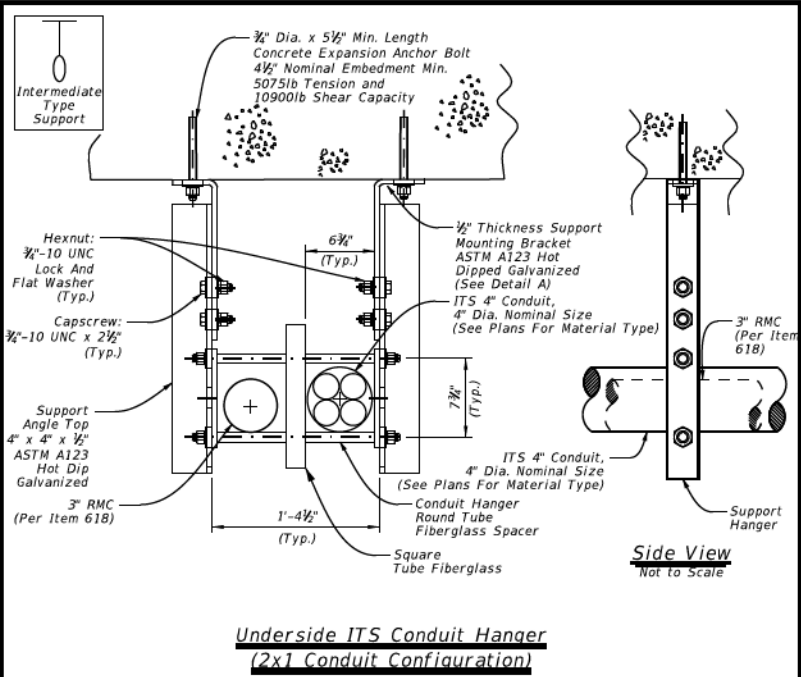
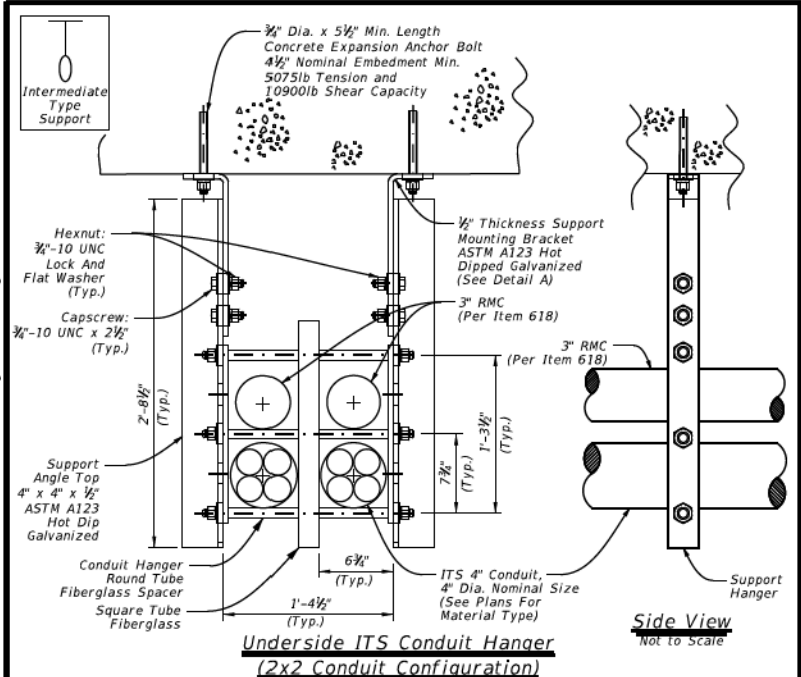


CITY OF HOUSTON HOUSTON PUBLIC WORKS	
CROSSWALK CLOSURES AND PEDESTRIAN DETOURS, SOLAR SCHOOL ZONE FLASHING BEACON (NOT TO SCALE)	
 CITY TRAFFIC ENGINEER CITY ENGINEER	 DIRECTOR OF HOUSTON PUBLIC WORKS
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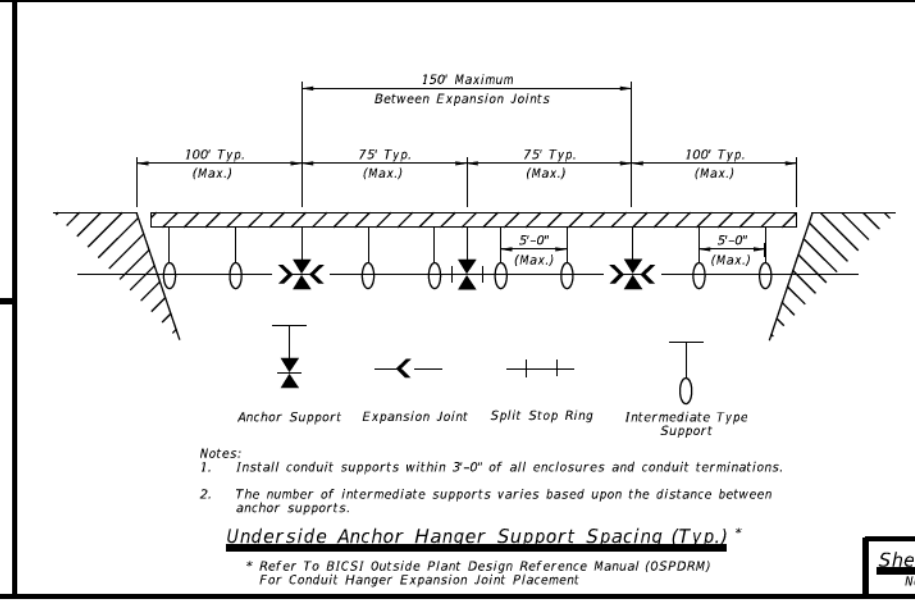
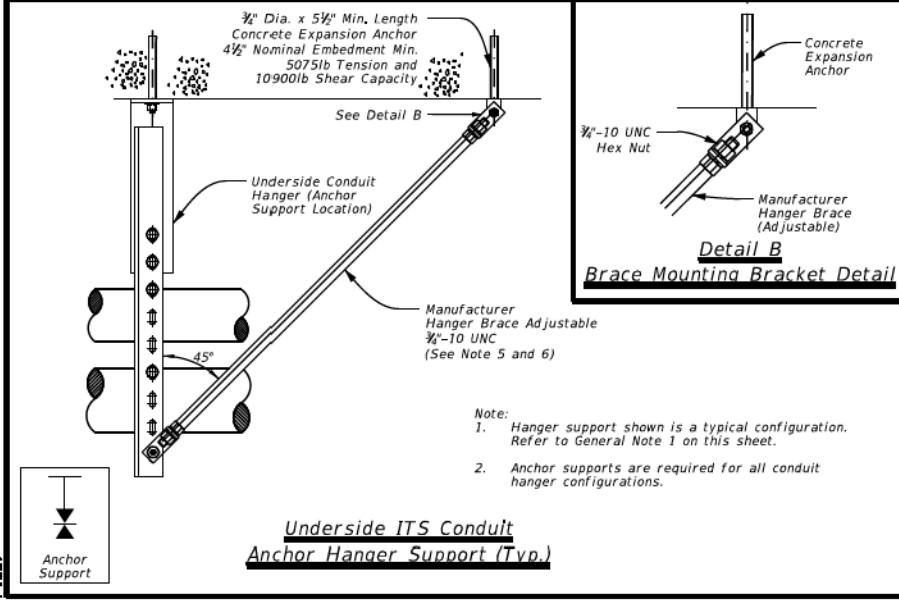
 TEXAS PE FIRM REG. #F-3158 712 MAIN STREET, SUITE #950 HOUSTON, TX 77002	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purposes of interim review under the authority of:</small> BRADLEY G. LEAVES, 91759 2/16/2024 100% SUBMITTAL <small>TEI Planning + Design Texas Registered Engineering Firm F-3158</small>
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 CITY OF HOUSTON TRAFFIC SIGNAL DETAILS SHEET 16 OF 16	
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO 270 OF 355	

No.	DATE	REVISIONS	APP.

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- General Notes:**
- Use commercially designed multiple conduit support hangers as an alternative to the hanger details on this sheet, or standard sheet ED(2)-14 may be used. Verify sufficient tension and shear capacity before proposed substitution. Submit hanger details and specifications to the Engineer for approval prior to using on project.
 - Refer to the contract plans for conduit design and hanger configuration requirements. For two (2) conduit configurations, use the typical underside hanger or roller hanger system.
 - Maximum spacing of intermediate conduit hangers is 5'-0" C-C.
 - Hangers vary in length, but do not allow conduit to hang below bridge beams. Refer to ITS(30) for minimum clearance requirement below bridge deck.
 - Ensure all conduit hanger steel shapes conform to ASTM A36 and expansion anchors conform to ASTM A307 and are supplied with minimum of one nut and washer per bolt. Galvanize all steel plate, shapes, and hardware per Item 445, "Galvanizing".
 - Use angle bracing on both sides of conduit support for conduit anchor point hangers.
 - Refer to ITS(32) for expansion-deflection joint details.
 - Provide a minimum of two (2) expansion joints at all bridges. Ensure expansion joint spacing does not exceed manufacturer recommendations.
 - Select conduit lengths so that couplings do not coincide with conduit hanger locations.
 - Allowable types of outer duct material for above ground ITS conduit include rigid metallic conduit (RMC) and fiberglass.
 - Refer to ITS(30) for anchor details through pre-stressed concrete panels.
 - Bond all external structure conduit throughout entire length of run and ground at ground box locations according to ITS(38).



ITS CONDUIT HANGER DETAILS
ITS (29) - 22

FILE: I:\s(29)-22.dgn
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REV	DATE	BY	CHK	APP	DESCRIPTION

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MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

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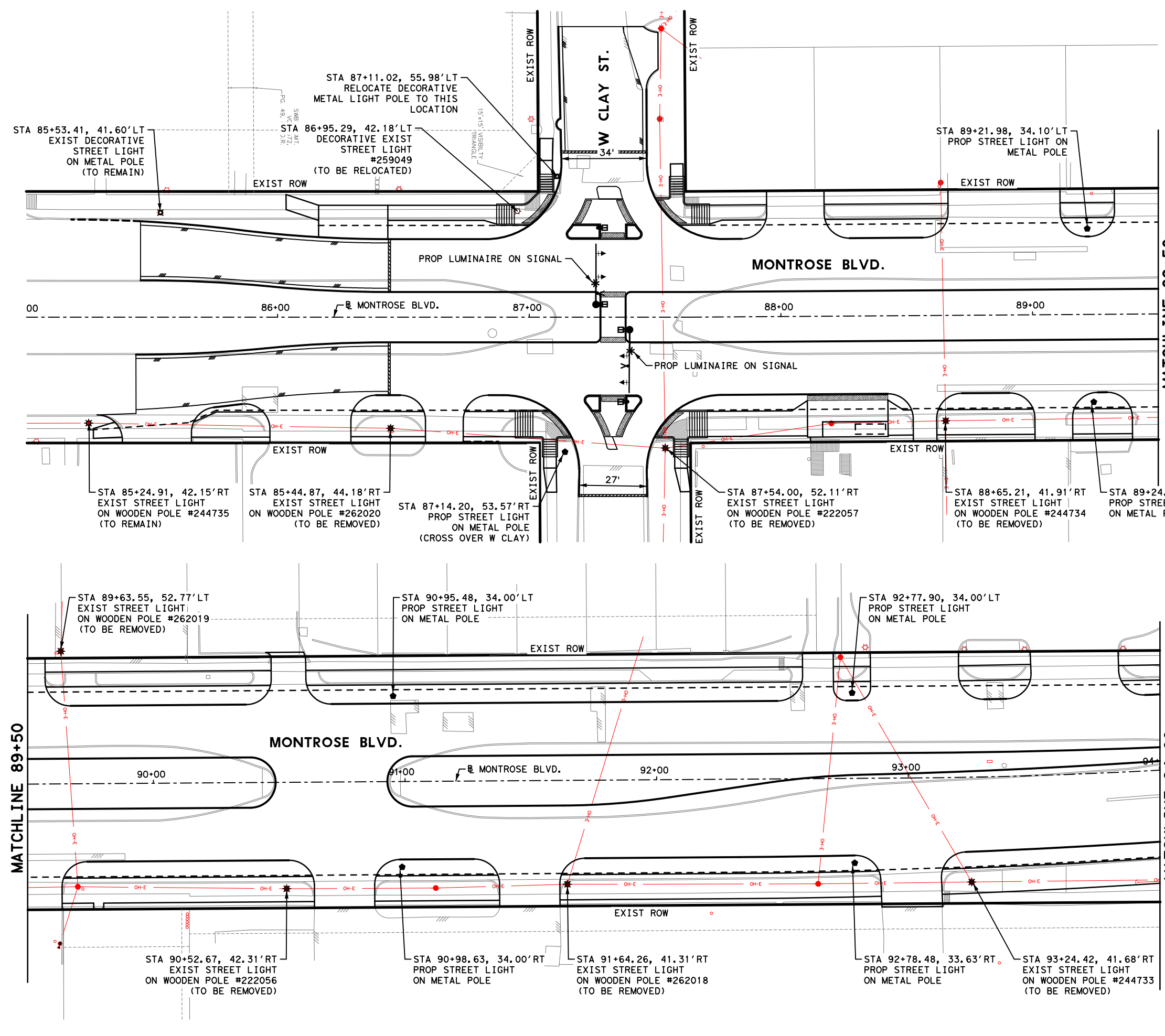
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
CITY OF HOUSTON TRAFFIC SIGNAL DETAILS
SHEET 16 OF 16

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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DRAWING SCALE	
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NO.	DATE	REVISIONS	APP.

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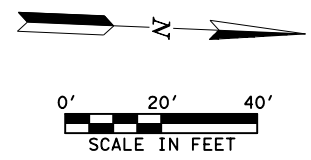


LEGEND

- EXIST STREET LIGHT ON WOODEN POLE (TO REMAIN)
- EXIST STREET LIGHT ON WOODEN POLE (TO BE REMOVED)
- EXIST STREET LIGHT ON METAL POLE (TO REMAIN)
- EXIST STREET LIGHT ON METAL POLE (TO BE REMOVED)
- PROP 35' EMBEDDED COBRA POLE WITH 6' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
- PROP GROUND BOX
- PROP PVC CONDUIT FOR FUTURE PEDESTRIAN LIGHTING (BORED) (2-INCH PVC, SCHEDULE 40, SCHEDULE 80 UNDER PVMT)

NOTES:

- 1.COORDINATE WITH CNP FOR DE-ENERGIZING AND POLE REMOVAL/DISPOSAL.
- 2.CONTRACTOR TO INSTALL CONDUIT & PULL BOXES. CABLING AND LIGHT POLES TO BE INSTALLED BY CNP.
- 3.POWER POLES TO BE RELOCATED TO ROW BY CNP.
- 4.DESIGN 2-INCH PVC SCHEDULE 40 CONDUITS FOR POTENTIAL FUTURE PEDESTRIAN LIGHTING ON BOTH SIDES OF ROADWAY. PLACE INSIDE OF SIDEWALK/SUP TO AVOID CONFLICT WITH POWER POLES.



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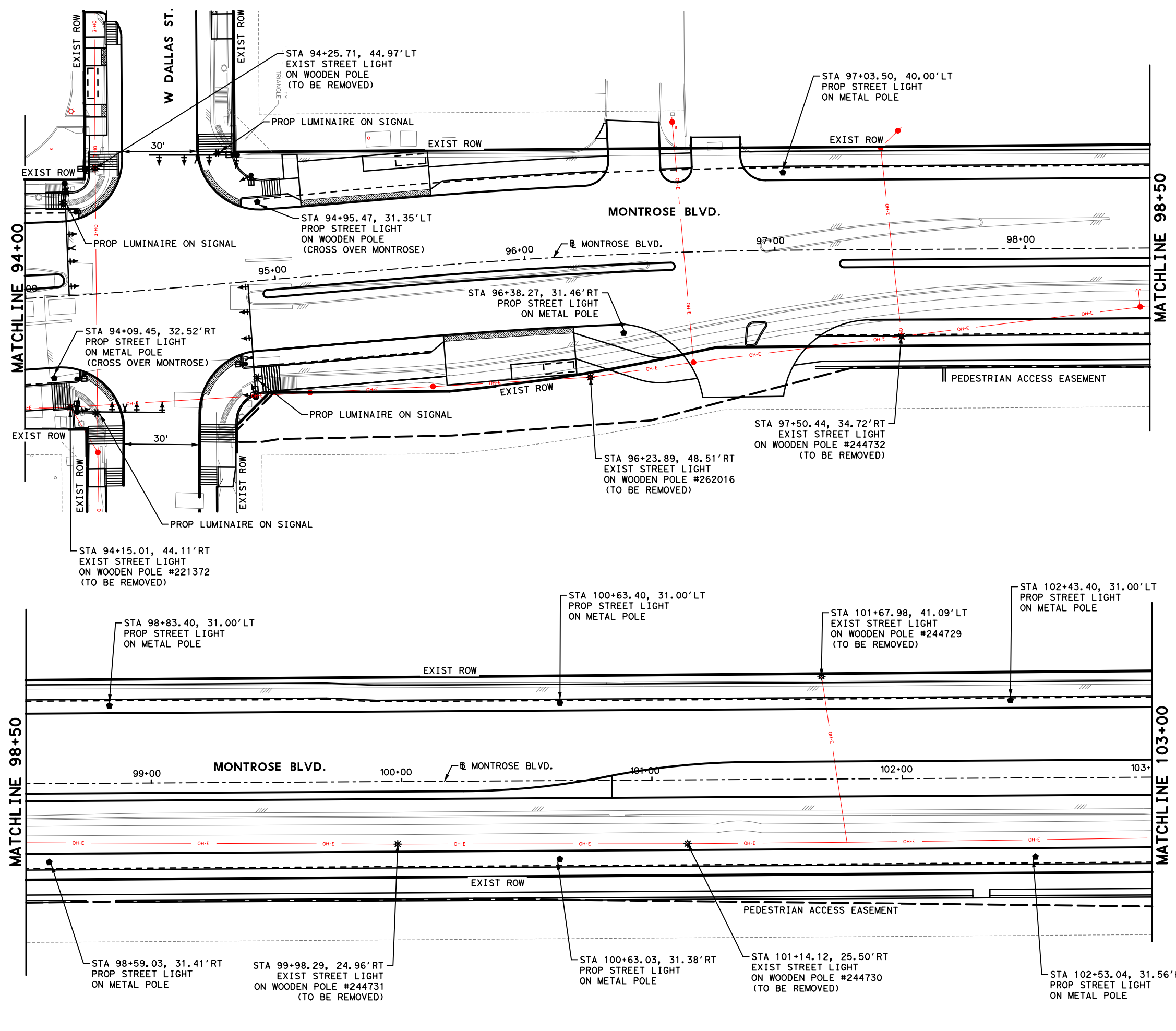
MONTR0SE BOULEVARD IMPROVEMENTS - SEGMENT 1

ILLUMINATION PLAN

SHEET 1 OF 3

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N-T27000-0005-7	
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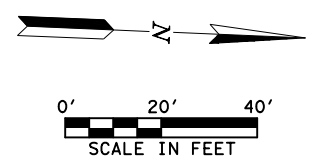


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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

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 Texas Registered Engineering Firm F-20017

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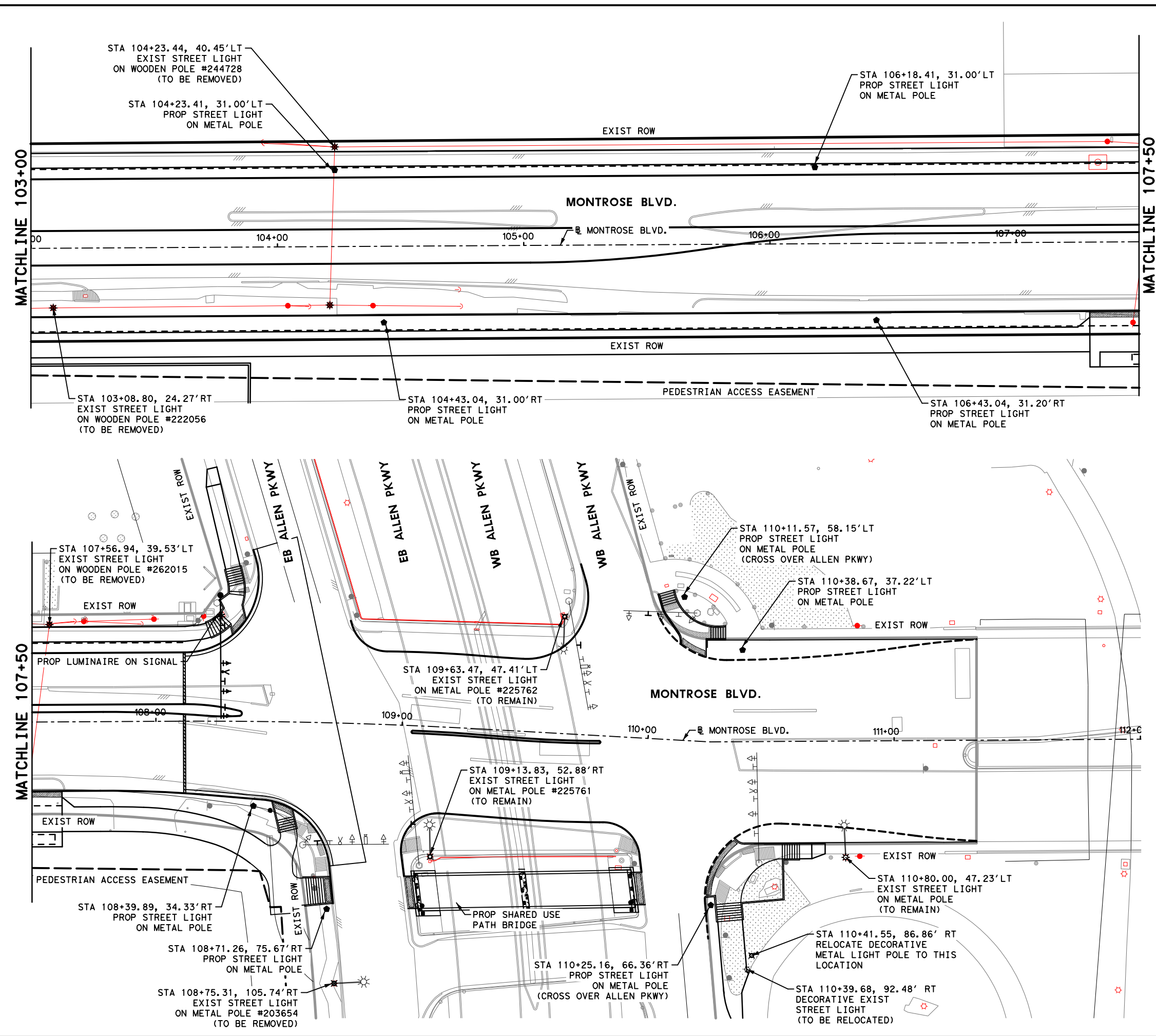
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

ILLUMINATION PLAN

SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
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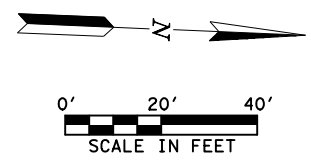


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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
ILLUMINATION PLAN

SHEET 3 OF 3	
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ELECTRICAL GENERAL NOTES

- THE NOTES CONTAINED ON THIS SHEET ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR WHEN WORKING IN THE FIELD, AND CONTAIN EXCERPTS FROM THE SPECIFICATION SECTIONS. HOWEVER THE CONTRACTOR IS HEREBY ADVISED THAT THE CONTRACT DOCUMENTS CONSIST OF BOTH THE DRAWINGS AND THE SPECIFICATIONS, AND THAT THE CONTRACTOR MUST COMPLY FULLY WITH BOTH THE BOUND DRAWINGS AND THE BOUND SPECIFICATIONS.
- ALL EQUIPMENT WIRING, RACEWAYS, ETC. SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE (NEC 2020) AND THE LATEST EDITION OF THE LOCAL CODES, AND INDUSTRY STANDARDS (IE. UL, NEMA, IEEE, ANSI, ETC.) THE DRAWING NOTES AND DETAILS SHALL BE COMPLIED WITH IN ADDITION TO THE REQUIREMENTS IN THE SPECIFICATIONS. REFER TO EACH SPECIFICATION SECTION FOR SPECIFIC REQUIREMENTS.
- ALL RACEWAY INSTALLATIONS SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. ALL EXPOSED RACEWAY SHALL BE INSTALLED PARALLEL TO BEAMS, CEILINGS, FLOORS AND WALLS. SEE SECTION 16111 FOR ADDITIONAL REQUIREMENTS.
- CONDUITS SHALL BE TERMINATED IN A NEAT MANNER AND STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWING DETAILS. SEE SECTION 16111 FOR ADDITIONAL REQUIREMENTS.
- CONDUITS TERMINATED INTO ENCLOSURES SHALL BE PERPENDICULAR TO THE WALLS OF THE ENCLOSURE. THE USE OF SHORT SEAL-TIGHT ELBOW FITTINGS FOR SUCH TERMINATIONS WILL NOT BE PERMITTED.
- ALL RACEWAY INSTALLATIONS, CROSSING EXPANSION JOINTS OR TRANSITIONS FROM BELOW GRADE TO EXPOSED ABOVE GRADE, SHALL HAVE EXPANSION OR EXPANSION/DEFLECTION TYPE FITTINGS AS SPECIFIED FOR THE APPLICATION. SEE THE DRAWINGS AND SECTION 16111 FOR ADDITIONAL REQUIREMENTS.
- NO CONDUIT SMALLER THAN 3/4", NOR WIRE SMALLER THAN NO. 12 AWG, SHALL BE USED UNLESS SPECIFICALLY NOTED.
- ALL UNDERGROUND SINGLE CONDUITS, AND DUCT BANKS OF MULTIPLE CONDUITS, SHALL BE RIGID METAL CONDUIT, ENCASED IN REINFORCED RED CONCRETE, AND THE CONCRETE DYED RED BEFORE PLACEMENT, AS SPECIFIED IN SECTION 16402. THE CONTRACTOR SHALL FIELD VERIFY THE ROUTING OF ALL EXISTING UNDERGROUND CONDUIT AND DUCT BANKS AND SHALL COORDINATE THE ROUTING OF NEW CONDUIT AND DUCT BANKS TO AVOID INTERFERENCE WITH EXISTING CONDUIT AND DUCT BANKS AND OTHER UNDERGROUND UTILITIES.
- ALL CHANGES OF DIRECTION GREATER THAN 20 DEGREES IN UNDERGROUND SINGLE, OR DUCT BANKS OF MULTIPLE CONDUITS, SHALL BE ACCOMPLISHED USING PVC COATED RIGID GALVANIZED STEEL LONG RADIUS BENDS. BENDS OF PVC CONDUIT GREATER THAN 20 DEGREES, OR THE USE OF FLEXIBLE CONDUIT OF ANY TYPE, WILL NOT BE PERMITTED. SEE SECTION 16402 FOR MORE REQUIREMENTS.
- LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE USED FOR THE PRIMARY AND SECONDARY OF TRANSFORMERS, GENERATOR TERMINATIONS AND OTHER EQUIPMENT WHERE VIBRATION IS PRESENT. USE IN OTHER LOCATIONS IS NOT PERMITTED, EXCEPT FOR CONNECTIONS TO INSTRUMENTATION TRANSMITTERS, WHERE MULTIPLE PENETRATIONS ARE REQUIRED. LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL HAVE A MAXIMUM LENGTH NOT GREATER THAN THAT OF A FACTORY MANUFACTURED LONG RADIUS ELBOW OF THE CONDUIT SIZE BEING USED. THE MAXIMUM BENDING RADIUS SHALL NOT BE LESS THAN THAT SHOWN IN THE NEC CHAPTER 9, TABLE 2, "OTHER BENDS". BX OR AC TYPE PREFABRICATED CABLES WILL NOT BE PERMITTED.
- THE WIRING DIAGRAMS, BLOCK DIAGRAMS, QUANTITY, SIZE OF WIRES, AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY APPROVED. ALL MODIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED.
- REFER TO SECTION 16131 FOR BOX DETAILS AND SPECIFICATIONS FOR ALL JUNCTION BOXES, PULL BOXES AND TERMINATION BOXES IN THE RACEWAY SYSTEM.
- WHERE RACEWAYS ENTER JUNCTION BOXES OR CONTROL PANELS CONTAINING ELECTRICAL OR INSTRUMENTATION EQUIPMENT, ALL ENTRANCES SHALL BE SEALED WITH WATERTIGHT SEALANT. REFER TO SECTION 16131 FOR DETAILS.
- ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURE LOCATIONS, OR TERMINAL BOX LOCATIONS, ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER, DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
- ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES DIMENSIONS ARE APPROXIMATE. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURES OR TERMINAL BOX DIMENSIONS SHALL BE VERIFIED WITH THE EQUIPMENT SUPPLIER. ALLOW FOR LOCATION CHANGES AND INCLUDE IN THE CONTRACT PRICE. THE EXACT LOCATIONS OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF ALL CABLES AND CONDUITS SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER DURING CONSTRUCTION.
- CORING OF AN EXISTING STRUCTURE SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/ENGINEER. CORING THROUGH STRUCTURAL BEAMS IS STRICTLY PROHIBITED, WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER/ENGINEER.
- THE LOCATION OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF CABLES AND CONDUITS SHALL BE COORDINATED AND APPROVED BY THE OWNER.
- THE DUCT BANK/DIRECT BURIED ROUTING AS SHOWN ON THE DRAWING IS APPROXIMATE. THE EXACT DUCT BANK/DIRECT BURIED ROUTING, CABLE LENGTH AND CONDUIT LENGTH SHALL BE VERIFIED IN THE FIELD. PROVIDE CONDUIT SEALS FOR CONDUIT PENETRATIONS. SEE SECTION 16111 FOR DETAILS.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO LOCATE ALL UNDERGROUND UTILITIES BEFORE DIGGING. CONTRACTOR SHALL COORDINATE THE EFFORT WITH THE ENGINEER.
- ALL SLOTTED CHANNEL. SLOTTED CHANNEL SUPPORT MATERIAL, WASHERS, SCREWS, NUTS, CONDUIT CLAMPS, ALL THREAD SPRING NUTS AND MISC. MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL.
- LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS. THE MOUNTING HEIGHT SHALL BE MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO THE FINISHED FLOOR.
- ALL CONDUITS AND WIRES SHOWN ON THE INTERCONNECTION DIAGRAM SHALL BE INSTALLED BY THE CONTRACTOR. GROUPING OF CONDUIT AND WIRE MAY BE CHANGED, IF APPROVED BY THE ENGINEER AND OWNER.
- WHERE NOTES ON THE DRAWING INDICATE THAT THE CONTRACTOR SHALL FIELD-VERIFY, THE INTENT IS FOR THE CONTRACTOR TO INVESTIGATE TO THE EXTENT NECESSARY TO PROVIDE THE WORK AND MATERIALS PRIOR TO BIDDING AND INCLUDE ALL COSTS IN THE BID PRICE. THE CONTRACT PRICE SHALL NOT BE INCREASED WHEN THE CONTRACTOR HAS NOT INVESTIGATED PER THE NOTES DIRECTING THAT BE DONE.

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION																
	CB	LOW VOLTAGE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.																
		NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A																
	F	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, AMPERE RATING AND FUSE SIZE AS NOTED * AMPERE RATING NOTED IF OTHER THAN 30A * FUSE RATING																
	T	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED, UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS ALL DRY TYPE TRANSFORMERS SERVING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 13. ALL OTHER DRY TYPE TRANSFORMERS SHALL HAVE A K-4 RATING. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING.																
		"DELTA" TRANSFORMER CONNECTION																
		"WYE" SOLID GROUNDED TRANSFORMER CONNECTION																
		CURRENT TRANSFORMER * QUANTITY A= PRIMARY AMPERES																
		POTENTIAL TRANSFORMER * QUANTITY PV- PRIMARY VOLTAGE SV- SECONDARY VOLTAGE																
	M	MOTOR, NUMERAL INDICATES HORSEPOWER																
		PUSH BUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED																
	ES	EMERGENCY STOP PUSH BUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)																
		3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED	POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT	A	X	O	O	B	O	O	O	C	O	O	X
POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT															
A	X	O	O															
B	O	O	O															
C	O	O	X															
	*	* NAMEPLATE (A/B/C) HOA- HAND/OFF/AUTO HOR - HAND/OFF/REMOTE LOR - LOCAL/OFF/REMOTE RSL - RAISE/STOP/LOWER TOA - TEST/OFF/AUTO NOTE: 2 POSITION MULTI-CONTACT SWITCH FOLLOWS SAME CONVENTION																
	LC	LIGHTING CONTACTOR COIL																
	M	MOTOR STARTER COIL.																
	CR	CONTROL RELAY COIL, NUMBER AS INDICATED																
	PTT	* PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED R - RED, G - GREEN, B - BLUE, W - WHITE, A - AMBER																
	* ##	INDICATES EQUIPMENT, INSTRUMENT TAG NUMBER																
		INDICATES CABLE AND CONDUIT SCHEDULE TAG NUMBER																
	LS	LIQUID LEVEL (FLOAT) SWITCH																
	OR	NORMALLY OPEN, CLOSSES ON RISING LEVEL																
	⊗	NORMALLY CLOSED, OPENS ON RISING LEVEL																
	ZS	POSITION (LIMIT) SWITCH																
	OR	NORMALLY OPEN																
	⊗	NORMALLY OPEN - HELD CLOSED																
		NORMALLY CLOSED																
		NORMALLY CLOSED - HELD OPEN																
		CONTACT, NORMALLY OPEN (NO)																
		CONTACT, NORMALLY CLOSED (NC)																
		FUSE, AMPERE RATING AS NOTED																
	HTR	HEATER																
		OVERLOAD RELAY HEATER																
		INDICATES LIMITS OF EQUIPMENT OR WIRING ENCLOSURE																
		LIGHT FIXTURE WITH BASE AND POLE																
		WALL MOUNTED LIGHT FIXTURE																
	J	JUNCTION BOX																

SYMBOL	DESCRIPTION
	WALL MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	POLE MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
	PHOTOCELL
	TERMINAL CABINET
	LIGHTNING ARRESTER
	CONDUIT, EXPOSED/SURFACE MOUNTED
	CONDUIT OR CONCEALED
	UNDERGROUND DUCT-BANK
	GROUNDED
	CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
	CONDUCTORS ELECTRICALLY CONNECTED
	CONDUIT, EXPOSED/SURFACE MOUNTED, TURNING UP
	CONDUIT, EXPOSED/SURFACE MOUNTED, TURNING DOWN
	CONDUIT STUBBED OUT AND CAPPED
	DENOTES A QUANTITY OF TWO (2) 3-INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND ONE NO. 2 AWG GROUND CONDUCTOR.
	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES. EACH CONSISTS OF TWO NO. 16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
	THREE 4-INCH CONDUITS
	FLEXIBLE METAL CONDUIT "WHIP" (#12, #12G, 3/4" C. UNLESS OTHERWISE NOTED) FOR RECESSED LIGHTING FIXTURES AND LIQUID TIGHT MOTOR CONNECTIONS
	HOMERUN, CIRCUITS 1 AND 3 RUN TO PANEL LP-1
	SINGLE POLE SWITCH "b" INDICATES SWITCH LEG SHALL CONTROL LIGHT FIXTURESWITH "b" DESIGNATION
	PUSH BUTTON STATION, REFER TO ELECTRICAL SCHEMATIC FOR NUMBER OF DEVICES.
	REMOTE DEVICE
	EXTERIOR TERMINAL
	INTERIOR TERMINAT
	MOTOR OPERATED GATE OR VALVE WITH OPERATOR MANUFACTURER PROVIDED SAFETY SWITCH

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
	⊙	GROUND ROD
	⊙	GROUND ROD TEST WELL
	•	EXOTHERMIC GROUND CONNECTION
	■	MECHANICAL GROUND CONNECTION

ABBREVIATIONS			
AC	ALTERNATING CURRENT	BAS	BUILDING AUTOMATION SYSTEM
AFD	ADJUSTABLE FREQUENCY DRIVE	C	CONDUIT
AFH	ABOVE FINISHED FLOOR	CB	CIRCUIT BREAKER
AG	ABOVE GRADE	CKT	CIRCUIT
ALUM	ALUMINUM	CLF	CURRENT LIMITING FUSE
AMPIA	AMPERE	CP	CONTROL PANEL
ATC	AIR TERMINAL CHAMBER	CPT	CONTROL POWER TRANSFORMER
ATS	AUTOMATIC TRANSFER SWITCH	CR	CONTROL RELAY
AUTO	AUTOMATIC	CS	CONTROL SWITCH
AUX	AUXILIARY	CT	CURRENT TRANSFORMER
AWG	AMERICAN WIRE GAUGE	CU	COPPER

ABBREVIATIONS	
DC	DIRECT CURRENT
DI	DOOR INTERLOCK
DN	DOWN
DWG	DRAWING
EC	EMPTY CONDUIT
EH	ELECTRICAL HAND HOLE
ELEC	ELECTRICAL
ELEV	ELEVATION
EM	EMERGENCY
EMH	ELECTRICAL MAN HOLE
EXP	EXPLOSION-PROOF
FIT	FLOW INDICATOR TRANSMITTER
EO	ELECTRICALLY OPERATED
FCV	FLOW CONTROL VALVE
FBO	FURNISHED BY OTHERS
FO	FIBER OPTIC
FRP	FIBERGLASS REINFORCED POLYESTER
FU	FUSE
GRD/G	GROUNDED
GCP	GENERATOR CONTROL PANEL
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GO	GATE OPERATOR
GRS	GALVANIZED RIGID STEEL
HH	HANDHOLE
HT	HEIGHT
HTP	HEAT TRACE PANEL
HZ	HERTZ
IMH	INSTRUMENT MAN HOLE
INST	INSTRUMENT
LA	LIGHTING ARRESTER
LC	LIGHTING CONTRACTOR
LCTS	LIGHTS
LP	LIGHTING PANEL
LPU	LOCAL PROCESSING UNIT
LV	LOW VOLTAGE
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MTG	MOUNTING
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
NC	NORMALLY CLOSED
NGR	NEUTRAL GROUNDING RESISTOR
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
OL	OVERLOAD
OLX	OVERLOAD CONTROL RELAY
PB	PUSH BUTTON
PIT	PRESSURE INDICATOR TRANSMITTER
PCC	PUMP CONTROL CONSOLE
PFCC	POWER FACTOR CORRECTION CAPACITOR
PFR	PHASE FAILURE RELAY
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PPR	PHASE PROTECTIVE RELAY
PR	PAIR
PT	POTENTIAL TRANSFORMER
PTT	PUSH TO TEST TYPE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RCP	RELAY CONTROL PANEL
RECP	RECEPTACLES
RVSS	REDUCED VOLTAGE SOLID STATE STARTER
SB	SWITCHBOARD
SC	SURGE CAPACITOR
SCH	SCHEMATIC
SCTB	SHORT CIRCUITING TERMINAL BLOCK
SEC	SECONDS OR SECONDARY
SH	SHIELDED
SHT	SHEET
SN	SOLID NEUTRAL
SPD	SURGE PROTECTIVE DEVICE
SS	STAINLESS STEEL
ST	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SWGR	SWITCHGEAR
TC	TERMINATION CABINET
TEL	TELEPHONE
TO	TIME DELAY ON OPENING
TS	TEMPERATURE SWITCH
TVSS	TRANSIENT VOLT. SURGE SUPP.
TW	TWISTED
TYP	TYPICAL
UG	UNDERGROUND
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
VO	VALVE OPERATOR
W	WIRE
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

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VERIFICATION OF PRIVATE UTILITY LINES

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Signature valid for six months.

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Approved for AT&T underground conduit facilities only. Date
Signature valid for one year.

MBROH ENGINEERING
TBPB FIRM NO. 9439

Gauge ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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131630
2/14/2024

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
ELECTRICAL ABBREVIATIONS, LEGENDS, AND GENERAL NOTES

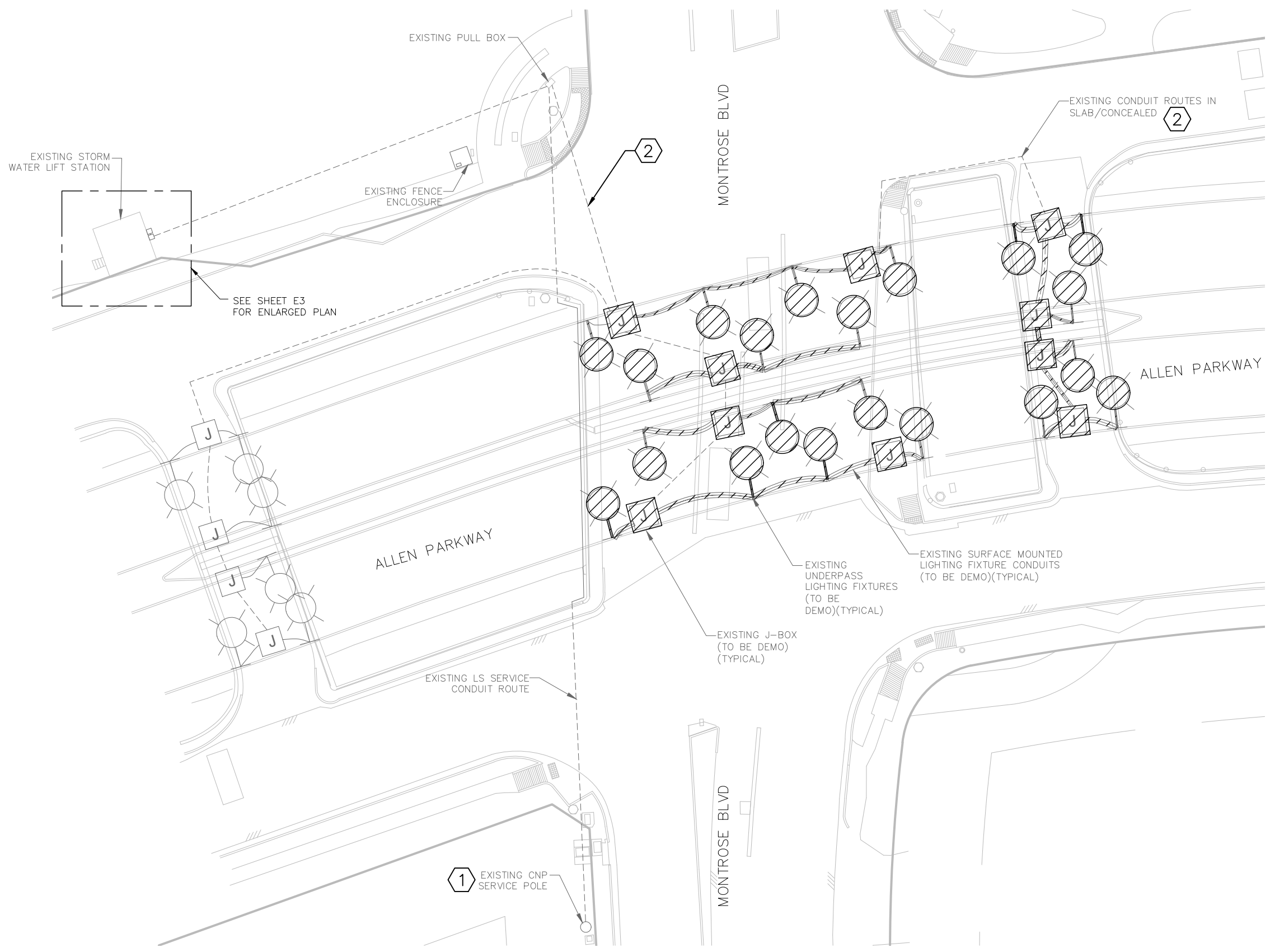
E1	WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
	N-T27000-0005-7	
	DRAWING SCALE	
	NTS	
	CITY OF HOUSTON PM	
	JIADA HUANG	
	SHEET NO. 275 of 355	

\$USERS\$ \$TIMES\$ \$DATE\$ \$PENITBLS\$ \$PLDRVL\$
 Plotted on:

APP.	
REVISIONS	
No.	DATE

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$



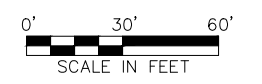
ELECTRICAL DEMOLITION PLAN
1" = 30'

GENERAL NOTES

- CONTRACTOR TO DEMO ALL SURFACE MOUNTED CONDUITS ALONG WITH ATTACHED FIXTURES.

NOTES

- EXISTING SERVICE POLE TO BE REPLACED BY POWER COMPANY. THE CONTRACTOR IS TO COORDINATE POSSIBLE OUTAGES WITH POWER COMPANY.
- CONTRACTOR TO ABANDON AND CAP EXISTING CONDUITS NOT BEING USED ANYMORE.



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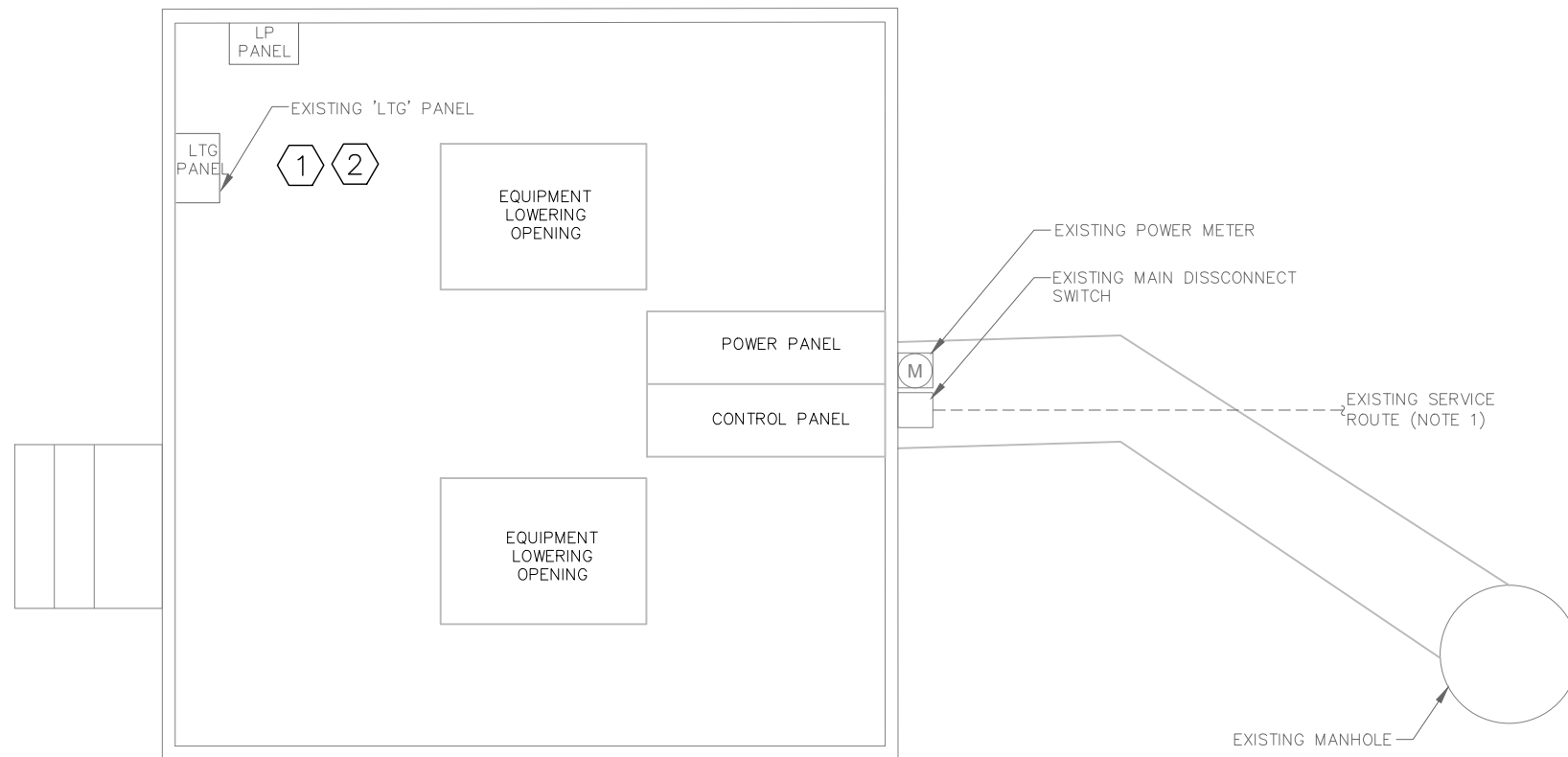
MONTROSE BOULEVARD IMPROVEMENTS – SEGMENT 1 DEMOLITION SITE PLAN

E2	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	
N-T27000-0005-7	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NC 276 OF 355	

APP.	
REVISIONS	
No.	DATE

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$



SIDEWALK

ENLARGED DEMOLITION SITE PLAN

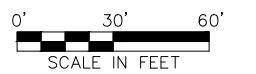
1/4" = 1'-0"

GENERAL NOTES

- FOR ADDITIONAL INFORMATION, PLEASE SEE SHEET E2.

NOTES

- CONTRACTOR TO DISCONNECT EXISTING UNDERPASS LIGHTS CONNECTED TO EXISTING PUMP STATION PANEL 'LTG'.
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**MBROH
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**MONTROSE BOULEVARD
IMPROVEMENTS – SEGMENT 1
ENLARGED DEMOLITION
SITE PLAN**

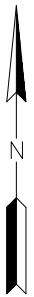
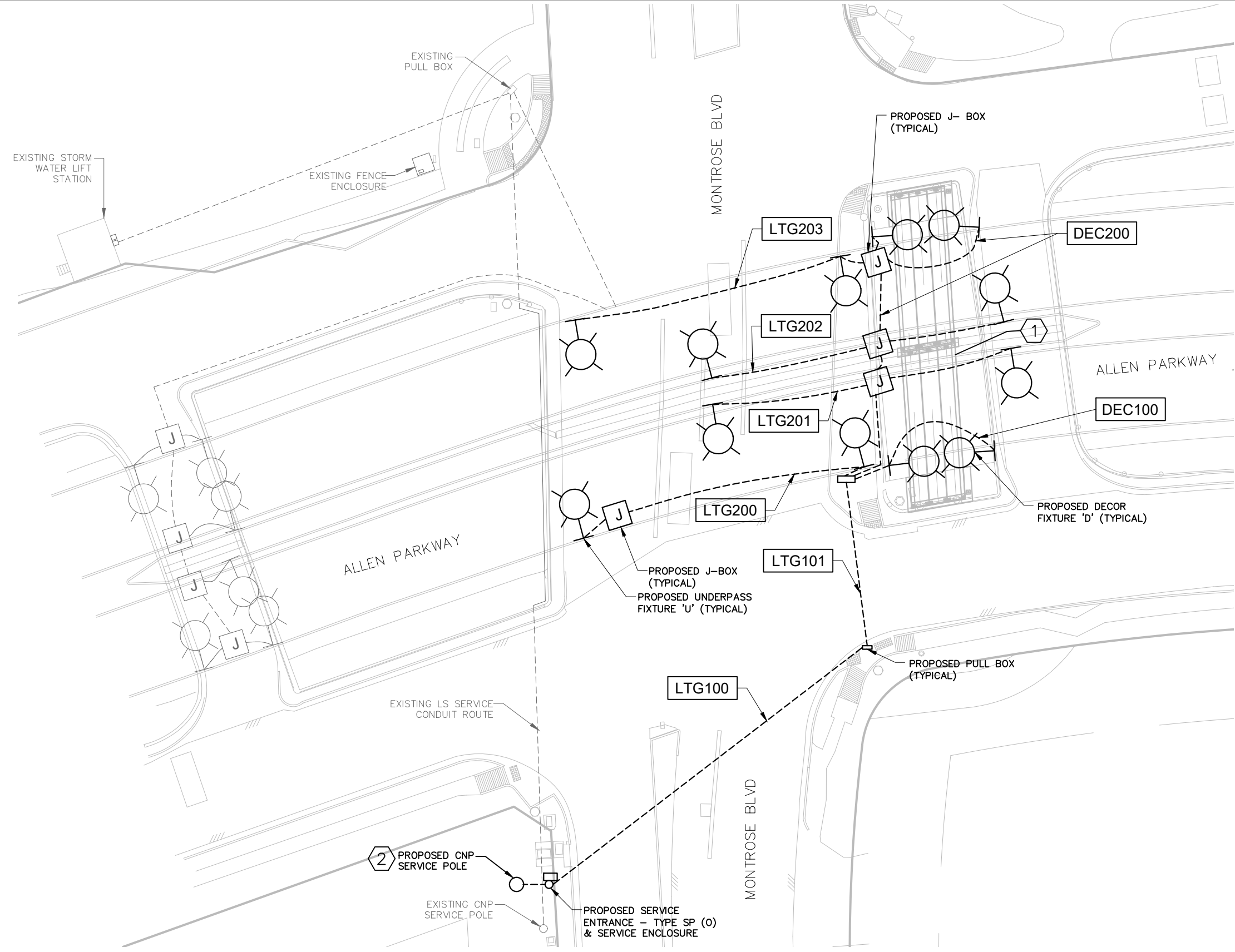
E3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 277 OF 355	

No.	DATE	REVISIONS	APP.

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$

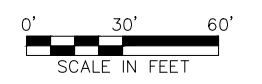


GENERAL NOTES

1. CONTRACTOR TO REFER TO ENLARGED PEDESTRIAN BRIDGE LAYOUT ON SHEET 100 FOR ADDITIONAL INFORMATION.

NOTES

1. CONTRACTOR TO REFER TO "MONTROSE OVER ALLEN PARKWAY - BRIDGE LAYOUT" SHEET FOR ADDITIONAL BRIDGE INFORMATION.
2. NEW SERVICE POLE BY THE CPE.



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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 PROPOSED SITE PLAN

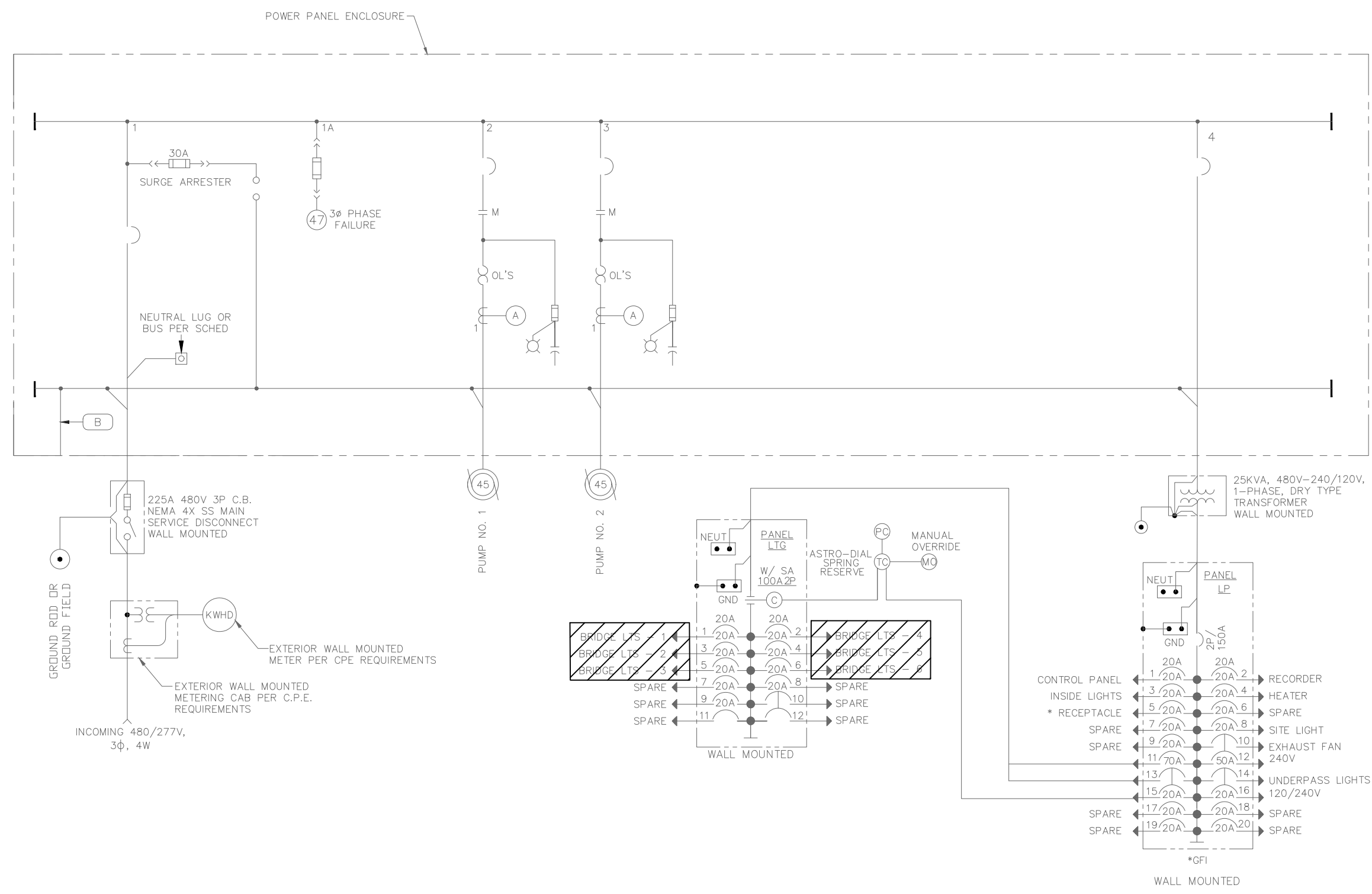
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	N-T27000-0005-7	
	DRAWING SCALE	
	NTS	
	CITY OF HOUSTON PM	
	JIADA HUANG	
	SHEET NO. 278 OF 355	

PROPOSED ELECTRICAL PLAN

1" = 30'

APP.			
REVISIONS			
No.	DATE		

Plotted on: \$DATE\$ \$TIMES\$ \$USERS\$
 Pen Table: \$PENTBL\$ \$PLDRVL\$
 Plot Driver: \$PLDRVL\$



**EXISTING ONE-LINE
 DIAGRAM**
 SC/DESC

- GENERAL NOTES**
1. CONTRACTOR TO DISCONNECT EXISTING UNDERPASS LIGHTS CONNECTED TO EXISTING PUMP STATION PANEL 'LTC'.
 2. CONTRACTOR TO ABANDON AND CAP EXISTING CONDUIT ROUTES NOT BEING USED ANYMORE.

APP.	
REVISIONS	
No.	DATE

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Gauge ENGINEERING
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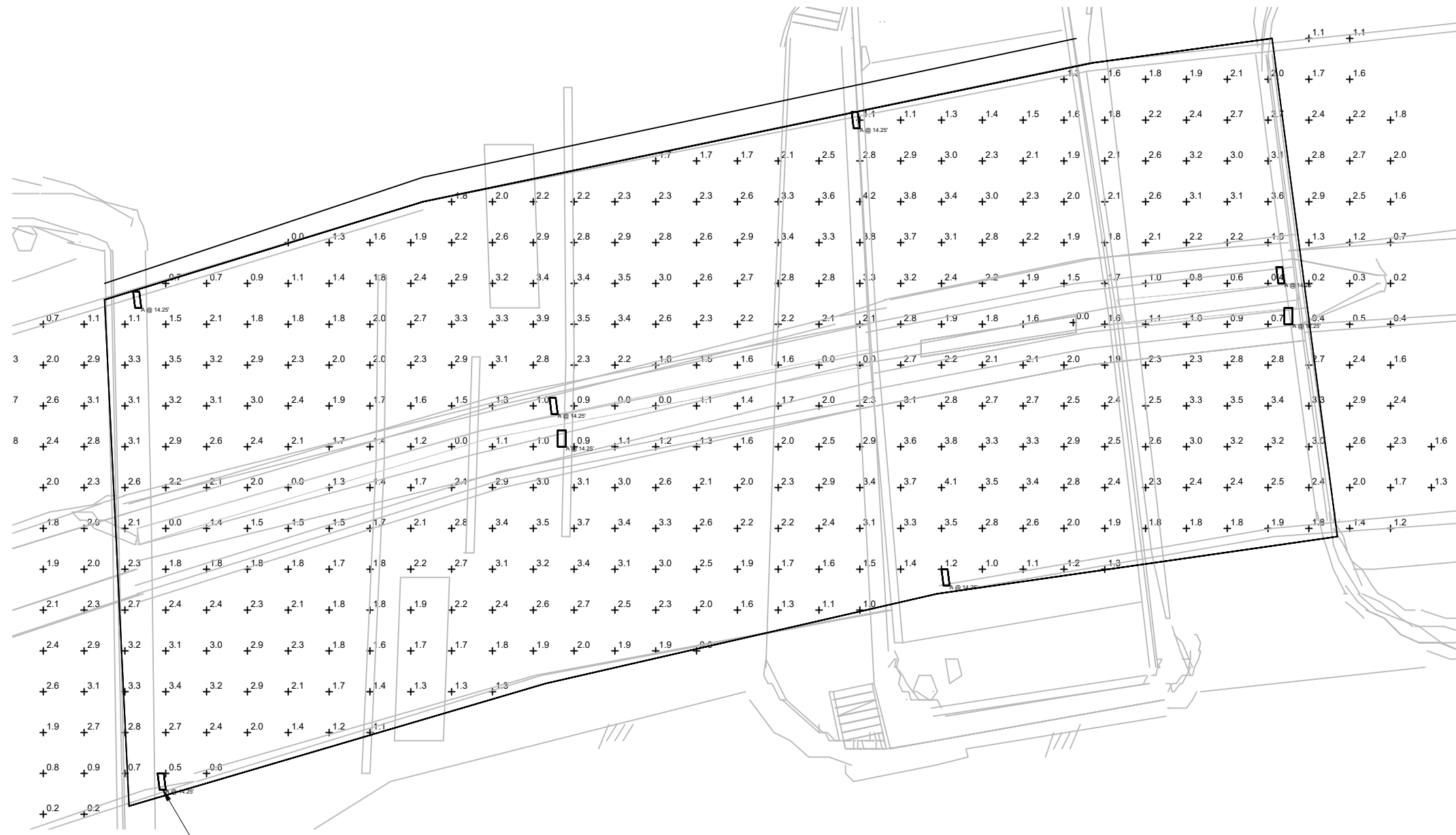
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**MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1
 STORM WATER LIFT STATION
 EXISTING ONE-LINE
 DEMOLITION DIAGRAM**

E5	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	
N-T27000-0005-7	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 279 OF 355	

Plotted on: \$DATE\$ \$TIMES\$ \$USERS\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$



LIGHTING CALCULATION PLAN

1/16" = 1'-0"

UNDERPASS LIGHTING CALCULATIONS						
DESCRIPTION	SYMBOL	AVG	MAX	MIN	MAX/MIN	AVG/MIN
UNDERPASS LIGHTING	+	2.1 FC	4.2 FC	0.0 FC	N/A	N/A

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**MONTROSE BOULEVARD
IMPROVEMENTS – SEGMENT 1
LIGHTING
CALCULATION PLAN**

E7	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	
N-T27000-0005-7	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 281 OF 355	

APP.	REVISIONS	DATE

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GENERAL NOTES FOR ALL ELECTRICAL WORK

- The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.
- Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.
- Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is 1/2 in. or less in diameter.
- Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.
- Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.
- When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

- Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.
- Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.
- Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

- Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.
- Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.
- Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.
- Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

- Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.
- When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.
- Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

- Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.
- Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.
- Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.
- Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.
- When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."
- Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.
- During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.
- Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.
- Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.
- Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.
- At all electrical services, install a 6 AWG solid copper grounding electrode conductor.
- Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).
- Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.
- File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

Texas Department of Transportation

Electrical Details
CONDUITS & NOTES

ED(1)-14

FILE#	ed1-14.dgn	DN#	CK#	DN#	CK#
©TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS		DIST	COUNTY	SHEET NO.	

71A

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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
TXDOT ELECTRICAL DETAILS - SHEETS 1

E9	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	N-T27008-0005-7
DRAWING SCALE	NTS
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO. 283	OF 355

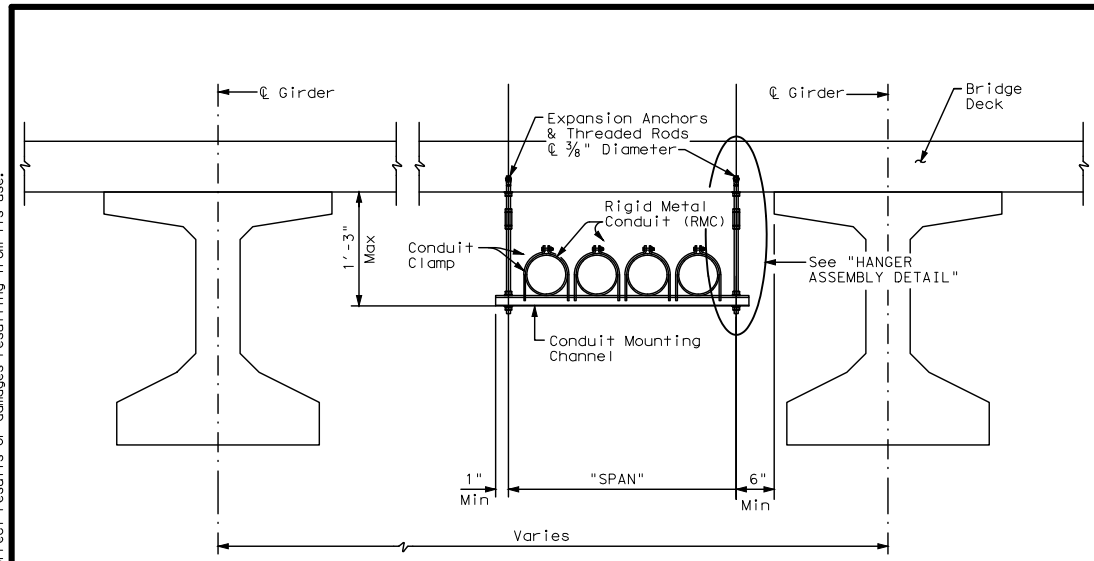
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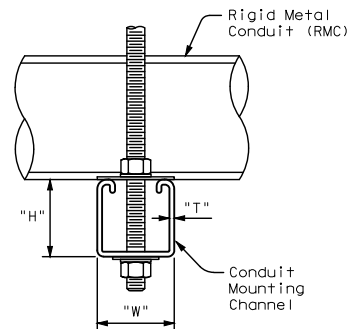
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FILE: \$FILE\$



CONDUIT HANGING DETAIL

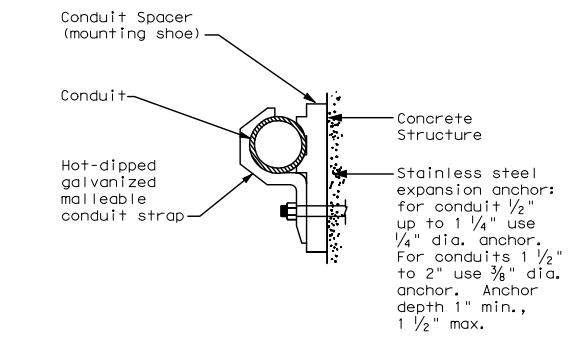
"SPAN"	"W" x "H"	"T"
less than 2'	1 5/8" x 1 3/8"	12 Ga.
2'-0" to 2'-6"	1 3/8" x 1 3/8"	12 Ga.
>2'-6" to 3'-0"	1 5/8" x 2 7/16"	12 Ga.

Channels with round or short slotted hole patterns are allowed, if the load carrying capacity is not reduced by more than 15%.



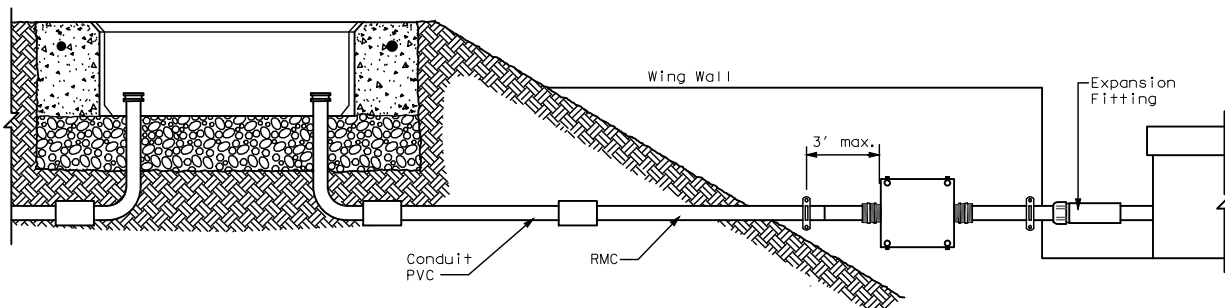
HANGER ASSEMBLY DETAIL

ELECTRIC CONDUIT TO BRIDGE DECK ATTACHMENT



CONDUIT MOUNTING OPTIONS

Attachment to concrete surfaces
See ED(1)B.2



TYPICAL CONDUIT ENTRY TO BRIDGE STRUCTURE DETAIL

EXPANSION ANCHOR NOTES FOR BRIDGE DECK ATTACHMENT

1. Use torque controlled mechanical expansion anchors that are approved for use in cracked concrete by the International Code Council, Evaluation Service (ICC-ES). The chosen anchor product shall have a designated ICC-ES Evaluation Report number, and its approval status shall be maintained on the ICC-ES website under Division 031600 for Concrete Anchors.
2. Unless otherwise approved by the Engineer: do not use adhesive anchors; do not use expansion anchors that are not included in the ICC-ES approval list; and do not use expansion anchors that are only approved for use in uncracked concrete.
3. Use anchors manufactured with stainless steel expansion wedges. Anchors manufactured with carbon steel expansion wedges are not allowed. Anchor bodies can be either zinc-plated carbon steel or stainless steel. For application in marine environment, both the anchor body and expansion wedge shall be stainless steel.
4. Install anchors as shown on the plans and in accordance with the anchor manufacturer's published installation instructions. Arrange a field demonstration test to evaluate the procedures and tools. The test shall be witnessed and approved by the Engineer prior to furnishing anchors on the structure.
5. Prior to hole drilling, use rebar locator to ensure clearing of existing deck strands or reinforcement. Install anchors to ensure a minimum effective embedment depth, (h_{ef}), as shown. Increase (h_{ef}) as needed to ensure sufficient thread length for proper torquing and tightening of anchors.
6. Use anchors of minimum 1600 Lbs tensile capacity (minimum of steel, concrete breakout, and concrete pullout strengths as determined by ACI 318 Appendix D) at the required minimum embedment depth (h_{ef}). No lateral loads shall be introduced after conduit installation.

Texas Department of Transportation

Traffic Operations Division Standards

ELECTRICAL DETAILS CONDUIT SUPPORTS

ED(2)-14

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71B

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Signature valid for six months.

Date
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Approved for AT&T underground conduit facilities only. Date
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**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
TXDOT ELECTRICAL
DETAILS - SHEETS 2**

E10	FOR CITY OF HOUSTON USE ONLY
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SHEET NO. 284 OF 355	

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APP.
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ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

- Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.
- Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.
- Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.
- Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

- Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.
- Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.
- Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.
- Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.
- Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.
- Support conductors in illumination poles with a J-hook at the top of the pole.
- When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.
- Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.
- Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.
- Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.
- Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

- Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

- Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.
- Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.
- Use listed wire nuts with factory applied sealant for temporary wiring where approved.
- Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.
- Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

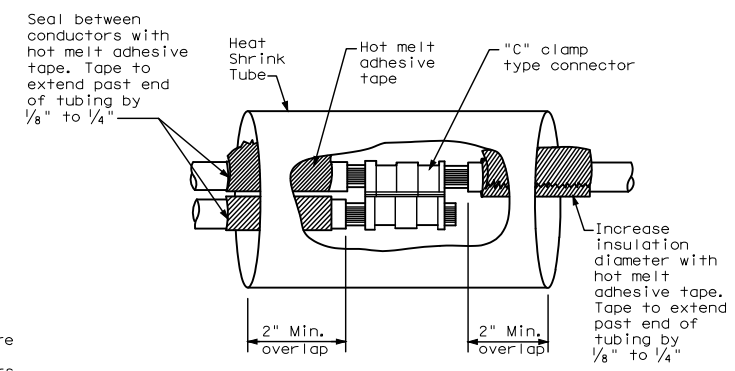
GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

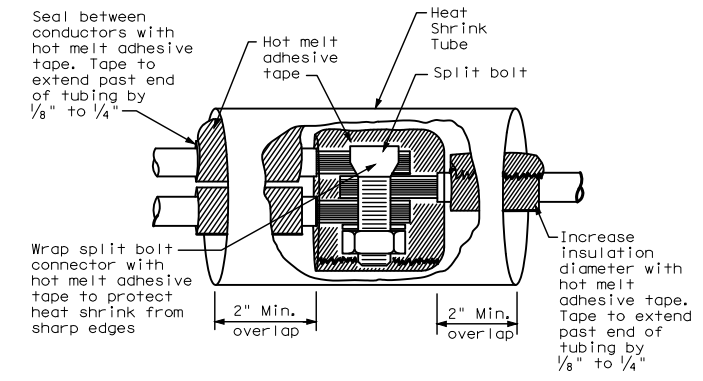
- Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

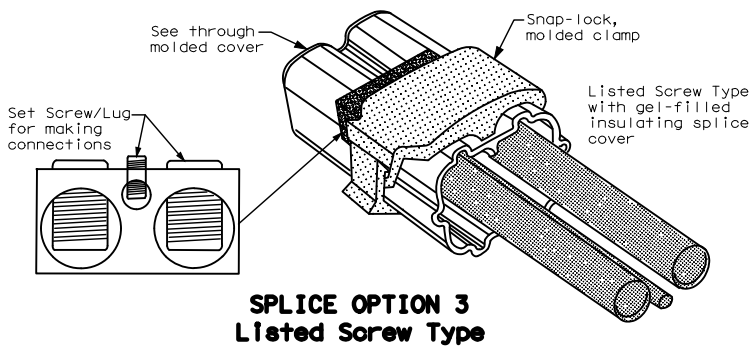
- Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.
- Do not place ground rods in the same drilled hole as a timber pole.
- Install ground rods so the imprinted part number is at the upper end of the rod.
- Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.
- Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.
- Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.
- Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



**SPLICE OPTION 1
Compression Type**



**SPLICE OPTION 2
Split Bolt Type**



**SPLICE OPTION 3
Listed Screw Type**

Texas Department of Transportation

Traffic Operations Division Standards

ELECTRICAL DETAILS CONDUCTORS

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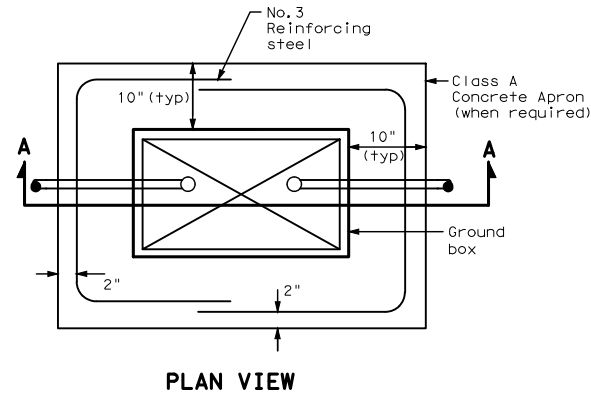
**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
TXDOT ELECTRICAL
DETAILS - SHEETS 3**

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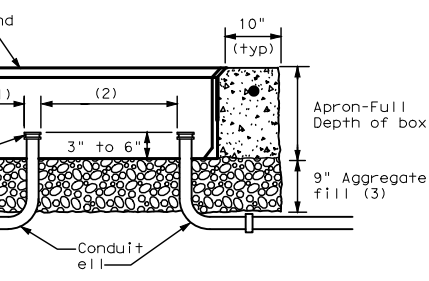
PLAN VIEW

APRON FOR GROUND BOX

- (1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.
- (2) Maintain sufficient space between conduits to allow for proper installation of bushing.
- (3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.
- (4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



SECTION A - A

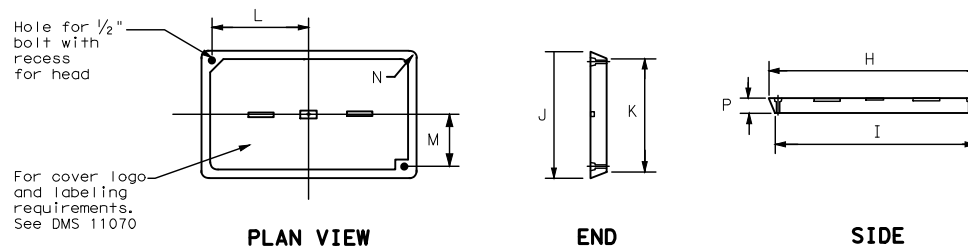
GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."
2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.
3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.
4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.
2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.
3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.
4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.
5. Temporarily seal all conduits in the ground box until conductors are installed.
6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.
7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.
8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.
9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.
10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.
11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.



PLAN VIEW

END

SIDE

GROUND BOX COVER

Texas Department of Transportation *Traffic Operations Division Standard*

**ELECTRICAL DETAILS
GROUND BOXES**

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**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
TXDOT ELECTRICAL
DETAILS - SHEETS 4**

E12

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ELECTRICAL SERVICES NOTES

- Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.
- Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services," DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)," and Item 628 "Electrical Services" of the Standard Specifications. Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.
- Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.
- Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.
- The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.
- Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.
- When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.
- Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, mark identifying conductors. Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 12 inches minimum, 18 inches maximum, or as required by utility.
- All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.
- Provide rigid metal conduit (RMC) for all conduits on service, except for the 1/2 in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.
- Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.
- Ensure all mounting hardware and installation details of services conform to utility company specifications.
- For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 1/2 in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.
- When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 1/2 in. x 11 in. before laminating. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.
- Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss, such as a meter bush hub.

SERVICE ASSEMBLY ENCLOSURE

- Provide threaded hub for all conduit entries into the top of enclosure.
- Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.
- Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.
- Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

- Field drill flange-mounted remote operator handle if needed, to ensure handle is lockable in both the "On" and "Off" positions.
- When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

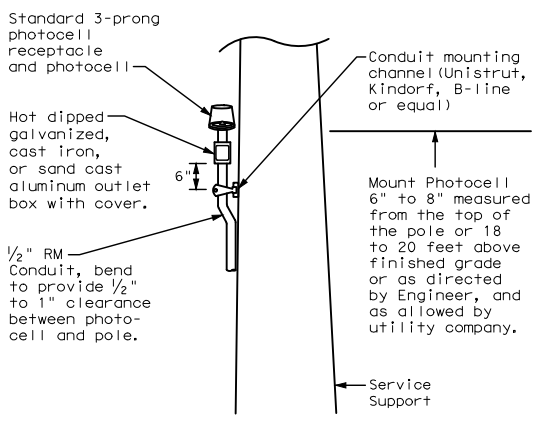
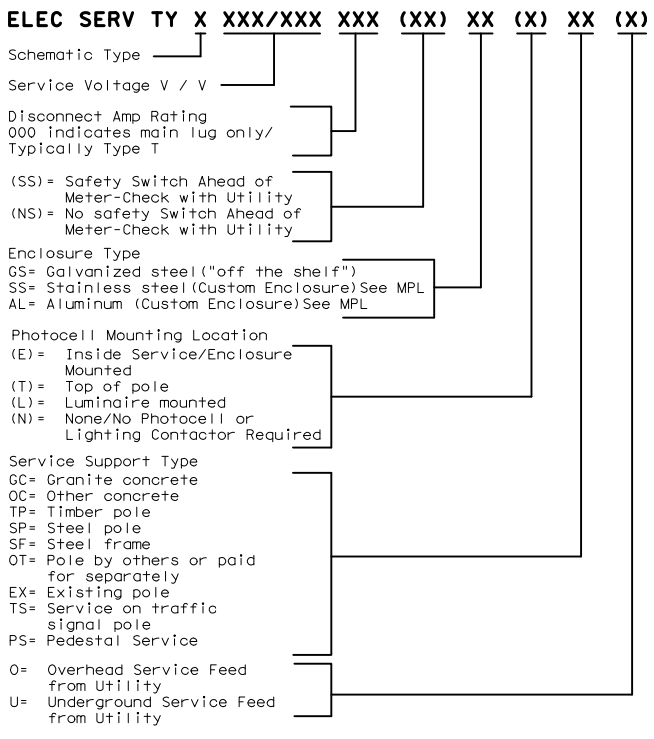
PHOTOELECTRIC CONTROL

- Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

* ELECTRICAL SERVICE DATA												
Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit **Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ Loadcenter Amp Rating	Branch Circuit ID	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 1/4"	3/#6	N/A	2P/60		100	Sig. Controller	1P/30	23	5.3
							30		Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 1/4"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.
 ** Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National Electrical Code.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.

Texas Department of Transportation

Traffic Operations Division

ELECTRICAL DETAILS SERVICE NOTES & DATA

ED(5)-14

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Date

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CITY OF HOUSTON

HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 TXDOT ELECTRICAL DETAILS - SHEETS 5

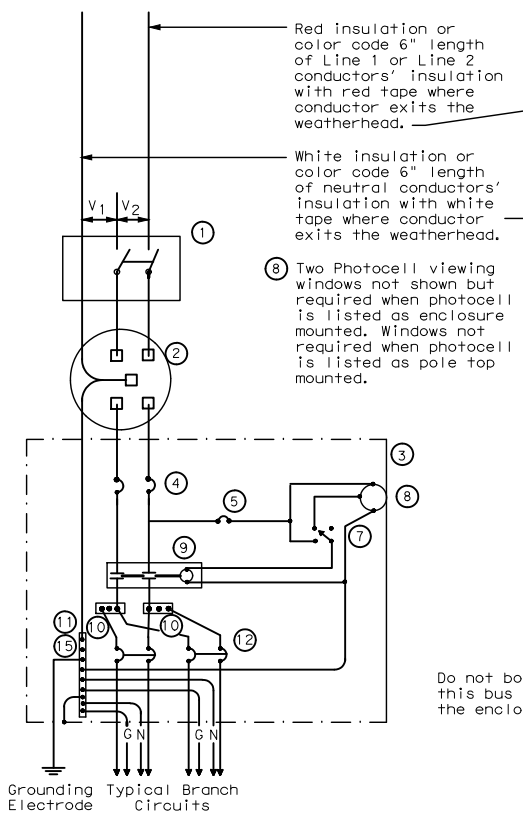
E13

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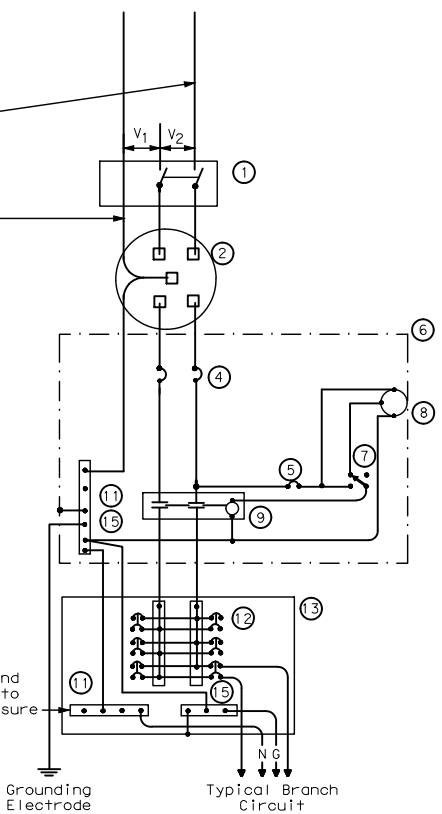
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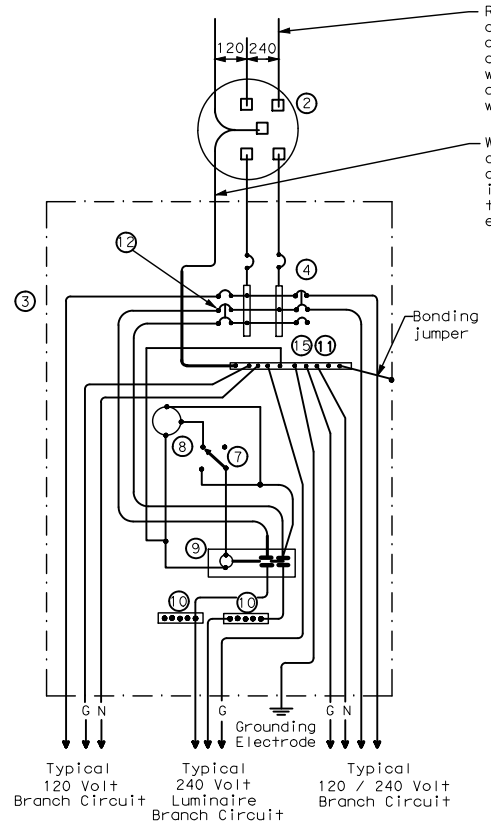
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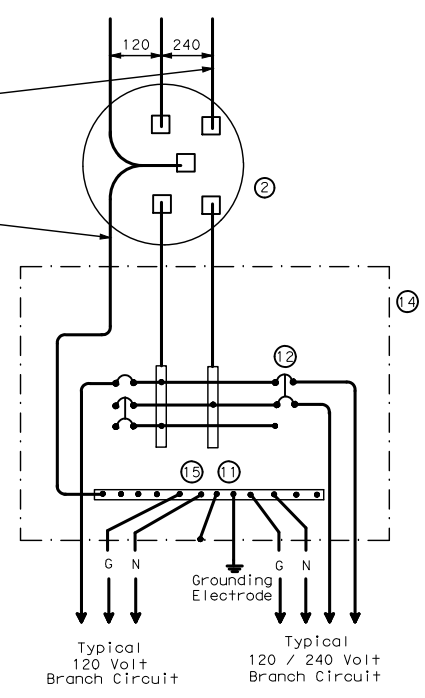
**SCHEMATIC TYPE A
THREE WIRE**



**SCHEMATIC TYPE C
THREE WIRE**



**SCHEMATIC TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE**



**SCHEMATIC TYPE T
120/240 VOLTS - THREE WIRE**
Galvanized steel-"Buy Off The Shelf" only. When required install photocell top of the pole or on luminaire only, no lighting contractor will be installed.

WIRING LEGEND	
	Power Wiring
	Control Wiring
	Neutral Conductor
	Equipment grounding conductor-always required

SCHEMATIC LEGEND	
1	Safety Switch (when required)
2	Meter (when required-verify with electric utility provider)
3	Service Assembly Enclosure
4	Main Disconnect Breaker (See Electrical Service Data)
5	Circuit Breaker, 15 Amp (Control Circuit)
6	Auxiliary Enclosure
7	Control Station ("H-O-A" Switch)
8	Photo Electric Control (enclosure-mounted shown)
9	Lighting Contactor
10	Power Distribution Terminal Blocks
11	Neutral Bus
12	Branch Circuit Breaker (See Electrical Service Data)
13	Separate Circuit Breaker Panelboard
14	Load Center
15	Ground Bus

Texas Department of Transportation Traffic Operations Division Standard

**ELECTRICAL DETAILS
SERVICE ENCLOSURE
AND NOTES
ED(6)-14**

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
TXDOT ELECTRICAL
DETAILS - SHEETS 6**

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DRAWING SCALE	
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JUADA HUANG	
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APP.	
REVISIONS	
No.	DATE

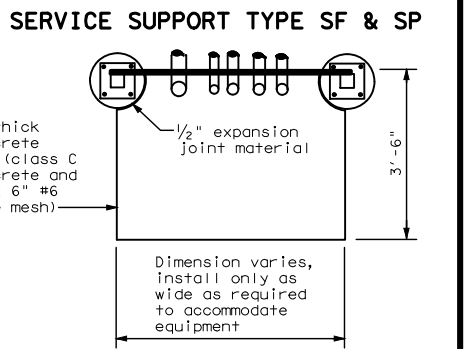
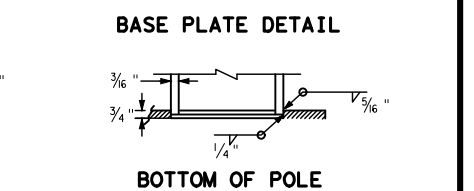
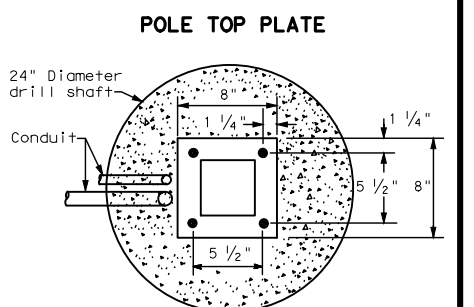
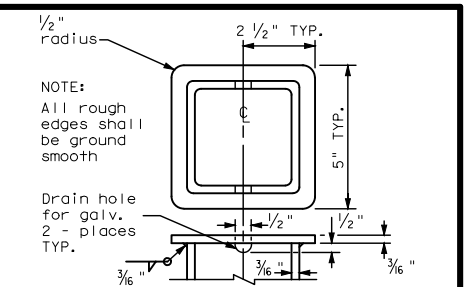
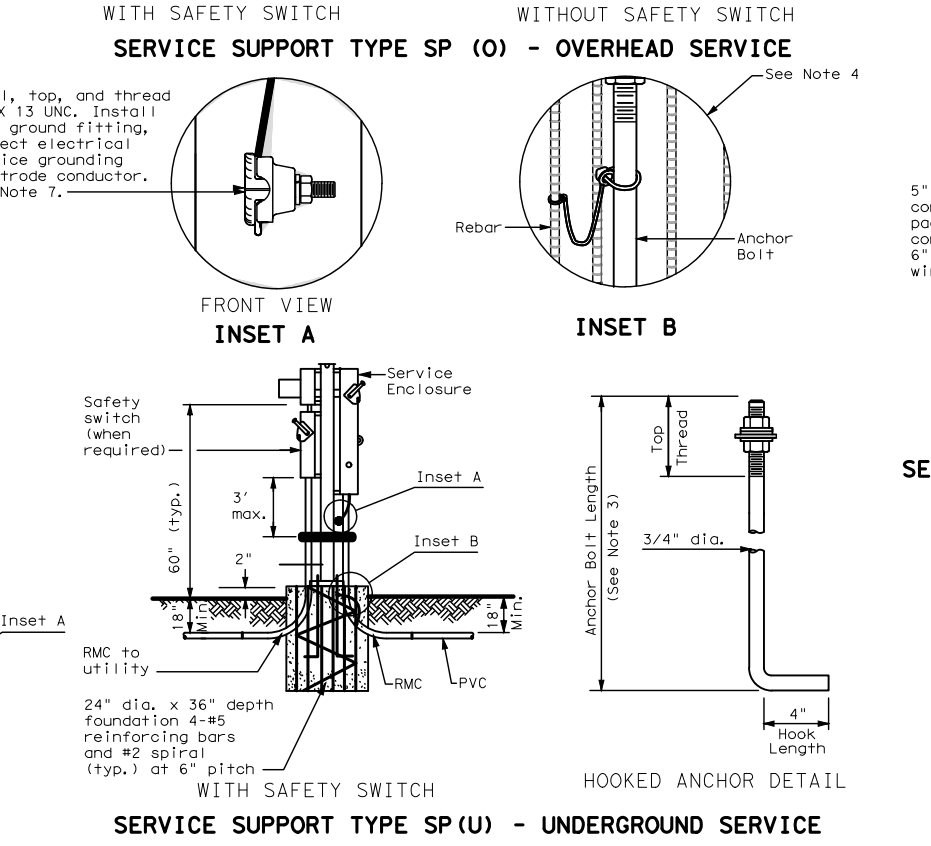
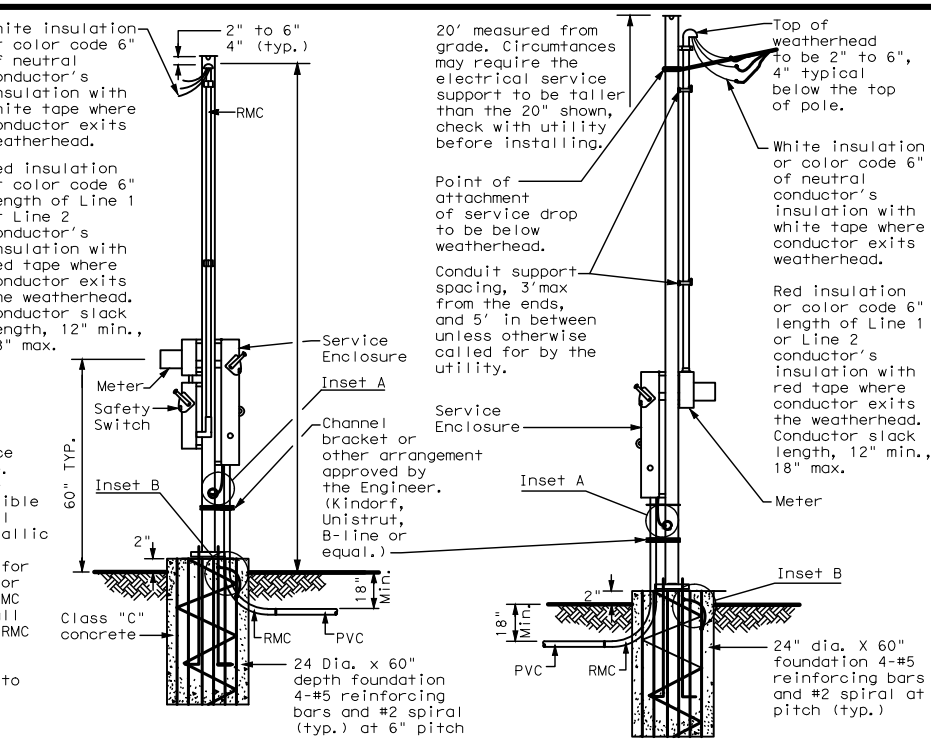
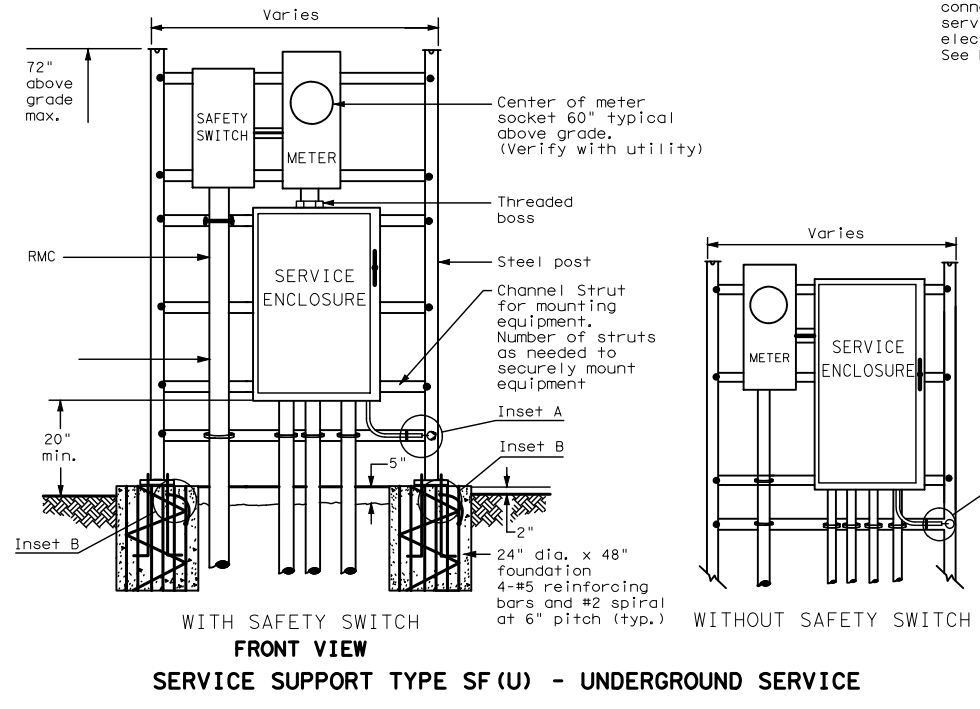
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APP.	REVISIONS	DATE	NO.

SUPPORT TYPE STEEL POLE (SP) AND STEEL FRAME (SF)

1. Provide steel pole and steel frame supports as per TxDOT Departmental Material Specification (DMS) 11080 "Electrical Services." Mount all equipment and conduit on 12 gauge galvanized steel or stainless steel channel strut, 1 1/2 in. or 1 3/8 in. wide by 1 in. up to 3 3/4 in. deep Unistrut, Kindorf, B-line or equal. Bolt or weld all channel and hardware to vertical members as approved. Do not stack channel. File smooth and paint field cut ends of all channel with zinc-rich paint before installing.
2. Provide poles for overhead service with an eyebolt or similar fitting for attachment of the service drop to the pole in conformance with the electric utility provider's specifications.
3. Provide and install galvanized 3/4 in. x 18 in. x 4 in. (dia. x length x hook length) anchor bolts for underground service supports. Provide and install galvanized 3/4 in. x 56 in. x 4 in. anchor bolts for overhead service supports. Ensure anchor bolts have 3 in of thread, with 3 1/4 in. to 3 1/2 in. of the exposed anchor bolt projecting above finished foundation. Provide and install leveling nuts for all anchor bolts.
4. Bond one of the anchor bolts to the rebar cage with 6 AWG bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. See Inset B.
5. Furnish and install rigid metallic elis in all steel pole and steel frame foundations for all conduits entering the service from underground.
6. Use class C concrete for foundations. Ensure reinforcing steel is Grade 60 with 3" of unobstructed concrete cover.
7. Drill and tap steel poles and frames for 1/2 in. X 13 UNC tank ground fitting. For steel pole service supports, provide and install tank ground fitting 4 in. to 6 in. below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. For steel frame service supports, provide and install tank ground fitting on steel frame post. Install service grounding electrode conductor in a non-metallic conduit or tubing from the enclosure to the steel frame post. Connect electrical service grounding electrode conductor to the tank ground fitting. See steel frame and steel pole details and Inset A for more information. Size service entrance conduit and branch circuit conduit as shown in the plans. For underground conduit runs from the electrical service, extend RMC from the service enclosure to an RMC elbow, and then connect the schedule type and size of conduit shown in the plans. Provide and install grounding bushings where RMC terminates in the enclosure. Grounding bushings are not required when RMC is fitted into a sealing hub or threaded boss.
8. If Steel pole or frame is painted, bond each separate painted piece with a bonding jumper attached to a tapped hole.
9. Provide 1/4" - 20 machine screws for bonding. Do not use sheet metal screws. Remove all non-conductive material at contact points. Terminate bonding jumpers with listed devices. Install minimum size 6 AWG stranded copper bonding jumpers. Make up all threaded bonding connections wrench tight.
10. Avoid contact of the service drop and service entrance conductors with the metal pole to prevent abrasion of the insulated conductors.
11. Shop drawings are not required for service support structure unless specifically stated elsewhere or directed by the Engineer.

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ELECTRICAL DETAILS
SERVICE SUPPORT
TYPES SF & SP
ED(7)-14

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716

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TPE FIRM NO. 9439

Gauge ENGINEERING
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MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
TXDOT ELECTRICAL
DETAILS - SHEETS 7

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DRAWING SCALE	
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CITY OF HOUSTON PM	
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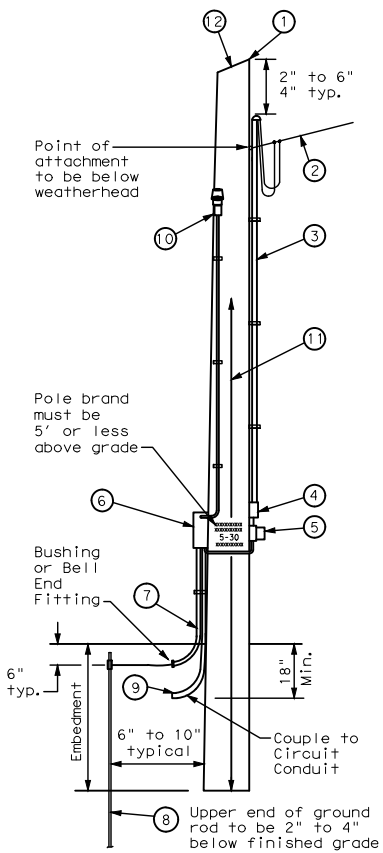
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TIMBER POLE (TP) SERVICE SUPPORT NOTES

1. Ensure electrical service support is a class 5 treated timber pole as per Item 627 "Treated Timber Poles." Embed timber pole to depth required in Item 627.
2. Conduit and electrical conductors attached to the electrical service pole and underground within 12 in. of service pole are not paid for directly but are subsidiary to the electrical service.
3. Install pole-top mounted photocell (T) on north side of pole, or in service enclosure (E) as required. See Electrical Service Data chart in plan set.
4. Gain pole as required to provide flat surface for each channel. Gain timber pole to 5/8 in. max. depth and 1 7/8 in. max. height. Gain pole in a neat and workmanlike manner.
5. Mount meter and service equipment on stainless steel or galvanized channel (Unistrut, Kindorf, or equal). Provide channel sized 1 in. to 3 3/4 in. maximum depth, and 1/2 in. to 1 3/8 in. maximum width. File smooth the cut ends of galvanized channel and paint with zinc rich paint before installing on pole. Secure each channel section to timber pole with two galvanized or SS lag bolts, 1/4 in. minimum diameter by 1 1/2 in. minimum length. Use a galvanized or SS flat washer on each lag bolt. Do not stack channel.
6. When excess length must be trimmed from poles, trim from the top end only.

- 1 Class 5 pole, height as required
- 2 Service drop from utility company (attached below weatherhead)
- 3 Service conduit (RMC) and service entrance conductors - One Red, One Black, One White (See Electrical Service Data)
- 4 Safety switch (when required)
- 5 Meter (when required)
- 6 Service enclosure
- 7 6 AWG bare grounding electrode conductor in 1/2 in. PVC to ground rod - extend 1/2 in. PVC 6 in. underground.
- 8 5/8 in. x 8 ft. Copper clad ground rod - drive ground rod to a depth of 2 in. to 4 in. below grade.
- 9 RMC same size as branch circuit conduit.
- 10 See pole-top mounted photocell detail on ED(5).
- 11 When required by the serving utility provide bare 6 AWG copper conductor. Run wire from pole top to butt wrap or copper butt plate. Protect conductor with non-conductive material to a height of 8 ft. above finished grade.
- 12 When required by utility, cut top of pole at an angle to enhance rain run off.



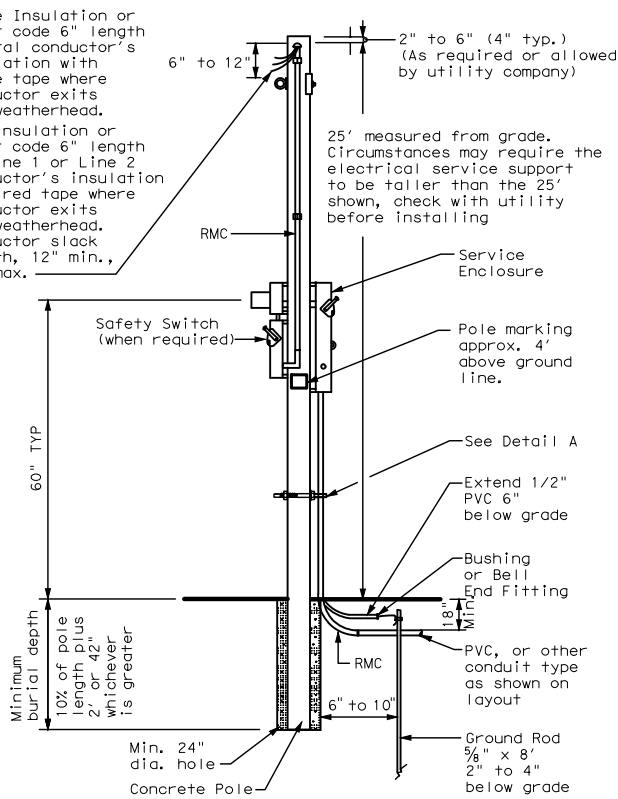
SERVICE SUPPORT TYPE TP (O)

GRANITE CONCRETE (GC) & OTHER CONCRETE (OC) NOTES

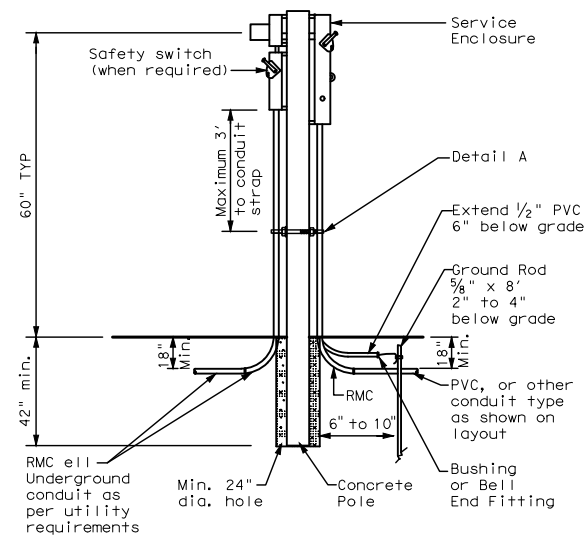
Ensure electrical service support structures bid as type Granite Concrete (GC) or Other Concrete (OC) meet the following requirements.

1. Provide GC and OC poles that meet the requirements of DMS 11080 "Electrical Services."
2. Provide prestressed concrete poles suitable for direct embedment into the ground without special foundations.
3. Verify poles are marked as required on DMS 11080. Location of marking should be approximately 4' above final grade. Use the two-point pickup locations when handling pole in horizontal position, and one-point pickup location for use in raising the pole to a vertical position. These marks are small but conspicuous.
4. Embed poles 42 in. or 10% of the length plus 2 ft., whichever is greater.
5. Ensure all installation details of services are in accordance with utility company specifications.
6. Install a one point rack or eye bolt bracket 6 inches to 12 inches below the weatherhead as an overhead service drop anchoring point for the electric utility.
7. Furnish and install galvanized or stainless steel channel strut 1 1/2 in. or 1 3/8 in. wide by 1 in. up to 3 3/4 in. deep (Unistrut, Kindorf, B-line or equal). Attach channel strut with stainless steel concrete anchors (max. 1" depth), square U-bolts or back to back channel strut with long bolts, or other secure mounting as approved by the Engineer. Ensure bolts are galvanized in accordance with ASTM A153. Do not stack channel struts.
8. Backfill the holes thoroughly by tamping in 6 in. lifts. After tamping to grade, place additional backfill material in a 6 inch high cone around the pole to allow for settling. Use material equal in composition and density to the surrounding area. Backfilling will not be paid for directly but is subsidiary to various bid items.

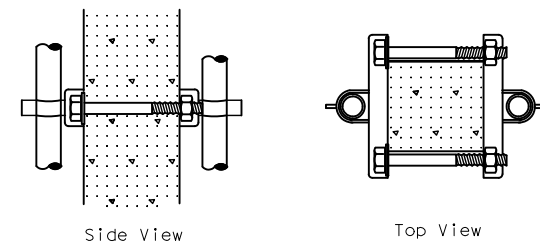
White insulation or color code 6" length neutral conductor's insulation with white tape where conductor exits the weatherhead.
Red insulation or color code 6" length of Line 1 or Line 2 conductor's insulation with red tape where conductor exits the weatherhead. Conductor slack length, 12" min., 18" max.



CONCRETE SERVICE SUPPORT Overhead (O)



CONCRETE SERVICE SUPPORT Underground (U)



DETAIL A

See Note 7. Before installing channel that has been cut, file sharp edges and paint with zinc-rich paint. Ensure there is no paint splatter on the pole.

Texas Department of Transportation		Traffic Operations Division Standard	
ELECTRICAL DETAILS SERVICE SUPPORT TYPES GC, OC, & TP ED(10)-14			
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
TXDOT ELECTRICAL DETAILS - SHEETS 8

E16	WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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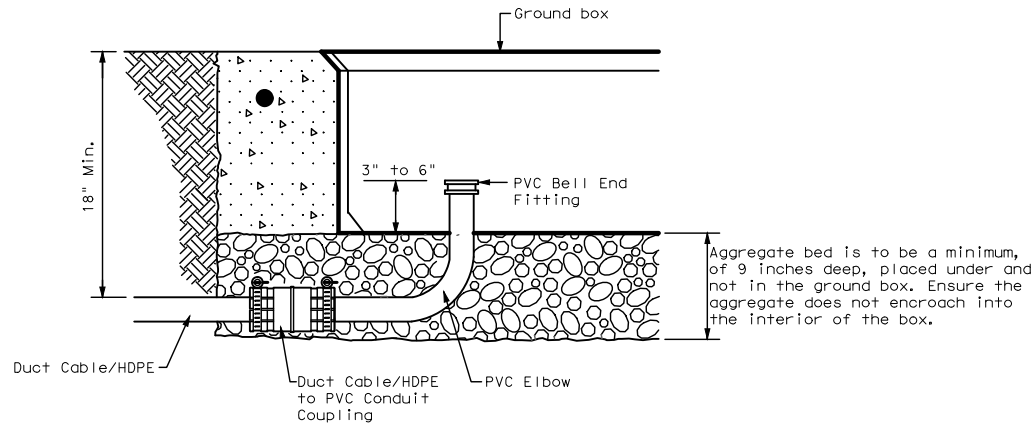
Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$

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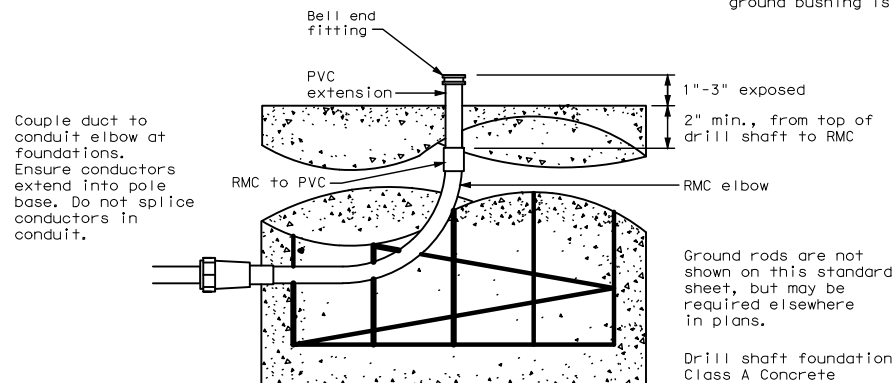
DUCT CABLE & HDPE CONDUIT NOTES

1. Provide duct cable in accordance with Departmental Material Specification (DMS) 11060 "Duct Cable" and Item 622 "Duct Cable." Provide duct cable as listed on the Material Producer List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 622.
2. Provide High-Density Polyethylene (HDPE) conduit in accordance with DMS 11060 and Item 618, "Conduit." Provide HDPE as listed on the MPL on the Department web site under "Roadway Illumination and Electrical Supplies," Item 618.
3. Supply duct cable with a minimum 2 in. diameter, unless otherwise shown in the plans. Provide duct cable and HDPE conduit as shown by descriptive code or on the plans. Bend duct cable and HDPE conduit as recommended by the manufacturer, with a minimum bending radius of 26 in. for 2 in. duct. Follow manufacturers' recommendations when handling duct cable and HDPE conduit reels and during installation of duct cable and HDPE conduit.
4. Do not splice conductors within duct cable or HDPE conduit. Couple duct cable and HDPE entering a ground box or foundation to a PVC elbow. When galvanized steel RMC elbows are called for in the plans and any portion of the RMC elbow is buried less than 18" from possible contact, ground the RMC elbow.
5. Furnish and install duct cable with factory installed conductors, sized as shown in the plans and as required by the National Electrical Code (NEC). The NEC contains specific requirements for duct cable in Article, "Nonmetallic Underground Conduit with Conductors: Type NUCC."
6. When conduit casing is called for in the plans, extend duct cable or HDPE conduit through the conduit casing in one continuous length without connection to the casing.
7. Seal the ends of duct cable or HDPE conduit with duct seal, expandable foam, or other approved method after completing the pull tests required by Item 622.
8. Provide minimum cover of 24 in. under roadways, 18 in. in other locations, or as shown on the plans.
9. Furnish and install listed fittings to couple duct cable or HDPE conduit to other types of conduit. Duct cable and HDPE conduit may be field-threaded and spliced with PVC or RMC threaded couplings; connected with listed tie-wrap fittings; connected using listed coupling made of HDPE with stainless steel external banding clamps and locking rings; connected with approved electrofusion conduit couplings; or connected using an approved chemical fusion method using an epoxy or adhesive specifically designed for HDPE couplings and connectors all installed in accordance with their manufacturer's instructions. Do not use PVC glue on HDPE. Do not use water pipe fittings, or connect conduit with heat shrink tubing.

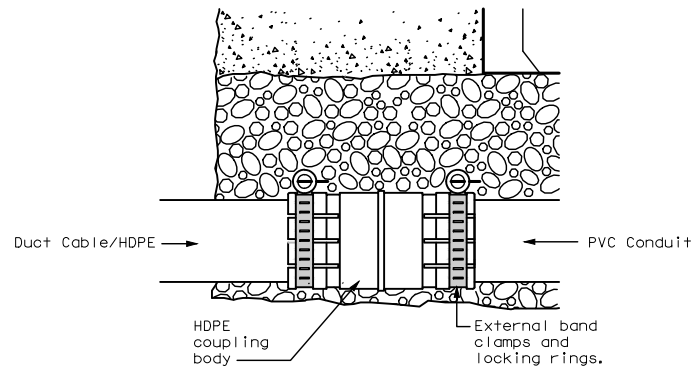


DUCT CABLE/HDPE AT GROUND BOX

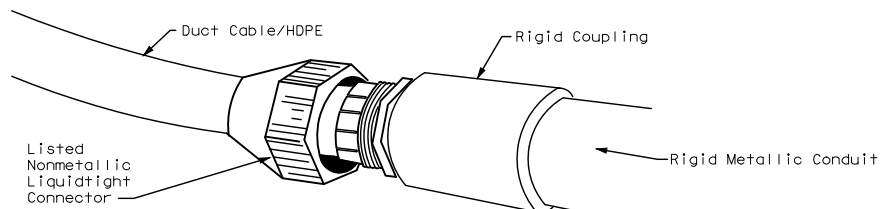
When the upper end of an RMC Ell does not enter the ground box, it may be extended with a SCH-40 PVC conduit nipple and bell end, provided there is a minimum of 18" of cover over all parts of the elbow. If not, a rigid extension and ground bushing is required.



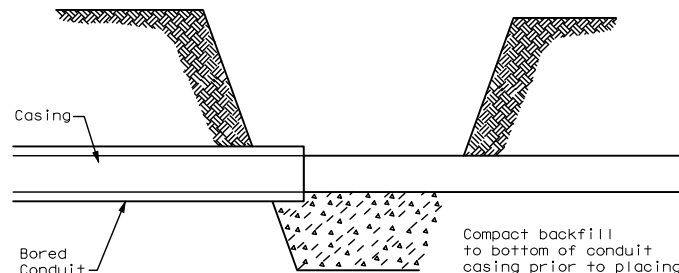
DUCT CABLE / HDPE AT FOUNDATION



DUCT CABLE/HDPE TO PVC



DUCT CABLE/HDPE TO RMC



BORE PIT DETAIL

Texas Department of Transportation Traffic Operations Division Standard

**ELECTRICAL DETAILS
DUCT CABLE/
HDPE CONDUIT**

ED(11)-14

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Signature valid for six months.

Date
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Approved for AT&T underground conduit facilities only. Date
Signature valid for one year.

MBROH ENGINEERING
TPE FIRM NO. 9439

Gauge ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

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HANS PURES
131630
2/14/2024

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MBROH ENGINEERING
Texas Registered Engineering TPE FIRM NO. 9439

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1**
TXDOT ELECTRICAL
DETAILS - SHEETS 9

E17	FOR CITY OF HOUSTON USE ONLY
WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	NTS
CITY OF HOUSTON PM	JUADA HUANG
SHEET NO. 291	OF 355

APP.	
REVISIONS	
No.	DATE

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REVISIONS
No. DATE

ROADWAY ILLUMINATION ASSEMBLY NOTES

- Details apply to roadway lighting installations bid or referenced under Item 610, "Roadway Illumination Assemblies." Provide, furnish, and install all other materials not shown on the plans which may be necessary for complete and proper construction. Where manufacturers provide warranties or guarantees as a customary trade practice, furnish to the State such warranties or guarantees.
- The locations of poles and fixtures may be shifted by the Engineer to accommodate local conditions. Install or remove poles and luminaires located near overhead electrical lines using established industry and utility safety practices and in accordance with laws governing such work. Consult with the appropriate utility company prior to beginning such work.
- Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association, Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection.
- Provide Roadway Illumination Light Fixtures as per TxDOT Departmental Material Specification (DMS) 11010, Item 610, and as shown on the Material Producers List (MPL) for Roadway Illumination and Electrical Supplies.
- Fabricate steel roadway illumination poles in accordance with Roadway Illumination Poles (RIP) standards and Item 610. Poles fabricated according to RIP standards do not require shop drawing submittals.
 - Alternate designs to RIP standards or the use of aluminum to fabricate poles will require the submission of shop drawings electronically. For instructions on submitting shop drawings electronically see "Guide to Electronic Shop Drawing Submittal" on the TxDOT web site.
 - Limitations on use of the RIP standard: The RIP standard details were developed for installations in locations where the 3-second gust basic maximum wind speed is 110 mph, and where the elevation of the base of the pole is less than (i.e. not more than) 25' above the elevation of the surrounding terrain, in accordance with the "AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals," 6th Edition (2013) of the AASHTO Design Specifications. For poles to be installed in regions where the maximum basic wind speed exceeds 110 mph or to be mounted more than 25' above the surrounding terrain, provide poles meeting the following requirements:
 - Submittals. Following the electronic shop drawing submittal process (see Guide to Electronic Shop Drawing Submittal on the TxDOT web site), submit to the Engineer for approval fabrication drawings and calculations for the poles, sealed by a Texas licensed professional engineer (P.E.).
 - Luminaire Structural Support Requirements. Provide light poles, arms, and anchor bolt assemblies with a 25 year design life to safely resist dead loads, ice loads and the required basic wind speeds at the location of installation in accordance with the 6th edition (2013) of the AASHTO Design Specifications. For transformer base poles, include transformer base and connecting hardware in calculations and shop drawing submittals. Structurally test all transformer bases to resist the theoretical plastic moment capacity of the pole. Submit certification of the plastic moment load test and FHWA breakaway requirement test of the model of base being furnished with the shop drawings. Show breakaway base model number, manufacturer's name, and logo on shop drawings. Include on manufacturer's shop drawings the ASTM designations for all materials to be used.
- For both transformer and shoe-base type illumination poles, provide and install double-pole breakaway fuse holders as specified by DMS-11040. Breakaway fuse holders are listed on the MPL for Roadway Illumination and Electrical Supplies under Items 610 & 620. Provide 10 amp time delay fuses for breakaway connectors in light poles, or inside the light fixture for underpass luminaires. In each pole, connect luminaires to the breakaway connector with continuous stranded 12 AWG copper conductors as listed on the MPL. Bond all equipment grounding conductors together and to the ground lug in the transformer base or hand hole.
- Tighten anchor bolts for shoe base, concrete traffic barrier base, and bridge mount roadway illumination poles, in accordance with Item 449.
- Install T-Base with following procedure:
 - Anchor Bolt Tightening.
 - Coat the threads of the anchor bolts with electrically conductive lubricant.
 - Place the T-base over the anchor bolts. Foundation must be level and flat. The maximum permissible gap under any one corner of the t-base is 1/8" before nuts are tightened.
 - Coat the bearing surfaces of the nuts and washers with electrically conductive lubricant. Install (1) 1/2" hold down washer, (1) lock washer, and (1) nut on each anchor bolt. Turn the nuts onto the bolts so that each is hand-tight against the washer.
 - Using a torque wrench, tighten each nut to 150 ft-lb. Uniform contact is required between the foundation and the T-base in the corner regions of the T-base, and all corner gaps must be closed after applying torque. If a gap still exists after torquing to 150 ft-lbs, continue torquing each bolt incrementally until gap is closed or maximum allowable torque of 250 ft. pound is reached, whichever comes first. If 250 ft-lbs is not enough to close the gap the foundation must be leveled. Gaps along the straight sides of the T-bases and the foundation are permissible. Ensure that no high point of contact occurs between the straight sides of the T-base and the foundation.
 - Check top of T-base for level. If not level then foundation must be leveled.
 - Top Bolt Procedure
 - Erect pole over T-base with crane. Coat bolts, nuts, washers, and lock washers with electrically conductive lubricant.

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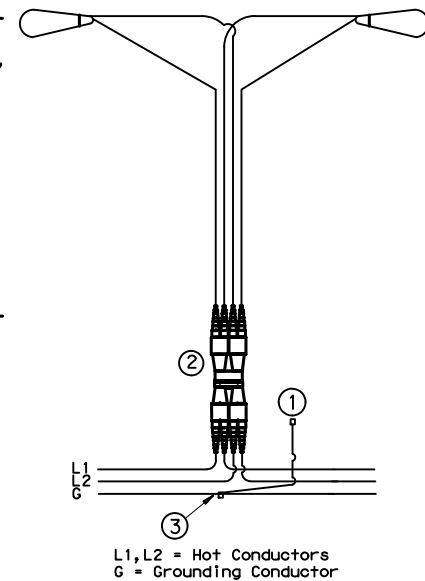
- Install bolts and 1/2" connecting washers from the inside of the T-base, thread up through the pole base. Install flat washers, lock washers and nuts snug tight according to Item 447, "Structural Bolting."
 - Tighten each nut to 150 ft-lb. using a torque wrench.
- c. Level and Plumb
- Ensure pole is plumb and mast arm is perpendicular to the roadway according to plans to within 5 degrees.
- Construct luminaire pole foundations in accordance with Item 416, "Drilled Shaft Foundations," and TxDOT standard sheet RID(2).
 - Provide and install underpass luminaires in accordance with Item 610, DMS-11010, and TxDOT standard sheet RID(3). Typical luminaire size for underpass luminaires is 150W HPS or 150W EQ LED.
 - Mount luminaires on arms level as shown by the luminaire level indicator.
 - Orient luminaires perpendicular to the roadway intended to be lit unless otherwise shown on the plans.

Wiring Diagram Notes:

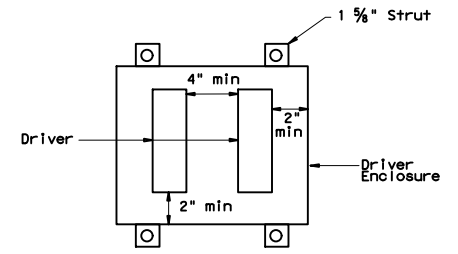
- Use 1/2 in. -13 UNC threaded, copper or tin-plated copper, pole bonding connector, sized appropriately for conductors, bonded to T-base, or use ground lug in handhole as available.
- Use pre-qualified two-pole breakaway connectors for all luminaire pole installations. For luminaires fed by a circuit with a neutral conductor, use double pole breakaway connectors with the neutral side unfused and marked white.
- Split Bolt or other connector.

Decorative LED Lighting Notes:

- LED Drivers in Remote Outdoor enclosures (for drivers that do not include an enclosure as part of a factory assembly):
 - Provide NEMA 3R outdoor enclosure or as approved.
 - Install enclosure at least 12" above ground or other horizontal surface. Mount vertically or on ceiling, and avoid direct sun where possible.
 - Install drivers with at least 2 inches of space from enclosure walls.
 - For multiple drivers in an enclosure, provide at least 4 inches side to side and 1 inch end to end from other drivers or electronic equipment.
 - For drivers mounted on back wall of enclosure, mount enclosure on 1 5/8" strut or other standoff to dissipate heat, or mount driver to side of the enclosure or to the metal cover.
 - Provide remote drivers with a maximum of 100 watts
 - Provide drivers with documentation of 100,000 hr lifetime at Tcase of 65C or higher.



TYPICAL WIRING DIAGRAM
 LUMINAIRES SERVED AT 480V ON 240/480 VOLT SERVICE OR LUMINAIRES SERVED AT 240V FOR 120/240 VOLT SERVICE.



Driver Spacing In Remote Enclosure

Texas Department of Transportation		Traffic Safety Division Standard	
ROADWAY ILLUMINATION DETAILS			
RID(1)-20			
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REVISIONS		HIGHWAY	
7-17	DIST	COUNTY	SHEET NO.
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12A			

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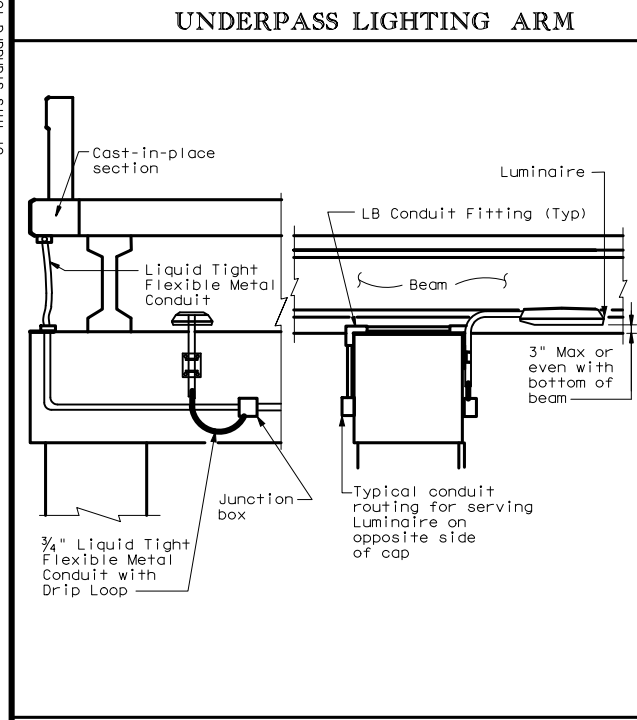
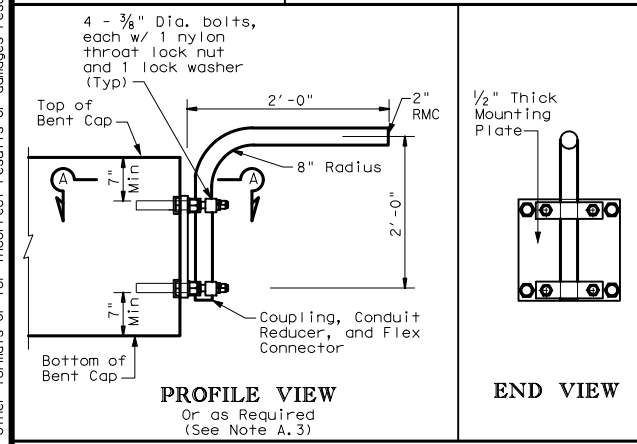
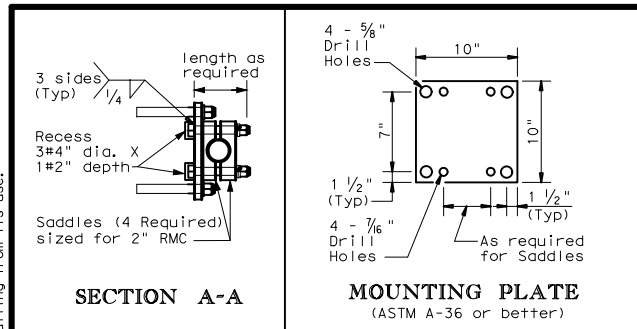
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

TXDOT ROADWAY DETAILS - SHEETS 1

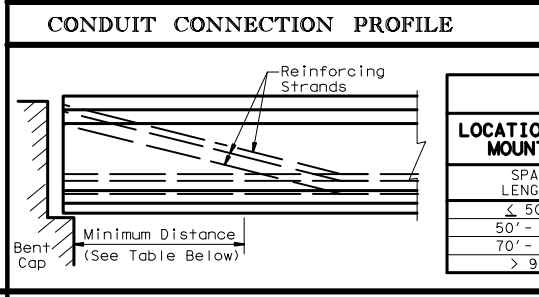
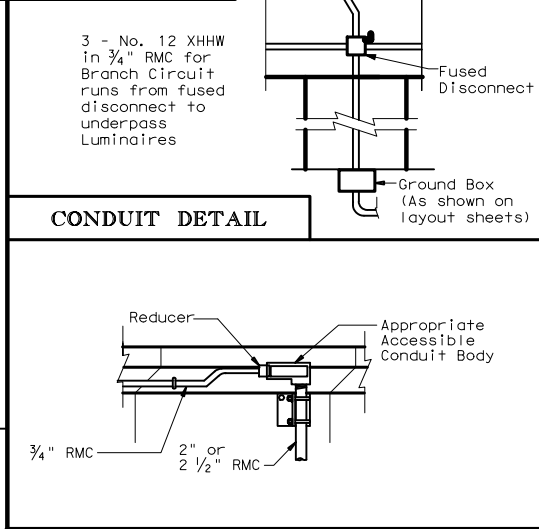
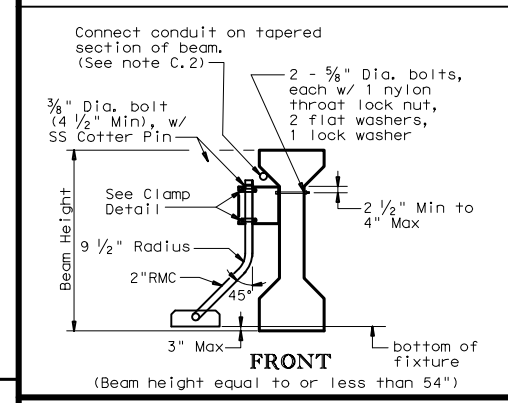
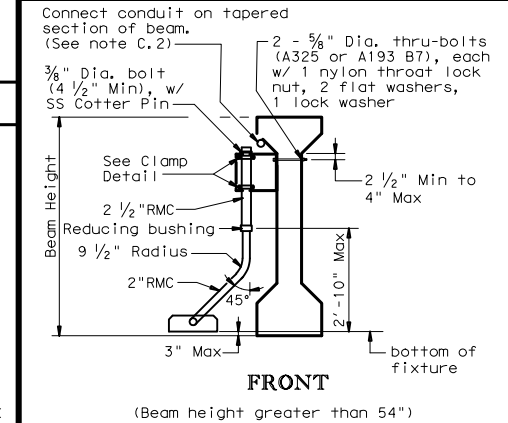
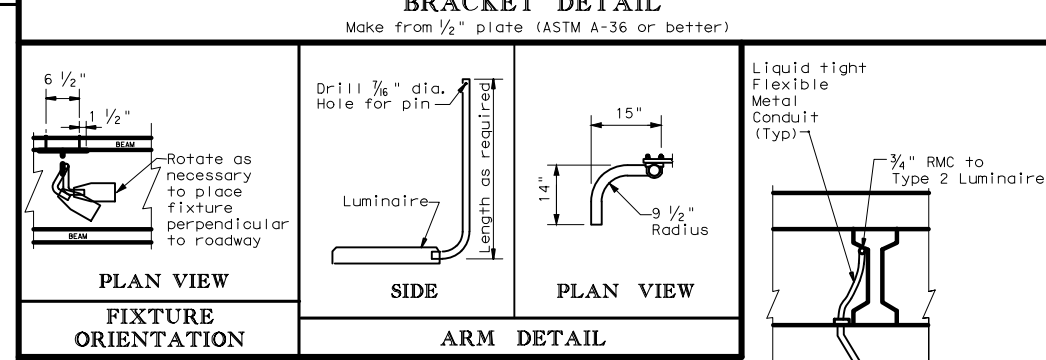
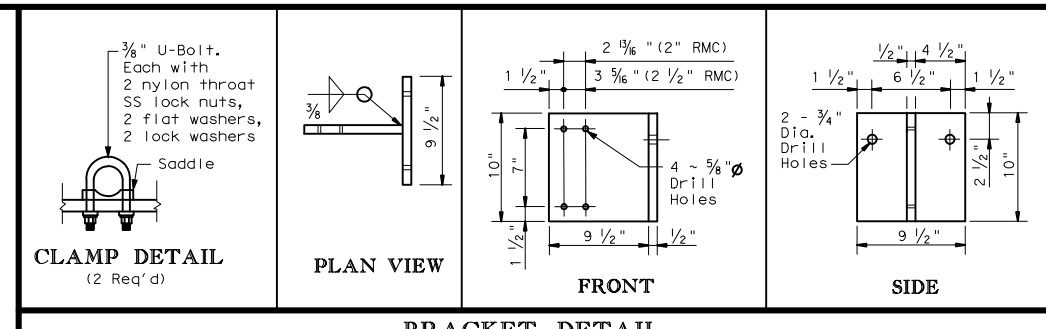
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DRAWING SCALE	NTS
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO. 292	OF 355

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IN RD IL AM (U/P)(TY 1)
If bridge has pre-cast panels under deck, run circuit under deck edge.



LOCATION OF UNDERPASS LIGHT MOUNTING BRACKET

GENERAL NOTES:

A. ALL 150 watt HPS and 150 watt equivalent LED Luminaires

- Luminaire locations, conduit and conductor sizes and routing are typical and diagrammatic only. See project layout sheets for specific details.
- Conduit will be paid for under Item 618, "Conduit" and conductors will be paid for under Item 620, "Electrical Conductors," unless otherwise shown on the plans.
- Adjust conduit in saddles to place fixture height and orientation as required. See fixture orientation detail and plans. Where practicable, place luminaires so the bottom of luminaire is above the bottom of the beam, maximum of 3 in. (See detail UNDERPASS LIGHTING ARM TYPE 2)
- Except as noted, galvanize all structural steel and exposed bolts, nuts, and washers in accordance with Item 445 "Galvanizing".
- Fabrication of brackets and support arms will not be paid for directly but is subsidiary to Item 610, "Roadway Illumination Assemblies."
- Install a heavy duty NEMA 3R fused disconnect or breaker enclosure rated at 30 amps and 480 volts to switch underpass luminaires as shown on plans, with at least one per bridge circuit. Install 20 amp time-delay fuses or inverse-time circuit breakers. Mount disconnect or breaker enclosure 10 ft. (min) above grade on columns or bent caps as approved by the Department. Modify disconnect to allow padlocking in the "ON" and "OFF" positions. Padlocks and disconnect switches or circuit breakers for underpass fixtures will not be paid for directly but are subsidiary to the various bid items of the contract.
- Conduit on columns, caps, and slab is shown surface mounted. For new columns and caps, embed PVC conduit in concrete. Bond and ground metal junction boxes and conduit.

B. TYPE 1

- Provide 2 in. rigid metal conduit (2.375" O.D., 0.146" wall) for Type 1 arm shaft.
- Use 3/8 in. stainless steel bolt or stud non-epoxy type expansion anchors for concrete for Type 1 mounting. Except as noted, provide an allowable 2650 lbs minimum pull-out force (after consideration of adjustment factors for edge distance and bolt spacing) for each anchor. Install each anchor to the embedment depth recommended by the manufacturer.
- Attach conduit to plate with 4 saddles, four - 3/8 in. diameter bolts, nylon throat lock nuts, and lock washers.

C. TYPE 2

- Provide 2 in. rigid metal conduit (2.375" O.D., 0.146" wall) or provide a combination of 2 1/2 in. (2.875" O.D., 0.193" wall) and 2 in. (2.375" O.D., 0.146" wall) rigid metal conduits with a reducing bushing as beam height stipulated for Type 2 arm shaft. Field cutting and threading will be permitted. Paint out and threaded areas with zinc rich paint after conduit is connected to adjacent fitting.
- Connecting conduit may be strapped to tapered section only of precast beams as shown. Anchor as approved by the Engineer. Maximum anchor depth is 1 in.
- Indiscriminate drilling into precast concrete beams may result in reduced beam strength. Use drilling location and method as directed by the Engineer. See location of Underpass Lighting Mounting Bracket detail. The locations shown in the table are such that reinforcing strands will not be damaged.

SPAN LENGTH	MINIMUM DISTANCE
< 50'	10'-0"
50' - 70'	15'-0"
70' - 90'	20'-0"
> 90'	25'-0"

ROADWAY ILLUMINATION DETAILS (UNDERPASS LIGHT FIXTURES) RID(3)-20

FILE: r1d3-20.dgn ON: TxDOT Cks: TxDOT DW: TxDOT Cks: TxDOT
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 2-14 7-17 12-20
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TXDOT ROADWAY DETAILS - SHEETS 2

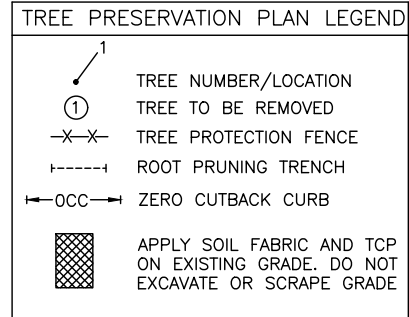
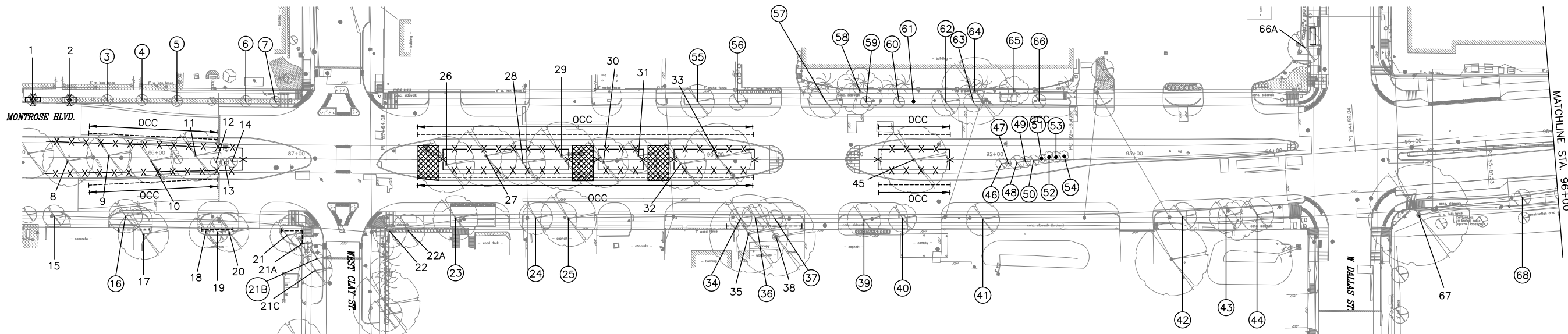
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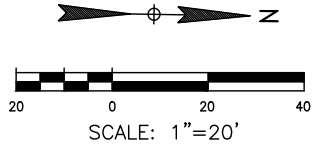
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Pen Table: \$PENTBL\$
Plot Driver: \$PLTDRLV\$



NOTE:
 1. THIS TREE PROTECTION PLAN WAS DEVELOPED WITH INFORMATION PROVIDED BY DESIGN ENGINEER IN DRAWINGS DATED JANUARY 2024. THE PLAN CONSIDERS ALL FITTINGS, VERTICAL OFFSETS AND AREAS OF NECESSARY EXCAVATION. CHANGES MADE TO DESIGN MAY COMPROMISE THE TREE PROTECTION PLAN. REFER SPECIFICATIONS 01562 AND 02915.
 2. CN KOEHL URBAN FORESTRY, INC. HAS NOT BEEN CONTRACTED TO COMPLETE ANY TREE RISK ASSESSMENTS ON THIS PROJECT—THIS TPP INCLUDES PROTECTION MEASURES FOR SPECIES OF TREES PROTECTED BY APPLICABLE ORDINANCE ONLY. CN KOEHL URBAN FORESTRY, INC. DOES NOT GUARANTEE CONDITION OR STRUCTURAL INTEGRITY OF ANY TREE LOCATED ON OR ADJACENT TO THIS PROJECT.
 3. IN AREAS WHERE INDIVIDUAL TREES HAVE NOT BEEN TIED IN BY SURVEY, APPROXIMATE LOCATION IS INDICATED ON TPP WITH A DOT AND TREE NUMBER. ACCURACY OF REPRESENTED LOCATION IS NOT GUARANTEED BY CN KOEHL URBAN FORESTRY, INC.
 4. THE CONTRACTOR'S ARBORIST WILL MARK LOCATIONS OF TREES TO BE PLANTED AND OBTAIN APPROVAL BY CITY ENGINEER AND CITY FORESTER BEFORE PURCHASING OR EXCAVATING PLANTING HOLE OF EACH TREE.



Tree No.	Description	Chapter 33 Status	Comments	Treatment
1	4" Live Oak	Protected tree	Just beyond project scope	Fence, Clearance prune
2	4" Live Oak	Protected tree	Just beyond project scope	Fence, Clearance prune
3	4" Live Oak	Protected tree	Remove for wider sidewalk/path. Coordinate relocation with project engineer and landscape architect	Relocate per standard specification D2915, Coordinate location with project engineer and landscape architect
4	4" Live Oak	Protected tree	Remove for wider sidewalk/path. Coordinate relocation with project engineer and landscape architect	Relocate per standard specification D2915, Coordinate location with project engineer and landscape architect
5	5" Live Oak	Protected tree	Remove for wider sidewalk/path. Coordinate relocation with project engineer and landscape architect	Relocate per standard specification D2915, Coordinate location with project engineer and landscape architect
6	4" Live Oak	Protected tree	Remove for wider sidewalk/path. Coordinate relocation with project engineer and landscape architect	Relocate per standard specification D2915, Coordinate location with project engineer and landscape architect
7	4" Live Oak	Protected tree	Remove for wider sidewalk/path. Coordinate relocation with project engineer and landscape architect	Relocate per standard specification D2915, Coordinate location with project engineer and landscape architect
8	7" Live Oak	Protected tree	Remove for wider sidewalk/path. Coordinate relocation with project engineer and landscape architect	Relocate per standard specification D2915, Coordinate location with project engineer and landscape architect
9	17" Live Oak	Protected tree		Fence, Clearance prune
10	15" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate
11	15" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate
12	4" Eastern Redbud	Protected tree		Fence, Clearance prune
13	4" Eastern Redbud	Protected tree		Fence, Clearance prune
14	4" Eastern Redbud	Protected tree		Fence, Clearance prune
15	11" Sugarberry	Not protected		
16	10" Live Oak	Protected tree	Remove for Curbslot & wider sidewalk	Remove tree. Provide 10" in replacement plantings
17	14" Live Oak	Not protected	Private tree, Topped	Root prune for sidewalk
18	11" Live Oak	Not protected	Private tree, Topped	Root prune for sidewalk
19	10" Live Oak	Not protected	Private tree, Topped	Root prune for sidewalk
20	13" Live Oak	Not protected	Private tree, Topped	Root prune for sidewalk
21	12" Live Oak	Not protected	Private tree, Topped	Root prune for sidewalk
21A	10" Bradford Pear	Not protected	Private tree, Topped	
21B	11" Bradford Pear	Not protected	Topped, Remove for new sidewalk	Remove tree. No replacement required
21C	11" Bradford Pear	Not protected	Topped	
22	10" Sweetgum	Not protected	Private tree	
22A	10" Sweetgum	Not protected	Private tree	
23	14" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 14" in replacement plantings
24	10" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 10" in replacement plantings
25	18" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 18" in replacement plantings
26	17" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade
27	14" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate
28	15" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate
29	14" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade
30	18" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade
31	14" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade
32	20" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate, Apply soil fabric and TCP on existing grade-do not excavate or scrape existing grade

Tree No.	Description	Chapter 33 Status	Comments	Treatment
33	22" Live Oak	Protected tree		Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate
34	10" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 10" in replacement plantings
35	23" American Elm	Not protected	Private tree, Topped	Root prune for sidewalk
36	10" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 10" in replacement plantings
37	8" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 8" in replacement plantings
38	14" American Elm	Not protected	Private tree	Root prune for sidewalk
39	11" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 11" in replacement plantings
40	11" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 11" in replacement plantings
41	16" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 16" in replacement plantings
42	13" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 13" in replacement plantings
43	12" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 12" in replacement plantings
44	15" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 15" in replacement plantings
45	19" Live Oak	Protected tree	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate	Zero curb cutback, Root prune for street. Fence, Clearance prune, Crown Cleaning prune, Root stimulate
46	6" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 5" in replacement plantings
47	2" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 2" in replacement plantings
48	2" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 2" in replacement plantings
49	4" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 4" in replacement plantings
50	5" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 5" in replacement plantings
51	3" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 3" in replacement plantings
52	5" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 5" in replacement plantings
53	4" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 4" in replacement plantings
54	5" Eastern Redbud	Protected tree	Remove for median narrowing	Remove tree. Provide 5" in replacement plantings
55	11" Live Oak	Protected tree	Remove for wider sidewalk/path	Remove tree. Provide 11" in replacement plantings
56	10" Live Oak	Protected tree	Remove for wider sidewalk/path	Remove tree. Provide 10" in replacement plantings
57	12" Live Oak	Protected tree	Remove for wider sidewalk/path	Remove tree. Provide 12" in replacement plantings
58	28" Crepe Myrtle	Protected tree	Remove for wider sidewalk/path	Remove tree. Provide 28" in replacement plantings
59	4" Live Oak	Protected tree	Poor condition. Remove for sidewalk	Remove tree. No replacement required due to condition
60	3" Live Oak	Protected tree	Poor condition. Remove for sidewalk	Remove tree. No replacement required due to condition
61	24" Crepe Myrtle	Protected tree	Remove for wider sidewalk/path	Remove tree. Provide 24" in replacement plantings
62	10" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 10" in replacement plantings
63	6" Live Oak	Protected tree	Remove for sidewalk	Remove tree. Provide 6" in replacement plantings
64	18" Crepe Myrtle	Not protected	Remove for sidewalk	Remove tree. No replacement required
65	17" Crepe Myrtle	Not protected	Remove for sidewalk	Remove tree. No replacement required
66	5" Live Oak	Protected tree	3 Broken stump, Poor	Remove for sidewalk
66A	15" Live Oak	Not protected	Topped by CenterPoint. Private tree	Root prune for sidewalk. Clearance prune
67	17" Mulberry	Not protected	Stump sprouts. Private tree	
68	8" Cedar Elm	Protected tree	Remove for bus pad	Remove tree. Provide 8" in replacement plantings

210 Stone Bush Ct. • Katy, Texas 77493
 281-391-0022 ckoehl@koehlurbanforestry.com

APPROVED:

ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

SURVEYED BY:
 KUO & ASSOCIATES, INC.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
 IMPROVEMENTS – SEGMENT 1**

TREE PROTECTION PLAN

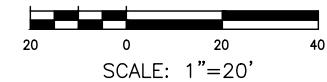
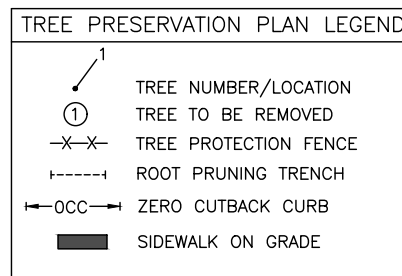
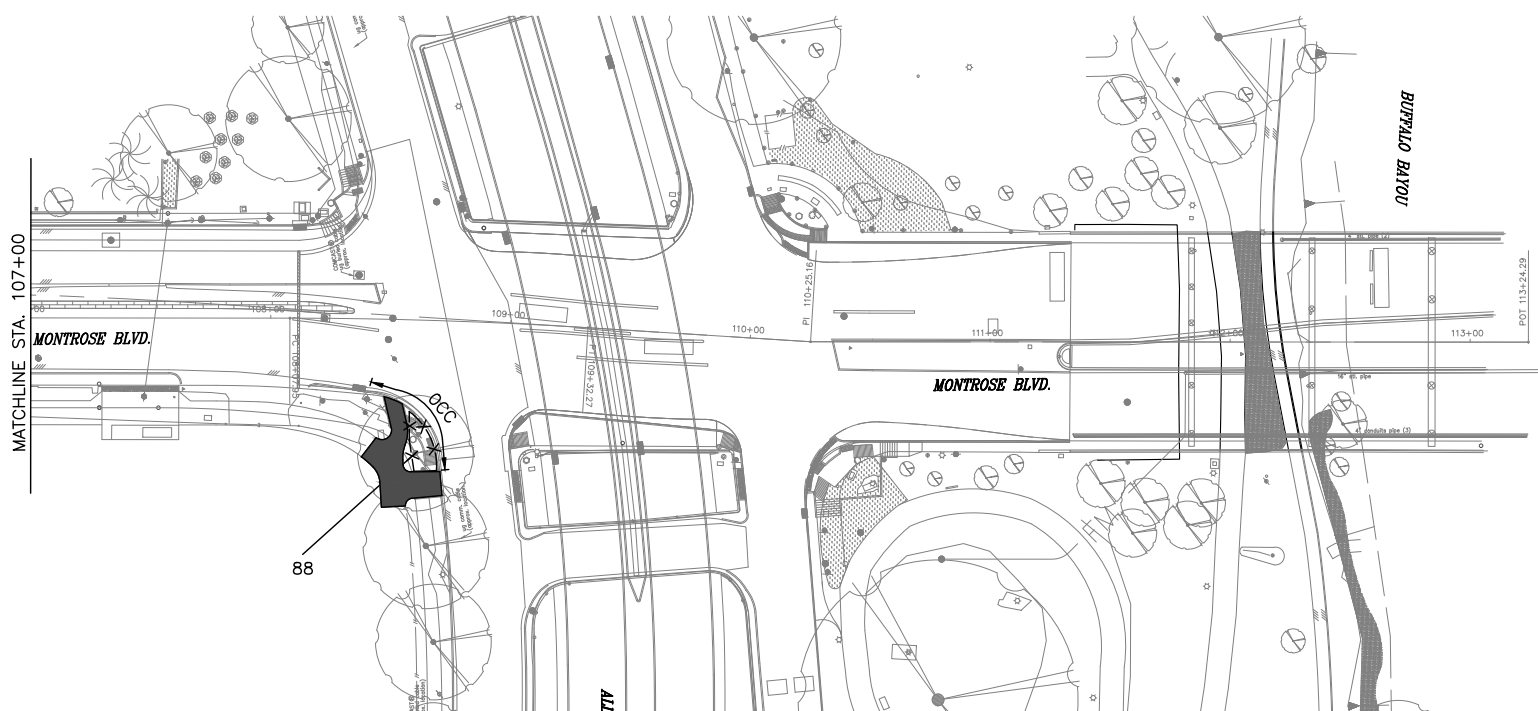
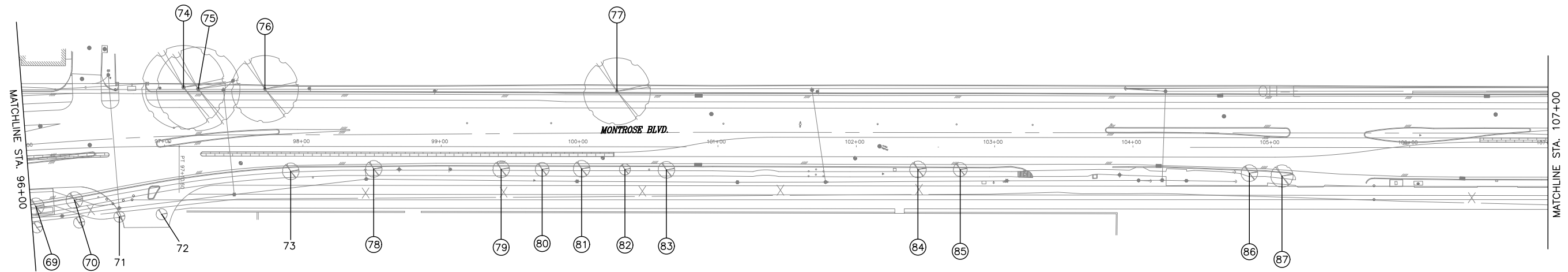
SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 294 OF 355	

REVISIONS	APP.
No.	DATE

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$



- NOTE:**
1. THIS TREE PROTECTION PLAN WAS DEVELOPED WITH INFORMATION PROVIDED BY DESIGN ENGINEER IN DRAWINGS DATED JANUARY 2024. THE PLAN CONSIDERS ALL FITTINGS, VERTICAL OFFSETS AND AREAS OF NECESSARY EXCAVATION. CHANGES MADE TO DESIGN MAY COMPROMISE THE TREE PROTECTION PLAN. REFER SPECIFICATIONS 01562 AND 02915.
 2. CN KOEHL URBAN FORESTRY, INC. HAS NOT BEEN CONTRACTED TO COMPLETE ANY TREE RISK ASSESSMENTS ON THIS PROJECT—THIS TPP INCLUDES PROTECTION MEASURES FOR SPECIES OF TREES PROTECTED BY APPLICABLE ORDINANCE ONLY. CN KOEHL URBAN FORESTRY, INC. DOES NOT GUARANTEE CONDITION OR STRUCTURAL INTEGRITY OF ANY TREE LOCATED ON OR ADJACENT TO THIS PROJECT.
 3. IN AREAS WHERE INDIVIDUAL TREES HAVE NOT BEEN TIED IN BY SURVEY, APPROXIMATE LOCATION IS INDICATED ON TPP WITH A DOT AND TREE NUMBER. ACCURACY OF REPRESENTED LOCATION IS NOT GUARANTEED BY CN KOEHL URBAN FORESTRY, INC.
 4. THE CONTRACTOR'S ARBORIST WILL MARK LOCATIONS OF TREES TO BE PLANTED AND OBTAIN APPROVAL BY CITY ENGINEER AND CITY FORESTER BEFORE PURCHASING OR EXCAVATING PLANTING HOLE OF EACH TREE.

Tree No.	Description	Chapter 33 Status	Comments	Treatment
69	9" Cedar Elm	Protected tree	Remove for bus pad	Remove tree, Provide 9" in replacement plantings
70	8" Cedar Elm	Protected tree	Remove for sidewalk	Remove tree, Provide 8" in replacement plantings
71	5" Live Oak	Protected tree	50% dieback. Poor. Remove for driveway. Previously permitted for removal with Ismaili Center permit	Remove tree, No replacement required due to existing permit
72	6" Live Oak	Protected tree	Remove for driveway. Previously permitted for removal with Ismaili Center permit	Remove tree, No replacement required due to existing permit
73	8" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 8" in replacement plantings
74	26" Post Oak	Protected tree	Top of tree will be removed for overhead power relocation to west side of roadway in this area	Remove tree, Provide 26" in replacement plantings
75	25" Post Oak	Protected tree	Top of tree will be removed for overhead power relocation to west side of roadway in this area	Remove tree, Provide 25" in replacement plantings
76	27" Post Oak	Protected tree	Trunk decay. Structurally compromised. Remove for condition	Remove tree, No replacement required due to condition
77	17" Huisache	Not protected	Remove for wider sidewalk/path	Remove tree, No replacement required
78	8" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 8" in replacement plantings
79	8" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 8" in replacement plantings
80	6" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 6" in replacement plantings
81	8" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 8" in replacement plantings
82	7" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 7" in replacement plantings
83	7" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 7" in replacement plantings
84	6" Cedar Elm	Protected tree	Dead. Remove for roadway	Remove tree, No replacement required due to condition
85	7" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 7" in replacement plantings
86	10" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 10" in replacement plantings
87	9" Cedar Elm	Protected tree	Remove for roadway	Remove tree, Provide 9" in replacement plantings
88	20" Live Oak	Protected tree	Twig dieback. Exploratory excavation in November 2023 revealed no tree root conflicts with proposed north bound wheel chair ramp (CNK, Gauge and COH Forestry attended excavation)	Demo-form-pour walk without damage to tree roots. 1" diameter or larger. Zero Curb Cutback, Fence, Crown Cleaning Prune, Root stimulate

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APPROVED:
MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

SURVEYED BY:
Kuo & Associates, Inc.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD
IMPROVEMENTS – SEGMENT 1
TREE PROTECTION PLAN

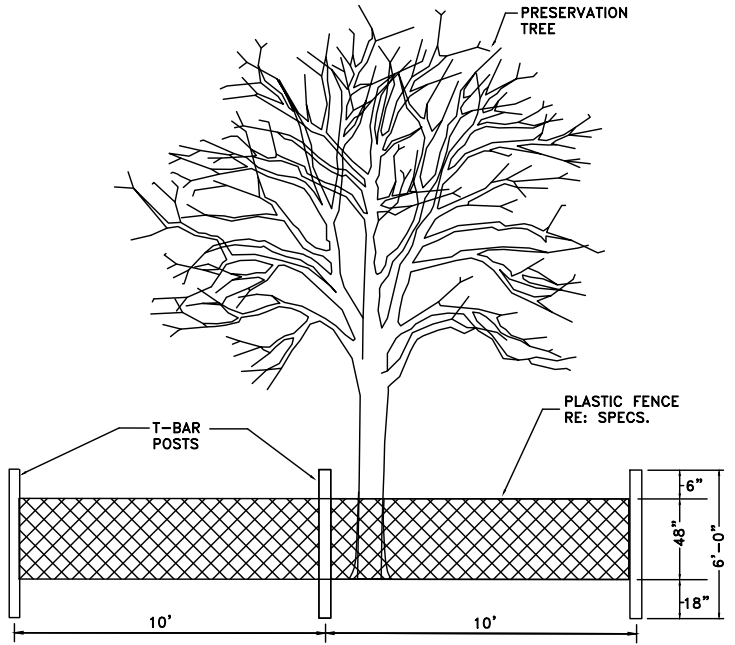
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 295 OF 355	

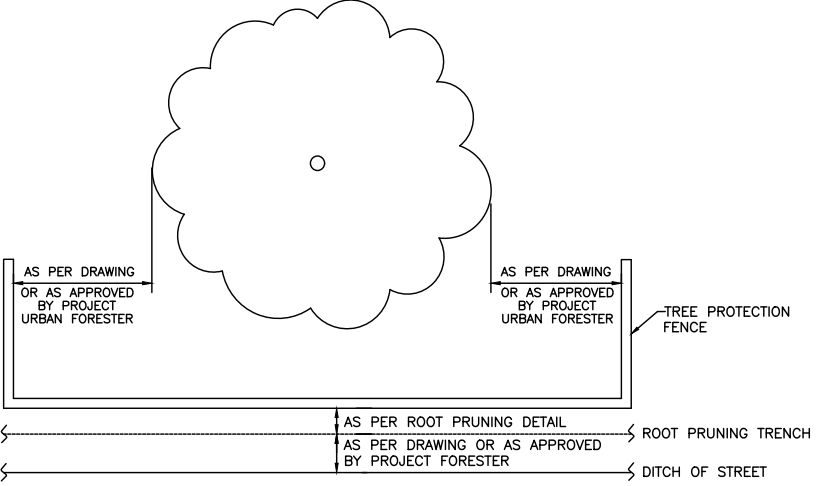
No.	DATE	REVISIONS	APP.

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

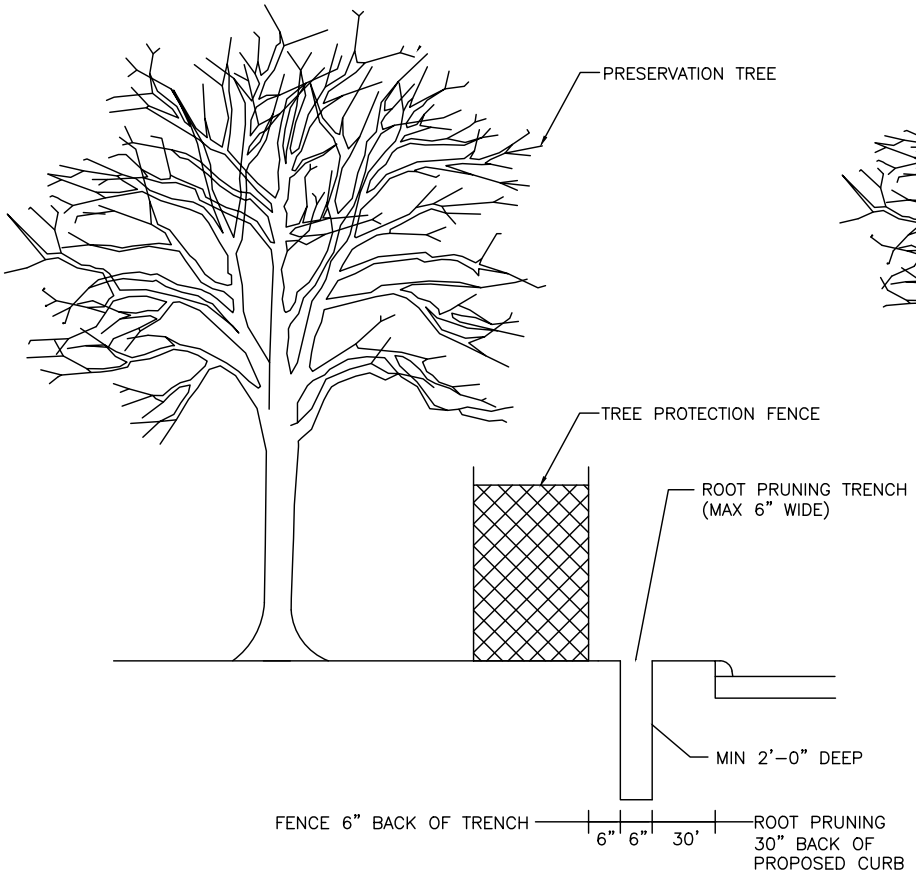
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Plot Driver: \$PLDRVL\$



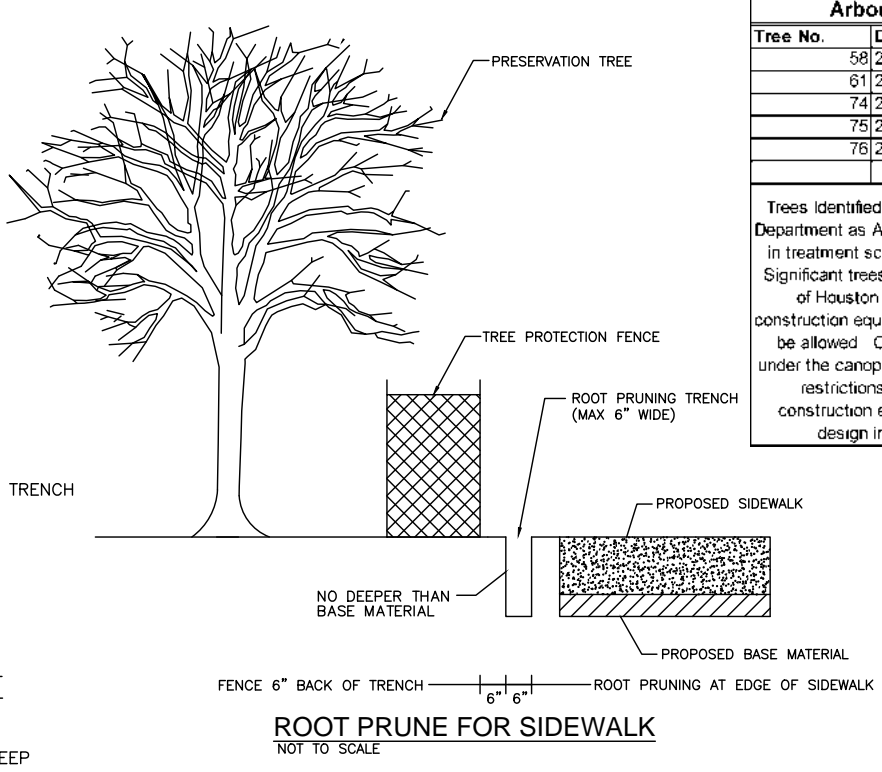
TREE PROTECTION FENCING DETAIL A
NOT TO SCALE



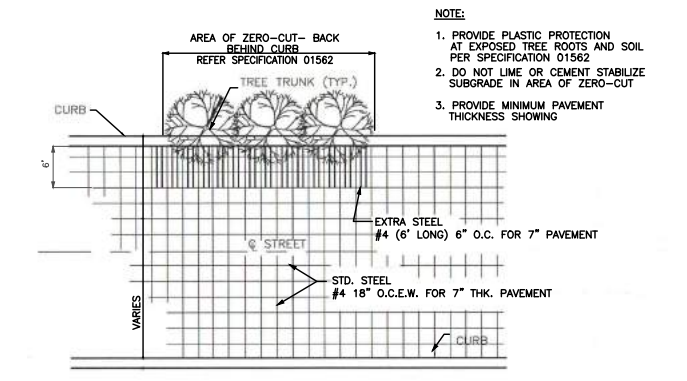
TREE PROTECTION FENCING DETAIL B
NOT TO SCALE



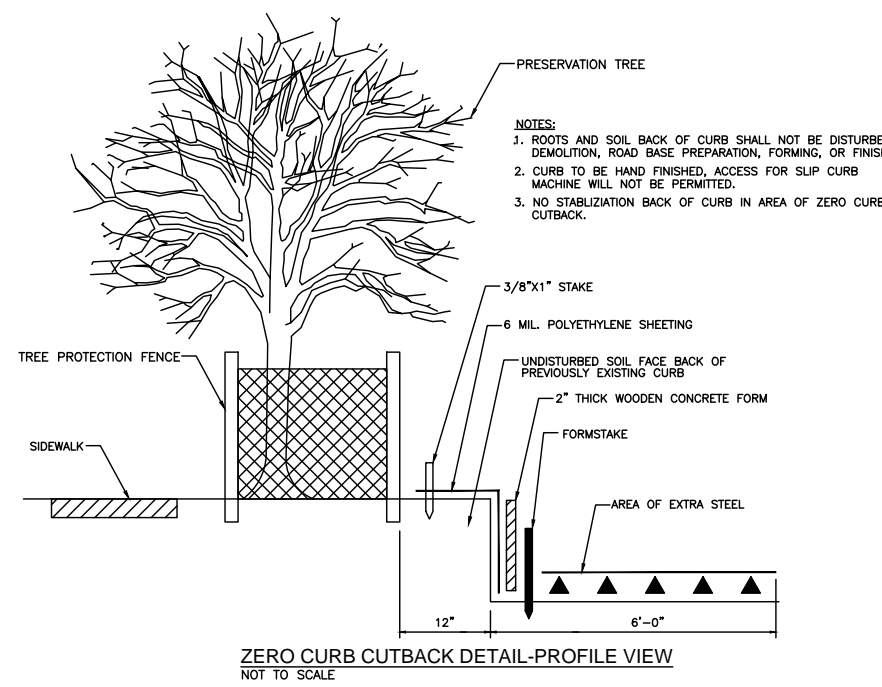
ROOT PRUNE FOR STREET-CURB & GUTTER - NO OCC
NOT TO SCALE



ROOT PRUNE FOR SIDEWALK
NOT TO SCALE



ZERO CURB CUTBACK DETAIL EXTRA STEEL BEHIND CURB
NOT TO SCALE



ZERO CURB CUTBACK DETAIL-PROFILE VIEW
NOT TO SCALE

Arboriculturally Significant Tree List	
Tree No.	Description
58	28" Crepe Myrtle
61	24" Crepe Myrtle
74	26" Post Oak
75	25" Post Oak
76	27" Post Oak

Trees Identified by City of Houston Forestry/Parks & Recreation Department as Arboriculturally Significant are identified here and/or in treatment schedule included on TPP sheets. Arboriculturally Significant trees are to be pruned under direct supervision of City of Houston Forestry. Minimal pruning will be allowed for construction equipment access, and in some cases no pruning will be allowed. Contractor must review conditions around and/or under the canopy of Arboriculturally Significant trees and consider restrictions when preparing cost estimate and planning construction equipment that will be necessary to accomplish design installation with minimal to no tree pruning.

Tree Removal List		
Tree No.	Description	Replacement requirement
53	4" Eastern Redbud	4
54	5" Eastern Redbud	5
55	11" Live Oak	11
56	10" Live Oak	10
57	12" Live Oak	12
58	28" Crepe Myrtle	28
59	4" Live Oak	0
60	3" Live Oak	0
61	24" Crepe Myrtle	24
62	10" Live Oak	10
63	6" Live Oak	6
64	18" Crepe Myrtle	0
65	17" Crepe Myrtle	0
66	5" Live Oak	0
68	9" Cedar Elm	9
69	9" Cedar Elm	9
70	8" Cedar Elm	8
71	6" Live Oak	0
72	6" Live Oak	0
74	28" Post Oak	26
75	25" Post Oak	25
76	27" Post Oak	0
77	17" Huisache	0
78	8" Cedar Elm	8
79	8" Cedar Elm	8
80	6" Cedar Elm	6
81	8" Cedar Elm	8
82	7" Cedar Elm	7
83	7" Cedar Elm	7
84	6" Cedar Elm	0
85	7" Cedar Elm	7
86	10" Cedar Elm	10
87	9" Cedar Elm	9
TOTAL REPLACEMENT INCHES REQUIRED		486

Tree Replacement List		
Quantity	Caliper Size	Species
Refer Landscape Architect Drawings for Required Replacement Plantings		
TOTAL REPLACEMENT INCHES INCLUDED IN PLAN		0

Tree Removal List		
Tree No.	Description	Replacement requirement
3	4" Live Oak	4
4	4" Live Oak	4
5	5" Live Oak	5
6	4" Live Oak	4
7	4" Live Oak	4
16	10" Live Oak	10
21B	11" Bradford Pear	0
23	14" Live Oak	14
24	10" Live Oak	10
25	18" Live Oak	18
34	10" Live Oak	34
36	10" Live Oak	10
37	8" Live Oak	8
39	11" Live Oak	11
40	11" Live Oak	11
41	16" Live Oak	16
42	13" Live Oak	13
43	12" Live Oak	12
44	15" Live Oak	15
46	5" Eastern Redbud	5
47	2" Eastern Redbud	2
48	2" Eastern Redbud	2
49	4" Eastern Redbud	4
50	5" Eastern Redbud	5
51	3" Eastern Redbud	3
52	5" Eastern Redbud	5

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APPROVED: **MONTROSE**
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
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11750 KATY FREEWAY, #400
HOUSTON, TX 77079

SURVEYED BY:
Kuo & Associates, Inc.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

TREE PROTECTION PLAN

SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 296 OF 355	

APP.	
REVISIONS	
NO.	DATE

Plotted on: \$DATE\$ \$TIME\$ \$USERS\$ \$PENTBL\$ \$PLDRVL\$ Pen Table: Plot Driver:

GENERAL NOTES:

- 1. VERIFY SITE INFORMATION, INCLUDING PROPERTY LINES, EASEMENTS, BUILDINGS, ROADWAY CURB AND GUTTERS, UTILITIES AND OTHER INFORMATION AFFECTING THE SCOPE OF WORK INCLUDED ON THESE DRAWINGS. MORE SPECIFIC UTILITY INFORMATION IS INDICATED ON THE CIVIL DRAWINGS.
2. CONTRACTOR SHALL CONTACT THE OWNER AND THE LANDSCAPE ARCHITECT FOR DIRECTION ON HOW TO PROCEED IF ACTUAL SITE CONDITIONS VARY FROM WHAT IS SHOWN ON THE DRAWINGS.
3. EXCAVATION IN THE VICINITY OF UTILITIES SHALL BE UNDERTAKEN WITH CARE. THE CONTRACTOR BEARS FULL RESPONSIBILITY FOR THIS WORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL SITE UTILITIES PRIOR TO BEGINNING EXCAVATION. ANY DAMAGE TO UTILITIES THAT ARE TO REMAIN CAUSED BY ANY PERSON, VEHICLE, EQUIPMENT, OR TOOL RELATED TO THE EXECUTION OF THE CONTRACT SHALL BE REPAIRED IMMEDIATELY AT NO EXPENSE TO THE OWNER.
4. BASE INFORMATION INCLUDING THE LOCATION OF PROPERTY LINES, EASEMENTS, BUILDINGS, ROADS AND CURBS HAVE BEEN TAKEN FROM THE CIVIL ENGINEER'S DRAWINGS. FOR ADDITIONAL INFORMATION REFER TO ARCHITECT'S & CIVIL ENGINEERING DRAWINGS.
5. THE CONTRACTOR SHALL NOTIFY LOCAL AUTHORITIES AND THE GENERAL CONTRACTOR FOR LOCATION OF EXISTING UNDERGROUND UTILITIES. POT HOLE AS NECESSARY TO CONFIRM LOCATIONS PRIOR TO EXCAVATION.

GRADING AND EXCAVATION NOTES:

- 1. ANY EXISTING AND/OR ON-SITE CONDITIONS WHICH VARY FROM THOSE SHOWN ON DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.
2. ALL GRADING SHALL PROVIDE FOR NATURAL RUNOFF OF WATER WITHOUT LOW SPOTS OR POCKETS. FLOW LINES SHALL BE ACCURATELY SET AND SHALL NOT BE LESS THAN 0.5% GRADIENT UNLESS OTHERWISE NOTED. CONTRACTOR SHALL BE RESPONSIBLE FOR POSITIVE DRAINAGE IN ALL AREAS.
3. REFER TO THE GENERAL CONDITIONS AND THE TECHNICAL SPECIFICATIONS SECTIONS FOR THE PLACEMENT, COMPACTION, GRADING AND TESTING OF ALL FILL MATERIAL.
4. REFER TO CIVIL DOCUMENTS FOR ALL SITE EROSION CONTROL.
5. ROUGH OR MASS GRADING SHALL BE AS SHOWN ON THE CIVIL ENGINEERS DRAWINGS, REFERENCE THESE DRAWINGS FOR FINISH GRADING.
6. THE DEBRIS CREATED BY GRADING AND EXCAVATION OPERATIONS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE LEGALLY DISPOSED OF AWAY FROM THE JOB SITE.
7. CONTRACTORS SHALL TAKE CARE IN MINIMIZING THE DISTURBANCE TO THE EXISTING TREE TRUNKS AND ROOT SYSTEMS. ALL FINISH GRADING UNDER THE EXISTING TREES SHALL BE COMPLETED BY USING HAND TOOLS. NO LARGE EQUIPMENT OR ANY EQUIPMENT WITH TRACKS SHALL BE ALLOWED TO WORK OR DRIVE UNDER THE DRIP LINE OF THE EXISTING TREES, EXCEPT FOR THOSE AREAS WHERE PAVING IS TO BE PLACED.
8. HAND EXCAVATE AND HAND COMPACT AREAS UNDER DRIPLINES OF EXISTING TREES.
9. ALL EXCAVATION WITHIN THE DRIPLINES OF EXISTING TREES SHALL BE RADIAL TO THE TRUNK.
10. FOR EXISTING UNDERGROUND UTILITIES REFER TO CIVIL ENGINEER'S PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL LOCATION AND ELEVATION IN THE FIELD PRIOR TO BEGINNING CONSTRUCTION OF THE NEW AMENITIES. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION.
11. REFER TO CIVIL AND PLUMBING ENGINEER'S DRAWINGS FOR CONNECTIONS TO DRAINS AND CONTINUATION TO DISCHARGE PIPING.
12. EXISTING UTILITY STRUCTURES AND LIDS ARE TO BE ADJUSTED TO MATCH PROPOSED FINISHED GRADE (UNLESS OTHERWISE NOTED).
13. ALL PLANTER DRAIN RIM INVERT ELEVATIONS SHALL BE 8 CM MIN. BELOW TOP OF ADJACENT PAVEMENT ELEVATIONS. ALL FLOW LINE ELEVATIONS SHALL BE SET @ MIN. 30 CM BELOW DRAIN ELEV. @ HIGH END. REF. DRAWINGS FOR INVERTS.
14. ALL LAWN DRAIN RIM INVERT ELEVATIONS SHALL BE 5 CM MIN. BELOW TOP OF ADJACENT PAVEMENT ELEVATION. ALL FLOW LINE ELEVATIONS SHALL BE SET @ MIN. 30 CM BELOW DRAIN ELEV. @ HIGH END. REF. DRAWINGS FRO INVERTS.
15. AFTER PLACEMENT AND ADJUSTMENT OF DRAIN BODIES TO PROPOSED FINISH GRADES, CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT TO COORDINATE AND APPROVE FINAL GRADES IN ALL AREAS.
16. GRADING ON TRAILS TO BE CONSISTENT AND TO TRANSITION WITH EXISTING GRADES. TRAIL SECTION SHALL BE CROWNED IN FLAT AREAS AND SLOPED AT 2% TO THE DOWNHILL SIDE.

- 17. THE CONTRACTOR SHALL REQUEST A REVIEW FOR INSPECTION OF FINAL IN PLACE GRADING A MINIMUM OF 48 HOURS IN ADVANCE OF PERFORMING ANY WORK UNLESS OTHERWISE NOTED ON THIS SHEET. FINAL GRADING SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD AND PRIOR TO SURFACE CONSTRUCTION AND PLANTING.
18. REFER TO PLANTING NOTES FOR GRADING REQUIREMENTS FOR AREAS ADJACENT TO PAVEMENTS.
19. INTERRUPTION AND / OR DAMAGE TO EXISTING IRRIGATION SYSTEMS SHALL BE REPAIRED / RESTORED TO FULL OPERABILITY. REPAIR AND RESTORATION TO FULL OPERABILITY SHALL BE MADE AS SOON AS POSSIBLE SO AS NOT TO ADVERSELY IMPACT PLANTS IN THE IRRIGATED AREAS.

LAYOUT/DIMENSIONAL CONTROL NOTES:

- 1. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES.
2. THE CONTRACTOR SHALL LAYOUT AND VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT FOR DIRECTION AND RESOLUTION OF DISCREPANCIES PRIOR TO PROCEEDING.
3. FOR DIMENSIONS OF BUILDING, PARKING STRUCTURE AND OTHER RELATED NON-LANDSCAPE WORK, REFER TO THE ARCHITECTURAL OR CIVIL DRAWINGS.
4. VERIFY LOCATIONS OF ALL SITE IMPROVEMENTS INSTALLED UNDER OTHER SECTIONS. IF ANY PART OF THIS PLAN CANNOT BE FOLLOWED DUE TO SITE CONDITIONS, CONTACT THE LANDSCAPE ARCHITECT FOR INSTRUCTION PRIOR TO COMMENCING WORK.
5. ALL DIMENSIONS ARE TAKEN PERPENDICULAR TO WALL, CURB, P.O.B., OR CENTERLINE UNLESS OTHERWISE NOTED. DIMENSIONS AT CURB ARE FROM BACK OF CURB.
6. COORDINATE POINTS HAVE BEEN COORDINATED WITH CIVIL ENGINEER.
7. EDGES OF IRREGULAR PAVING ARE LOCATED BY COORDINATES AND ARE GENERAL LOCATIONS. CONTRACTOR SHALL STAKE POINTS IN FIELD. STAKED EDGES SHALL BE REVIEWED BY LANDSCAPE ARCHITECT FOR FINAL LAYOUT APPROVAL AND SETTING AND MAY REQUIRE ADJUSTMENTS IN FIELD FOR FINAL PLACEMENT. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
8. CENTERLINES OF PAVING ARE ARE LOCATED BY COORDINATES AND ARE GENERAL LOCATIONS. CONTRACTOR SHALL STAKE POINTS AND ESTABLISH ONE SIDE OF TRAIL WITH TEMPORARILY STAKED STEEL EDGING AT NOTED OFFSET. TEMPORARY STEEL EDGE STAKING SHALL BE REVIEWED BY LANDSCAPE ARCHITECT FOR FINAL LAYOUT APPROVAL AND SETTING AND MAY REQUIRE ADJUSTMENTS IN FIELD FOR FINAL PLACEMENT. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.
9. THIS DRAWING INCLUDES THE LOCATION OF VARIOUS DRAIN DEVICES AND SYSTEMS. COORDINATE CONSTRUCTION, DETAILS AND UTILITY CONNECTIONS WITH RELATED ARCHITECTURAL AND ENGINEERING DRAWINGS. CONFIRM LOCATIONS WITH THE LANDSCAPE ARCHITECT PRIOR TO ROUGH IN.
10. FOR HANDICAPPED STANDARDS, VERIFY COMPLIANCE WITH LATEST EDITION OF ADA AND LOCAL AND STATE HANDICAP STANDARDS PRIOR TO CONSTRUCTION. WHERE FIELD MODIFICATIONS ARE REQUIRED FOR COMPLIANCE, CONSTRUCTION CHANGES MAY BE APPLIED INCLUDING DIFFERENT GRADES AND LAYOUT THAN THOSE NOTED HEREIN.
11. SURFACES SHALL BE ADA COMPLIANT ALONG ACCESS AND EGRESS. FLAGSTONE SHALL HAVE NO ADJACENT SURFACE IRREGULARITIES GREATER THAN .5 CM IN ANY PIECE OR BETWEEN ADJACENT PIECES
12. WHERE DIMENSIONS ARE CALLED AS "EQUAL", ALL REFERENCED ITEMS SHALL BE SPACED EQUALLY, MEASURED TO THEIR CENTER LINES OR OTHER NOTED REFERENCES.
13. INSTALL ALL INTERSECTING ELEMENTS AT 90 DEGREES TO EACH OTHER UNLESS OTHERWISE NOTED.

SITE/LANDSCAPE SLEEVING NOTES:

- 1. ALL SITE/LANDSCAPE SLEEVE LOCATIONS AND SIZES SHALL BE NOTED WITHIN THESE DOCUMENTS FOR IRRIGATION, FOUNTAIN AND DRAINAGE SCOPE OF WORK ONLY. ADDITIONAL MISCELLANEOUS FUTURE USE SLEEVES ARE PROVIDED IN SOME LOCATIONS. SLEEVES DO NOT INCLUDE SECURITY, ARCHITECTURAL, OR CIVIL OR SITE LIGHTING SCOPE.
2. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL OTHER CONSULTANTS AND SUB-CONTRACTOR SLEEVING REQUIREMENTS AND PLACE SUCH SLEEVES PRIOR TO HARDSCAPE INSTALLATION.

EXPANSION JOINT NOTES:

- 1. PROVIDE EXPANSION JOINTS IN ALL CASES WHERE CONCRETE FLATWORK MEETS VERTICAL STRUCTURES SUCH AS WALLS, CURBS, STEPS AND BUILDING OR WHERE CONCRETE ABUTS UTILITY VAULTS OR BOXES. REQUIRED EXPANSION JOINTS AT ALL VAULTS AND VERTICAL STRUCTURES MAY NOT BE SHOWN ON THESE DRAWINGS BUT ARE A CONSTRUCTION REQUIREMENT.

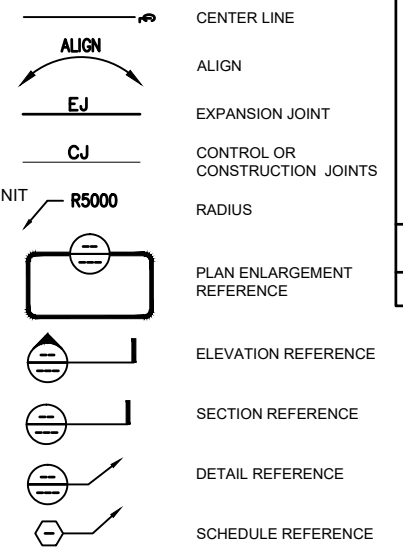
GENERAL TREE PROTECTION NOTES:

- 1. ALL TREES INDICATED ON THE TREE PRESERVATION PLANS TO BE PROTECTED SHALL BE PROTECTED WITH TEMPORARY FENCING THROUGHOUT CONSTRUCTION.
2. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION AND/OR SITE PREPARATION WORK (CLEARING, GRUBBING OR GRADING).
3. FENCES SHALL COMPLETELY SURROUND THE TREE OR CLUSTERS OF TREES; FENCES SHALL BE LOCATED AT THE OUTERMOST LIMITS OF THE TREE BRANCHES (DRIP LINE); AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT. FENCES MAY BE MOVED OR REMOVED TO ENABLE THE PROGRESS OF CONSTRUCTION ONLY AS APPROVED BY THE OWNER'S REPRESENTATIVE.
4. WHERE EXCEPTIONS RESULT IN A FENCE BEING CLOSER THAN 4 FEET TO A TRUNK, PROTECT THE TRUNK WITH STRAPPED-ON PLANKING TO A HEIGHT OF 8' (OR TO THE LIMITS OF THE LOWER BRANCHING) AS INDICATED ON TREE PRESERVATION PLANS.
5. COVER THE ROOT ZONE AREA WITH 4" OF HARDWOOD MULCH, UNDER DIRECTION OF OWNER'S REPRESENTATIVE, WHERE ROOT ZONES WITHIN DRIP LINES ARE UNPROTECTED BY FENCING.
6. ALL GRADING AND EXCAVATION WITHIN TREE ROOT ZONE AREAS SHALL BE DONE BY HAND TO MINIMIZE ROOT DAMAGE AND SOIL COMPACTION. PRIOR TO GRADING, RELOCATE PROTECTIVE FENCING TO 2' BEHIND THE GRADE CHANGE AREA. GRADE SHALL REMAIN UNCHANGED WHERE POSSIBLE.
7. ANY TRENCHING REQUIRED FOR THE INSTALLATION OF UTILITIES, LIGHTING, CONDUIT, OR LANDSCAPE IRRIGATION SHALL BE PLACED OUTSIDE ROOT ZONE AREAS. ROOTS SHALL NOT BE SEVERED AS A RESULT OF THE EXCAVATION. ROOTS SHALL REMAIN IN PLACE, BRIDGING TRENCHES. CONDUIT PIPES, ETC., SHALL BE PLACED BETWEEN ROOTS, WHILE EXPOSED ROOTS SHALL BE WRAPPED WITH BURLAP AND BE KEPT MOIST. AFTER BACKFILLING WITH SPECIFIED BEDDING, FILL REMAINING EXCAVATION WITH SOIL EXCAVATED FROM THE TRENCH. ANY EXCESS SOIL MAY BE DISPOSED OF ON SITE AS APPROVED BY OWNER. IN THE PROCESS OF EXCAVATION, AVOID STOCKPILING MATERIAL WITHIN THE DRIPLINE OF EXISTING TREES. IF UNAVOIDABLE, STOCKPILED MATERIAL SHALL BE PLACED ON PLYWOOD BOARD ROADING SET ON TOP OF EXISTING GRADE. BOARD ROADING SHALL NOT REMAIN IN PLACE LONGER THAN (7) SEVEN DAYS.
8. ANY ROOT SEVERED BY CONSTRUCTION ACTIVITY SHALL BE PRUNED FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH SPECIFIED TOP SOIL AS SOON AS POSSIBLE. IF EXPOSED ROOT AREAS ARE NOT BACKFILLED WITHIN 2 DAYS, COVER THEM WITH SPECIFIED ORGANIC MATERIAL.
9. PRIOR TO EXCAVATION OR GRADE CUTTING WITHIN TREE DRIP-LINES, ROOT PRUNE BY MAKING A CLEAN CUT BETWEEN THE DISTURBED AND UNDISTURBED ROOT ZONES WITH A ROCK SAW, IRRIGATION TRENCHER OR SIMILAR EQUIPMENT TO MINIMIZE DAMAGE TO REMAINING ROOTS. MARK AND REVIEW TRENCH LINE WITH OWNER'S REPRESENTATIVE PRIOR TO TRENCHING.
10. TREES HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES SHALL BE WATERED THOROUGHLY ONCE A WEEK DURING PERIODS OF HOT, DRY WEATHER AS DIRECTED BY THE OWNER'S REPRESENTATIVE. TREE CROWNS SHALL BE SPRAYED WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.
11. NO LANDSCAPE TOPSOIL DRESSING GREATER THAN A 3" LAYER SHALL BE PERMITTED WITHIN THE DRIPLINE OF TREES. NO SOIL OR MULCH IS PERMITTED ON THE ROOT FLARE OF ANY TREE.
12. PRUNING TO PROVIDE CLEARANCE FOR STRUCTURES, VEHICULAR TRAFFIC, AND EQUIPMENT SHALL TAKE PLACE BEFORE CONSTRUCTION BEGINS BY A RECOGNIZED ARBORIST.
13. ALL FINISHED PRUNING MUST BE DONE ACCORDING TO RECOGNIZED, APPROVED STANDARDS OF THE INDUSTRY (REFERENCE THE NATIONAL ARBORIST ASSOCIATION PRUNING STANDARDS FOR SHADE TREES).
14. COVER SEVERED ROOTS AND TREE SIDE OF TRENCH WITH 8 MIL BLACK VISQUENE TO FULL DEPTH OF TRENCH AND 6" OVER TOP. STAPLE VISQUENE IN PLACE, BACKFILL AND COMPACT TRENCH WITH EXCAVATED SOIL, TO PROTECT ROOT ENDS FROM CONCRETE AND LIME.
15. CORE AERATE AND DEEP ROOT FERTILIZE TREES BY PROBE AND WATER INJECTION OF DAVEY ARBOR GREEN FERTILIZER. REFER TO MANUFACTURER'S MAXIMUM RECOMMENDED RATES PER TREE CALIPER INCHES. INJECT 18"-24" DEEP 5'-0" O.C. THROUGHOUT DRIP-LINE OF TREE.
16. CONTRACTOR SHALL MODIFY EXHAUST PIPES ON CONSTRUCTION EQUIPMENT AS NEEDED TO INSURE THAT TREE CROWNS ARE NOT DAMAGED FROM EXHAUST HEAT FROM VERTICAL EXHAUST PIPES ON TOP OF CONSTRUCTION EQUIPMENT.
17. EQUIPMENT MUST NOT TOUCH UNDERSIDE OF TREE CROWNS.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TREE WORK/REPAIR TO ANY DAMAGE TO EXISTING TREES DURING THE CONTRACT PERIOD. DAMAGE TO ANY EXISTING TREES SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL SUBMIT TO OWNER'S REPRESENTATIVE A WRITTEN PROGRAM OF CORRECTIVE PRUNING AND TREE CARE TO REPAIR DAMAGE WITH THE NAME OF A QUALIFIED URBAN FORESTER OR ARBORIST FOR OWNER'S APPROVAL.
19. PLANS ARE DIAGRAMMATIC. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF REQUIRED TREE FENCING LIMITS.
20. ALL EXISTING TREES, IN DESIGNATED PROTECTED AREAS, MUST BE PRUNED TO AVOID DAMAGE BY EQUIPMENT DURING CONSTRUCTION OPERATIONS (REF. SPEC SECTION 02112)
21. ALL EXISTING UTILITY MANHOLE COVERS AND GRATES TO BE ADJUSTED TO MATCH PROPOSED FINISHED GRADE ELEVATIONS; REF. CIVIL DRAWINGS.
22. THESE NOTES ARE SUPPLEMENTARY TO SPECIFICATION SECTION 02112.

ABBREVIATIONS:

Table with 2 columns: Abbreviation and Description. Includes terms like APPROX, ADJ, BC, BLD, BR, BS, BL, BOC, BW, CJ, CMU, CONC, CONT, CL, CLR, CRS, DIA, DWG, GALV, EJ, ELEV, EOP, EQ, ESMT, EXIST, FF, FL, FTG, FG, FOC, FIN, G, HT, HP, INT, LF, LP, LOW, MAX, MIN, NIC, OC, OPP, PA, PERP, PL, POB, PROP, PVMT, PT, R, RE, REF, REINF, REQ, ROW, SCH, SSEJ, SEC, SF, SHT, SIM, SQ, SQFT, STL, SS, SWE, TAN, TC, THK, TOB, TOS, TP, TR, TS, TW, TY, TYP, UTL, W, WL.

ANNOTATION LEGEND



SURVEYED BY: KUO & ASSOCIATES, INC.



THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002

CITY OF HOUSTON HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 GENERAL CONSTRUCTION NOTES L0.01

Table with project details: WBS NUMBER N-727000-0005-7, DRAWING SCALE AS NOTED, CITY OF HOUSTON PM JADA HUANG, SHEET NO. 297 OF 355.




Vertical table with columns: No., DATE, REVISIONS, APP.

Plotted on: \$DATE\$ \$TIMES\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$

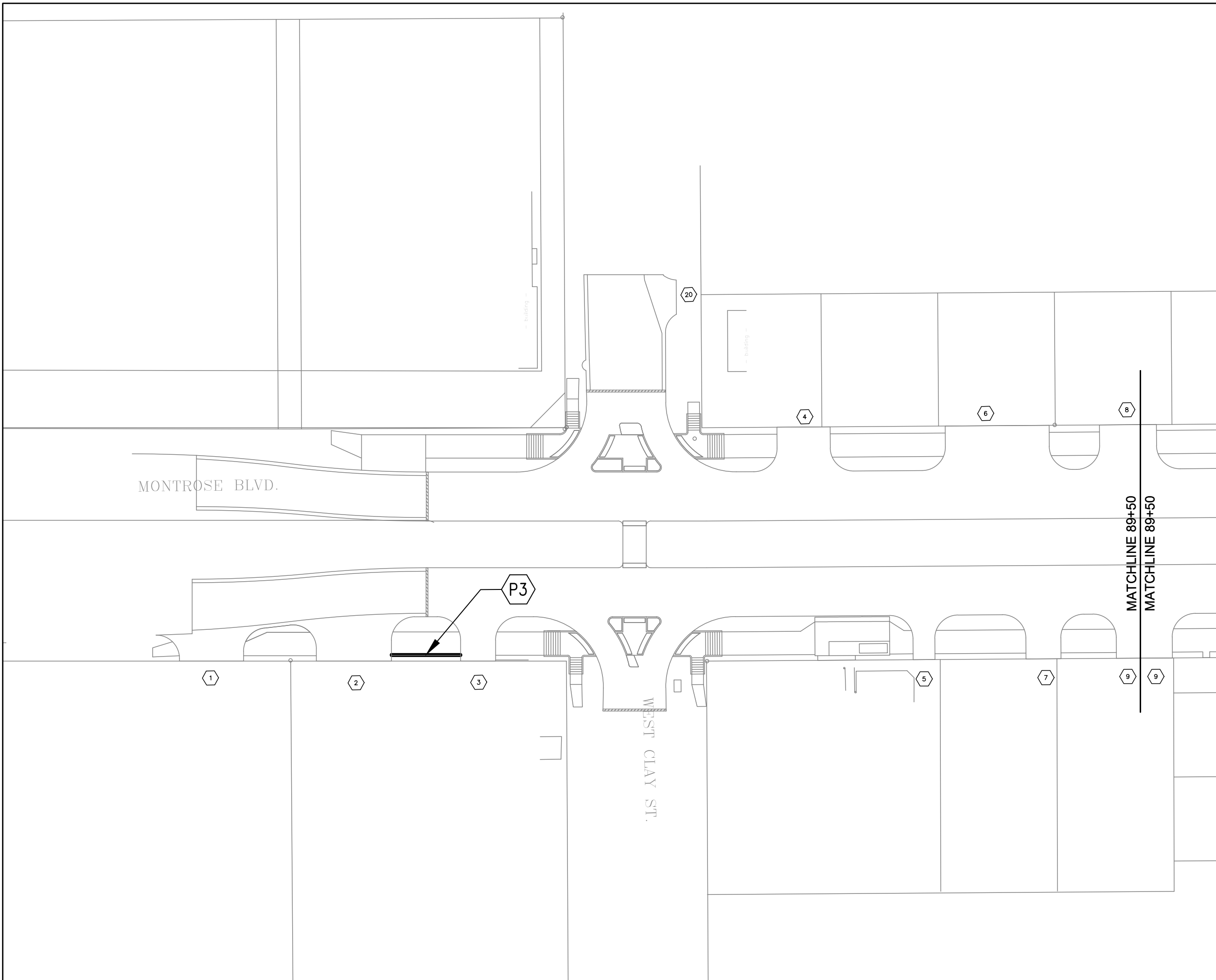
No.	DATE	REASONS	APP.

MATERIAL SCHEDULE									
KEY	REQUIREMENTS	SUPPLIER	MATERIAL	SIZE	COLOR	FINISH	REMARK	DETAIL	SPECIFICATION
P1	CONCRETE UNIT PAVER, 'PLAZA MUSTER-K' PAVER BY PAVESTONE, PRODUCT NO. 639, VEHICULAR RATED, SAND SET, RANDOM PATTERN	PAVESTONE OR APPROVED EQUAL	CONCRETE	80MM THICK, WIDTH & LENGTH PER MFG SPECS	'AUSTIN GOLD BLEND'	MANUFACTURER SPECIFICATION	REFERENCE CIVIL FOR WIDENED CURB	DETAIL 01/02, SHEETS L2.02 AND L2.03	02780
P2	1' X 1' CONCRETE BAND BETWEEN PAVERS AND PLANTING AREA AT MEDIAN & 4.5" THICK CONCRETE SUB-BASE BELOW LANDSCAPE PAVERS	CONTRACTOR SUPPLIED	CONCRETE	1'-0" X 1'-0" CONC. BAND; 4.5" THICK CONC. SUB - BASE	NATURAL	LIGHT BROOM FINISH	REFERENCE CIVIL FOR WIDENED CURB	DETAIL 02 SHEET L2.02 AND 01/02 SHEET L2.03	REF. CIVIL
P3	ROLLED STEEL EDGE	CUSTOM	WEATHERING STEEL	1/4" THICK	NATURAL	-		DETAIL 03/04, SHEET L2.03	05500

 MONTROSE <small>TAX INCREMENT REINVESTMENT ZONE 27</small>	
 Gauge <small>ENGINEERING</small> <small>TEXAS PE FIRM REG. # 20017</small> <small>11750 KATY FREEWAY, #400</small> <small>HOUSTON, TX 77079</small>	 <small>THE JONES ON MAIN</small> <small>712 MAIN STREET, 6TH FLOOR</small> <small>HOUSTON, TEXAS 77002</small>
<small>SURVEYED BY:</small> KUO & ASSOCIATES, INC.	
CITY OF HOUSTON <small>HOUSTON PUBLIC WORKS</small>	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 MATERIAL SCHEDULES <h1 style="margin: 0;">L1.00</h1>	
<small>WBS NUMBER</small> N-T27000-0005-7	<small>FOR CITY OF HOUSTON USE ONLY</small>
<small>DRAWING SCALE</small> AS NOTED	
<small>CITY OF HOUSTON PM</small> JADA HUANG	
<small>SHEET NO. 299 OF 355</small>	

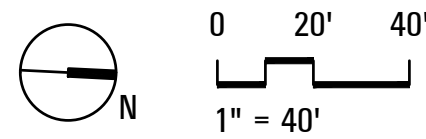
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HARDSCAPE LEGEND	
	MEDIAN TIP PAVERS - P1
	MEDIAN CONCRETE BAND - P2
	ROLLED STEEL EDGE - P3
	SIDEWALK PAVEMENT REF. CIVIL

GENERAL NOTES:
 REF. TREE PROTECTION PLANS
 REF. CIVIL PLANS



 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	 THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002
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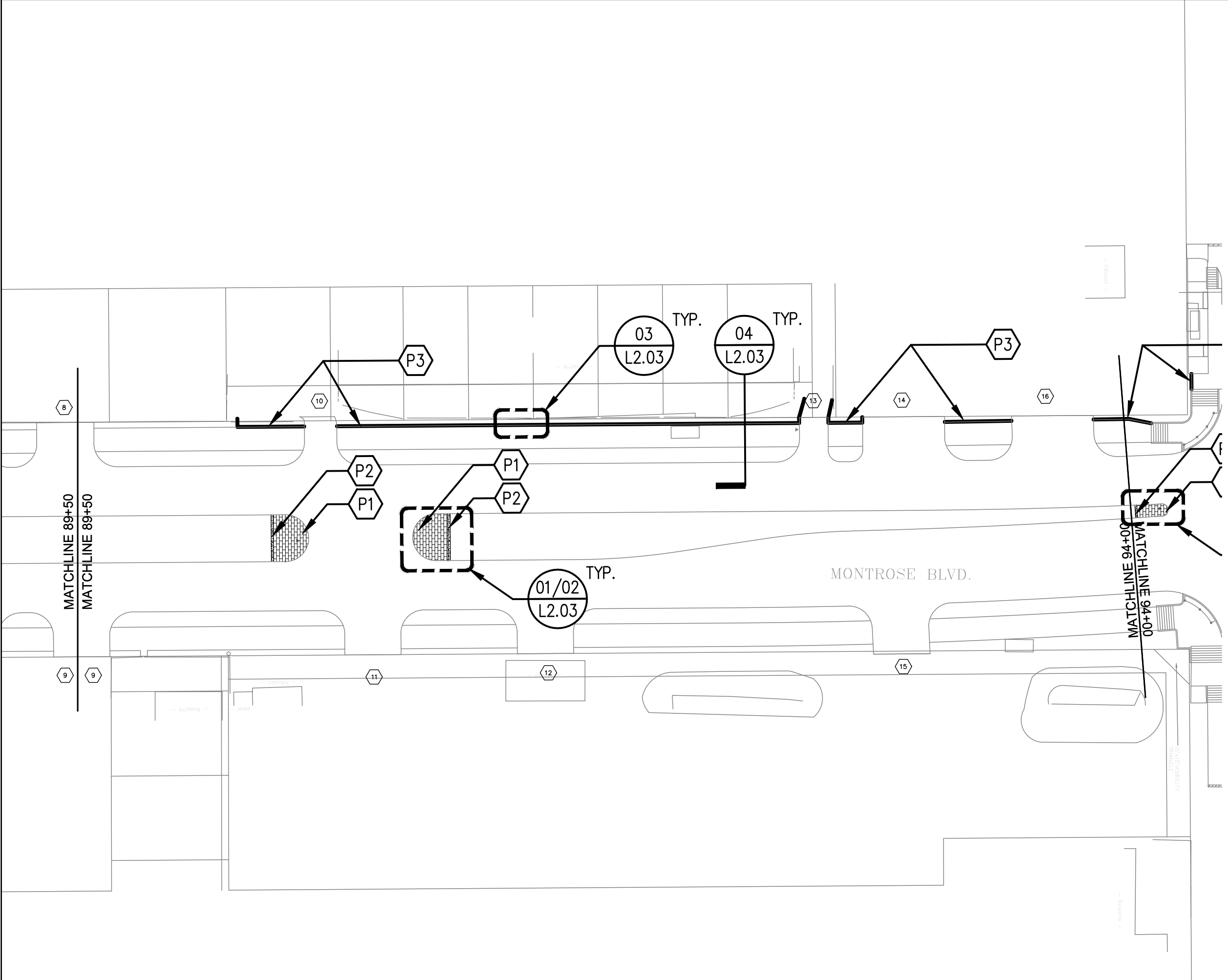
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS
 MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1
 LAYOUT PLAN
L1.01

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 300 OF 355	

NO.	DATE	REVISIONS	APP.

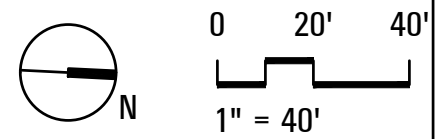
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HARDSCAPE LEGEND	
	MEDIAN TIP PAVERS - P1
	MEDIAN CONCRETE BAND - P2
	ROLLED STEEL EDGE - P3
	SIDEWALK PAVEMENT REF. CIVL

GENERAL NOTES:
REF. TREE PROTECTION PLANS
REF. CIVIL PLANS



 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	 THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 LAYOUT PLAN <h1 style="margin: 0;">L1.02</h1>	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JADA HUANG	
SHEET NO. 301 OF 355	

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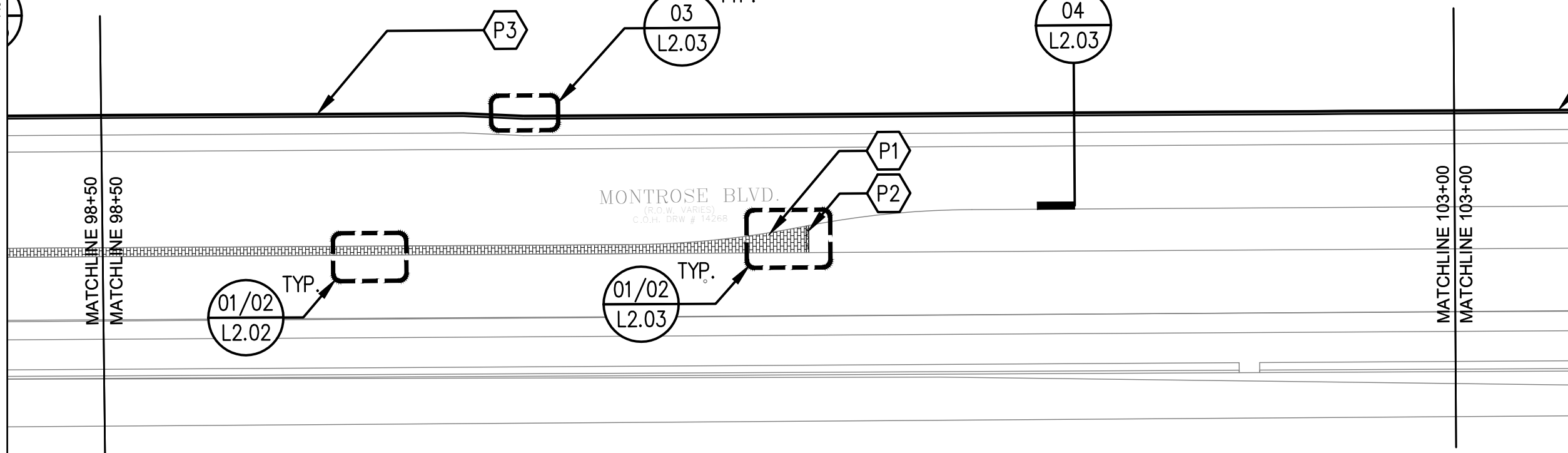
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\$DATE\$

Plotted on:

TYP.



MAGNOLIA CEMETRY COMPANY
VOL. 34, PG. 608, H.C.D.R.

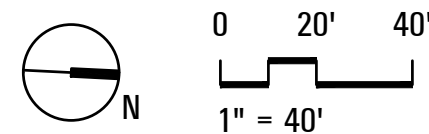
MONTROSE BLVD.
(R.O.W. VARIES)
C.O.H. DRW # 14268

BLOCK 1
UNRESTRICTED RESERVE 'A'
VILLAGE AT ALLEN PARKWAY SEC. 1
F.C. NO. 572259, H.C.M.R.

HARDSCAPE LEGEND	
	MEDIAN TIP PAVERS - P1
	MEDIAN CONCRETE BAND - P2
	ROLLED STEEL EDGE - P3
	SIDEWALK PAVEMENT REF. CIVIL

GENERAL NOTES:

REF. TREE PROTECTION PLANS
REF. CIVIL PLANS



SURVEYED BY:
KYO & ASSOCIATES, INC.

THE JONES ON MAIN
712 MAIN STREET, 6TH FLOOR
HOUSTON, TEXAS 77002

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
LAYOUT PLAN

L1.04

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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 303 OF 355	

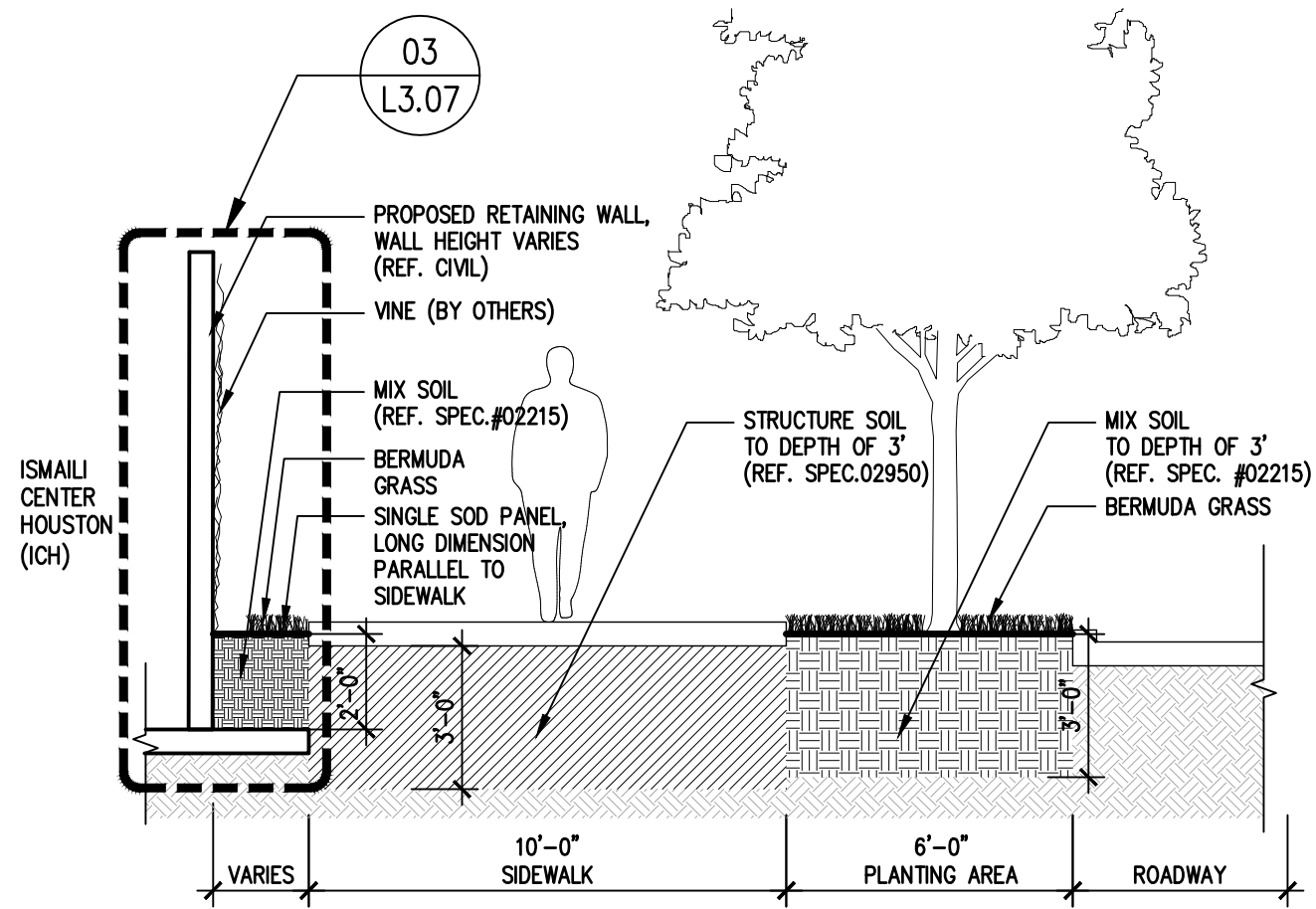
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Plotted on: \$DATE\$ \$TIME\$ \$USER\$

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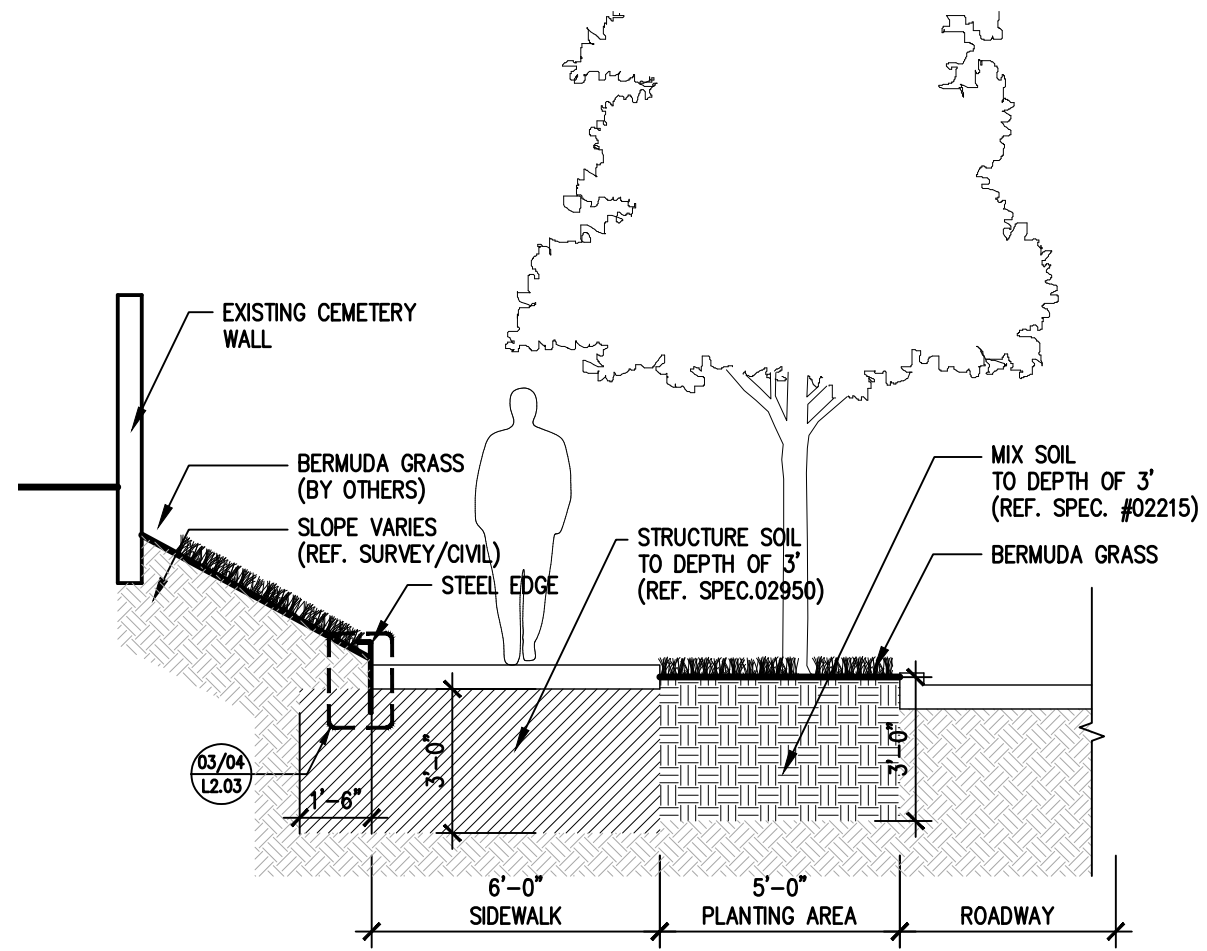
REVISIONS	DATE	APP.



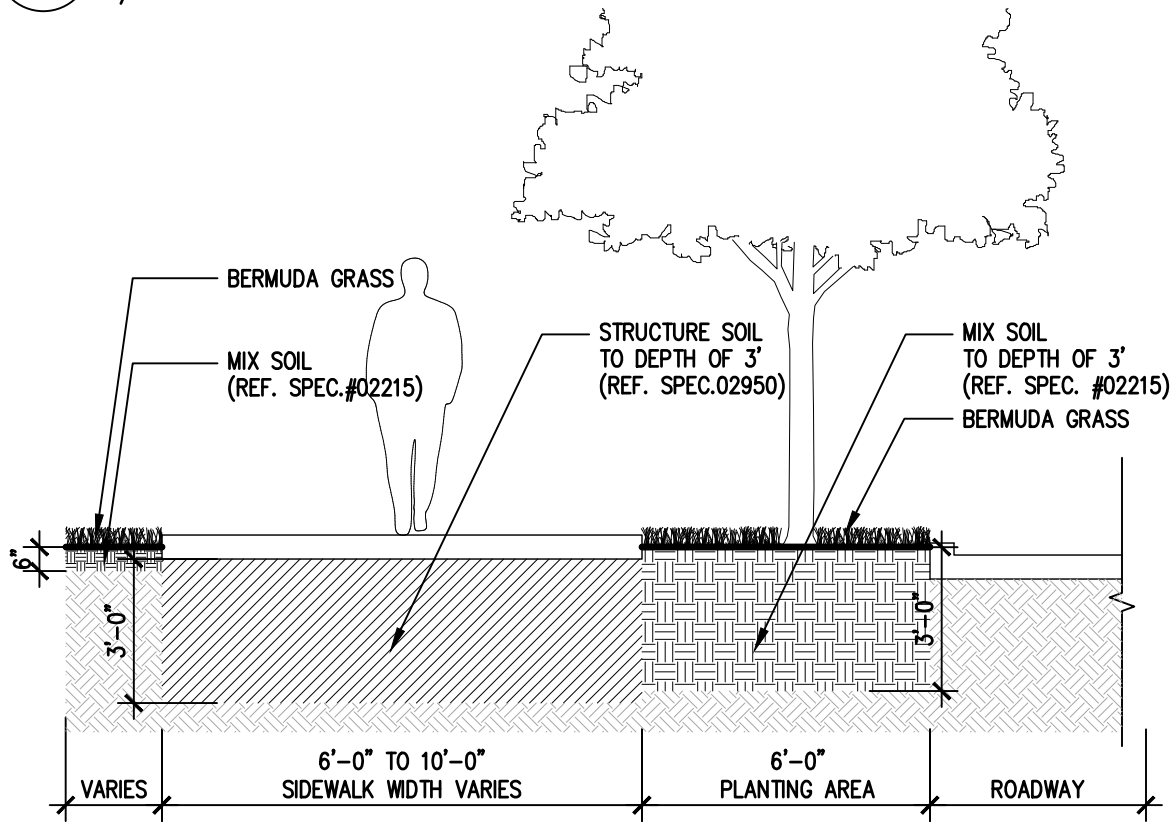
02 TYP. SECTION AT ICH RETAINING WALL
1/4" = 1'

GENERAL NOTES:
BERMUDA GRASS REF. 04/05 SHEET L3.07 TYPICAL SOD PLANTING AT ROW AND MEDIANS

MIX SOIL AND STRUCTURE SOIL - CONTRACTOR TO DETERMINE, VERIFY, AND FURNISH - INCLUDING ALLOWANCE FOR COMPACTION TO ACHIEVE REQUIREMENTS OF PLANS, DETAILS, AND SPECIFICATION.



03 TYP. SECTION AT CEMETERY
1/4" = 1'

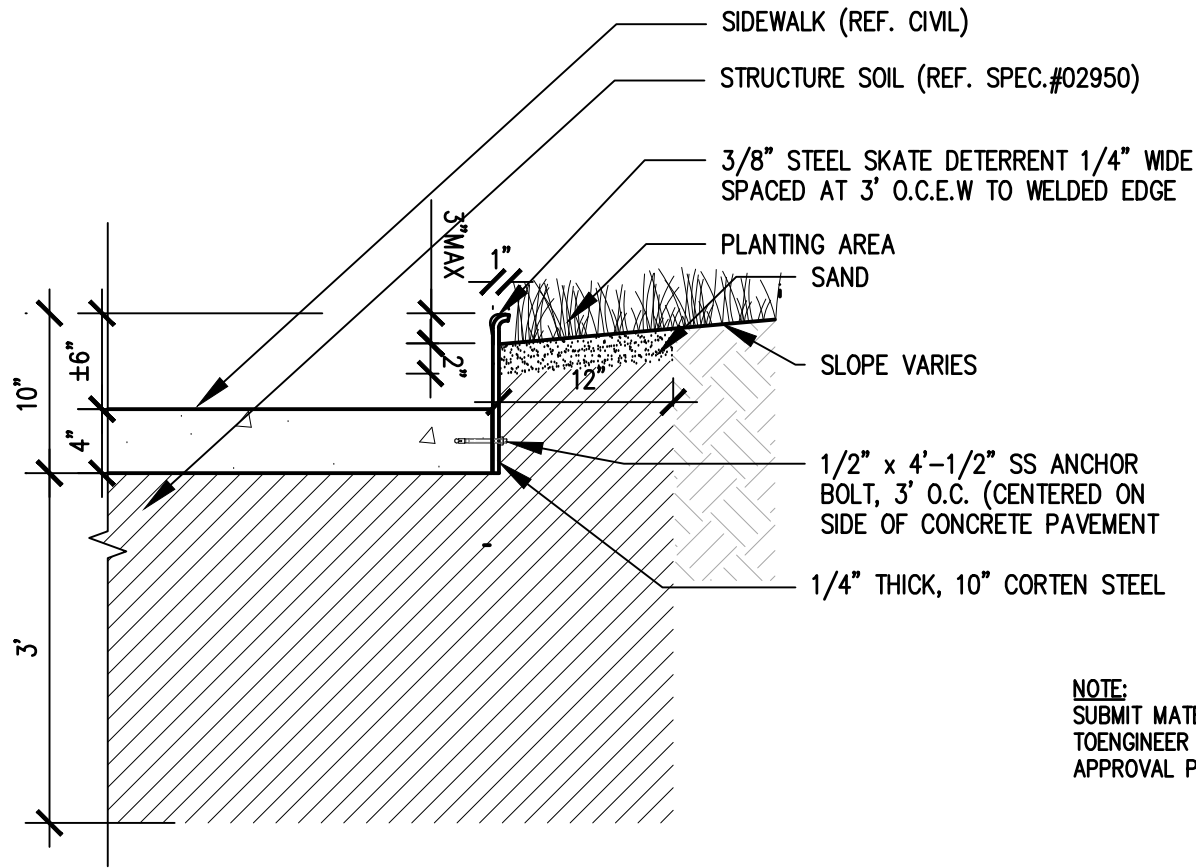


01 TYP. SECTION AT SIDEWALK PLANTING
1/4" = 1'

 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	 THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002
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CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 SECTIONS L2.01	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JADA HUANG	
SHEET NO. 306 OF 355	

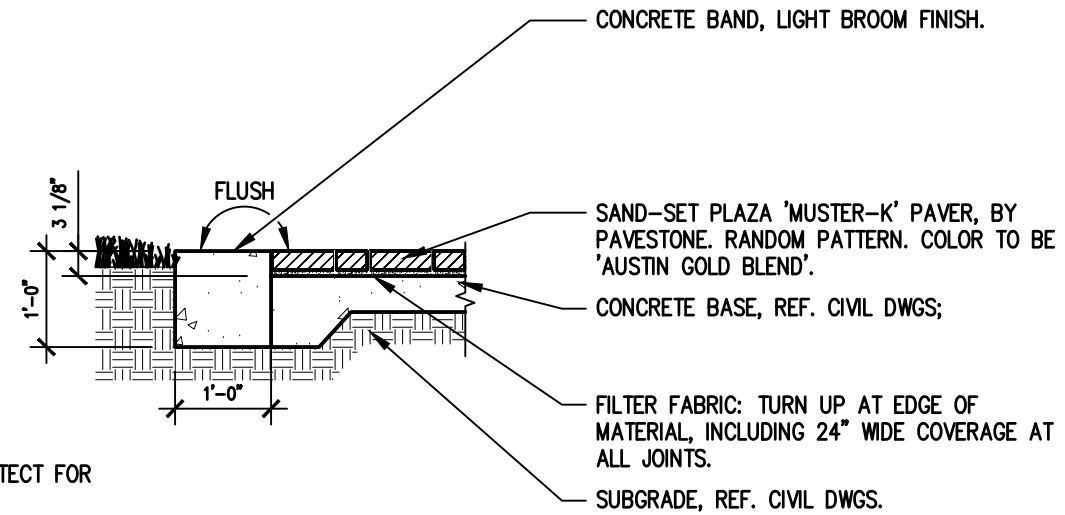
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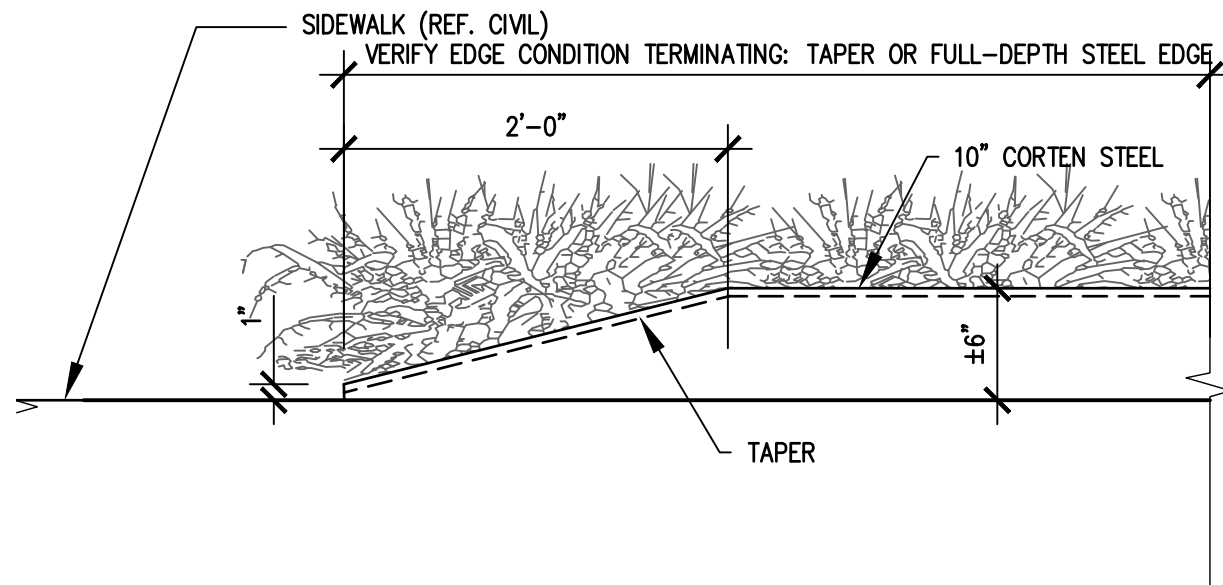
04 SECTION - ROLLED STEEL EDGE
N.T.S.

NOTE:
SUBMIT MATERIAL AND INFORMATION
TO ENGINEER AND LANDSCAPE ARCHITECT FOR
APPROVAL PRIOR TO WORK.

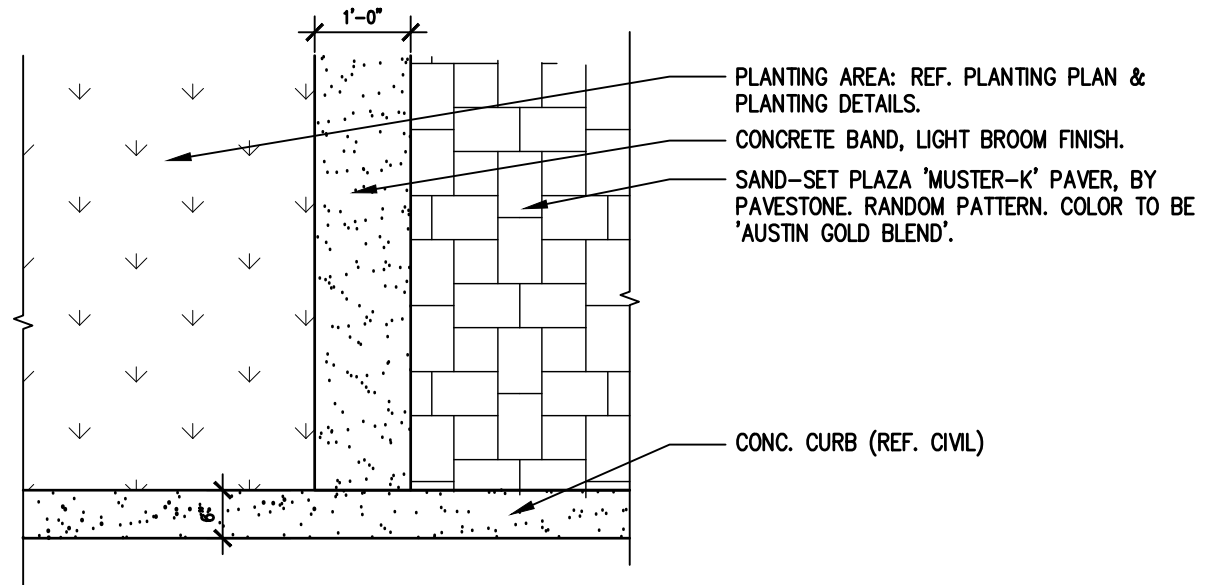


02 SECTION - MEDIAN PAVERS AT CONC.BAND
N.T.S.

GENERAL NOTES:
MIX SOIL AND STRUCTURE SOIL - CONTRACTOR TO DETERMINE, VERIFY, AND FURNISH - INCLUDING ALLOWANCE FOR COMPACTION TO ACHIEVE REQUIREMENTS OF PLANS, DETAILS, AND SPECIFICATION.



03 ELEVATION - TAPER DOWN STEEL EDGE
N.T.S.



01 PLAN - MEDIAN PAVERS AT CONC.BAND
N.T.S.


 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	 THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 HARDSCAPE DETAILS <h1 style="margin: 0;">L2.03</h1>	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JADA HUANG	
SHEET NO. 308 OF 355	

APP.
REVISIONS
DATE
NO.


Plotted on: \$DATE\$ \$TIMES\$ \$USERS\$

LANDSCAPE ORDINANCE ANALYSIS				
STREET TREES REQUIRED				
STREET	LENGTH OF ROW	TREES REQUIRED *	TREES PROVIDED SPECIES	NUMBER
MONTROSE BLVD	4322	144	<i>Quercus virginiana</i>	47
			<i>Taxodium 406</i>	111
* - PER COH CODE OF ORDINANCES SEC. 33-126				
PARKING LOT TREE & SHRUB PLANTING				
PARKING SPOTS				0
TREES REQUIRED*				0
TREES PROVIDED (NOT INCL. STREET TREES)				0
SHRUBS REQUIRED*				0
SHRUBS PROVIDED				0
* - PER COH CODE OF ORDINANCES SEC. 33-127				
** PLANTING PLAN UTILIZES 100% OF AVAILABLE PLANTING SPACE IN THE PROJECT TO PLANT TREES, WITH THE EXCEPTION OF INSTANCES OF CONFLICTS WITH INFRASTRUCTURE/UTILITIES				


SHADE TREES									
SYM.	Botanical Name	Common Name	Quantity		Size	Cal.	Height	Spread	Remarks
QV	<i>Quercus virginiana</i>	Live Oak	13	EA	200 Gal.	4 1/2"	16'	8'	Full, well branched
QV	<i>Quercus virginiana</i>	Live Oak	34	EA	100 Gal.	3 1/2"	14'	6'	Full, well branched
TM	<i>Taxodium 406</i>	Bald Cypress	111	EA	100 Gal.	3 1/2"	14'	6'	Full, well branched
Vine									
SYM.	Botanical Name	Common Name		Units	Size	Height	Spread	Spacing	Remarks
FP	<i>Ficus pumila</i>	Creeping Fig		EA	1 Gal	24"	48" O C	18" w/runners	Full, rooted to container
TURF GRASSES									
SYM.	Botanical Name	Common Name		Units	Size	Height	Spread	Spacing	Remarks
	<i>Cynodon dactylon</i>	Bermuda Turf		-	-	-	-	-	Solid Sod
NOTE:									
CONTRACTOR TO REPAIR ALL DISTURBED AREA TO CONDITIONS EQUAL TO OR BETTER THAN THESE RECEIVED AT THE START OF CONSTRUCTION.									
ALL DAMAGED PLANTING MATERIAL TO BE REPLACED. ALL DAMAGED LAWN TO BE ADDED									
REQUIREMENTS.									
SHADE TREES /TAXODIUM 406: CONTACT TWINWOOD FARMS, 10515 FM 1489 SIMONTON, TX 77476; JONATHAN @TWINWOODFARMS.COM 713.855.2688									



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27



Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079



swa
THE JONES ON MAIN
712 MAIN STREET, 6TH FLOOR
HOUSTON, TEXAS 77002

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD
IMPROVEMENTS – SEGMENT 1
ORDINANCE ANALYSIS &
PLANT SCHEDULE
L3.00

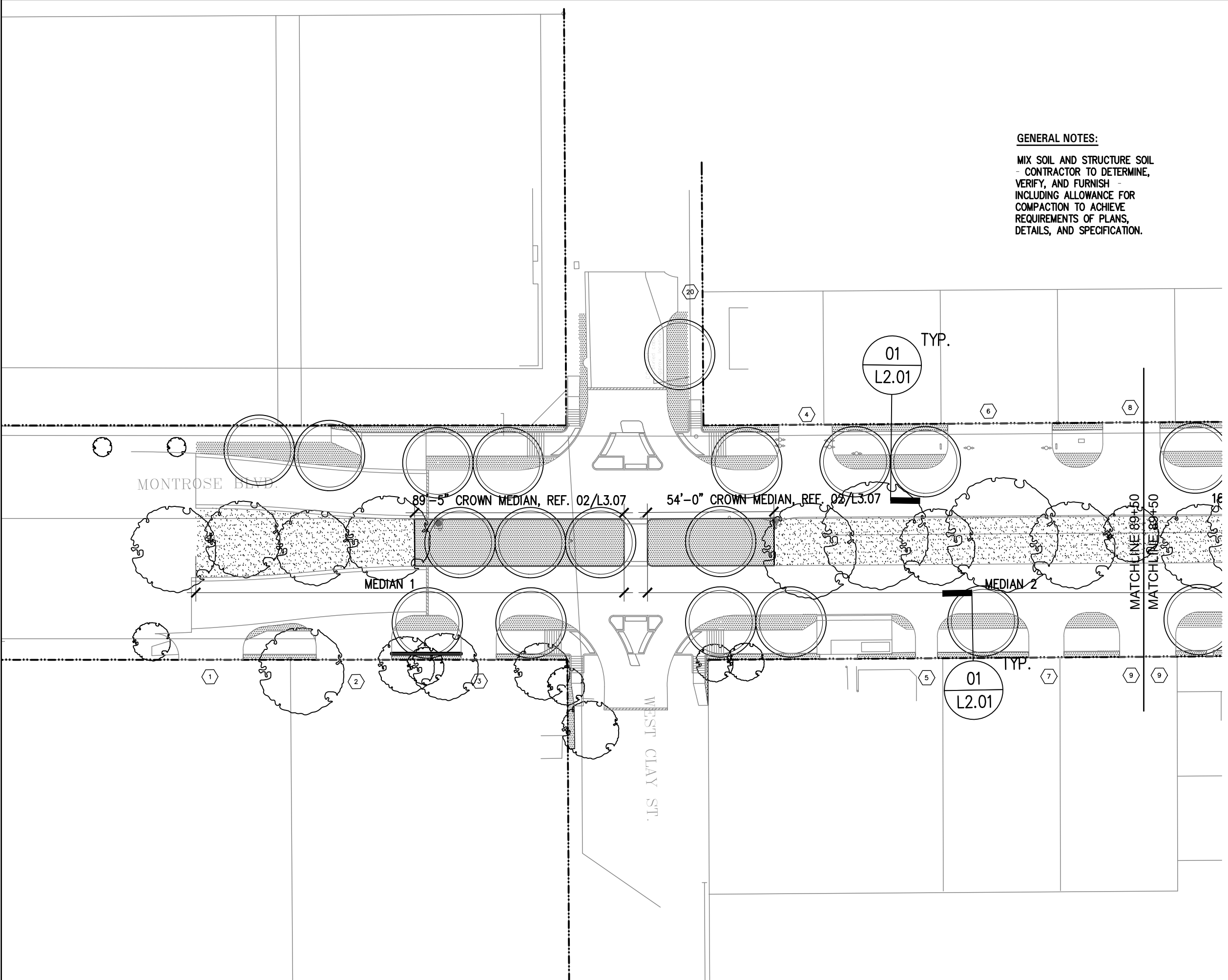
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DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 309 OF 355	

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No.	DATE

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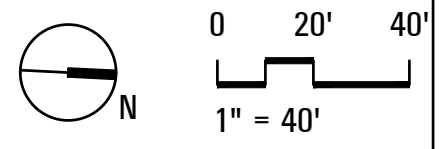


GENERAL NOTES:
MIX SOIL AND STRUCTURE SOIL - CONTRACTOR TO DETERMINE, VERIFY, AND FURNISH - INCLUDING ALLOWANCE FOR COMPACTION TO ACHIEVE REQUIREMENTS OF PLANS, DETAILS, AND SPECIFICATION.

GENERAL NOTES:
REF. TREE PROTECTION PLAN

PLANTING LEGEND

- EXISTING TREE TO REMAIN
- PROPOSED TREE LIVE OAK
- PROPOSED TREE BALD CYPRESS
- BERMUDA GRASS
- 4" DEEP MULCH TYP. MEDIAN 1 AND 2
- VINE (BY OTHERS)
- SIDEWALK PAVEMENT REF. CIVIL



MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

swa
THE JONES ON MAIN
712 MAIN STREET, 6TH FLOOR
HOUSTON, TEXAS 77002

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 PLANTING PLAN

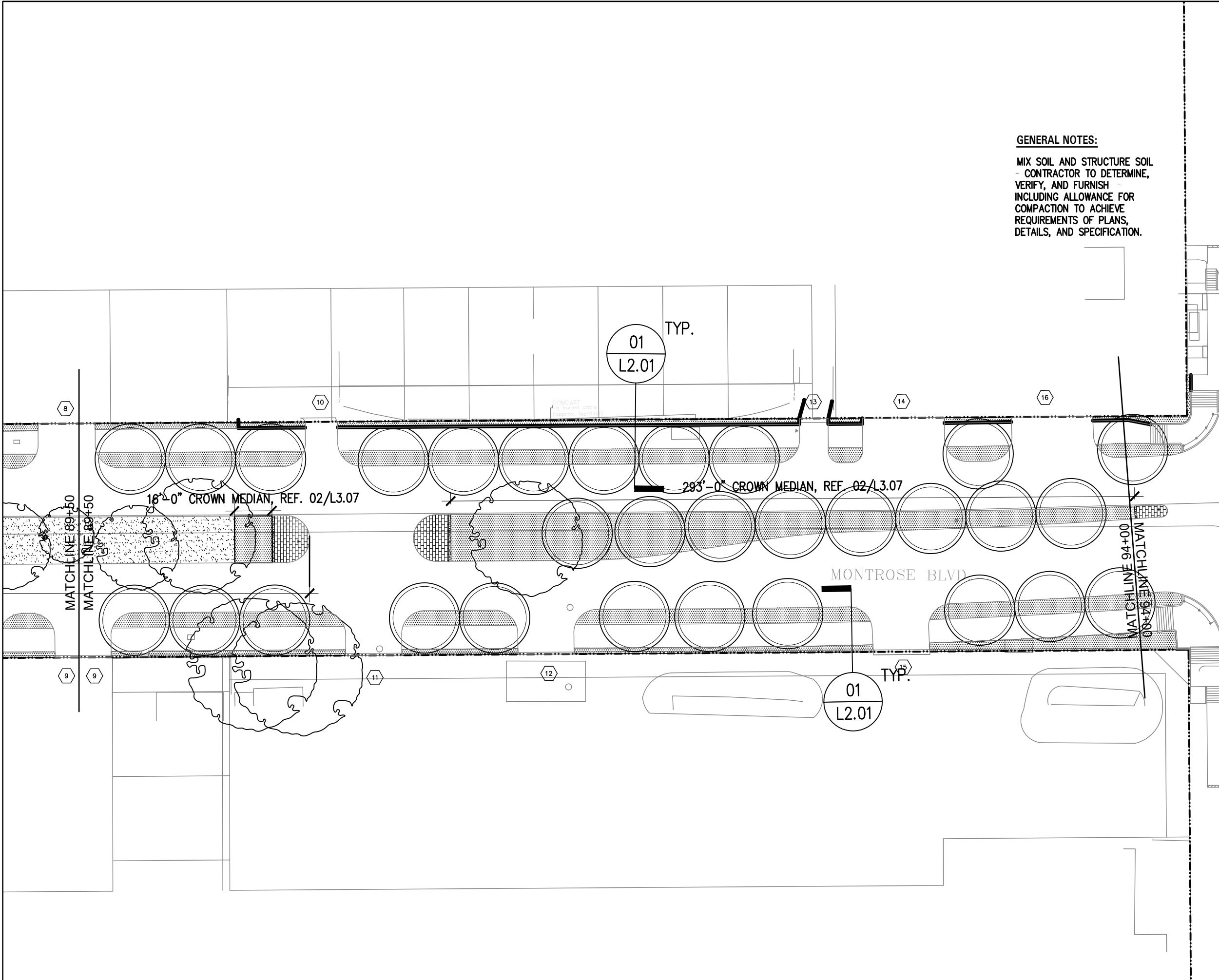
L3.01

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 310 OF 355	

APP.	
REVISIONS	
DATE	
NO.	

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$



GENERAL NOTES:

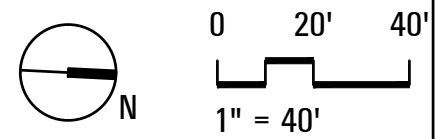
MIX SOIL AND STRUCTURE SOIL - CONTRACTOR TO DETERMINE, VERIFY, AND FURNISH - INCLUDING ALLOWANCE FOR COMPACTION TO ACHIEVE REQUIREMENTS OF PLANS, DETAILS, AND SPECIFICATION.

GENERAL NOTES:

REF. TREE PROTECTION PLAN

PLANTING LEGEND

- EXISTING TREE TO REMAIN
- PROPOSED TREE LIVE OAK
- PROPOSED TREE BALD CYPRESS
- BERMUDA GRASS
- 4" DEEP MULCH TYP. MEDIAN 1 AND 2
- VINE (BY OTHERS)
- SIDEWALK PAVEMENT REF. CIVIL



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

swa

THE JONES ON MAIN
712 MAIN STREET, 6TH FLOOR
HOUSTON, TEXAS 77002

Gauge
ENGINEERING

TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

SURVEYED BY:
KYO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
PLANTING PLAN**

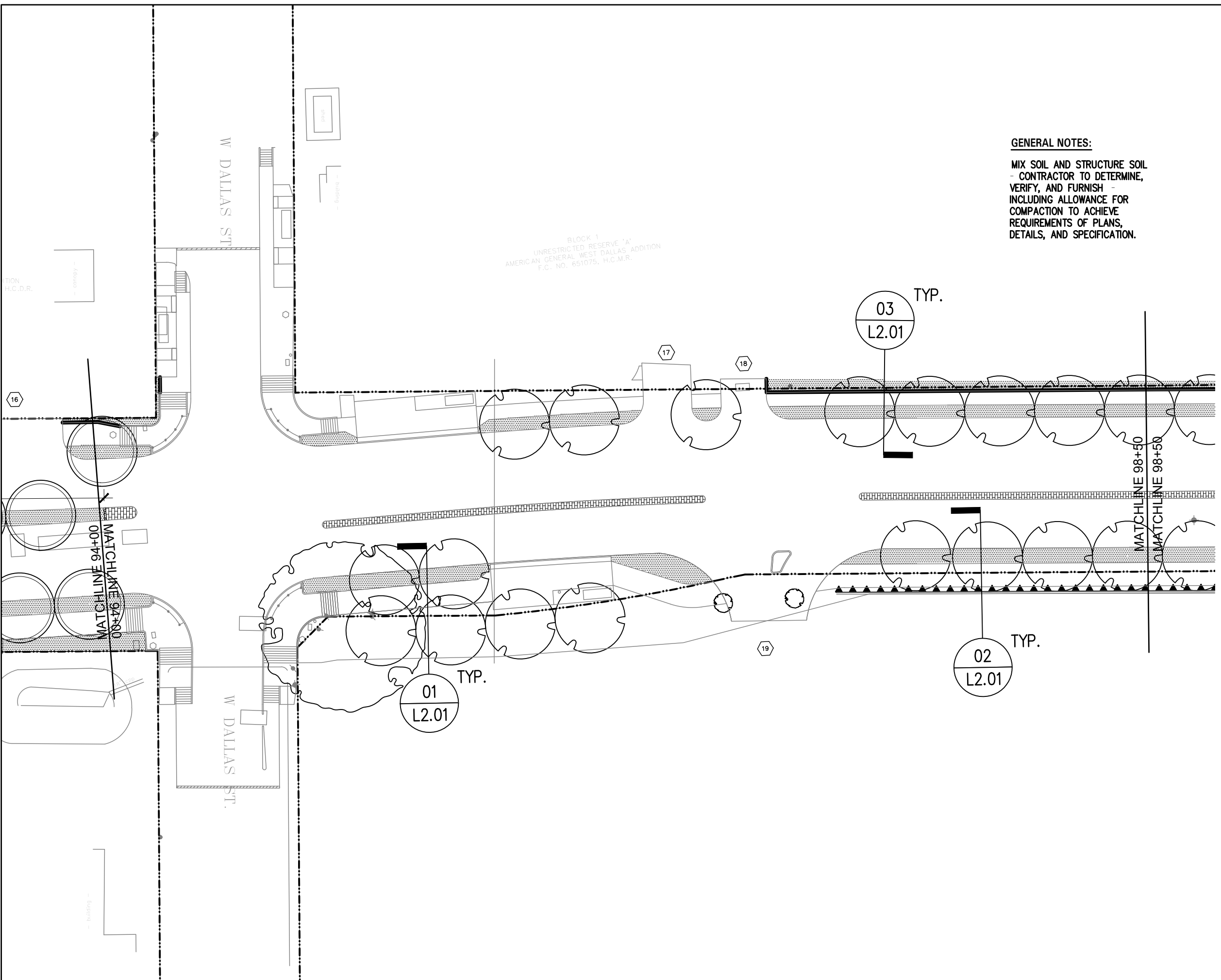
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WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 311 OF 355	

	APP.
	REVISIONS
	DATE
	NO.

Plotted on: \$DATE\$ \$TIMES\$ \$USERS\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$

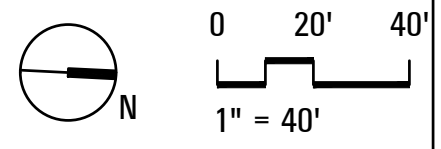


GENERAL NOTES:
MIX SOIL AND STRUCTURE SOIL - CONTRACTOR TO DETERMINE, VERIFY, AND FURNISH - INCLUDING ALLOWANCE FOR COMPACTION TO ACHIEVE REQUIREMENTS OF PLANS, DETAILS, AND SPECIFICATION.

GENERAL NOTES:
REF. TREE PROTECTION PLAN

PLANTING LEGEND

- EXISTING TREE TO REMAIN
- PROPOSED TREE LIVE OAK
- PROPOSED TREE BALD CYPRESS
- BERMUDA GRASS
- 4" DEEP MULCH TYP. MEDIAN 1 AND 2
- VINE (BY OTHERS)
- SIDEWALK PAVEMENT
- REF. CIVIL



MONTROSE
TAX INCREMENT REINVESTMENT ZONE 27

Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

swa
THE JONES ON MAIN
712 MAIN STREET, 6TH FLOOR
HOUSTON, TEXAS 77002

SURVEYED BY:
KUO & ASSOCIATES, INC.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
PLANTING PLAN**

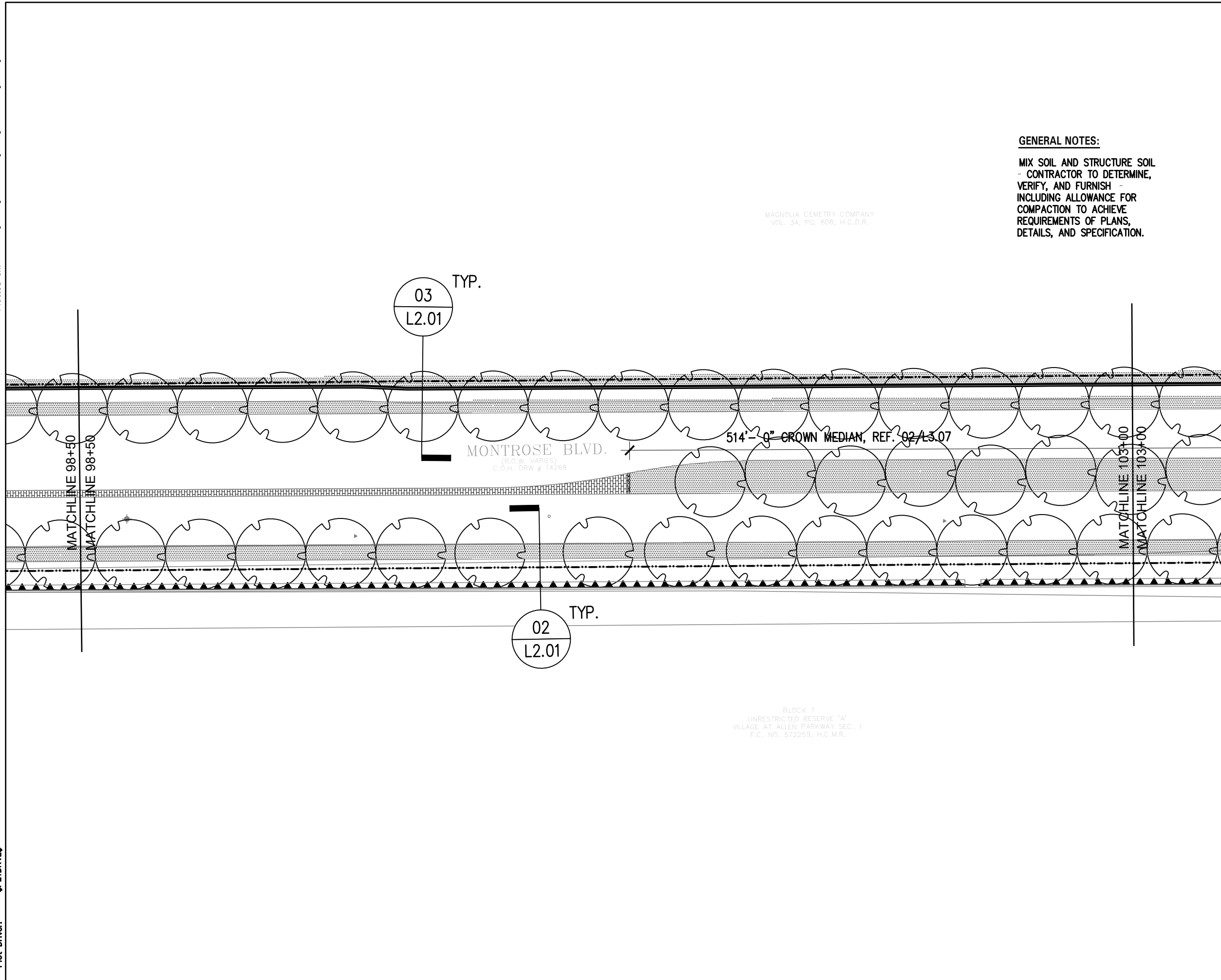
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WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 312 OF 355	

APP.	
REVISIONS	
DATE	
NO.	

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$



MAGNOLIA CEMETRY COMPANY
VOL. 34, PG. 608, H.C.D.R.

GENERAL NOTES:

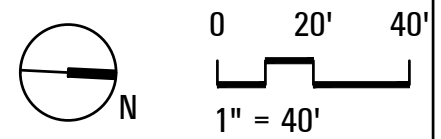
MIX SOIL AND STRUCTURE SOIL
- CONTRACTOR TO DETERMINE,
VERIFY, AND FURNISH -
INCLUDING ALLOWANCE FOR
COMPACTION TO ACHIEVE
REQUIREMENTS OF PLANS,
DETAILS, AND SPECIFICATION.

GENERAL NOTES:

REF. TREE PROTECTION PLAN

PLANTING LEGEND

- EXISTING TREE TO REMAIN
- PROPOSED TREE LIVE OAK
- PROPOSED TREE BALD CYPRESS
- BERMUDA GRASS
- 4" DEEP MULCH TYP. MEDIAN 1 AND 2
- VINE (BY OTHERS)
- SIDEWALK PAVEMENT
- REF. CIVIL



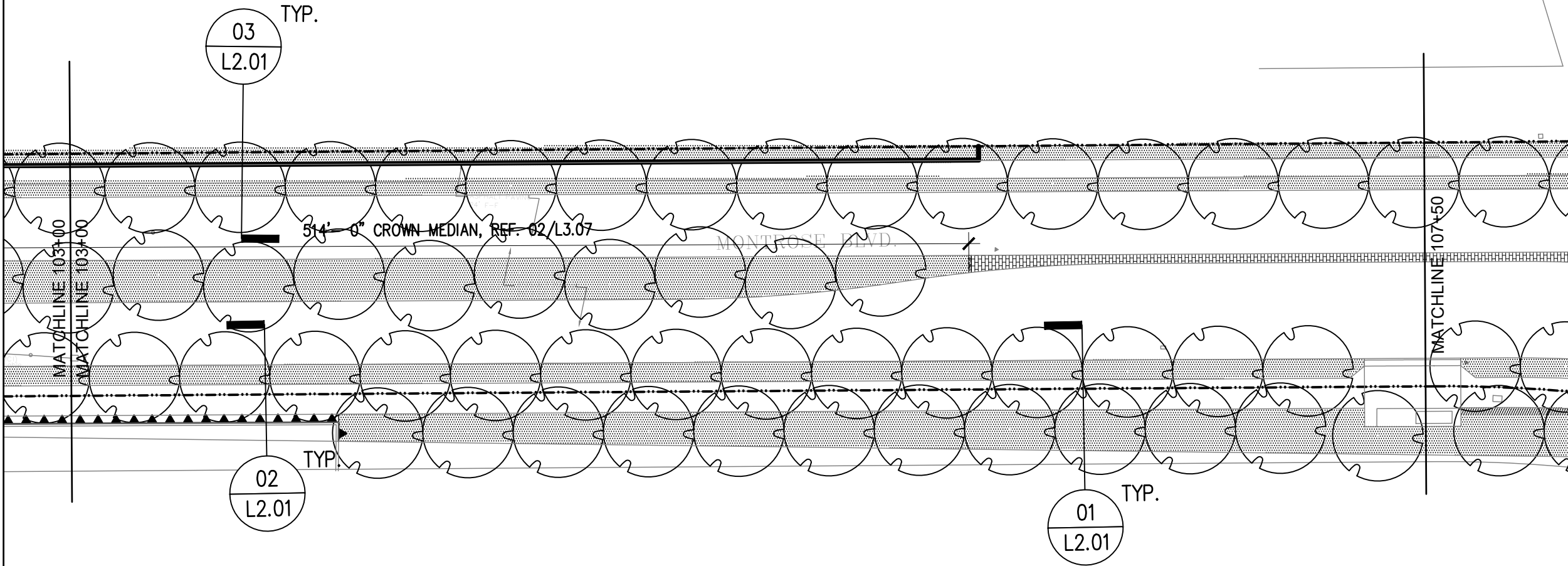
BLOCK 1
UNRESTRICTED RESERVE 'A'
VILLAGE AT ALLEN PARKWAY SEC. 1
F.C. NO. 572259, H.C.M.R.

 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	 THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 PLANTING PLAN <h1 style="margin: 0;">L3.04</h1>	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JADA HUANG	
SHEET NO. 313 OF 355	

APP.	
REVISIONS	
NO.	DATE

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$




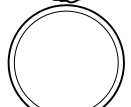

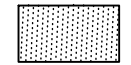
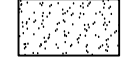



GENERAL NOTES:

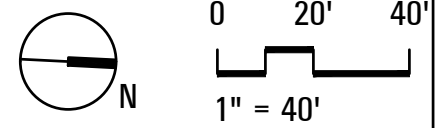
MIX SOIL AND STRUCTURE SOIL - CONTRACTOR TO DETERMINE, VERIFY, AND FURNISH - INCLUDING ALLOWANCE FOR COMPACTION TO ACHIEVE REQUIREMENTS OF PLANS, DETAILS, AND SPECIFICATION.

GENERAL NOTES:

REF. TREE PROTECTION PLAN

PLANTING LEGEND

-  EXISTING TREE TO REMAIN
-  PROPOSED TREE LIVE OAK
-  PROPOSED TREE BALD CYPRESS
-  BERMUDA GRASS
-  4" DEEP MULCH TYP. MEDIAN 1 AND 2
-  VINE (BY OTHERS)
-  SIDEWALK PAVEMENT
-  REF. CIVL



	
 <p>GAUGE ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	 <p>THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002</p>
<p>SURVEYED BY: KYO & ASSOCIATES, INC.</p>	

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
IMPROVEMENTS – SEGMENT 1
PLANTING PLAN**

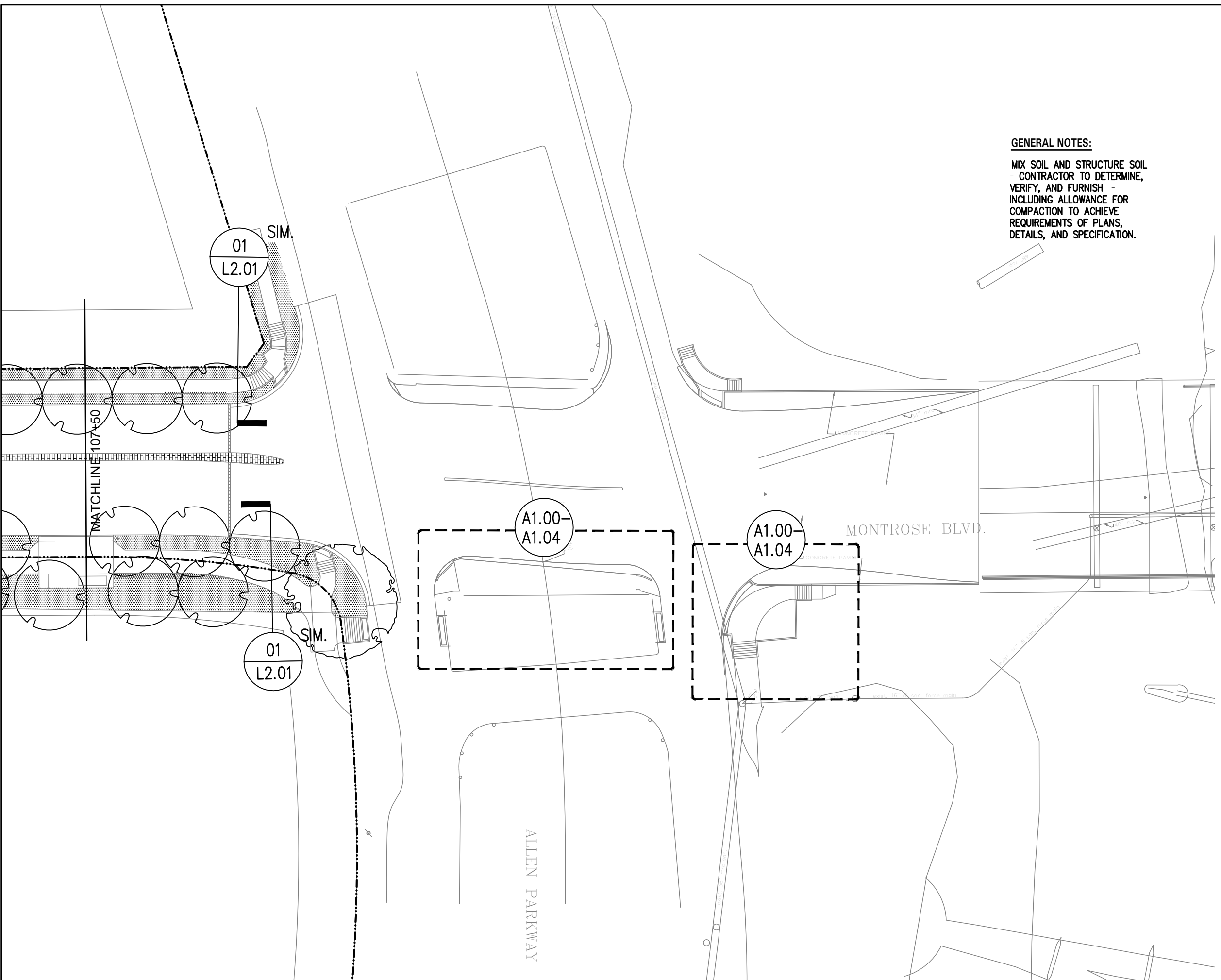
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WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 314 OF 355	

	APP.
	REVISIONS
No.	DATE

Plotted on: \$DATE\$ \$TIMES\$ \$USERS\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLDRVL\$

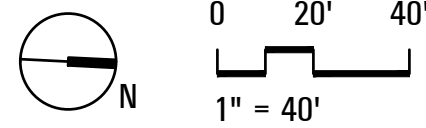


GENERAL NOTES:
MIX SOIL AND STRUCTURE SOIL - CONTRACTOR TO DETERMINE, VERIFY, AND FURNISH - INCLUDING ALLOWANCE FOR COMPACTION TO ACHIEVE REQUIREMENTS OF PLANS, DETAILS, AND SPECIFICATION.

GENERAL NOTES:
REF. TREE PROTECTION PLAN

PLANTING LEGEND

- EXISTING TREE TO REMAIN
- PROPOSED TREE LIVE OAK
- PROPOSED TREE BALD CYPRESS
- BERMUDA GRASS
- 4" DEEP MULCH TYP. MEDIAN 1 AND 2
- VINE (BY OTHERS)
- SIDEWALK PAVEMENT
- REF. CIVIL



 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	 THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002
SURVEYED BY: KUO & ASSOCIATES, INC.	

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

**MONTROSE BOULEVARD
IMPROVEMENTS - SEGMENT 1
PLANTING PLAN**

L3.06

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO. 315 OF 355	

APP.	
REVISIONS	
DATE	
NO.	

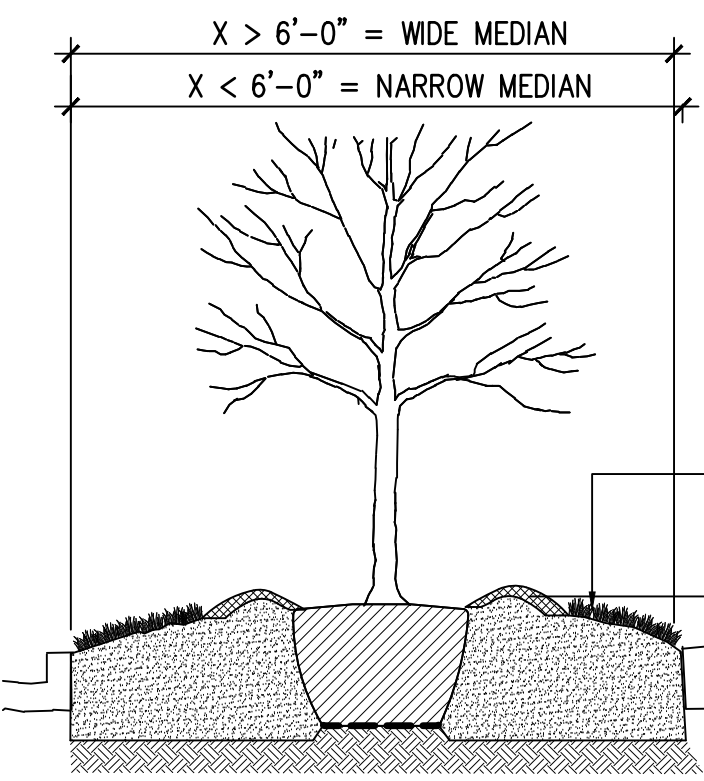
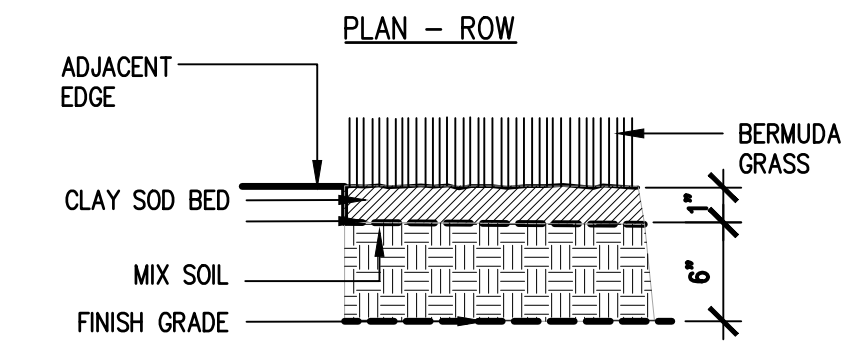
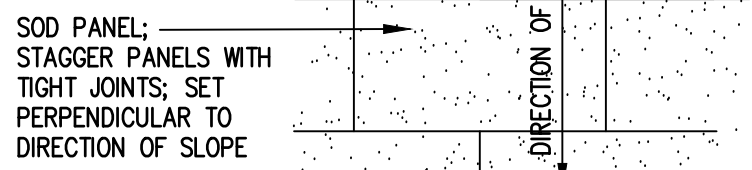
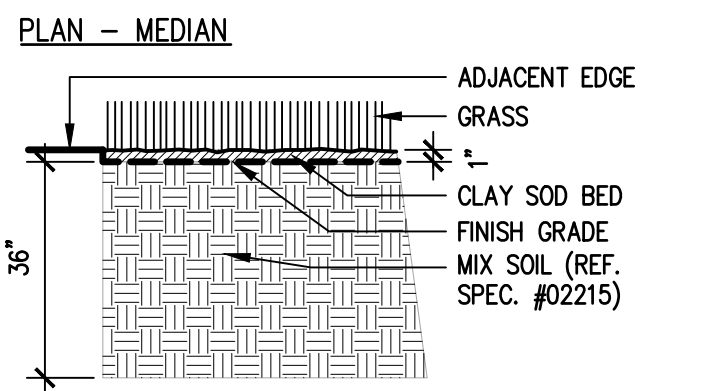
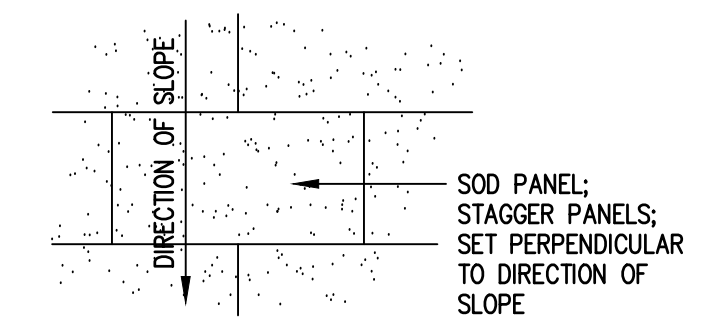
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Pen Table: \$PENTBL\$ \$PLDRVL\$ Plot Driver:

GENERAL NOTES:
 MIX SOIL AND STRUCTURE SOIL - CONTRACTOR TO DETERMINE, VERIFY, AND FURNISH - INCLUDING ALLOWANCE FOR COMPACTION TO ACHIEVE REQUIREMENTS OF PLANS, DETAILS, AND SPECIFICATION.

NOTE: SLOPE LONG EDGES TO MEET EXISTING GRADE.

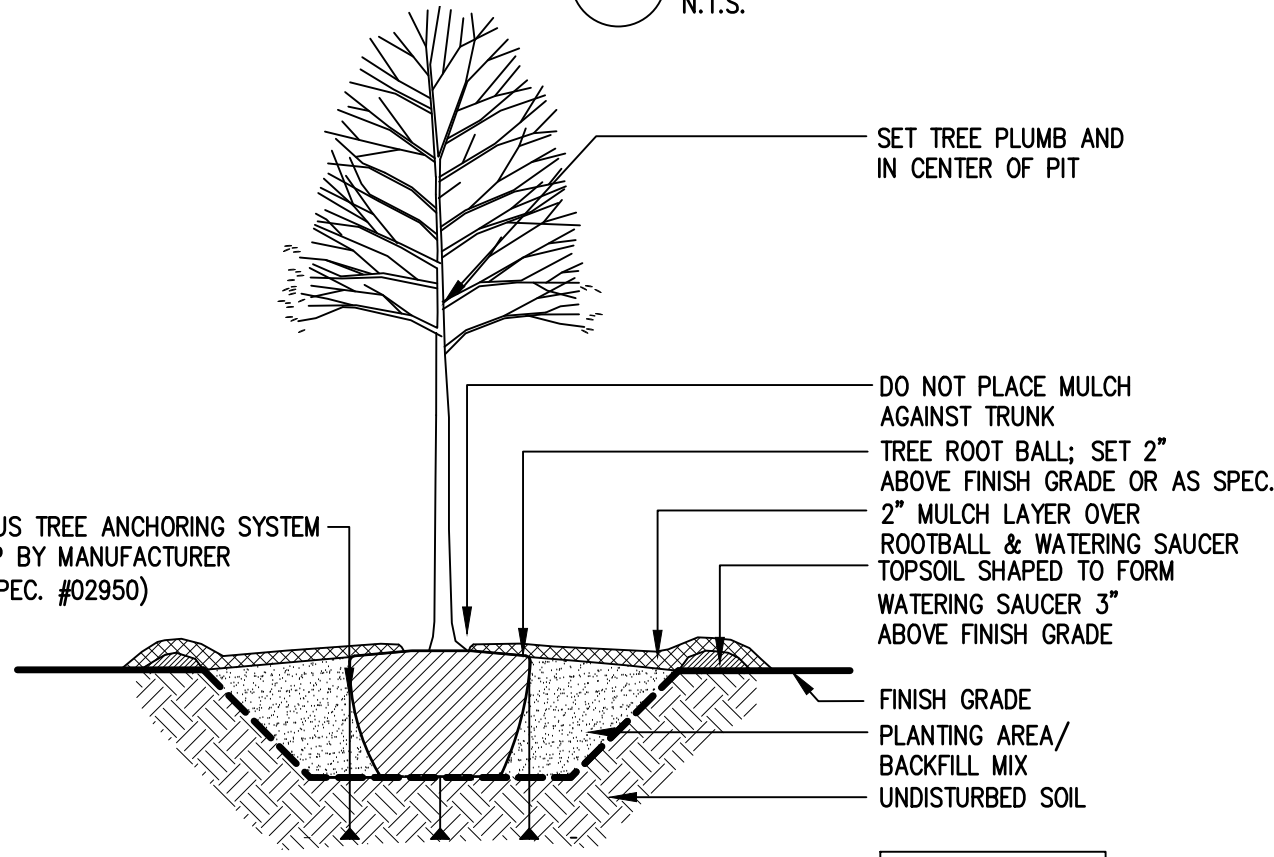
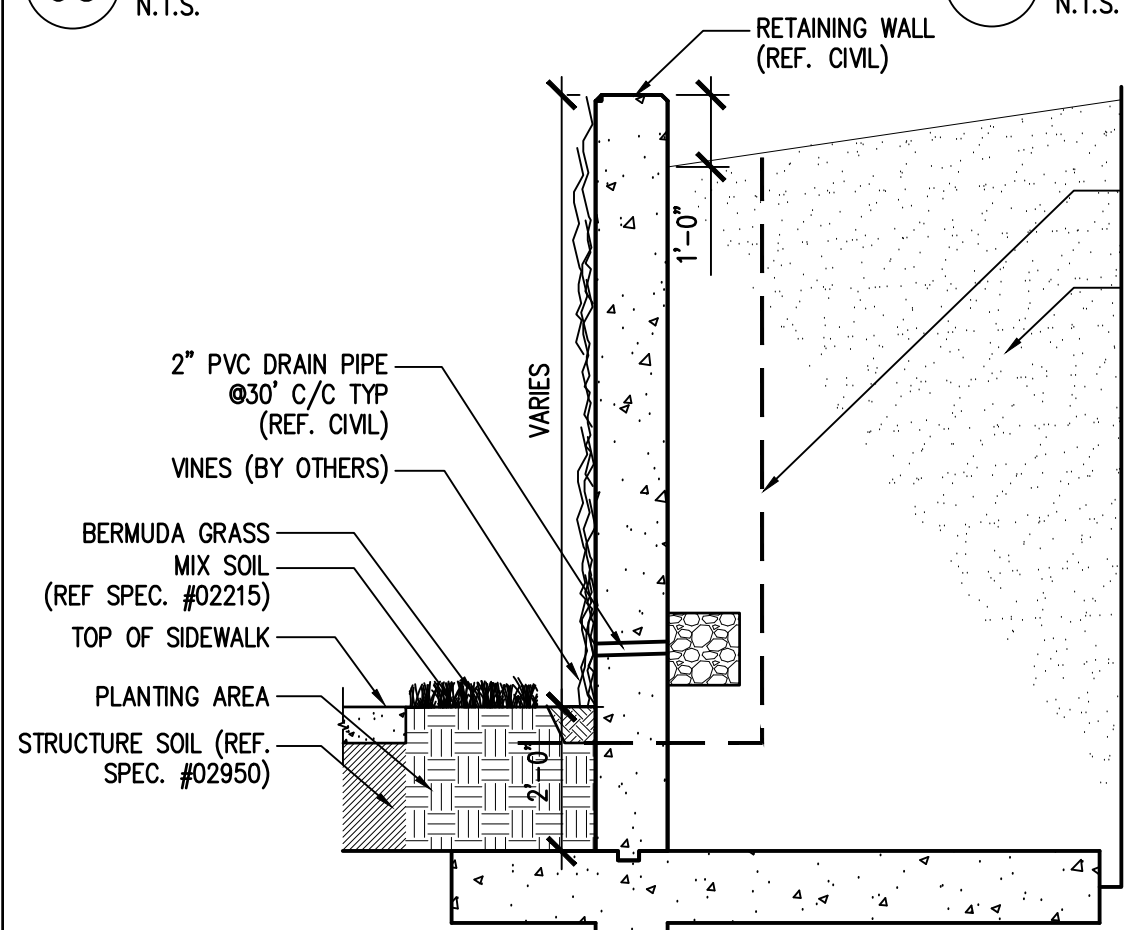
MEDIAN SOD PLANTING REF. 05/L3.07
 8" ON NARROW MEDIANS FROM TOP OF CURB
 15" ON WIDE MEDIANS FROM TOP OF CURB



05 TYPICAL SOD PLANTING (MEDIAN)
 N.T.S.

04 TYPICAL SOD PLANTING (ROW)
 N.T.S.

02 TYPICAL MEDIAN SOIL CROWNING
 N.T.S.



PLATIPUS TREE ANCHORING SYSTEM - EF3P BY MANUFACTURER (REF SPEC. #02950)

NOTE: REFERENCE SPECIFICATIONS FOR MATERIALS

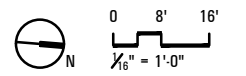
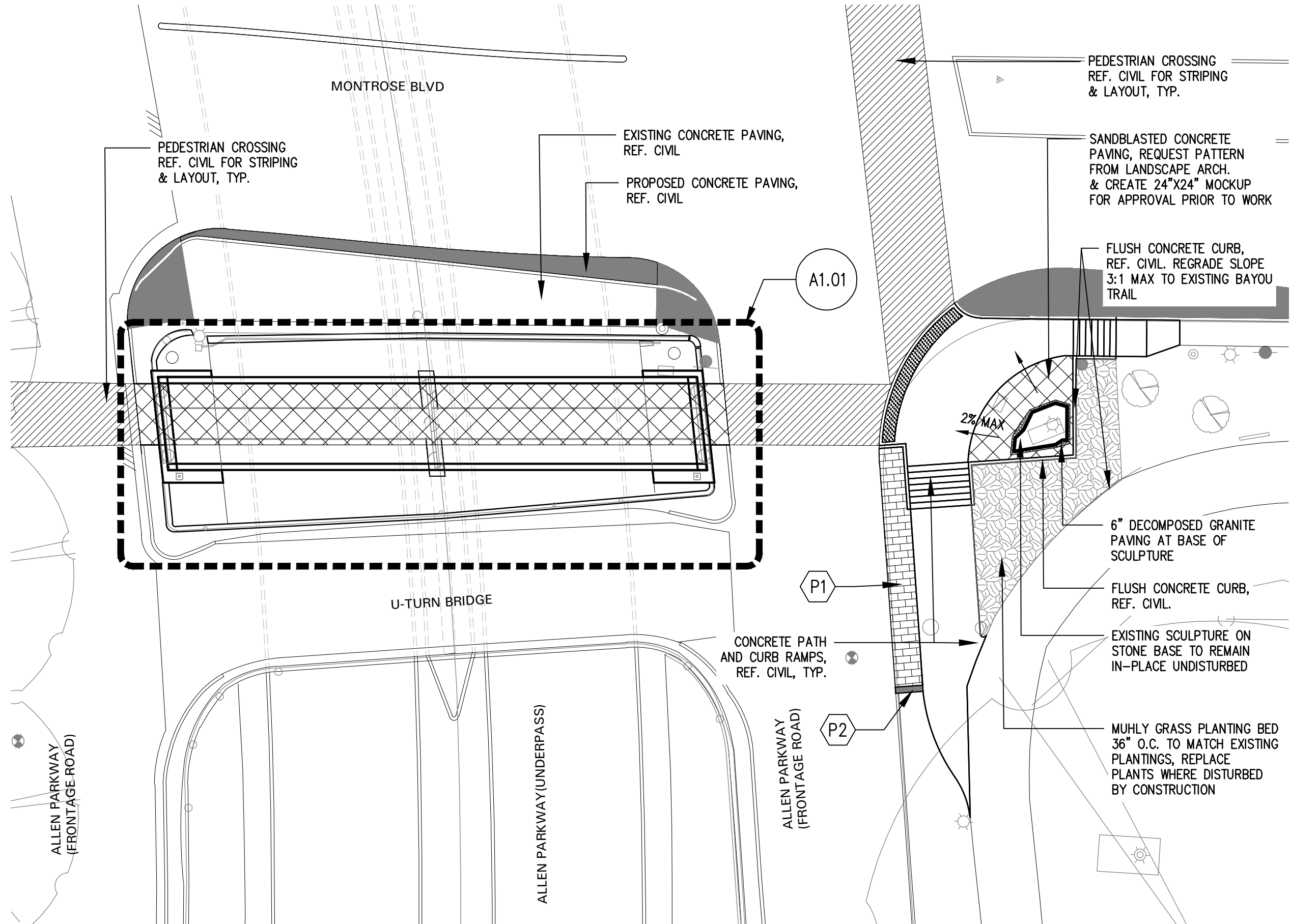
03 RETAINING WALL
 N.T.S.

01 TYP. TREE PLANTING
 N.T.S.

 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	 THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 PLANTING DETAILS <h1 style="margin: 0;">L3.07</h1>	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JADA HUANG	
SHEET NO. 316 OF 355	

APP.	
REVISIONS	
DATE	
NO.	

P:\GEGGET301 Allen Pkwy Crossing\4 Drawings\Graphics\AutoCAD\Sheets\ALLEN PARKWAY CROSSING - 100% CD\DETAILS\00 ENLARGEMENT PLAN - ALLEN PARKWAY CROSSING.dwg | ASCOTT | ANSI B (11.00 X 17.00 INCHES) | SWA.CTB | 2/9/2024 | 5:38 PM



<p>TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002</p>
<p>SURVEYED BY: KYO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 ALLEN PARKWAY CROSSING ENLARGEMENT - ALLEN PARKWAY CROSSING</p>	
<p>A1.00</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE</p>	
<p>CITY OF HOUSTON PM JADA HUANG</p>	
<p>SHEET NO. 317 OF 355</p>	

NO.	DATE	REVISIONS

PEDESTRIAN BRIDGE COVER & CLADDING NOTES

- CONTRACTOR SHALL FIELD VERIFY SITE DIMENSIONS AND UTILITY POLE LOCATIONS PRIOR TO WORK
- COORDINATE CLADDING DESIGN WITH ROADWAY CONSTRUCTION AND CONCRETE PEDESTRIAN BRIDGE CONSTRUCTION ALL DIMENSIONS SHOULD BE FIELD VERIFIED.
- 3D MODEL OF CLADDING STRUCTURE AND PANELS AVAILABLE UPON REQUEST
- CONTRACTOR SHALL SUBMIT SIGNED AND SEALED STRUCTURAL ENGINEERING DRAWINGS FOR CLADDING SYSTEM AND SUPPORT STRUCTURE FOR APPROVAL BY ARCHITECT AND BRIDGE ENGINEER PRIOR TO FABRICATION.
- REF. STRUC FOR ANCHOR BOLT DETAIL TO CONCRETE PEDESTRIAN BRIDGE
- CLADDING SHALL NOT BEAR ON EXISTING VEHICULAR BRIDGES
- FINAL MEMBER SIZING, ATTACHMENTS AND FASTENERS TO BE DESIGNED AND ENGINEERED BY CONTRACTOR FOR APPROVAL IN THE SHOP DRAWING PROCESS
- CLADDING STRUCTURE SHALL BE DESIGNED TO MEET OR EXCEED THE FOLLOWING STRUCTURAL STANDARDS:
 - GUARDRAIL LOADING STANDARDS
 - 100 PSF LIVE LOAD
 - HURRICANE WIND LOADING(UPLIFT)
- SUBMIT MATERIAL SAMPLES PRIOR TO WORK
- FABRICATOR SHALL CREATE MOCKUP OF 1 6' COMPLETE CANTILEVER STRUCTURE MODULE WITH CLADDING PANELS, CANTILEVER TRUSS, AND WAFFLE FRAMING FOR REVIEW AND APPROVAL BY ARCH.

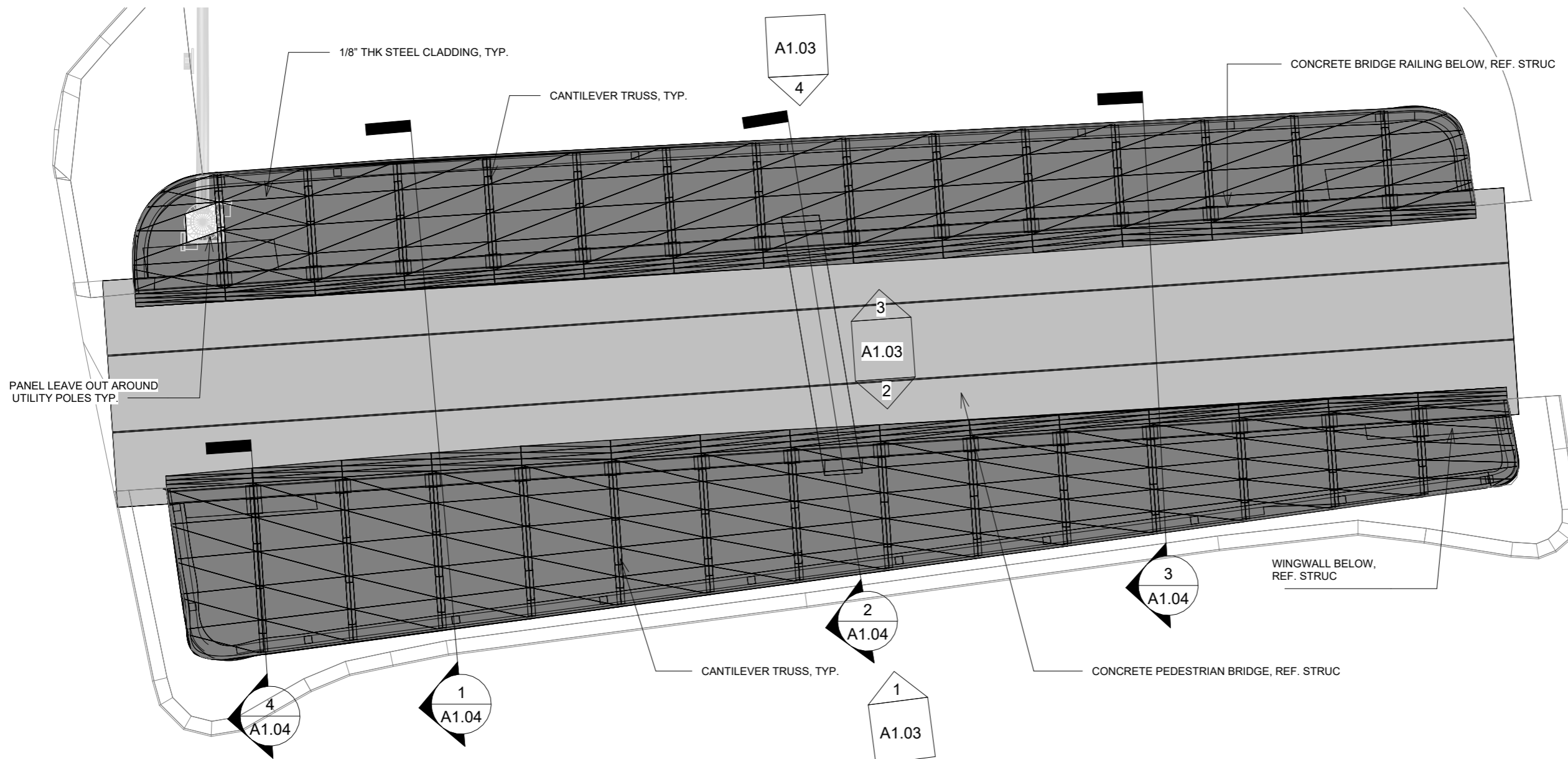
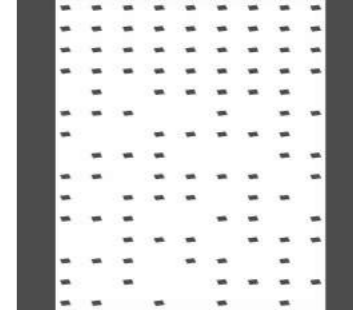
CLADDING PANEL AND STRUCTURE MATERIAL NOTES

- CLADDING PANEL MATERIAL TO BE STAINLESS STEEL TYPE 304 1/8" THK WITH A NON-DIRECTIONAL FINISH (BEAD BLASTED)
- CLADDING PANELS TO BE PERFORATED, PATTERN TO BE BOK MODERN A28, 4.44% OPEN AREA RANDOM POLYGONAL COMPOSITION OR APPROVED EQUAL.
- ALL UNEXPOSED STRUCTURAL STEEL AND CLADDING FRAMING TO BE GALVANIZED STEEL
- CLADDING CANTILEVER SUPPORTS TO BE GALVANIZED STEEL CHANNEL
- CLADDING CANTILEVER SUPPORT BASEPLATES TO BE GALVANIZED STEEL PLATE
- CLADDING WAFFLE FRAMING TO BE 1/8"THK GALVANIZED STEEL PLATE
- MEMBER SIZINGS AND THICKNESSES TO BE VERIFIED BY CONTRACTORS STRUCTURAL ENGINEER DURING THE SHOP DRAWING PROCESS
- SUBMIT FINISH SAMPLES FOR APPROVAL PRIOR TO WORK

FINISH



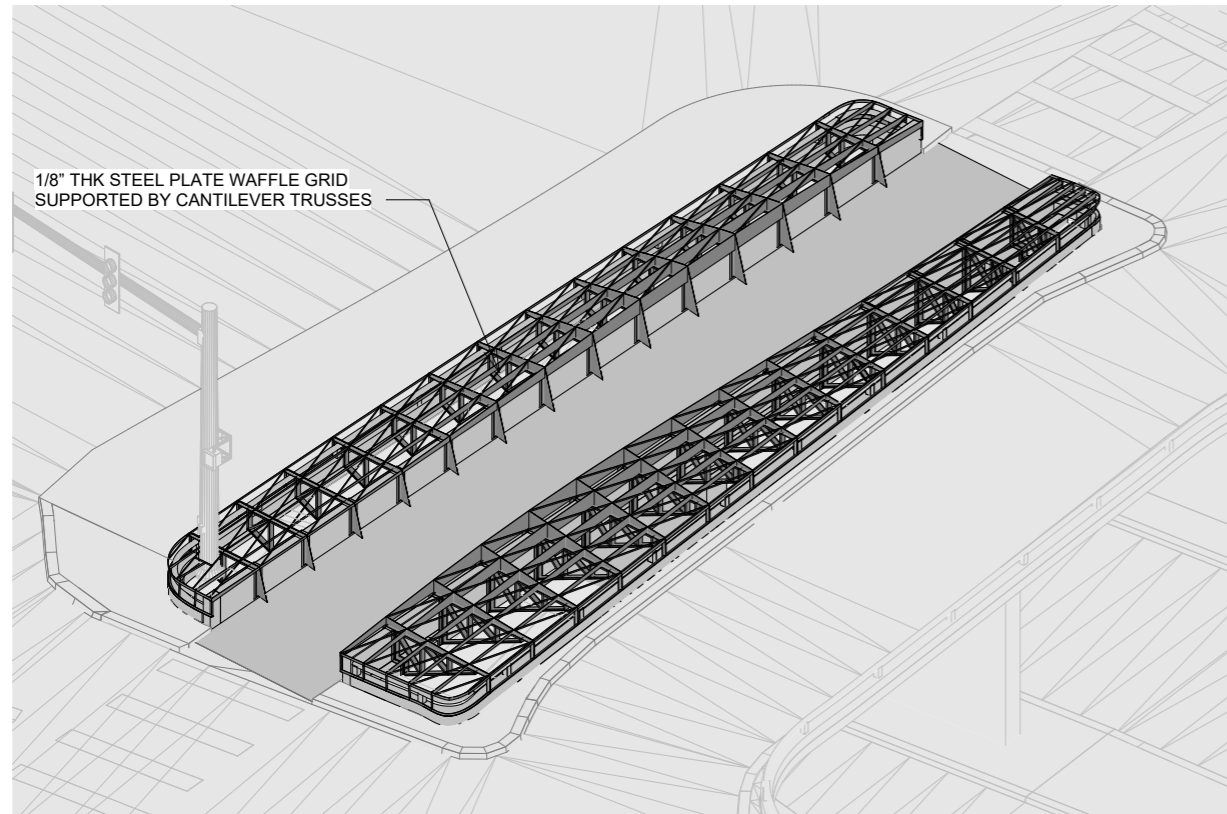
PATTERN



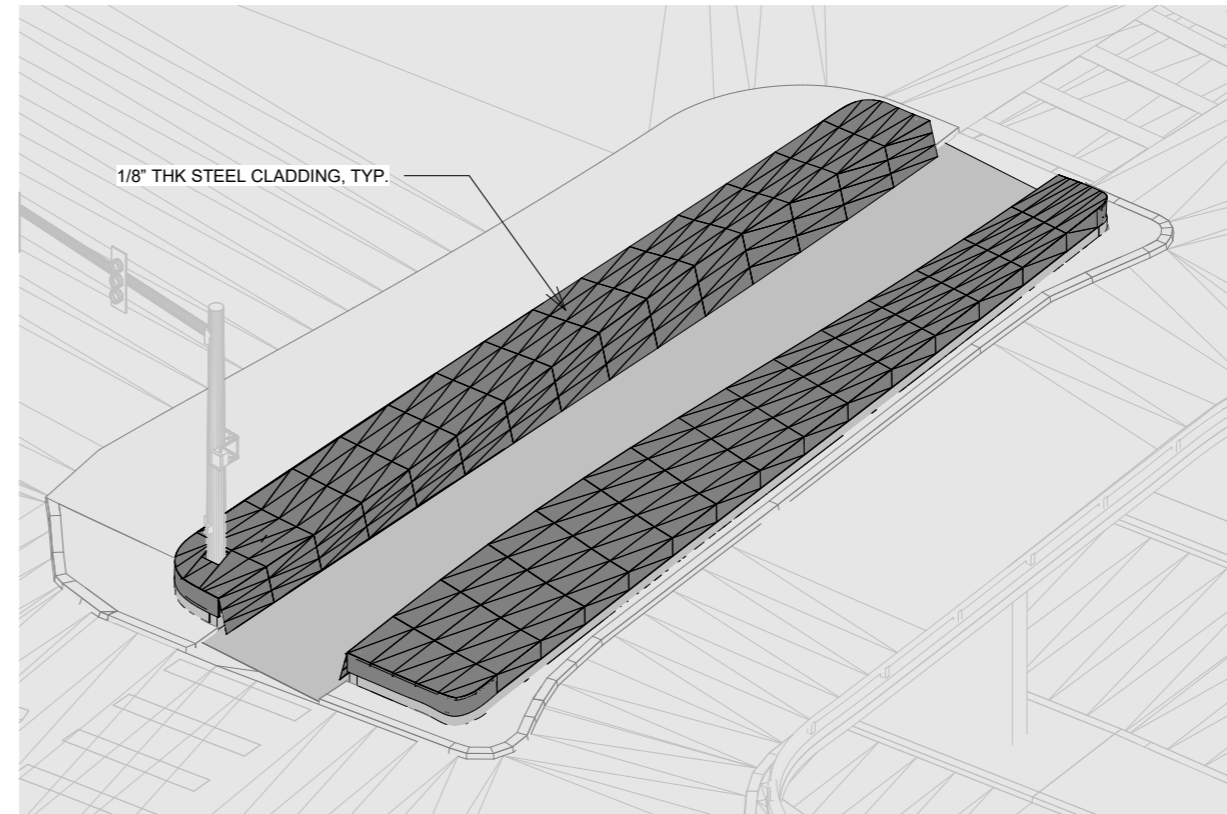
ENLARGEMENT PLAN - PEDESTRIAN BRIDGE

1 1/8" = 1'-0"

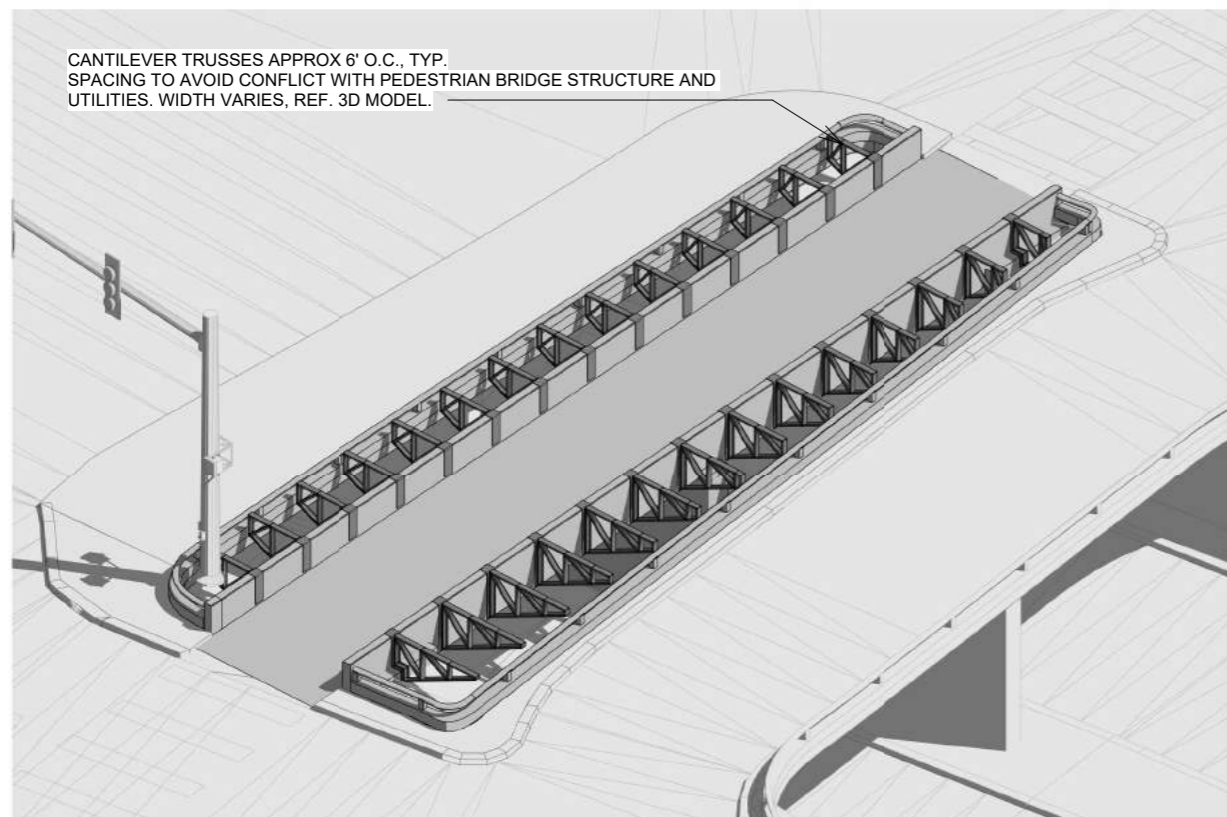
<p>TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079</p>	<p>THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002</p>
<p>SURVEYED BY: KJG & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 ENLARGEMENT PLAN - PEDESTRIAN BRIDGE</p>	
<p>A1.01</p>	
<p>WBS NUMBER N-127000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE</p>	
<p>CITY OF HOUSTON PM JADA HUANG</p>	
<p>SHEET NO. 318 OF 355</p>	



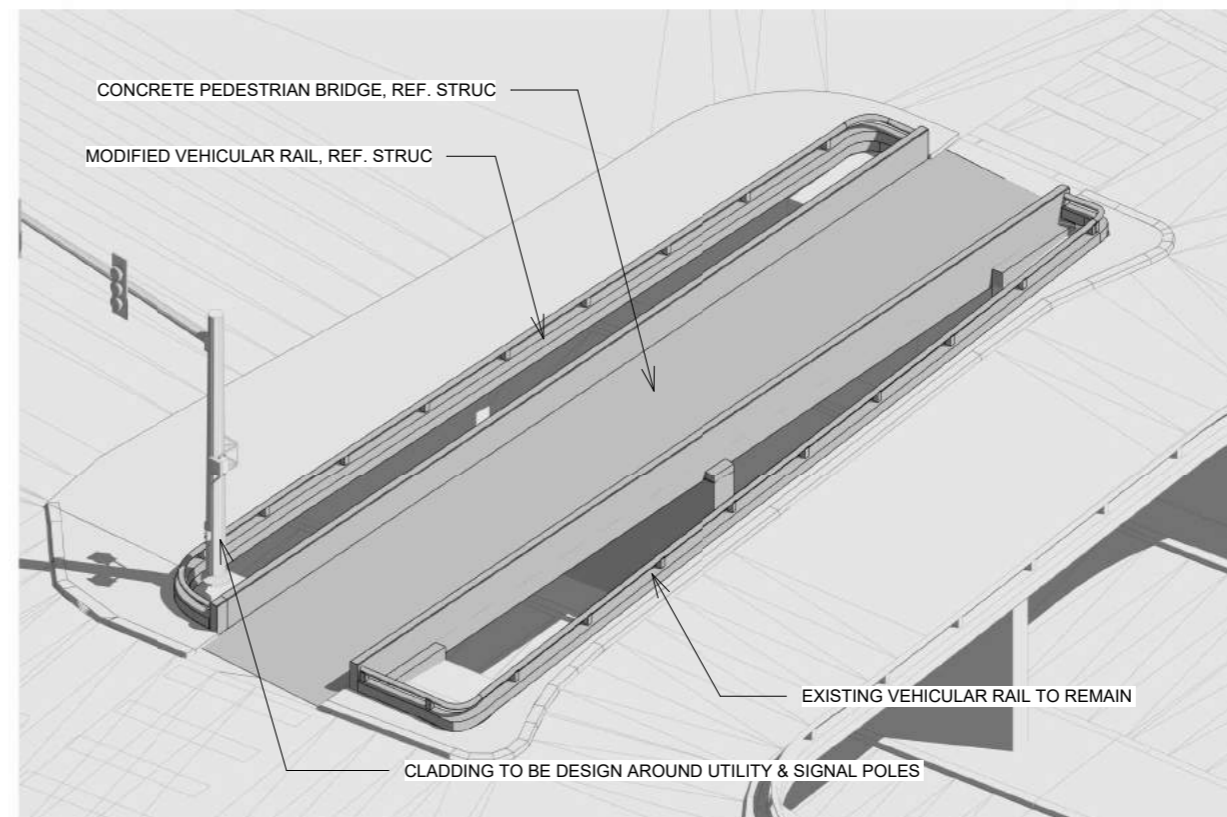
3 3D VIEW - TRUSSES & CLADDING FRAMING



4 3D VIEW - PROPOSED PEDESTRIAN BRIDGE



2 3D VIEW - TRUSSES

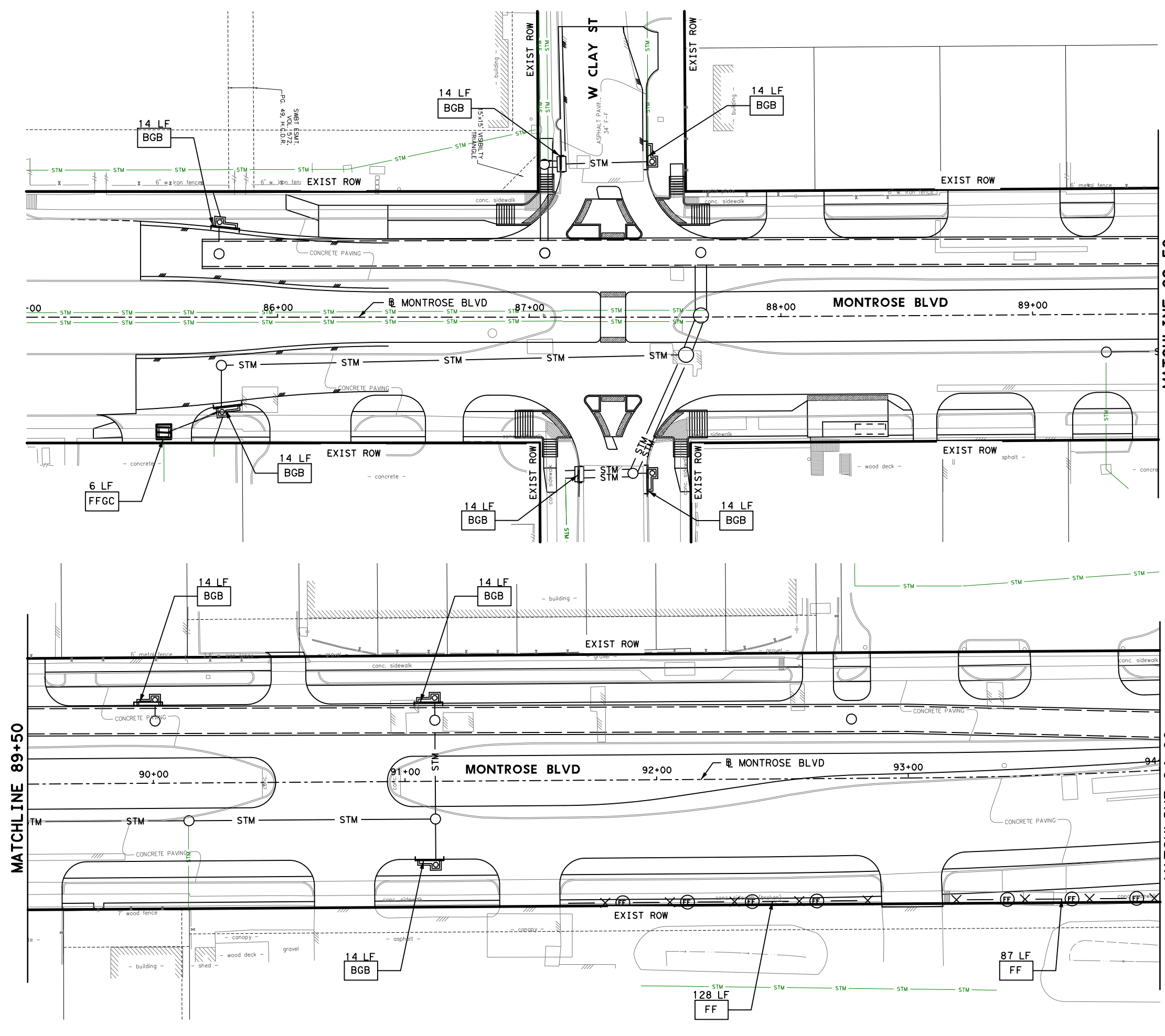


1 3D VIEW - BASE CONDITION - CONC. PED BRIDGE

NO.	DATE	REVISIONS

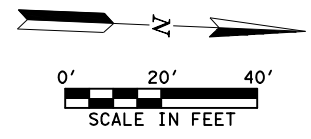
 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	 THE JONES ON MAIN 712 MAIN STREET, 6TH FLOOR HOUSTON, TEXAS 77002
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1 3D VIEW - PEDESTRIAN BRIDGE	
A1.02	
WBS NUMBER N-127000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 319 OF 355	

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LEGEND	
⊗ (FF) ⊗	FILTER FABRIC BARRIER
BGB	BAGGED GRAVEL BARRIER
FFGC	FILTER FABRIC GRATE COVER
---	PROP BOX STM SEWER
— STM —	PROP STM SEWER

- NOTE:
1. CONTRACTOR TO PLACE STABILIZED CONSTRUCTION ACCESS AS DIRECTED BY ENGINEER AT PRE-CONSTRUCTION MEETING.
 2. CONTRACTOR TO PLACE CONCRETE TRUCK WASH AREA AS DIRECTED BY THE ENGINEER AT PRE-CONSTRUCTION MEETING.
 3. BLOCK SOD SHALL BE PLACED BETWEEN SIDEWALK AND CURB AND BETWEEN SIDEWALK AND ROW.
 4. REFER TO STORM WATER POLLUTION PREVENTION PLAN DETAIL SHEETS FOR ADDITIONAL INFORMATION.
 5. REFER TO DRAINAGE P&P SHEETS FOR ADDITIONAL INFORMATION.



 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, #400 HOUSTON, TX 77079	INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> DAVID G. CHEANEY 125563 2/20/2024 100% SUBMITTAL GAUGE ENGINEERING <small>Texas Registered Engineering Firm F-20017</small>
SURVEYED BY: KUO & ASSOCIATES, INC.	

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

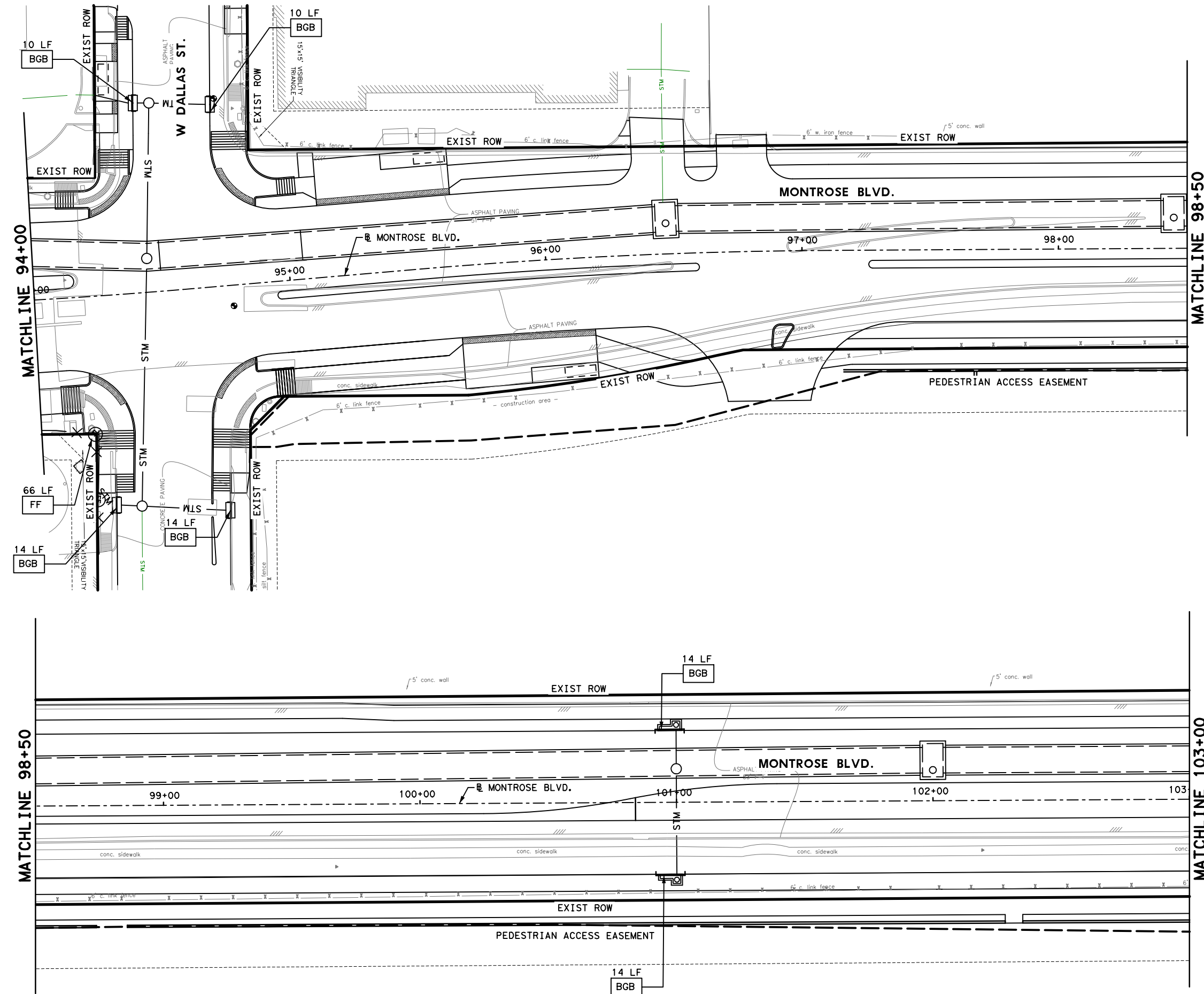
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
STORM WATER POLLUTION PREVENTION PLAN

SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-127000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 322 OF 355	

REVISIONS	DATE	APP.

Pen Table: MONTR0SE.tbl
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LEGEND

	FILTER FABRIC BARRIER
	BAGGED GRAVEL BARRIER
	FILTER FABRIC GRATE COVER
	PROP BOX STM SEWER
	PROP STM SEWER

- NOTE:**
- 1.CONTRACTOR TO PLACE STABILIZED CONSTRUCTION ACCESS AS DIRECTED BY ENGINEER AT PRE-CONSTRUCTION MEETING.
 - 2.CONTRACTOR TO PLACE CONCRETE TRUCK WASH AREA AS DIRECTED BY THE ENGINEER AT PRE-CONSTRUCTION MEETING.
 - 3.BLOCK SOD SHALL BE PLACED BETWEEN SIDEWALK AND CURB AND BETWEEN SIDEWALK AND ROW.
 - 4.REFER TO STORM WATER POLLUTION PREVENTION PLAN DETAIL SHEETS FOR ADDITIONAL INFORMATION.
 - 5.REFER TO DRAINAGE P&P SHEETS FOR ADDITIONAL INFORMATION.



MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

Gauge ENGINEERING
 TEXAS PE FIRM REG.# 20017
 11750 KATY FREEWAY, #400
 HOUSTON, TX 77079

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 125563
 2/20/2024

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 Texas Registered Engineering Firm F-20117

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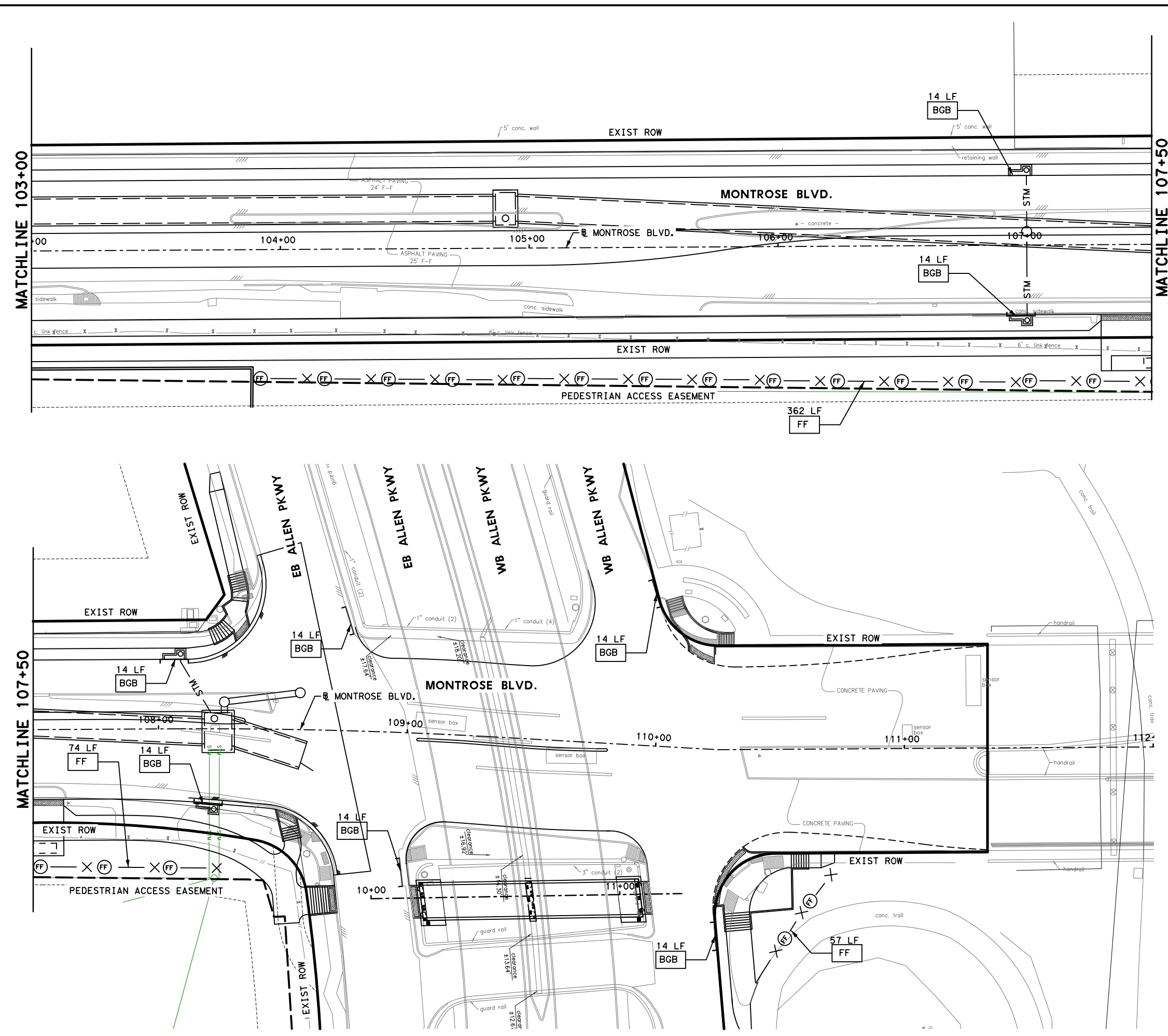
CITY OF HOUSTON
 HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
STORM WATER POLLUTION PREVENTION PLAN

SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 323 OF 355	

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LEGEND

⊗ (FF) ⊗	FILTER FABRIC BARRIER
BGB	BAGGED GRAVEL BARRIER
FFGC	FILTER FABRIC GRATE COVER
---	PROP BOX STM SEWER
---	PROP STM SEWER

- NOTE:**
1. CONTRACTOR TO PLACE STABILIZED CONSTRUCTION ACCESS AS DIRECTED BY ENGINEER AT PRE-CONSTRUCTION MEETING.
 2. CONTRACTOR TO PLACE CONCRETE TRUCK WASH AREA AS DIRECTED BY THE ENGINEER AT PRE-CONSTRUCTION MEETING.
 3. BLOCK SOD SHALL BE PLACED BETWEEN SIDEWALK AND CURB AND BETWEEN SIDEWALK AND ROW.
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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

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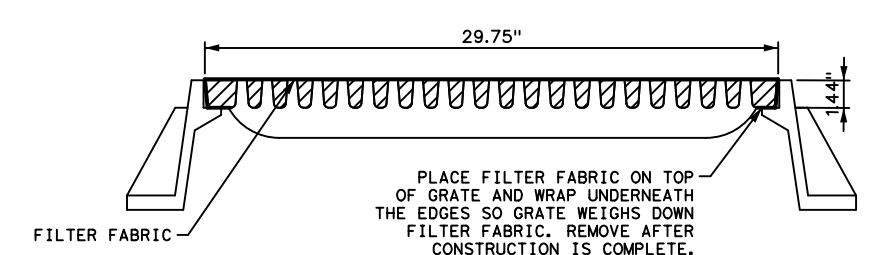
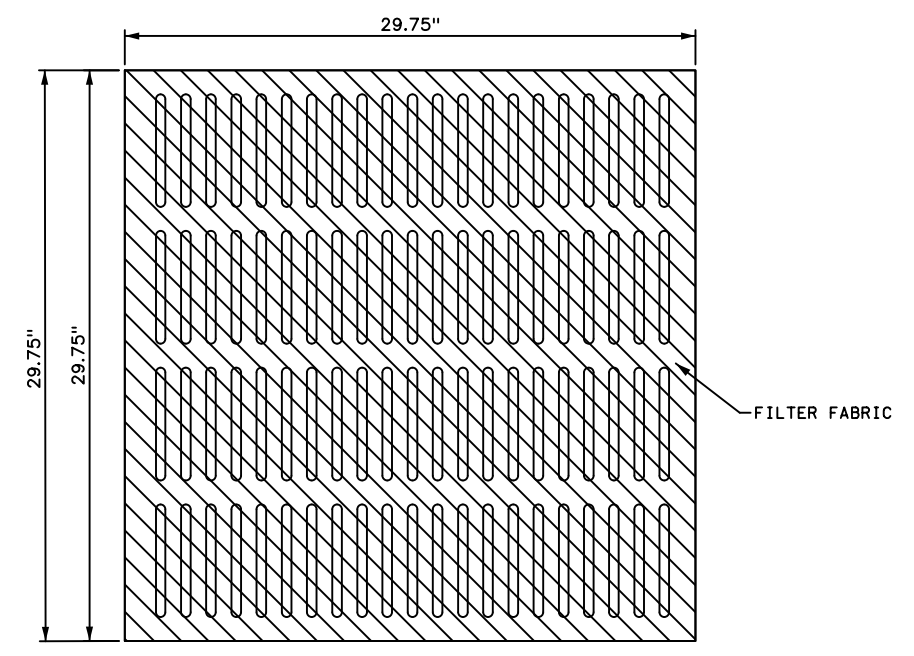
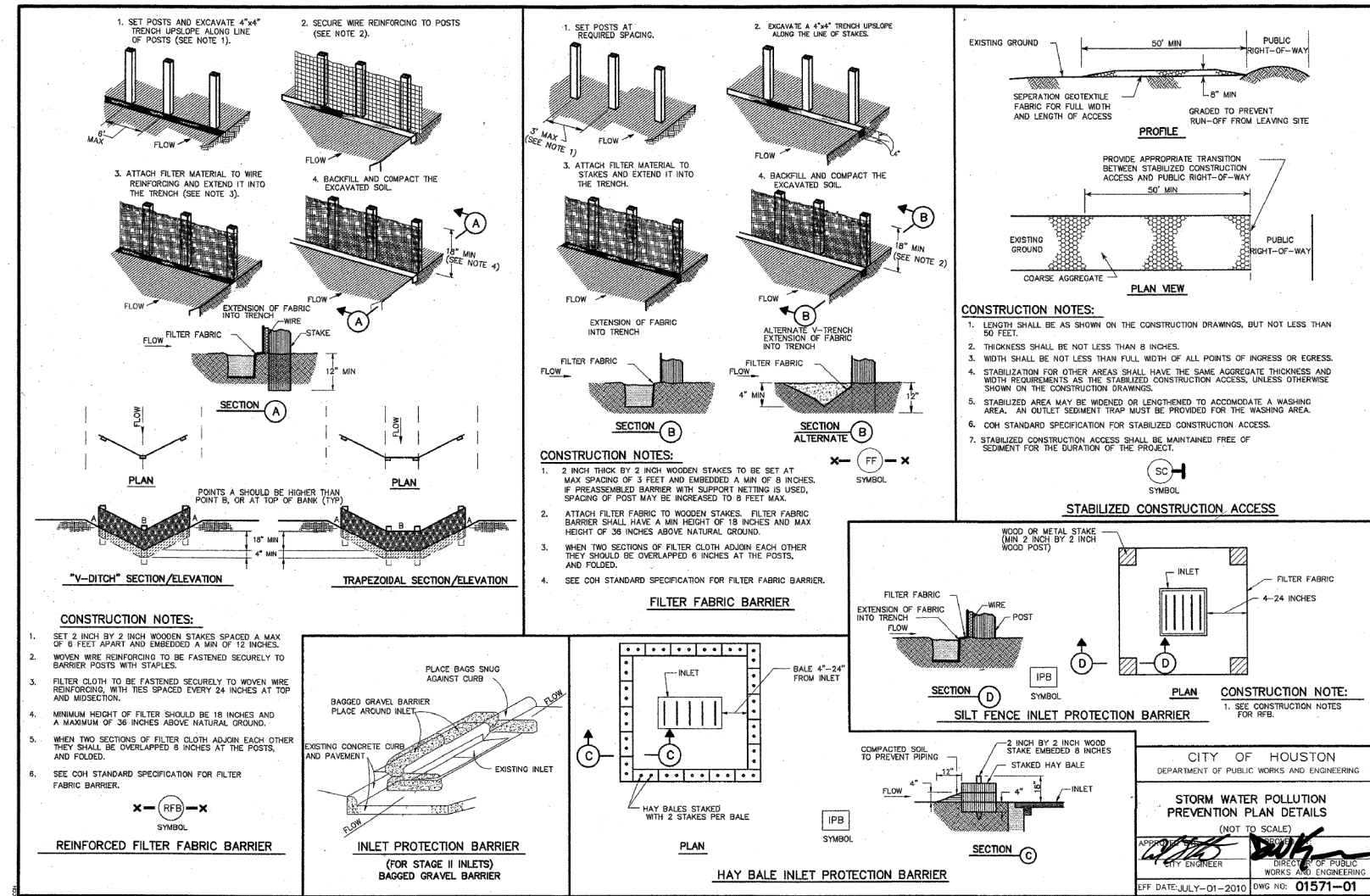
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

STORM WATER POLLUTION PREVENTION PLAN

SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 324 OF 355	

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MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1
STORM WATER POLLUTION PREVENTION PLAN DETAILS

SHEET 1 OF 1

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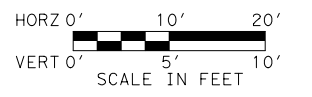
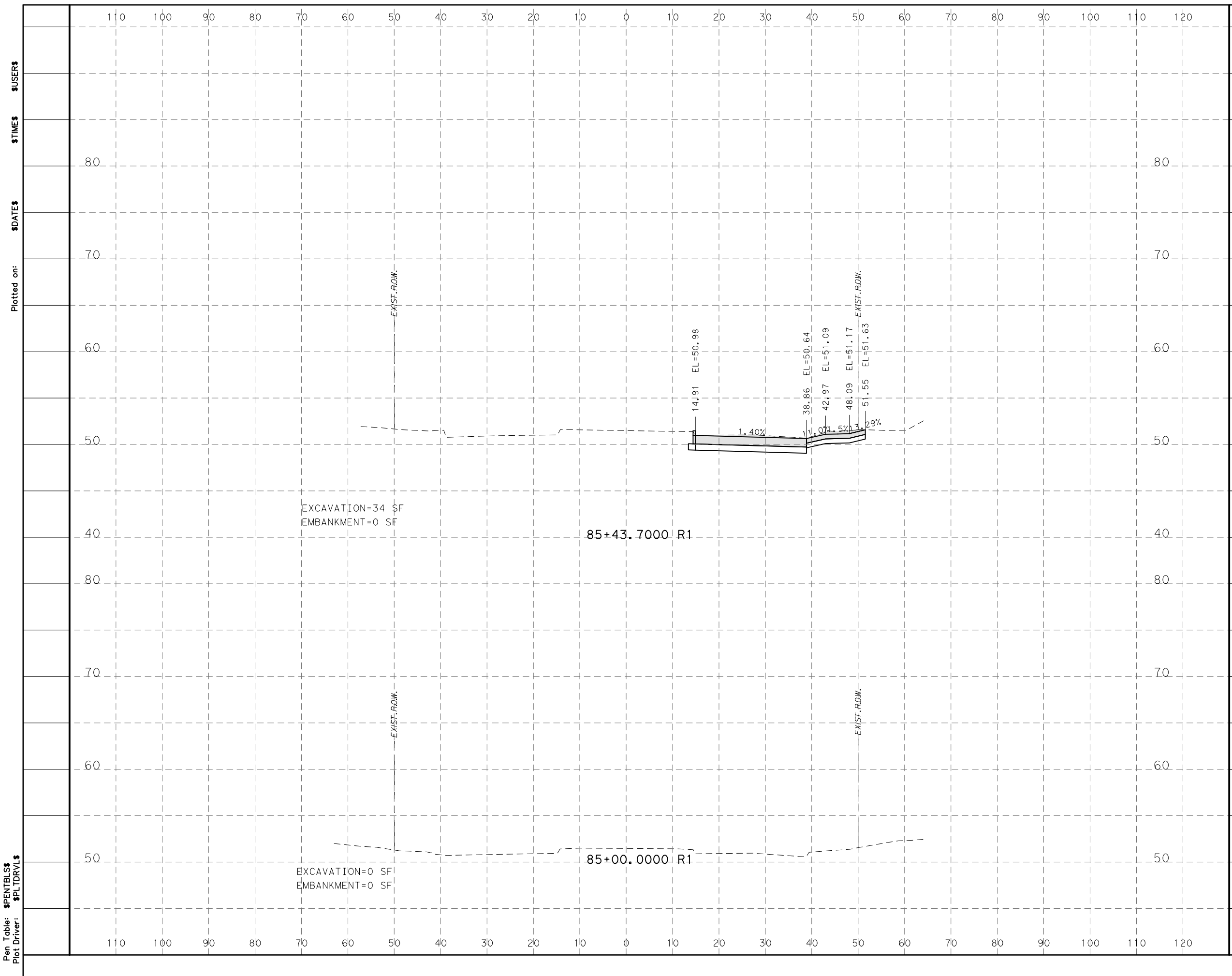
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DRAWING SCALE
 AS NOTED

CITY OF HOUSTON PM
 JUADA HUANG

SHEET NO 325 OF 355

APP.	
REVISIONS	
No.	DATE



LEGEND

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EMBANKMENT=XX SF	[Hatched Box]

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$
Plot Driver: \$PLTDRVL\$



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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 1 OF 25

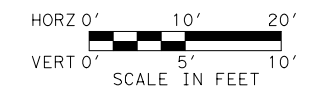
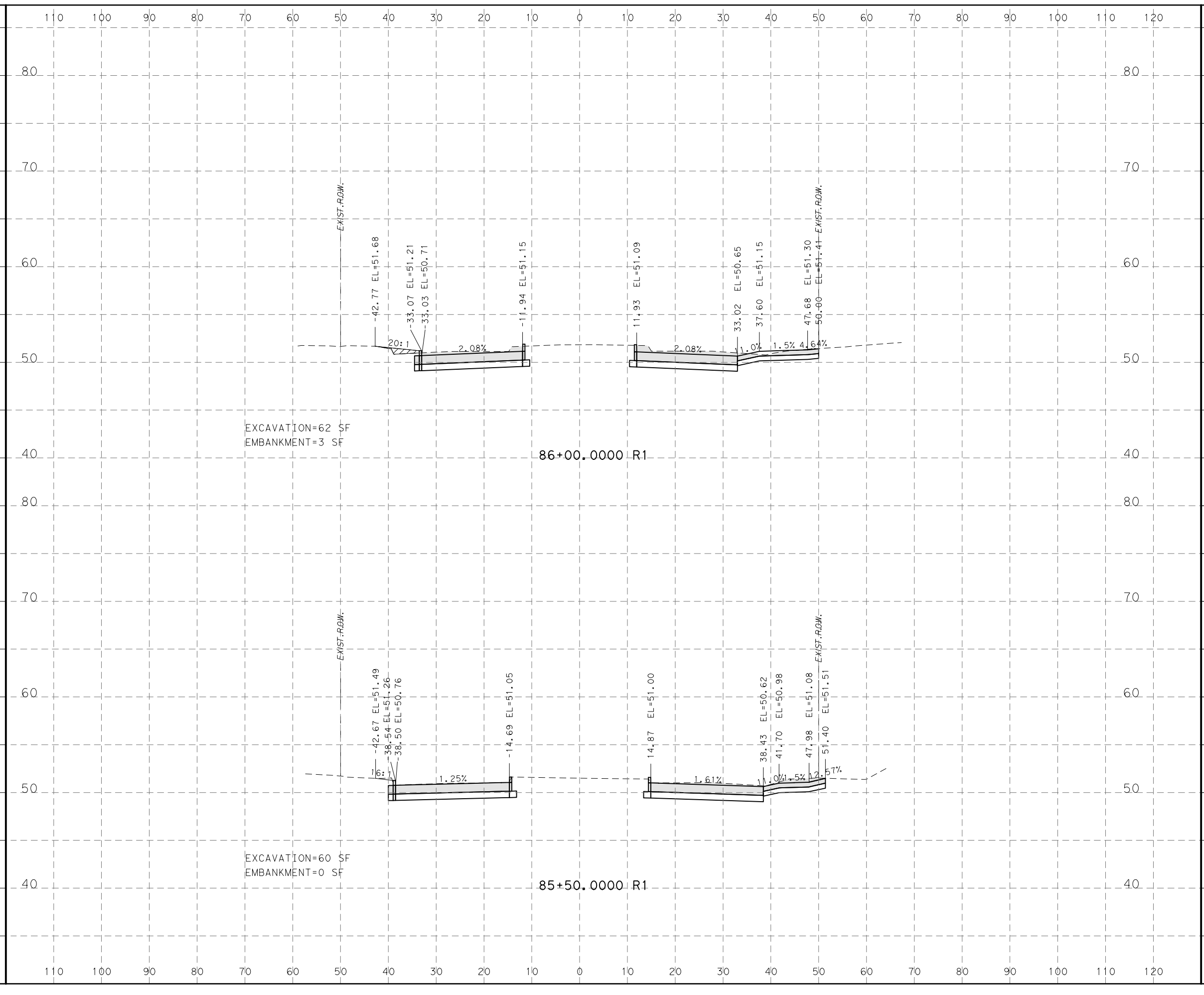
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AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 326 OF 355	

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\$TIME\$
\$USER\$



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EMBANKMENT=XX SF [Hatched Box]



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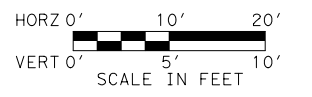
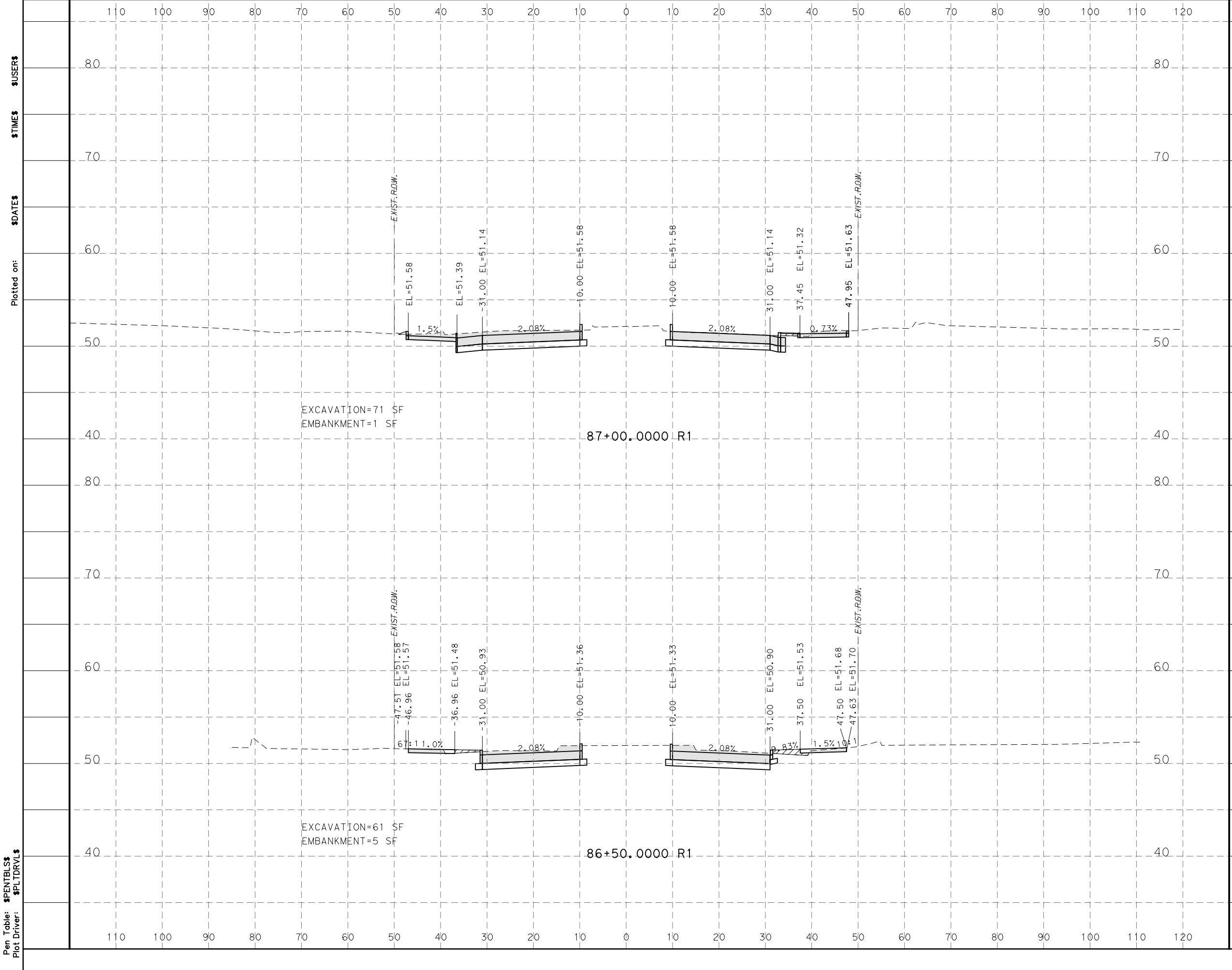
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 2 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET No. 327 OF 355	

Design Filename: \$FILEL\$



LEGEND

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EMBANKMENT=XX SF

EXCAVATION=71 SF
EMBANKMENT=1 SF

87+00.0000 R1

EXCAVATION=61 SF
EMBANKMENT=5 SF

86+50.0000 R1



Gauge
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 3 OF 25

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JADA HUANG	
SHEET NO 328 OF 355	

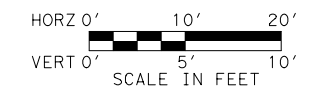
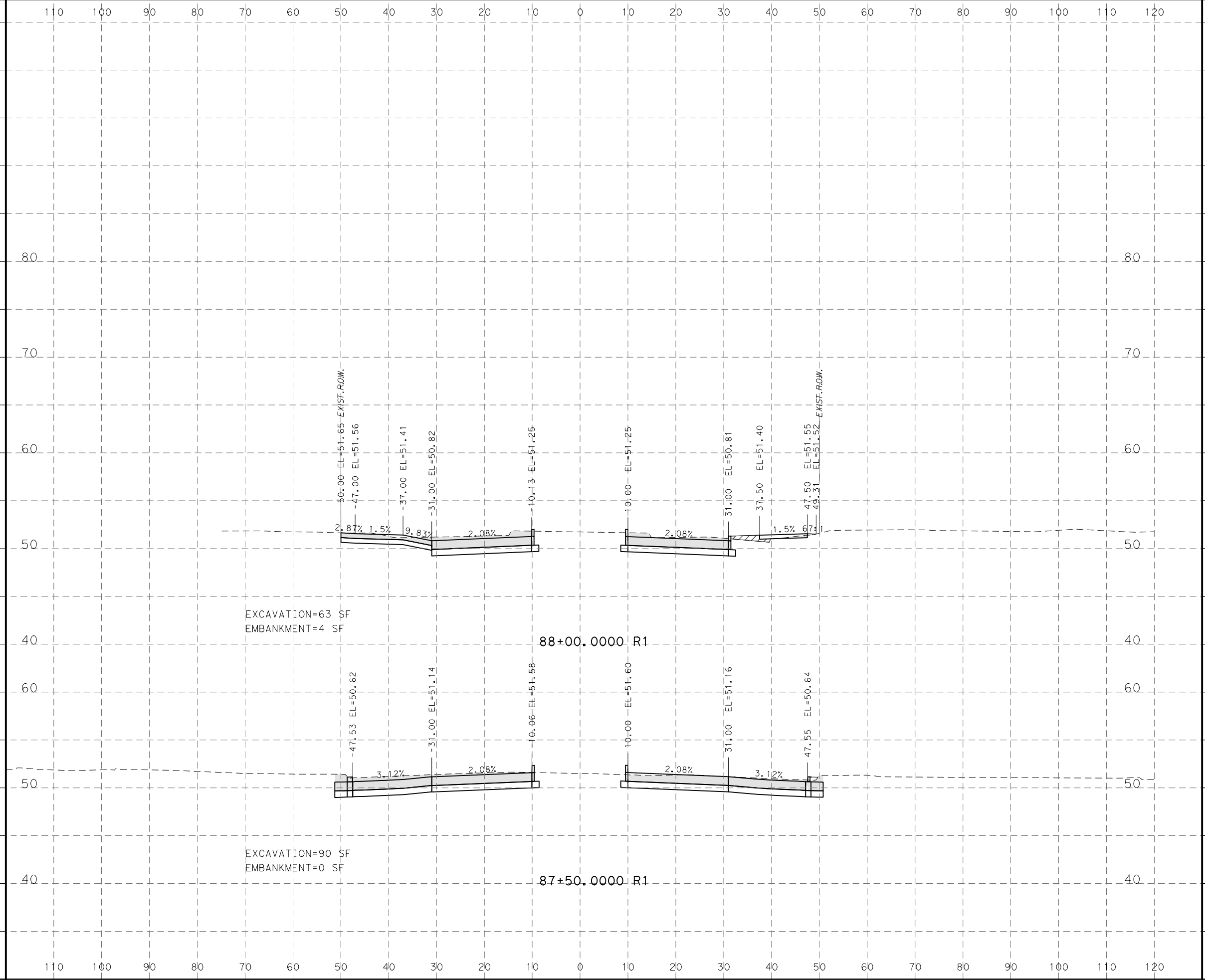
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LEGEND
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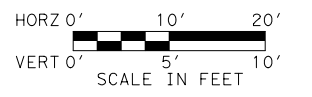
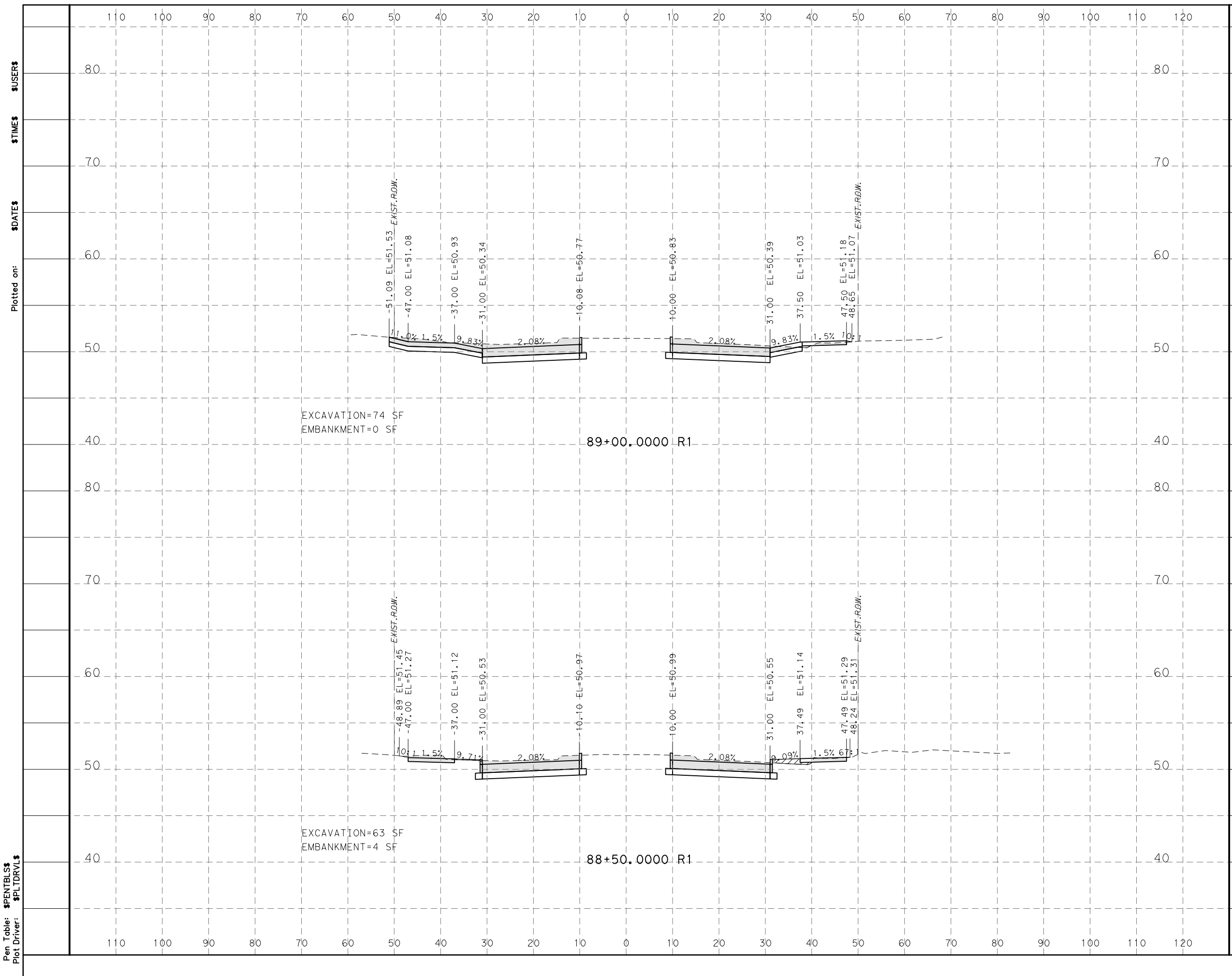
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 4 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 329 OF 355	

Design Filename: \$FILE\$



LEGEND

EXCAVATION=XX SF

EMBANKMENT=XX SF

EXCAVATION=74 SF
EMBANKMENT=0 SF

89+00.0000 R1

EXCAVATION=63 SF
EMBANKMENT=4 SF

88+50.0000 R1



Gauge
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

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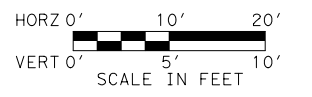
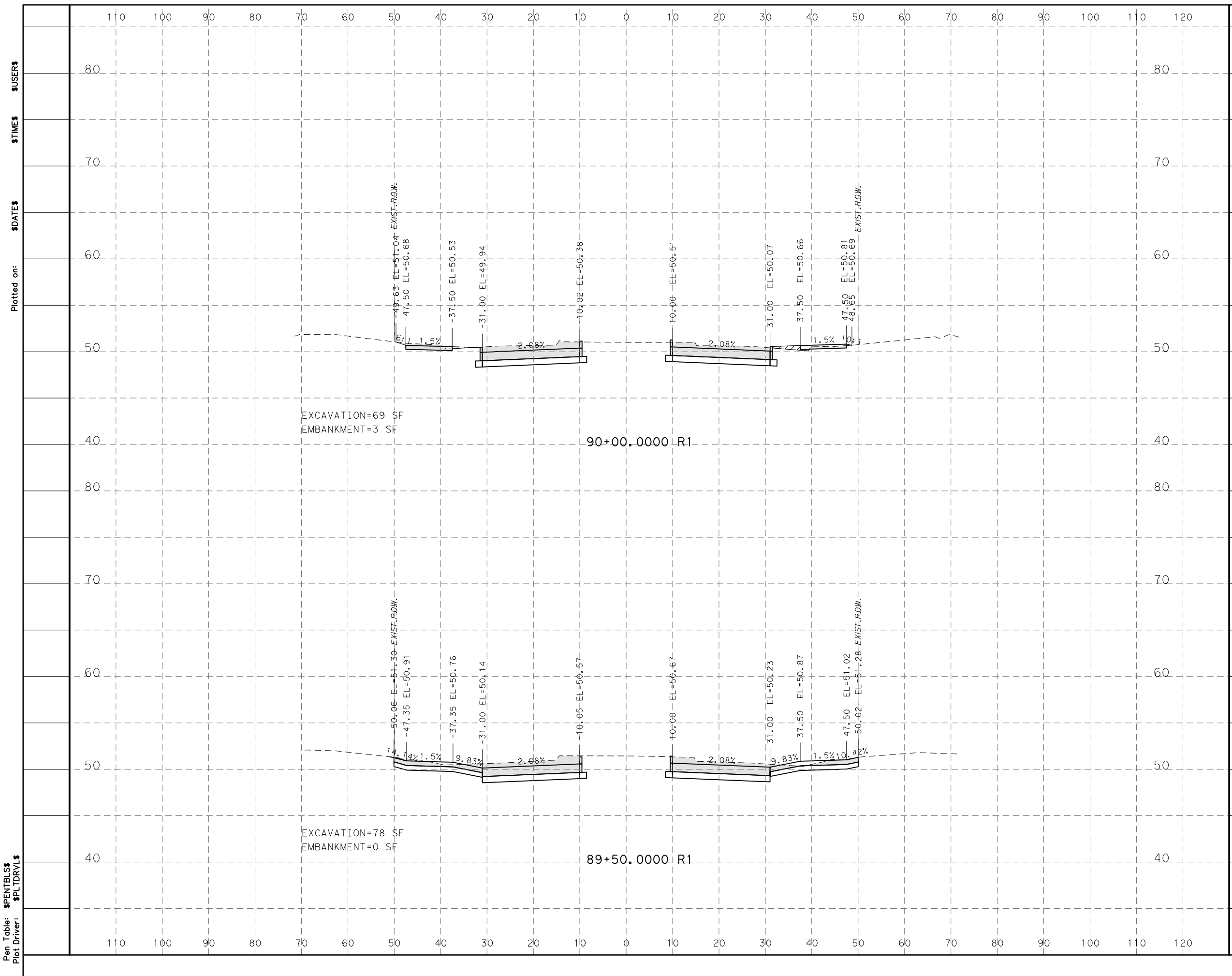
SHEET 5 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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CITY OF HOUSTON PM	
JADA HUANG	
SHEET NO 330 OF 355	

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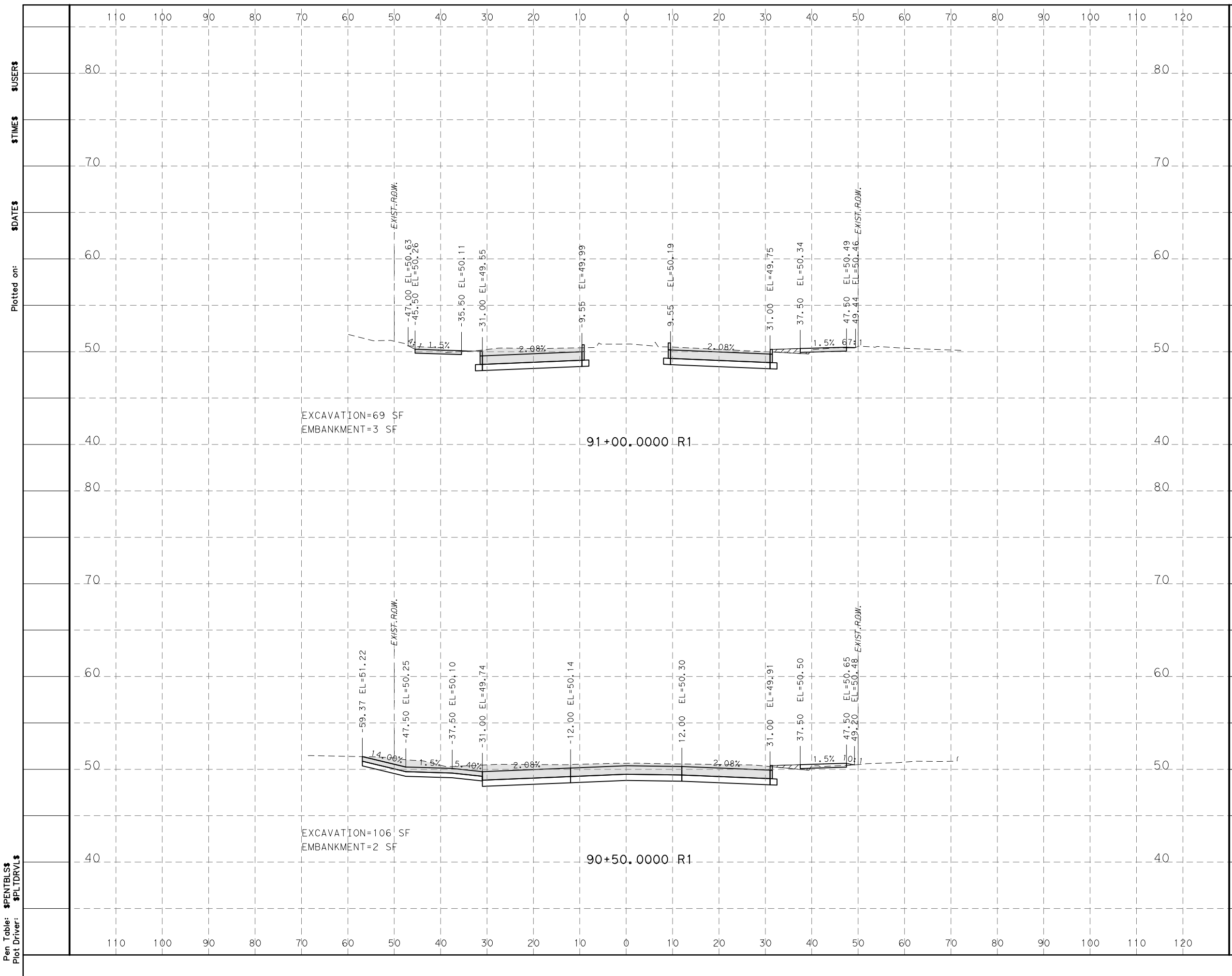
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 6 OF 25

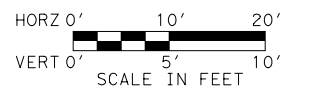
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CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 331 OF 355	

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LEGEND
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 EMBANKMENT=XX SF [Hatched Box]

EXCAVATION=69 SF
 EMBANKMENT=3 SF

91+00.0000 R1

EXCAVATION=106 SF
 EMBANKMENT=2 SF

90+50.0000 R1



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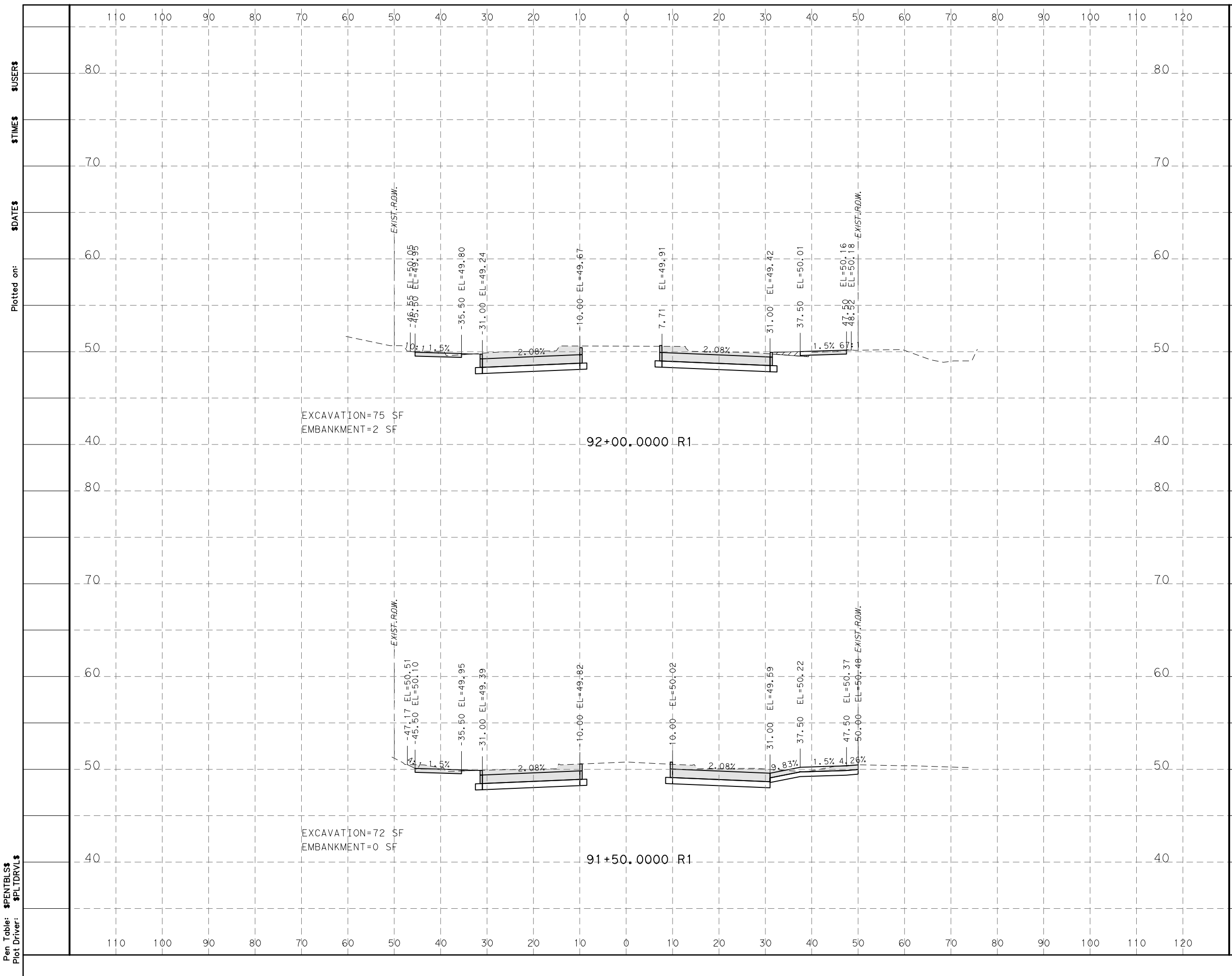
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

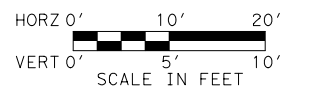
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JIADA HUANG	
SHEET NO 332 OF 355	

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LEGEND
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 EMBANKMENT=2 SF

92+00.0000 R1

EXCAVATION=72 SF
 EMBANKMENT=0 SF

91+50.0000 R1



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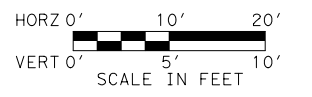
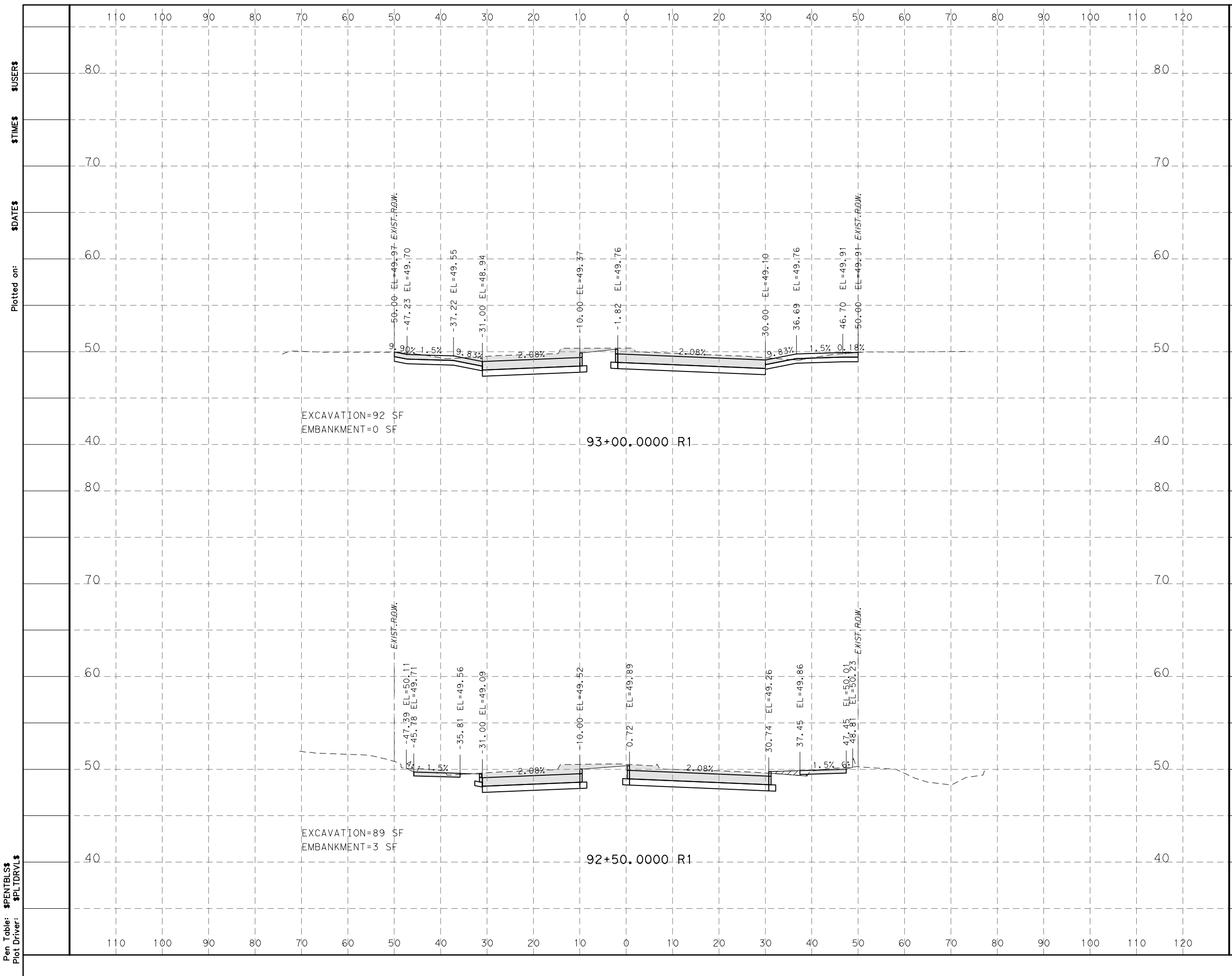
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 8 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
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JIADA HUANG	
SHEET NO 333 OF 355	

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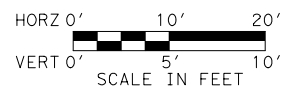
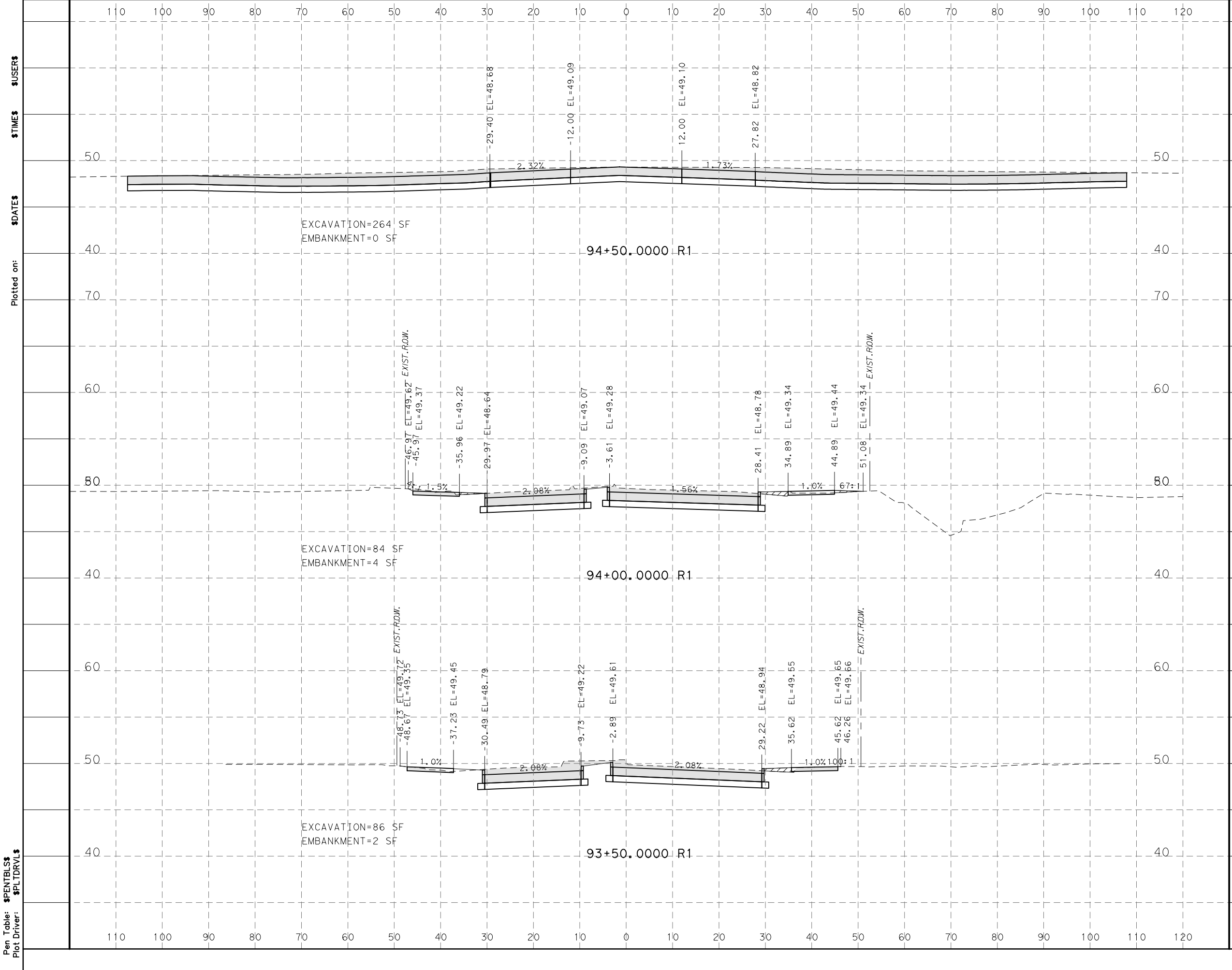
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MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
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SHEET 9 OF 25	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO 334 OF 355	

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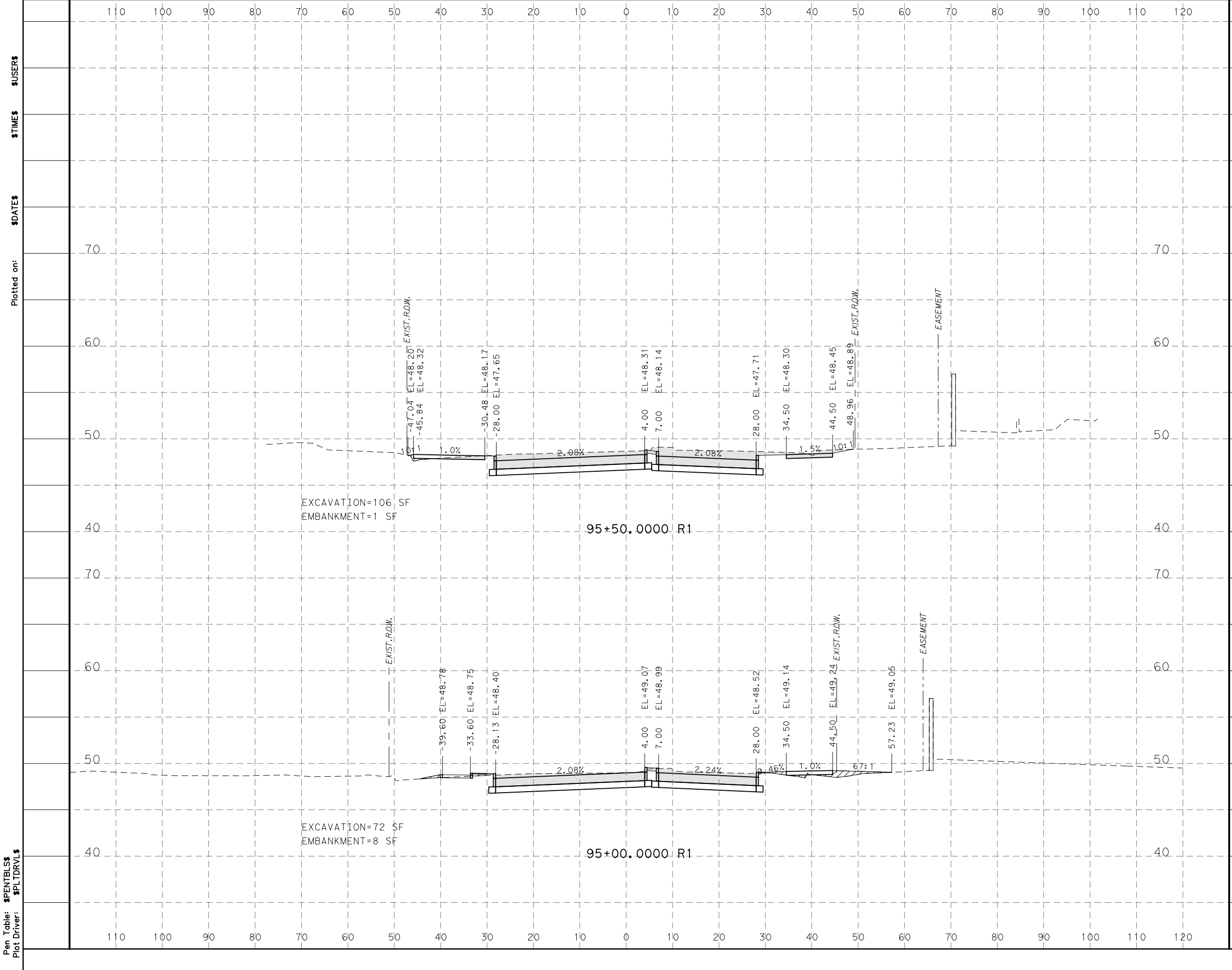
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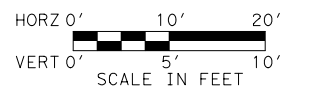
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SHEET 10 OF 25	
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DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 335 OF 355	

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LEGEND

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EMBANKMENT=XX SF [Hatched Box]



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125593
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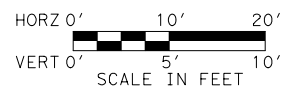
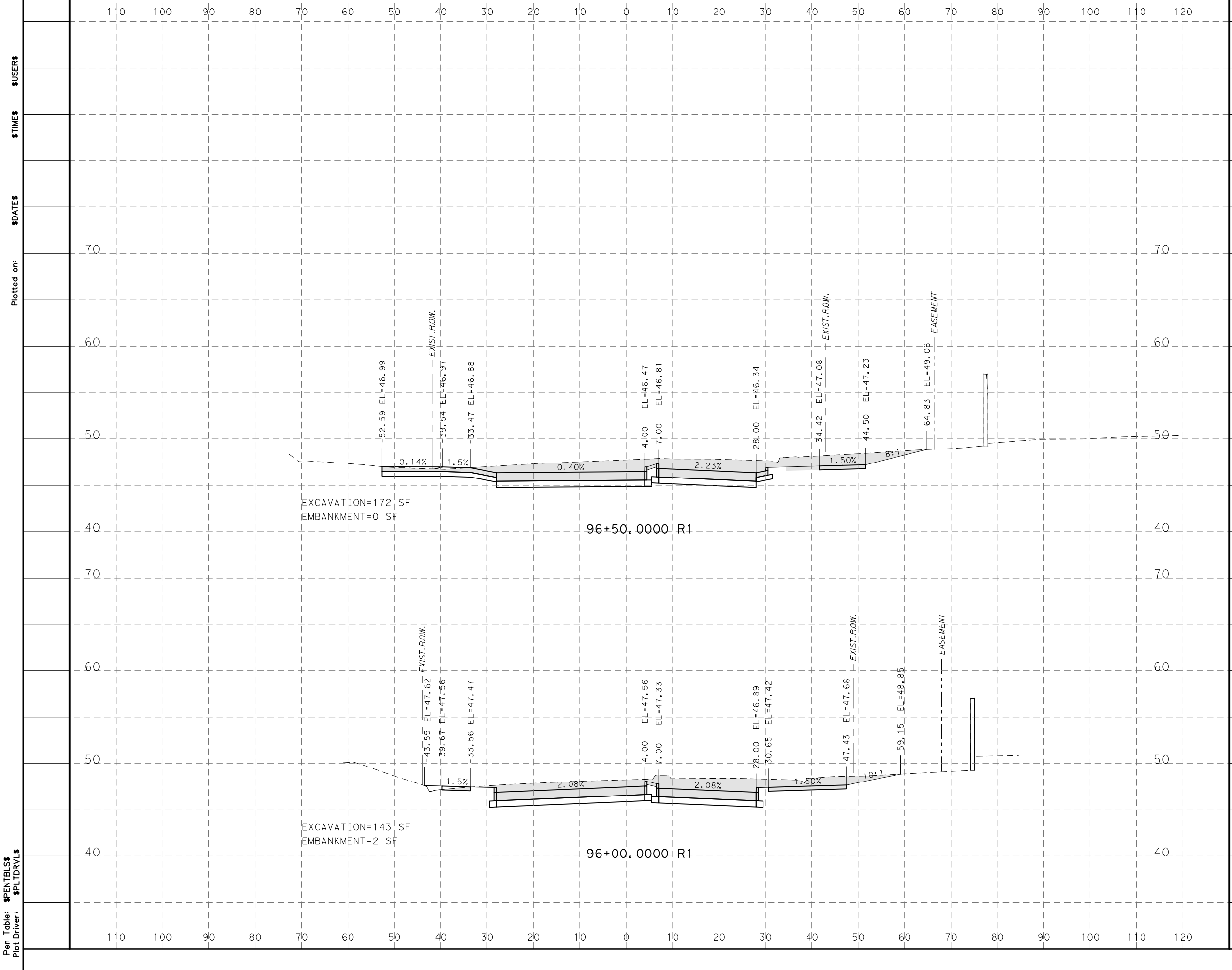
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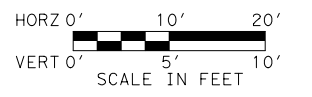
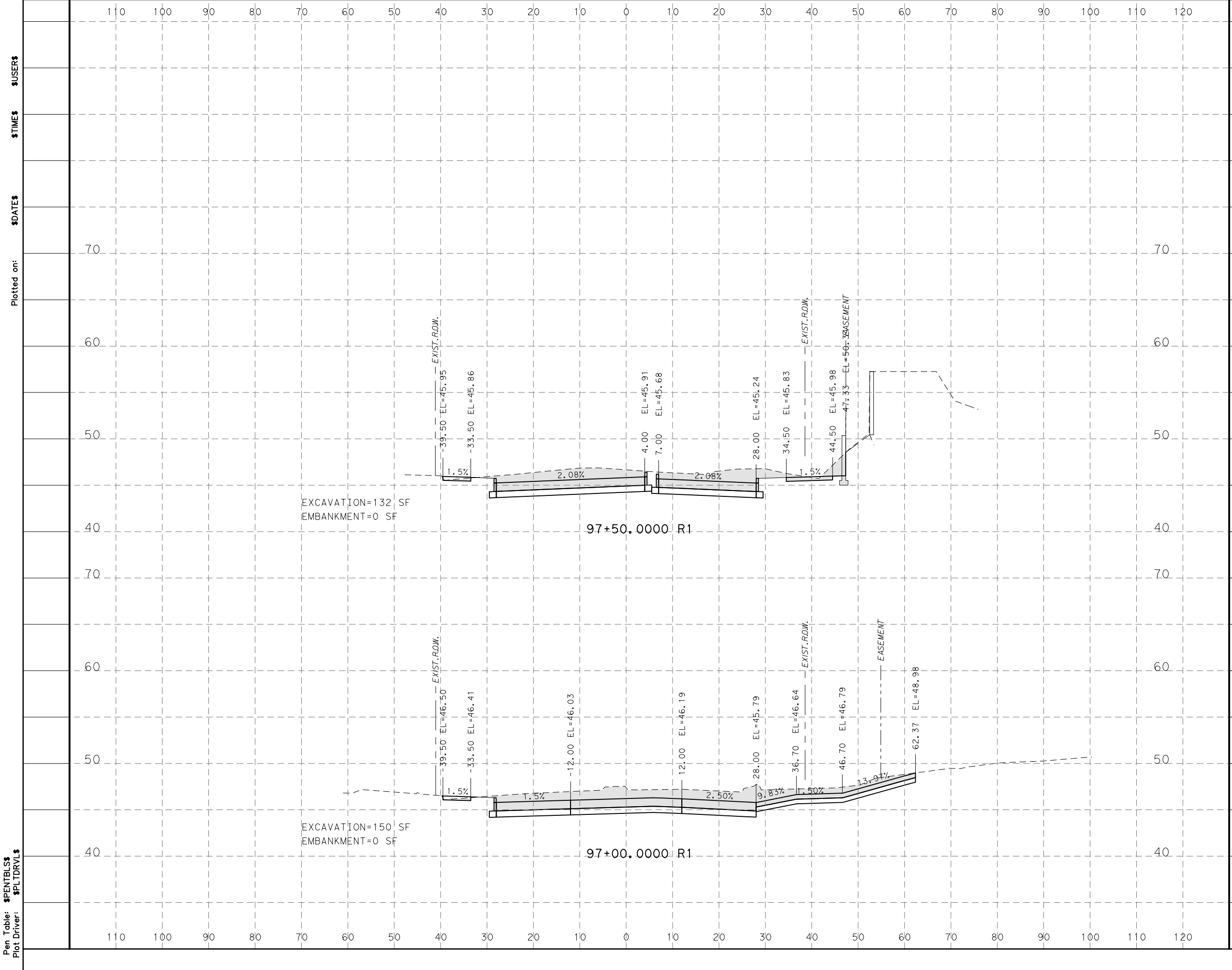
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Pen Table: \$PENTBL\$ \$PLTDRVL\$

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27	
Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, SUITE 400 HOUSTON, TX 77079	100% INTERIM REVIEW ONLY Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of: <u>DAVID S. GREANEY</u> 125593 SDATES 100% SUBMITTAL GAUGE ENGINEERING Texas Registered Engineer Firm F-20017
SURVEYED BY: KUO & ASSOCIATES, INC.	
CITY OF HOUSTON HOUSTON PUBLIC WORKS	
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1	
CROSS SECTIONS	
SHEET 12 OF 25	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET No.337 OF 355	

Design Filename: 9611L1\$



LEGEND

EXCAVATION=XX SF

EMBANKMENT=XX SF

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$ \$PLTDRVL\$

<p>Gauge ENGINEERING TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, SUITE 400 HOUSTON, TX 77079</p>	<p>100% INTERIM REVIEW ONLY</p> <p><small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small></p> <p>DAVID S. GREANEY 125593 SDATES</p> <p>100% SUBMITTAL</p> <p>GAUGE ENGINEERING Texas Registered Engineering Firm F-20017</p>
<p>SURVEYED BY: KUO & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1</p>	
<p>CROSS SECTIONS</p>	
<p>SHEET 13 OF 25</p>	
<p>WBS NUMBER N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE AS NOTED</p>	
<p>CITY OF HOUSTON PM JIADA HUANG</p>	
<p>SHEET NO 338 OF 355</p>	

Design Filename: 9711L\$

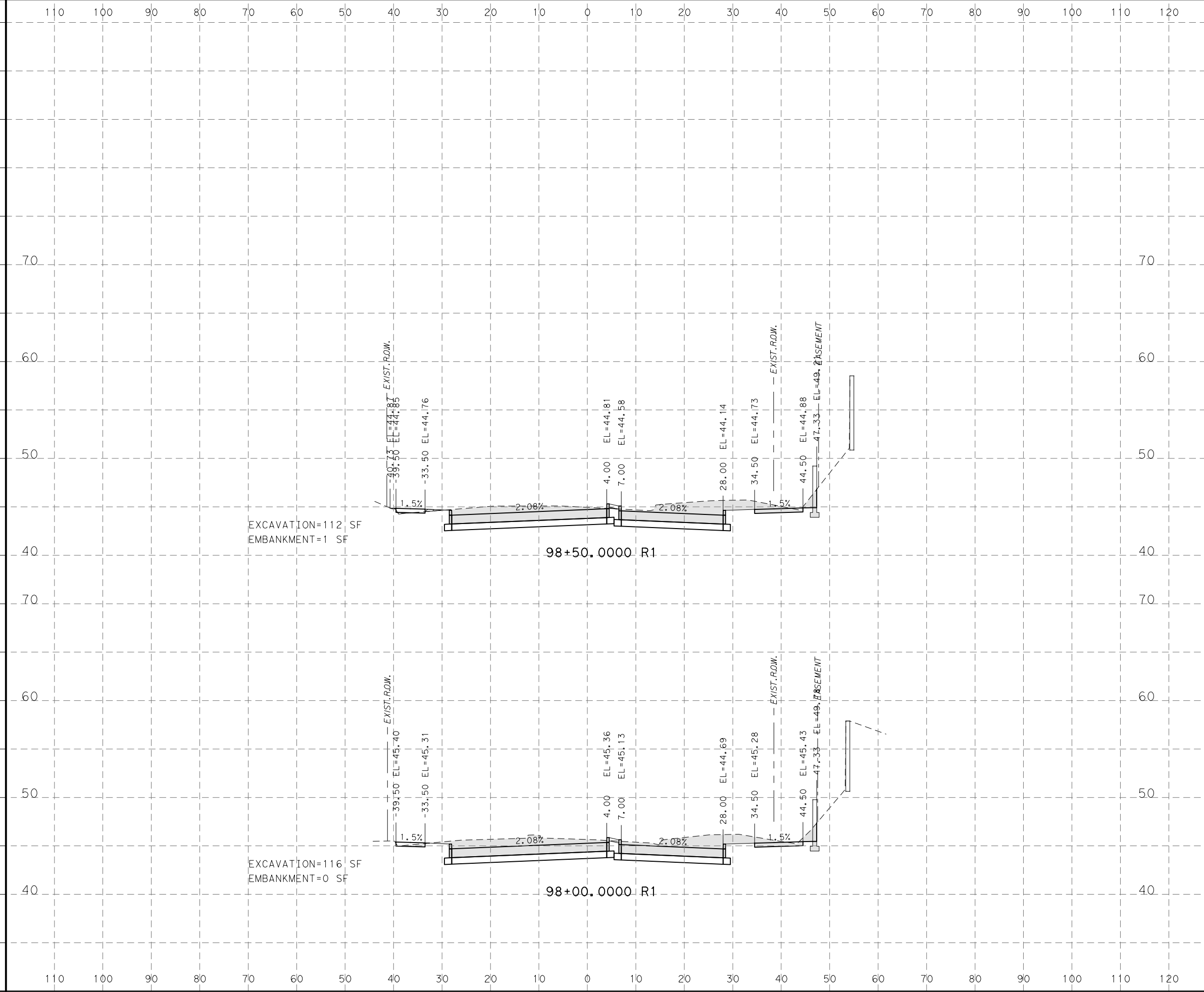
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Plot Driver: \$PLTDRL\$

Plotted on:

\$TIMES \$

\$DATE\$

\$USER\$



LEGEND

EXCAVATION=XX SF [Symbol]

EMBANKMENT=XX SF [Symbol]



Gauge
ENGINEERING
TEXAS PE FIRM REG. # 20017
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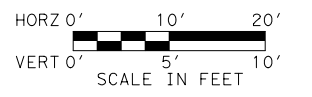
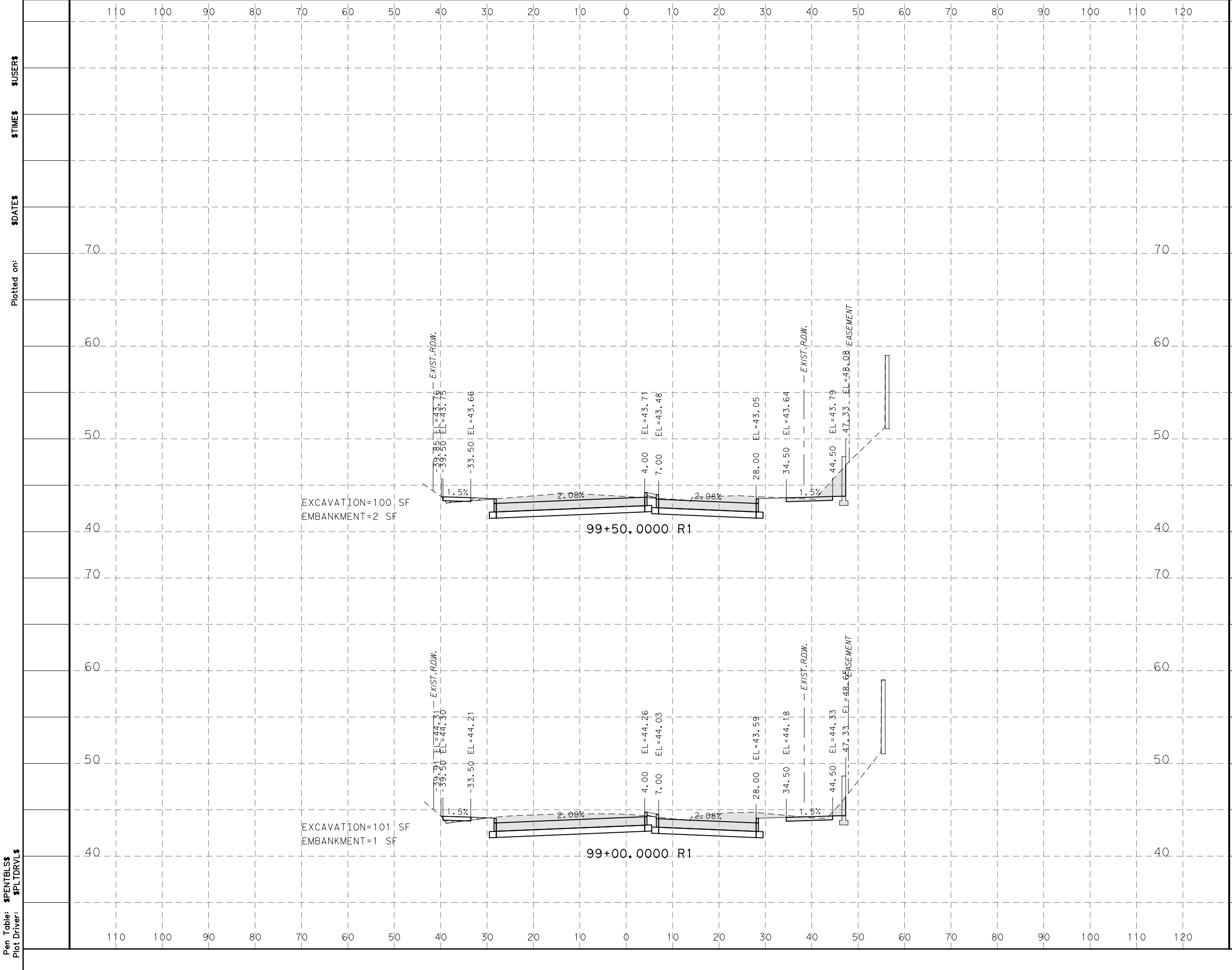
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 14 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET No.339 OF 355	

Design Filename: \$FILEL\$



LEGEND

EXCAVATION=XX SF

EMBANKMENT=XX SF

Plotted on: \$DATE\$ \$TIMES\$ \$USER\$

Pen Table: \$PENTBL\$ \$PLTDRVL\$ Plot Driver:



Gauge
ENGINEERING
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 15 OF 25

WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO	340 OF 355

FOR CITY OF HOUSTON USE ONLY

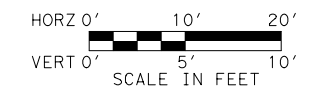
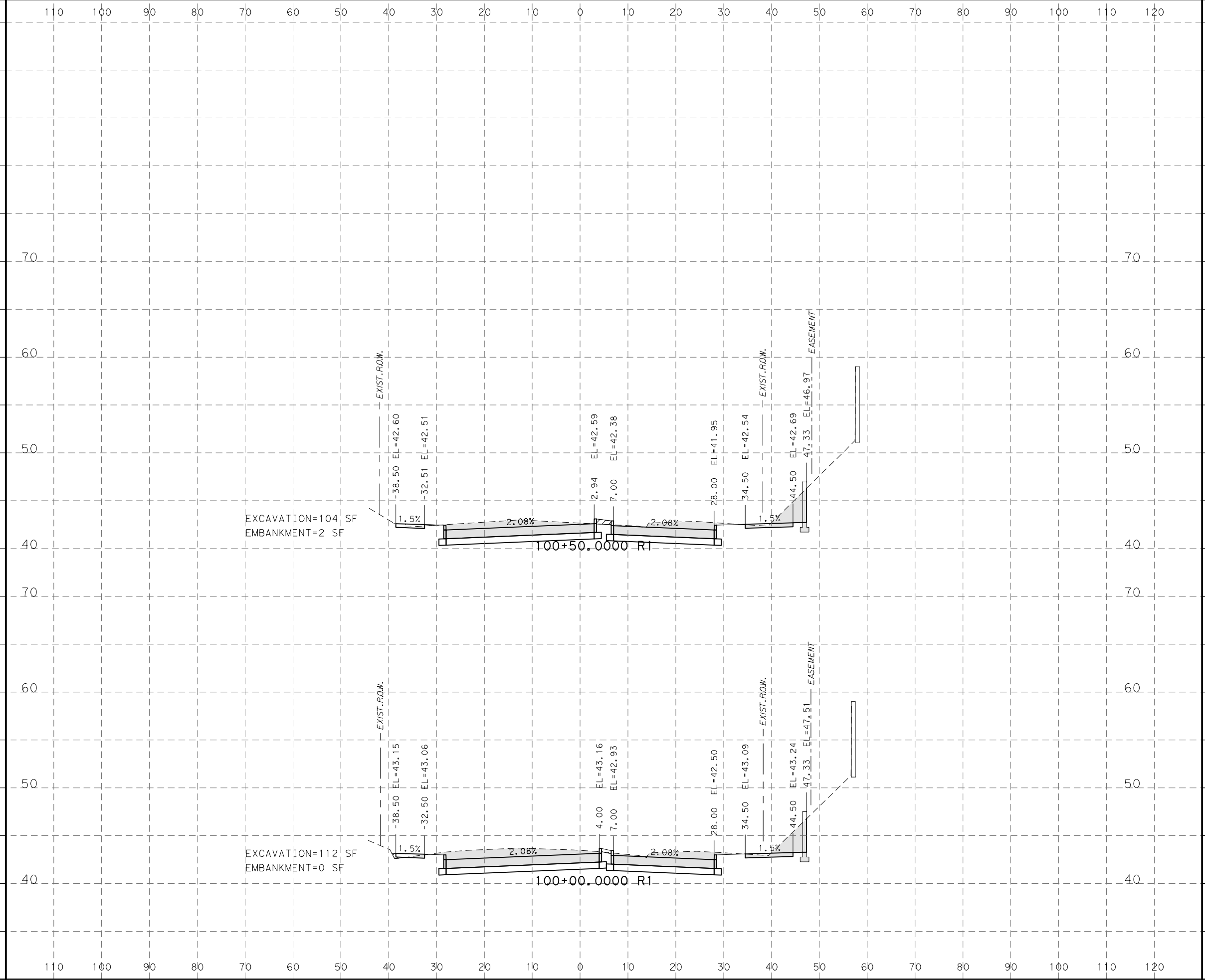
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Pen Table: \$PENTBL\$
 Plot Driver: \$PLTDRVL\$

Plotted on:

\$TIMES\$
 \$USER\$

\$DATE\$



LEGEND
 EXCAVATION=XX SF [shaded box]
 EMBANKMENT=XX SF [hatched box]



Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
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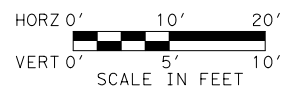
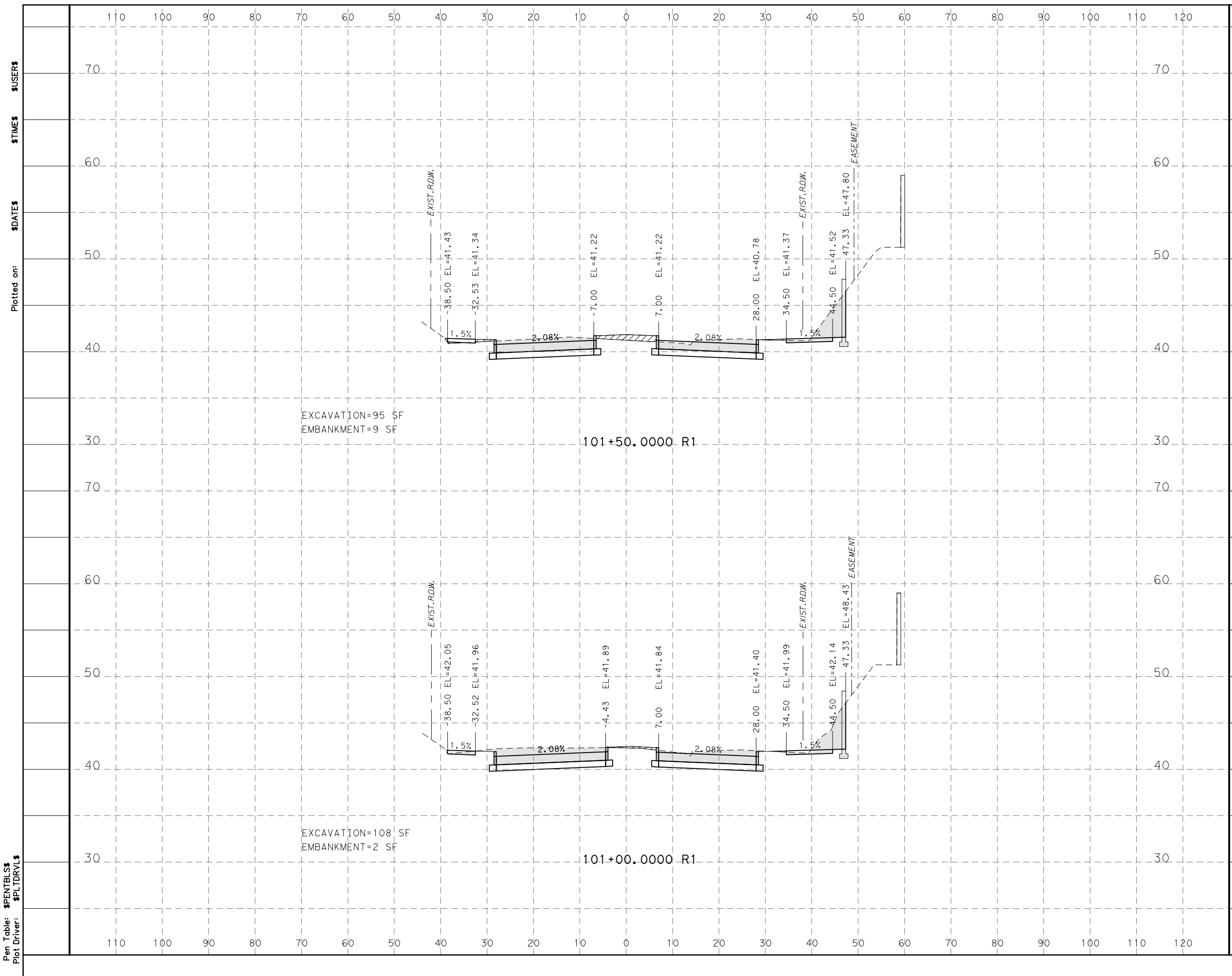
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 16 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO.341 OF 355	

Design Filename: \$FILEL\$



LEGEND

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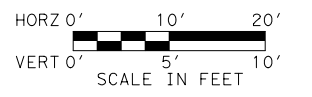
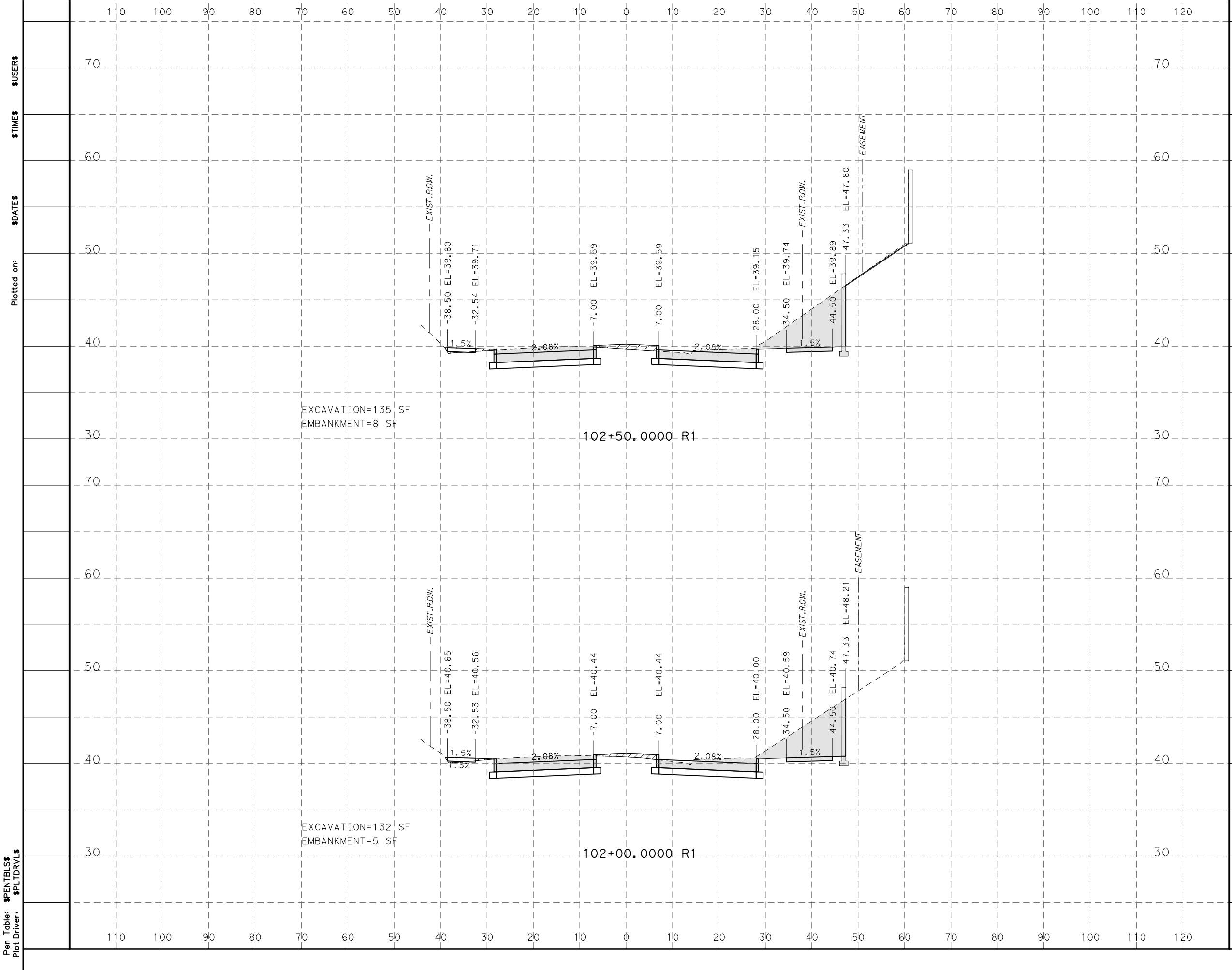
EMBANKMENT=XX SF

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$ \$PLTDRVL\$

<p>Gauge ENGINEERING</p> <p>TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, SUITE 400 HOUSTON, TX 77079</p>	<p>100% INTERIM REVIEW ONLY</p> <p><small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small></p> <p>DAVID S. GREANEY 125593 SDATES</p> <p>100% SUBMITTAL</p> <p>GAUGE ENGINEERING Texas Registered Engineering Firm F-20017</p>
<p>SURVEYED BY: KJG & ASSOCIATES, INC.</p>	
<p>CITY OF HOUSTON HOUSTON PUBLIC WORKS</p>	
<p>MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1</p>	
<p>CROSS SECTIONS</p>	
<p>SHEET 17 OF 25</p>	
<p>WBS NUMBER</p> <p>N-T27000-0005-7</p>	<p>FOR CITY OF HOUSTON USE ONLY</p>
<p>DRAWING SCALE</p> <p>AS NOTED</p>	
<p>CITY OF HOUSTON PM</p> <p>JIADA HUANG</p>	
<p>SHEET NO. 342 OF 355</p>	

Design Filename: \$FILEL\$



LEGEND

EXCAVATION=XX SF

EMBANKMENT=XX SF

EXCAVATION=135 SF
EMBANKMENT=8 SF

102+50.0000 R1

EXCAVATION=132 SF
EMBANKMENT=5 SF

102+00.0000 R1



Gauge
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HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

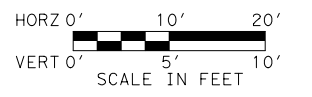
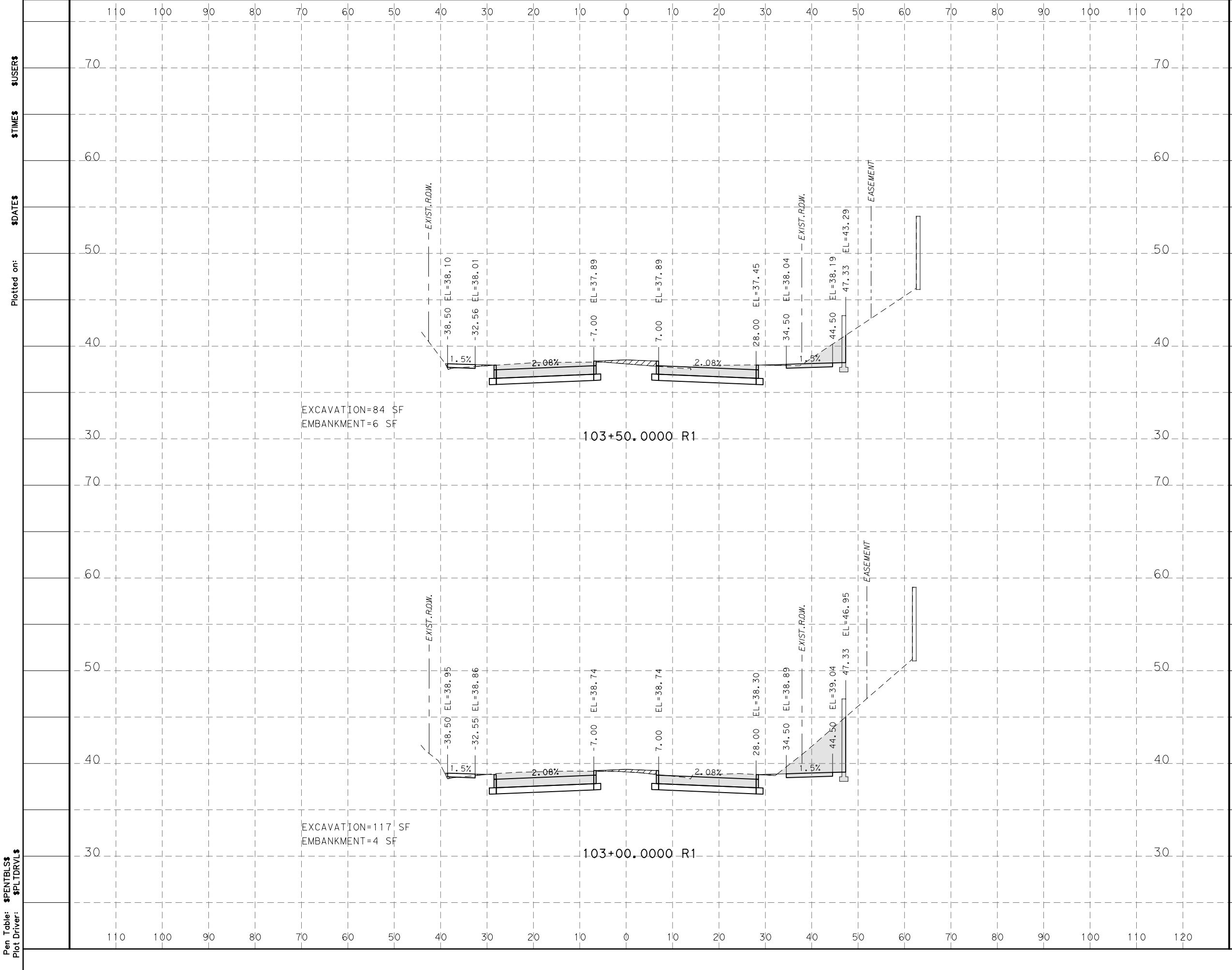
CROSS SECTIONS

SHEET 18 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET No. 343 OF 355	

Pen Table: \$PENTBL\$
Plot Driver: \$PLTDRL\$

Design Filename: \$FILEL\$



LEGEND

EXCAVATION=XX SF

EMBANKMENT=XX SF

EXCAVATION=84 SF
EMBANKMENT=6 SF

103+50.0000 R1

EXCAVATION=117 SF
EMBANKMENT=4 SF

103+00.0000 R1



Gauge
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TEXAS PE FIRM REG. # 20017
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 19 OF 25

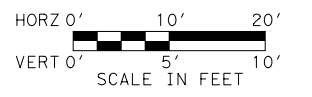
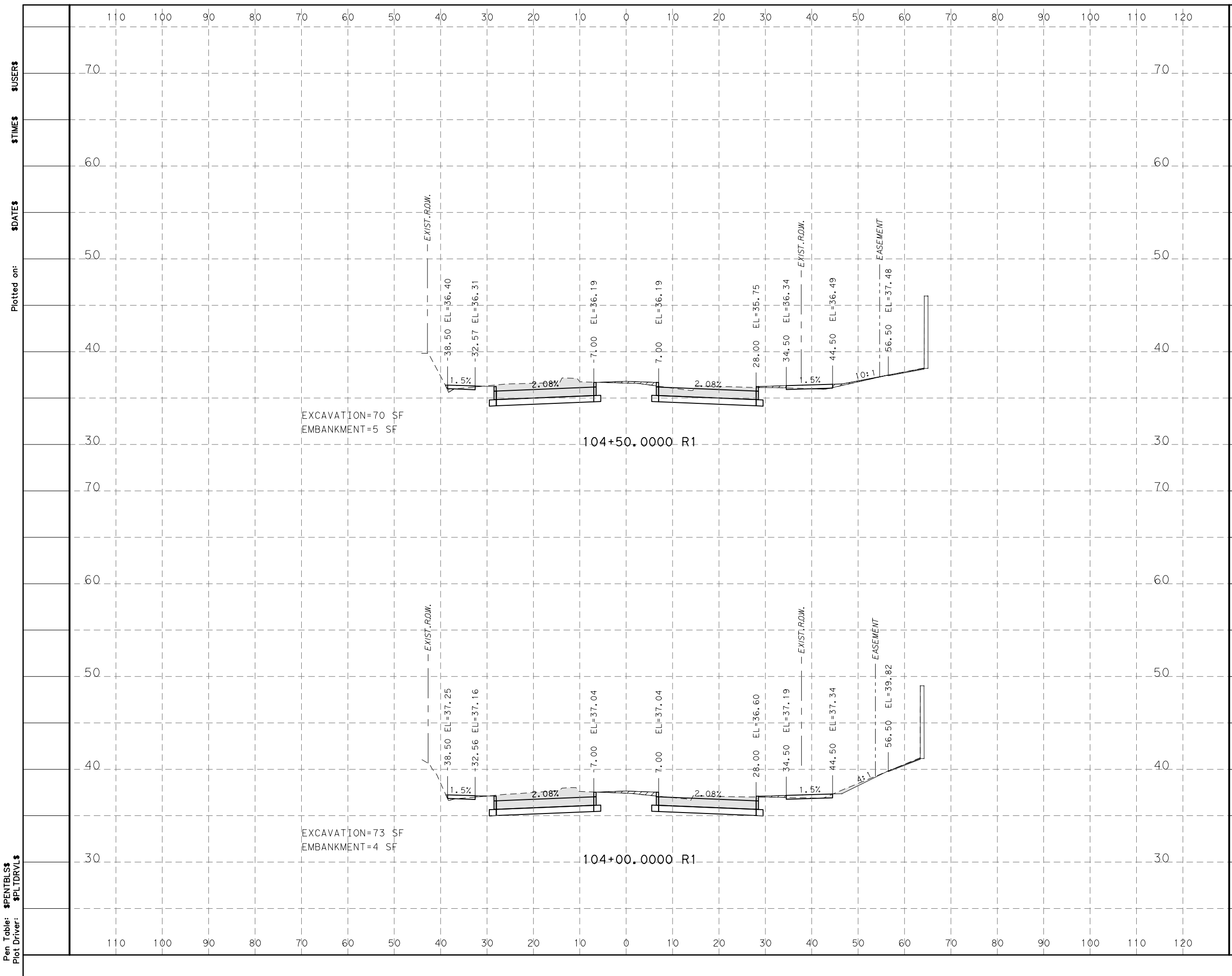
WBS NUMBER	N-T27000-0005-7
DRAWING SCALE	AS NOTED
CITY OF HOUSTON PM	JIADA HUANG
SHEET NO.	344 OF 355

FOR CITY OF HOUSTON USE ONLY

Pen Table: \$PENTBL\$
Plot Driver: \$PLTDRVL\$

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Design Filename: \$FILEL\$



LEGEND

EXCAVATION=XX SF

EMBANKMENT=XX SF

Plotted on: \$DATE\$ \$TIME\$ \$USER\$

Pen Table: \$PENTBL\$ \$PLTDRVL\$

 TEXAS PE FIRM REG. # 20017 11750 KATY FREEWAY, SUITE 400 HOUSTON, TX 77079	100% INTERIM REVIEW ONLY <small>Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:</small> <u>DAVID S. GREANEY</u> 125593 SDATES 100% SUBMITTAL <small>Texas Registered Engineer Firm F-20017</small>
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1	
CROSS SECTIONS	
SHEET 20 OF 25	
WBS NUMBER N-T27000-0005-7	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE AS NOTED	
CITY OF HOUSTON PM JIADA HUANG	
SHEET NO. 345 OF 355	

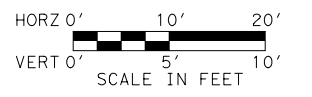
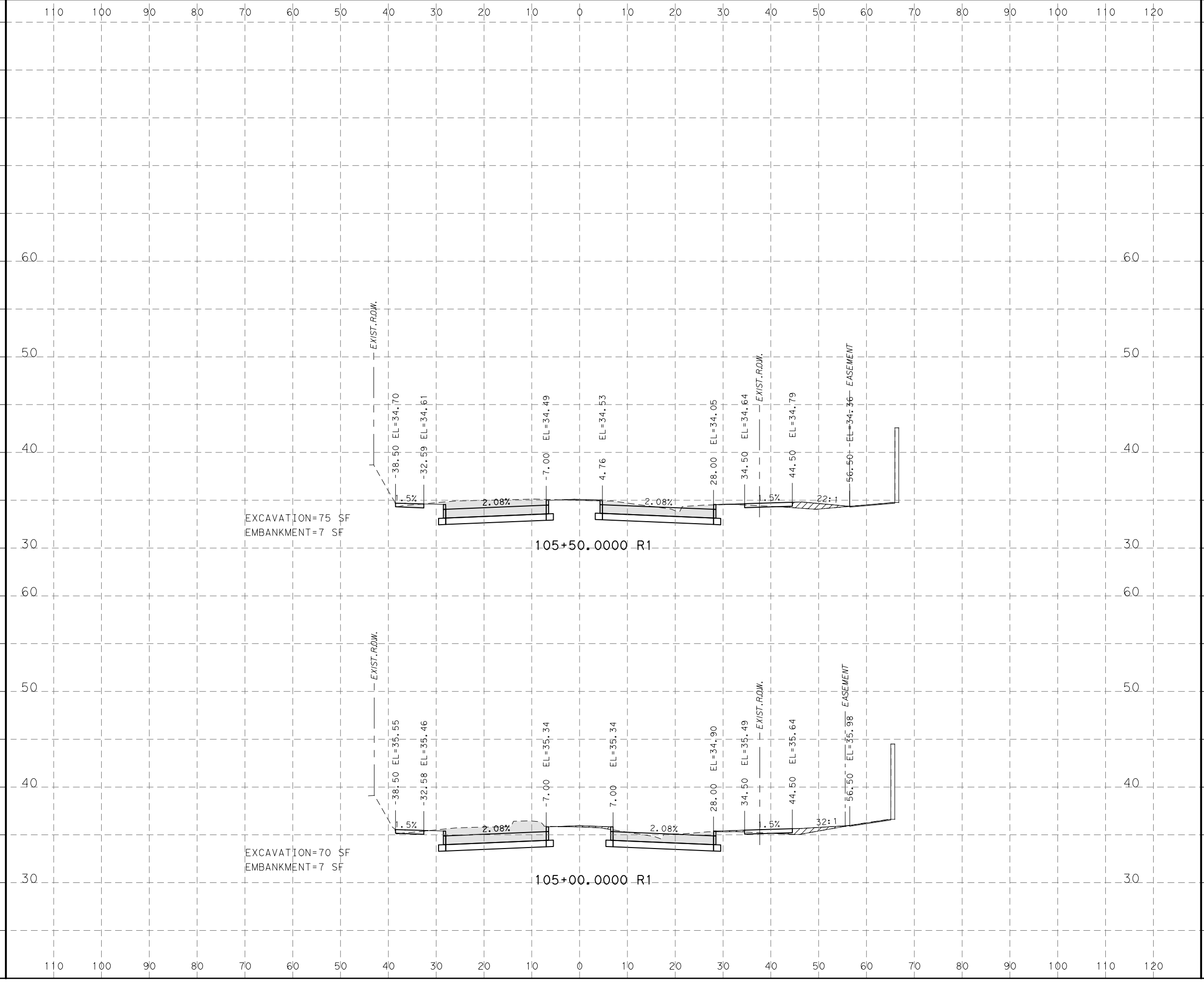
Design Filename: \$FILEL\$

Pen Table: \$PENTBL\$
 Plot Driver: \$PLTDRL\$

Plotted on:

\$TIMES\$
 \$USERS\$

\$DATE\$



LEGEND
 EXCAVATION=XX SF [shaded box]
 EMBANKMENT=XX SF [hatched box]

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

Gauge
 ENGINEERING
 TEXAS PE FIRM REG. # 20017
 11750 KATY FREEWAY, SUITE 400
 HOUSTON, TX 77079

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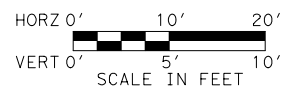
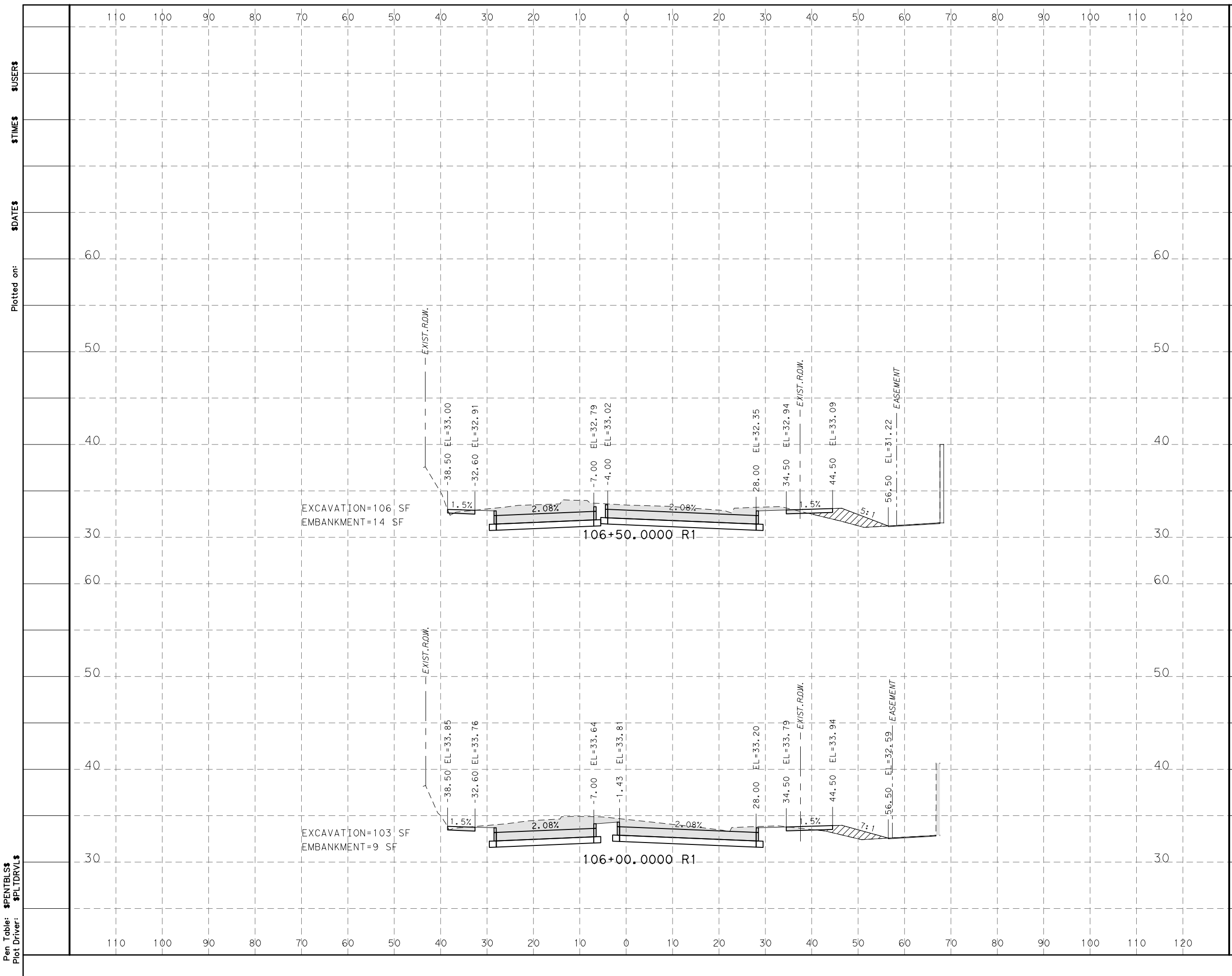
**MONTROSE BOULEVARD
 IMPROVEMENTS - SEGMENT 1**

CROSS SECTIONS

SHEET 21 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 346 OF 355	

Design Filename: \$FILEL\$



LEGEND

EXCAVATION=XX SF

EMBANKMENT=XX SF

Plotted on: \$DATE\$ \$TIMES\$ \$USER\$

Pen Table: \$PENTBL\$ \$PLTDRVL\$



Gauge
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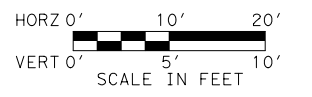
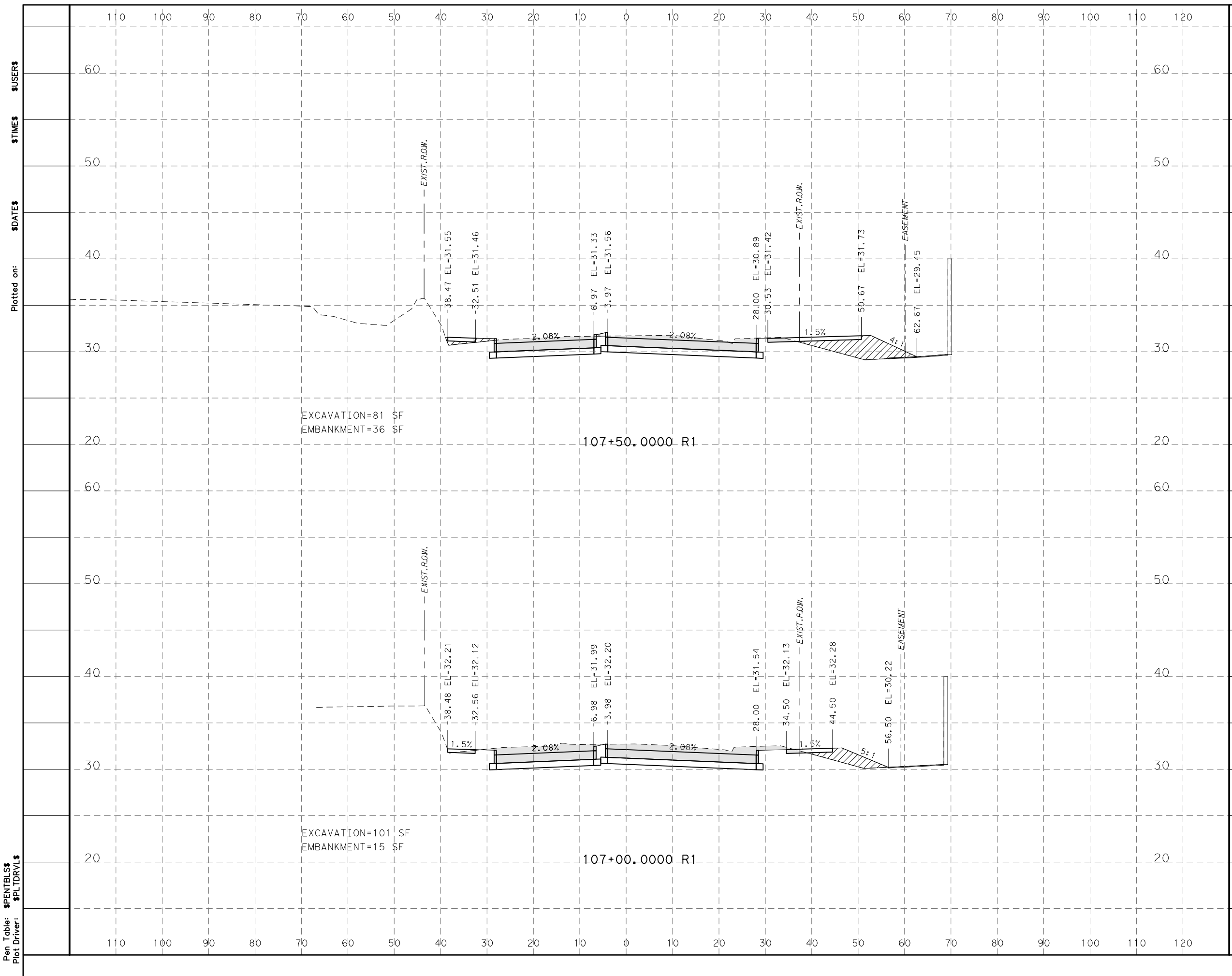
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 22 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 347 OF 355	

Design Filename: \$FILEL\$



LEGEND

EXCAVATION=XX SF [shaded box]

EMBANKMENT=XX SF [hatched box]

Pen Table: \$PENTBL\$
Plot Driver: \$PLTDRL\$

Plotted on:
\$DATE\$
\$TIME\$
\$USER\$

Gauge ENGINEERING
TEXAS PE FIRM REG. # 20017
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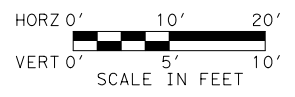
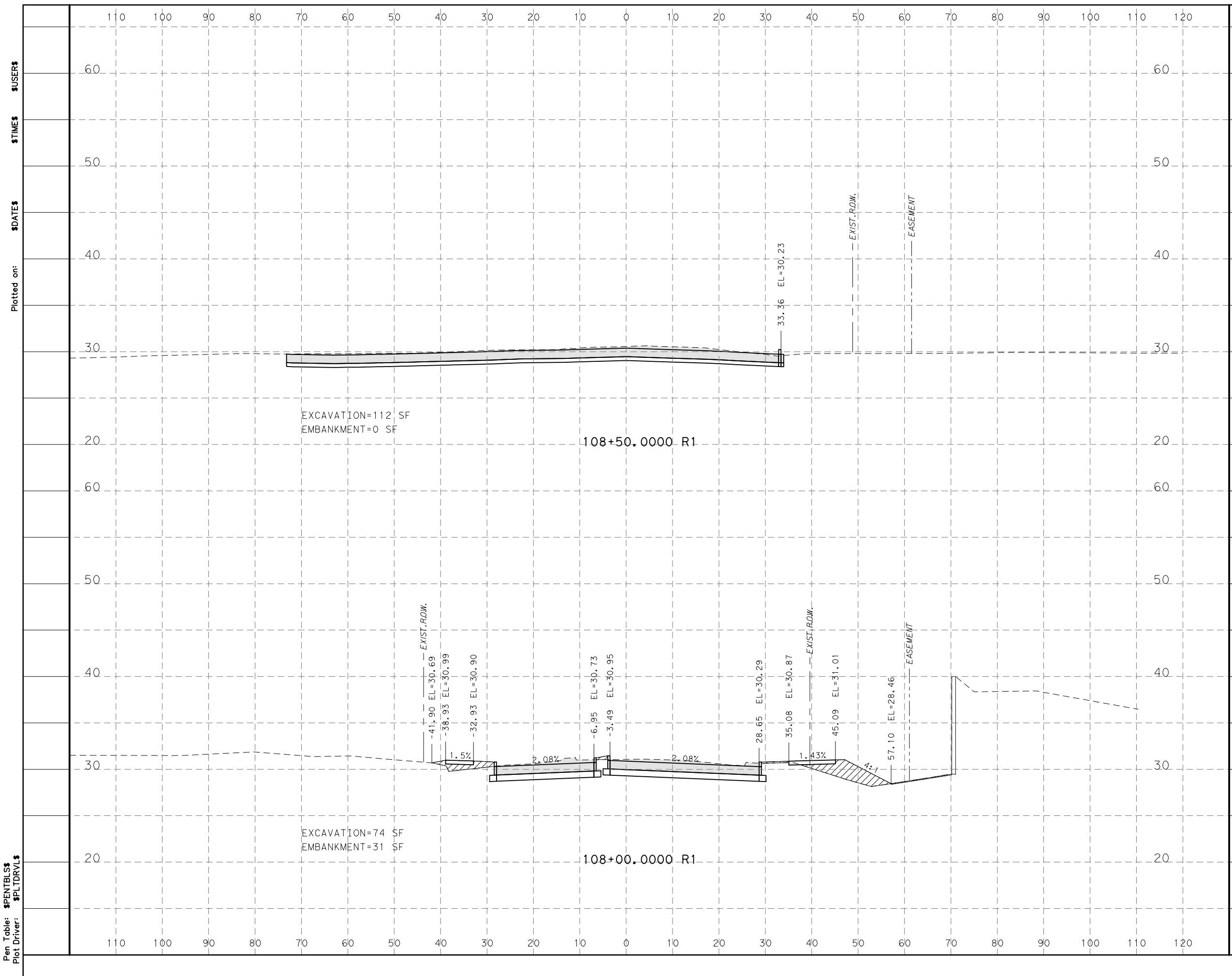
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 23 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 348 OF 355	

Design Filename: \$FILEL\$



LEGEND

EXCAVATION=XX SF

EMBANKMENT=XX SF



Gauge
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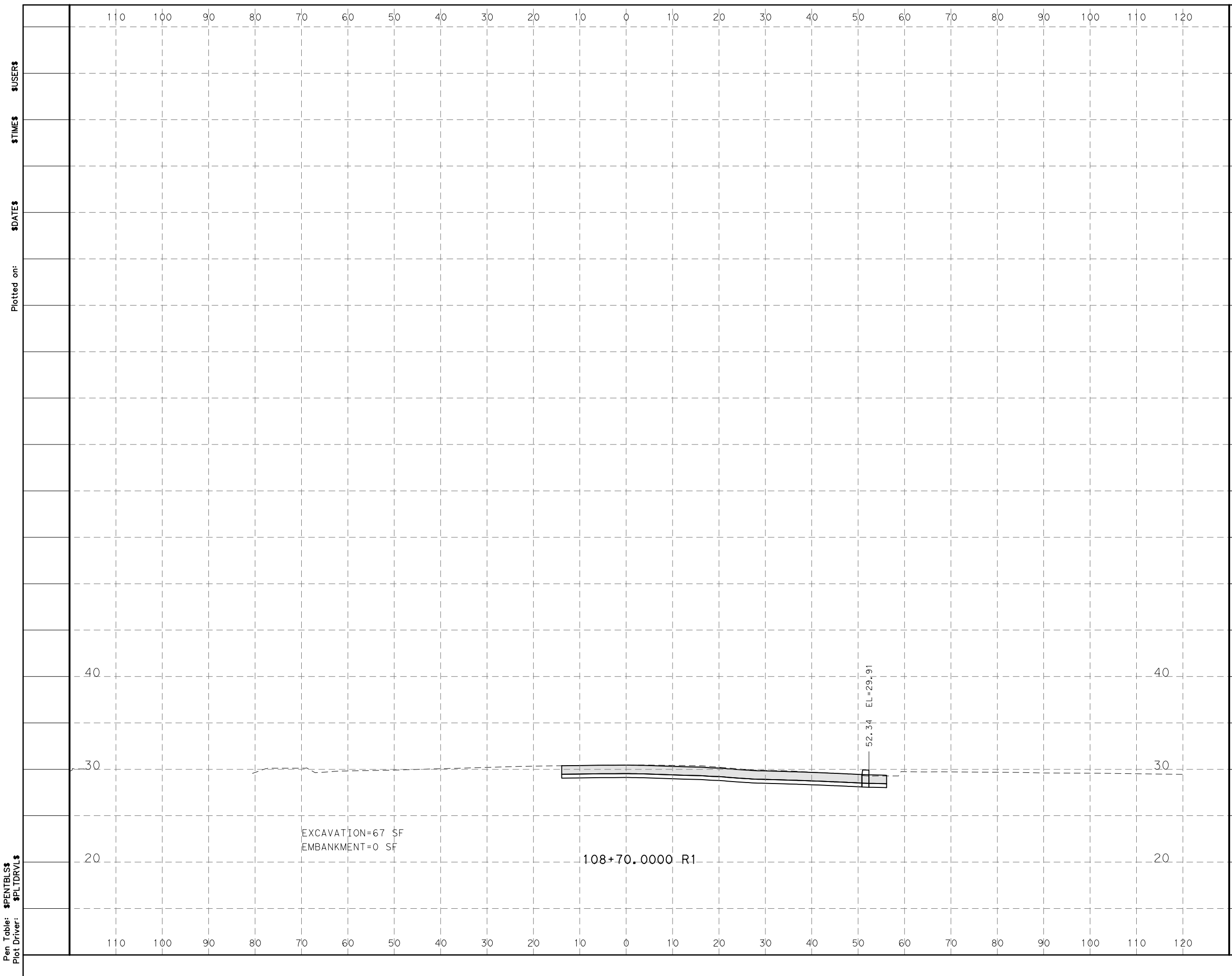
MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

SHEET 24 OF 25

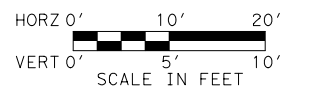
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 349 OF 355	

Design Filename: \$FILEL\$



Pen Table: \$PENTBL\$
 Plot Driver: \$PLTDRVL\$

Plotted on:
 \$DATE\$
 \$TIME\$
 \$USER\$



LEGEND
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 EMBANKMENT=XX SF [hatched box]



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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

CROSS SECTIONS

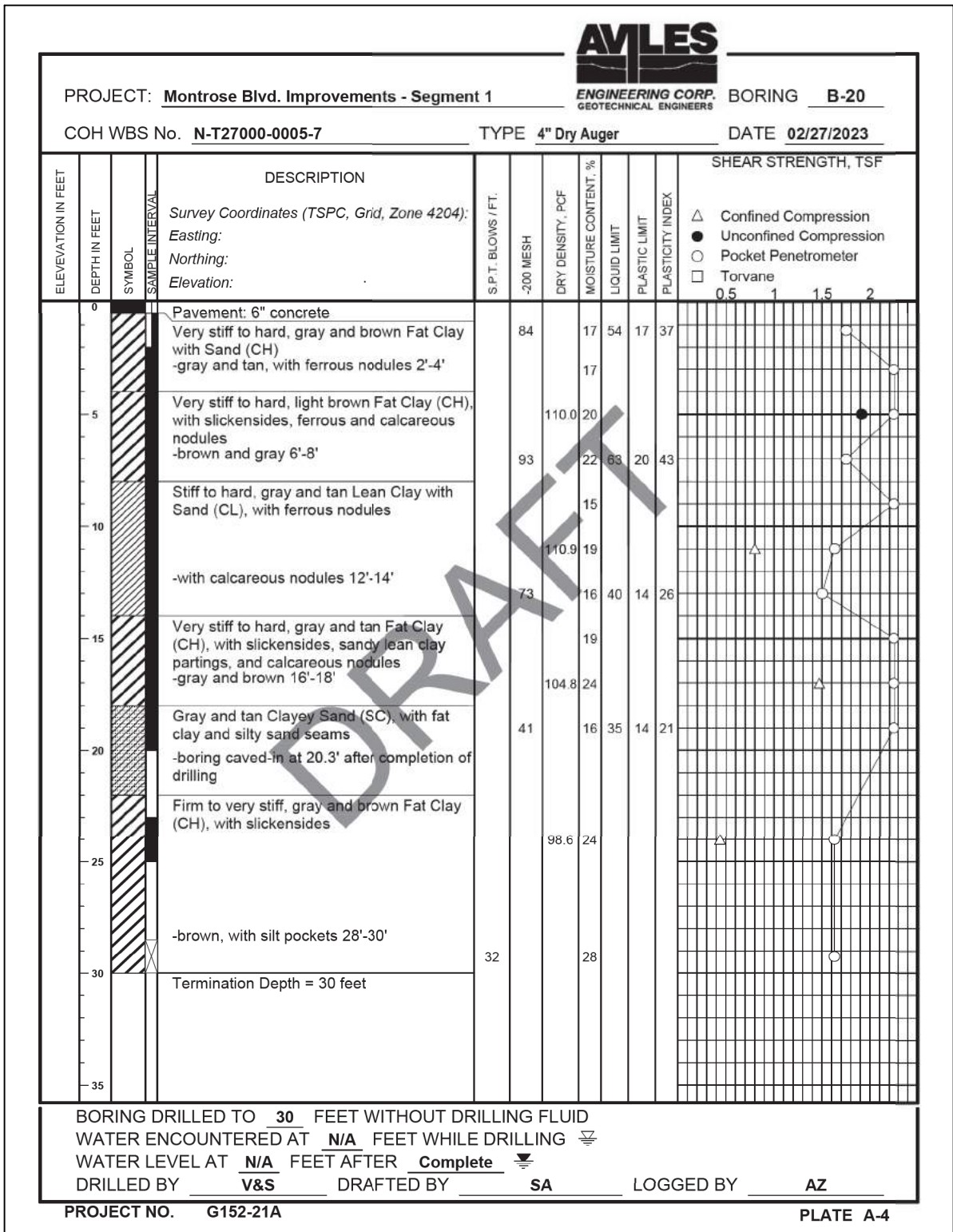
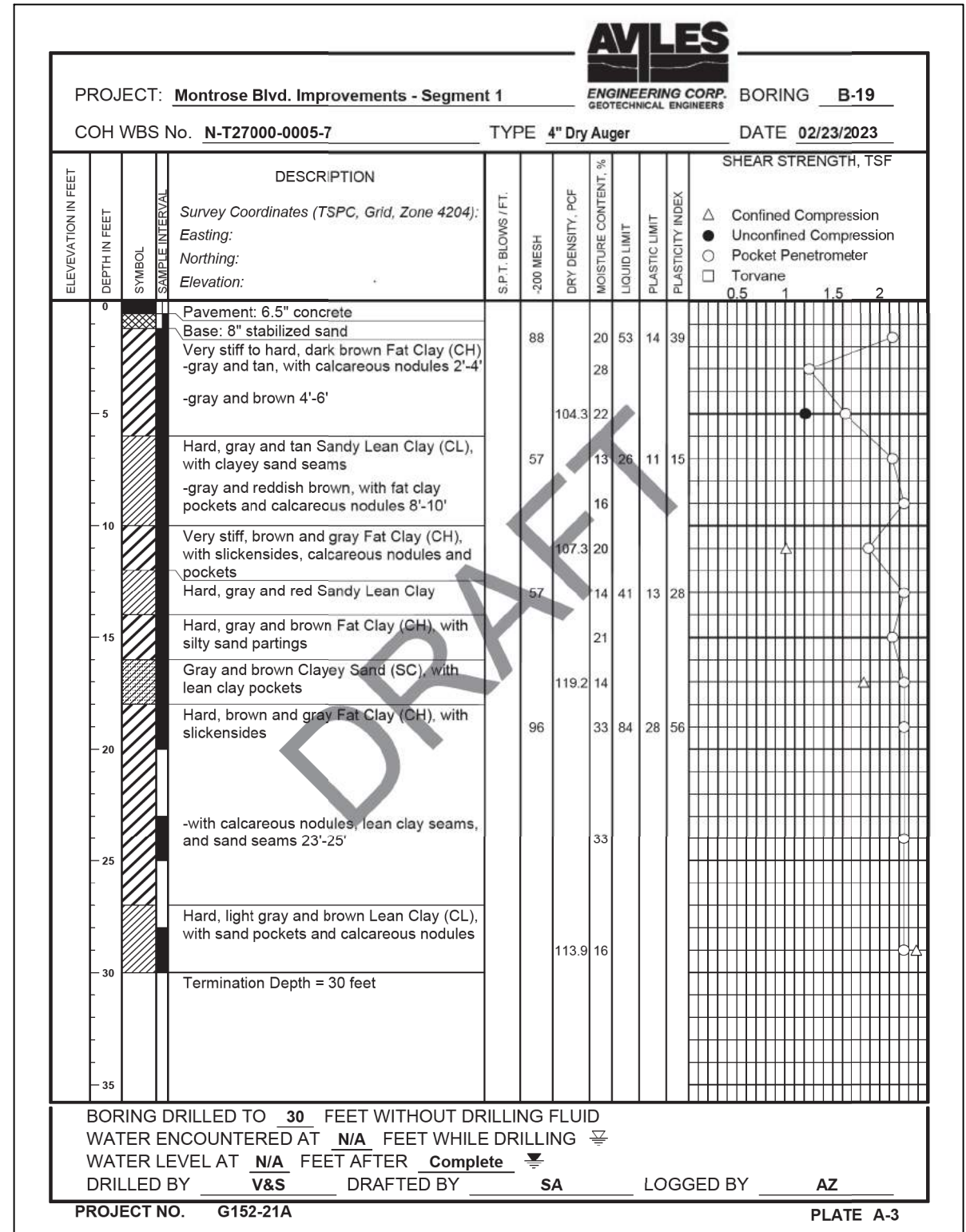
SHEET 25 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 350 OF 355	

Design Filename: \$FILEL\$

Pen Table: MONTR0SE.tbl
 Plot Driver: P:\TIRZ_27\1135-Montrose Blvd Improvements-Working\4-0-Production-Working\4-1-CAD\Resource\Plot files\MONTR0SE.pltcfgr
 Plotted on: 2/20/2024 9:16:33 AM ahatamleh

No.	DATE	REVISIONS	APP.



NOTICE:
 FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature _____ Date _____
 valid for one year.



Gauge ENGINEERING
 TEXAS PE FIRM REG. # 20017
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 175563
 2/20/2024

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CITY OF HOUSTON
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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

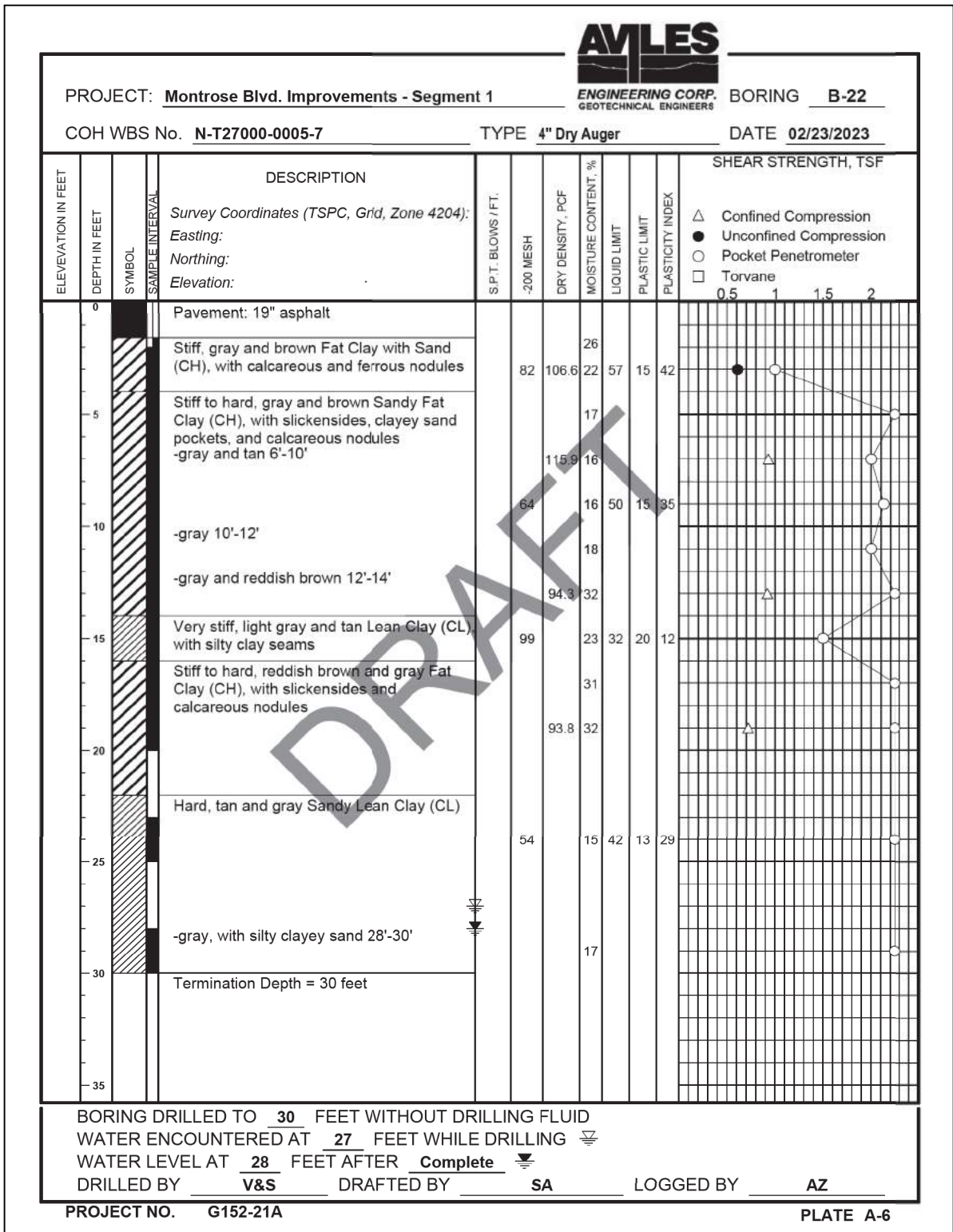
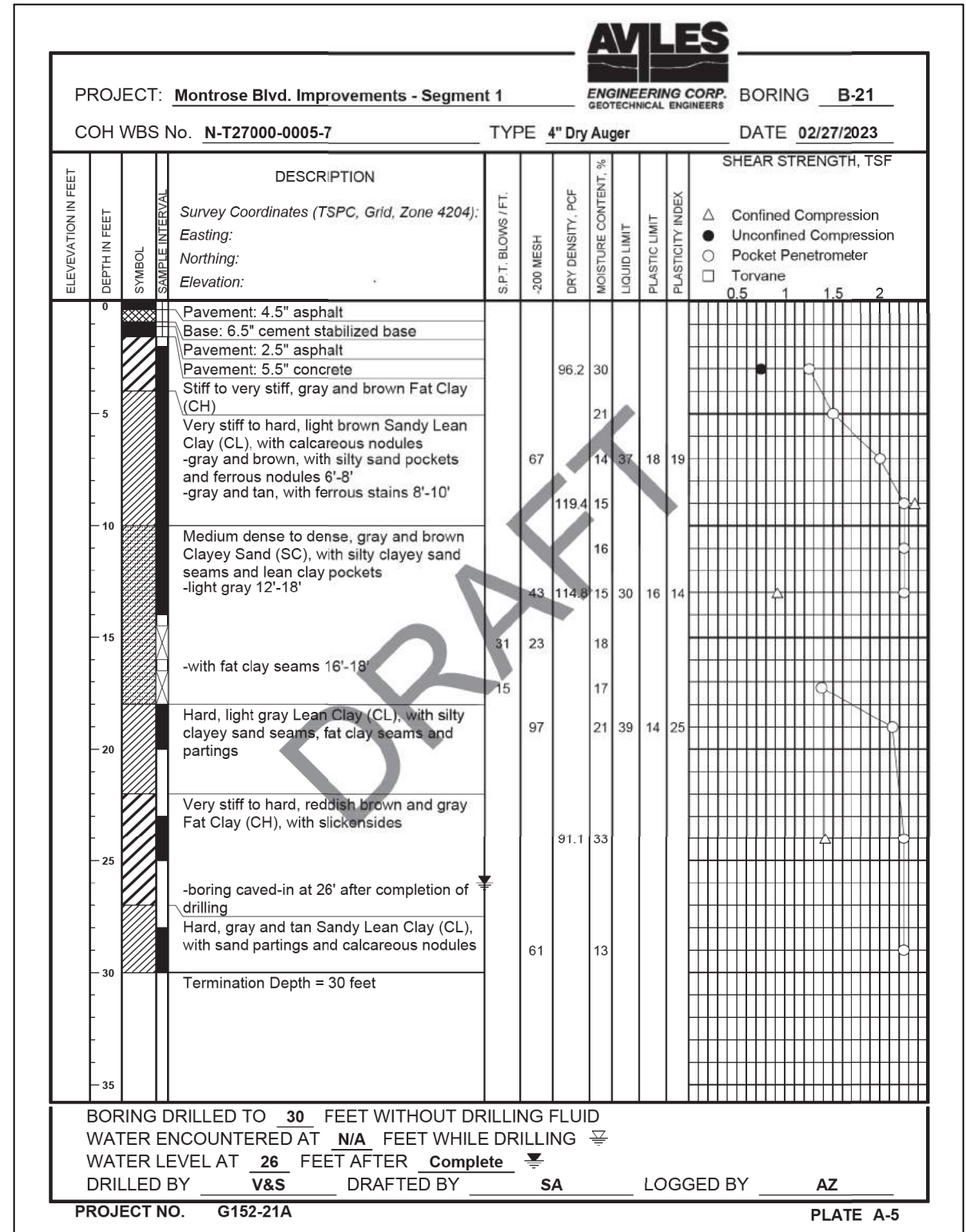
BORING LOGS

SHEET 1 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO. 351 OF 355	

Pen Table: MONTR0SE.tbl
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 Plotted on: 2/20/2024 9:16:36 AM ahatamleh

No.	DATE	REVISIONS	APP.



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VERIFICATION OF PRIVATE UTILITY LINES

Date _____

CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.

Signature valid for six months.

Date _____

CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)

Signature valid for six months.

Approved for All underground conduit facilities only. Signature Date valid for one year.

Gauge ENGINEERING

TEXAS PE FIRM REG. # 20017
11750 KATY FREEWAY, #400
HOUSTON, TX 77079

INTERIM REVIEW ONLY

Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:

DAVID G. GEEZANBY

175563
2/20/2024

SURVEYED BY: **KUO & ASSOCIATES, INC.** 100% SUBMITTAL
Gauge ENGINEERING Texas Registered Engineering Firm F-2017

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

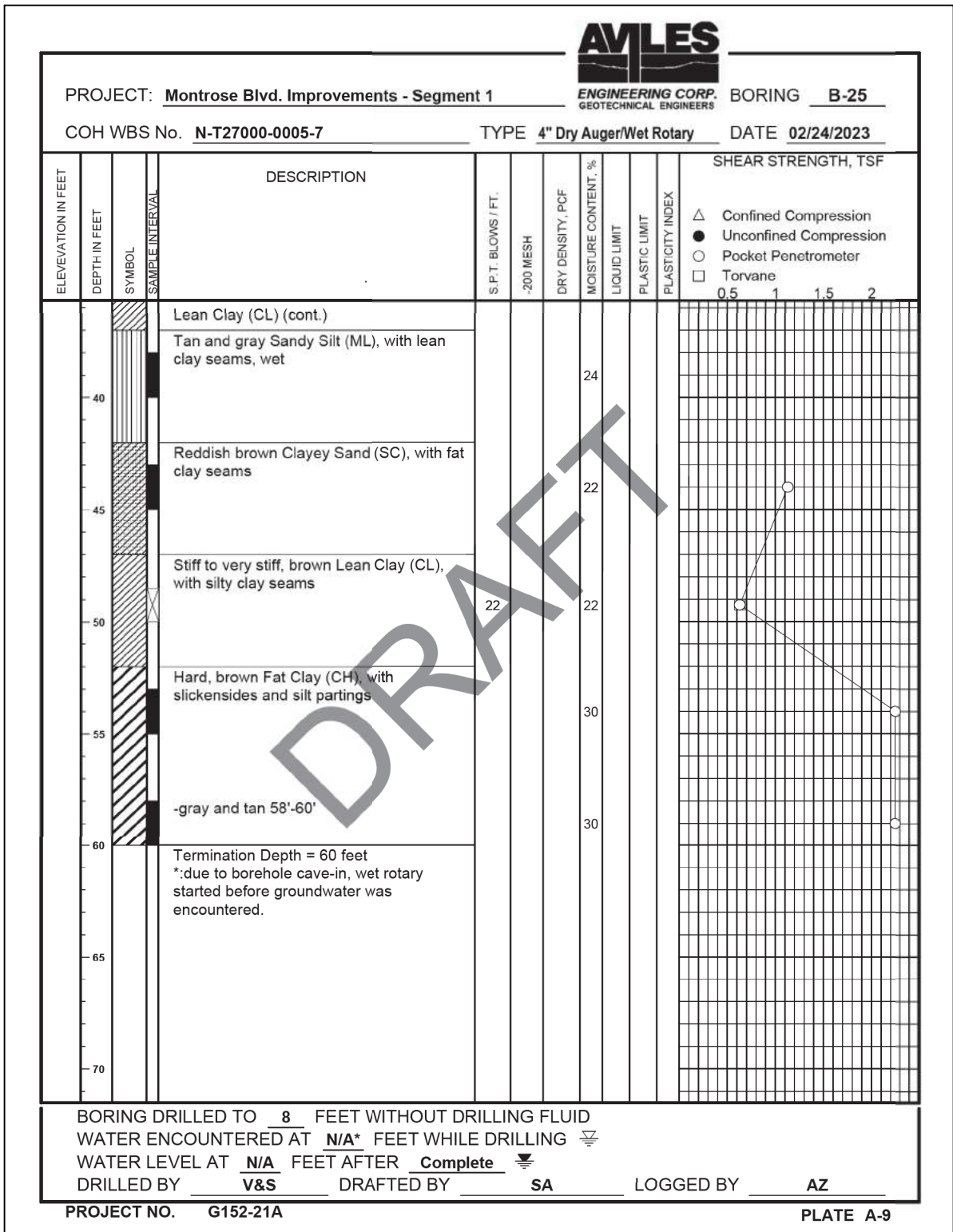
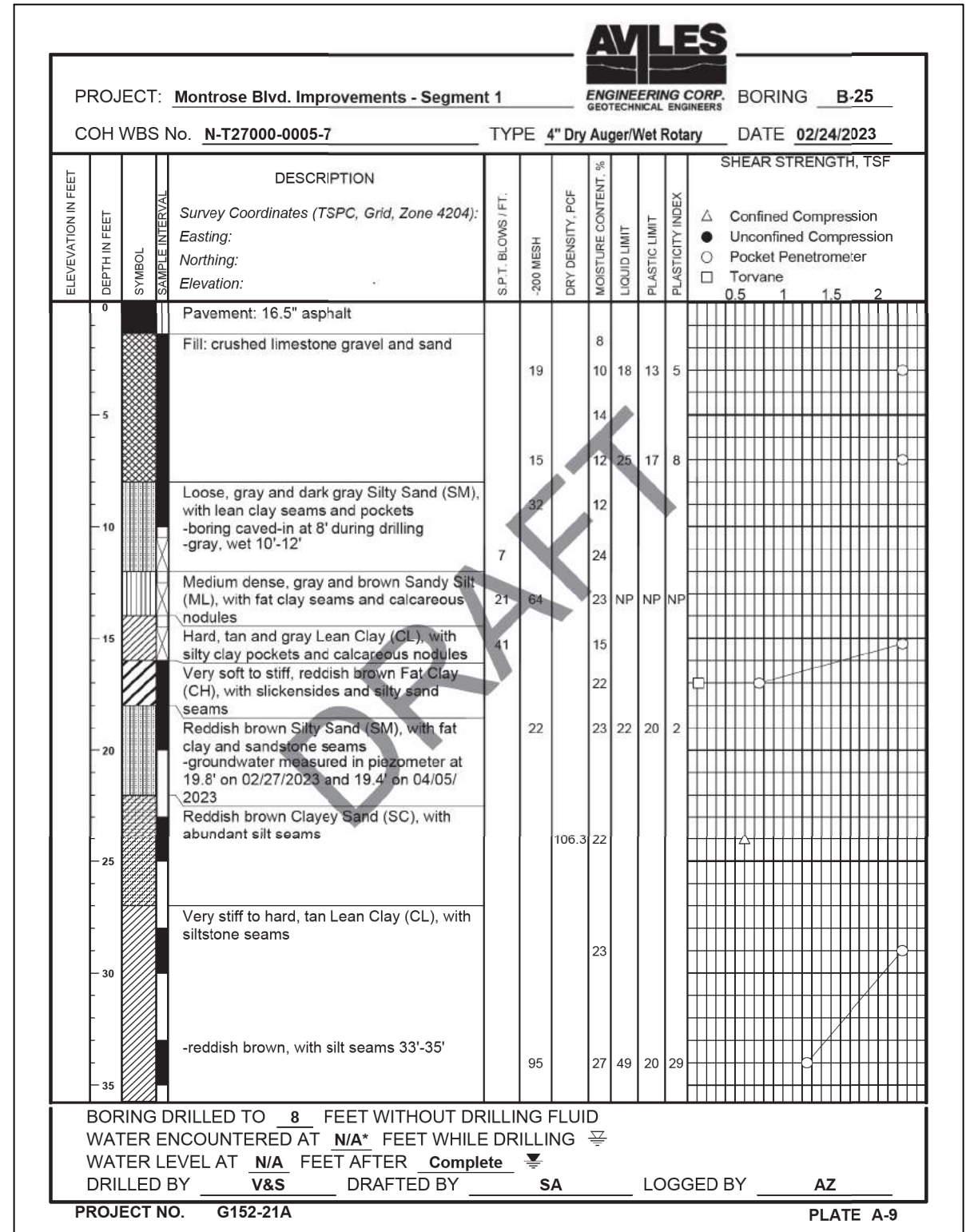
BORING LOGS

SHEET 2 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
JIADA HUANG	
SHEET NO 352 OF 355	

Pen Table: MONTR0SE.tbl
 Plot Driver: P:\TIRZ_27\1135-Montrose Blvd Improvements\4-0-Production-Working\4-1-CAD\Resource\Plot files\MONTR0SE.pltcfgr
 Plotted on: 2/20/2024 9:16:48 AM ahatamleh

No.	DATE	REVISIONS	APP.



NOTICE:

FOR YOUR SAFETY, YOU ARE REQUIRED BY TEXAS LAW TO CALL 811 AT LEAST 48 HOURS BEFORE YOU DIG SO THAT UNDERGROUND LINES CAN BE MARKED. THIS SIGNATURE DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date _____
 CenterPoint Energy natural gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification.
 Signature valid for six months.

Date _____
 CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY. (This signature verifies existing underground facilities - not to be used for conflict verification)
 Signature valid for six months.

Approved for All underground conduit facilities only. Signature _____ Date _____
 valid for one year.

MONTROSE TAX INCREMENT REINVESTMENT ZONE 27

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MONTROSE BOULEVARD IMPROVEMENTS - SEGMENT 1

BORING LOGS

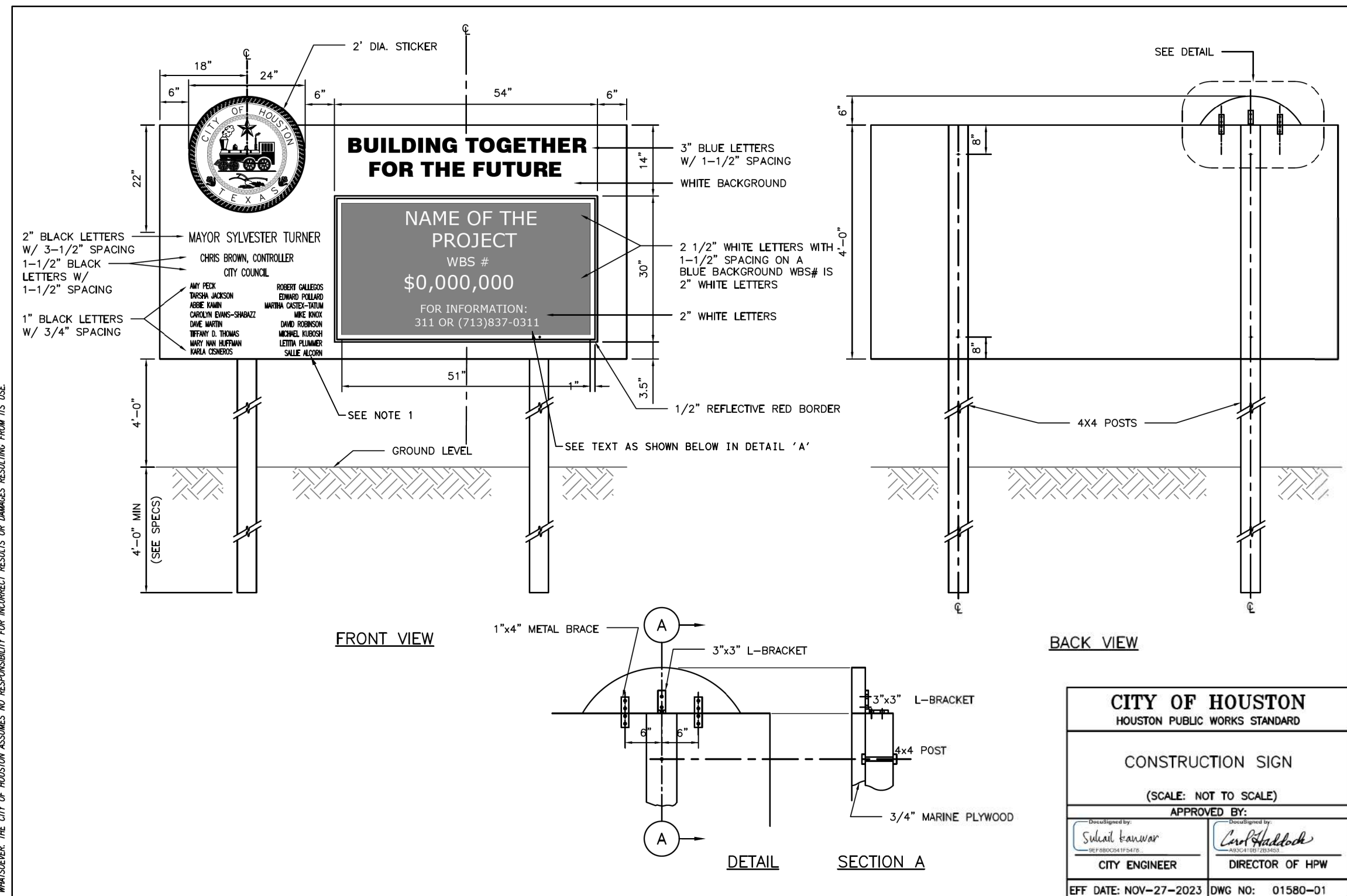
SHEET 4 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
N-T27000-0005-7	
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CITY OF HOUSTON PM	
JUADA HUANG	
SHEET NO. 354 OF 355	

DocuSign Envelope ID: CB71C116-B716-4899-A5EE-0D2F2CC55AF6

No.	DATE	REVISIONS	APP.

DISCLAIMER:
 THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR USE, ACCEPTS RESPONSIBILITY FOR THEIR APPLICABILITY, ADEQUACY AND SAFETY. NO WARRANTY OF ANY KIND IS MADE BY THE CITY OF HOUSTON FOR ANY PURPOSES WHATSOEVER. THE CITY OF HOUSTON ASSUMES NO RESPONSIBILITY FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.



DETAIL 'A'

MONTR0SE BOULEVARD IMPROVEMENTS- SEGMENT 1

WBS NO. N-T27000-0005-7

\$0,000,000

FOR INFORMATION:
 311 OR (713) 837-0311

- NOTE:
1. UPDATE CITY COUNCIL MEMBERS NAMES BASED ON CURRENT LIST SHOWN ON THE CITY'S WEBSITE.

CITY OF HOUSTON
 HOUSTON PUBLIC WORKS STANDARD

CONSTRUCTION SIGN

(SCALE: NOT TO SCALE)

APPROVED BY:

Disapproved by: <i>Sulail banwar</i> 9EF980C541F5476 CITY ENGINEER	Disapproved by: <i>Carol Haddock</i> A93C41057283453 DIRECTOR OF HPW
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EFF DATE: NOV-27-2023 DWG NO: 01580-01

MONTROSE
 TAX INCREMENT REINVESTMENT ZONE 27

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CONSTRUCTION SIGN

SHEET 1 OF 1

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