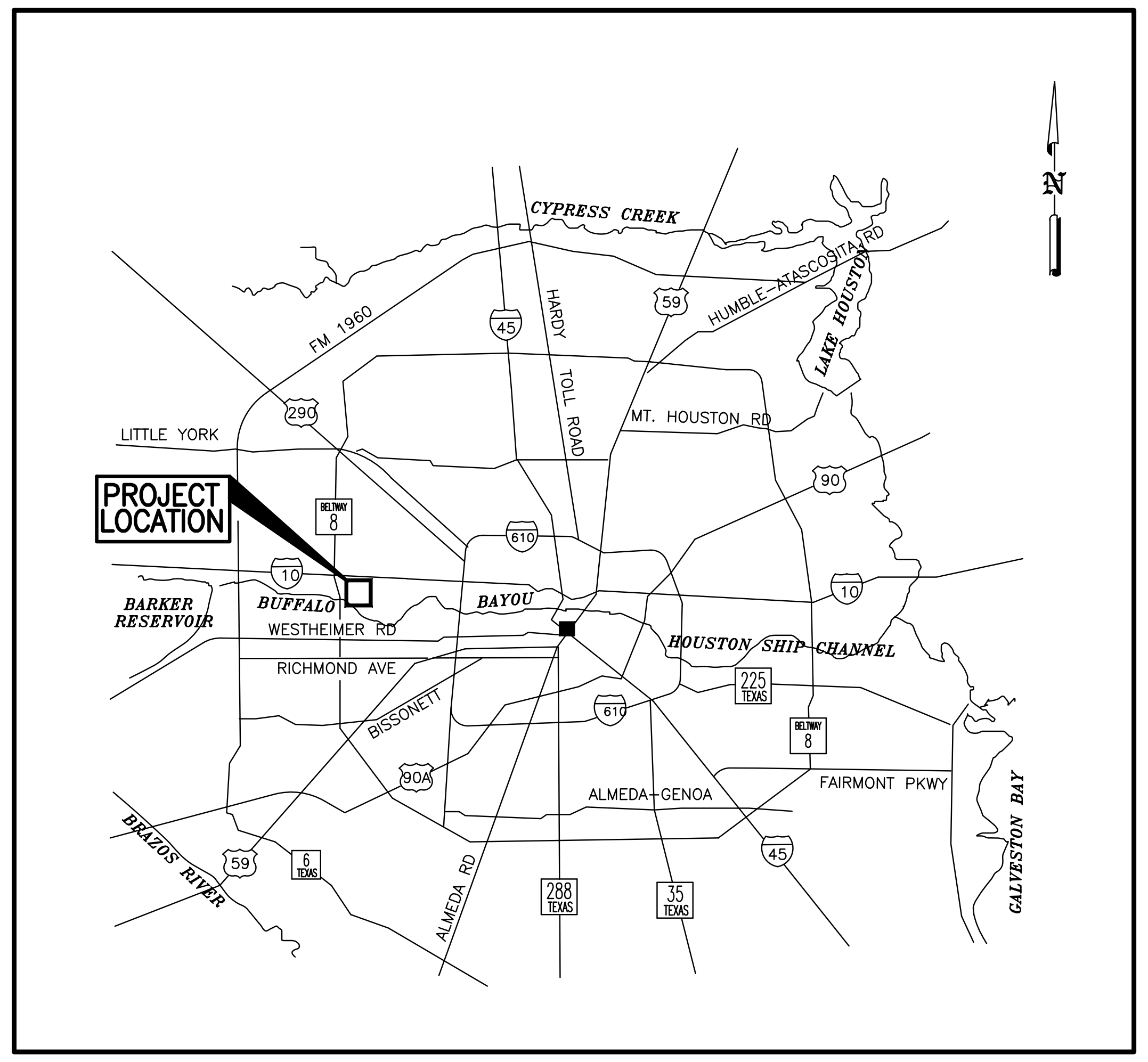
CITY OF HOUSTON

TIRZ 17
MEMORIAL CITY AREA
DETENTION BASIN

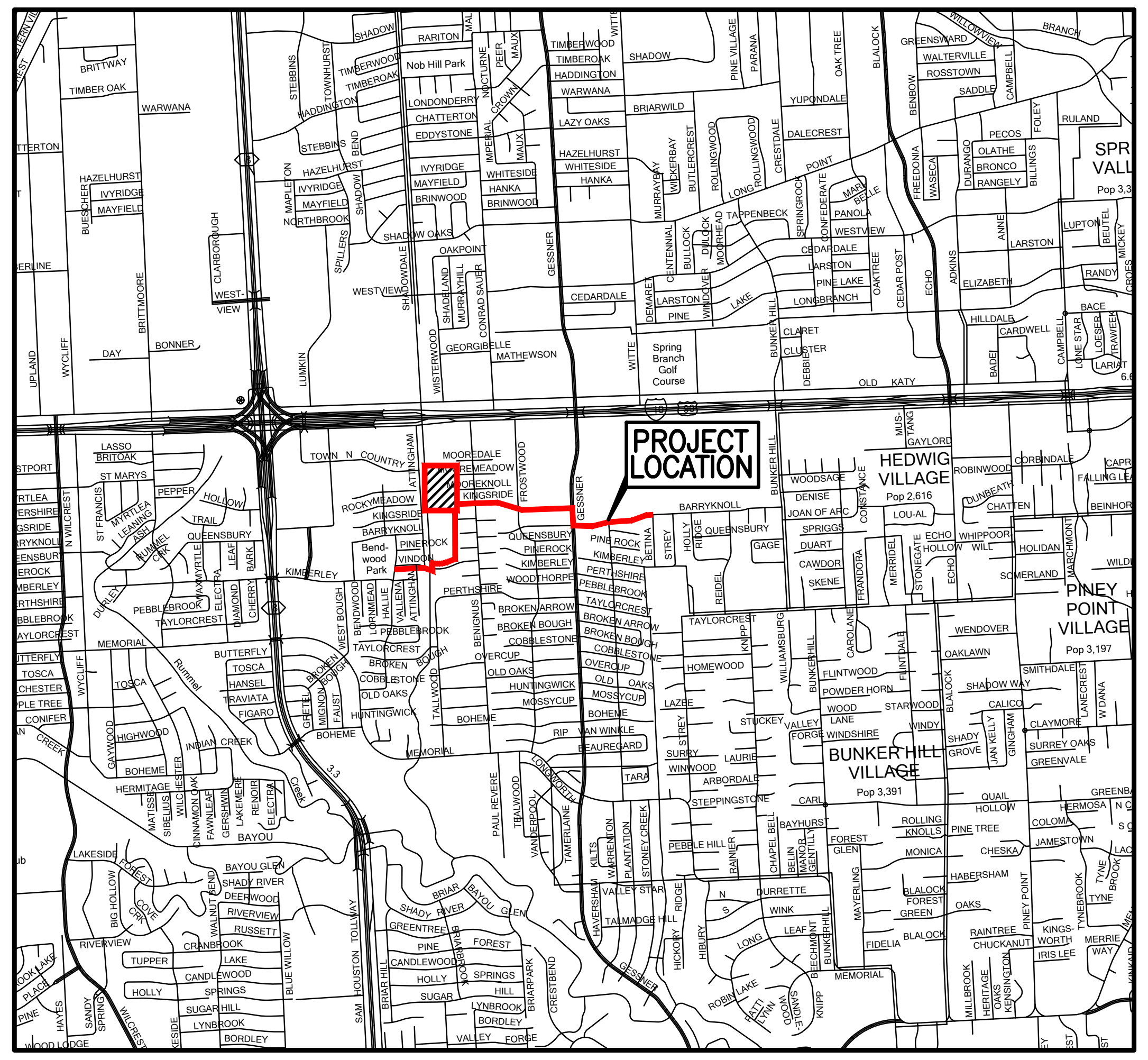
WBS NO. M-430296-0017-3

AUGUST 2026



CYPRESS CREEK
FM 1960
HUMBLE–WESTFIELD RD
LAKE HOUSTON
HARDY TOLL ROAD
MT. HOUSTON RD
LITTLE YORK
PROJECT LOCATION
BARKER RESERVOIR
BUFFALO
BAYOU
WESTHEIMER RD
HOUSTON SHIP CHANNEL
RICHMOND AVE
BISSONNET
FAIRMONT PKWY
ALMEDA–GENOA
ALMEDA RD
BRAZOS RIVER
GALVESTON BAY
N

VICINITY MAP
N.T.S.



PROJECT LOCATION
HEDWIG VILLAGE
SPRING VALLEY
PINEY POINT VILLAGE
BUNKER HILL VILLAGE

LOCATION MAP
N.T.S.

KEY MAP NO: 413X, 413Y, 453B, AND 453C
FEMA FIRM MAP NO: 48201C0645L
FEMA FIRM MAP DATE: 06/18/2007
GIMS TITLE NO: 5361B, 5361D
COUNCIL DISTRICT: G

TDLR EABPR TABS2026016052

MAYOR
JOHN WHITMIRE

CONTROLLER
CHRIS HOLLINS

DISTRICT COUNCIL MEMBERS

AMY PECK
DISTRICT A

TARSHA JACKSON
DISTRICT B

ABBIE KAMIN
DISTRICT C

CAROLYN EVANS-SHABAZZ
DISTRICT D

FRED FLIKINGER
DISTRICT E

TIFFANY D. THOMAS
DISTRICT F

MARY NAN HUFFMAN
DISTRICT G

MARIO CASTILLO
DISTRICT H

JOAQUIN MARTINEZ
DISTRICT I

EDWARD POLLARD
DISTRICT J

MARTHA CASTEX-TATUM
DISTRICT K

COUNCIL MEMBERS AT-LARGE

JULIAN RAMIREZ
POSITION 1

WILLIE DAVIS
POSITION 2

TWILA CARTER
POSITION 3

ALEJANDRA SALINAS
POSITION 4

SALLIE ALCORN
POSITION 5

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8/5/2026
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Texas Registered Engineering Firm F-11278

Parks–Forestry Dept.

Metro

Houston Water

Transportation & Drainage Operations

Capital Projects

Survey

FOR CITY OF HOUSTON USE ONLY

CITY ENGINEER DATE

DIRECTOR OF HOUSTON PUBLIC WORKS DATE

SHEET NO 1 OF 345 SHEETS

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No.	Date	Revisions	App.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

INDEX OF SHEETS

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WBS NO. M-430296-0017-3

DRAWING SCALE

NOT TO SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 02 OF 345

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GENERAL CONSTRUCTION NOTES (OUTSIDE 610)

1. 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.

2. THE DESIGN MUST BE CONSISTENT WITH THE EFFECTIVE EDITION OF HOUSTON PUBLIC WORKS INFRASTRUCTURE DESIGN MANUAL AND TCEQ (TEXAS COMMISSION ON ENVIRONMENTAL QUALITY) REQUIREMENTS.

3. 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 HVJ ASSOCIATES,INC REPORT NO.HG2110495.1, DATED MARCH 6, 2025.

4. 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.

5. 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.

6. 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.

7. 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.

8. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ROOT SYSTEMS OF SHRUBS, PLANTS AND TREES ALONG THE AREA OF EXCAVATION.

9. CONTRACTOR SHALL COMPLY WITH LATEST EDITION OF OSHA REGULATIONS AND THE STATE OF TEXAS LAWS CONCERNING EXCAVATION.

10. 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

1. 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.

2. 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.

3. SANITARY SEWER MANHOLES WILL HAVE BEDDING AND BACKFILL PER CITY OF HOUSTON STANDARD DETAILS DRAWING NO. 02317-08 UNLESS OTHWISE NOTED.

4. 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.

5. 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.
6. AWWA C-900 DR-18 PVC PIPE USES EITHER AWWA C900 DR-18 PVC FITTINGS OR DIP FITTINGS.

7. ALL SANITARY SEWER LINES UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1 ½ SACK CEMENT/CY STABILIZED SAND IN ACCORDANCE WITH SECTION 02317-EXCAVATION AND BACKFILL FOR UTILITIES, CITY STANDARD DETAILS DRAWING NUMBERS 02317-03 THROUGH 07,AND THE GEOTECHNICAL REPORT REFERENCED IN GENERAL CONSTRUCTION NOTE3. 100 PSI PERFORMANCE RESULTS ARE STILL REQUIRED.

8. 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.

9. CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL CLEARANCE OF 9' FEET BETWEEN WATER LINES AND SANITARY SEWER MANHOLES AND LINES.

10. 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.

11. IN WET STABLE TRENCH AREAS USE BEDDING PER CITY OF HOUSTON STANDARD DETAILS DRAWING NUMBER 02317-02.

12. 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.

13. 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.

14. "SAN. S. E." INDICATES "SANITARY SEWER EASEMENT"

15. 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 HEX-HEAD COARSE THREADED ½"-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

1. 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.

2. ALL STORM SEWER CONSTRUCTED IN SIDELOT EASEMENT 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.

3. ALL STORM SEWER PIPES UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 1 ½ SACK CEMENT/CY STABILIZED SAND IN ACCORDANCE WITH SECTION 02317-EXCAVATION AND BACKFILL FOR UTILITIES, CITY STANDARD DETAILS DRAWING NUMBERS 02317-03 THROUGH 07,AND THE GEOTECHNICAL REPORT REFERENCED IN GENERAL CONSTRUCTION NOTE3. 100 PSI PERFORMANCE RESULTS ARE STILL REQUIRED.

4. 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 COMPACTION TEST (ASTM D-698/AASHTO T99).

5. CIRCULAR AND ELLIPTICAL REINFORCED CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINT CONFORMING TO ASTM C443 AND ASTM C877 RESPECTIVELY.

6. ALL STORM SEWER PIPES AND INLET LEADS SHALL BE 24" AND LARGER R.C.P. (C-76, CLASSIII).
7. ALL PRPOSED PIPE STUB-OUTS FROM MANHOLES AND INLET LEADS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.

8. 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.

9. ADJUST MANHOLE COVERS TO GRADE CONFORMING TO REQUIREMENTS OF SECTION 02086-ADJUSTING MANHOLES, INLETS, AND VALVE BOXES TO GRADE.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY BACK SLOPE DRAINAGE SYSTEM DISTURBED AS A RESULT OF THIS WORK.

11. 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.

12. ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.

STREET AND BRIDGE NOTES

1. 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.

2. UTILITY CONTRACTOR SHALL PROVIDE TEMPORARY SILT BARRIER FENCE ON ALL NON-CURBED INLETS WHICH WILL REMAIN IN PLACE AFTER UNDERGROUND CONTRACT IS COMPLETE.

3. CONTRACTOR SHALL PROVIDE SILT BARRIER FENCE ON ALL STAGE 1 CURB INLETS.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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

1. 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.

2. 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 SWEPT BACK INTO THE EXCAVATED AREA.

3. 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.

4. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING THE CONSTRUCTION OF THE PROJECT, ALWAYS CLEANING UP DIRT AND LOOSE MATERIAL AS CONSTRUCTION PROGRESSES.

5. 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.

6. 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.

STANDARD HCFCD NOTES FOR CONSTRUCTION DRAWINGS

1. OBTAIN AND COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE, AND FEDERAL PERMITS AND APPROVALS, WITH ASSISTANCE FROM ENGINEER, IF NECESSARY. OBTAIN PERMIT (CERTIFICATION) FROM HARRIS COUNTY ENGINEER TO ENTER HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY.

2. NOTIFY THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT IN WRITING AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. SUBMIT THE HCFCD 48 HOUR PRE-CONSTRUCTION NOTIFICATION FORM, A COPY OF THE APPROVED CONSTRUCTION DRAWINGS, AND A COPY OF THE CORPS OF ENGINEERS INDIVIDUAL SECTION 404 PERMIT, IF APPLICABLE, TO HCFCD, 9900 NORTHWEST FREEWAY, HOUSTON, TEXAS 77092, ATTN: PROPERTY MANAGEMENT DEPT. BY HAND DELIVERY, OR FAX TO 346-286-4192 (FAX NUMBER).

3. ENGINEER SHALL SUBMIT CERTIFICATION LETTER AND RECORD DRAWINGS TO THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT REQUESTING INSPECTION OF ITEMS CONSTRUCTED IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. PRIOR TO REQUESTING INSPECTION, THE DRAINAGE RIGHT-OF-WAY AND/OR EASEMENTS SHALL BE STAKED AND FLAGGED.

4. PROTECT, MAINTAIN, AND RESTORE EXISTING BACKSLOPE DRAINAGE SYSTEMS.

5. BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON PLANS ARE APPROXIMATE. FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.

6. ESTABLISH TURF GRASS ON ALL DISTURBED AREAS WITHIN THE CHANNEL OR DETENTION RIGHT-OF-WAY, EXCEPT THE CHANNEL BOTTOM AND WHERE STRUCTURAL EROSION MEASURES ARE USED. MINIMUM ACCEPTANCE CRITERIA ARE 75% COVERAGE OF LIVE BERMUDA GRASS AND NO EROSION OR RILLS DEEPER THAN 4"

7. BACKFILL IN ACCORDANCE WITH THE HARRIS COUNTY FLOOD CONTROL DISTRICT STANDARD SPECIFICATION, SECTION 02315 - EXCAVATING AND BACKFILLING, OR EQUIVALENT.

8. EXCAVATE CHANNEL FLOWLINE TO DESIGN ELEVATION AS SHOWN ON PLANS AND DOWNSTREAM, AS NECESSARY, TO ENSURE NO WATER REMAINS IN THE FACILITY (STORM SEWER, LATERAL CHANNEL, OR DRY BOTTOM DETENTION BASIN) DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL, SO THE FACILITY WILL FUNCTION AS INTENDED. FOR WET BOTTOM DETENTION BASINS, ENSURE NO WATER IS ABOVE THE DESIGN LEVEL IN THE WET BOTTOM DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL.

9. MAINTAIN FLOW IN CHANNEL DURING CONSTRUCTION AND RESTORE CHANNEL TO ORIGINAL CONDITION.

10. REMOVE ALL EXCAVATED MATERIAL FROM THE HARRIS COUNTY FLOOD DISTRICT OR DRAINAGE RIGHT-OF-WAY. NO FILL IS TO BE PLACED WITHIN A DESIGNATED FLOOD PLAIN AREA WITHOUT FIRST OBTAINING A FILL PERMIT FROM THE APPROPRIATE JURISDICTIONAL AUTHORITY.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GENERAL CONSTRUCTION NOTES

SHEET 1 OF 2

WBS NO. M-430296-0017-3
DRAWING SCALE
NOT TO SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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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:

1. 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.

2. NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00PM TO 7:00AM.

3.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.

4.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.

5.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) 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.

6. CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES

7. 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.

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 "A" (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 ACROSS 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

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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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GENERAL CONSTRUCTION NOTES

SHEET 2 OF 2

WBS NO. M-430296-0017-3
DRAWING SCALE
NOT TO SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 4 OF 345

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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 KEVIN RAY AT (713) 614-1983 OR EMAIL HIM AT KR7896@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR 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 713-945-8036 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

WARNING: UNDERGROUND ELECTRICAL UTILITY:

THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATION COMMITTEE AT 1-800-545-6005 OR 811 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

1. ALL INFORMATION CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTORS ARE RESPONSIBLE MAKING THEIR OWN DETERMINATIONS AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTACTING OWNERS OF UNDERGROUND UTILITIES OR BY EXCAVATING IN ADVANCE OF CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES WHEN AND WHERE THEY FALL IN THE PATH OF CONSTRUCTION.
3. THE CONTRACTOR IS ALSO RESPONSIBLE FOR CONTACTING THE UTILITY COORDINATING COMMITTEE AT (713) 223-4567 AND TEXAS ONE CALL AT 1-800-245-4545, FORTY -EIGHT (48) HOURS PRIOR ANY CONSTRUCTION.
4. THE LOCATION OF ANY CENTERPOINT ENERGY UTILITIES ARE SHOWN IN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. THEY AGREE TO BE FULLY RESPONSIBLE FOR NAY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
5. ALL PROPOSED FACILITIES SHALL MAINTAIN 12" CLEAR FROM ALL EXISTING UTILITIES.

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 CONSTRUCTED PER CITY OF HOUSTON INFRASTRUCTURE DESIGN MANUAL AND MEET CURRENT ADA REQUIREMENTS

GENERAL

1. CITY OF HOUSTON STANDARD DETAILS FOR WASTWATER COLLECTION STSTEM, WATERLINES, STORM DRAINAGE AND STREET PAVING ARE INCORPORATED IN PLANS BY REFERANCE 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 COH STANDERD DETAILS

No.	Date	Revisions	App.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY - NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES - NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

CABLE COMPANY — DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563

David G. Greaney
4/15/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PRIVATE UTILITY NOTES

SHEET NO 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE

NOT TO SCALE

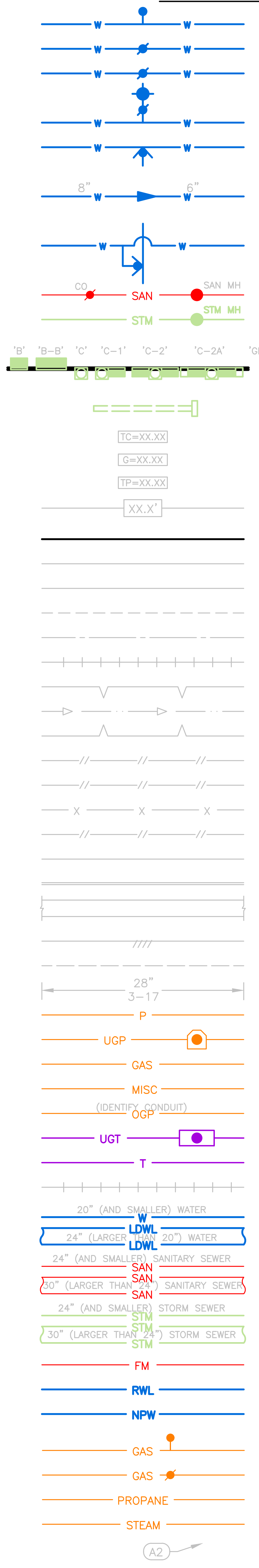
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 5 OF 345

j:\2021\210601.01\cad\dwgs\sheets\01 - general\private utility notes.dwg Plotted April 15, 2026 at 5:19 PM by Gawali, Ajinkya Ashok

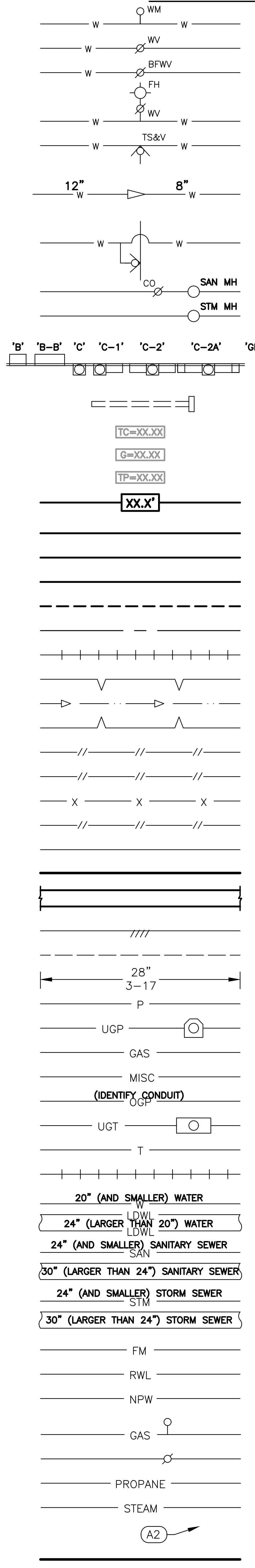
EXISTING PLAN VIEW



W
8"
6"
CO
SAN
SAN MH
STM
STM MH
"B"
"B-B"
"C"
"C-1"
"C-2"
"C-2A"
"GRATE"
TC=XX.XX
G=XX.XX
TP=XX.XX
XX.X'
28"
3-17
P
UGP
GAS
MISC
(IDENTIFY CONDUIT)
OGP
UGT
T
20" (AND SMALLER) WATER
LDWL
24" (LARGER THAN 20") WATER
24" (AND SMALLER) SANITARY SEWER
30" (LARGER THAN 24") SANITARY SEWER
24" (AND SMALLER) STORM SEWER
30" (LARGER THAN 24") STORM SEWER
FM
RWL
NPW
PROPANE
STEAM
A2

- 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 TELECOMM LINE W/VAULT
- AERIAL TELECOMM 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 LABLE

PROPOSED PLAN VIEW



W
WM
WV
BFWV
FH
TS&V
12"
8"
CO
SAN MH
STM MH
'B'
'B-B'
'C'
'C-1'
'C-2'
'C-2A'
'GRATE'
TC=XX.XX
G=XX.XX
TP=XX.XX
XX.X'
28"
3-17
P
UGP
GAS
MISC
(IDENTIFY CONDUIT)
OGP
UGT
T
20" (AND SMALLER) WATER
LDWL
24" (LARGER THAN 20") WATER
24" (AND SMALLER) SANITARY SEWER
30" (LARGER THAN 24") SANITARY SEWER
24" (AND SMALLER) STORM SEWER
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FM
RWL
NPW
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STEAM
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- WATER METER
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- TOP OF CURB ELEVATION
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- TOP OF PAVEMENT ELEVATION
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- ROW LINE
- PROPERTY LINE
- LOT LINES
- EASEMENT LINE
- CENTER LINE OF ROW
- TRANSIT LINE
- EDGE OF DITCHES
- CENTER LINE OF DITCHES
- EDGE OF DITCHES
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- FENCE LINE, CHAIN LINK
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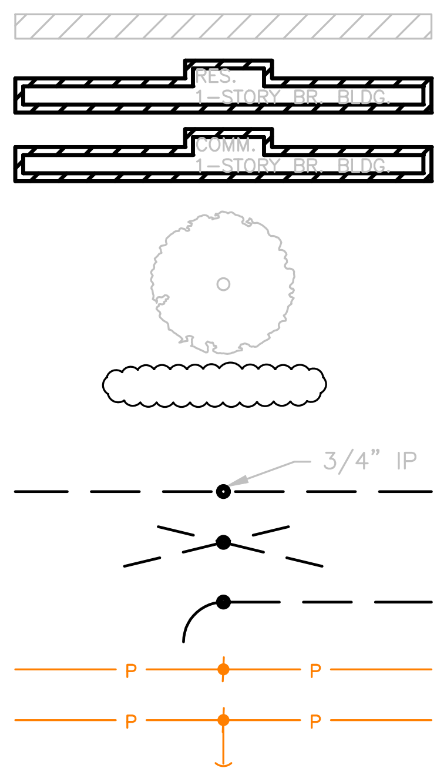
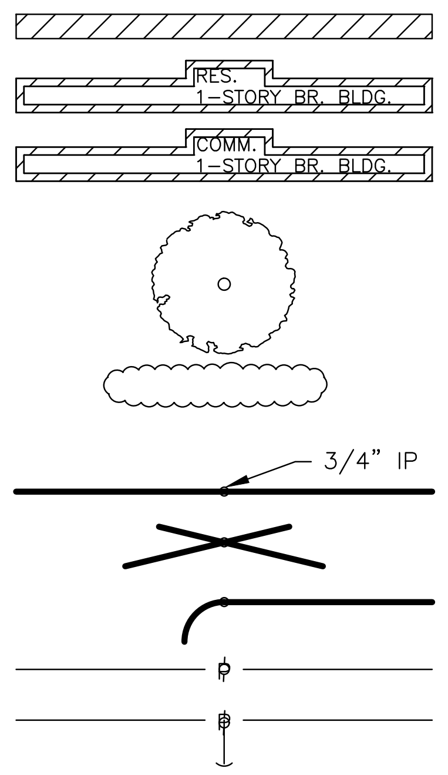
- UNDERGROUND POWER LINE
- GAS LINE
- UNKNOWN UNDERGROUND LINE
- OIL PIPELINE
- UNDERGROUND TELCOMM LINE W/ VAULT
- AERIAL TELECOMM LINE
- RAILROAD LINE
- WATER LINE
- SANITARY SEWER LINE
- STORM SEWER LINE
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE
- NON-POTABLE WATER LINE
- GAS METER
- GAS VALVE
- PROPANE LINE
- STEAM LINE
- MISC UNDERGROUND PIPELINE LABLE
- MATCHLINE

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

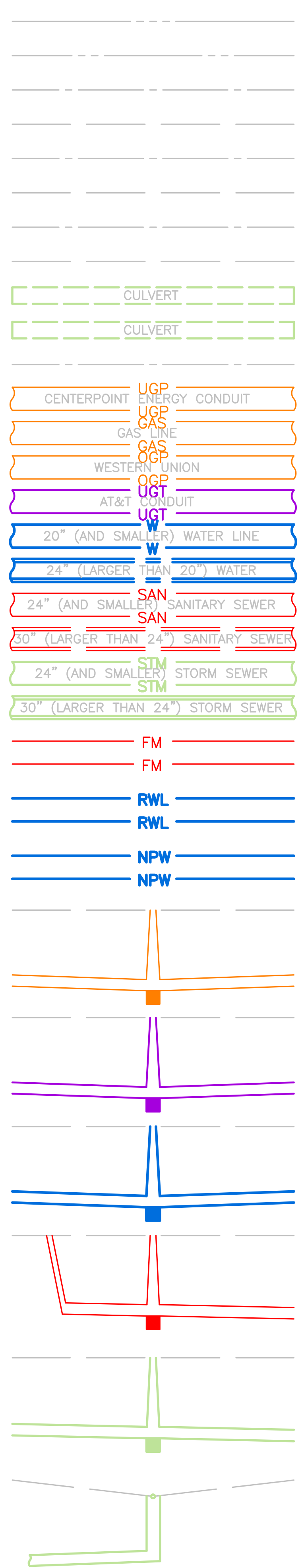
PROPOSED PLAN VIEW



RES.
1-STORY BR. BLDG.
COMM.
1-STORY BR. BLDG.
3/4" IP

- 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

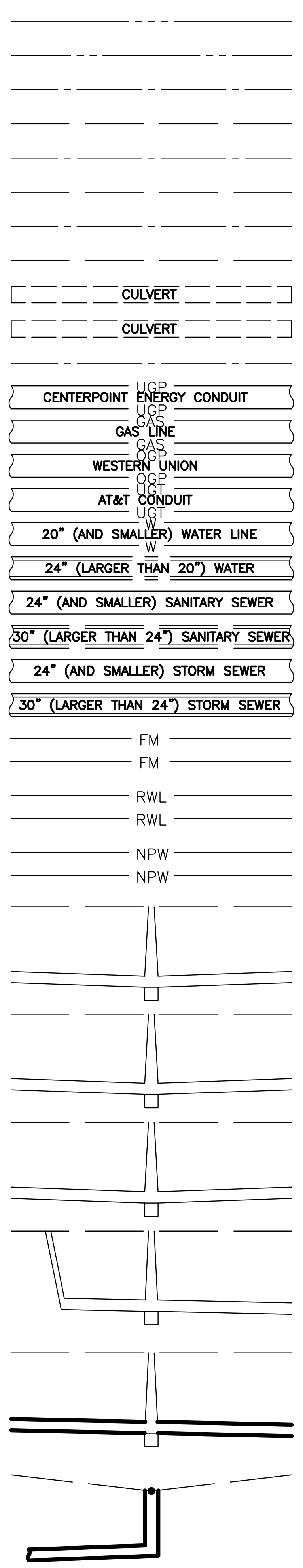
EXISTING PROFILE VIEW



CULVERT
CENTERPOINT ENERGY CONDUIT
UGP
GAS LINE
GAS
WESTERN UNION
OGP
AT&T CONDUIT
UGT
20" (AND SMALLER) WATER LINE
W
24" (LARGER THAN 20") WATER
24" (AND SMALLER) SANITARY SEWER
SAN
30" (LARGER THAN 24") SANITARY SEWER
24" (AND SMALLER) STORM SEWER
STM
30" (LARGER THAN 24") STORM SEWER
FM
RWL
NPW

- 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 PROFILE VIEW



CULVERT
CENTERPOINT ENERGY CONDUIT
UGP
GAS LINE
GAS
WESTERN UNION
OGP
AT&T CONDUIT
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20" (AND SMALLER) WATER LINE
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24" (LARGER THAN 20") WATER
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30" (LARGER THAN 24") SANITARY SEWER
24" (AND SMALLER) STORM SEWER
STM
30" (LARGER THAN 24") STORM SEWER
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- 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
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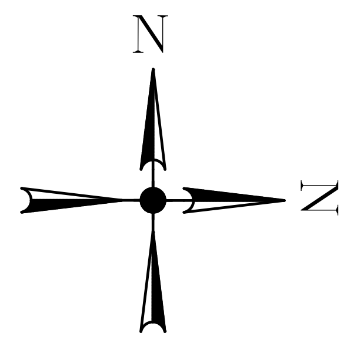
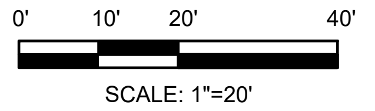
- SANITARY SEWER FORCE MAIN
- RECLAIMED WATER LINE
- NON-POTABLE WATER LINE
- CENTERPOINT ENERGY MANHOLE
- AT&T MANHOLE
- WATER LINE MANHOLE
- SANITARY SEWER MANHOLE & CLEANOUT
- STORM SEWER MANHOLE
- STORM SEWER INLET

MISC STANDARD ELEMENTS

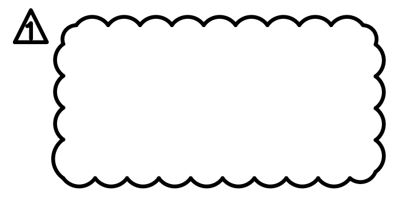


COH NORTH ARROW



0'
10'
20'
40'
SCALE: 1"=20'

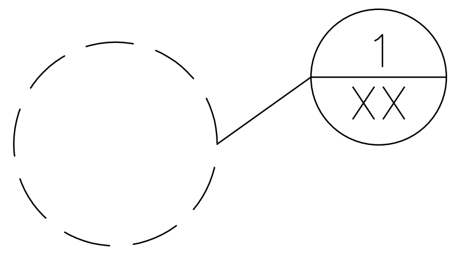
COH BAR SCALE



REVISION CLOUD/DELTA

DETAIL/SECTION TITLE

SECTION CALLOUT



DETAIL CALLOUT

ABBREVIATIONS

AB – ALL BELL FITTINGS
AC – ACRES/ACREAGE
ADJ – ADJUSTMENT
ASPH – ASPHALT
ASSY – ASSEMBLY
BC-BC – BACK OF CURB TO BACK OF CURB
BFWV – BUTTER FLY WATER VALVE
BH – BOREHOLE
BM – BENCHMARK
C – CENTER
℄ CL – CENTERLINE
CMP – CORRUGATED METAL PIPE
CONC – CONCRETE
CT – COURT
DET – DETAIL
DIA – DIAMETER
DR – DRIVE
E – EAST
EL – ELEVATION
ELEC – ELECTRIC
EXIST – EXISTING
FL – FLOW LINE
F-F – FACE OF CURB TO FACE OF CURB
FH – FIRE HYDRANT
FT ' – FEET
GM – GAS METER
GT – GUTTER
GV – GATE VALVE
H – HORIZONTAL
IN – INLET
INV – INVERT
IP – IRON PIPE
JT – JOINT
L – LENGTH
LF – LINEAL FEET
LN – LANE
LT – LEFT
MAX – MAXIMUM
MH – MANHOLE
MIN – MINIMUM
MON – MONUMENT
N – NORTH
NE – NORTHEAST
NTS – NOT TO SCALE
NW – NORTHWEST
PC – POINT OF CURVATURE
PL PL – PROPERTY LINE
PRC – POINT OF RADIAL CURVATURE
PROP – PROPOSED
PVC – POLYVINYL CHLORIDE
PVI – POINT OF VERTICAL INFLECTION
R – RADIUS
RCB – REINFORCED CONCRETE BOX
RCP – REINFORCED CONCRETE PIPE
RD – ROAD
ROW – RIGHT OF WAY
R&S – REMOVE AND SALVAGE
RT – RIGHT
S – SOUTH
SAN – SANITARY
SE – SOUTHEAST
SW – SOUTHWEST
SHT – SHEET
ST – STREET
STA – STATION
STM – STORM
SWR – SEWER
SY – SQUARE YARD
TC – TOP OF CURB
TR – TOP OF RIM
TS&V – TAPPING SLEEVE & VALVE
TX – TEXAS
TXDOT – TEXAS DEPART OF TRANSPORTATION
TYP – TYPICAL
V – VERTICAL
W – WEST
WL – WATERLINE
WM – WATERMAIN
@ – AT
& – AND
% – PERCENT
" – INCH
° – DEGREE

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SYMBOLS

SHEET 1 OF 1

WBS NO. M-430296-0017-3
DRAWING SCALE
NOT TO SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 6 OF 345

No.	Revisions	Date	App.

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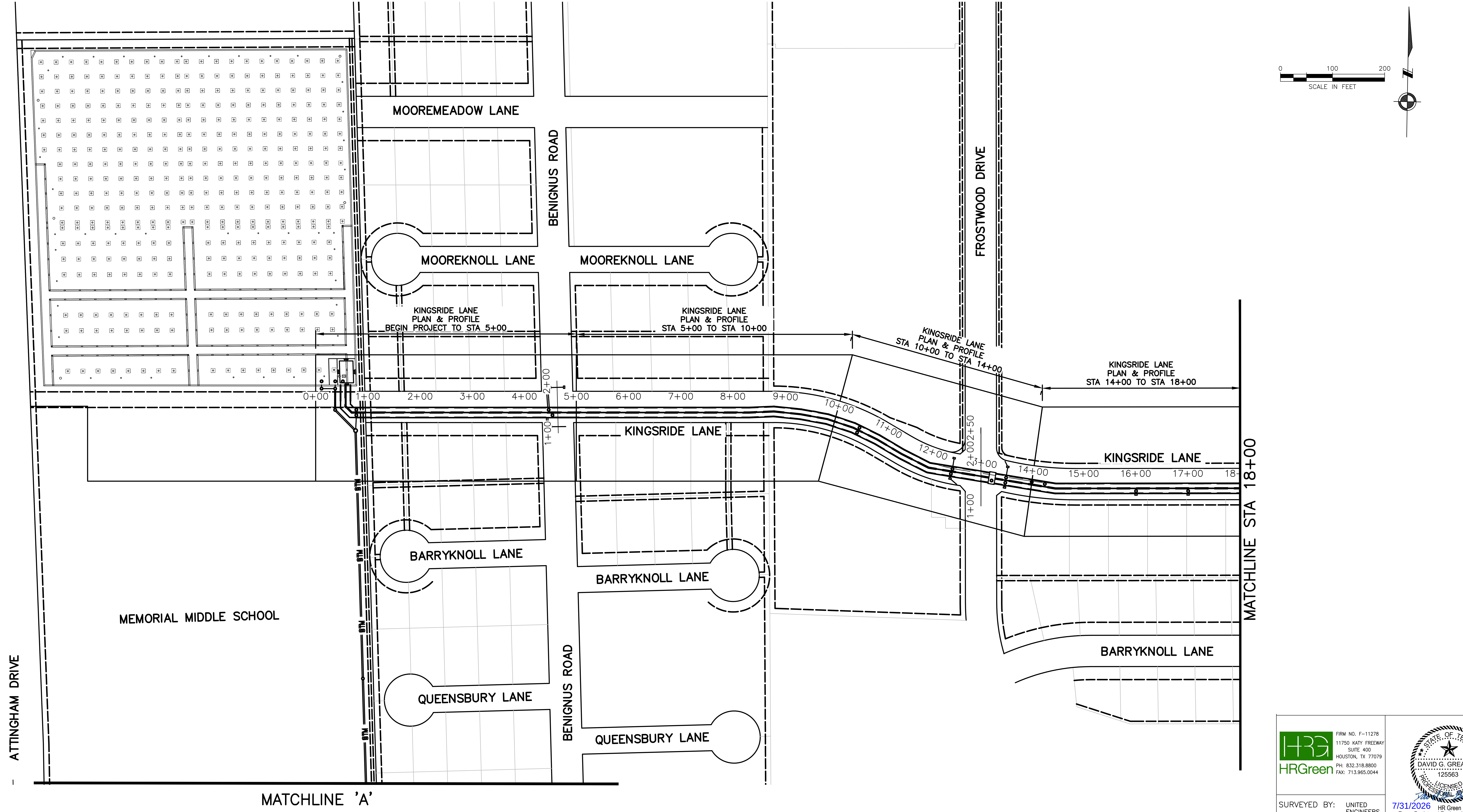
0 100 200
SCALE IN FEET
N
MOOREMEADOW LANE
BENIGNUS ROAD
FROSTWOOD DRIVE
MOOREKNOLL LANE
MOOREKNOLL LANE
KINGSRIDE LANE PLAN & PROFILE BEGIN PROJECT TO STA 5+00
KINGSRIDE LANE PLAN & PROFILE STA 5+00 TO STA 10+00
KINGSRIDE LANE PLAN & PROFILE STA 10+00 TO STA 14+00
KINGSRIDE LANE PLAN & PROFILE STA 14+00 TO STA 18+00
0+00
1+00
2+00
3+00
4+00
2+00
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6+00
7+00
8+00
9+00
10+00
11+00
12+00
2+00
2+50
14+00
15+00
16+00
17+00
18+
1+00
1+00
KINGSRIDE LANE
KINGSRIDE LANE
MATCHLINE STA 18+00
BARRYKNOLL LANE
BARRYKNOLL LANE
BARRYKNOLL LANE
MEMORIAL MIDDLE SCHOOL
ATTINGHAM DRIVE
QUEENSBURY LANE
BENIGNUS ROAD
QUEENSBURY LANE
MATCHLINE 'A'

App.
Revisions
Date
No.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROJECT LAYOUT

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=100' (FULL)
V: N/A

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 7 OF 345

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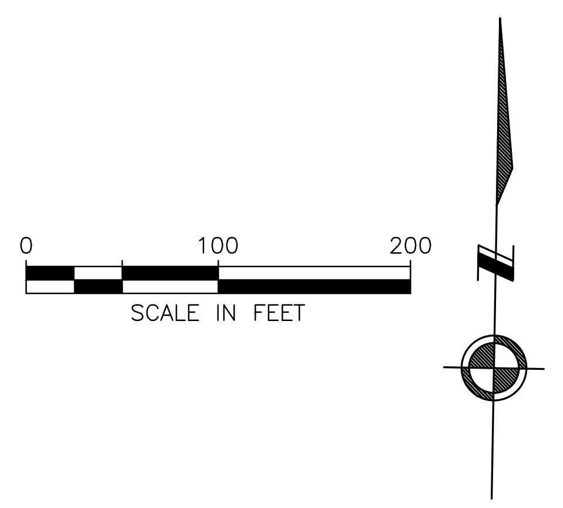
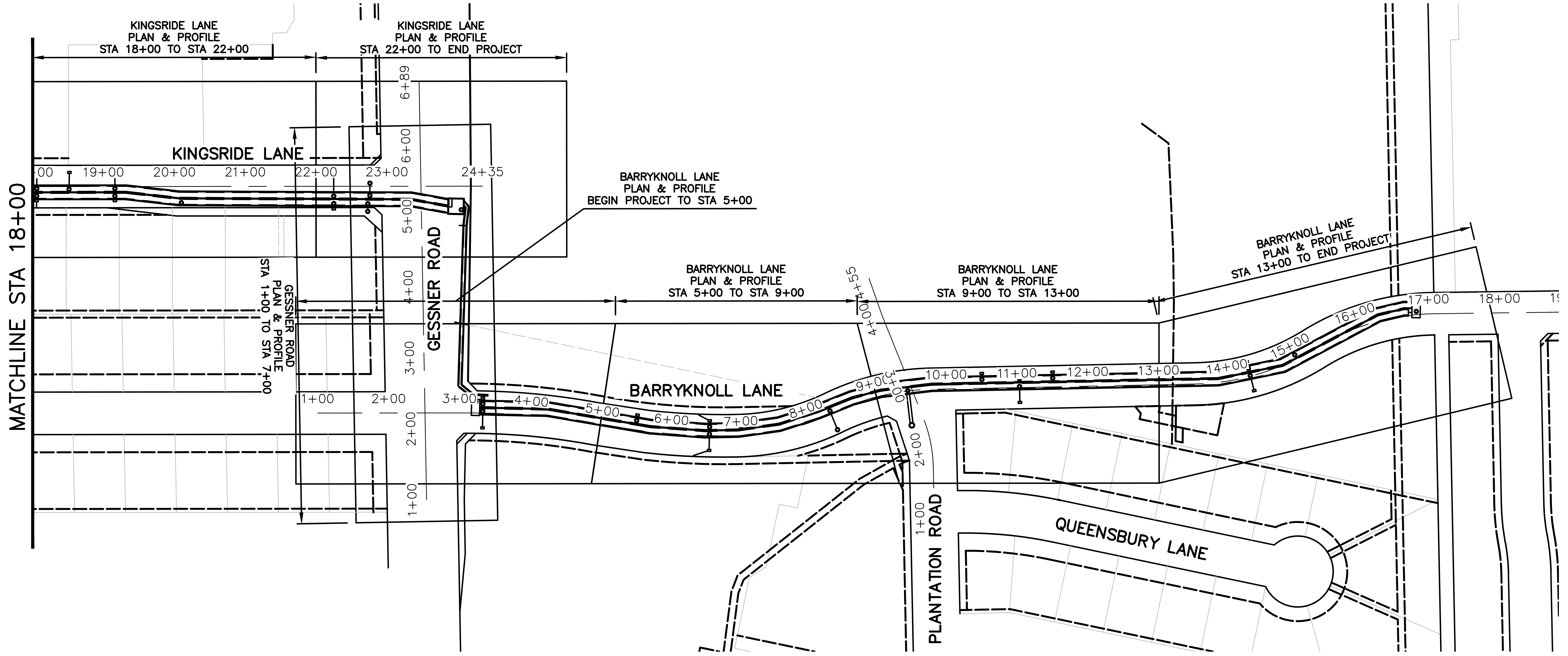

0
100
200
SCALE IN FEET

No.	Date	Revisions	App.


KINGSRIDE LANE
PLAN & PROFILE
STA 18+00 TO STA 22+00
KINGSRIDE LANE
PLAN & PROFILE
STA 22+00 TO END PROJECT
KINGSRIDE LANE
MATCHLINE STA 18+00
00
19+00
20+00
21+00
22+00
23+00
24+35
6+89
6+00
5+00
4+00
3+00
2+00
1+00
GESSNER ROAD
GESSNER ROAD
PLAN & PROFILE
STA 1+00 TO STA 7+00
BARRYKNOLL LANE
PLAN & PROFILE
BEGIN PROJECT TO STA 5+00
BARRYKNOLL LANE
PLAN & PROFILE
STA 5+00 TO STA 9+00
BARRYKNOLL LANE
PLAN & PROFILE
STA 9+00 TO STA 13+00
BARRYKNOLL LANE
PLAN & PROFILE
STA 13+00 TO END PROJECT
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
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11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
BARRYKNOLL LANE
4+55
4+00
3+00
2+00
1+00
PLANTATION ROAD
QUEENSBURY LANE

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7/31/2026
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROJECT LAYOUT

SHEET 2 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

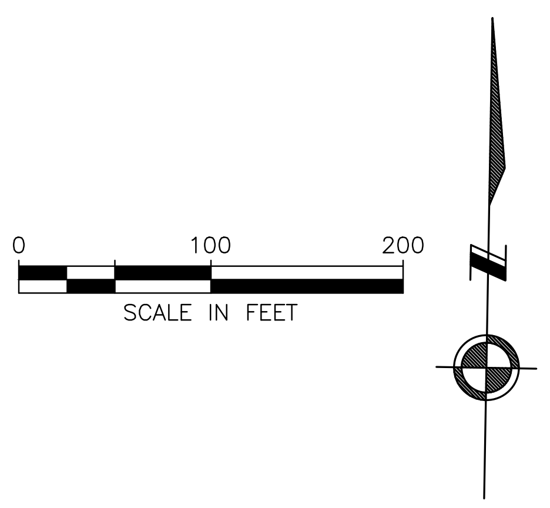
H: 1"=100' (FULL)
V: N/A

CITY OF HOUSTON PM

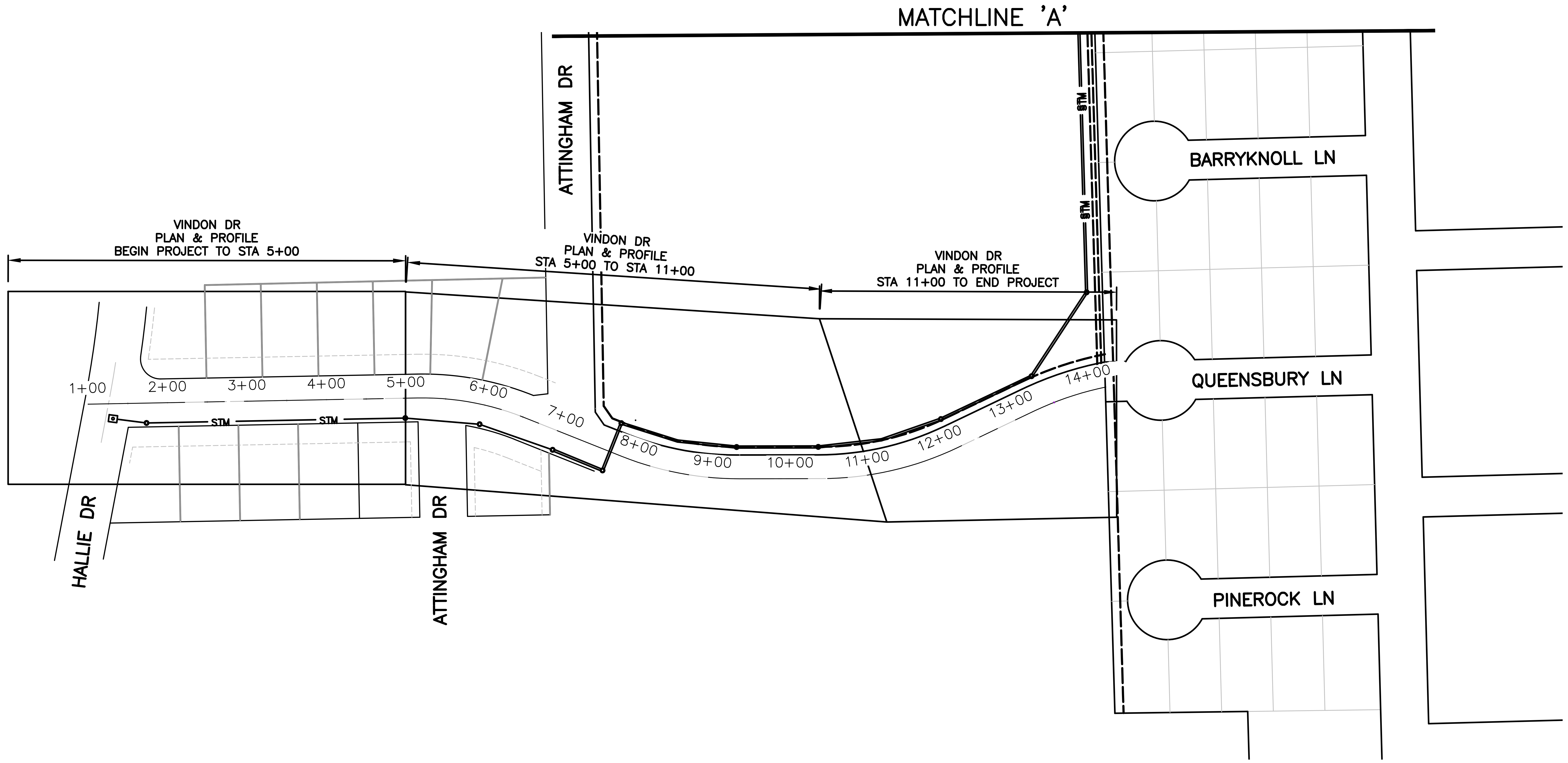
KEVIN HAMMOND, P.E.

SHEET NO. 8 OF 345

No.	Date	Revisions	App.



0
100
200
SCALE IN FEET



MATCHLINE 'A'
ATTINGHAM DR
BARRYKNOLL LN
QUEENSBURY LN
PINEROCK LN
VINDON DR
PLAN & PROFILE
BEGIN PROJECT TO STA 5+00
VINDON DR
PLAN & PROFILE
STA 5+00 TO STA 11+00
VINDON DR
PLAN & PROFILE
STA 11+00 TO END PROJECT
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00
STM
STM
STM
STM
HALLIE DR
ATTINGHAM DR

FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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David G. Greaney

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Texas Registered Engineering Firm F-11278

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROJECT LAYOUT

SHEET 3 OF 3

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=100' (FULL)
V: N/A

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 9 OF 345

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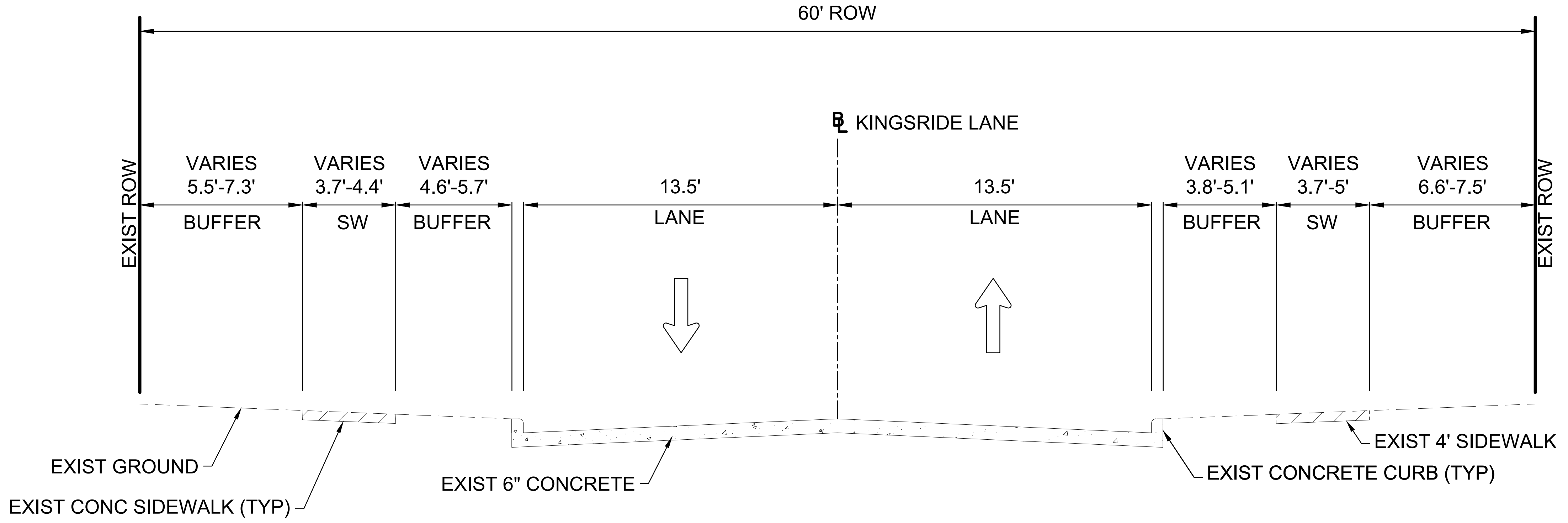
No.	Date	Revisions	App.

LEGEND

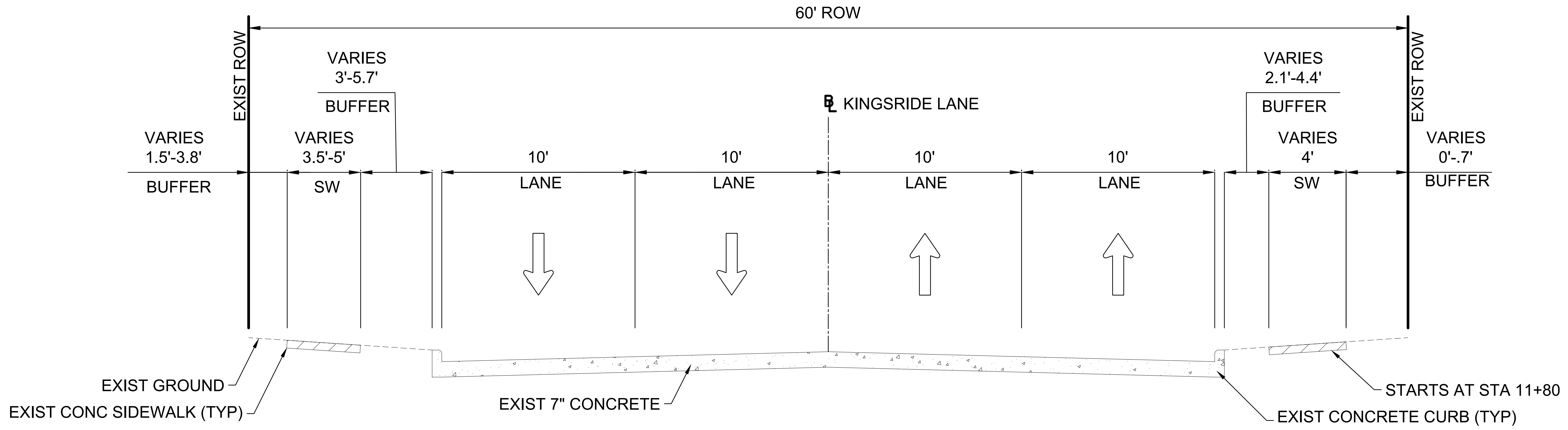
⇨ DIRECTION OF TRAFFIC



60' ROW
℄ KINGSRIDE LANE
EXIST ROW
VARIES 5.5'-7.3' BUFFER
VARIES 3.7'-4.4' SW
VARIES 4.6'-5.7' BUFFER
13.5' LANE
13.5' LANE
VARIES 3.8'-5.1' BUFFER
VARIES 3.7-5' SW
VARIES 6.6'-7.5' BUFFER
EXIST ROW
EXIST GROUND
EXIST CONC SIDEWALK (TYP)
EXIST 6" CONCRETE
EXIST CONCRETE CURB (TYP)
EXIST 4' SIDEWALK

KINGSRIDE LANE

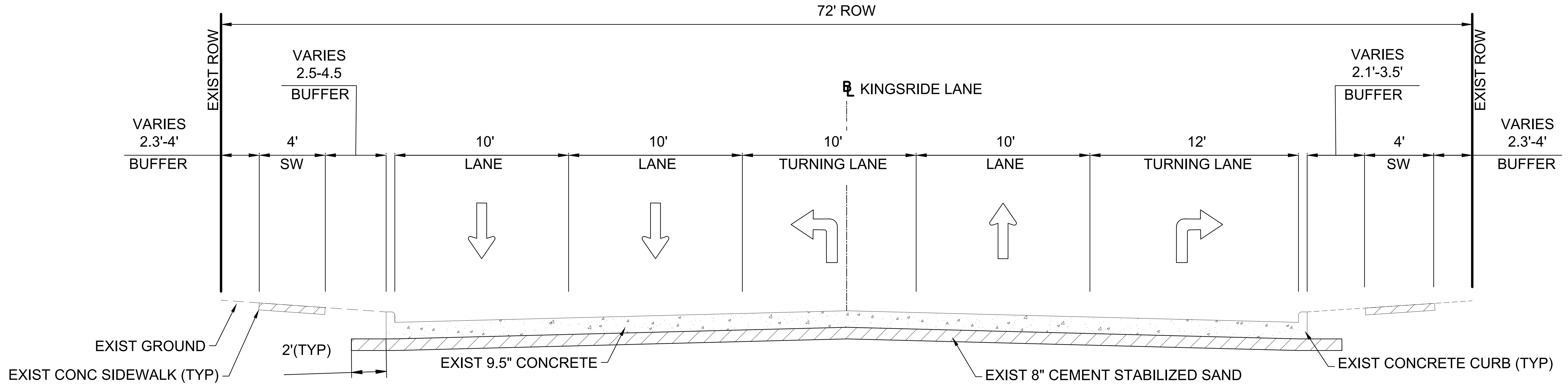
STA 1+00 TO STA 9+00
N.T.S



60' ROW
℄ KINGSRIDE LANE
EXIST ROW
VARIES 1.5'-3.8' BUFFER
VARIES 3'-5.7' BUFFER
VARIES 3.5'-5' SW
10' LANE
10' LANE
10' LANE
10' LANE
VARIES 2.1'-4.4' BUFFER
VARIES 4' SW
VARIES 0'-.7' BUFFER
EXIST ROW
EXIST GROUND
EXIST CONC SIDEWALK (TYP)
EXIST 7" CONCRETE
EXIST CONCRETE CURB (TYP)
STARTS AT STA 11+80

KINGSRIDE LANE

STA 9+0O TO STA 19+00
N.T.S



72' ROW
℄ KINGSRIDE LANE
EXIST ROW
VARIES 2.3'-4' BUFFER
4' SW
VARIES 2.5-4.5 BUFFER
10' LANE
10' LANE
10' TURNING LANE
10' LANE
12' TURNING LANE
VARIES 2.1'-3.5' BUFFER
4' SW
VARIES 2.3'-4' BUFFER
EXIST ROW
EXIST GROUND
EXIST CONC SIDEWALK (TYP)
2'(TYP)
EXIST 9.5" CONCRETE
EXIST 8" CEMENT STABILIZED SAND
EXIST CONCRETE CURB (TYP)

KINGSRIDE LANE

STA 19+00 TO STA 23+00
N.T.S

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING
TYPICAL SECTIONS

SHEET 1 OF 3

WBS NO. M–430296–0017–3

DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 10 OF 345

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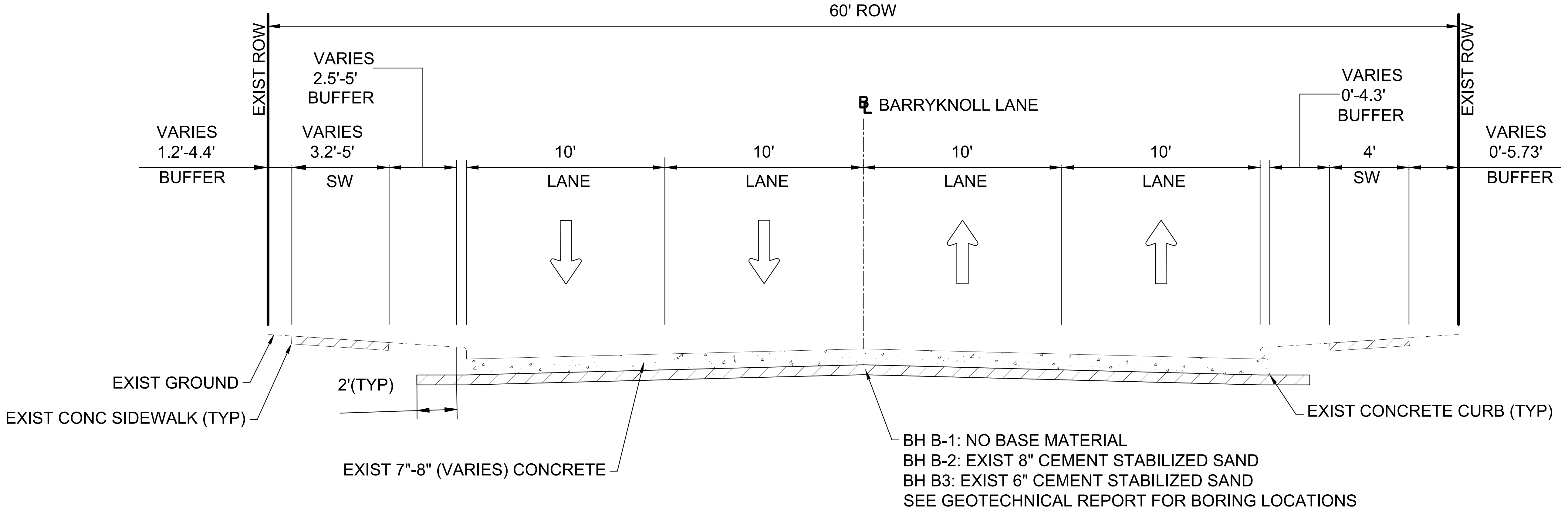
No.	Date	Revisions	App.

LEGEND

⇨ DIRECTION OF TRAFFIC


60' ROW
EXIST ROW
EXIST ROW
VARIES
2.5'-5'
BUFFER
℄ BARRYKNOLL LANE
VARIES
0'-4.3'
BUFFER
VARIES
1.2'-4.4'
BUFFER
VARIES
3.2'-5'
SW
10'
LANE
10'
LANE
10'
LANE
10'
LANE
4'
SW
VARIES
0'-5.73'
BUFFER
EXIST GROUND
EXIST CONC SIDEWALK (TYP)
2'(TYP)
EXIST 7"-8" (VARIES) CONCRETE
EXIST CONCRETE CURB (TYP)
BH B-1: NO BASE MATERIAL
BH B-2: EXIST 8" CEMENT STABILIZED SAND
BH B3: EXIST 6" CEMENT STABILIZED SAND
SEE GEOTECHNICAL REPORT FOR BORING LOCATIONS

BARRYKNOLL LANE

STA 4+00 TO STA 17+00
N.T.S

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING
TYPICAL SECTIONS

SHEET 2 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE
AS NOTED

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 11 OF 345

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No.	Date	Revisions	App.

LEGEND

⇨ DIRECTION OF TRAFFIC

VARIES 129'-153' ROW
EXIST ROW
EXIST ROW
1' CURB OFFSET
1' CURB OFFSET
℄ GESSNER ROAD
1' CURB OFFSET
1' CURB OFFSET
10'
VARIES 0'-11' LANE
11' LANE
11' LANE
VARIES 11'-12' LANE
VARIES 0'-10.5' LANE
VARIES 5'-17' MEDIAN
VARIES 0'-10.5' LANE
VARIES 11'-12' LANE
11' LANE
11' LANE
VARIES 0'-11' LANE
10'
VARIES 1.5'-4.5' BUFFER
VARIES 5'-8' SW
VARIES 5'-8' SW
VARIES 1.5'-4.5' BUFFER
EXIST GROUND
EXIST CONC SIDEWALK (TYP)
2'(TYP)
EXIST 11" CONCRETE
EXIST 4" ASPHALT STAB BASE
EXIST 6" LIME TREATED SUBGRADE
EXIST CONCRETE CURB (TYP)

GESSNER ROAD

STA 1+00 TO STA 6+00
N.T.S

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING
TYPICAL SECTIONS

SHEET 3 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 12 OF 345

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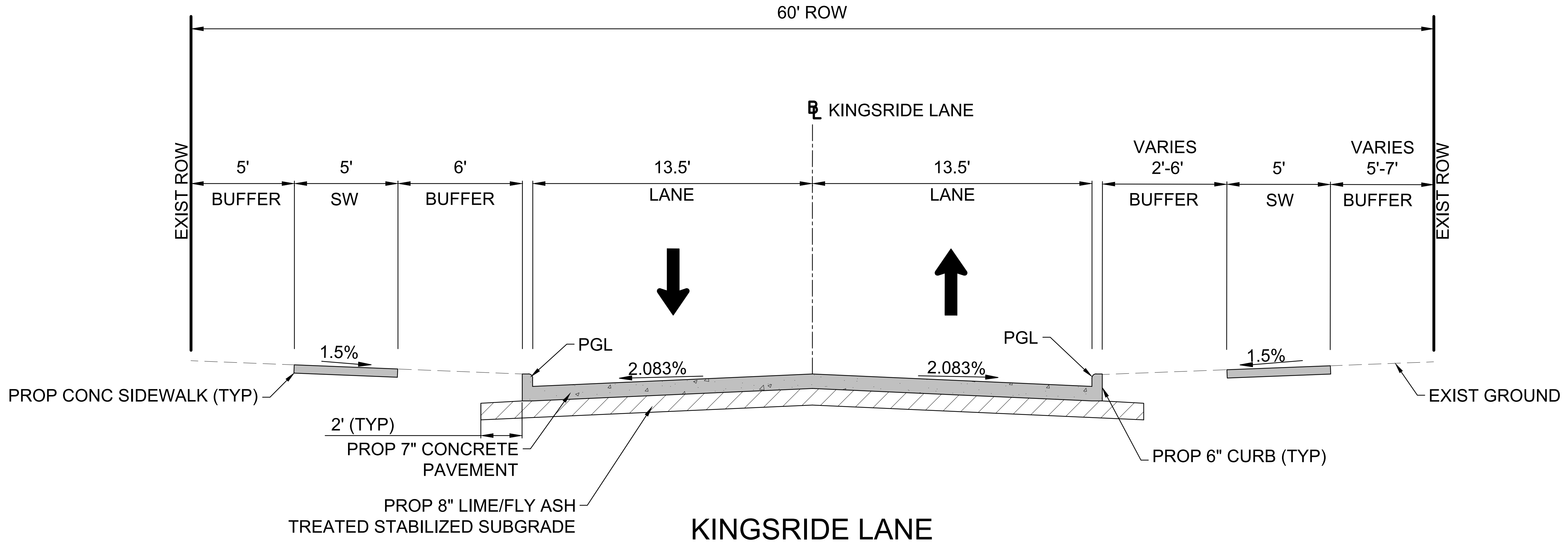
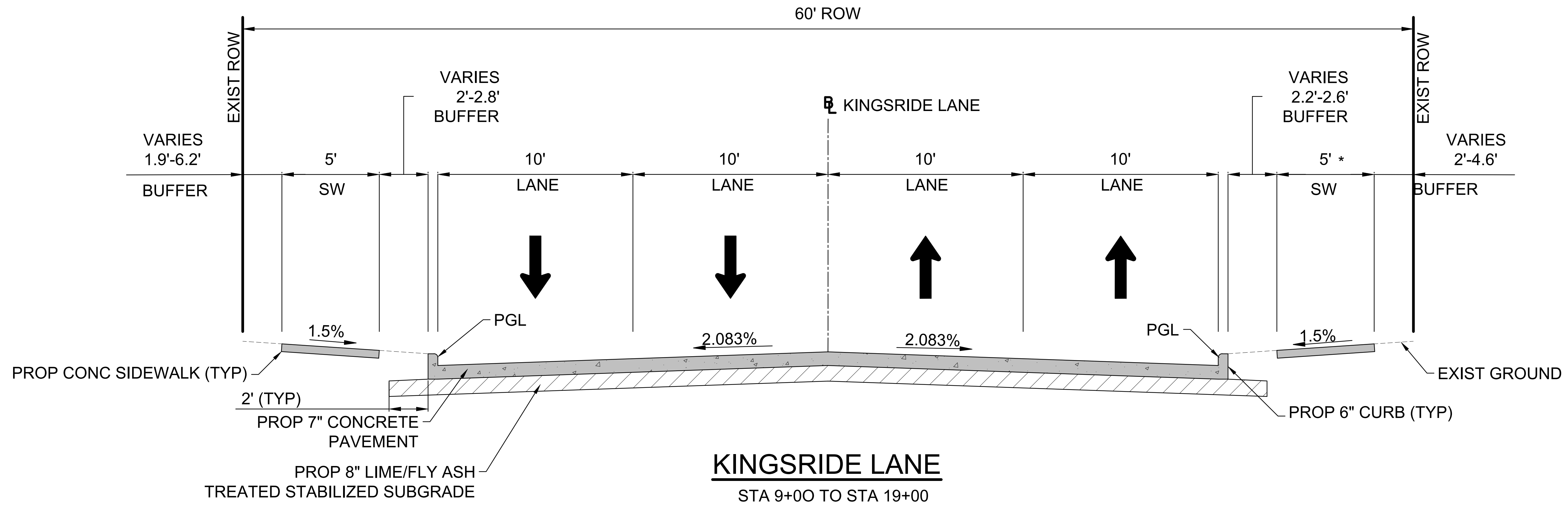

60' ROW
℄ KINGSRIDE LANE
EXIST ROW
5'
BUFFER
5'
SW
6'
BUFFER
13.5'
LANE
13.5'
LANE
VARIES
2'-6'
BUFFER
5'
SW
VARIES
5'-7'
BUFFER
EXIST ROW
1.5%
PGL
2.083%
2.083%
PGL
1.5%
PROP CONC SIDEWALK (TYP)
EXIST GROUND
2' (TYP)
PROP 7" CONCRETE
PAVEMENT
PROP 6" CURB (TYP)
PROP 8" LIME/FLY ASH
TREATED STABILIZED SUBGRADE

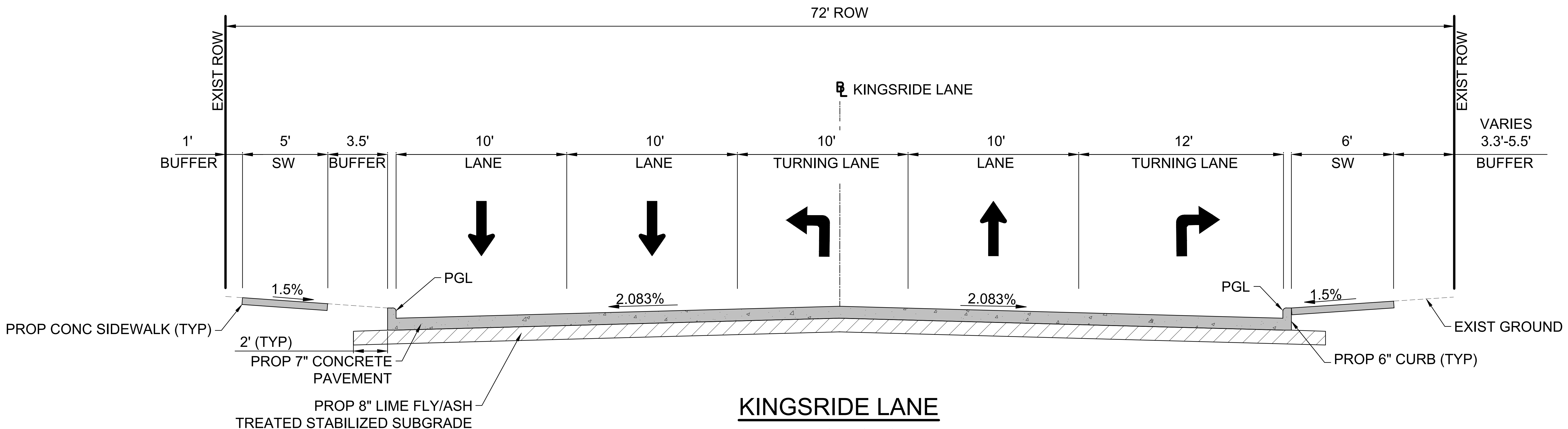
KINGSRIDE LANE

BEGIN PROJECT TO STA 9+00
N.T.S


60' ROW
EXIST ROW
VARIES
2'-2.8'
BUFFER
℄ KINGSRIDE LANE
VARIES
2.2'-2.6'
BUFFER
EXIST ROW
VARIES
1.9'-6.2'
BUFFER
5'
SW
10'
LANE
10'
LANE
10'
LANE
10'
LANE
5' *
SW
VARIES
2'-4.6'
BUFFER
1.5%
PGL
2.083%
2.083%
PGL
1.5%
PROP CONC SIDEWALK (TYP)
EXIST GROUND
2' (TYP)
PROP 7" CONCRETE
PAVEMENT
PROP 6" CURB (TYP)
PROP 8" LIME/FLY ASH
TREATED STABILIZED SUBGRADE

KINGSRIDE LANE

STA 9+0O TO STA 19+00
N.T.S


72' ROW
EXIST ROW
℄ KINGSRIDE LANE
EXIST ROW
1'
BUFFER
5'
SW
3.5'
BUFFER
10'
LANE
10'
LANE
10'
TURNING LANE
10'
LANE
12'
TURNING LANE
6'
SW
VARIES
3.3'-5.5'
BUFFER
1.5%
PGL
2.083%
2.083%
PGL
1.5%
PROP CONC SIDEWALK (TYP)
EXIST GROUND
2' (TYP)
PROP 7" CONCRETE
PAVEMENT
PROP 6" CURB (TYP)
PROP 8" LIME FLY/ASH
TREATED STABILIZED SUBGRADE

KINGSRIDE LANE

STA 19+00 TO PROJECT END
N.T.S

*SIDEWALK SHIFTS
CLOSER TO ROADWAY
TO PRESERVE TREES

LEGEND

➡ DIRECTION OF TRAFFIC

PGL PROFILE GRADE LINE

NOTES:

1. FOR STABILIZED SUBGRADE, REFER TO GEOTECHNICAL REPORT MARCH 06, 2025

No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED TYPICAL SECTIONS

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE
AS NOTED

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 13 OF 345

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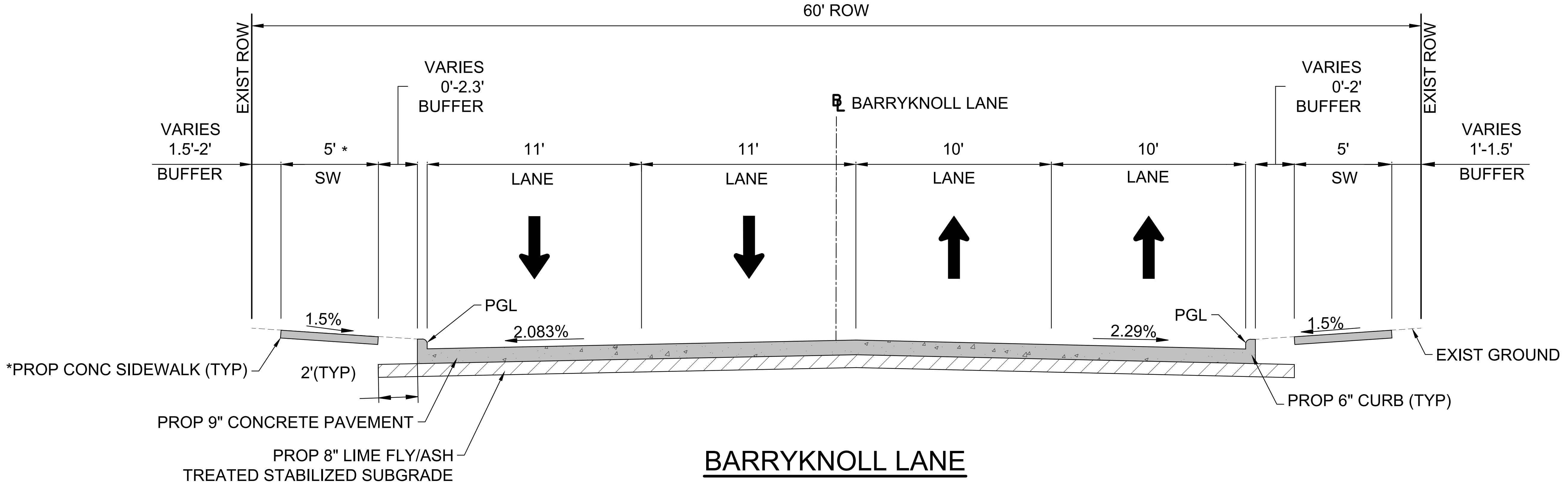
LEGEND

➡ DIRECTION OF TRAFFIC

PGL PROFILE GRADE LINE


60' ROW
EXIST ROW
EXIST ROW
VARIES
0'-2.3'
BUFFER
℄ BARRYKNOLL LANE
VARIES
0'-2'
BUFFER
VARIES
1.5'-2'
BUFFER
5' *
SW
11'
LANE
11'
LANE
10'
LANE
10'
LANE
5'
SW
VARIES
1'-1.5'
BUFFER
PGL
1.5%
2.083%
2.29%
PGL
1.5%
*PROP CONC SIDEWALK (TYP)
2'(TYP)
EXIST GROUND
PROP 9" CONCRETE PAVEMENT
PROP 6" CURB (TYP)
PROP 8" LIME FLY/ASH
TREATED STABILIZED SUBGRADE

BARRYKNOLL LANE

BEGIN PROJECT TO END PROJECT
N.T.S

*SIDEWALK SHIFTS
CLOSER TO ROADWAY
TO PRESERVE TREES

NOTES:

1. FOR STABILIZED SUBGRADE, REFER TO GEOTECHNICAL REPORT MARCH 06, 2025

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED
TYPICAL SECTIONS

SHEET 2 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE
AS NOTED

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 14 OF 345

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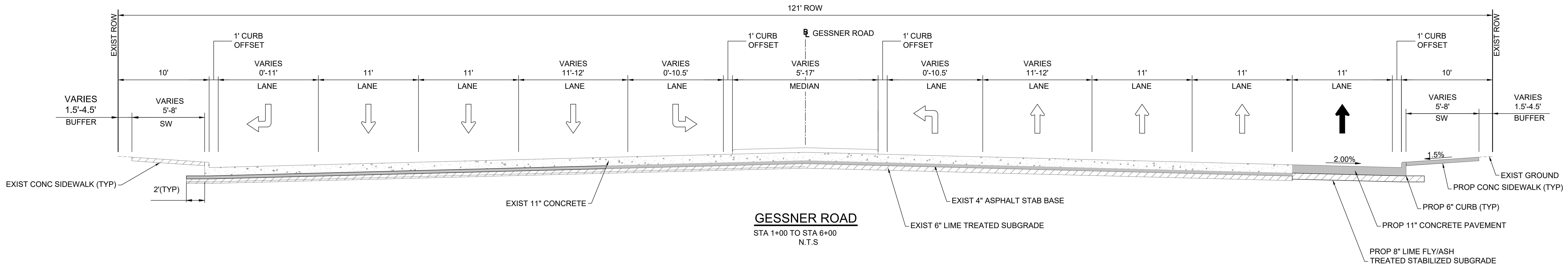
LEGEND

➡ DIRECTION OF TRAFFIC

PGL PROFILE GRADE LINE



121' ROW
EXIST ROW
EXIST ROW
℄ GESSNER ROAD
1' CURB OFFSET
1' CURB OFFSET
1' CURB OFFSET
1' CURB OFFSET
VARIES 1.5'-4.5' BUFFER
10'
VARIES 5'-8' SW
VARIES 0'-11' LANE
11' LANE
11' LANE
VARIES 11'-12' LANE
VARIES 0'-10.5' LANE
VARIES 5'-17' MEDIAN
VARIES 0'-10.5' LANE
VARIES 11'-12' LANE
11' LANE
11' LANE
11' LANE
10'
VARIES 5'-8' SW
VARIES 1.5'-4.5' BUFFER
2.00%
1.5%
EXIST CONC SIDEWALK (TYP)
2'(TYP)
EXIST 11" CONCRETE
EXIST 4" ASPHALT STAB BASE
EXIST 6" LIME TREATED SUBGRADE
EXIST GROUND
PROP CONC SIDEWALK (TYP)
PROP 6" CURB (TYP)
PROP 11" CONCRETE PAVEMENT
PROP 8" LIME FLY/ASH TREATED STABILIZED SUBGRADE

GESSNER ROAD

STA 1+00 TO STA 6+00
N.T.S

NOTES:

1. FOR STABILIZED SUBGRADE, REFER TO GEOTECHNICAL REPORT MARCH 06, 2025

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED
TYPICAL SECTIONS

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE
AS NOTED

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 15 OF 345

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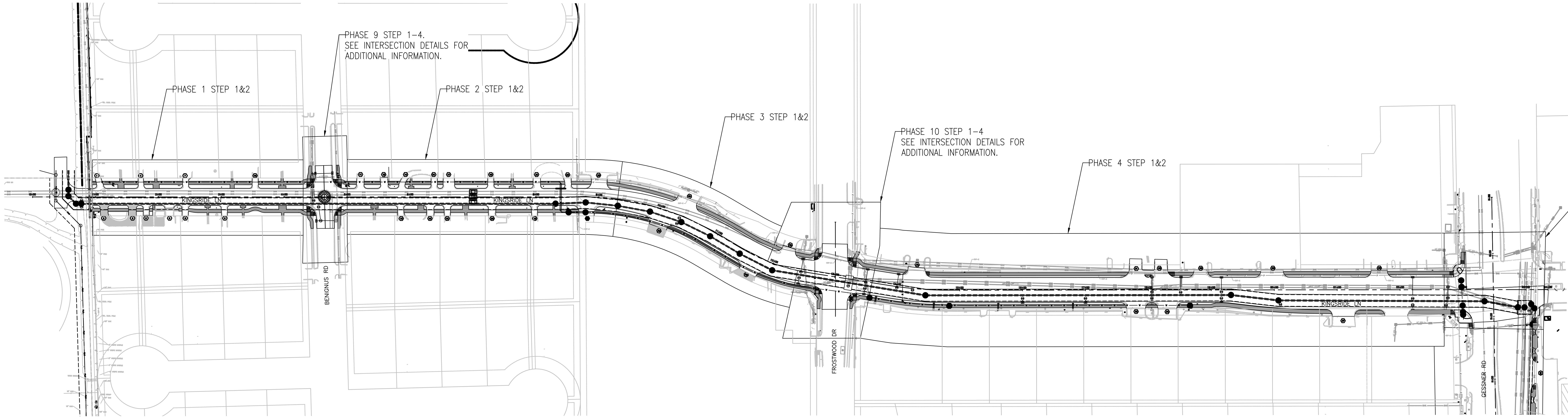
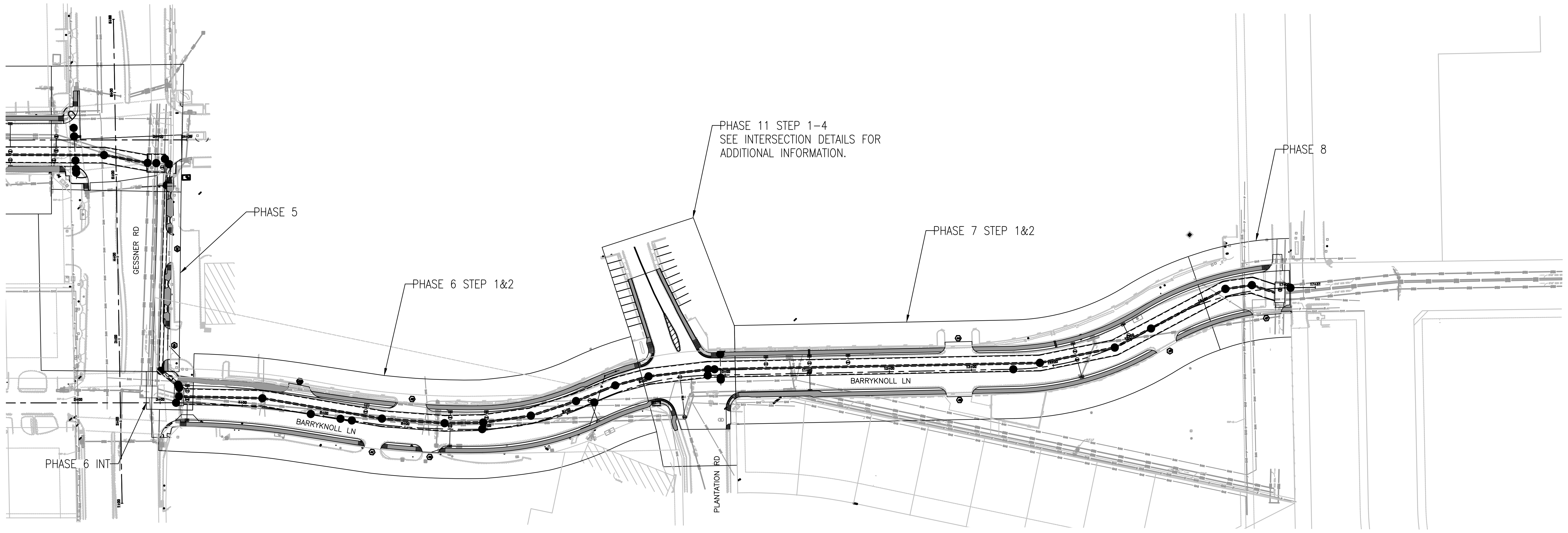
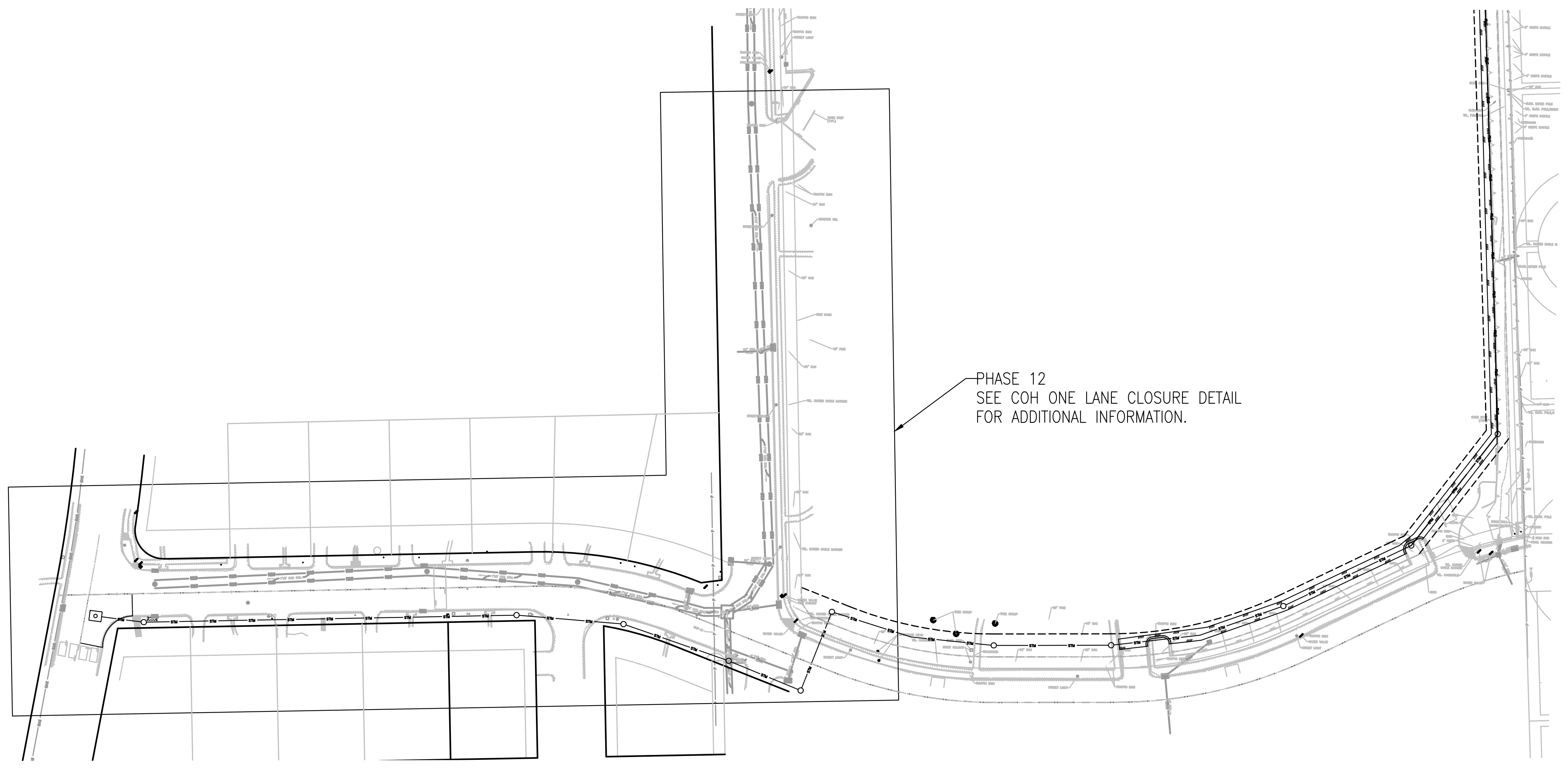

PHASE 9 STEP 1-4.
SEE INTERSECTION DETAILS FOR ADDITIONAL INFORMATION.
PHASE 1 STEP 1&2
PHASE 2 STEP 1&2
PHASE 3 STEP 1&2
PHASE 10 STEP 1-4
SEE INTERSECTION DETAILS FOR ADDITIONAL INFORMATION.
PHASE 4 STEP 1&2
PHASE 4 INT 1,2&3
KINGSRIDE LN
KINGSRIDE LN
BENIGNUS RD
FROSTWOOD DR
KINGSRIDE LN
GESSNER RD


PHASE 11 STEP 1-4
SEE INTERSECTION DETAILS FOR ADDITIONAL INFORMATION.
PHASE 8
PHASE 5
PHASE 7 STEP 1&2
PHASE 6 STEP 1&2
GESSNER RD
BARRYKNOLL LN
BARRYKNOLL LN
PHASE 6 INT
PLANTATION RD


PHASE 12
SEE COH ONE LANE CLOSURE DETAIL FOR ADDITIONAL INFORMATION.

NOTES

1. WORK SECTION LIMITED TO 800FT MAXIMUM.
2. NO TWO CONSECUTIVE CROSS STREET CLOSURES ALLOWED.
3. INTERSECTION WORK TO BE COMPLETED ON WEEKENDS ONLY. REFER TO DRAWINGS FOR USE OF HIGH EARLY STRENGTH CONCRETE.
4. MINIMUM OF 10FT TRAVEL LANE SHALL BE PROVIDED FOR ALL TRAFFIC CONTROL PLANS.

NOTES

PHASING AND CONSTRUCTION NOTE:

1. CONSTRUCTION ON ADJACENT HALVES OF ROADS SHALL BE COMPLETED AND RE-OPENED TO TRAFFIC BEFORE MOVING TO NEXT SEGMENT. NO ADJACENT WORK ZONES SHALL BE CLOSED SIMULTANEOUSLY AND ANY WORK ON MULTIPLE WORK ZONES WILL REQUIRE PRIOR APPROVAL FROM CITY OF HOUSTON.

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FB NO. xxxxx

FCM Engineers, P.C.
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Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL PLAN
OVERALL LAYOUT

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 16 OF 345

STREET NAME - PHASE #	STEP #	NOTES
KINGSRIDE LANE - PHASE 1 (STA 1+00 TO STA 4+30)	STEP 1	CLOSE EAST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN PROPOSED DETENTION BASIN AND BENIGNUS ROAD FOR CONSTRUCTION OF PROPOSED WATERLINE AND STORM BOXES AND MAINTAIN ONE MINIMUM 10-FOOT LANE FOR TWO WAY TRAFFIC WITH FLAGGER OPERATION. REMOVE EXISTING CURB AND ADD TEMPORARY ASPHALT ON THE NORTH SIDE TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THROUGH TRAFFIC. CONTRACTOR TO ADD YIELD SIGNS FOR AFTER HOURS OPERATION OR WHEN FLAGGER IS NOT THERE.
KINGSRIDE LANE - PHASE 1 (STA 1+00 TO STA 4+30)	STEP 2	CLOSE WEST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN PROPOSED DETENTION BASIN AND BENIGNUS ROAD FOR CONSTRUCTION AND MAINTAIN ONE MINIMUM 10-FOOT LANE FOR TWO WAY TRAFFIC WITH FLAGGER OPERATION. CONTRACTOR TO ADD YIELD SIGNS FOR AFTER HOURS OPERATION OR WHEN FLAGGER IS NOT THERE.
KINGSRIDE LANE - PHASE 2 (STA 5+00 TO STA 9+30)	STEP 1	CLOSE EAST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN BENIGNUS ROAD AND FROSTWOOD DRIVE FOR CONSTRUCTION OF PROPOSED WATERLINE AND STORM BOXES . MAINTAIN ONE MINIMUM 10-FOOT LANE FOR TWO WAY TRAFFIC WITH FLAGGER OPERATION. REMOVE EXISTING CURB AND ADD TEMPORARY ASPHALT ON THE NORTH SIDE TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THROUGH TRAFFIC. CONTRACTOR TO PROVIDE ONE WEST BOUND TRAFFIC LANE FOR AFTER HOURS OPERATION OR WHEN FLAGGER IS NOT THERE. DETOUR EAST BOUND TRAFFIC. CONTRACTOR MAY CHOOSE TO COMBINE PHASE 2 STEP 1 WITH PHASE 3 STEP 1 WITH ENGINEER'S APPROVAL TO MAINTAIN THE TRAFFIC FLOW AND TO MEET THE CONSTRUCTION SCHEDULE.
KINGSRIDE LANE - PHASE 2 (STA 5+00 TO STA 9+30)	STEP 2	CLOSE WEST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN BENIGNUS ROAD AND FROSTWOOD DRIVE FOR CONSTRUCTION AND MAINTAIN ONE MINIMUM 10-FOOT LANE FOR TWO WAY TRAFFIC WITH FLAGGER OPERATION. CONTRACTOR TO PROVIDE ONE EAST BOUND LANE FOR AFTER HOURS OPERATION OR WHEN FLAGGER IS NOT THERE. DETOUR WEST BOUND TRAFFIC. CONTRACTOR MAY CHOOSE TO COMBINE PHASE 2 STEP 2 WITH PHASE 3 STEP 2 WITH ENGINEER'S APPROVAL TO MAINTAIN THE TRAFFIC FLOW AND TO MEET THE CONSTRUCTION SCHEDULE.
KINGSRIDE LANE - PHASE 3 (STA 9+30 TO STA 12+40)	STEP 1	CLOSE EAST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN BENIGNUS ROAD AND FROSTWOOD DRIVE FOR CONSTRUCTION OF PROPOSED STORM BOXES . MAINTAIN ONE MINIMUM 10-FOOT LANE FOR WEST BOUND TRAFFIC AND DETOUR EAST BOUND LANE. CONTRACTOR MAY CHOOSE TO COMBINE PHASE 3 STEP 1 WITH PHASE 2 STEP 1 WITH ENGINEER'S APPROVAL TO MAINTAIN THE TRAFFIC FLOW AND TO MEET THE CONSTRUCTION SCHEDULE.
KINGSRIDE LANE - PHASE 3 (STA 9+30 TO STA 12+40)	STEP 2	CLOSE WEST BOUND TRAFFIC LANE ALONG KINGSRIDE LANE BETWEEN BENIGNUS ROAD AND FROSTWOOD DRIVE FOR CONSTRUCTION. MAINTAIN TWO MINIMUM 10-FOOT LANES FOR EAST AND WEST BOUND TRAFFIC. CONTRACTOR MAY CHOOSE TO COMBINE PHASE 3 STEP 2 WITH PHASE 2 STEP 2 WITH ENGINEER'S APPROVAL TO MAINTAIN THE TRAFFIC FLOW AND TO MEET THE CONSTRUCTION SCHEDULE.
KINGSRIDE LANE - PHASE 4 (STA 19+00 TO STA 22+70)	STEP 1	CLOSE TWO EAST BOUND AND ONE WEST BOUND TRAFFIC LANES ALONG KINGSRIDE LANE BETWEEN FROSTWOOD DRIVE AND GESSNER ROAD FOR CONSTRUCTION OF PROPOSED STORM BOXES . MAINTAIN ONE MINIMUM 10-FOOT LANE FOR WEST BOUND TRAFFIC AND DETOUR EAST BOUND LANE. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION. ENTRANCE TO MEDICAL PLAZA 3 GARAGE ON KINGSRIDE LN SHOULD NEVER BE CLOSED DURING CONSTRUCTION. CONTRACTOR TO MAKE SURE EMERGENCY RESPONDERS SHOULD ENTER THE HOSPITAL OFF OF GESSNER RD DURING CONSTRUCTION.
KINGSRIDE LANE - PHASE 4 (STA 19+00 TO STA 22+70)	STEP 2	CLOSE TWO WEST BOUND TRAFFIC LANES ALONG KINGSRIDE LANE BETWEEN FROSTWOOD DRIVE AND GESSNER ROAD FOR CONSTRUCTION. MAINTAIN TWO MINIMUM 10-FOOT LANES FOR EAST AND WEST BOUND TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION. ENTRANCE TO MEDICAL PLAZA 3 GARAGE ON KINGSRIDE LN SHOULD NEVER BE CLOSED DURING CONSTRUCTION. CONTRACTOR TO MAKE SURE EMERGENCY RESPONDERS SHOULD ENTER THE HOSPITAL OFF OF GESSNER RD DURING CONSTRUCTION.
GESSNER ROAD & KINGSRIDE LANE - PHASE 4	INTERSECTION 1	CLOSE GESSNER ROAD SOUTH BOUND LANES FOR CONSTRUCTION AND SHIFT SOUTH BOUND TRAFFIC LANES TO NORTH BOUND LANES. MAINTAIN A MINIMUM OF TWO (2) SOUTH AND NORTH BOUND LANES AT ALL TIMES FOR TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION. NO CONSTRUCTION WORK ALLOWED ALONG GESSNER ROAD AND NEAR MALL ENTRANCE FROM THE SATURDAY BEFORE THANKSGIVING THROUGH NEW YEAR'S DAY.
GESSNER ROAD & KINGSRIDE LANE - PHASE 4	INTERSECTION 2	CLOSE KINGSRIDE LANE WEST BOUND LANES FOR CONSTRUCTION. MAINTAIN TWO MINIMUM 10-FOOT LANES FOR EAST AND WEST BOUND TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION. NO CONSTRUCTION WORK ALLOWED ALONG GESSNER ROAD AND NEAR MALL ENTRANCE FROM THE SATURDAY BEFORE THANKSGIVING THROUGH NEW YEAR'S DAY.
GESSNER ROAD & KINGSRIDE LANE - PHASE 4	INTERSECTION 3	CLOSE GESSNER ROAD NORTH BOUND LANES FOR CONSTRUCTION AND SHIFT NORTH BOUND TRAFFIC LANES TO SOUTH BOUND LANES. MAINTAIN A MINIMUM OF TWO (2) SOUTH AND NORTH BOUND LANES AT ALL TIMES FOR TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION. NO CONSTRUCTION WORK ALLOWED ALONG GESSNER ROAD AND NEAR MALL ENTRANCE FROM THE SATURDAY BEFORE THANKSGIVING THROUGH NEW YEAR'S DAY.

STREET NAME - PHASE #	STEP #	NOTES
GESSNER ROAD - PHASE 5	STEP 1	CLOSE ONE NORTH BOUND OUTER MOST TRAFFIC LANE ALONG GESSNER ROAD FOR CONSTRUCTION AND MAINTAIN A MINIMUM OF TWO NORTH BOUND LANES FOR TRAFFIC.CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION. NO CONSTRUCTION WORK ALLOWED ALONG GESSNER ROAD AND NEAR MALL ENTRANCE FROM THE SATURDAY BEFORE THANKSGIVING THROUGH NEW YEAR'S DAY.
BARRYKNOLL LANE - PHASE 6 (STA 3+40 TO STA 9+00)	STEP 1	CLOSEWEST BOUND TRAFFIC LANES ALONG BARRYKNOLL LANE BETWEEN GESSNER RD AND PLANTATION DR FOR STORM BOX CONSTRUCTION AND MAINTAIN A MINIMUM OF ONE (1) 10-FOOT EAST BOUND LANE FOR TRAFFIC. DETOUR WEST BOUND TRAFFIC LANES. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION.
BARRYKNOLL LANE - PHASE 6 (STA 3+40 TO STA 9+00)	STEP 2	CLOSE EAST BOUND TRAFFIC LANES ALONG BARRYKNOLL LANE BETWEEN GESSNER RD AND PLANTATION DR FOR CONSTRUCTION AND MAINTAIN A MINIMUM OF TWO (2) 10-FOOT WEST BOUND LANES AND ONE (1) EAST BOUND LANE FOR TRAFFIC. CONTRACTOR TO ADJUST THE SIGNAL HEAD AND ADD TEMPORARY SIGNAL HEADS AS NECESSARY FOR CONSTRUCTION.
BARRYKNOLL LANE - PHASE 7 (STA 10+00 TO STA 16+00)	STEP 1	CLOSE WEST BOUND TRAFFIC LANES ALONG BARRYKNOLL LANE BETWEEN PLANTATION DR AND PROJECT END FOR STORM BOX CONSTRUCTION AND MAINTAIN A MINIMUM OF ONE (1) 10-FOOT WEST AND EAST BOUND LANES FOR TRAFFIC. REMOVE EXISTING CURB ON SOUTH SIDE AND ADD TEMPORARY ASHPHALT TO PROVIDE MIN. 10-FOOT TRAFFIC LANES.
BARRYKNOLL LANE - PHASE 7 (STA 10+00 TO STA 16+00)	STEP 2	CLOSE EAST BOUND TRAFFIC LANES ALONG BARRYKNOLL LANE BETWEEN PLANTATION DR AND PROJECT END FOR CONSTRUCTION AND MAINTAIN A MINIMUM OF ONE (1) 10-FOOT WEST AND EAST BOUND LANES FOR TRAFFIC.
BARRYKNOLL LANE - PHASE 8 PROJECT END LOCATION	STEP 1	COMPLETELY CLOSE BARRYKNOLL LANE FOR STORM BOX CONSTRUCTION AND DETOUR BOTH EAST AND WEST BOUND TRAFFIC.
BENIGNUS RD & KINSRIDE LN INTERSECTION - PHASE 9	STEPS `1-4	USE INTERSECTION DETAILS FOR CONSTRUCTION.
FROSTWOOD DR & KINSRIDE LN INTERSECTION - PHASE 10	STEPS `1-4	USE INTERSECTION DETAILS FOR CONSTRUCTION.
PLANTATION RD & BARRYKNOLL LN INTERSECTION - PHASE 11	STEPS `1-4	USE INTERSECTION DETAILS FOR CONSTRUCTION.
VINDON DR - PHASE 12	STEP 1	USE COH ONE LANE CLOSURE DETAIL FOR CONSTRUCTION.

No	Date	Revisions	App

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3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL PLAN
GENERAL CONSTRUCTION NOTES

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 17 OF 345

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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.

GENERAL NOTES

1. 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 WITIH REVISIONS DURING THE ENTIRE CONSTRUCTION PERIOD.
2. ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL CONFORM THE LATEST VERSION OF THE TMUTCD.
3. 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.
4. NO WORK SHALL BE PERFORMED IN RESIDENTIAL AREAS FROM 7:00 PM TO 7:00 AM.
5. 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.
6. CONTRACTOR SHALL MAINTAIN TRAFFIC LANES AND DETOURS ACCORDING TO TRAFFIC CONTROL PLANS DURING WORKING HOURS.
7. 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.
8. 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.
9. CONTRACTOR SHALL SECURE LANE/SIDEWALK/BICYCLE FACILITY CLOSURE PERMITS FROM OFFICE OF CITY ENGINEER (MOBILITY PERMIT SECTION AT https://geohub.houstontx.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.
10. CONTRACTOR SHALL HAVE APPROVED TRAFFIC CONTROL PLAN AND PERMIT AT THE JOB SITE FOR INSPECTION AT ALL TIMES.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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).
17. 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.
18. 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.
19. SPILLAGE RESULTING FROM HAULING OPERATIONS ALONG OR ACROSS ANY PUBLIC TRAVELED WAY SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR.
20. 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.
21. 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.
22. THE CONTRACTOR SHALL REPLACE WITHIN 72 HOURS, ALL TRAFFIC SIGNAL LOOP DETECTORS DAMAGED DURING CONSTRUCTION.
23. 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.
24. APPROVED TRAFFIC CONTROL PLAN SHALL BE IN PLACE BEFORE STARTING ANY EXCAVATION.
25. 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.
26. WATER FILLED BARRIERS MUST BE INSTALLED AND MAINTAINED PER THE MANUFACTURER'S REQUIREMENTS AND ROUTINELY INSPECTED FOR DEFECTS.
27. 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.
28. DISPOSE OF WATER AND AGENT PROPERLY. DO NOT DRAIN WATER FILLED BARRIER INTO OR ACROSS AN EXISTING TRAVEL LANE.
29. PROVIDE BARRIER UNITS THAT ARE CAPABLE OF BEING LIFTED AND MOVED WHEN FILLED IF DRAINING IS NOT POSSIBLE.
30. PROVIDE WATER FILLED BARRIER THAT ACTS AS ITS OWN FREE STANDING, NON—REDIRECTIVE END TREATMENT.
31. 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.
32. 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

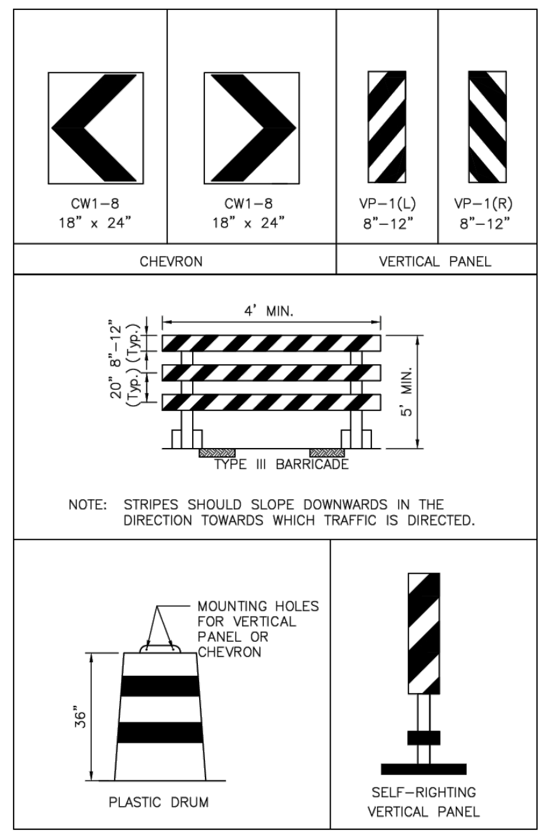
A. PLASTIC DRUMS ON MERGING TAPER @ 30' C — C WITH CHEVRON SIGN @ 60' C — C AND WARNING LIGHTS FOR OVERNIGHT CLOSURE.
B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 30' C — C (RETURN TAPER AND BARRICADE ARE OPTIONAL AND DIVIDED ROADWAY SECTION)
C. PLASTIC DRUMS ON RADII @ 35' C —C.
D. PLASTIC DRUMS ON TANGENT @ 35' C — C WITH VERTICAL PANEL AT 70' C — C AND APPROVED WARNING LIGHT @ 70' C — C (FOR OVERNIGHT CLOSURE).
E. 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).
F. 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.
G. PLASTIC DRUMS W/GUARD RAIL MOUNTED.
H. 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.
I. SPACING SHOWN ON TRAFFIC CONTROL SHALL SUPERSEDE THE ABOVE SPACING.
J. 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

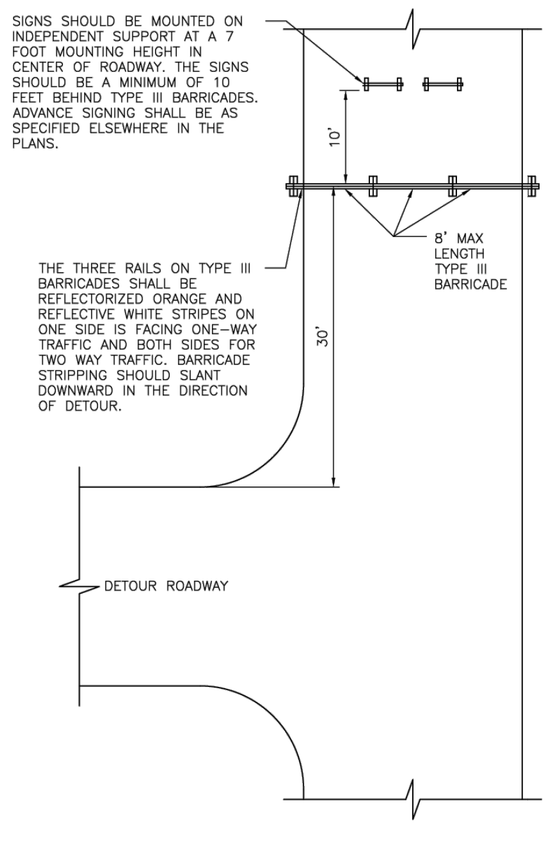


NOTE: STRIPES SHOULD SLOPE DOWNWARDS IN THE DIRECTION TOWARDS WHICH TRAFFIC IS DIRECTED.

CHANNELIZATION AND BARRICADES

LEGEND:

- ┫ SIGN
- ┓ FLAGGER
- ● APPROVED CHANNELIZATION DEVICE
- ┻ BARRICADE
- ▭ FLASHING ARROW PANEL
- ▨ AREA UNDER CONSTRUCTION
- ⇨ EXISTING TRAVEL WAY
- ➡ TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY



SIGNS SHOULD BE MOUNTED ON INDEPENDENT SUPPORT AT A 7 FOOT MOUNTING HEIGHT IN CENTER OF ROADWAY. THE SIGNS SHOULD BE A MINIMUM OF 10 FEET BEHIND TYPE III BARRICADES. ADVANCE SIGNING SHALL BE AS SPECIFIED ELSEWHERE IN THE PLANS.

THE THREE RAILS ON TYPE III BARRICADES SHALL BE REFLECTORIZED ORANGE AND REFLECTIVE WHITE STRIPES ON ONE SIDE IS FACING ONE—WAY TRAFFIC AND BOTH SIDES FOR TWO WAY TRAFFIC. BARRICADE STRIPPING SHOULD SLANT DOWNWARD IN THE DIRECTION OF DETOUR.

PLAN VIEW
TYPE III BARRICADE (POST AND SKID)
TYPICAL APPLICATION

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

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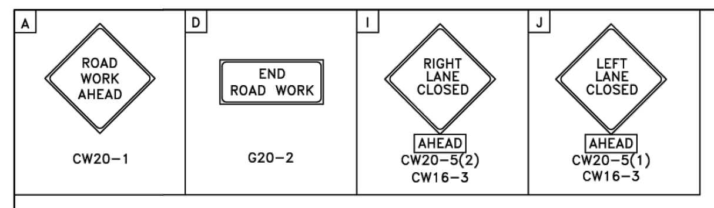
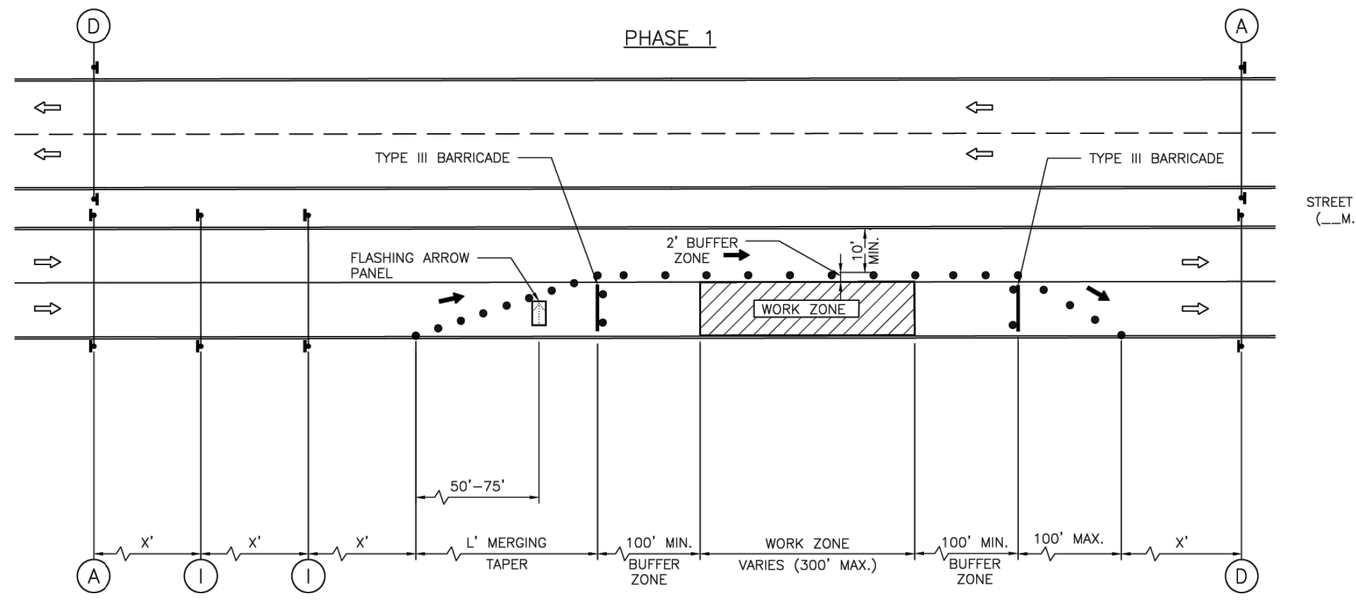
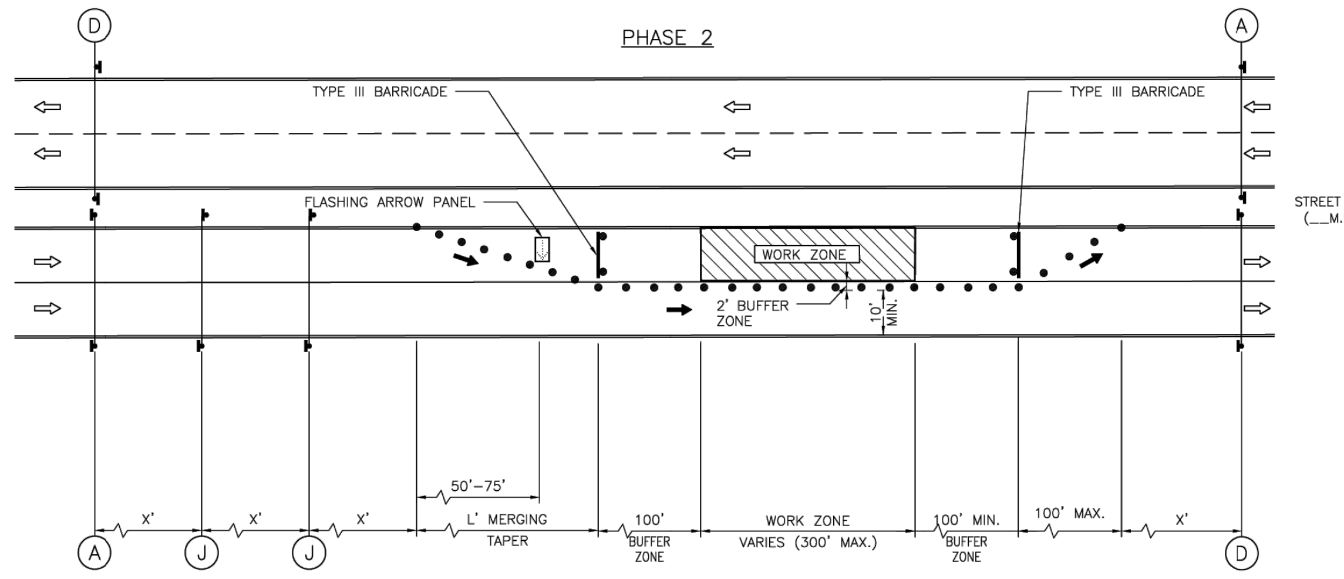


PHASE 1



PHASE 2



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:	APPROVED BY:
DocuSigned by: Suhail kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

DRAWING SCALE
NOT TO SCALE

No.	Date	Revisions	App.

HRGreen
FIRM NO. F—11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. xxxxx

FCM Engineers, P.C.
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL
STANDARD DETAILS

WBS NO. M—430296—0017—3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 18 OF 345

c:\users\917pa\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention – kingride ln standard\tcp\fcm tcp –details.dwg Plotted March 25, 2026 at 12:12 AM by Pavan n

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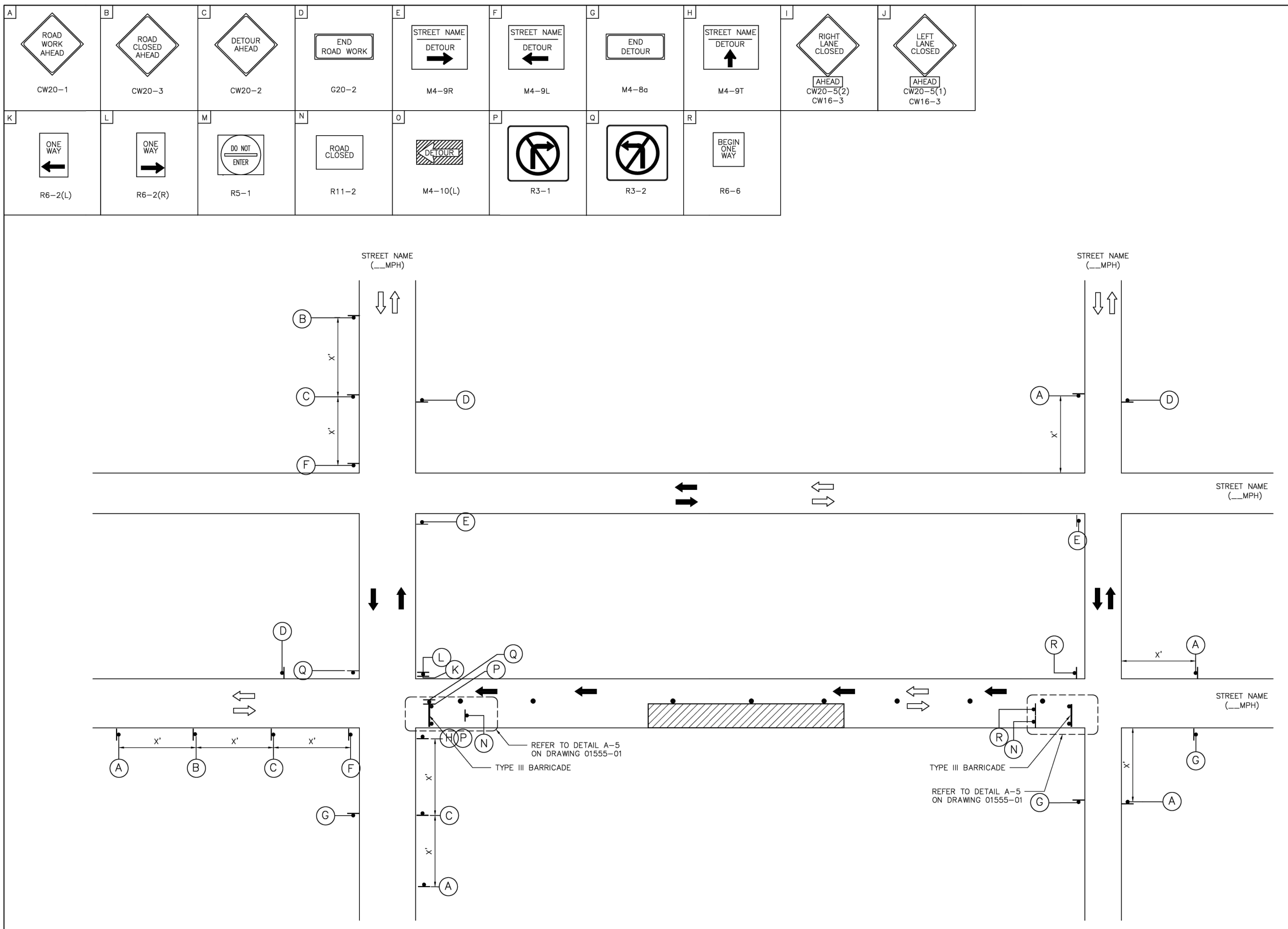
A
ROAD WORK AHEAD
CW20–1
B
ROAD CLOSED AHEAD
CW20–3
C
DETOUR AHEAD
CW20–2
D
END ROAD WORK
G20–2
E
STREET NAME DETOUR
M4–9R
F
STREET NAME DETOUR
M4–9L
G
END DETOUR
M4–8a
H
STREET NAME DETOUR
M4–9T
I
RIGHT LANE CLOSED
AHEAD
CW20–5(2)
CW16–3
J
LEFT LANE CLOSED
AHEAD
CW20–5(1)
CW16–3
K
ONE WAY
R6–2(L)
L
ONE WAY
R6–2(R)
M
DO NOT ENTER
R5–1
N
ROAD CLOSED
R11–2
O
DETOUR
M4–10(L)
P
R3–1
Q
R3–2
R
BEGIN ONE WAY
R6–6
STREET NAME
(__MPH)
X'
TYPE III BARRICADE
REFER TO DETAIL A–5 ON DRAWING 01555–01

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.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail kanwar 9EF8B0C041F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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)

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

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 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.

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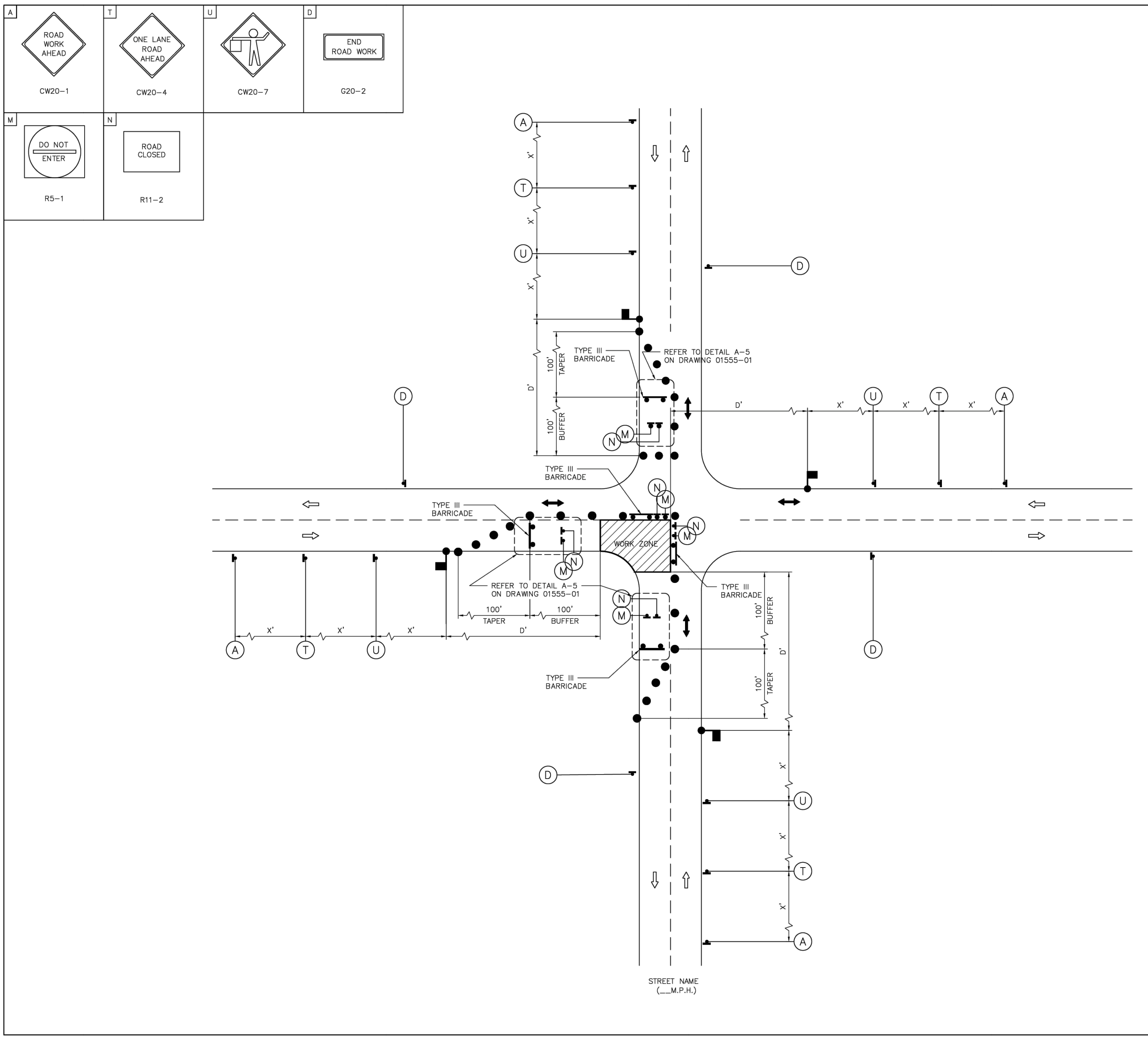
A
ROAD WORK AHEAD
CW20–1
T
ONE LANE ROAD AHEAD
CW20–4
U
CW20–7
D
END ROAD WORK
G20–2
M
DO NOT ENTER
R5–1
N
ROAD CLOSED
R11–2
X'
D'
100'
TAPER
BUFFER
TYPE III BARRICADE
REFER TO DETAIL A–5 ON DRAWING 01555–01
WORK ZONE
STREET NAME
(__M.P.H.)

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:	APPROVED BY:
DocuSigned by: Suhail kanwar 9EF8B0C041F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

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 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.

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
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HOUSTON, TX 77079
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FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. xxxxx

FCM Engineers, P.C.
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Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL
STANDARD DETAILS

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 19 OF 345

c:\users\917pc\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention — kingride ln standard\tcp\fcm tcp -details.dwg Plotted March 25, 2026 at 12:10 AM by Pavan n

No.	Date	Revisions	App.

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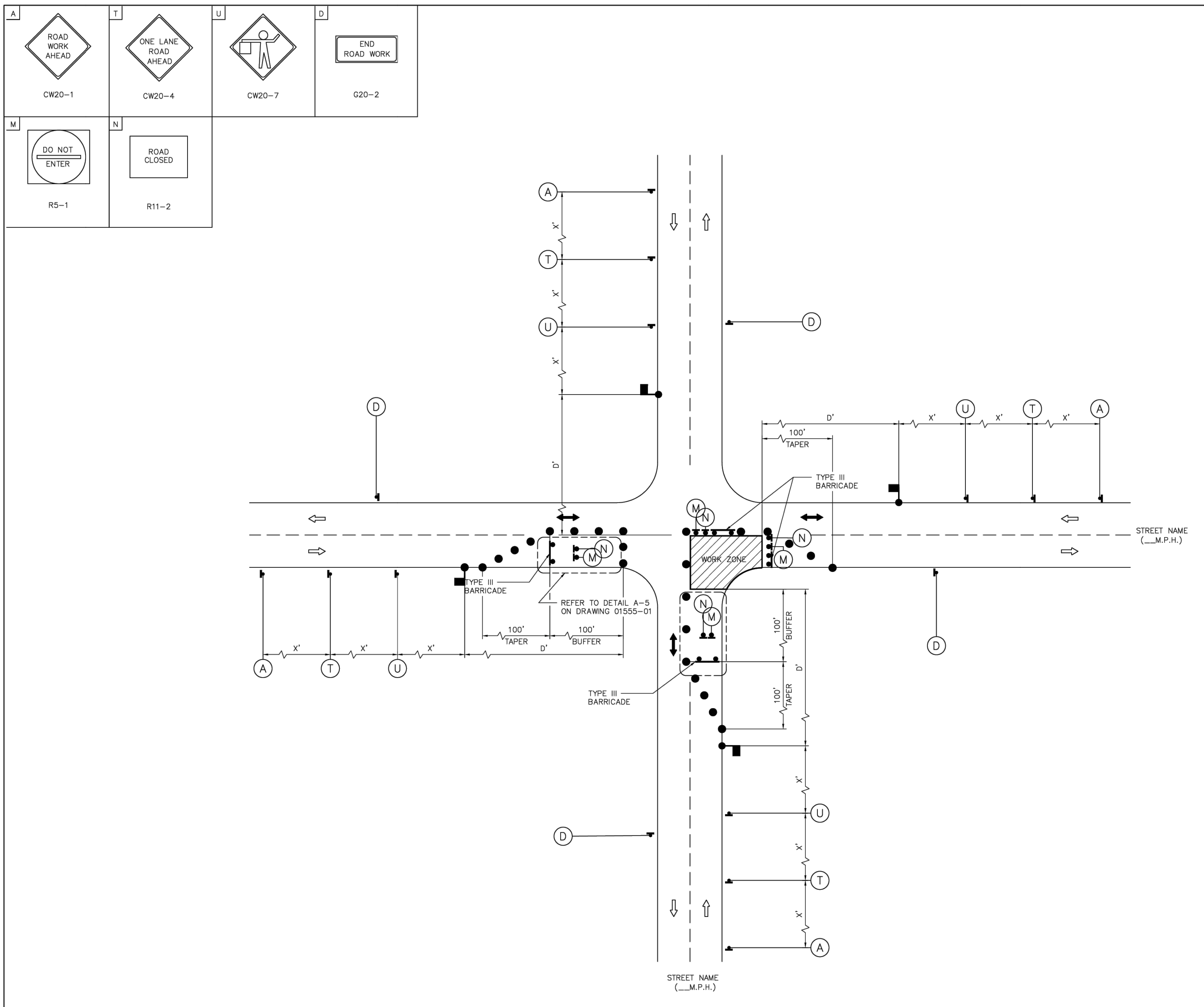
A
ROAD WORK AHEAD
CW20-1
T
ONE LANE ROAD AHEAD
CW20-4
U
CW20-7
D
END ROAD WORK
G20-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
A
T
U
D
M
N
X'
0'
100' TAPER
100' BUFFER
TYPE III BARRICADE
WORK ZONE
REFER TO DETAIL A-5 ON DRAWING 01555-01
STREET NAME (__M.P.H.)

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.

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: DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	APPROVED BY: DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

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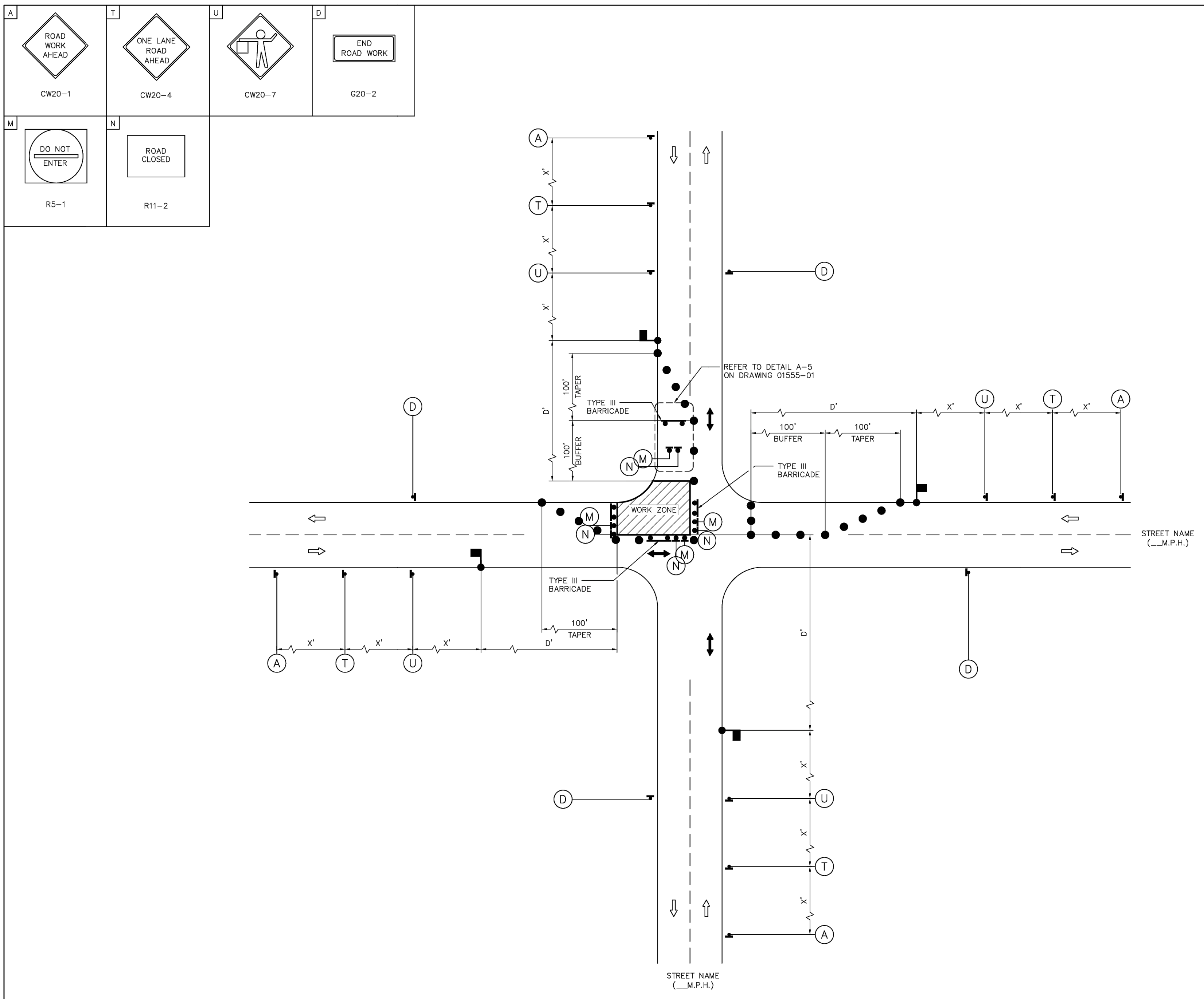
A
ROAD WORK AHEAD
CW20-1
T
ONE LANE ROAD AHEAD
CW20-4
U
CW20-7
D
END ROAD WORK
G20-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
A
T
U
D
M
N
X'
0'
100' TAPER
100' BUFFER
TYPE III BARRICADE
WORK ZONE
REFER TO DETAIL A-5 ON DRAWING 01555-01
STREET NAME (__M.P.H.)

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.

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: DocuSigned by: Suhail Kanwar	APPROVED BY: DocuSigned by: KHANG NGUYEN
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock	
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

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. xxxxx

FCM Engineers, P.C.
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL STANDARD DETAILS

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 20 OF 345

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No.	Date	Revisions	App.

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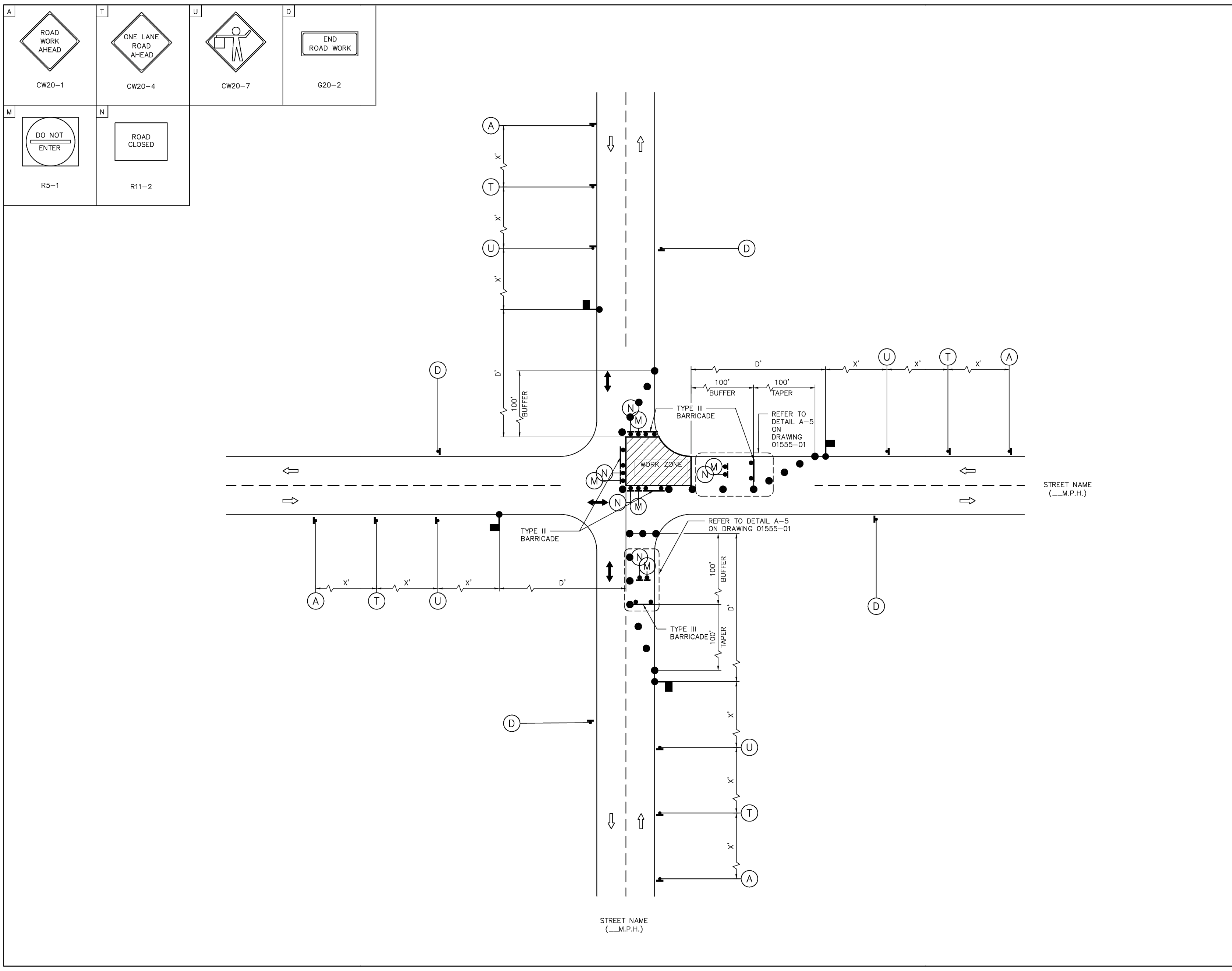

A
ROAD WORK AHEAD
CW20-1
T
ONE LANE ROAD AHEAD
CW20-4
U
CW20-7
D
END ROAD WORK
G20-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
100' BUFFER
0'
100' BUFFER
100' TAPER
TYPE III BARRICADE
REFER TO DETAIL A-5 ON DRAWING 01555-01
WORK ZONE
TYPE III BARRICADE
REFER TO DETAIL A-5 ON DRAWING 01555-01
100' BUFFER
100' TAPER
TYPE III BARRICADE
STREET NAME (__M.P.H.)
STREET NAME (__M.P.H.)

DISCLAIMER:
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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:
DocuSigned by:
Suhail Kanwar
9EF8B0C641F5478...
CITY ENGINEER

APPROVED BY:
DocuSigned by:
KHANG NGUYEN
95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by:
Carol Haddock
A93C410B72B3453...
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

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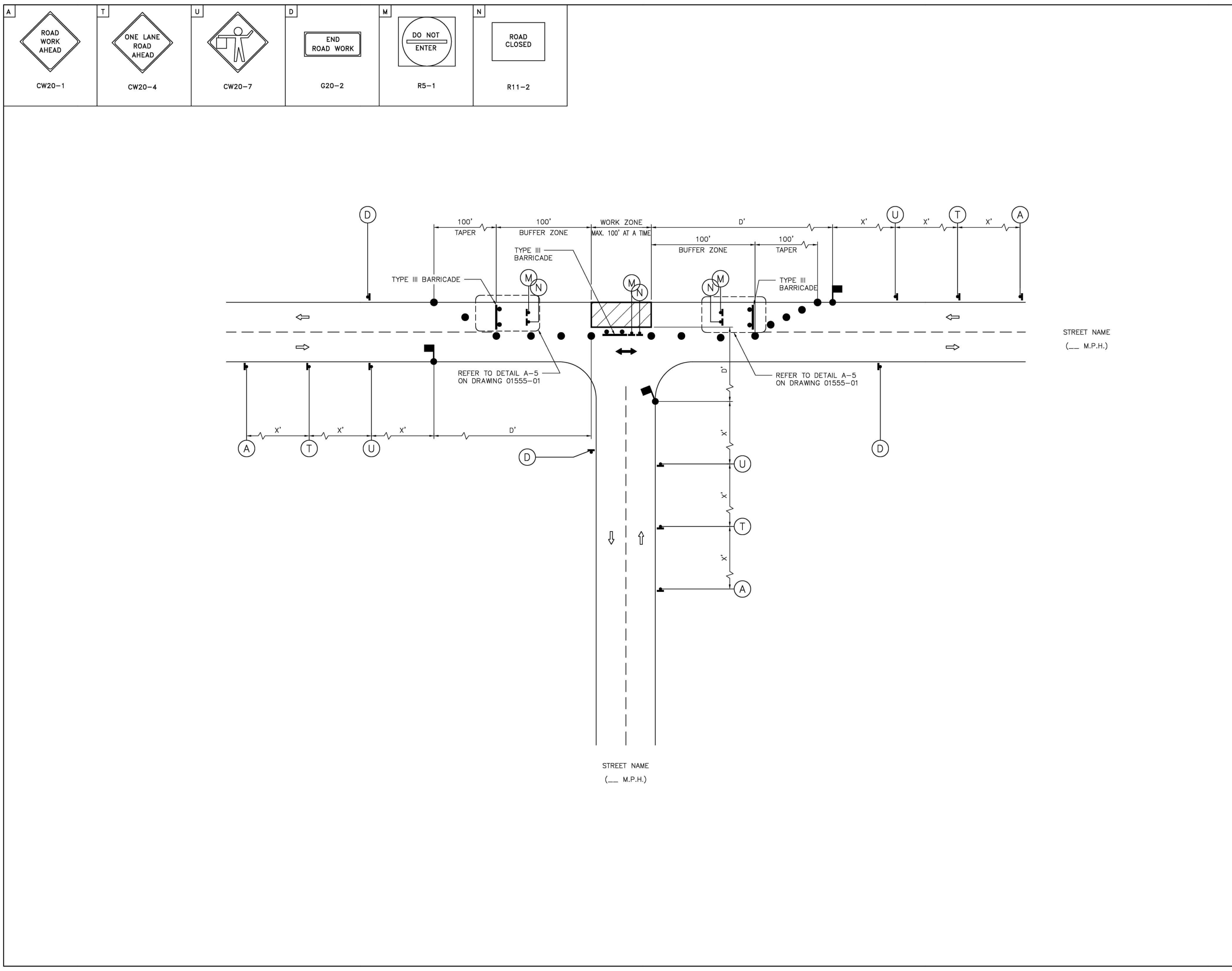

A
ROAD WORK AHEAD
CW20-1
T
ONE LANE ROAD AHEAD
CW20-4
U
CW20-7
D
END ROAD WORK
G20-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
100' TAPER
100' BUFFER ZONE
WORK ZONE MAX. 100' AT A TIME
100' BUFFER ZONE
100' TAPER
0'
TYPE III BARRICADE
TYPE III BARRICADE
TYPE III BARRICADE
REFER TO DETAIL A-5 ON DRAWING 01555-01
REFER TO DETAIL A-5 ON DRAWING 01555-01
STREET NAME (__ M.P.H.)
STREET NAME (__ M.P.H.)

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.

LEGEND:

◀	SIGN
⚑	FLAGGER
●	APPROVED CHANNELIZATION DEVICE
•—•	BARRICADE
▭	FLASHING ARROW PANEL
▨	AREA UNDER CONSTRUCTION
⇨	EXISTING TRAVEL WAY
➡	TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTES:

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5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY:
DocuSigned by:
Suhail Kanwar
9EF8B0C641F5478...
CITY ENGINEER

APPROVED BY:
DocuSigned by:
KHANG NGUYEN
95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by:
Carol Haddock
A93C410B72B3453...
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

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

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FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL
STANDARD DETAILS

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 21 OF 345

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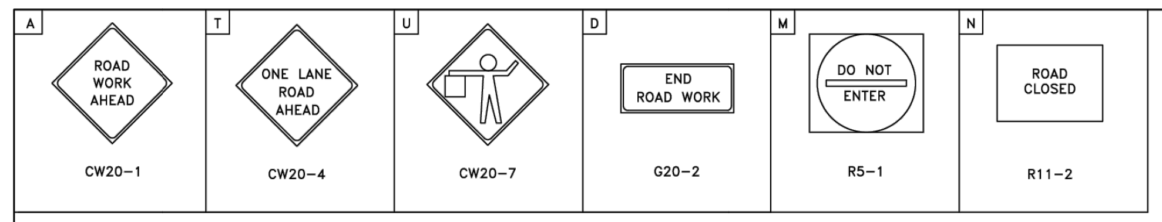
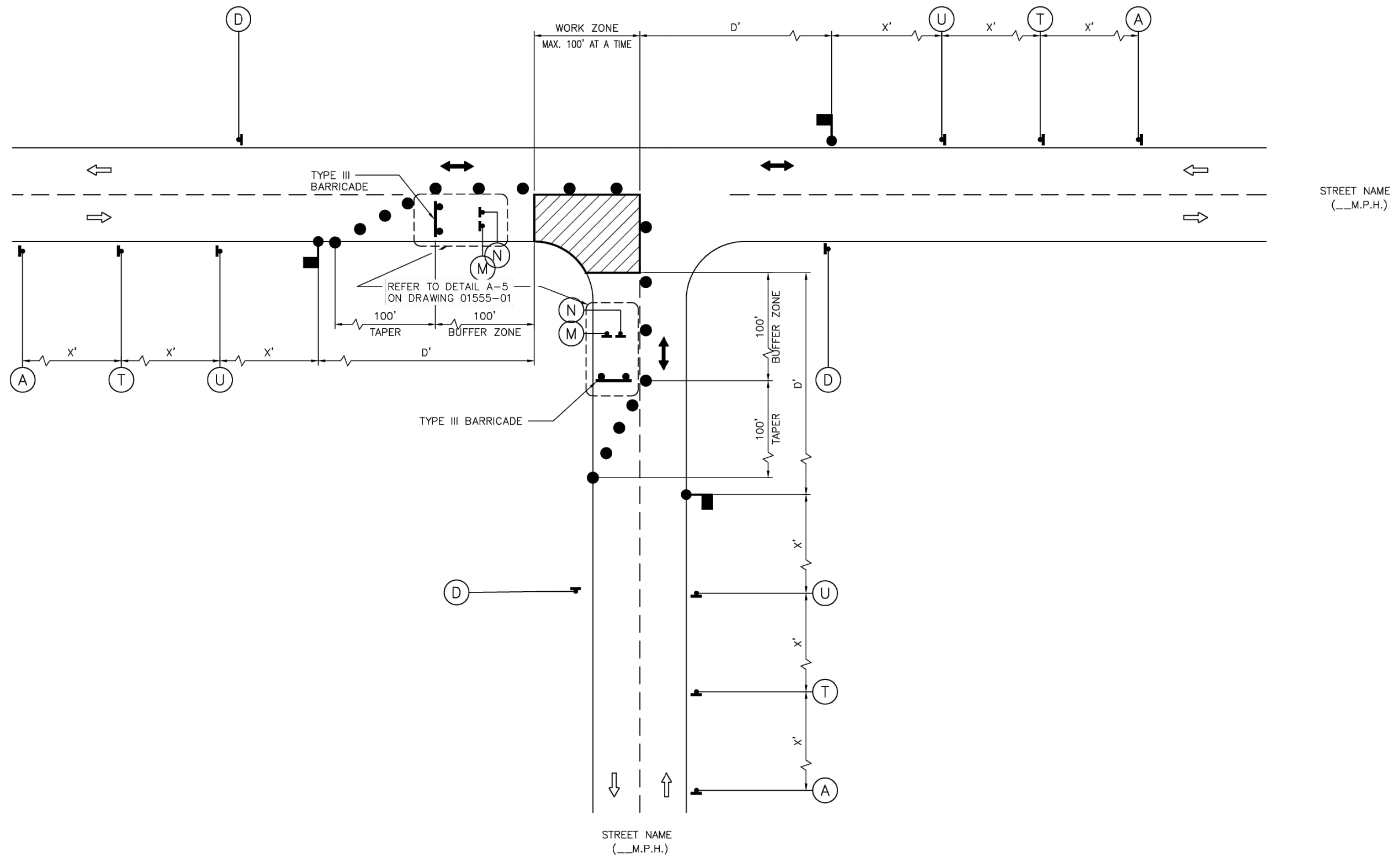

A
ROAD WORK AHEAD
CW20-1
T
ONE LANE ROAD AHEAD
CW20-4
U
CW20-7
D
END ROAD WORK
G20-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2


D
WORK ZONE
MAX. 100' AT A TIME
D'
X'
U
T
A
STREET NAME
(__M.P.H.)
TYPE III BARRICADE
REFER TO DETAIL A-5 ON DRAWING 01555-01
N
M
100' TAPER
100' BUFFER ZONE
X'
D'
A
T
U
TYPE III BARRICADE
100' BUFFER ZONE
100' TAPER
D'
D
X'
STREET NAME
(__M.P.H.)

LEGEND:

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

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5. MAX. 100' WORK ZONE AT A TIME.

APPROVED BY: DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	APPROVED BY: DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

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.

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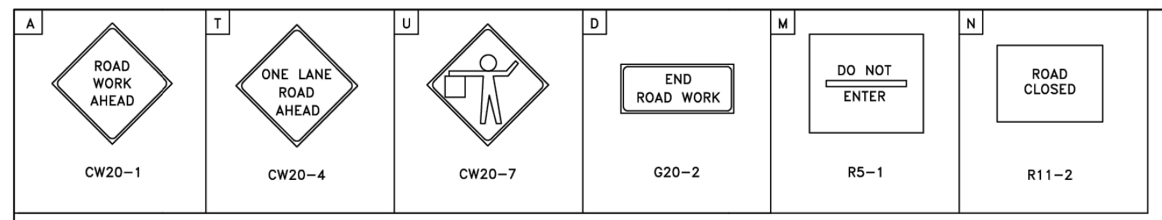
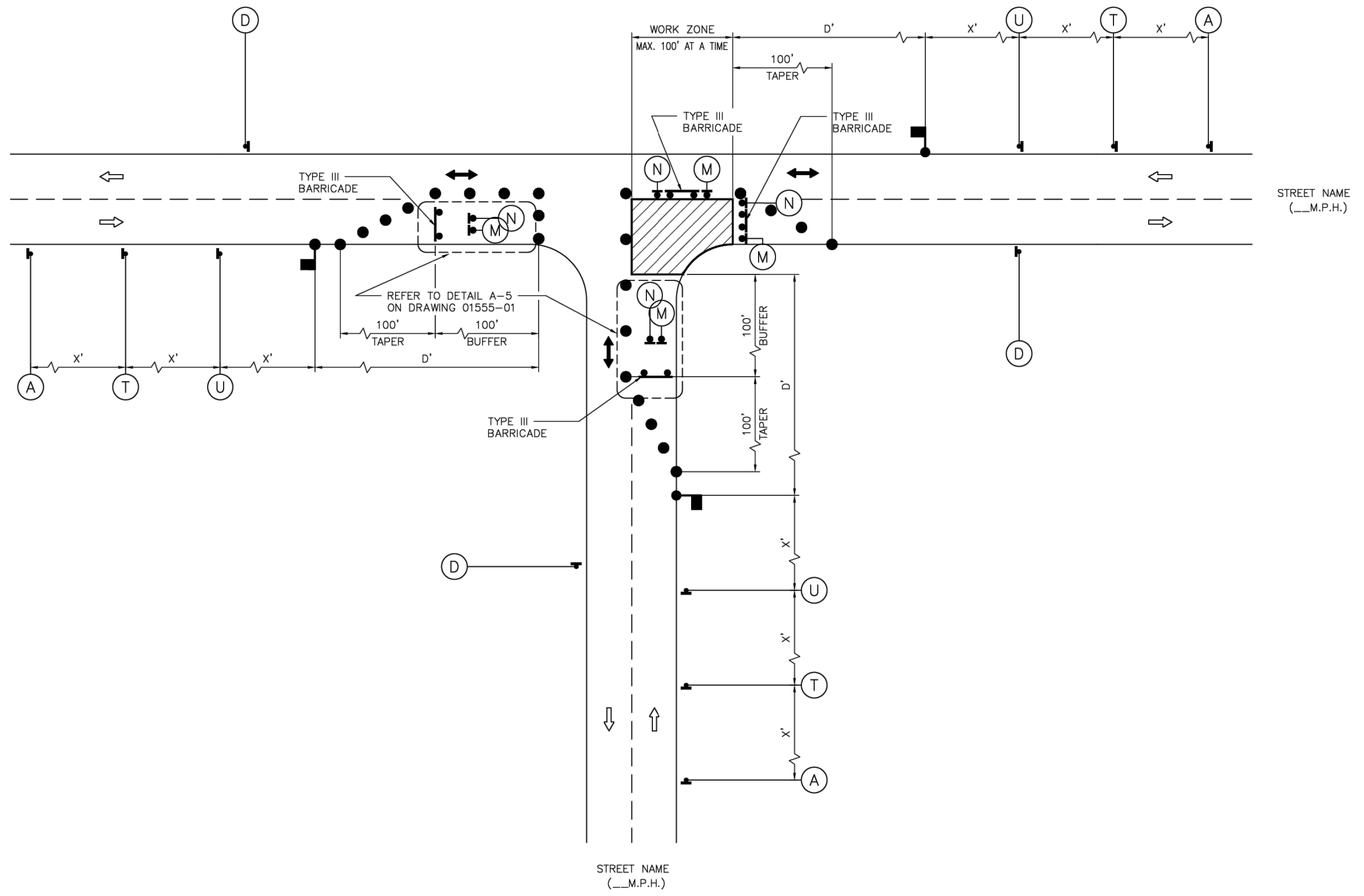

A
ROAD WORK AHEAD
CW20-1
T
ONE LANE ROAD AHEAD
CW20-4
U
CW20-7
D
END ROAD WORK
G20-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2


D
WORK ZONE
MAX. 100' AT A TIME
D'
X'
U
T
A
100' TAPER
TYPE III BARRICADE
TYPE III BARRICADE
N
M
STREET NAME
(__M.P.H.)
TYPE III BARRICADE
REFER TO DETAIL A-5 ON DRAWING 01555-01
100' TAPER
100' BUFFER
X'
D'
A
T
U
100' BUFFER
100' TAPER
D'
D
TYPE III BARRICADE
STREET NAME
(__M.P.H.)

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: DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	APPROVED BY: DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-08

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

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

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

DISCLAIMER:
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No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. xxxxx

FCM Engineers, P.C.
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

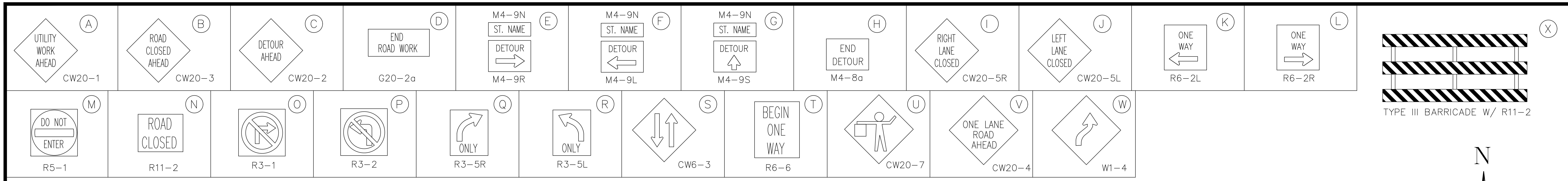
TRAFFIC CONTROL
STANDARD DETAILS

WBS NO. M-430296-0017-3

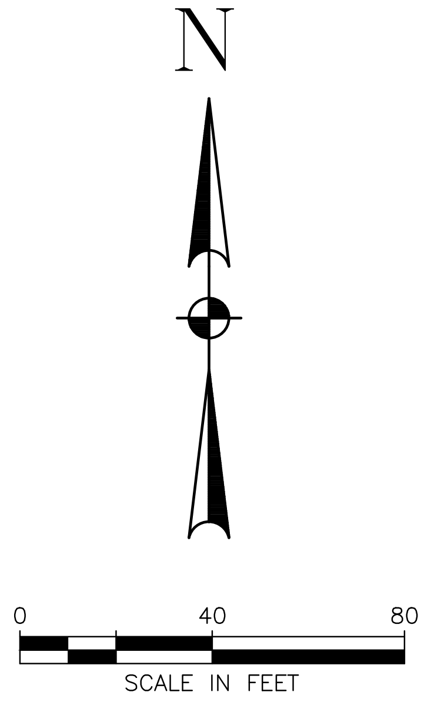
DRAWING SCALE

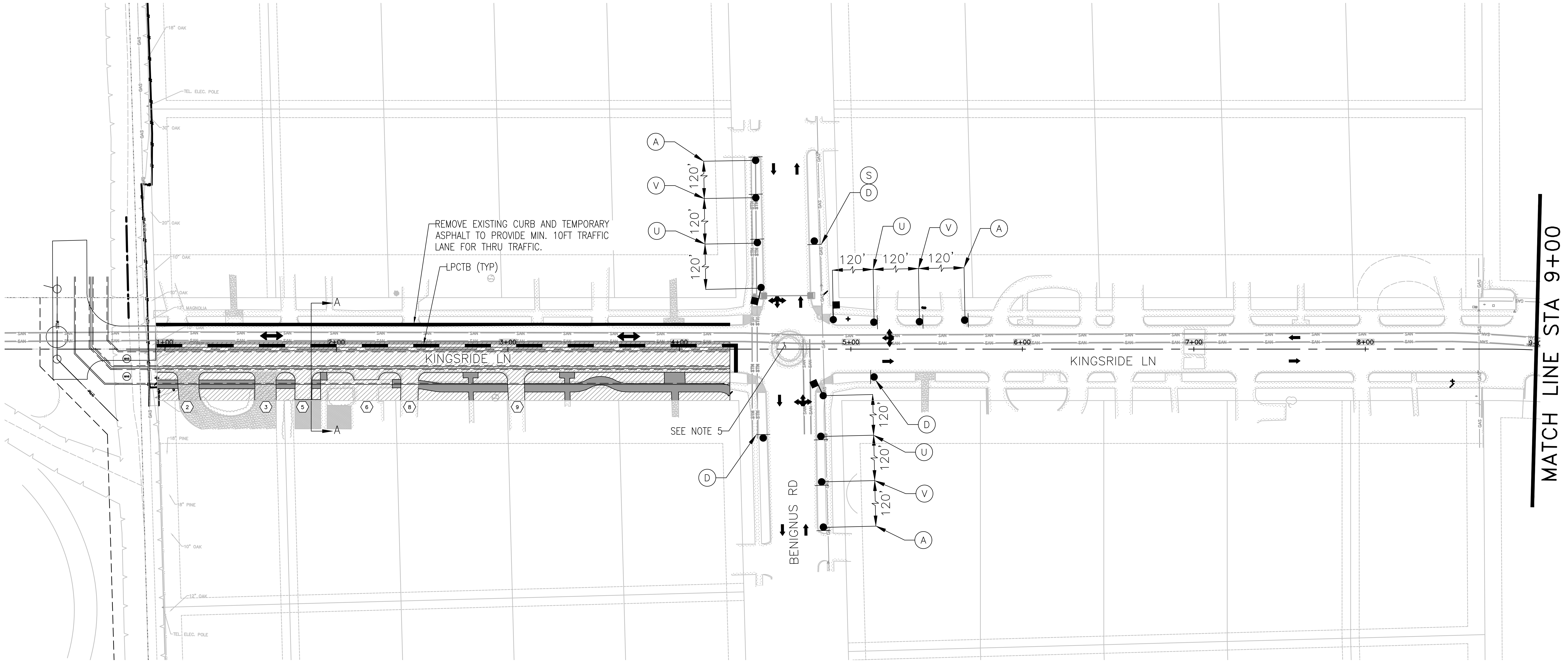
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 22 OF 345


A
UTILITY WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R
X
TYPE III BARRICADE W/ R11-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3
T
BEGIN ONE WAY
R6-6
U
CW20-7
V
ONE LANE ROAD AHEAD
CW20-4
W
W1-4

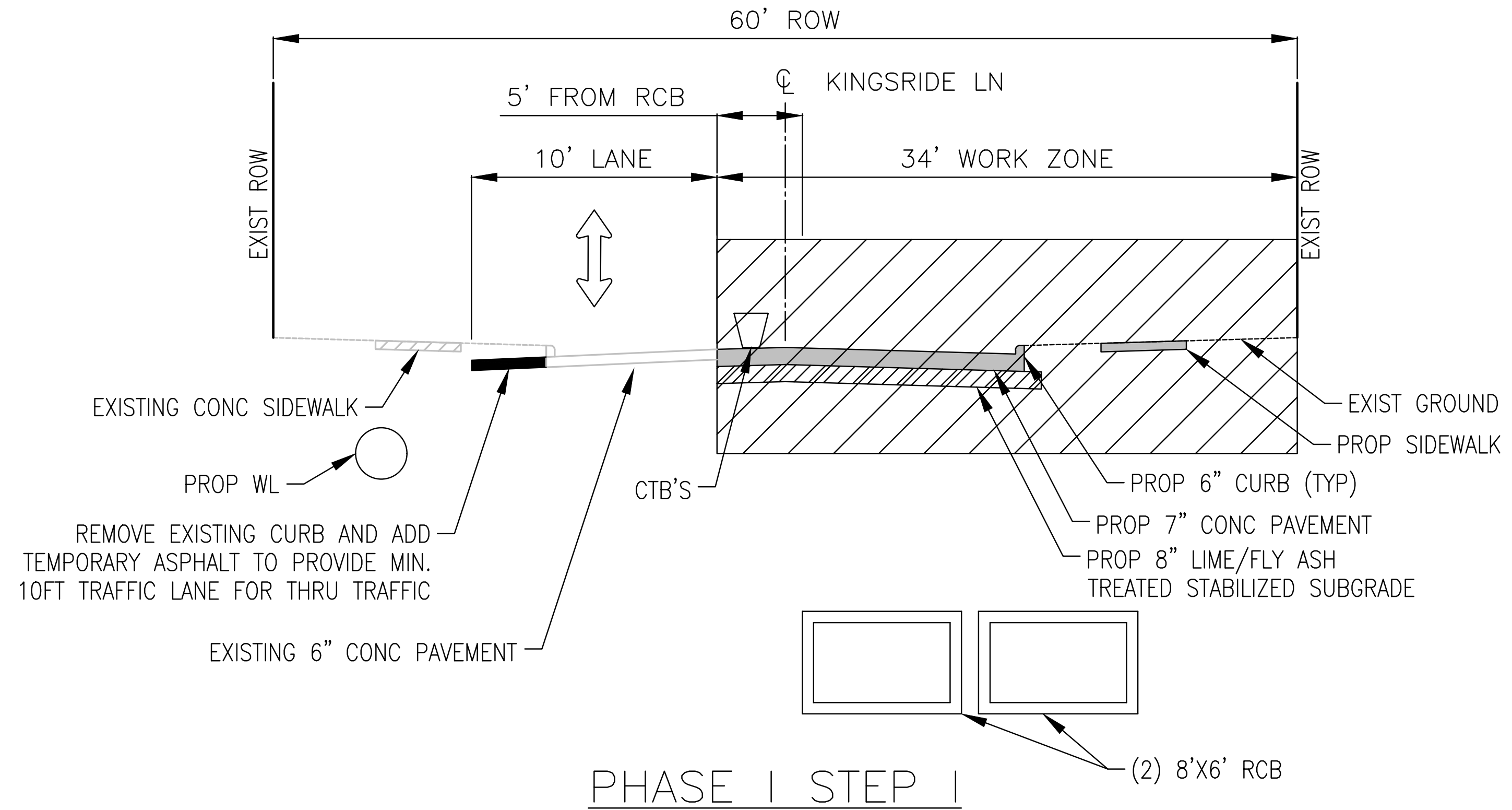
Revisions	Date	No.	App


N
0
40
80
SCALE IN FEET


REMOVE EXISTING CURB AND TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC.
LPCTB (TYP)
A
A
KINGSRIDE LN
KINGSRIDE LN
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
A
V
U
120'
120'
120'
S
D
U
V
A
120'
120'
120'
SEE NOTE 5
D
D
U
V
A
120'
120'
120'
BENIGNUS RD
MATCH LINE STA 9+00

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
├─┤	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT


60' ROW
5' FROM RCB
℄ KINGSRIDE LN
10' LANE
34' WORK ZONE
EXIST ROW
EXIST ROW
EXISTING CONC SIDEWALK
PROP WL
REMOVE EXISTING CURB AND ADD TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC
EXISTING 6" CONC PAVEMENT
CTB'S
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
(2) 8'X6' RCB

PHASE I STEP I
TYPICAL SECTION A-A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO PROVIDE YIELD SIGNS AT THE END OF EACH CONSTRUCTION DAY FOR AFTER HOURS OPERATION OR AT TIMES WHEN FLAGGER IS NOT HERE.

HRGreen
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FAX: 713.965.0044

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FB NO. xxxxx

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F- 713-706-4410
Tx Firm No. 13481

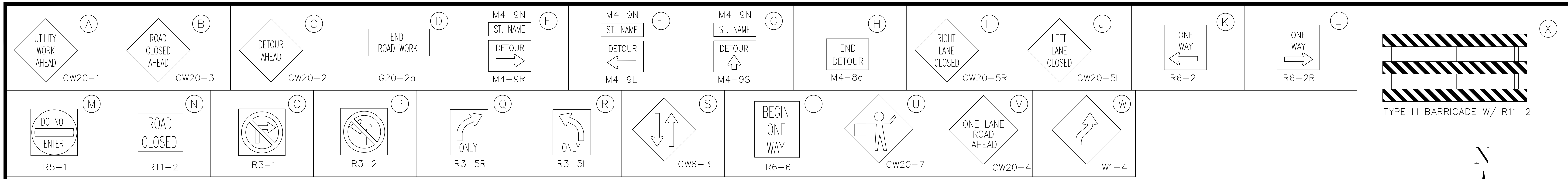
FRANK C. MBACHU
108363
3/19/2026

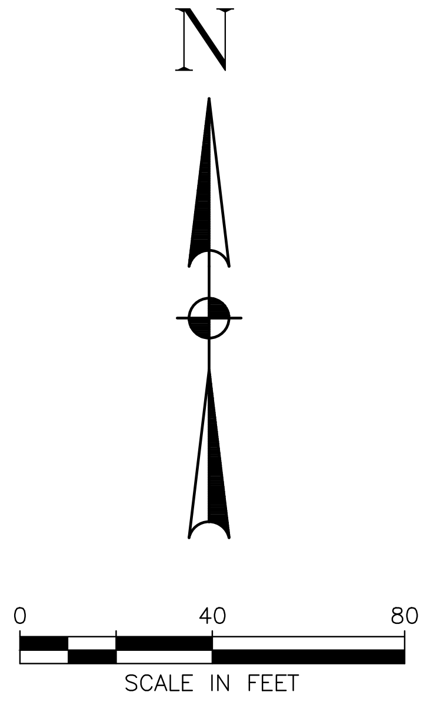
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 1+00 TO STA 4+30
PHASE 1 STEP 1

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 23 OF 345

c:\users\917pc\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention - kingride ln standard\tcp\fcm tcp - phase 1 step 1.dwg Plotted March 25, 2026 at 12:11 AM by Pavan n


A
UTILITY WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R
X
TYPE III BARRICADE W/ R11-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3
T
BEGIN ONE WAY
R6-6
U
CW20-7
V
ONE LANE ROAD AHEAD
CW20-4
W
W1-4


N
0
40
80
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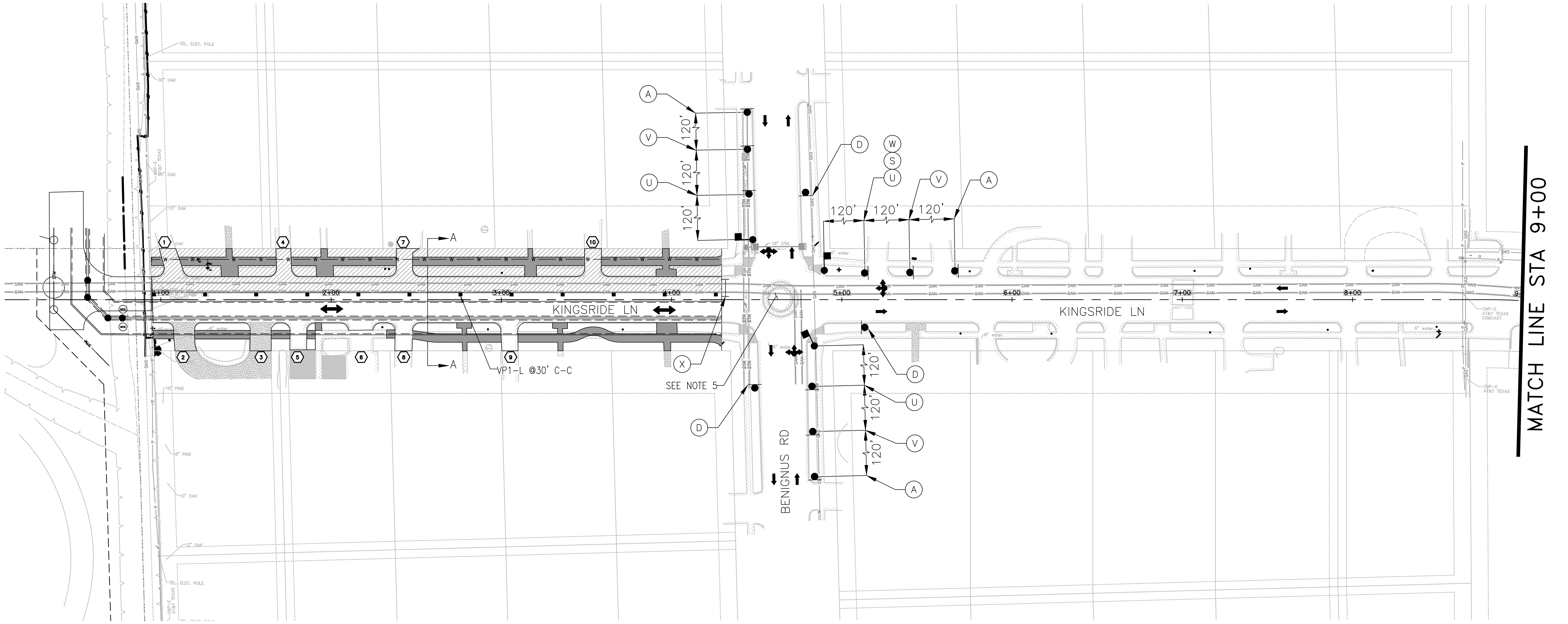
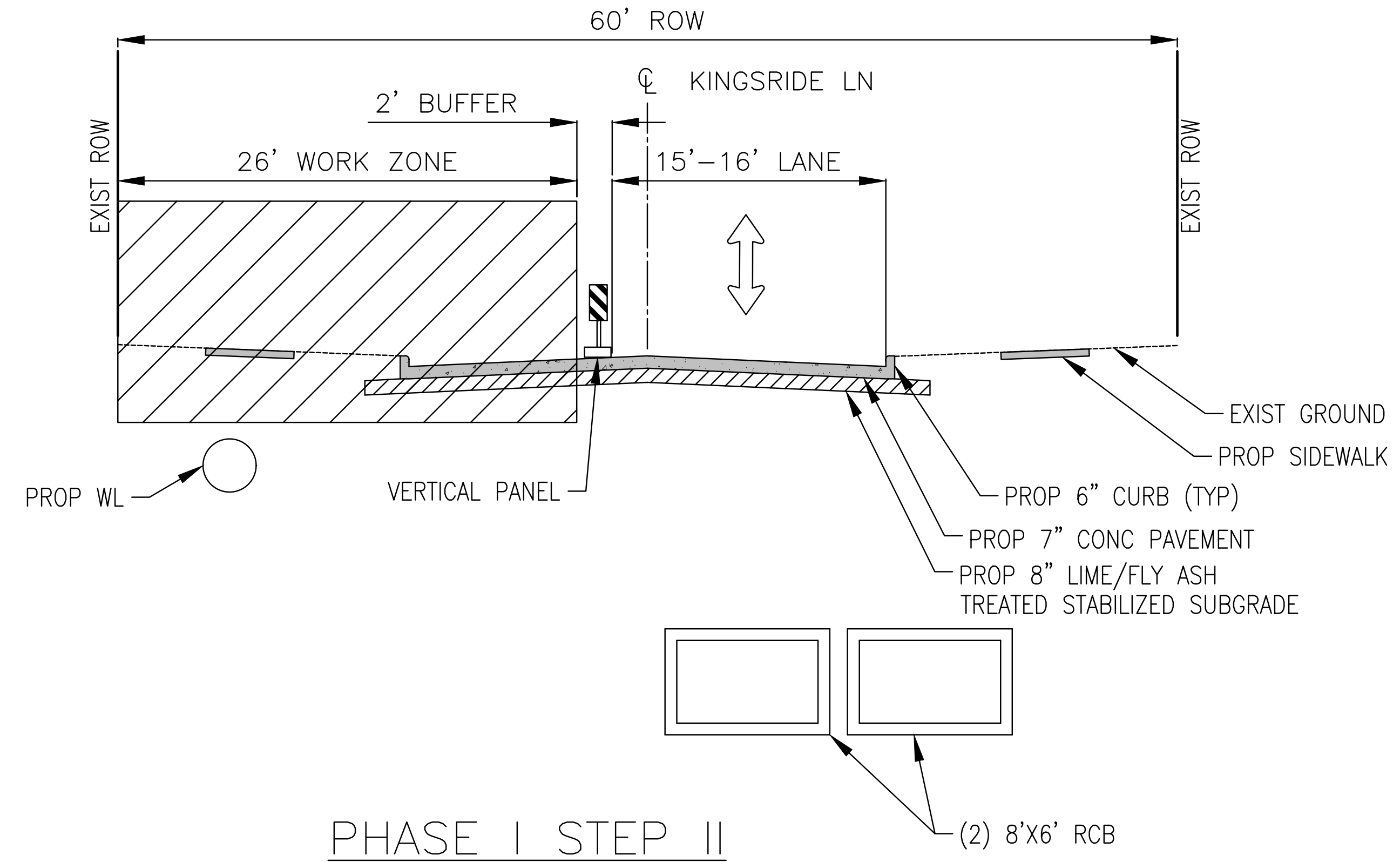

A
V
U
120'
120'
120'
D
W
S
U
V
A
120'
120'
120'
KINGSRIDE LN
KINGSRIDE LN
A
A
VP1-L @30' C-C
X
SEE NOTE 5
D
BENIGNUS RD
120'
120'
120'
D
U
V
A
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
MATCH LINE STA 9+00

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●—	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT


60' ROW
℄ KINGSRIDE LN
2' BUFFER
26' WORK ZONE
15'-16' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK
PROP WL
VERTICAL PANEL
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
(2) 8'X6' RCB

PHASE I STEP II
TYPICAL SECTION A-A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO PROVIDE YIELD SIGNS AT THE END OF EACH CONSTRUCTION DAY FOR AFTER HOURS OPERATION OR AT TIMES WHEN FLAGGER IS NOT THERE.

No.	Date	Revisions	App

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3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

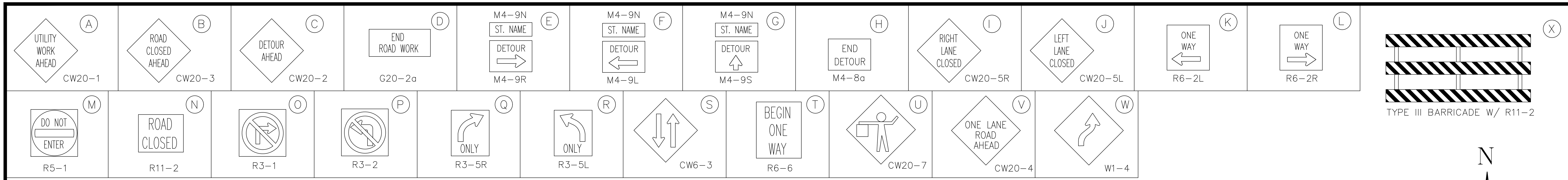
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 1+00 TO STA 4+30
PHASE 1 STEP 2

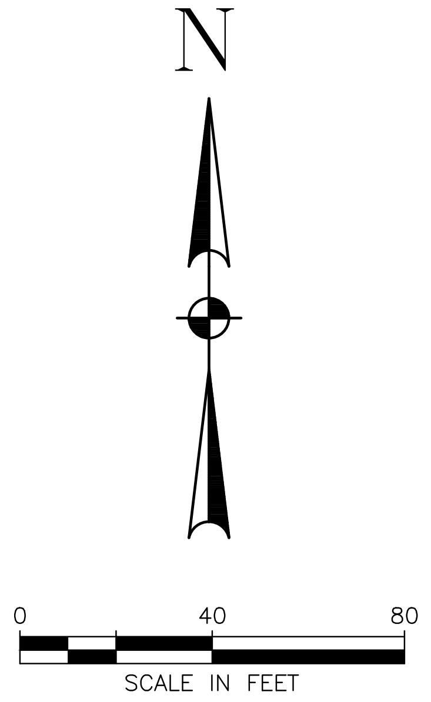
WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 24 OF 345

c:\users\917pc\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention – kingride ln standard\tcp\fcm tcp – phase 1 step 2.dwg Plotted March 25, 2026 at 12:11 AM by Pavan n


A
UTILITY WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R
X
TYPE III BARRICADE W/ R11-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3
T
BEGIN ONE WAY
R6-6
U
CW20-7
V
ONE LANE ROAD AHEAD
CW20-4
W
W1-4


N
0
40
80
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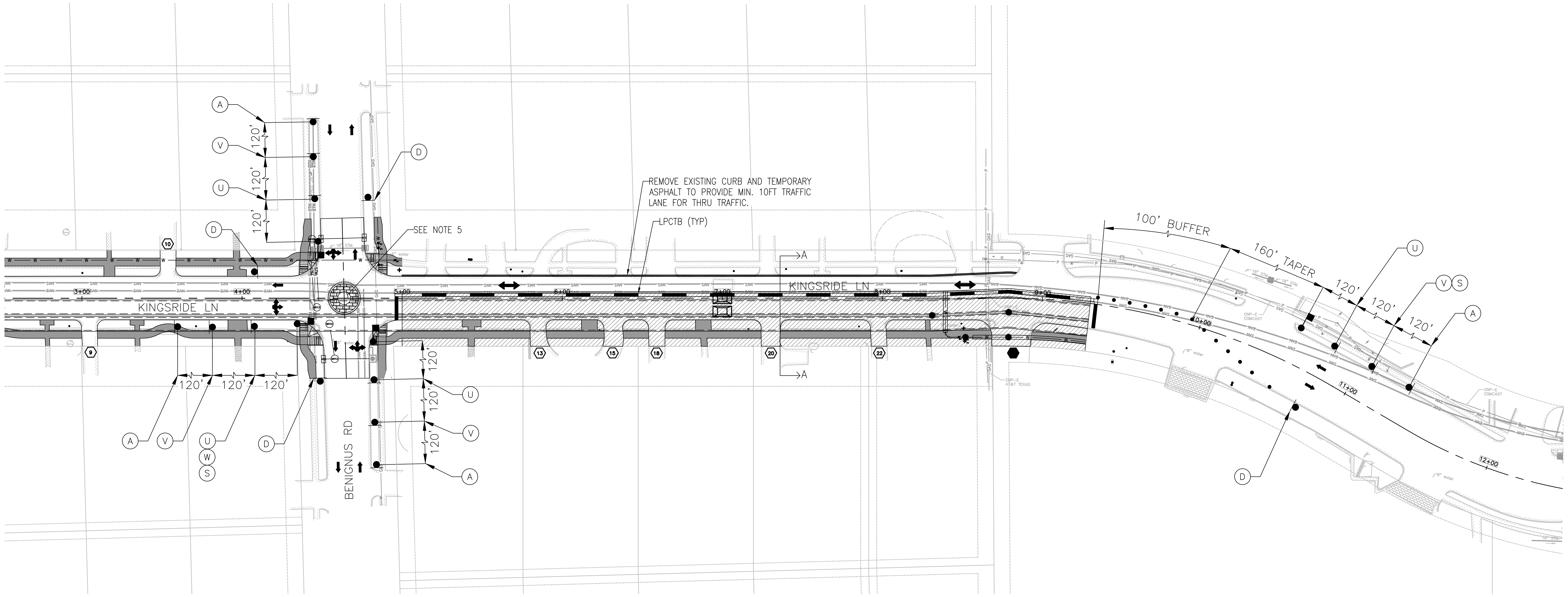
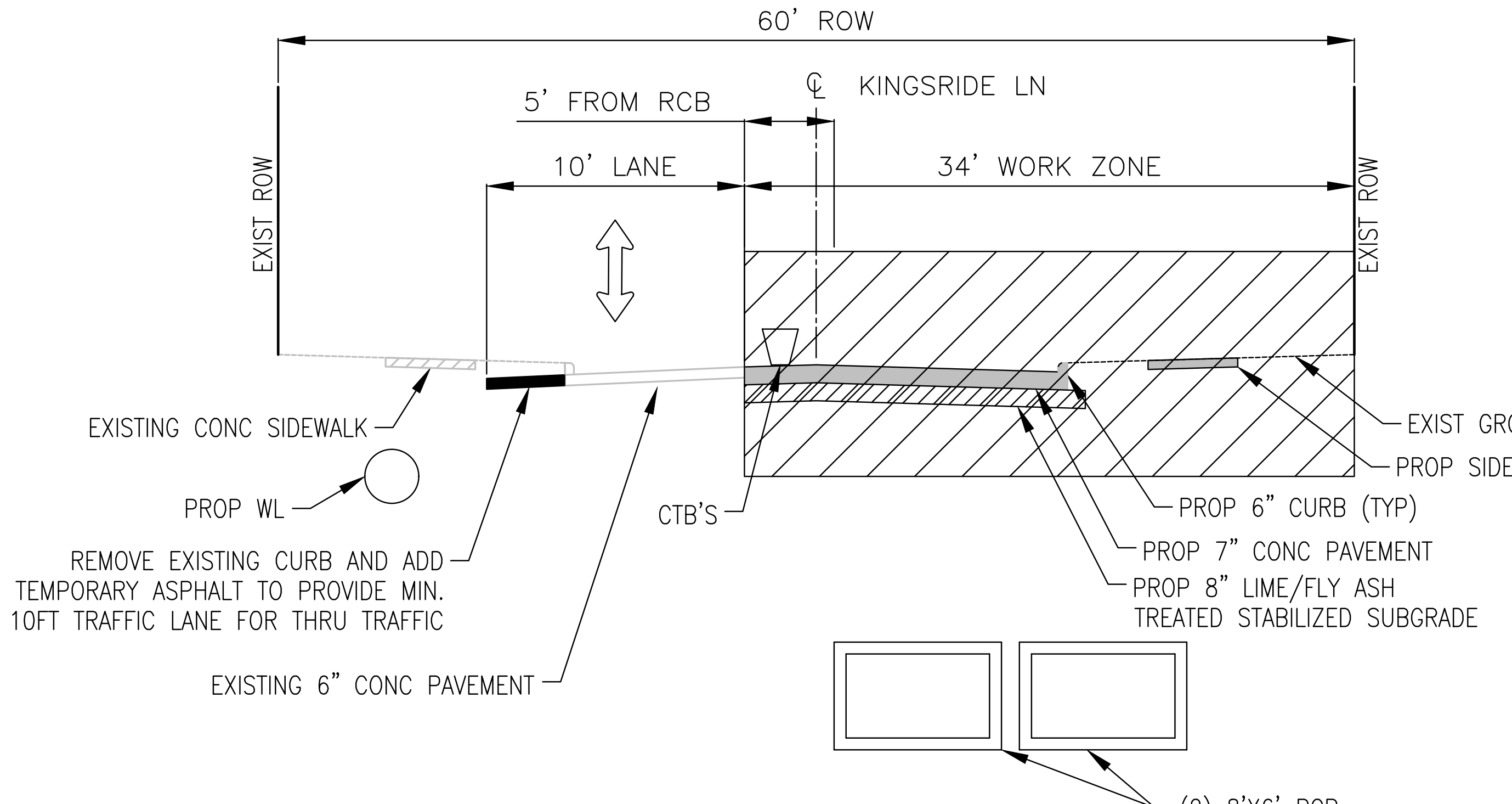

A
V
U
D
120'
120'
120'
D
SEE NOTE 5
REMOVE EXISTING CURB AND TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC.
LPCTB (TYP)
A
A
KINGSRIDE LN
KINGSRIDE LN
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
100' BUFFER
160' TAPER
120'
120'
120'
U
V
S
A
120'
120'
120'
A
V
U
W
S
D
120'
120'
120'
U
V
A
BENIGNUS RD
D

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
┴●	TEMP GROUND MOUNTED SIGNS
├┤	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
▬	TEMP ASPHALT PAVEMENT


60' ROW
5' FROM RCB
℄ KINGSRIDE LN
10' LANE
34' WORK ZONE
EXIST ROW
EXIST ROW
EXISTING CONC SIDEWALK
PROP WL
REMOVE EXISTING CURB AND ADD TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC
EXISTING 6" CONC PAVEMENT
CTB'S
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
(2) 8'X6' RCB

PHASE I STEP I
TYPICAL SECTION A–A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO PROVIDE ONE WEST BOUND TRAFFIC LANE FOR AFTER HOURS OPERATION OR AT TIMES WHEN FLAGGER IS NOT THERE. DETOUR EAST BOUND TRAFFIC.

No.	Date	Revisions	App.

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108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

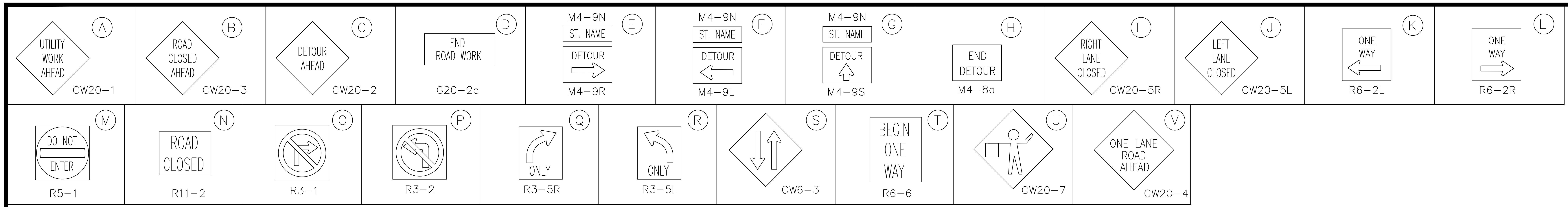
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 5+00 TO STA 9+30
PHASE 2 STEP 1

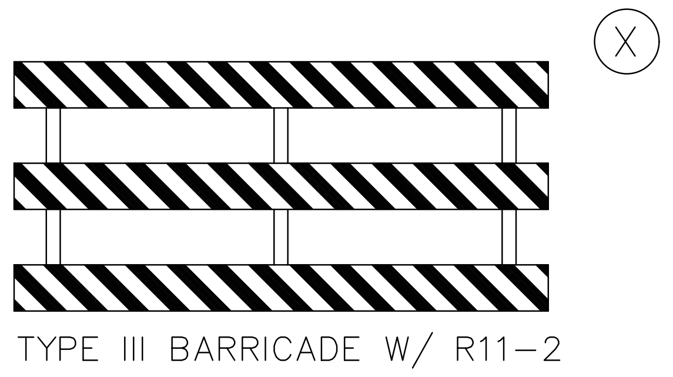
WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

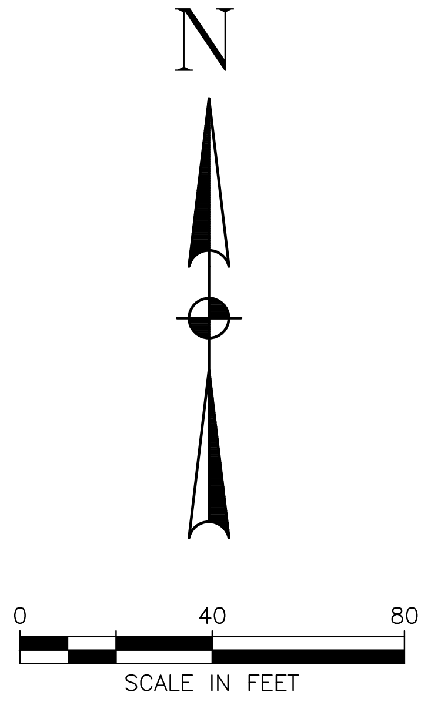
SHEET NO. 25 OF 345

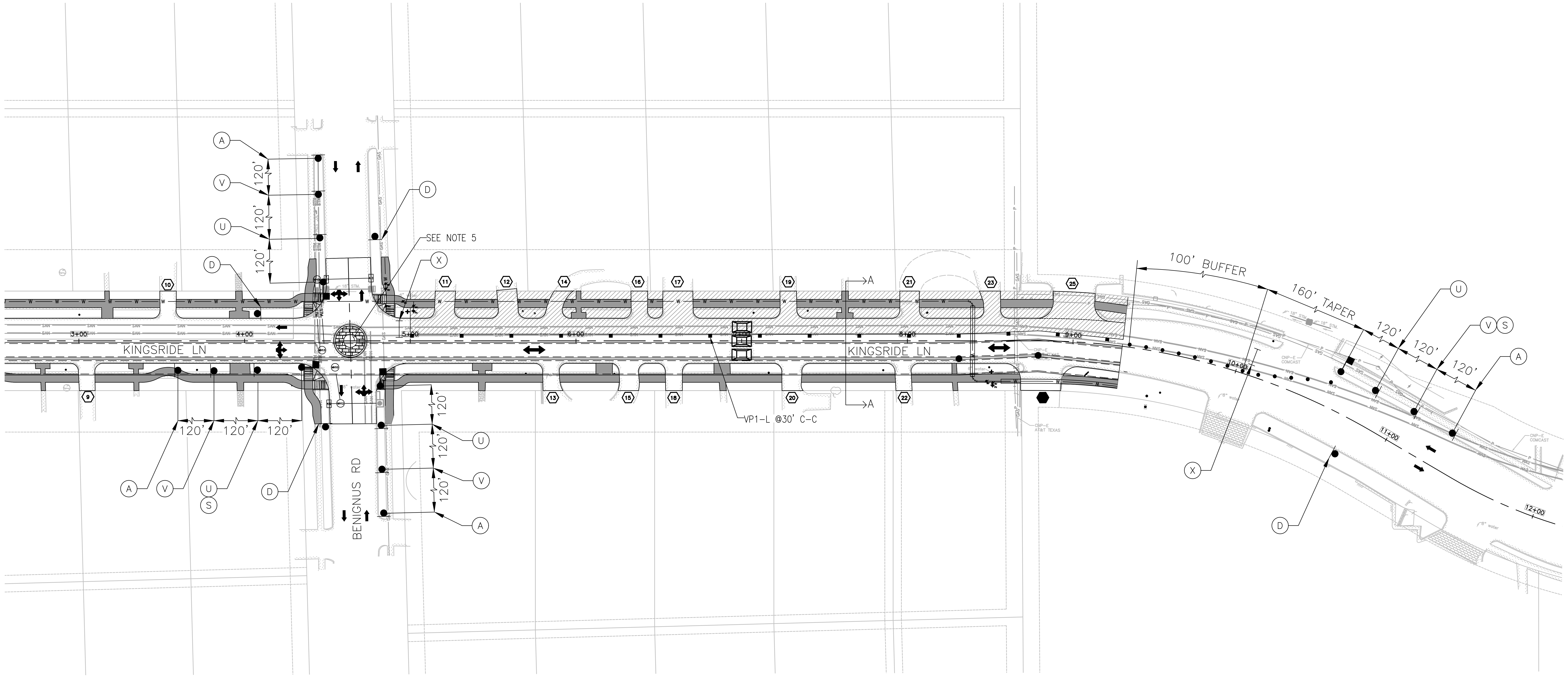
c:\users\917pc\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention – kingride ln standard\tcp\fcm tcp – phase 2 step 1.dwg Plotted March 25, 2026 at 12:10 AM by Pavan n


A
UTILITY WORK AHEAD
CW20–1
B
ROAD CLOSED AHEAD
CW20–3
C
DETOUR AHEAD
CW20–2
D
END ROAD WORK
G20–2a
E
M4–9N
ST. NAME
DETOUR
M4–9R
F
M4–9N
ST. NAME
DETOUR
M4–9L
G
M4–9N
ST. NAME
DETOUR
M4–9S
H
END DETOUR
M4–8a
I
RIGHT LANE CLOSED
CW20–5R
J
LEFT LANE CLOSED
CW20–5L
K
ONE WAY
R6–2L
L
ONE WAY
R6–2R
M
DO NOT ENTER
R5–1
N
ROAD CLOSED
R11–2
O
R3–1
P
R3–2
Q
ONLY
R3–5R
R
ONLY
R3–5L
S
CW6–3
T
BEGIN ONE WAY
R6–6
U
CW20–7
V
ONE LANE ROAD AHEAD
CW20–4



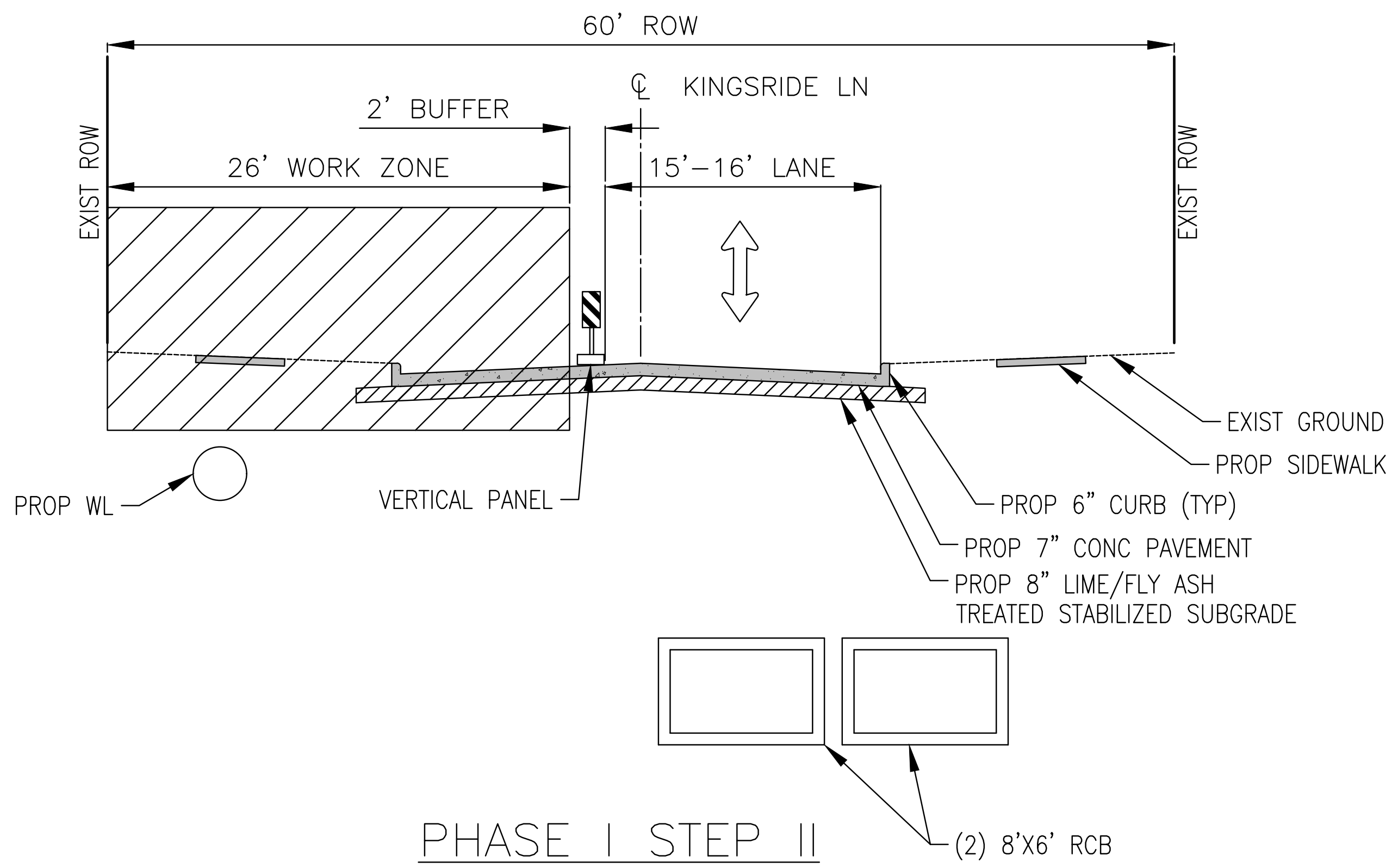
TYPE III BARRICADE W/ R11–2


N
0
40
80
SCALE IN FEET


A
V
U
D
D
X
SEE NOTE 5
120'
120'
120'
10
11
12
14
16
17
19
21
23
25
9
13
15
18
20
22
3+00
4+00
5+00
6+00
8+00
9+00
10+00
11+00
12+00
KINGSRIDE LN
KINGSRIDE LN
A
A
VP1–L @30' C–C
BENIGNUS RD
120'
120'
120'
U
V
A
A
V
U
S
D
100' BUFFER
160' TAPER
120'
120'
120'
U
V
S
A
X
D

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
├┤	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11–2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT


60' ROW
2' BUFFER
℄ KINGSRIDE LN
26' WORK ZONE
15'–16' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
PROP WL
VERTICAL PANEL
(2) 8'X6' RCB

PHASE I STEP II
TYPICAL SECTION A–A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO–WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO PROVIDE ONE EAST BOUND TRAFFIC LANE FOR AFTER HOURS OPERATION OR AT TIMES WHEN FLAGGER IS NOT THERE. DETOUR WEST BOUND TRAFFIC.

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Tx Firm No. 13481

FRANK C. MBACHU
108363
FRM
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 5+00 TO STA 9+30
PHASE 2 STEP 2

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 26 OF 345

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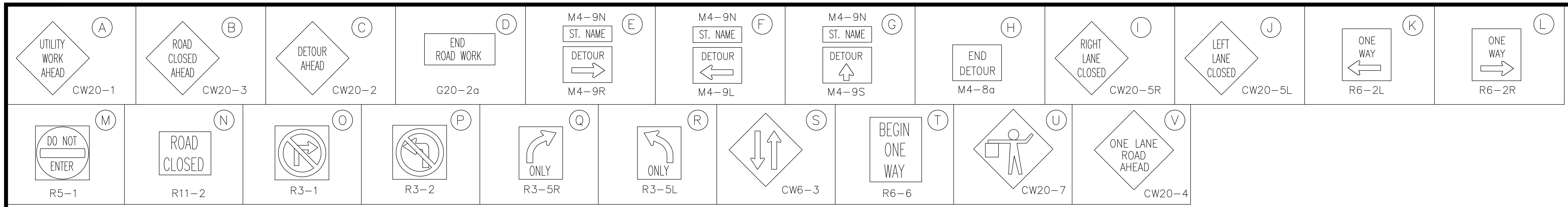
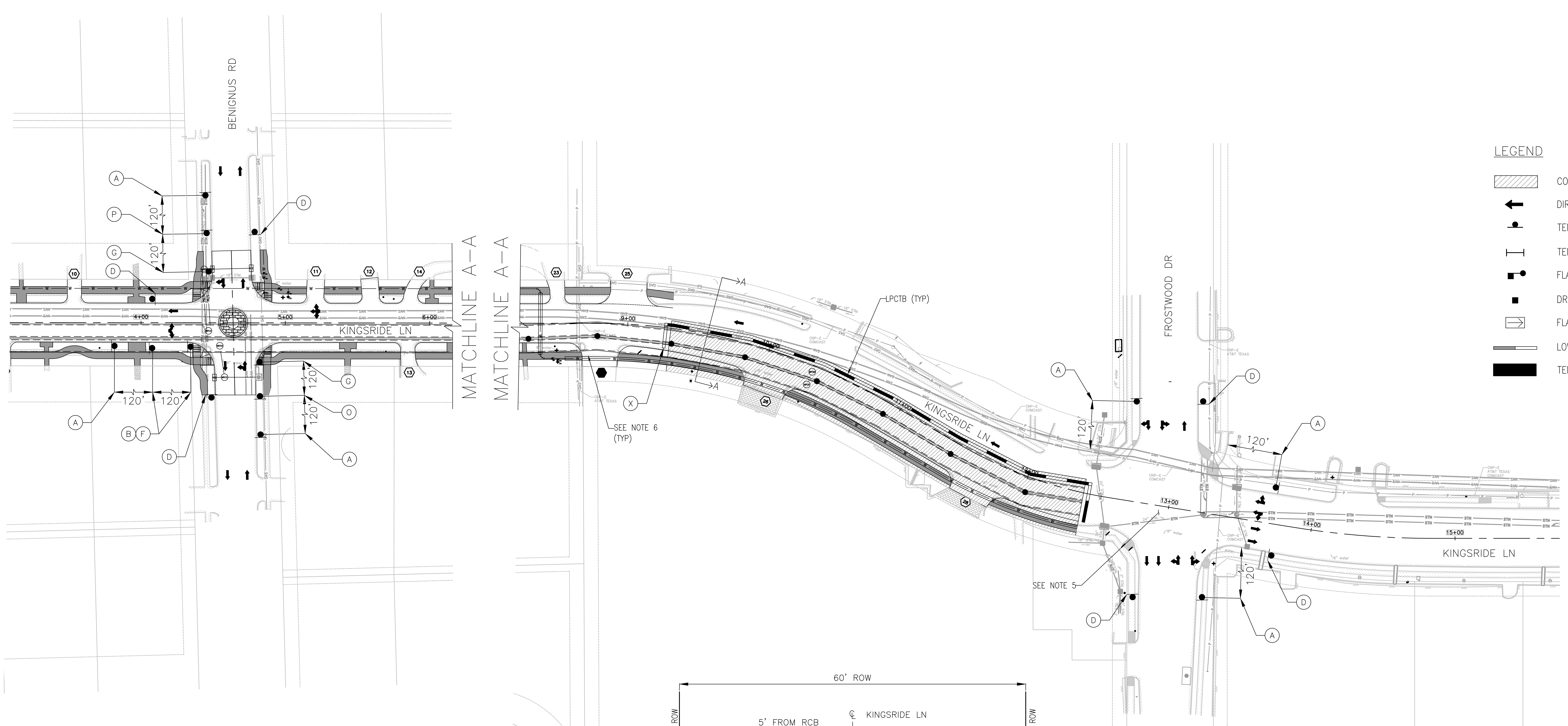
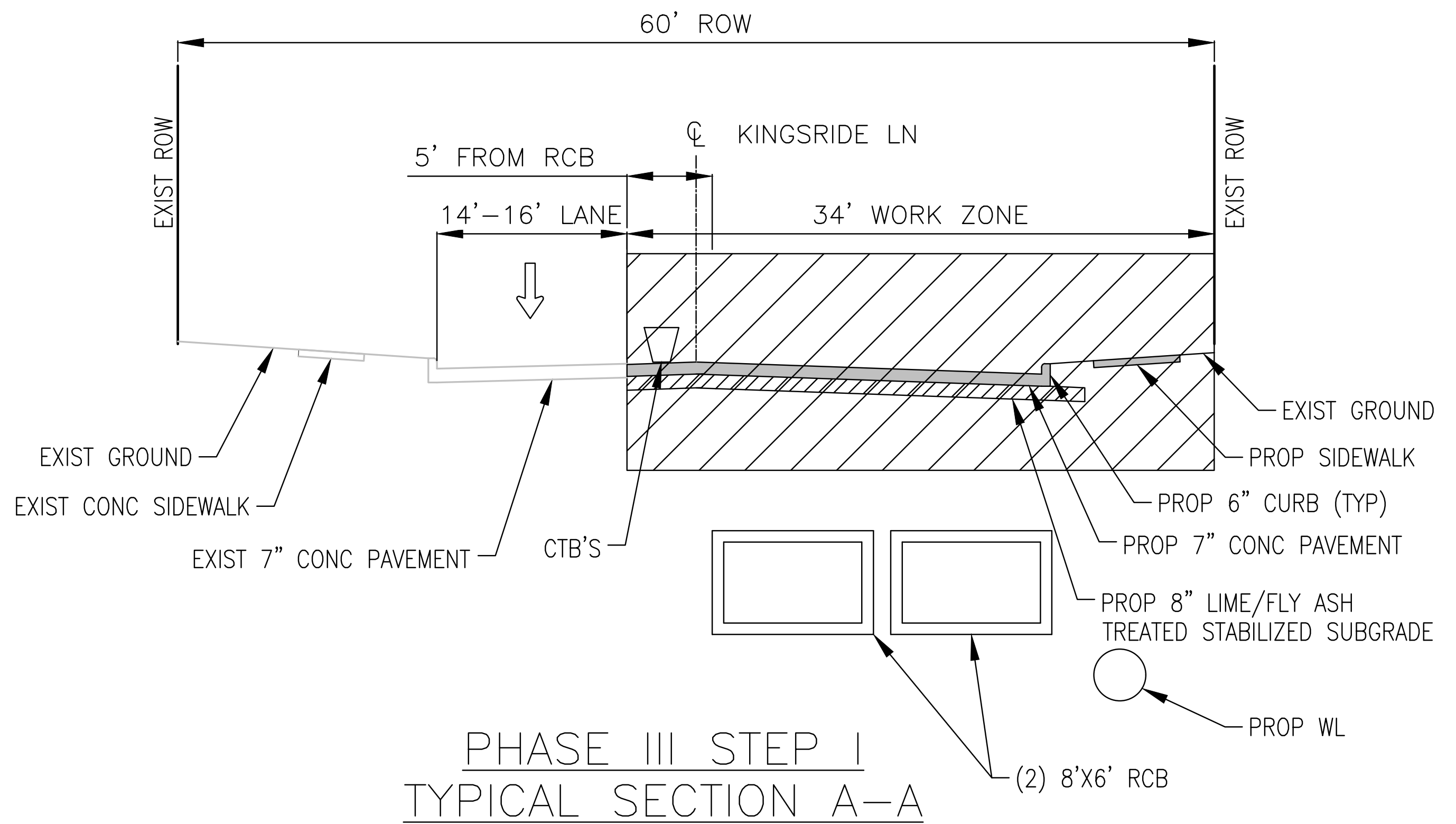

A UTILITY WORK AHEAD CW20–1
B ROAD CLOSED AHEAD CW20–3
C DETOUR AHEAD CW20–2
D END ROAD WORK G20–2a
E M4–9N ST. NAME DETOUR M4–9R
F M4–9N ST. NAME DETOUR M4–9L
G M4–9N ST. NAME DETOUR M4–9S
H END DETOUR M4–8a
I RIGHT LANE CLOSED CW20–5R
J LEFT LANE CLOSED CW20–5L
K ONE WAY R6–2L
L ONE WAY R6–2R
X TYPE III BARRICADE W/ R11–2
M DO NOT ENTER R5–1
N ROAD CLOSED R11–2
O R3–1
P R3–2
Q ONLY R3–5R
R ONLY R3–5L
S CW6–3
T BEGIN ONE WAY R6–6
U CW20–7
V ONE LANE ROAD AHEAD CW20–4


N
0 40 80
SCALE IN FEET
BENIGNUS RD
KINGSRIDE LN
MATCHLINE A–A
MATCHLINE A–A
FROSTWOOD DR
KINGSRIDE LN
KINGSRIDE LN
LPCTB (TYP)
SEE NOTE 6 (TYP)
SEE NOTE 5
120'
4+00
5+00
6+00
9+00
13+00
14+00
15+00
A
B F
D
G
O
P
X

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11–2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT


60' ROW
EXIST ROW
EXIST ROW
℄ KINGSRIDE LN
5' FROM RCB
14'–16' LANE
34' WORK ZONE
EXIST GROUND
EXIST CONC SIDEWALK
EXIST 7" CONC PAVEMENT
CTB'S
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
PROP WL
(2) 8'X6' RCB

PHASE III STEP I
TYPICAL SECTION A–A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. ONE–WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. EAST BOUND LANE IS CLOSED FOR CONSTRUCTION. INSTALL SIGN "O & P" AT ALL DRIVEWAYS.

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Date
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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

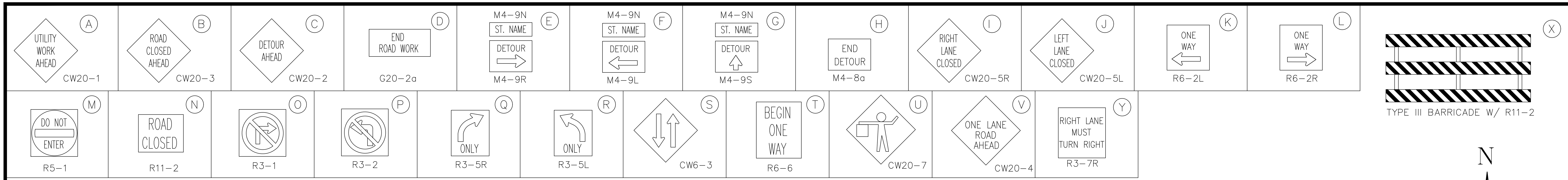
KINGSRIDE LANE
STA 9+30 TO STA 12+40
PHASE 3 STEP 1

WBS NO. M–430296–0017–3

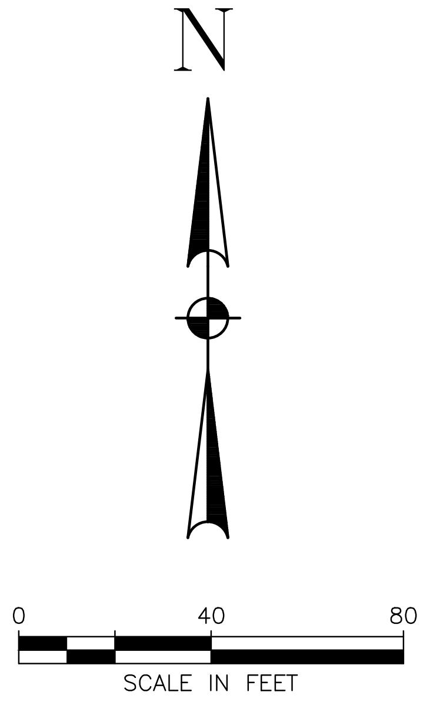
DRAWING SCALE

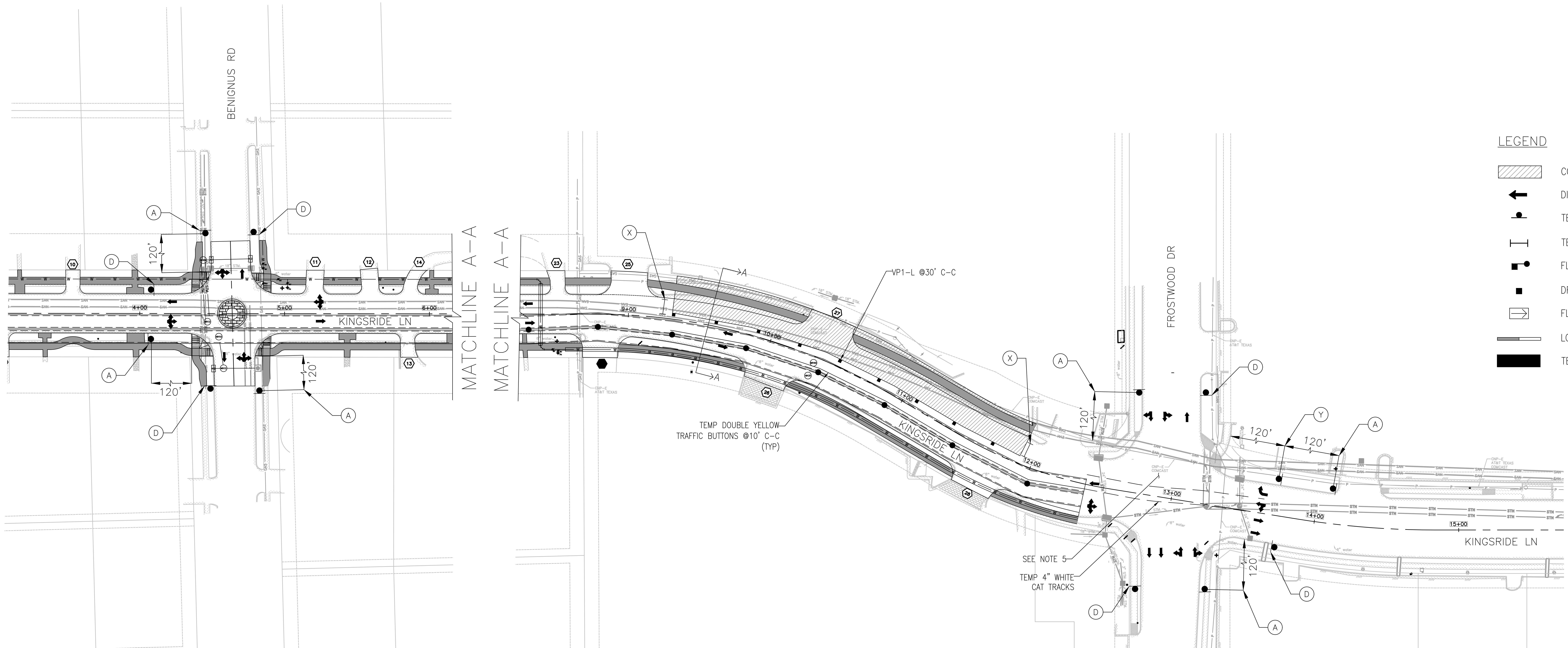
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 27 OF 345


A
UTILITY WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R
X
TYPE III BARRICADE W/ R11-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3
T
BEGIN ONE WAY
R6-6
U
CW20-7
V
ONE LANE ROAD AHEAD
CW20-4
Y
RIGHT LANE MUST TURN RIGHT
R3-7R

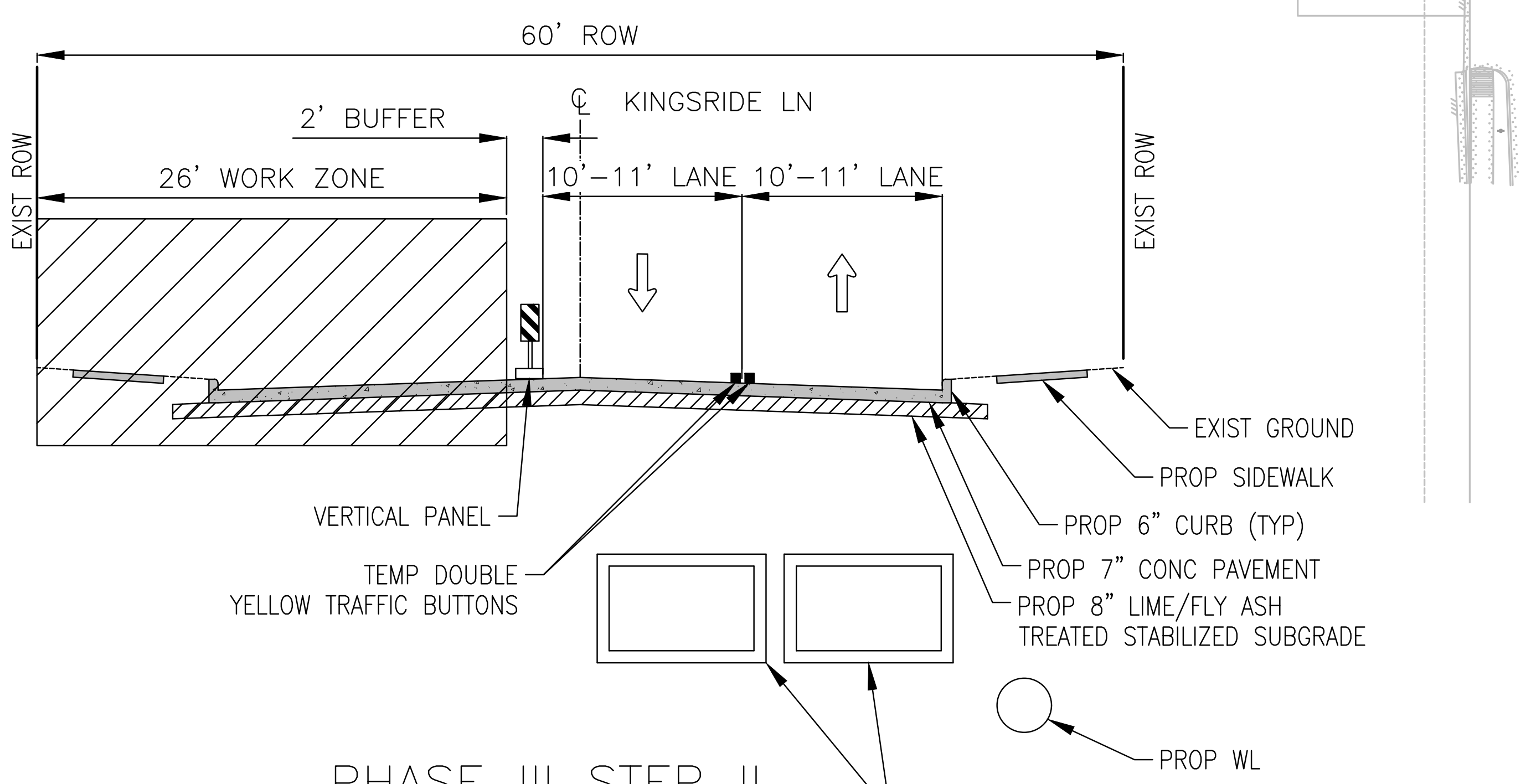
No | Date | Revisions | App


N
0
40
80
SCALE IN FEET


BENIGNUS RD
KINGSRIDE LN
MATCHLINE A-A
MATCHLINE A-A
FROSTWOOD DR
KINGSRIDE LN
KINGSRIDE LN
A
D
A
D
A
D
A
D
A
D
X
X
Y
120'
120'
120'
120'
120'
120'
4+00
5+00
6+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
10
11
12
13
14
23
25
27
28
VP1-L @30' C-C
TEMP DOUBLE YELLOW TRAFFIC BUTTONS @10' C-C (TYP)
SEE NOTE 5
TEMP 4" WHITE CAT TRACKS
A
A

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
▬	TEMP ASPHALT PAVEMENT


60' ROW
2' BUFFER
℄ KINGSRIDE LN
26' WORK ZONE
10'-11' LANE
10'-11' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
VERTICAL PANEL
TEMP DOUBLE YELLOW TRAFFIC BUTTONS
PROP WL
(2) 8'X6' RCB

PHASE III STEP II
TYPICAL SECTION A-A

N.T.S.

NOTES

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108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LANE
STA 9+30 TO STA 11+90
PHASE 3 STEP 2

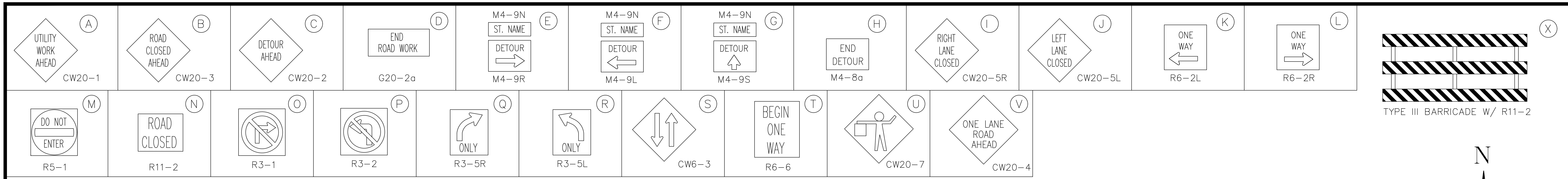
WBS NO. M-430296-0017-3

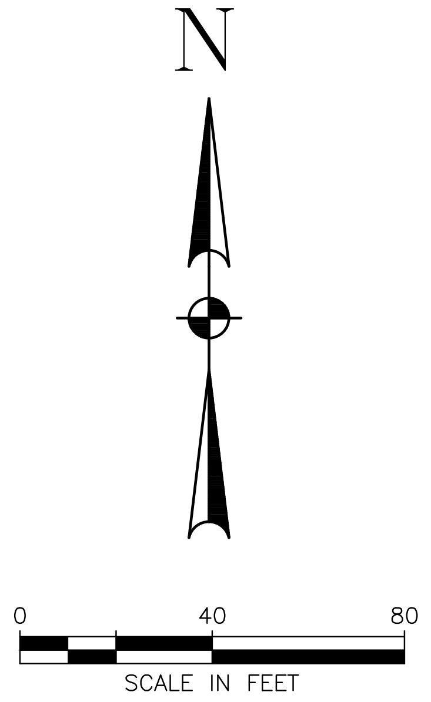
DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 28 OF 345


A
UTILITY WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R
X
TYPE III BARRICADE W/ R11-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3
T
BEGIN ONE WAY
R6-6
U
CW20-7
V
ONE LANE ROAD AHEAD
CW20-4


N
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40
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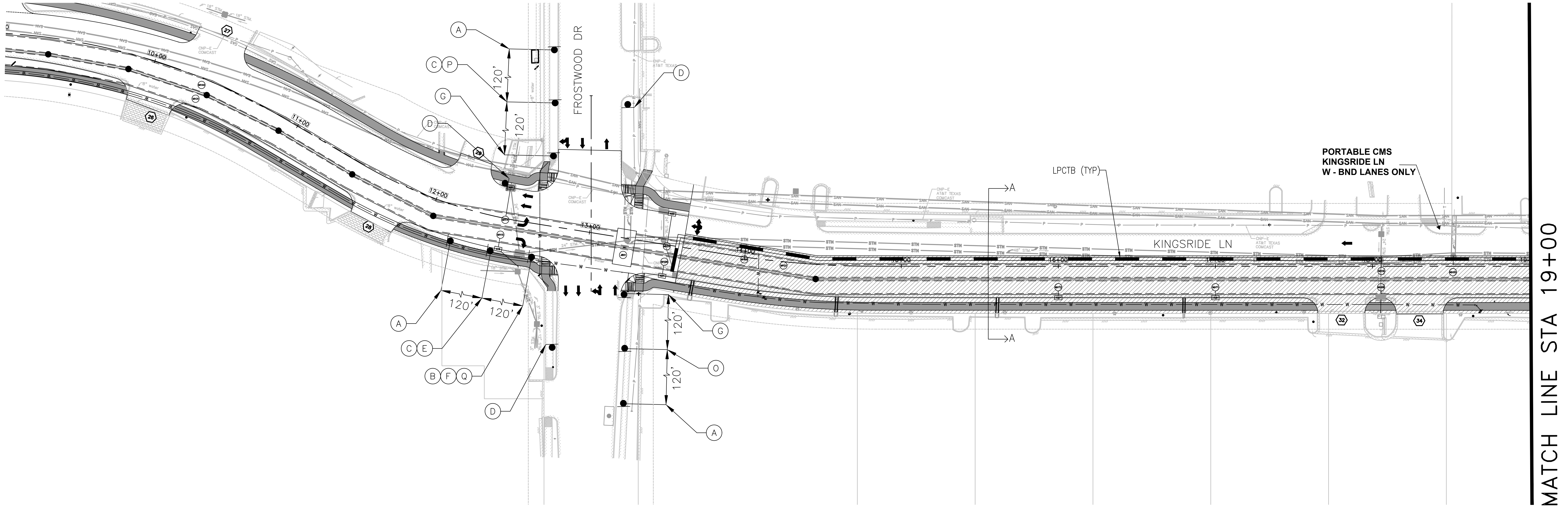
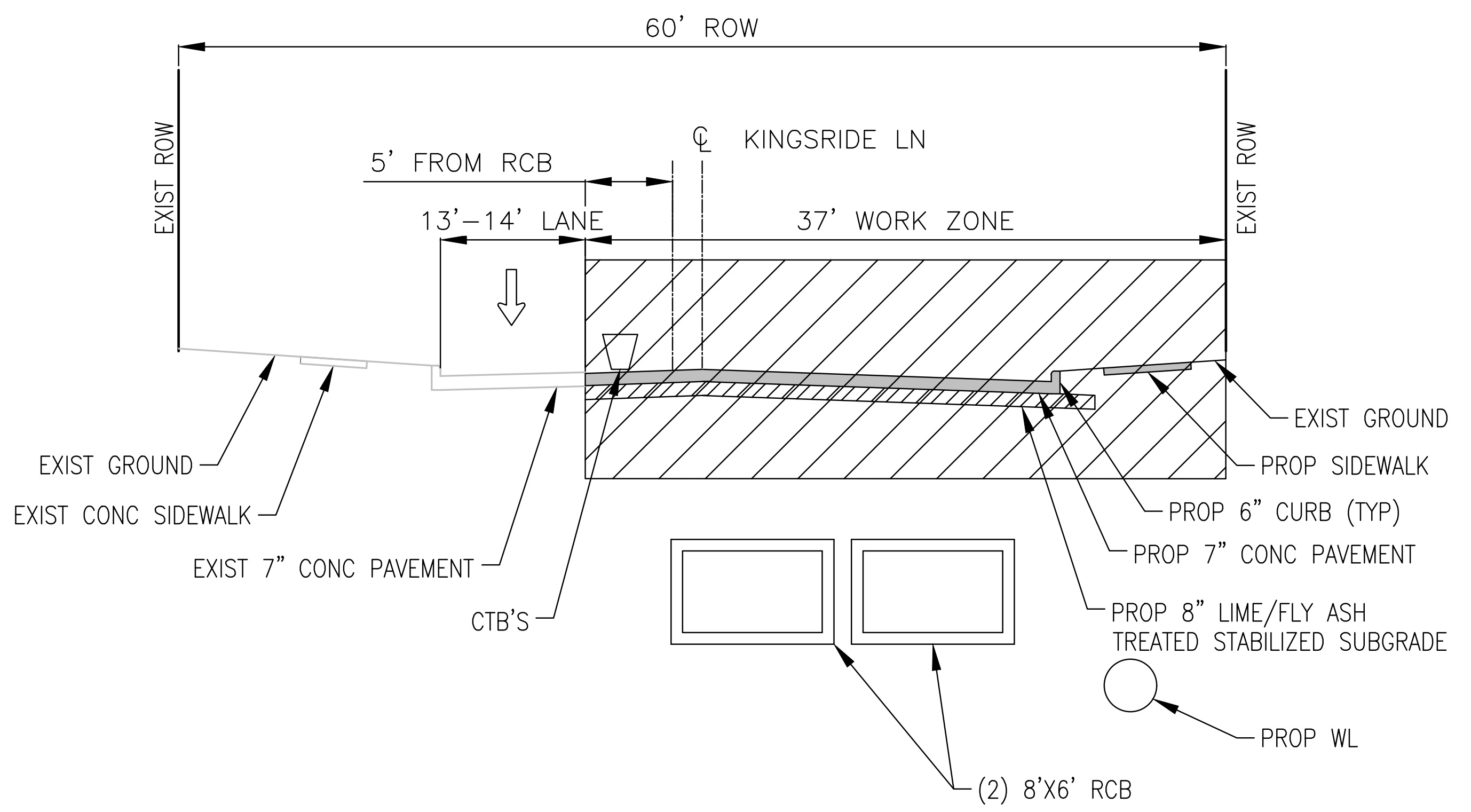
SCALE IN FEET


FROSTWOOD DR
KINGSRIDE LN
LPCTB (TYP)
PORTABLE CMS
KINGSRIDE LN
W - BND LANES ONLY
A
A
MATCH LINE STA 19+00
10+00
11+00
12+00
13+00
14+00
120'
120'
120'
120'
120'
120'
A
C P
G
D
D
D
G
O
A
A
C E
B F Q
D

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT


60' ROW
EXIST ROW
EXIST ROW
℄ KINGSRIDE LN
5' FROM RCB
13'-14' LANE
37' WORK ZONE
EXIST GROUND
EXIST CONC SIDEWALK
EXIST 7" CONC PAVEMENT
CTB'S
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
PROP WL
(2) 8'X6' RCB

PHASE IV STEP I
TYPICAL SECTION A-A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
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No.	Revisions	Date	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 13+60 TO STA 19+00
PHASE 4 STEP 1

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 29 OF 345

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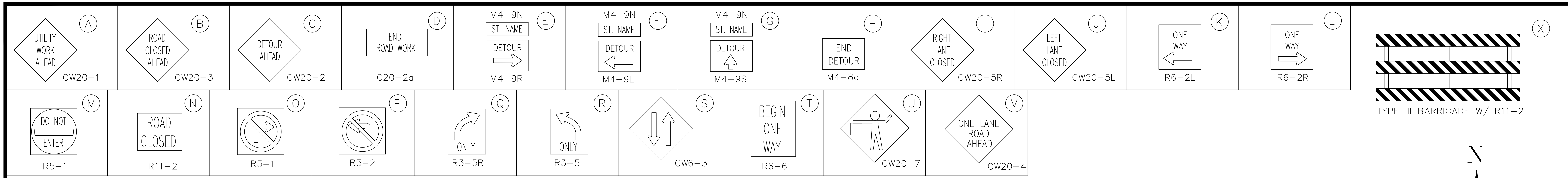
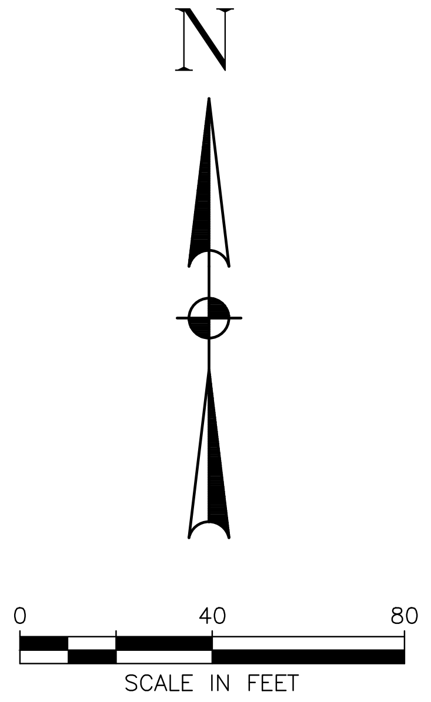
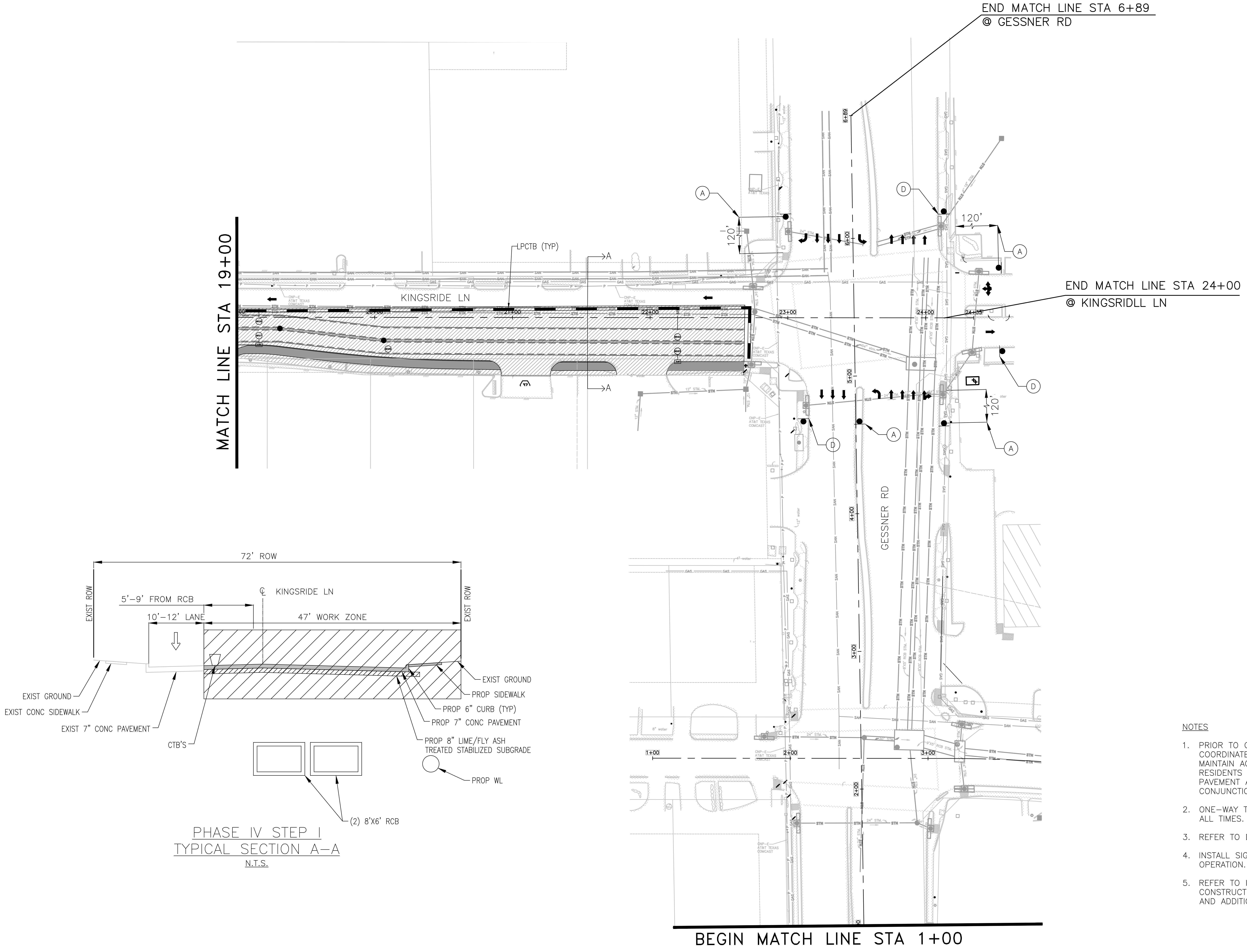


A UTILITY WORK AHEAD CW20–1
B ROAD CLOSED AHEAD CW20–3
C DETOUR AHEAD CW20–2
D END ROAD WORK G20–2a
E M4–9N ST. NAME DETOUR M4–9R
F M4–9N ST. NAME DETOUR M4–9L
G M4–9N ST. NAME DETOUR M4–9S
H END DETOUR M4–8a
I RIGHT LANE CLOSED CW20–5R
J LEFT LANE CLOSED CW20–5L
K ONE WAY R6–2L
L ONE WAY R6–2R
X TYPE III BARRICADE W/ R11–2
M DO NOT ENTER R5–1
N ROAD CLOSED R11–2
O R3–1
P R3–2
Q ONLY R3–5R
R ONLY R3–5L
S CW6–3
T BEGIN ONE WAY R6–6
U CW20–7
V ONE LANE ROAD AHEAD CW20–4



N
0
40
80
SCALE IN FEET



END MATCH LINE STA 6+89
@ GESSNER RD
END MATCH LINE STA 24+00
@ KINGSRIDLL LN
MATCH LINE STA 19+00
BEGIN MATCH LINE STA 1+00
LPCTB (TYP)
A
KINGSRIDE LN
GESSNER RD
120'
21+00
22+00
23+00
24+00
6+00
5+00
4+00
3+00
2+00
1+00
A
D
72' ROW
EXIST ROW
5'–9' FROM RCB
10'–12' LANE
47' WORK ZONE
℄ KINGSRIDE LN
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
PROP WL
(2) 8'X6' RCB
EXIST GROUND
EXIST CONC SIDEWALK
EXIST 7" CONC PAVEMENT
CTB'S

PHASE IV STEP I
TYPICAL SECTION A–A
N.T.S.

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11–2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT

NOTES

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No.	Date	Revisions	App.

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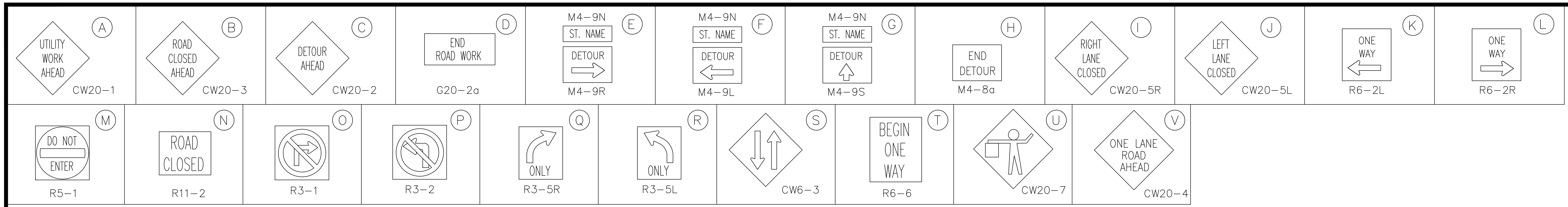
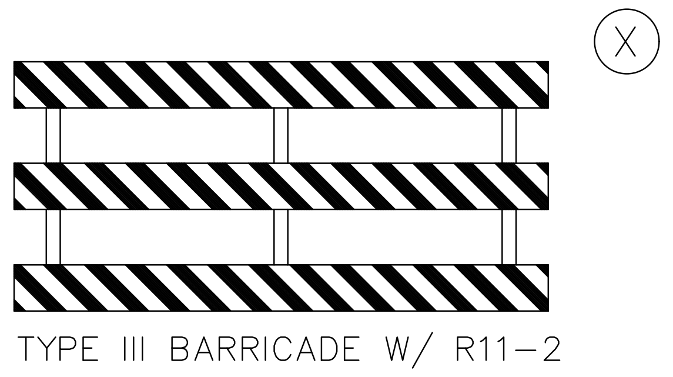
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

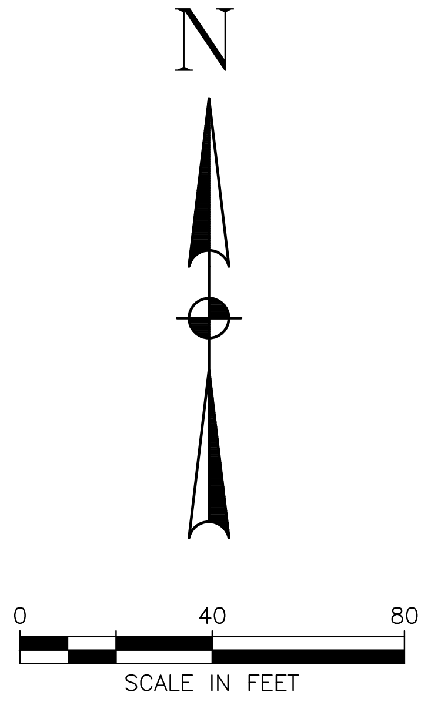
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 19+00 TO STA 22+70
PHASE 4 STEP 1

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 30 OF 345


Ⓐ UTILITY WORK AHEAD CW20-1
Ⓑ ROAD CLOSED AHEAD CW20-3
Ⓒ DETOUR AHEAD CW20-2
Ⓓ END ROAD WORK G20-2a
Ⓔ M4-9N ST. NAME DETOUR M4-9R
Ⓕ M4-9N ST. NAME DETOUR M4-9L
Ⓖ M4-9N ST. NAME DETOUR M4-9S
Ⓗ END DETOUR M4-8a
Ⓘ RIGHT LANE CLOSED CW20-5R
Ⓙ LEFT LANE CLOSED CW20-5L
Ⓚ ONE WAY R6-2L
Ⓛ ONE WAY R6-2R
Ⓜ DO NOT ENTER R5-1
Ⓝ ROAD CLOSED R11-2
Ⓞ R3-1
Ⓟ R3-2
Ⓠ ONLY R3-5R
Ⓡ ONLY R3-5L
Ⓢ CW6-3
Ⓣ BEGIN ONE WAY R6-6
Ⓤ CW20-7
Ⓥ ONE LANE ROAD AHEAD CW20-4



TYPE III BARRICADE W/ R11-2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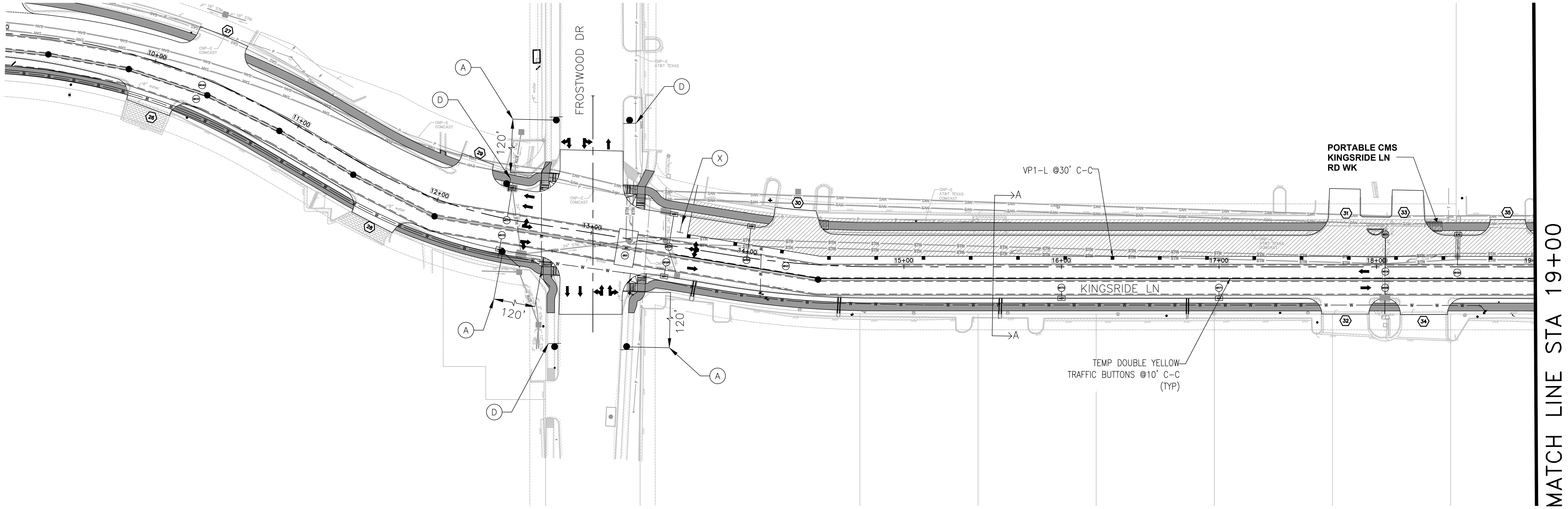
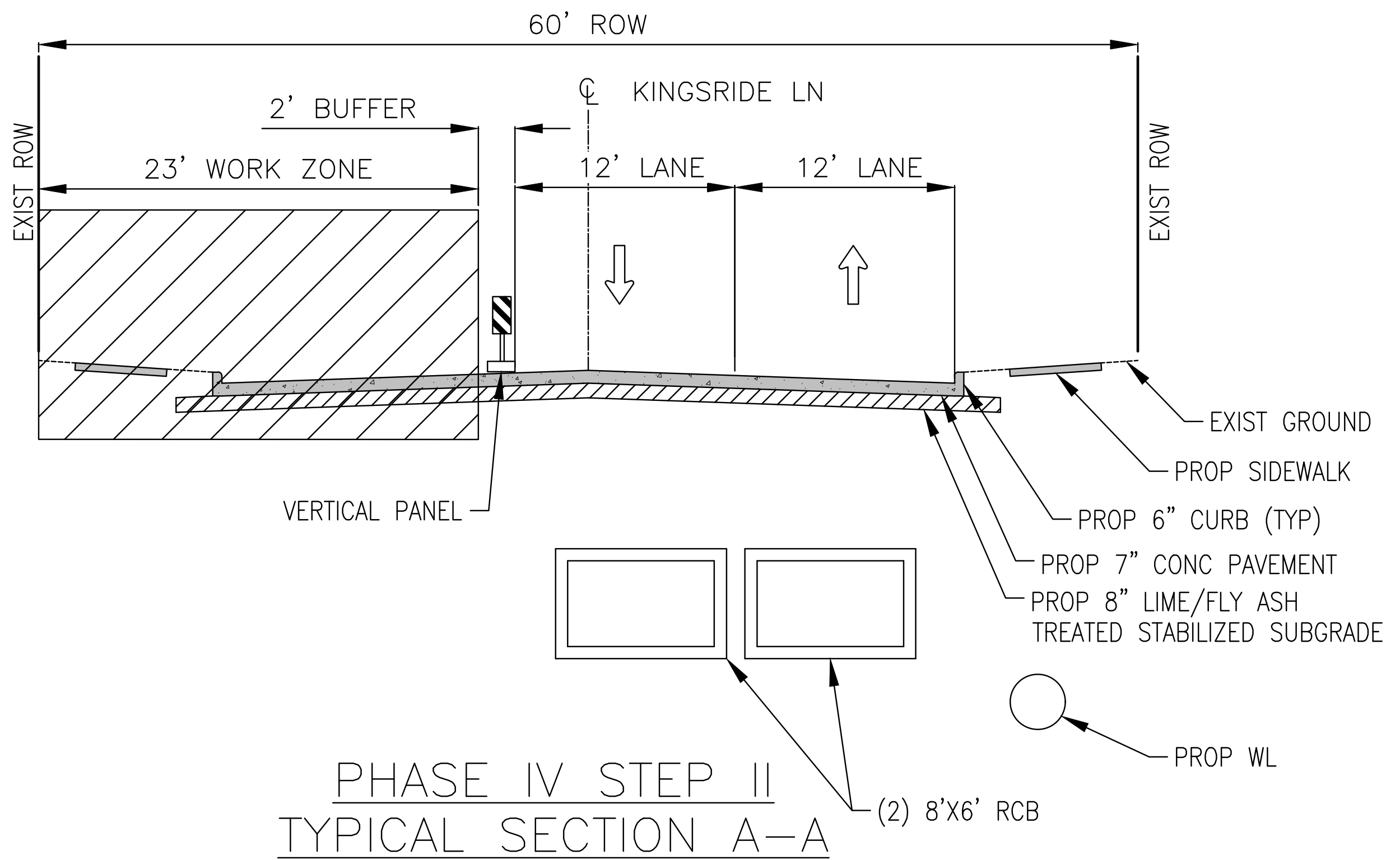
SCALE IN FEET


FROSTWOOD DR
KINGSRIDE LN
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19
120'
120'
120'
Ⓐ
Ⓓ
Ⓧ
VP1-L @30' C-C
PORTABLE CMS KINGSRIDE LN RD WK
TEMP DOUBLE YELLOW TRAFFIC BUTTONS @10' C-C (TYP)
A
A
CNP-E AT&T TEXAS COMCAST
SAN
STM
W
MH72
MH71
MH11
MH16
MH08
MH20
27
28
29
30
31
32
33
34
35
MATCH LINE STA 19+00

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
┴●	TEMP GROUND MOUNTED SIGNS
├─┤	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
═	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
█	TEMP ASPHALT PAVEMENT


60' ROW
2' BUFFER
℄ KINGSRIDE LN
23' WORK ZONE
12' LANE
12' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
VERTICAL PANEL
PROP WL
(2) 8'X6' RCB

PHASE IV STEP II
TYPICAL SECTION A-A
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.

No.	Date	Revisions	App

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FB NO. xxxxx

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F- 713-706-4410
Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 13+60 TO STA 19+00
PHASE 4 STEP 2

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 31 OF 345

c:\users\917pc\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention - kingride ln standard\tcp\fcm tcp - phase 4 step 2.dwg Plotted March 25, 2026 at 12:10 AM by Pavan n

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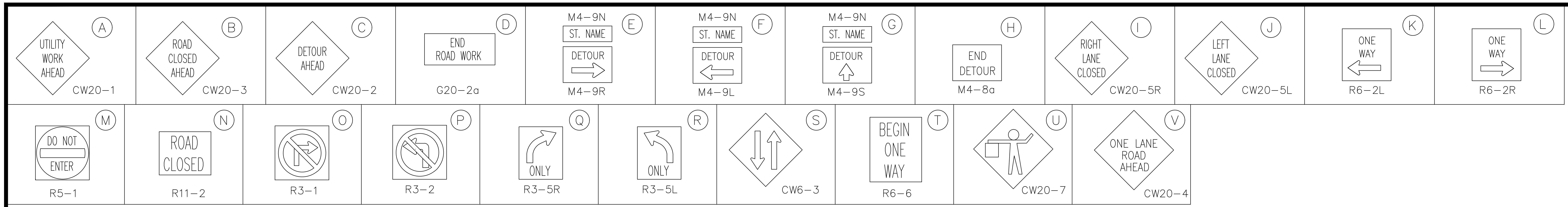
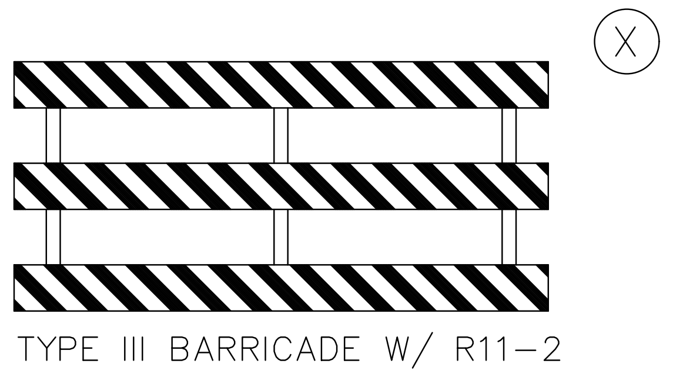
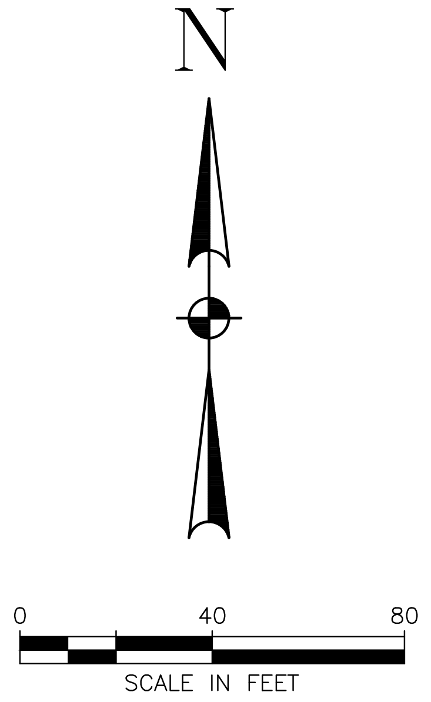


A UTILITY WORK AHEAD CW20-1
B ROAD CLOSED AHEAD CW20-3
C DETOUR AHEAD CW20-2
D END ROAD WORK G20-2a
E M4-9N ST. NAME DETOUR M4-9R
F M4-9N ST. NAME DETOUR M4-9L
G M4-9N ST. NAME DETOUR M4-9S
H END DETOUR M4-8a
I RIGHT LANE CLOSED CW20-5R
J LEFT LANE CLOSED CW20-5L
K ONE WAY R6-2L
L ONE WAY R6-2R
M DO NOT ENTER R5-1
N ROAD CLOSED R11-2
O R3-1
P R3-2
Q ONLY R3-5R
R ONLY R3-5L
S CW6-3
T BEGIN ONE WAY R6-6
U CW20-7
V ONE LANE ROAD AHEAD CW20-4



TYPE III BARRICADE W/ R11-2



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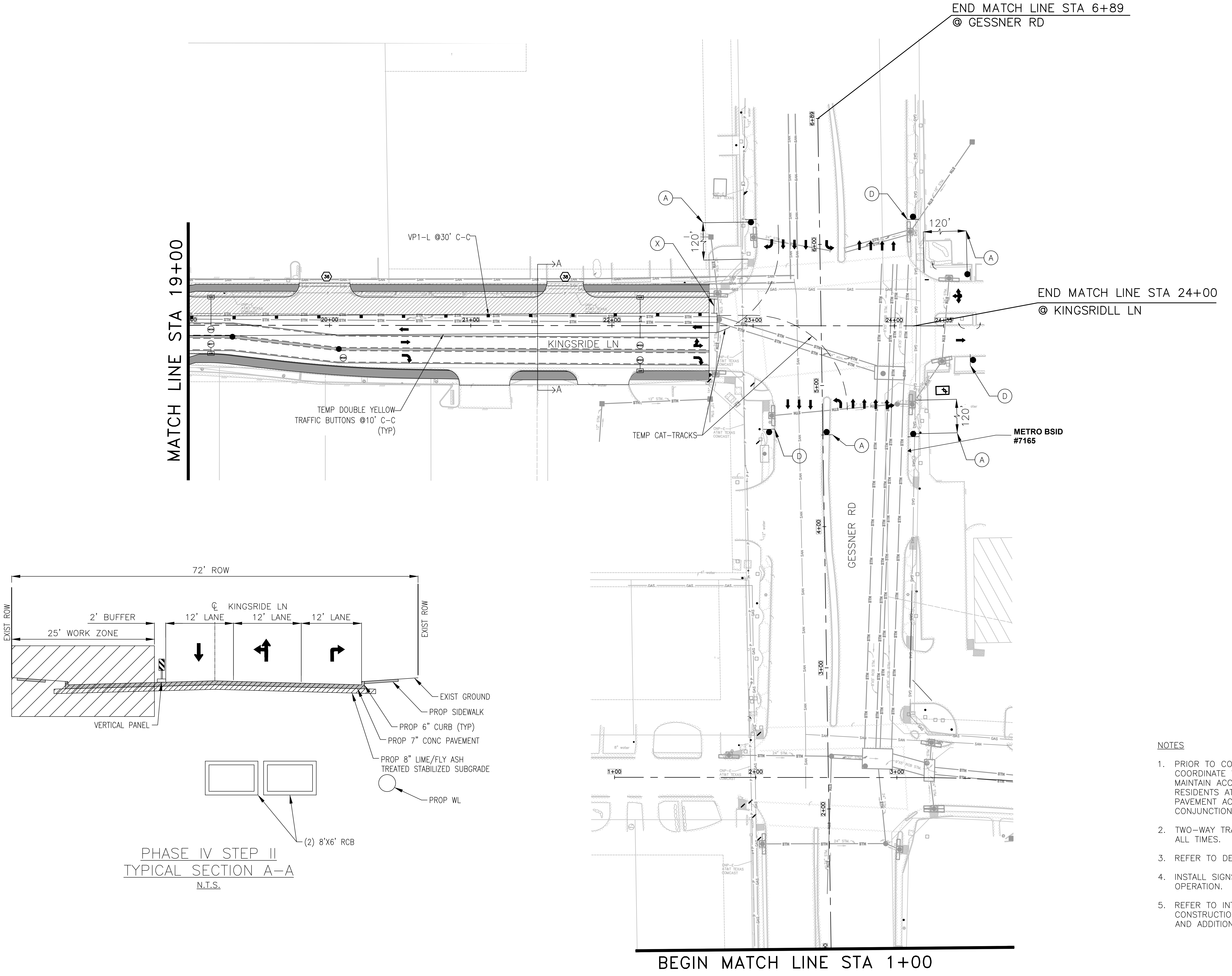
SCALE IN FEET



END MATCH LINE STA 6+89
@ GESSNER RD
END MATCH LINE STA 24+00
@ KINGSRIDLL LN
MATCH LINE STA 19+00
BEGIN MATCH LINE STA 1+00
VP1-L @30' C-C
TEMP DOUBLE YELLOW TRAFFIC BUTTONS @10' C-C (TYP)
TEMP CAT-TRACKS
KINGSRIDE LN
GESSNER RD
METRO BSID #7165
120'
A
D
X
20+00
21+00
22+00
23+00
24+00
6+89
5+00
4+00
3+00
2+00
1+00
72' ROW
℄ KINGSRIDE LN
2' BUFFER
25' WORK ZONE
12' LANE
12' LANE
12' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
PROP WL
VERTICAL PANEL
(2) 8'X6' RCB

PHASE IV STEP II
TYPICAL SECTION A-A
N.T.S.

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
⊸	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT

NOTES

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FRANK C. MBACHU
108363
3/19/2026

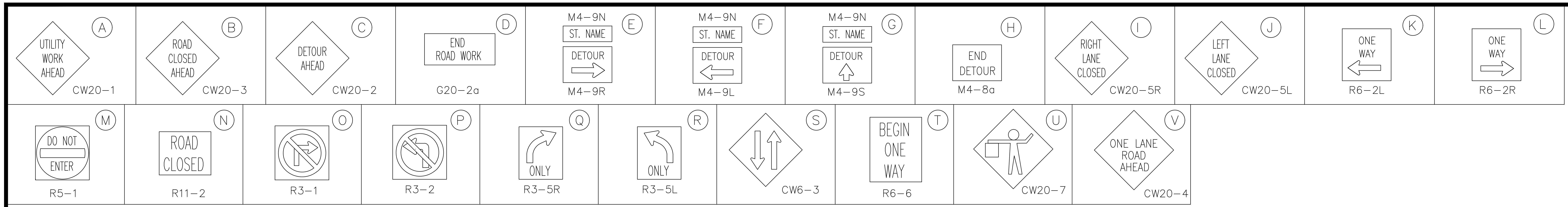
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

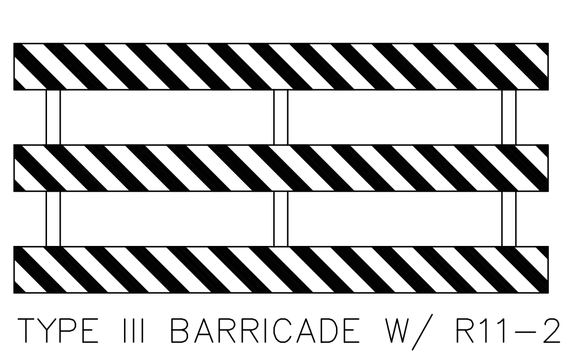
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
KINGSRIDE LANE
STA 19+00 TO STA 22+70
PHASE 4 STEP 2

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 32 OF 345

No.	Date	Revisions	App.


A UTILITY WORK AHEAD CW20-1
B ROAD CLOSED AHEAD CW20-3
C DETOUR AHEAD CW20-2
D END ROAD WORK G20-2a
E M4-9N ST. NAME DETOUR M4-9R
F M4-9N ST. NAME DETOUR M4-9L
G M4-9N ST. NAME DETOUR M4-9S
H END DETOUR M4-8a
I RIGHT LANE CLOSED CW20-5R
J LEFT LANE CLOSED CW20-5L
K ONE WAY R6-2L
L ONE WAY R6-2R
M DO NOT ENTER R5-1
N ROAD CLOSED R11-2
O R3-1
P R3-2
Q ONLY R3-5R
R ONLY R3-5L
S CW6-3
T BEGIN ONE WAY R6-6
U CW20-7
V ONE LANE ROAD AHEAD CW20-4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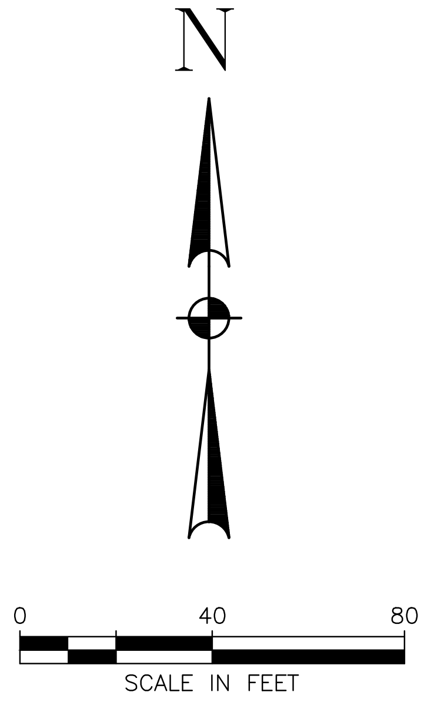
TYPE III BARRICADE W/ R11-2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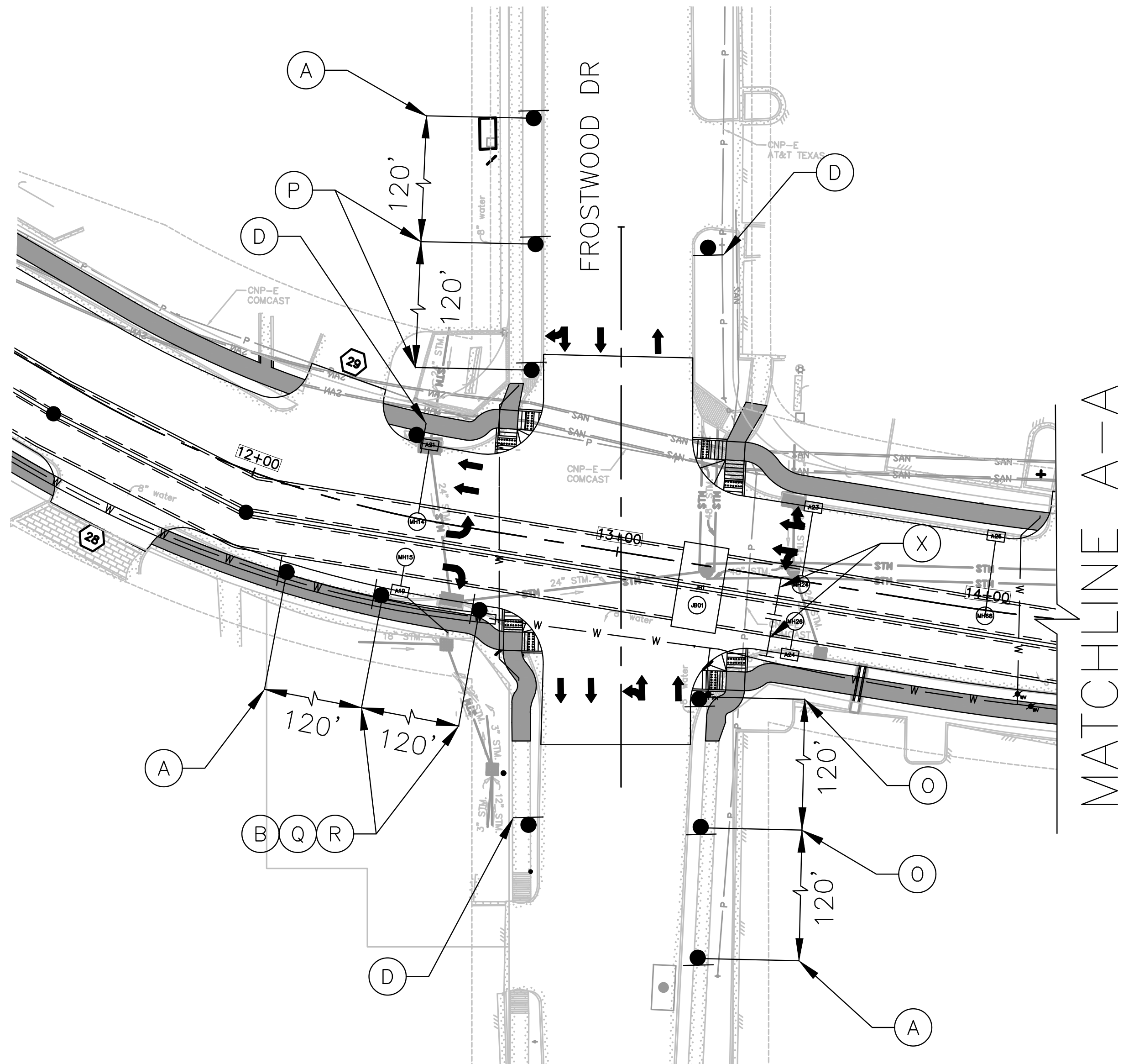
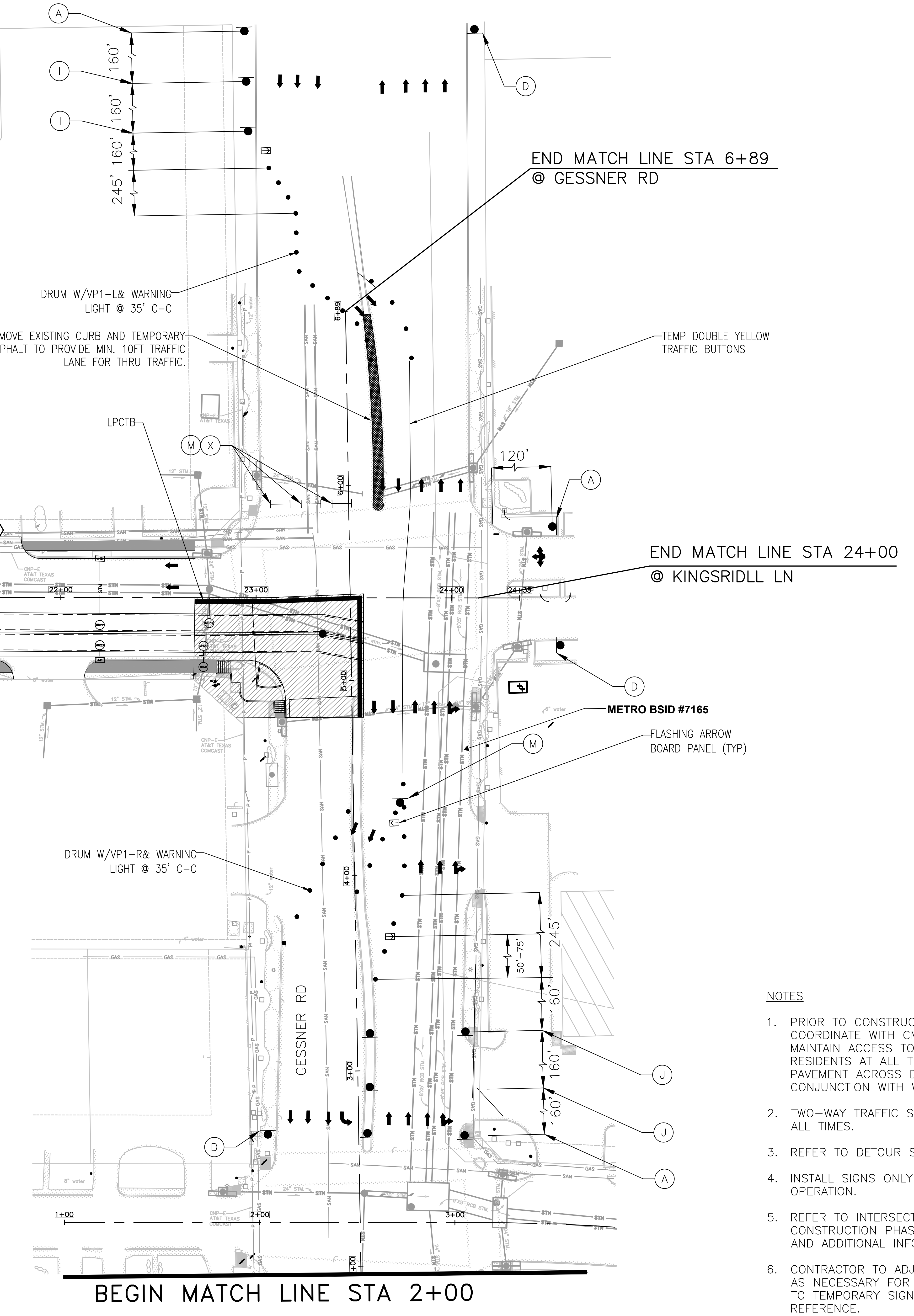
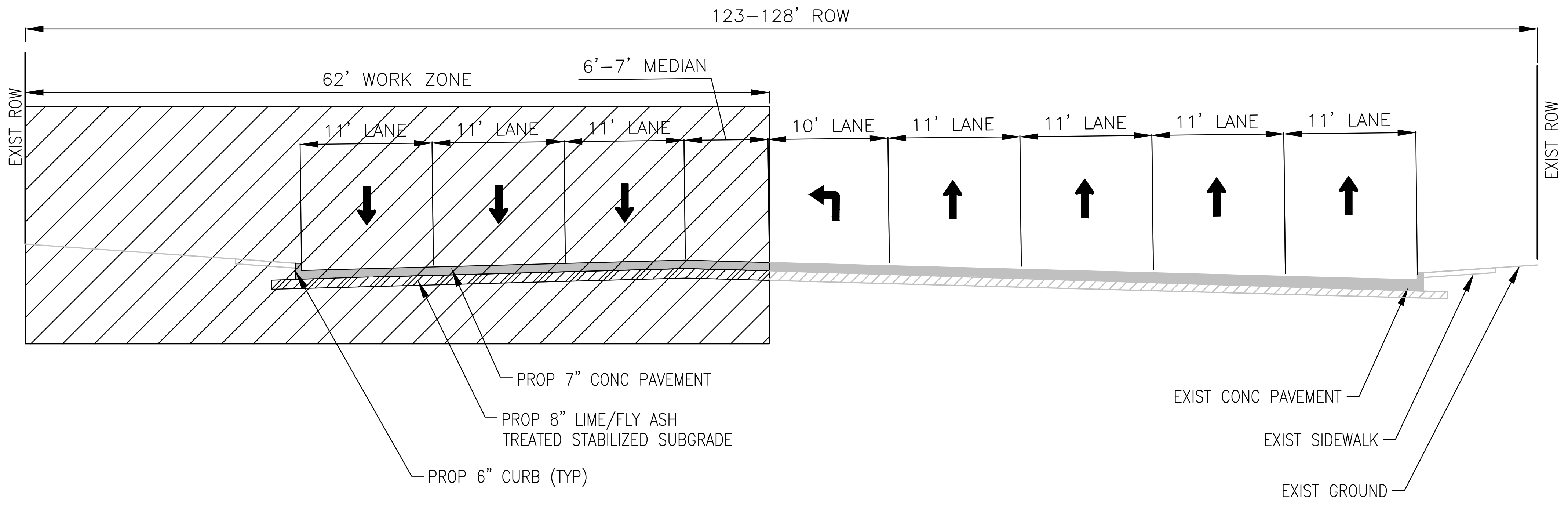
SCALE IN FEET


A
P
D
FROSTWOOD DR
120'
120'
12+00
13+00
14+00
X
D
120'
120'
A
B Q R
D
120'
120'
O
O
A
MATCHLINE A-A


A
I
I
160'
160'
245' 160'
D
END MATCH LINE STA 6+89
@ GESSNER RD
DRUM W/VP1-L& WARNING LIGHT @ 35' C-C
REMOVE EXISTING CURB AND TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC.
TEMP DOUBLE YELLOW TRAFFIC BUTTONS
LPCTB
M X
6+00
120'
A
END MATCH LINE STA 24+00
@ KINGSRIDLL LN
KINGSRIDE LN
22+00
23+00
24+00
24+35
5+00
D
METRO BSID #7165
FLASHING ARROW BOARD PANEL (TYP)
M
DRUM W/VP1-R& WARNING LIGHT @ 35' C-C
4+00
50'-75'
245'
160'
160'
160'
GESSNER RD
3+00
J
J
D
A
1+00
2+00
BEGIN MATCH LINE STA 2+00

MATCHLINE A-A


123-128' ROW
62' WORK ZONE
6'-7' MEDIAN
EXIST ROW
11' LANE
11' LANE
11' LANE
10' LANE
11' LANE
11' LANE
11' LANE
11' LANE
EXIST ROW
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
PROP 6" CURB (TYP)
EXIST CONC PAVEMENT
EXIST SIDEWALK
EXIST GROUND

PHASE IV INT I

N.T.S.

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT

NOTES

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No.	Date	Revisions	App.

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Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GESSNER RD
PHASE 4 INT 1

WBS NO. M-430296-0017-3

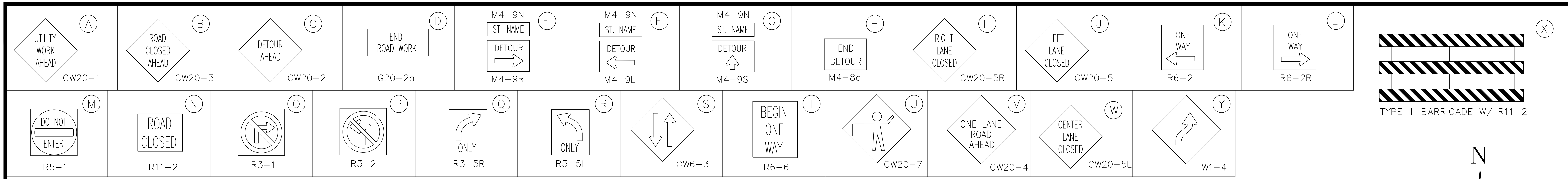
DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 33 OF 345

c:\users\917pc\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention – kingride ln standard\tcp\tcm tcp – phase 4 int 1.dwg Plotted March 25, 2026 at 12:11 AM by Pavan n



A UTILITY WORK AHEAD CW20-1
B ROAD CLOSED AHEAD CW20-3
C DETOUR AHEAD CW20-2
D END ROAD WORK G20-2a
E M4-9N ST. NAME DETOUR M4-9R
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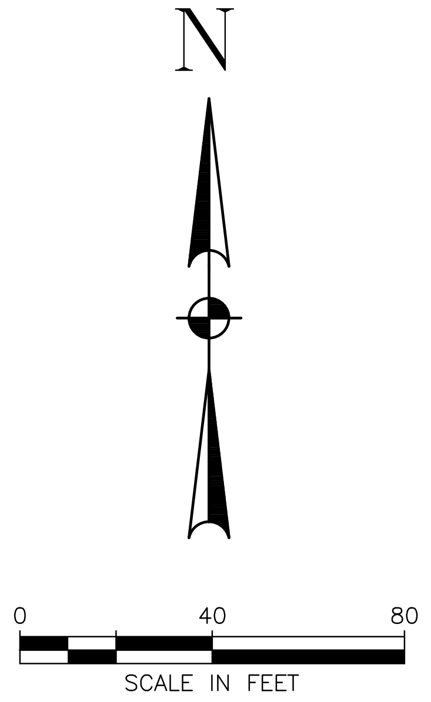
G M4-9N ST. NAME DETOUR M4-9S
H END DETOUR M4-8a
I RIGHT LANE CLOSED CW20-5R
J LEFT LANE CLOSED CW20-5L
K ONE WAY R6-2L
L ONE WAY R6-2R
X TYPE III BARRICADE W/ R11-2
M DO NOT ENTER R5-1
N ROAD CLOSED R11-2
O R3-1
P R3-2
Q ONLY R3-5R
R ONLY R3-5L
S CW6-3
T BEGIN ONE WAY R6-6
U CW20-7
V ONE LANE ROAD AHEAD CW20-4
W CENTER LANE CLOSED CW20-5L
Y W1-4

No.	Date	Revisions	App



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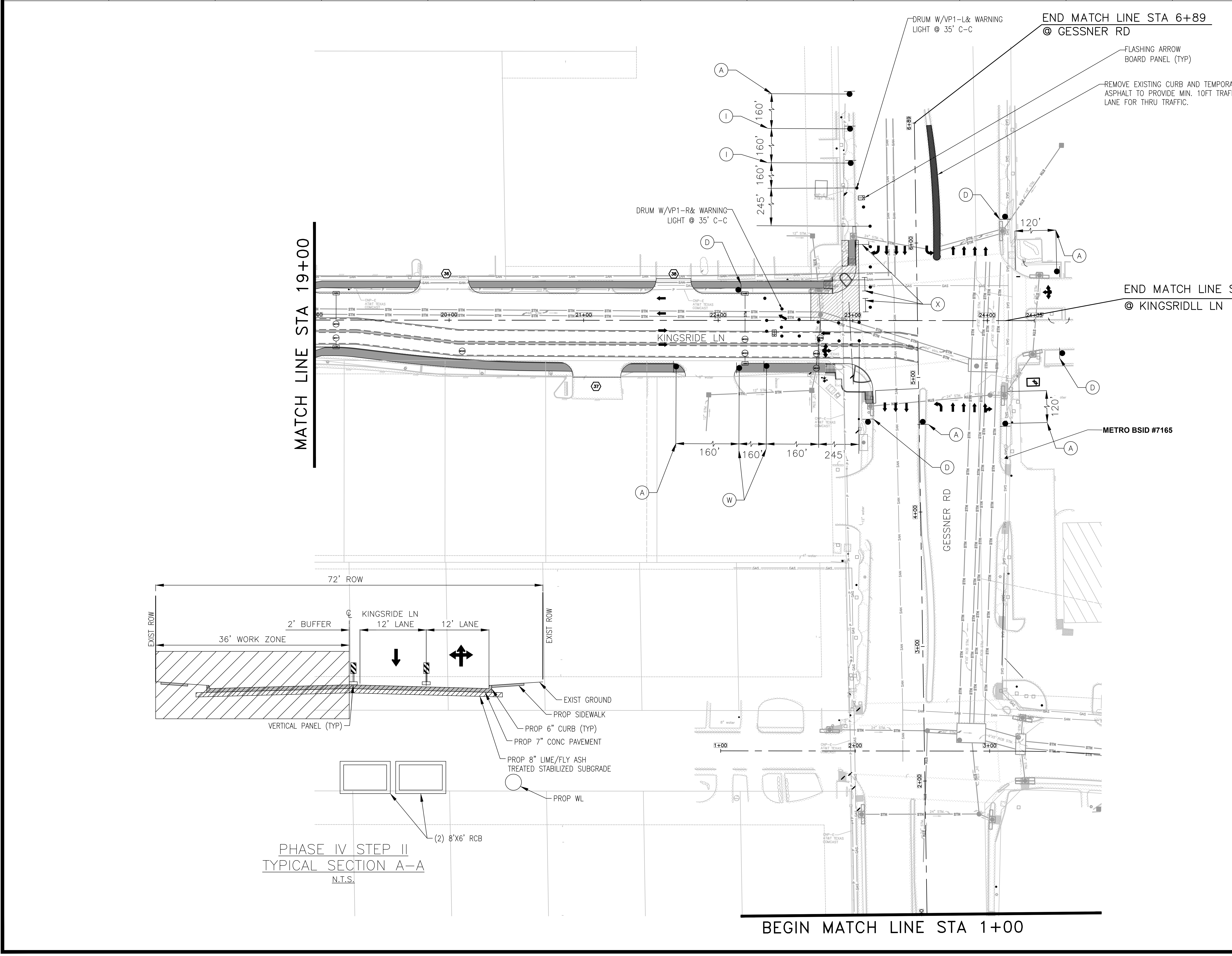

DRUM W/VP1-L& WARNING LIGHT @ 35' C-C
END MATCH LINE STA 6+89 @ GESSNER RD
FLASHING ARROW BOARD PANEL (TYP)
REMOVE EXISTING CURB AND TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC.
DRUM W/VP1-R& WARNING LIGHT @ 35' C-C
160'
160'
160'
245'
120'
120'
END MATCH LINE STA 24+00 @ KINGSRIDLL LN
MATCH LINE STA 19+00
KINGSRIDE LN
GESSNER RD
METRO BSID #7165
160'
160'
160'
245'
20+00
21+00
22+00
23+00
24+00
1+00
2+00
3+00
4+00
5+00
6+89
72' ROW
EXIST ROW
2' BUFFER
KINGSRIDE LN
12' LANE
12' LANE
36' WORK ZONE
EXIST ROW
EXIST GROUND
PROP SIDEWALK
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
VERTICAL PANEL (TYP)
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
PROP WL
(2) 8'X6' RCB
PHASE IV STEP II
TYPICAL SECTION A-A
N.T.S.
BEGIN MATCH LINE STA 1+00

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
⊥●	TEMP GROUND MOUNTED SIGNS
├─┤	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
═	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT

NOTES

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STATE OF TEXAS
FRANK C. MBACHU
108363
LICENSED PROFESSIONAL ENGINEER
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GESSNER RD
PHASE 4 INT 2

WBS NO. M-430296-0017-3

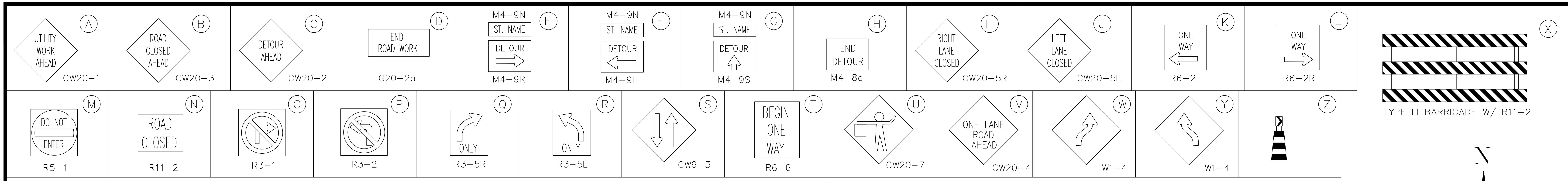
DRAWING SCALE

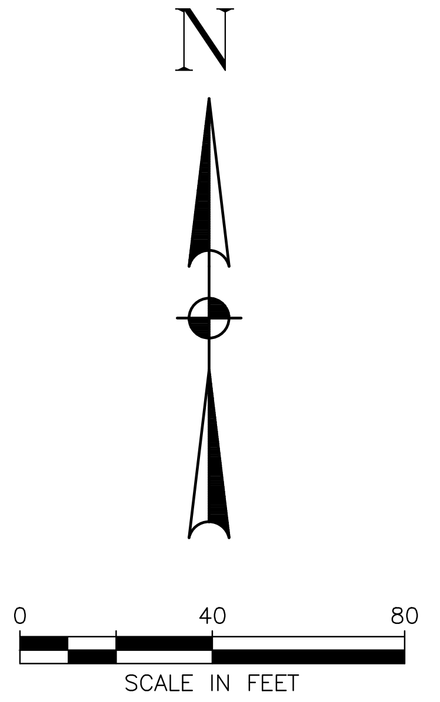
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 34 OF 345

c:\users\917pa\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention - kingride ln standard\tcp\fcm tcp - phase 4 int 2.dwg Plotted March 25, 2026 at 12:11 AM by Pavan n


UTILITY WORK AHEAD
A
CW20-1
ROAD CLOSED AHEAD
B
CW20-3
DETOUR AHEAD
C
CW20-2
END ROAD WORK
D
G20-2a
M4-9N
ST. NAME
DETOUR
E
M4-9R
M4-9N
ST. NAME
DETOUR
F
M4-9L
M4-9N
ST. NAME
DETOUR
G
M4-9S
END DETOUR
H
M4-8a
RIGHT LANE CLOSED
I
CW20-5R
LEFT LANE CLOSED
J
CW20-5L
ONE WAY
K
R6-2L
ONE WAY
L
R6-2R
X
TYPE III BARRICADE W/ R11-2
DO NOT ENTER
M
R5-1
ROAD CLOSED
N
R11-2
O
R3-1
P
R3-2
ONLY
Q
R3-5R
ONLY
R
R3-5L
S
CW6-3
BEGIN ONE WAY
T
R6-6
U
CW20-7
ONE LANE ROAD AHEAD
V
CW20-4
W
W1-4
Y
W1-4
Z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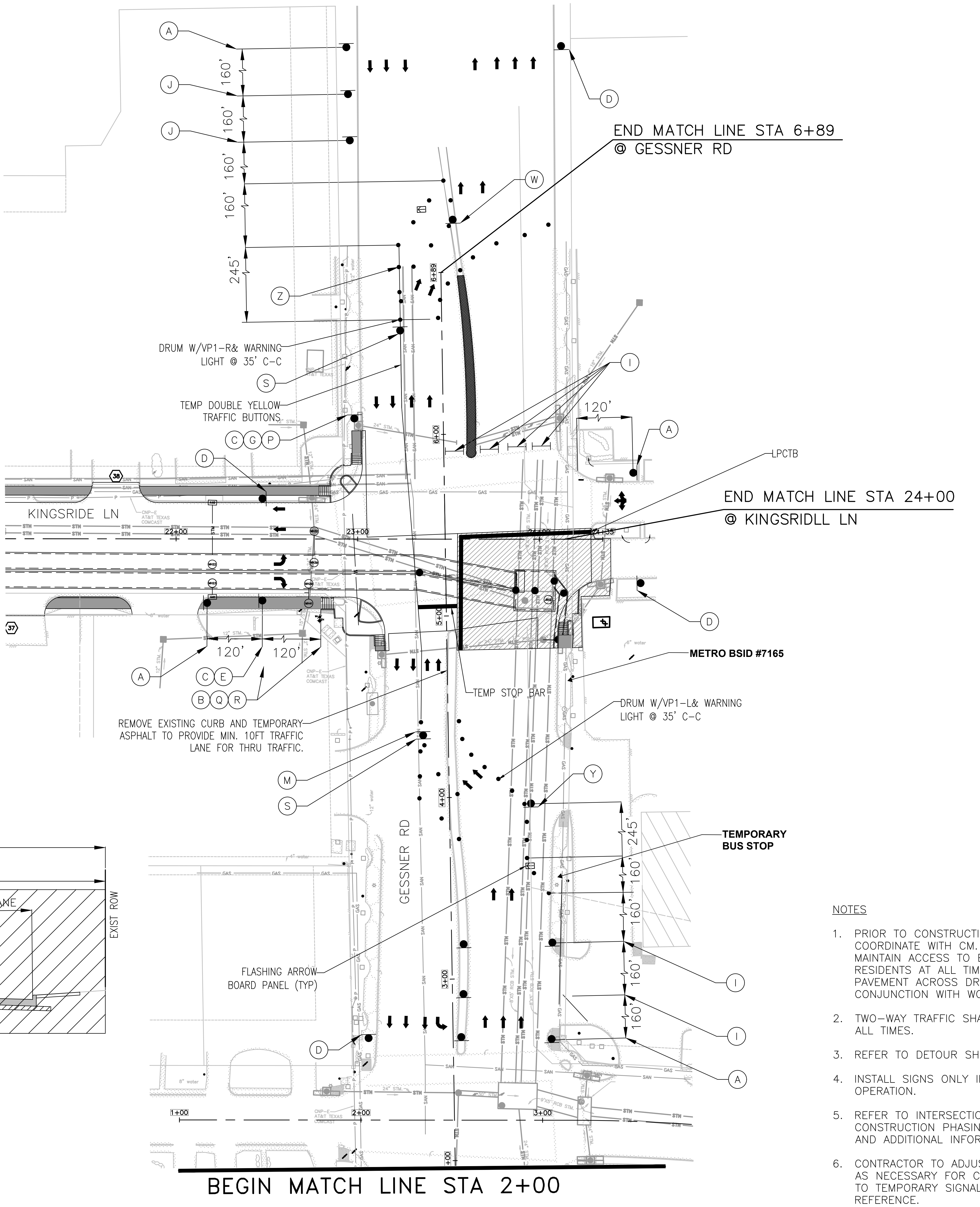
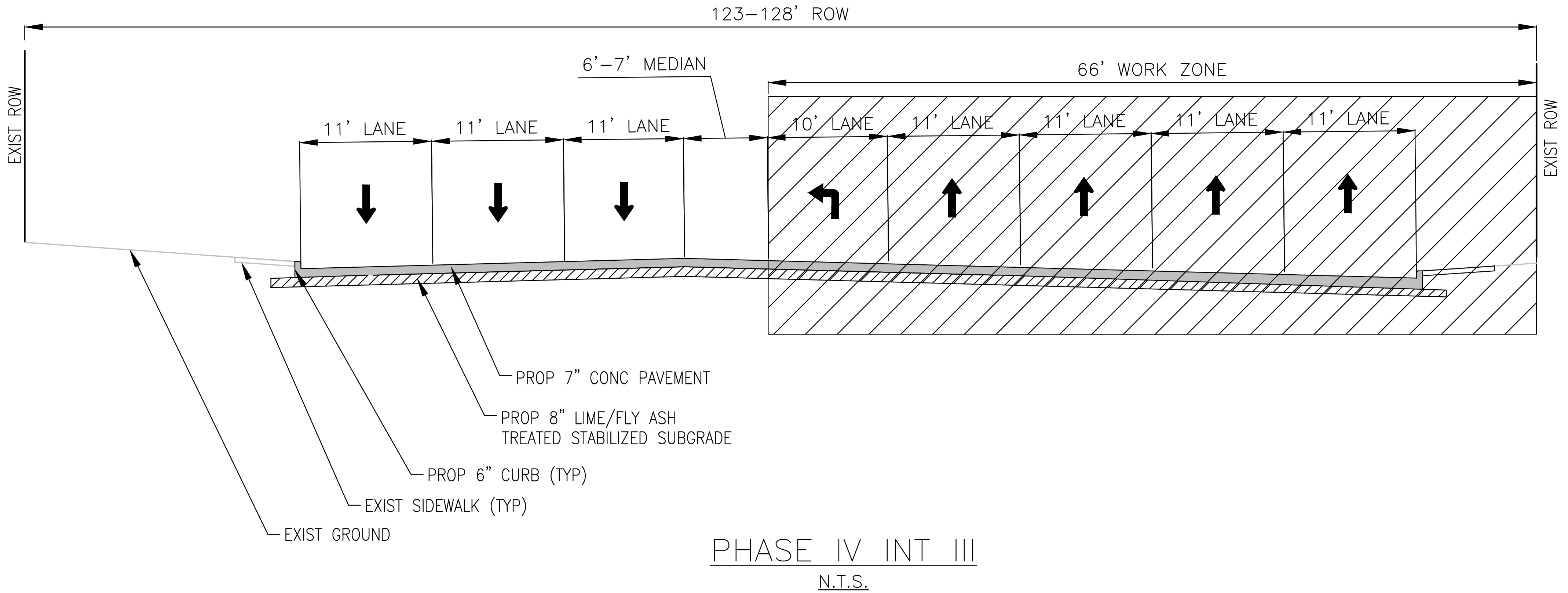

A
J
J
160'
160'
160'
160'
245'
Z
D
W
END MATCH LINE STA 6+89
@ GESSNER RD
6+89
DRUM W/VP1-R& WARNING LIGHT @ 35' C-C
S
TEMP DOUBLE YELLOW TRAFFIC BUTTONS
C G P
I
120'
A
6+00
D
LPCTB
KINGSRIDE LN
END MATCH LINE STA 24+00
@ KINGSRIDLL LN
23+00
22+00
D
5+00
METRO BSID #7165
120'
120'
A
C E
B Q R
TEMP STOP BAR
DRUM W/VP1-L& WARNING LIGHT @ 35' C-C
REMOVE EXISTING CURB AND TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC.
M
Y
S
4+00
TEMPORARY BUS STOP
245'
160'
160'
160'
160'
GESSNER RD
FLASHING ARROW BOARD PANEL (TYP)
3+00
I
I
D
A
1+00
2+00
BEGIN MATCH LINE STA 2+00

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
┴●	TEMP GROUND MOUNTED SIGNS
├─┤	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT


123-128' ROW
6'-7' MEDIAN
66' WORK ZONE
EXIST ROW
11' LANE
11' LANE
11' LANE
10' LANE
11' LANE
11' LANE
11' LANE
11' LANE
EXIST ROW
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
PROP 6" CURB (TYP)
EXIST SIDEWALK (TYP)
EXIST GROUND

PHASE IV INT III
N.T.S.

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
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3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO ADJUST THE SIGNAL HEAD AS NECESSARY FOR CONSTRUCTION. REFER TO TEMPORARY SIGNAL DESIGN SHEETS FOR REFERENCE.

No.	Date	Revisions	App.

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Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GESSNER RD
PHASE 4 INT 3

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 35 OF 345

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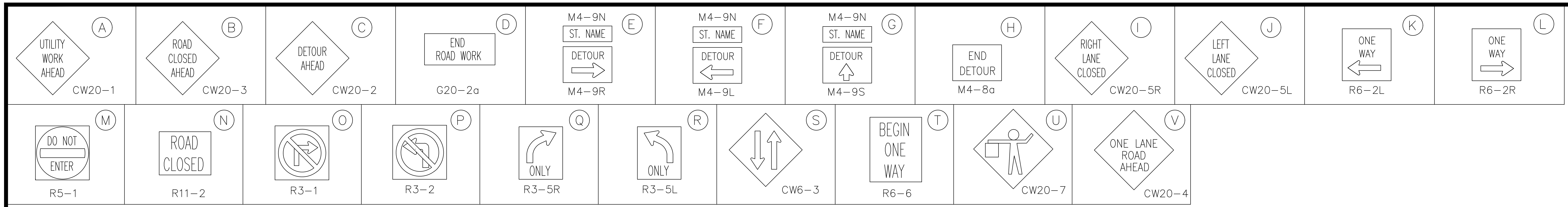
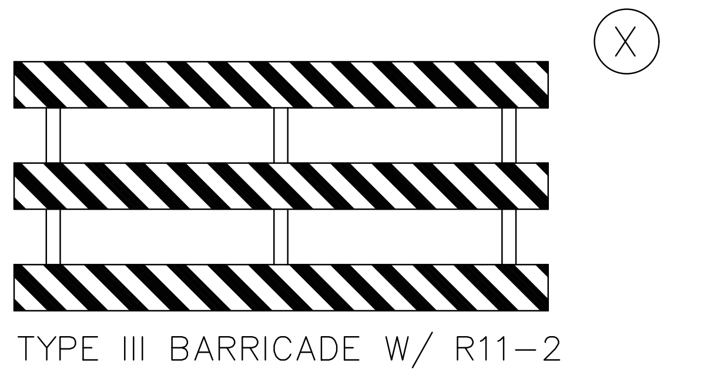
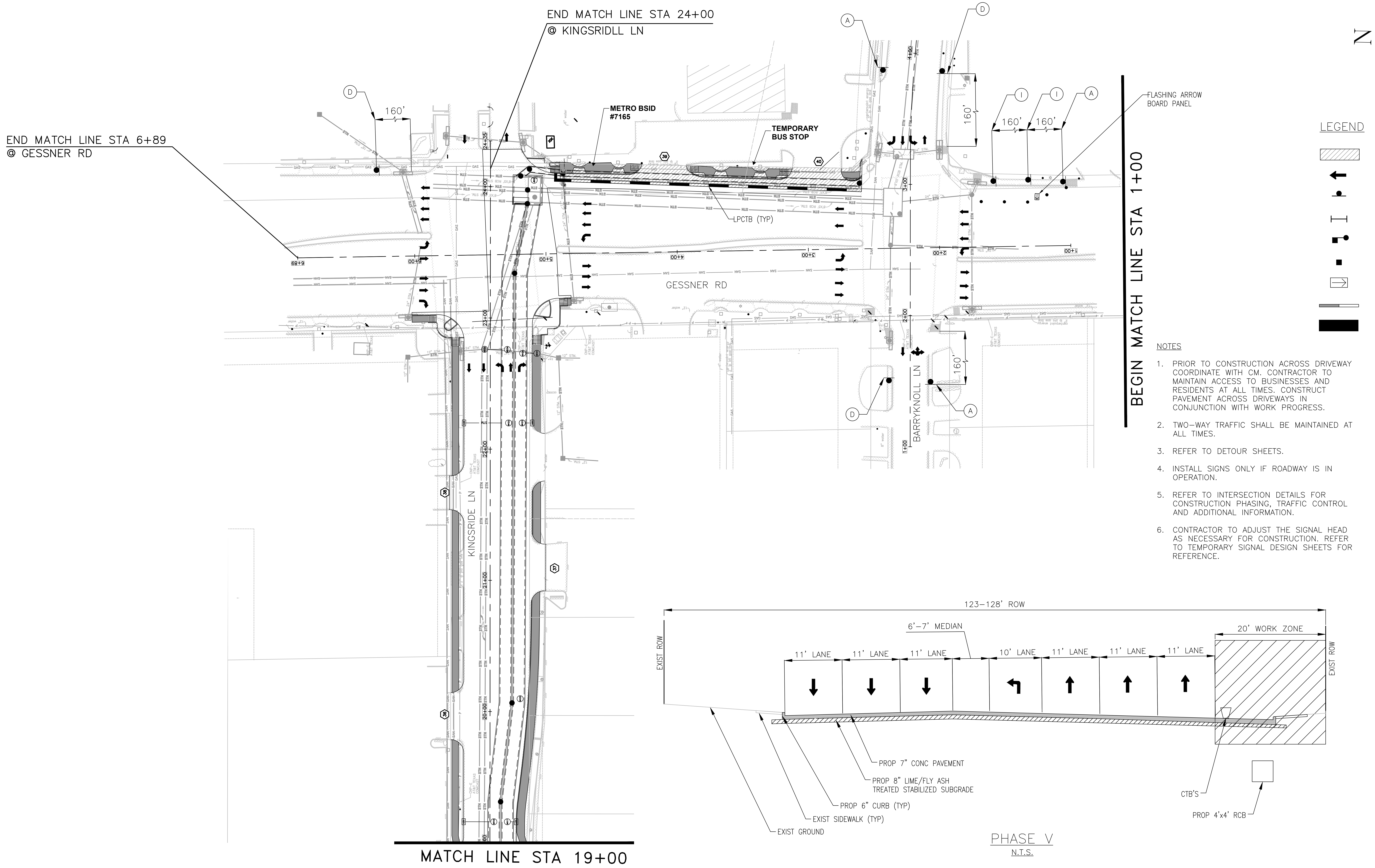

UTILITY WORK AHEAD
A
CW20–1
ROAD CLOSED AHEAD
B
CW20–3
DETOUR AHEAD
C
CW20–2
END ROAD WORK
D
G20–2a
M4–9N
ST. NAME
DETOUR
E
M4–9R
M4–9N
ST. NAME
DETOUR
F
M4–9L
M4–9N
ST. NAME
DETOUR
G
M4–9S
END DETOUR
H
M4–8a
RIGHT LANE CLOSED
I
CW20–5R
LEFT LANE CLOSED
J
CW20–5L
ONE WAY
K
R6–2L
ONE WAY
L
R6–2R
DO NOT ENTER
M
R5–1
ROAD CLOSED
N
R11–2
O
R3–1
P
R3–2
ONLY
Q
R3–5R
ONLY
R
R3–5L
S
CW6–3
BEGIN ONE WAY
T
R6–6
U
CW20–7
ONE LANE ROAD AHEAD
V
CW20–4

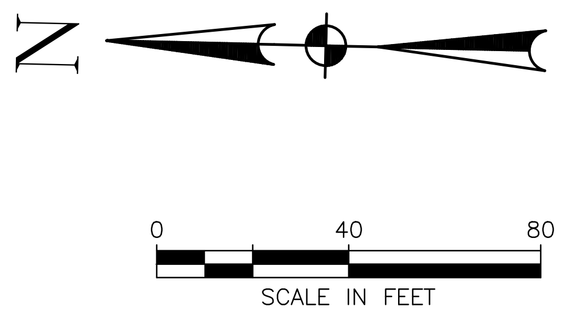


TYPE III BARRICADE W/ R11–2

No.	Date	Revisions	App.


END MATCH LINE STA 24+00
@ KINGSRIDLL LN
END MATCH LINE STA 6+89
@ GESSNER RD
METRO BSID
#7165
TEMPORARY
BUS STOP
LPCTB (TYP)
FLASHING ARROW
BOARD PANEL
160'
GESSNER RD
KINGSRIDE LN
BARRYKNOLL LN
BEGIN MATCH LINE STA 1+00
MATCH LINE STA 19+00
A
D
I
6+89
6+00
5+00
4+00
3+00
2+00
1+00
24+00
23+00
22+00
21+00
20+00
123–128' ROW
6'–7' MEDIAN
11' LANE
10' LANE
20' WORK ZONE
EXIST ROW
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH
TREATED STABILIZED SUBGRADE
PROP 6" CURB (TYP)
EXIST SIDEWALK (TYP)
EXIST GROUND
CTB'S
PROP 4'x4' RCB

PHASE V
N.T.S.


N
0
40
80
SCALE IN FEET

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11–2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT

NOTES

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F- 713-706-4410
Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
GESSNER RD
STA 3+40 TO STA 5+10
PHASE 5

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 36 OF 345

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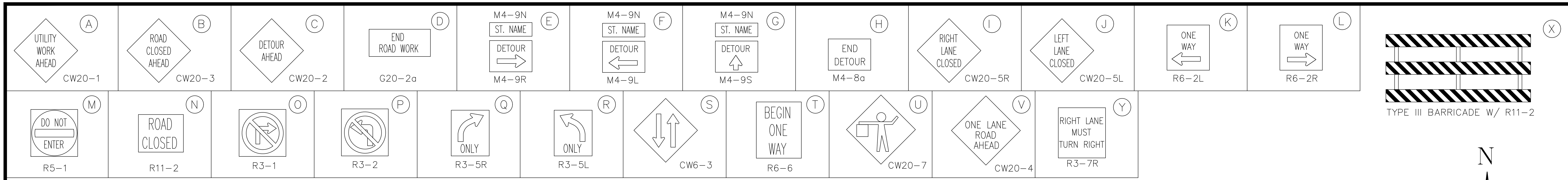
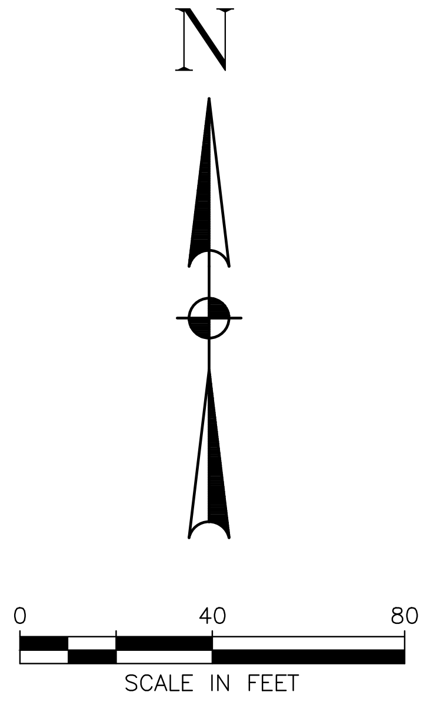

A UTILITY WORK AHEAD CW20-1
B ROAD CLOSED AHEAD CW20-3
C DETOUR AHEAD CW20-2
D END ROAD WORK G20-2a
E M4-9N ST. NAME DETOUR M4-9R
F M4-9N ST. NAME DETOUR M4-9L
G M4-9N ST. NAME DETOUR M4-9S
H END DETOUR M4-8a
I RIGHT LANE CLOSED CW20-5R
J LEFT LANE CLOSED CW20-5L
K ONE WAY R6-2L
L ONE WAY R6-2R
X TYPE III BARRICADE W/ R11-2
M DO NOT ENTER R5-1
N ROAD CLOSED R11-2
O R3-1
P R3-2
Q ONLY R3-5R
R ONLY R3-5L
S CW6-3
T BEGIN ONE WAY R6-6
U CW20-7
V ONE LANE ROAD AHEAD CW20-4
Y RIGHT LANE MUST TURN RIGHT R3-7R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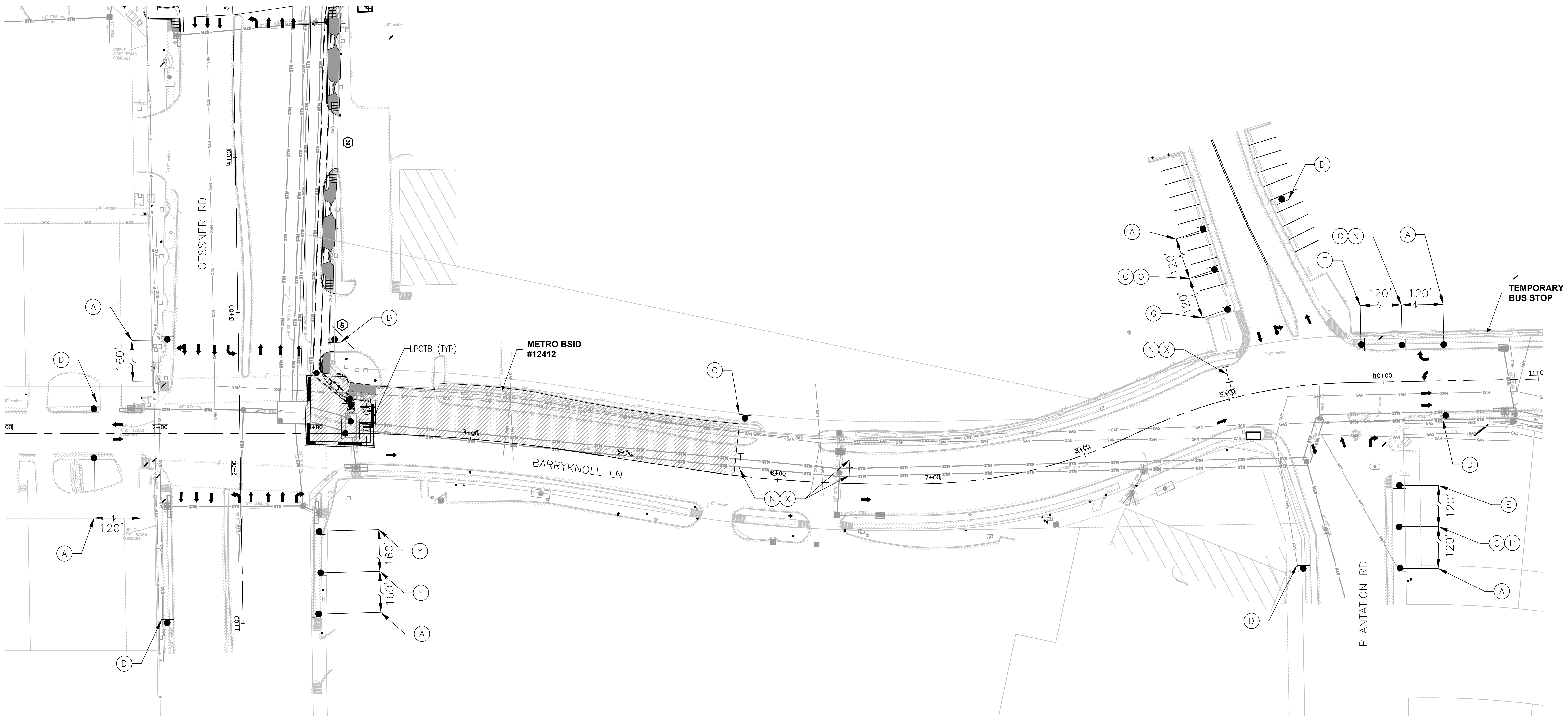
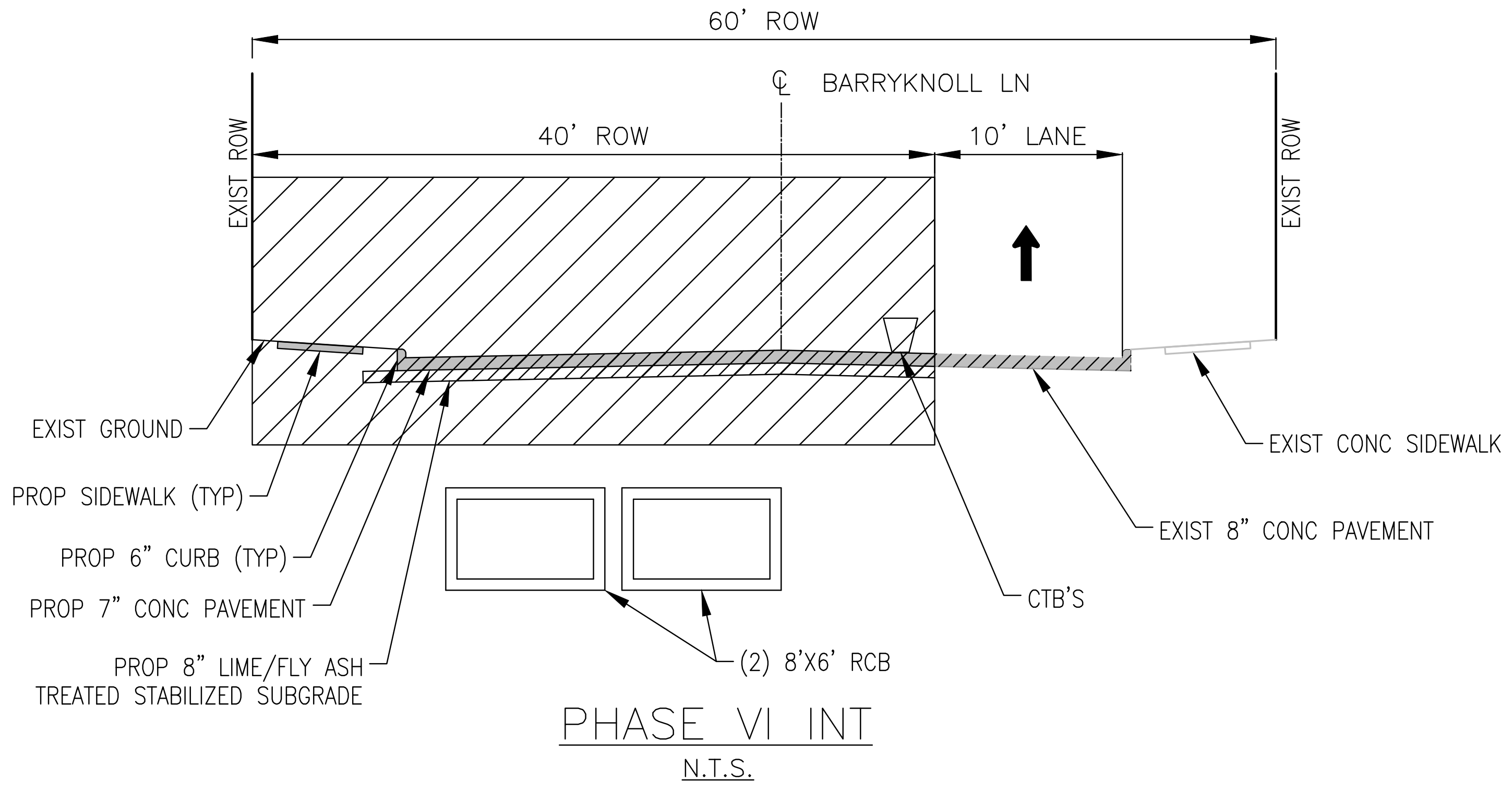
80
SCALE IN FEET


GESSNER RD
BARRYKNOLL LN
PLANTATION RD
METRO BSID #12412
LPCTB (TYP)
TEMPORARY BUS STOP
160'
160'
160'
120'
120'
120'
120'
120'
120'
1+00
2+00
2+00
3+00
4+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
A
A
A
A
A
C
C
D
D
D
D
D
D
D
E
F
G
N
N
O
O
P
X
X
Y
Y

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
┷●	TEMP GROUND MOUNTED SIGNS
├┤	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT


60' ROW
℄ BARRYKNOLL LN
40' ROW
10' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK (TYP)
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
(2) 8'X6' RCB
CTB'S
EXIST 8" CONC PAVEMENT
EXIST CONC SIDEWALK

PHASE VI INT

N.T.S.

NOTES

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5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO COORDINATE WITH METRO PRIOR TO SETTING UP TRAFFIC CONTROL DEVICES IN THIS AREA.
7. CONTRACTOR TO INSTALL NO THROUGH TRAFFIC AT ALL MALL DRIVEWAYS TO DISALLOW TRUCK ENTRANCES.
8. NO FULL LANE CLOSURES ALLOWED FOR LOADING AND OFF LOADING DURING DAYTIMES.

HRGreen
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Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
GESSNER RD
STA 3+40 TO STA 5+10
PHASE 6 INT 1

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 37 OF 345

No.	Date	Revisions	App.

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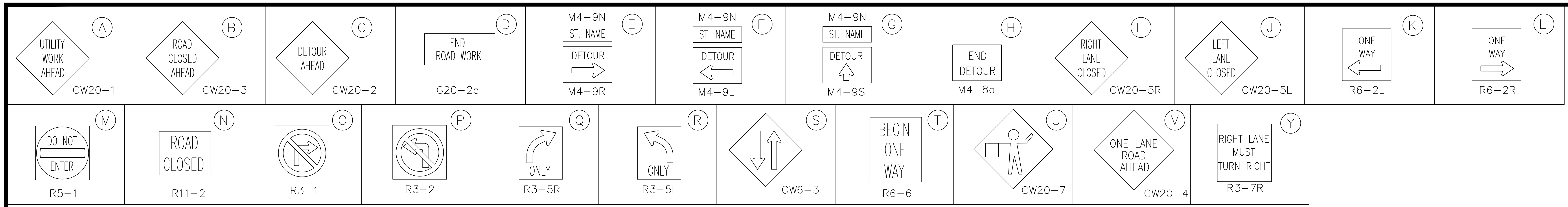
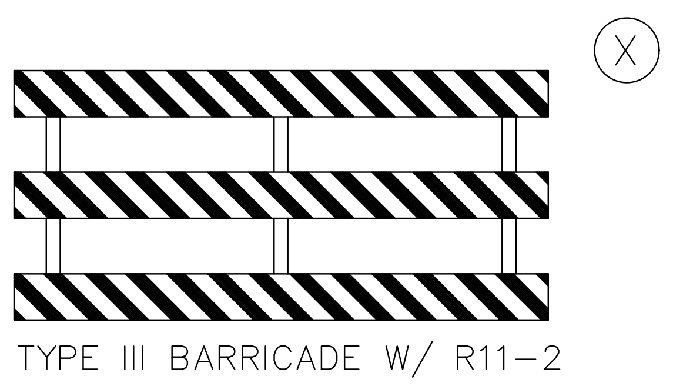
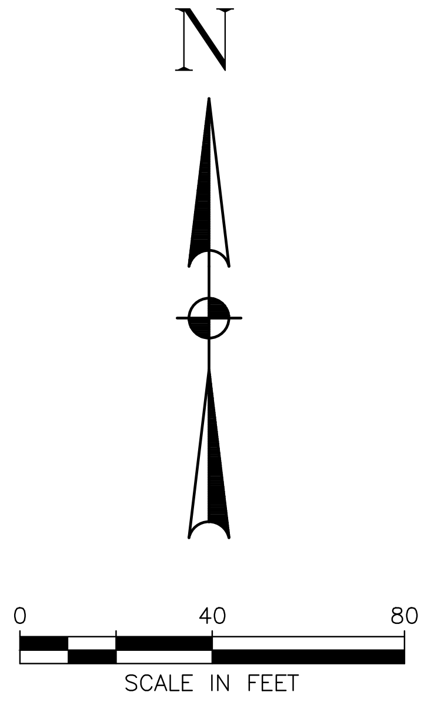


A UTILITY WORK AHEAD CW20-1
B ROAD CLOSED AHEAD CW20-3
C DETOUR AHEAD CW20-2
D END ROAD WORK G20-2a
E M4-9N ST. NAME DETOUR M4-9R
F M4-9N ST. NAME DETOUR M4-9L
G M4-9N ST. NAME DETOUR M4-9S
H END DETOUR M4-8a
I RIGHT LANE CLOSED CW20-5R
J LEFT LANE CLOSED CW20-5L
K ONE WAY R6-2L
L ONE WAY R6-2R
M DO NOT ENTER R5-1
N ROAD CLOSED R11-2
O R3-1
P R3-2
Q ONLY R3-5R
R ONLY R3-5L
S CW6-3
T BEGIN ONE WAY R6-6
U CW20-7
V ONE LANE ROAD AHEAD CW20-4
Y RIGHT LANE MUST TURN RIGHT R3-7R



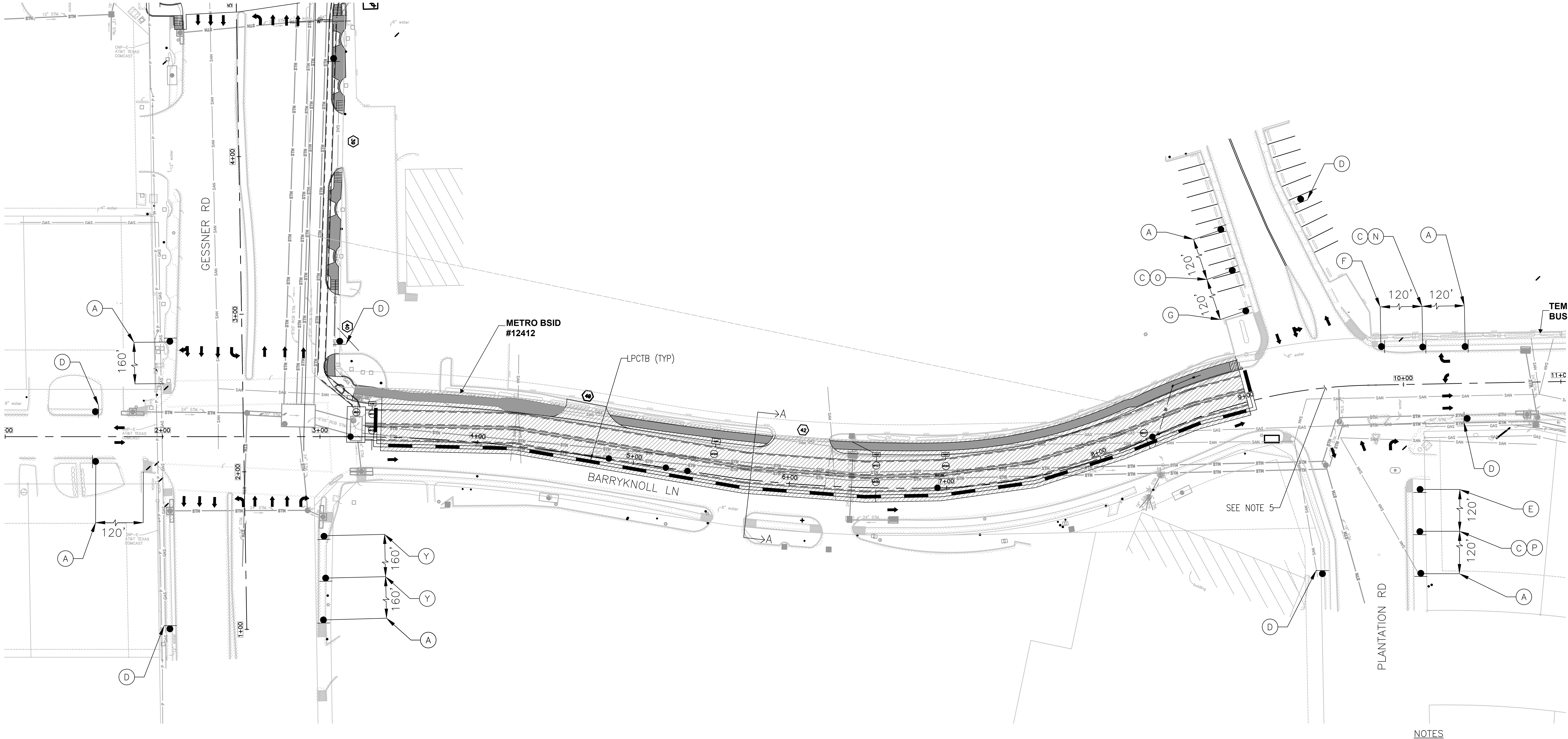
X
TYPE III BARRICADE W/ R11-2



N
0
40
80
SCALE IN FEET

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
▬	TEMP ASPHALT PAVEMENT



GESSNER RD
BARRYKNOLL LN
PLANTATION RD
METRO BSID #12412
LPCTB (TYP)
TEMPORARY BUS STOP
SEE NOTE 5
A
A
160'
120'
160'
160'
120'
120'
120'
120'
120'
120'
1+00
2+00
3+00
4+00
5+00
6+00
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A
B
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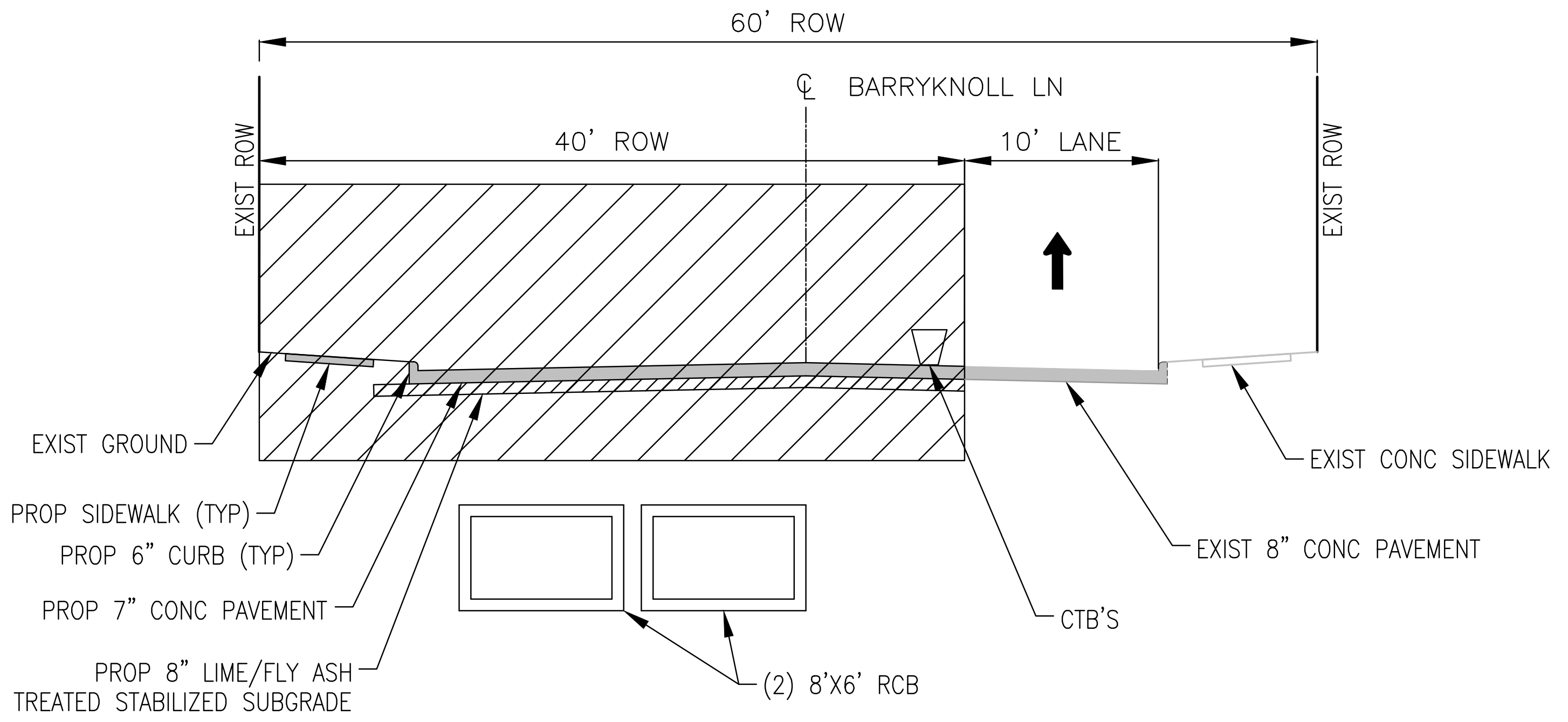
D
E
F
G
N
O
P
Y



60' ROW
℄ BARRYKNOLL LN
40' ROW
10' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK (TYP)
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
(2) 8'X6' RCB
CTB'S
EXIST 8" CONC PAVEMENT
EXIST CONC SIDEWALK

PHASE VI STEP I
TYPICAL SECTION A–A
N.T.S.

NOTES

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No.	Date	Revisions	App

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

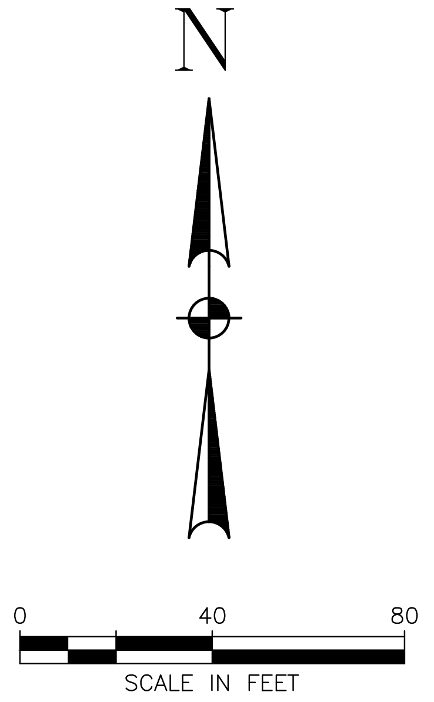
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL LANE
STA 3+40 TO STA 9+00
PHASE 6 STEP 1

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 38 OF 345

c:\users\917pc\desktop\12–08–2025\90% tcp drawings\tirz n 17 detention – kingride ln standard\tcp\fcm tcp – phase 6 step 1.dwg Plotted March 25, 2026 at 12:12 AM by Pavan n

A
UTILITY WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R
X
TYPE III BARRICADE W/ R11-2
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3
T
BEGIN ONE WAY
R6-6
U
CW20-7
V
ONE LANE ROAD AHEAD
CW20-4
Y
RIGHT LANE MUST TURN RIGHT
R3-7R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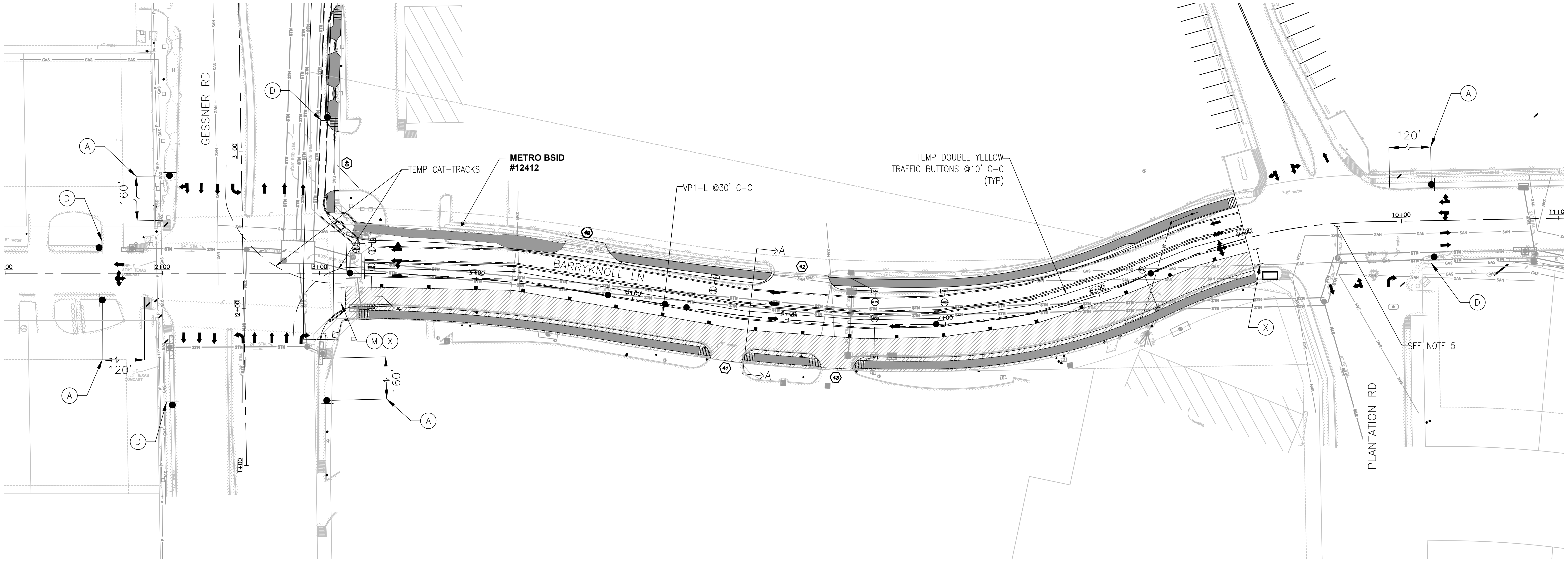
GESSNER RD
BARRYKNOLL LN
PLANTATION RD
METRO BSID
#12412
TEMP CAT-TRACKS
VP1-L @30' C-C
TEMP DOUBLE YELLOW TRAFFIC BUTTONS @10' C-C (TYP)
SEE NOTE 5
A
D
M
X
160'
120'
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
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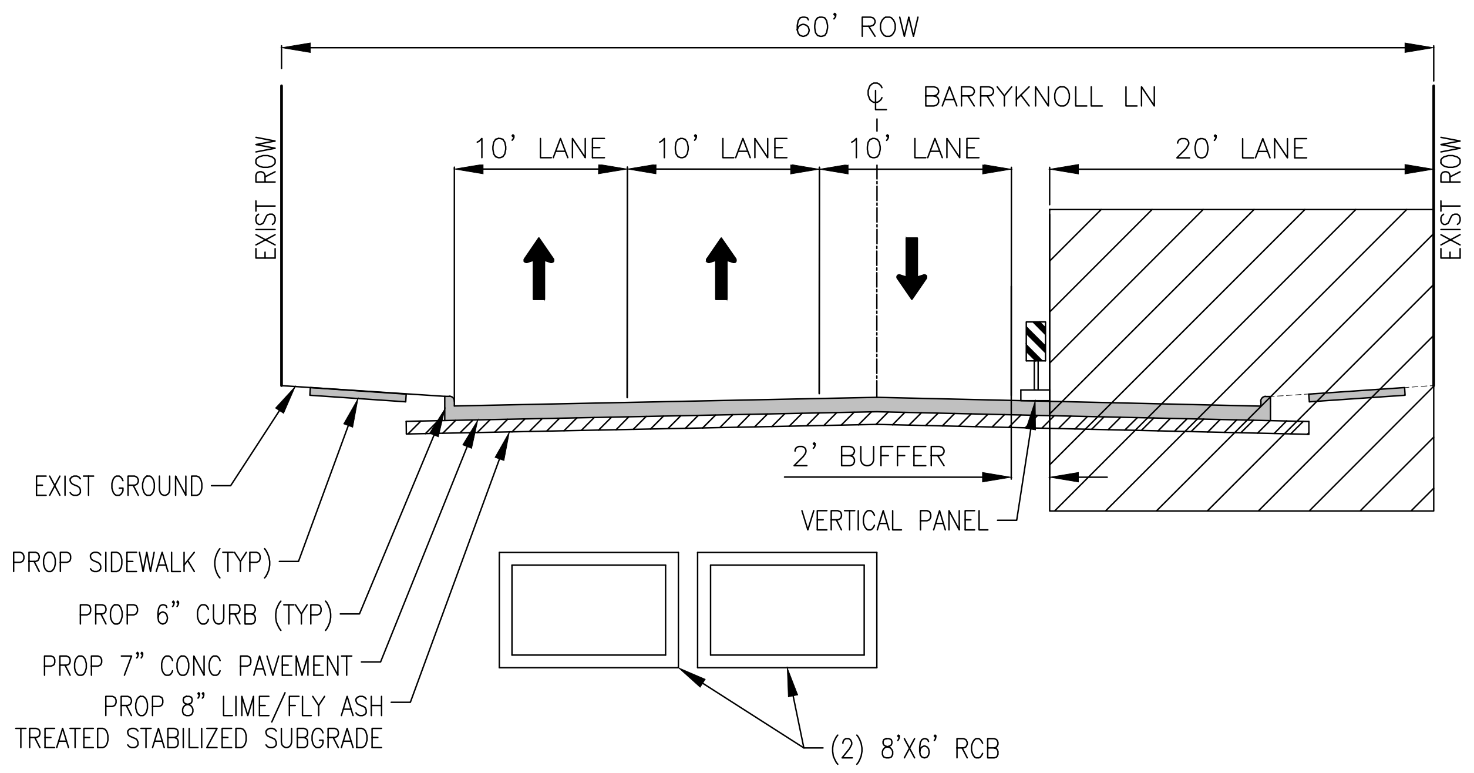
42
43
STM
SAN
GAS


60' ROW
℄ BARRYKNOLL LN
10' LANE
10' LANE
10' LANE
20' LANE
EXIST ROW
EXIST ROW
2' BUFFER
VERTICAL PANEL
EXIST GROUND
PROP SIDEWALK (TYP)
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
(2) 8'X6' RCB

PHASE VI STEP II
TYPICAL SECTION A-A
N.T.S.

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
├─┤	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT

NOTES

1. PRIOR TO CONSTRUCTION ACROSS DRIVEWAY COORDINATE WITH CM. CONTRACTOR TO MAINTAIN ACCESS TO BUSINESSES AND RESIDENTS AT ALL TIMES. CONSTRUCT PAVEMENT ACROSS DRIVEWAYS IN CONJUNCTION WITH WORK PROGRESS.
2. TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.
3. REFER TO DETOUR SHEETS.
4. INSTALL SIGNS ONLY IF ROADWAY IS IN OPERATION.
5. REFER TO INTERSECTION DETAILS FOR CONSTRUCTION PHASING, TRAFFIC CONTROL AND ADDITIONAL INFORMATION.
6. CONTRACTOR TO COORDINATE WITH METRO PRIOR TO SETTING UP TRAFFIC CONTROL DEVICES IN THIS AREA.
7. CONTRACTOR TO INSTALL NO THROUGH TRAFFIC AT ALL MALL DRIVEWAYS TO DISALLOW TRUCK ENTRANCES.
8. NO FULL LANE CLOSURES ALLOWED FOR LOADING AND OFF LOADING DURING DAYTIMES.

No.	Date	Revisions	App

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Tx Firm No. 13481

FRANK C. MBACHU
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3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
BARRYKNOLL LANE
STA 3+40 TO STA 9+00
PHASE 6 STEP 2

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 39 OF 345

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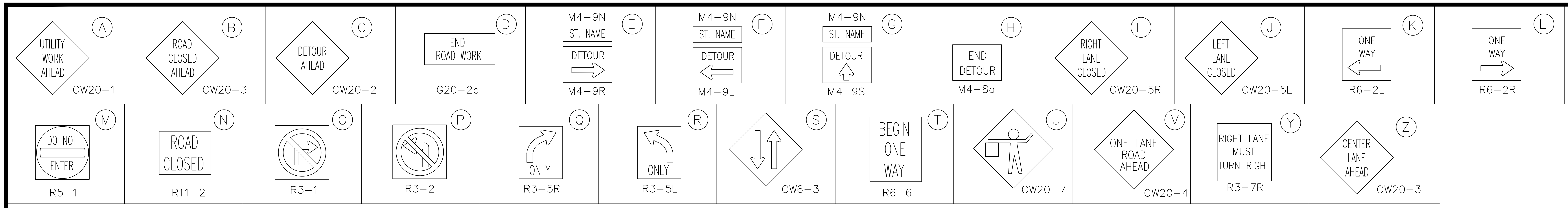
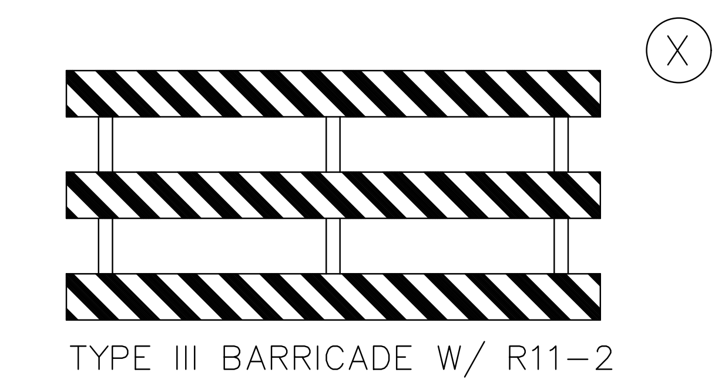


A UTILITY WORK AHEAD CW20-1
B ROAD CLOSED AHEAD CW20-3
C DETOUR AHEAD CW20-2
D END ROAD WORK G20-2a
E M4-9N ST. NAME DETOUR M4-9R
F M4-9N ST. NAME DETOUR M4-9L
G M4-9N ST. NAME DETOUR M4-9S
H END DETOUR M4-8a
I RIGHT LANE CLOSED CW20-5R
J LEFT LANE CLOSED CW20-5L
K ONE WAY R6-2L
L ONE WAY R6-2R
M DO NOT ENTER R5-1
N ROAD CLOSED R11-2
O R3-1
P R3-2
Q ONLY R3-5R
R ONLY R3-5L
S CW6-3
T BEGIN ONE WAY R6-6
U CW20-7
V ONE LANE ROAD AHEAD CW20-4
Y RIGHT LANE MUST TURN RIGHT R3-7R
Z CENTER LANE AHEAD CW20-3



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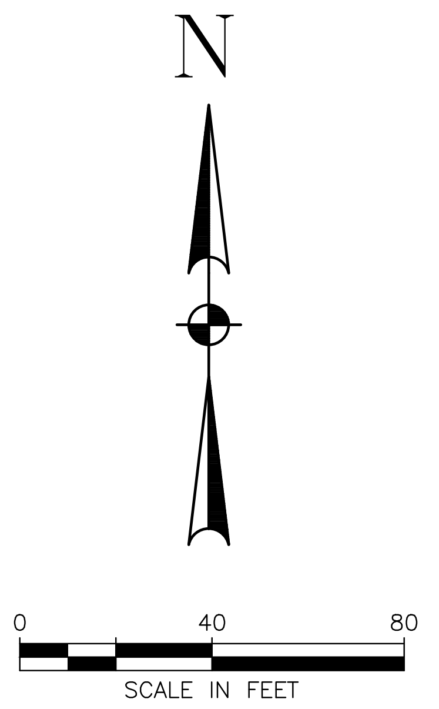
TYPE III BARRICADE W/ R11-2



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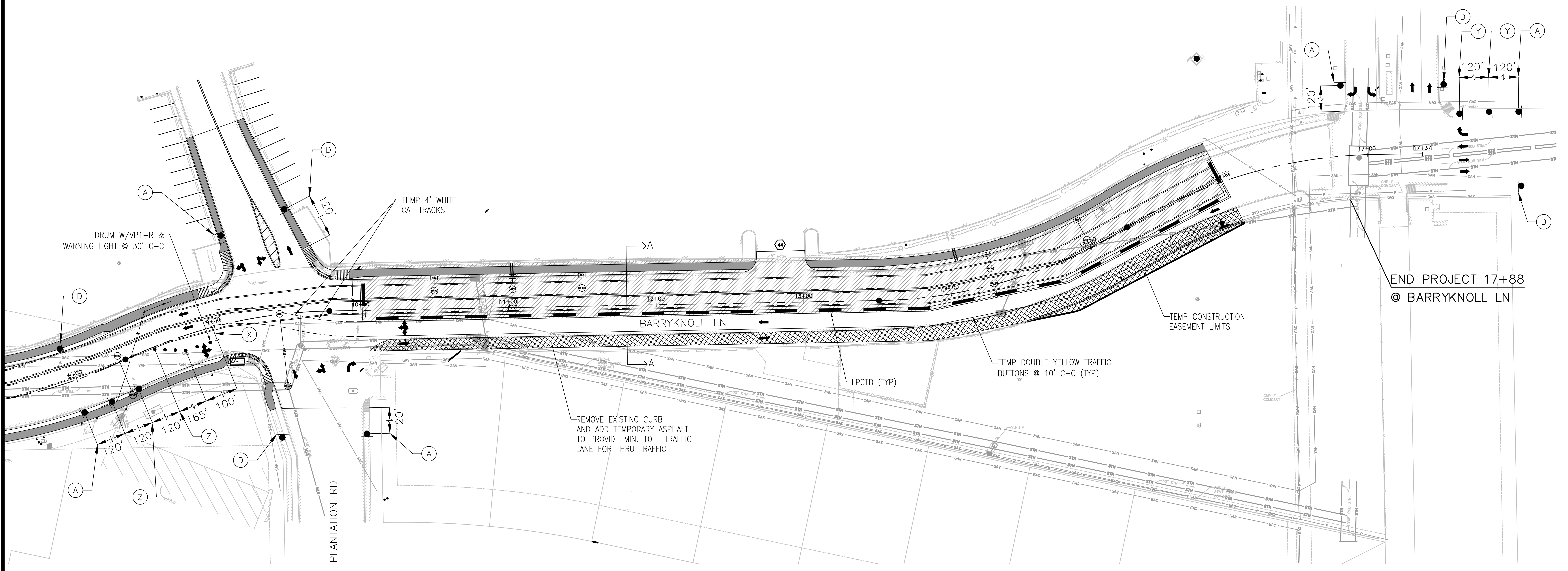
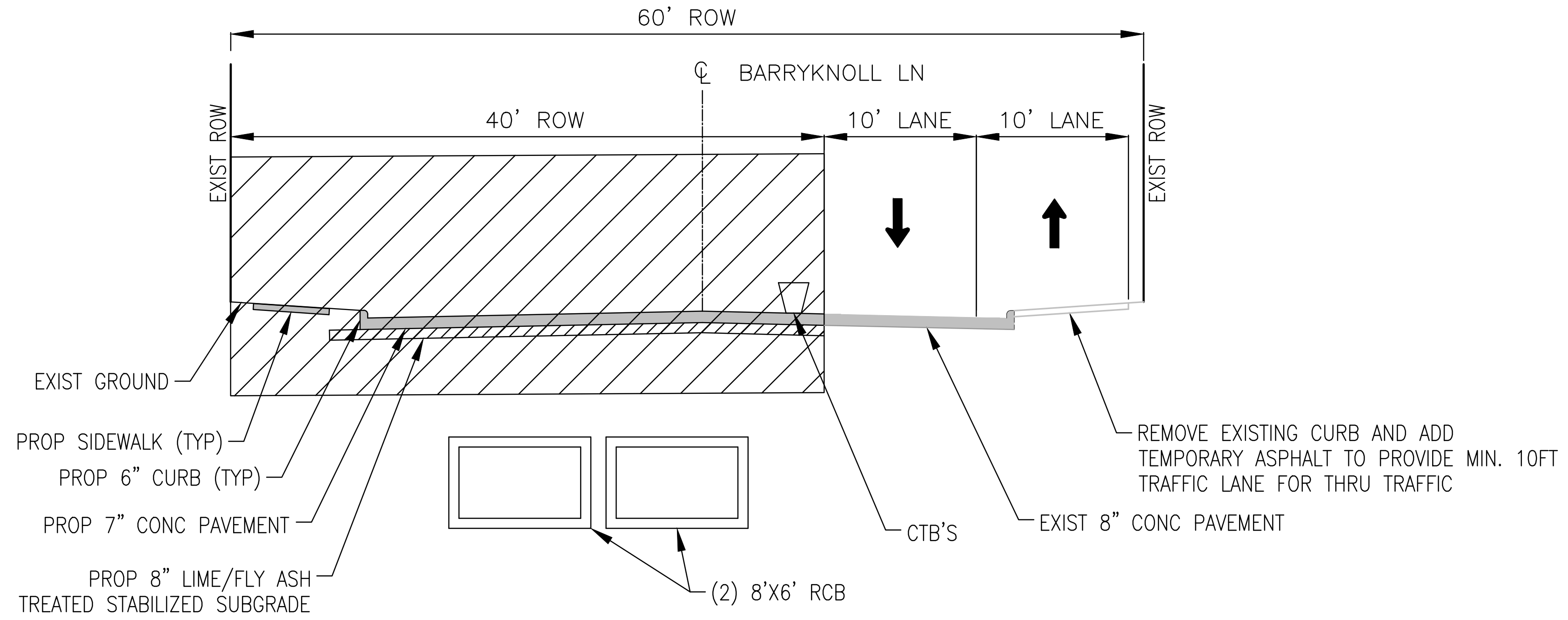
SCALE IN FEET



A
D
120'
DRUM W/VP1-R & WARNING LIGHT @ 30' C-C
TEMP 4' WHITE CAT TRACKS
A
A
X
Z
Z
D
A
120'
120'
120'
165'
100'
120'
PLANTATION RD
9+00
10+00
11+00
12+00
13+00
14+00
17+00
17+37
BARRYKNOLL LN
REMOVE EXISTING CURB AND ADD TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC
LPCTB (TYP)
TEMP DOUBLE YELLOW TRAFFIC BUTTONS @ 10' C-C (TYP)
TEMP CONSTRUCTION EASEMENT LIMITS
END PROJECT 17+88 @ BARRYKNOLL LN
D
Y
Y
A
120'
120'
120'
A
D

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT



60' ROW
℄ BARRYKNOLL LN
40' ROW
10' LANE
10' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK (TYP)
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
(2) 8'X6' RCB
CTB'S
EXIST 8" CONC PAVEMENT
REMOVE EXISTING CURB AND ADD TEMPORARY ASPHALT TO PROVIDE MIN. 10FT TRAFFIC LANE FOR THRU TRAFFIC

PHASE VII STEP I
TYPICAL SECTION A–A
N.T.S.

NOTES

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8. NO FULL LANE CLOSURES ALLOWED FOR LOADING AND OFF LOADING DURING DAYTIMES.

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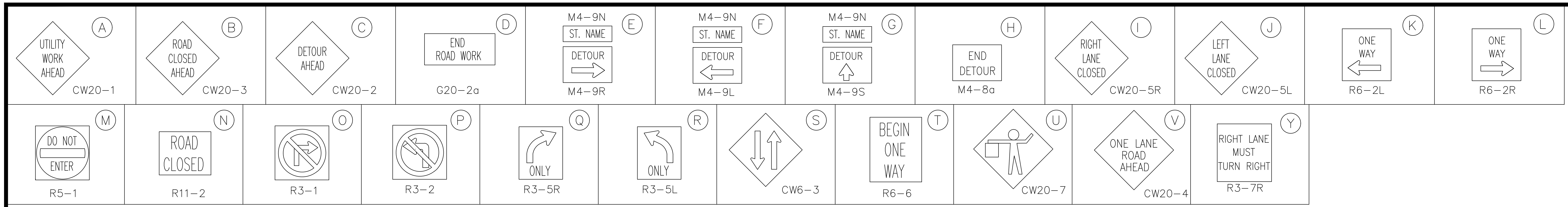
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

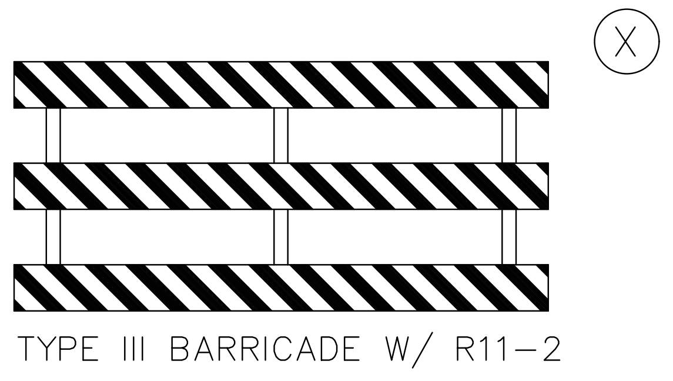
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
BARRYKNOLL LANE
STA 10+00 TO STA 16+00
PHASE 7 STEP 1

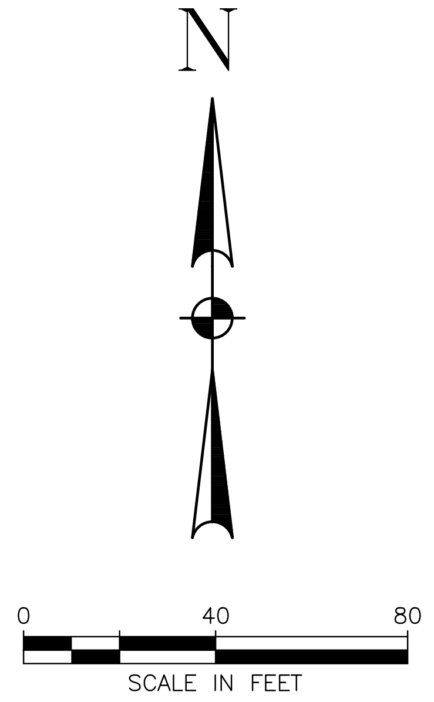
WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 40 OF 345


A
UTILITY WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3
T
BEGIN ONE WAY
R6-6
U
CW20-7
V
ONE LANE ROAD AHEAD
CW20-4
Y
RIGHT LANE MUST TURN RIGHT
R3-7R


X
TYPE III BARRICADE W/ R11-2


N
0
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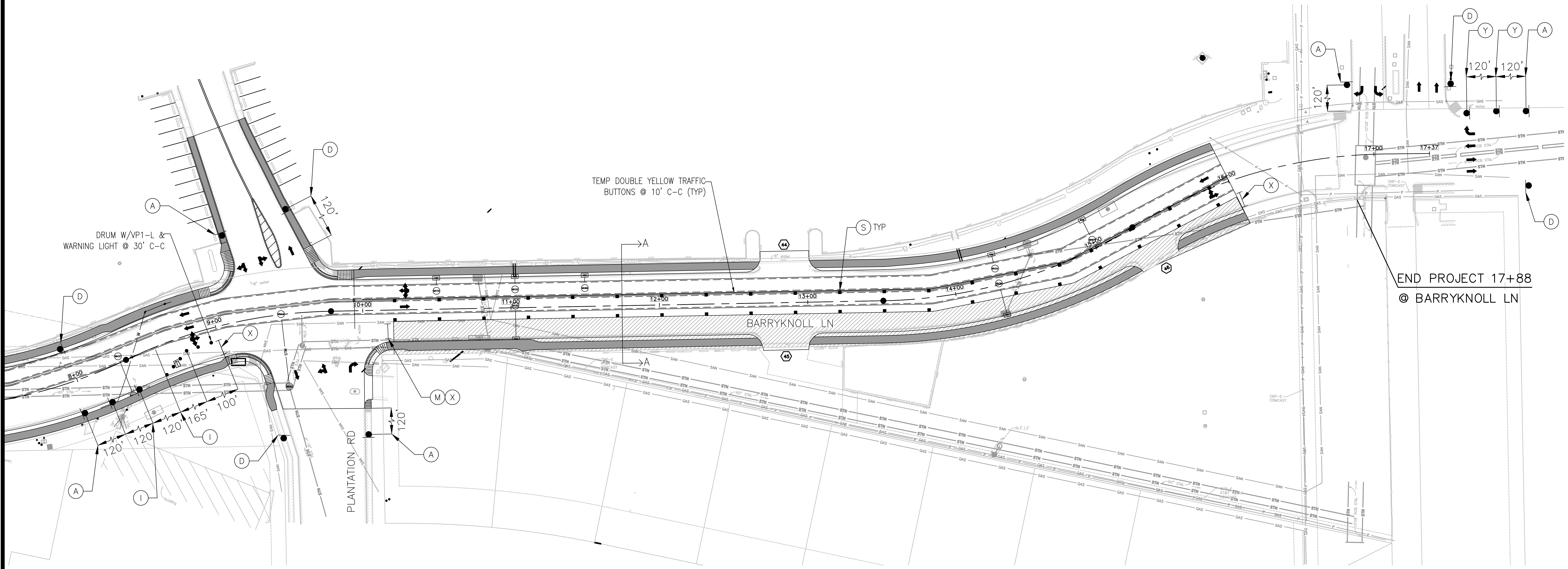
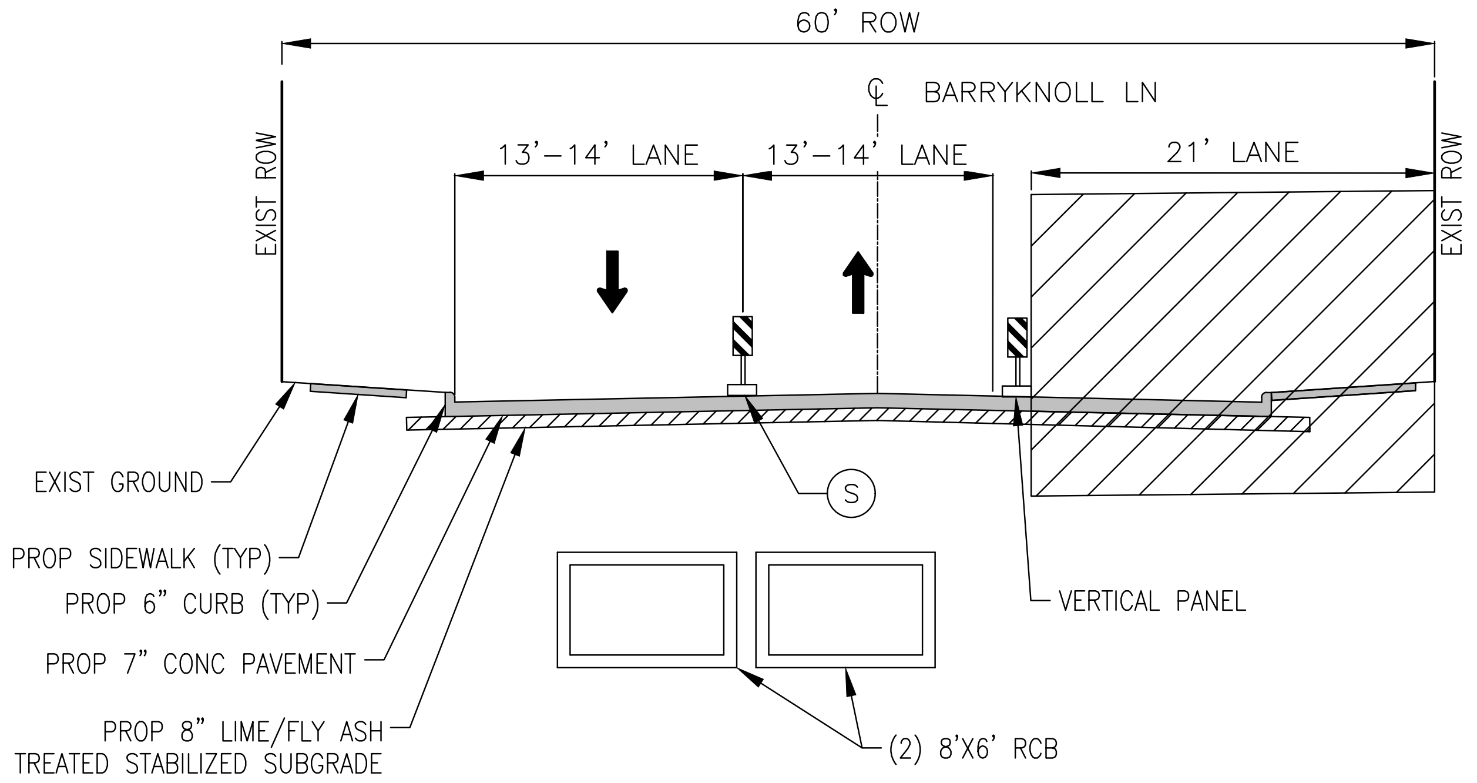
SCALE IN FEET


DRUM W/VP1-L & WARNING LIGHT @ 30' C-C
TEMP DOUBLE YELLOW TRAFFIC BUTTONS @ 10' C-C (TYP)
S TYP
A
A
D
D
X
I
M X
120'
165'
100'
8+00
9+00
10+00
11+00
12+00
13+00
14+00
16+00
17+00
17+37
BARRYKNOLL LN
PLANTATION RD
END PROJECT 17+88
@ BARRYKNOLL LN
Y
120'
STM
SAN
GAS

LEGEND

▨	CONSTRUCTION AREA WITH LPCTB
←	DIRECTION OF TRAFFIC
●	TEMP GROUND MOUNTED SIGNS
⊢⊣	TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
■●	FLAGGER
■	DRUMS/VERTICAL PANELS
⇨	FLASHING ARROW BOARD PANEL
▭	LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
■	TEMP ASPHALT PAVEMENT


60' ROW
℄ BARRYKNOLL LN
13'-14' LANE
13'-14' LANE
21' LANE
EXIST ROW
EXIST ROW
EXIST GROUND
PROP SIDEWALK (TYP)
PROP 6" CURB (TYP)
PROP 7" CONC PAVEMENT
PROP 8" LIME/FLY ASH TREATED STABILIZED SUBGRADE
S
VERTICAL PANEL
(2) 8'X6' RCB

PHASE VII STEP II
TYPICAL SECTION A-A
N.T.S.

NOTES

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3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
BARRYKNOLL LANE
STA 10+00 TO STA 16+00
PHASE 7 STEP 2

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 41 OF 345

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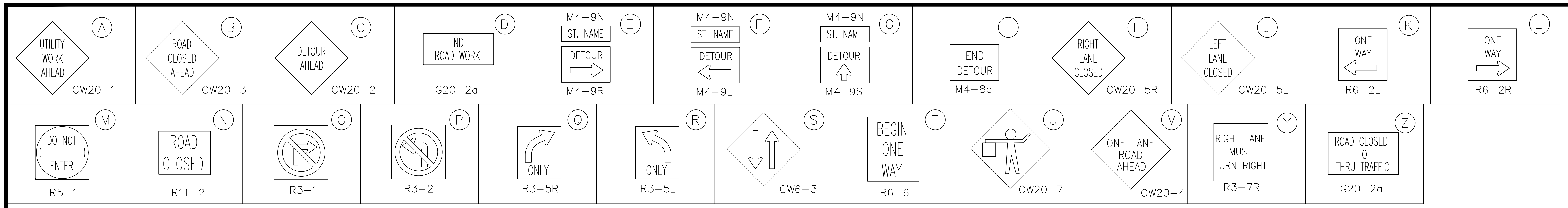
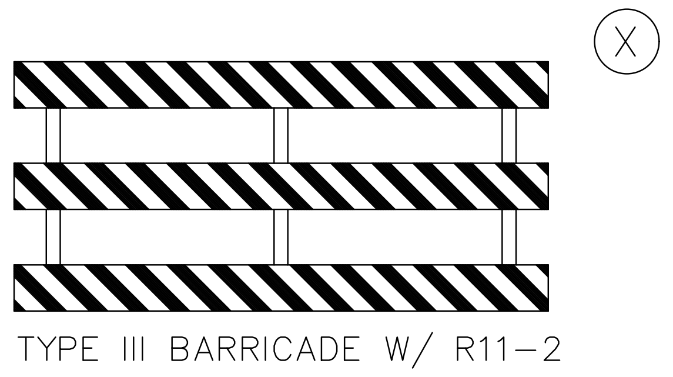


A UTILITY WORK AHEAD CW20-1
B ROAD CLOSED AHEAD CW20-3
C DETOUR AHEAD CW20-2
D END ROAD WORK G20-2a
E M4-9N ST. NAME DETOUR M4-9R
F M4-9N ST. NAME DETOUR M4-9L
G M4-9N ST. NAME DETOUR M4-9S
H END DETOUR M4-8a
I RIGHT LANE CLOSED CW20-5R
J LEFT LANE CLOSED CW20-5L
K ONE WAY R6-2L
L ONE WAY R6-2R
M DO NOT ENTER R5-1
N ROAD CLOSED R11-2
O R3-1
P R3-2
Q ONLY R3-5R
R ONLY R3-5L
S CW6-3
T BEGIN ONE WAY R6-6
U CW20-7
V ONE LANE ROAD AHEAD CW20-4
Y RIGHT LANE MUST TURN RIGHT R3-7R
Z ROAD CLOSED TO THRU TRAFFIC G20-2a



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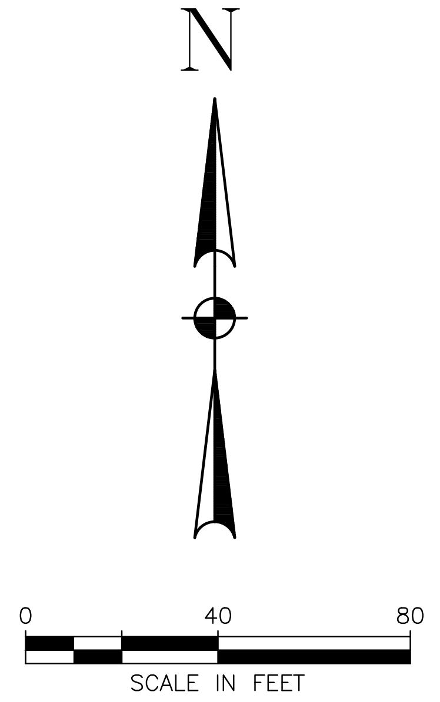
TYPE III BARRICADE W/ R11-2



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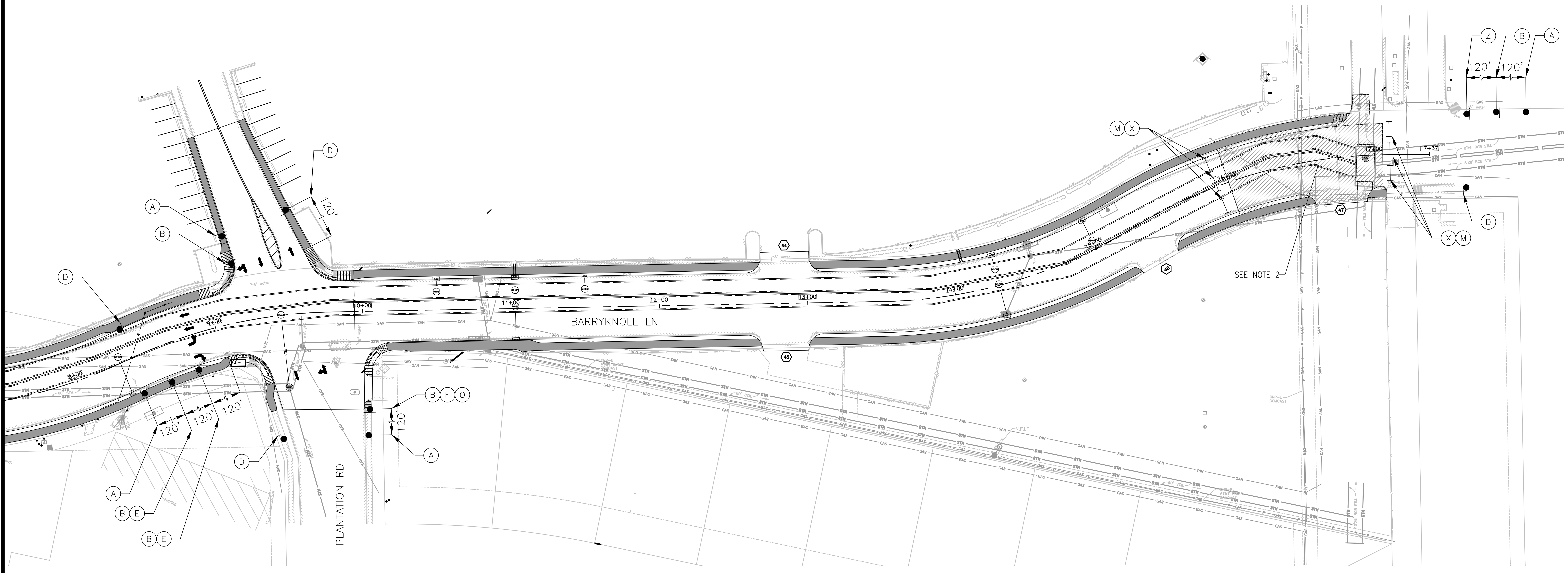

BARRYKNOLL LN
PLANTATION RD
SEE NOTE 2
8+00
9+00
10+00
11+00
12+00
13+00
14+00
16+00
17+00
17+37
120'
A
B
D
E
F
M
O
X
Z

LEGEND

- ▨ CONSTRUCTION AREA WITH LPCTB
- ← DIRECTION OF TRAFFIC
- TEMP GROUND MOUNTED SIGNS
- TEMP III BARRICADE W/ROAD CLOSED SIGN (R11-2)
- FLAGGER
- ■ DRUMS/VERTICAL PANELS
- ⇨ FLASHING ARROW BOARD PANEL
- LOW PROFILE CONCRETE TRAFFIC BARRIER (LPCTB)
- ■ TEMP ASPHALT PAVEMENT

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL LANE
STA 16+00 TO END STA
PHASE 8

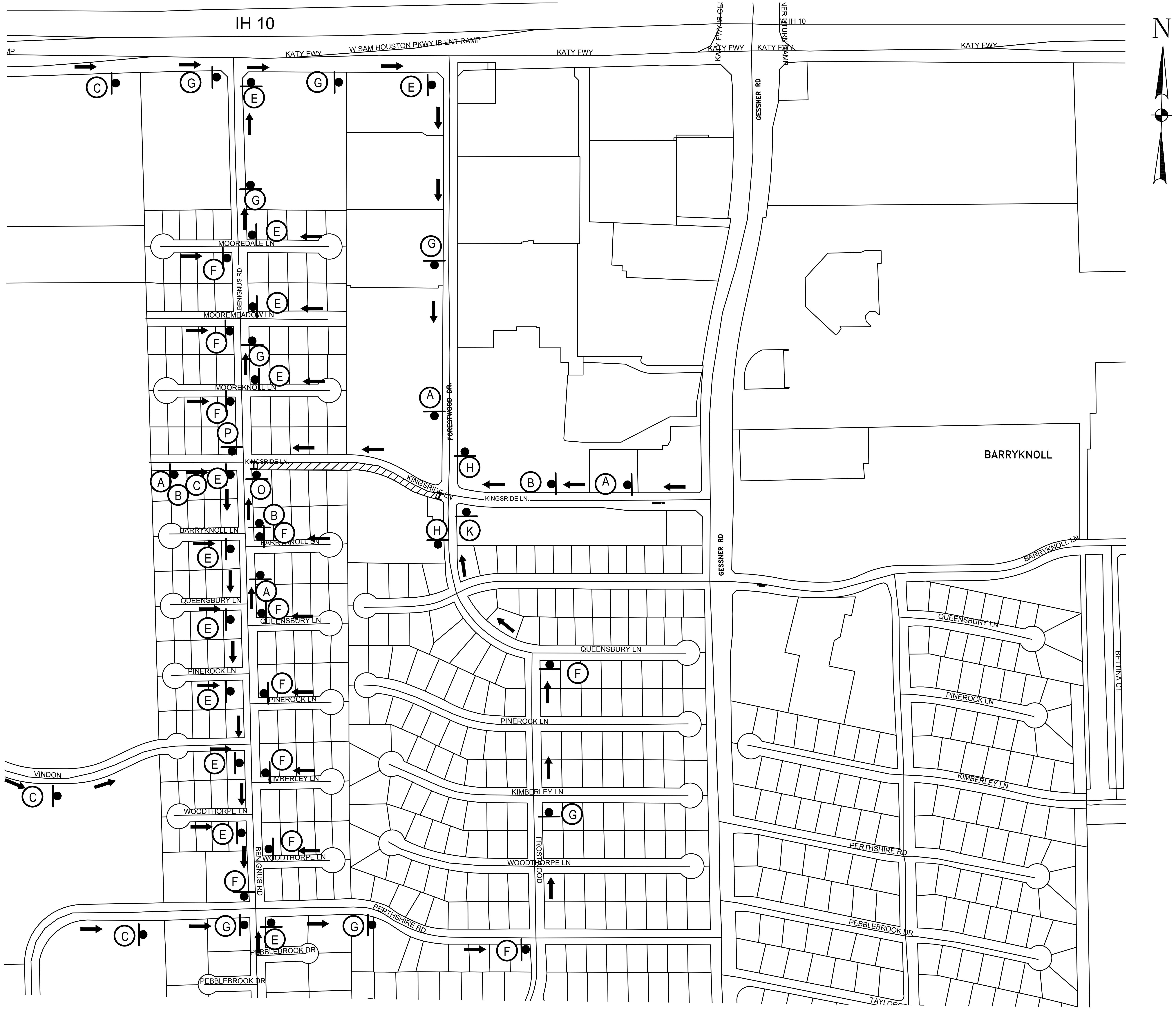
WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 42 OF 345

c:\users\917pc\desktop\12-08-2025\90% tcp drawings\tirz n 17 detention – kingride ln standard\tcp\fcm tcp – phase 8.dwg Plotted March 25, 2026 at 12:12 AM by Pavan n


IH 10
KATY FWY
W SAM HOUSTON PKWY IB ENT RAMP
KATY FWY
KATY FWY
KATY FWY
KATY FWY
IH 10
GESSNER RD
N
MOOREDALE LN
BENIGNUS RD
MOOREMEADOW LN
MOOREKNOLL LN
FORESTWOOD DR
KINGSRIDE LN
KINGSRIDE LN
KINGSRIDE LN
BARRYKNOLL LN
BARRYKNOLL LN
BARRYKNOLL
BARRYKNOLL LN
GESSNER RD
QUEENSBURY LN
QUEENSBURY LN
QUEENSBURY LN
QUEENSBURY LN
PINEROCK LN
PINEROCK LN
PINEROCK LN
PINEROCK LN
BETTINA CT
VINDON
KIMBERLEY LN
KIMBERLEY LN
KIMBERLEY LN
WOODTHORPE LN
WOODTHORPE LN
WOODTHORPE LN
FROSTWOOD
BENIGNUS RD
PERTHSHIRE RD
PERTHSHIRE RD
PEBBLEBROOK DR
PEBBLEBROOK DR
PEBBLEBROOK DR
TAYLORC
A
B
C
E
F
G
H
K
O
P

LEGEND

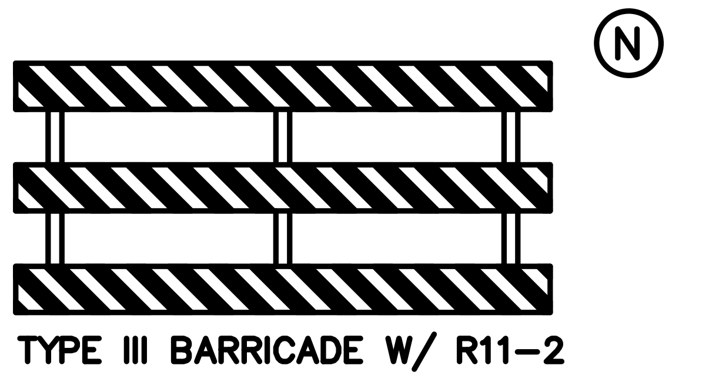
▨	WORK ZONE
●	DRUMS
⇨	DIRECTION OF TRAFFIC
●	TEMPORARY GROUND MOUNTED SIGNS
I	TYPE III BARRICADE W/ ROAD CLOSED SIGN AND TYPE A FLASHING WARNING LIGHTS
⇥	FLASHING ARROW BOARD PANEL
—	LOW PROFIL CTB

NOTE:

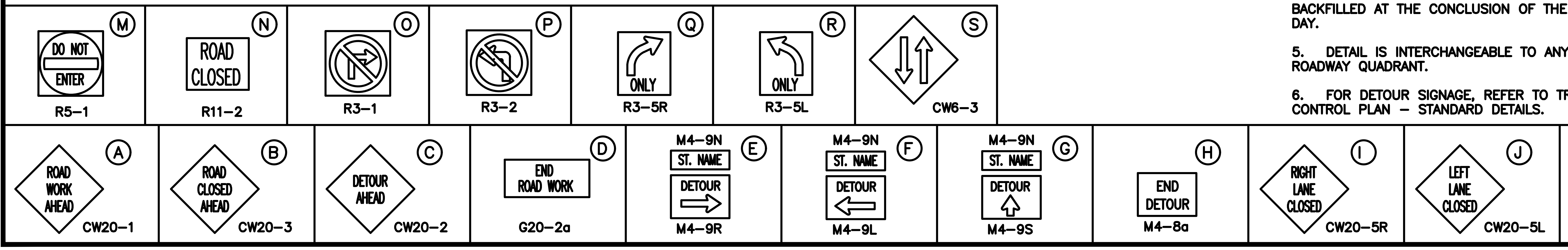
1. SEE TCP SHEET ___ FOR CONSTRUCTION PHASING AND TRAFFIC CONTROL NOTES.
2. FOR SIGN SPACING DIMENSIONS AND DRUM DETAILS REFER TO COH STD. DETAIL 01512-01.
3. CONTRACTOR SHALL MAINTAIN MINIMUM OF ONE DRIVEWAY TO ALL COMMERCIAL PROPERTIES AT ALL TIMES AND COORDINATE RESIDENTIAL DRIVEWAY CLOSURES WITH PROPERTY OWNERS.

NOTE: (CONT'D)

4. ALL OPEN PITS SHALL BE PLATED OR BACKFILLED AT THE CONCLUSION OF THE WORK DAY.
5. DETAIL IS INTERCHANGEABLE TO ANY ROADWAY QUADRANT.
6. FOR DETOUR SIGNAGE, REFER TO TRAFFIC CONTROL PLAN – STANDARD DETAILS.



TYPE III BARRICADE W/ R11–2


M
DO NOT ENTER
R5–1
N
ROAD CLOSED
R11–2
O
R3–1
P
R3–2
Q
ONLY
R3–5R
R
ONLY
R3–5L
S
CW6–3
A
ROAD WORK AHEAD
CW20–1
B
ROAD CLOSED AHEAD
CW20–3
C
DETOUR AHEAD
CW20–2
D
END ROAD WORK
G20–2a
E
M4–9N
ST. NAME
DETOUR
M4–9R
F
M4–9N
ST. NAME
DETOUR
M4–9L
G
M4–9N
ST. NAME
DETOUR
M4–9S
H
END DETOUR
M4–8a
I
RIGHT LANE CLOSED
CW20–5R
J
LEFT LANE CLOSED
CW20–5L
K
ONE WAY
R6–2L
L
ONE WAY
R6–2R

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
TRAFFIC CONTROL
PLANS

(DETOUR 1)

SHEET 1 OF 4

WBS NO. M–430296–0017–3

DRAWING SCALE

N.T.S

CITY OF HOUSTON PM

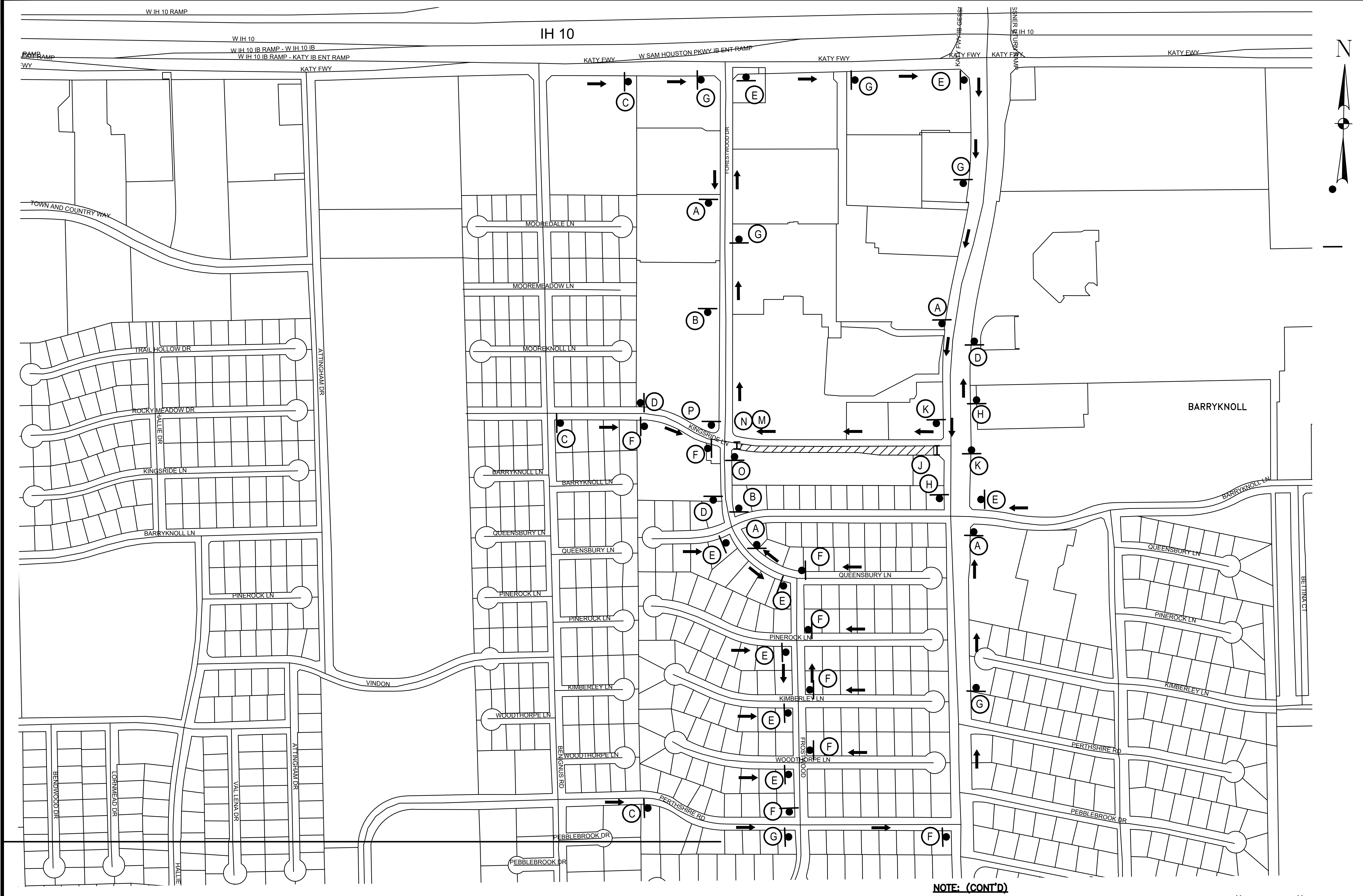
KEVIN HAMMOND, P.E.

SHEET NO. 43 OF 345

No. Date Revisions App.

Y:\2022081 TIRZ No. 17 Detention\Memorial City Tirz 17 -ph 2 Final Design\HARRYS TCP\KINGSRIDE DETOUR PLAN-1&2.dwg, 3/23/2026 9:46:40 AM, _DWG To PDF.pc3

y:\2022081 tirz no. 17 detention\memorial city tirz 17 -ph 2 final design\harrys tcp\kingsride detour plan-1&2.dwg Plotted March 23, 2026 at 9:46 AM by George Williams


W IH 10 RAMP
IH 10
W IH 10
W IH 10 IB RAMP - W IH 10 IB
W IH 10 IB RAMP - KATY IB ENT RAMP
W SAM HOUSTON PKWY IB ENT RAMP
KATY FWY
GESSNER
N
TOWN AND COUNTRY WAY
MOOREDALE LN
MOOREMEADOW LN
MOOREKNOLL LN
TRAIL HOLLOW DR
ROCKY MEADOW DR
HALLIE DR
KINGSRIDE LN
BARRYKNOLL LN
QUEENSBURY LN
PINEROCK LN
KIMBERLEY LN
WOODTHORPE LN
PERTHSHIRE RD
PEBBLEBROOK DR
VINDON
ATTINGHAM DR
FORESTWOOD DR
FROSTWOOD
BENGNUS RD
BENDWOOD DR
LORNMEAD DR
VAL LENA DR
HALLIE
BETTINA CT
BARRYKNOLL
A
B
C
D
E
F
G
H
J
K
M
N
O
P

LEGEND

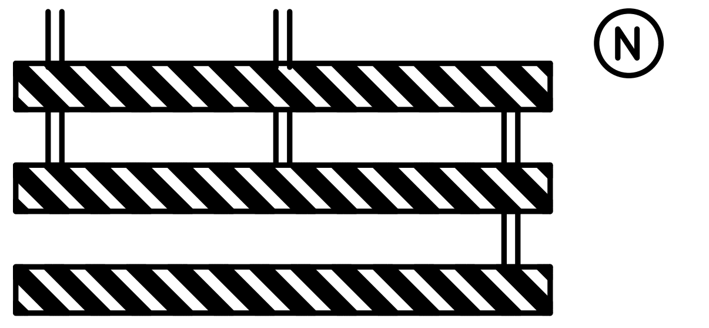
▨	WORK ZONE
●	DRUMS
⇨	DIRECTION OF TRAFFIC
╸●	TEMPORARY GROUND MOUNTED SIGNS
I	TYPE III BARRICADE W/ ROAD CLOSED SIGN AND TYPE A FLASHING WARNING LIGHTS
⇥	FLASHING ARROW BOARD PANEL
—	LOW PROFIL CTB

NOTE:

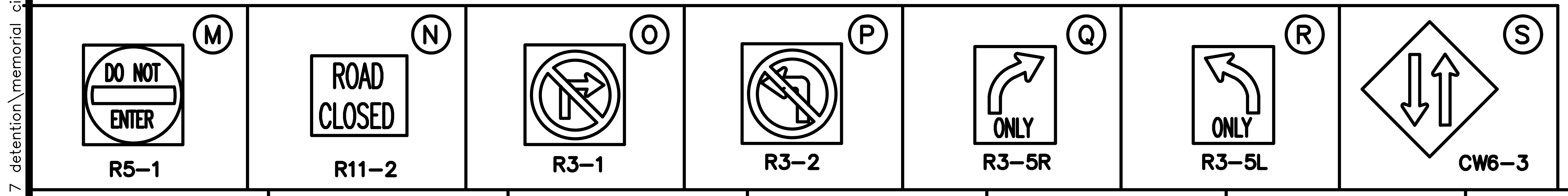
1. SEE TCP SHEET ___ FOR CONSTRUCTION PHASING AND TRAFFIC CONTROL NOTES.
2. FOR SIGN SPACING DIMENSIONS AND DRUM DETAILS REFER TO COH STD. DETAIL 01512-01.
3. CONTRACTOR SHALL MAINTAIN MINIMUM OF ONE DRIVEWAY TO ALL COMMERCIAL PROPERTIES AT ALL TIMES AND COORDINATE RESIDENTIAL DRIVEWAY CLOSURES WITH PROPERTY OWNERS.

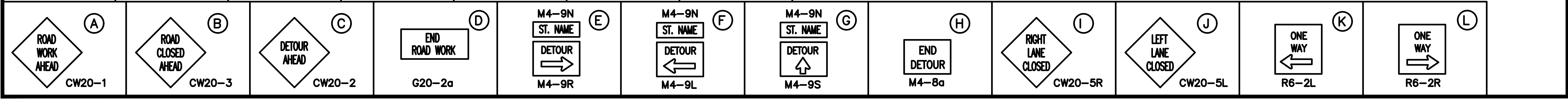
NOTE: (CONT'D)

4. ALL OPEN PITS SHALL BE PLATED OR BACKFILLED AT THE CONCLUSION OF THE WORK DAY.
5. DETAIL IS INTERCHANGEABLE TO ANY ROADWAY QUADRANT.
6. FOR DETOUR SIGNAGE, REFER TO TRAFFIC CONTROL PLAN - STANDARD DETAILS.



TYPE III BARRICADE W/ R11-2


M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3


A
ROAD WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
M4-9N
E
ST. NAME
DETOUR
M4-9R
M4-9N
F
ST. NAME
DETOUR
M4-9L
M4-9N
G
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R

HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.800
FAX: 713.965.0044

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FB NO. xxxxx

FCM Engineers, P.C.
3300 S. Gessner Rd.
Suite 249
Houston, Texas 77063
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F- 713-706-4410
Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
TRAFFIC CONTROL
PLANS

(DETOUR 2)

SHEET 2 OF 4

WBS NO. M-430296-0017-3
DRAWING SCALE
N.T.S
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 44 OF 345

No.	Date	Revisions	App.

Y:\2022081 TIRZ No. 17 Detention\Memorial City Tirz 17 -ph 2 Final Design\HARRYS TCP\KINGSRIDE DETOUR PLAN-1&2.dwg, 3/23/2026 9:46:47 AM, _DWG To PDF.pc3

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Y:\2022081 TIRZ No. 17 Detention\Memorial City Tirz 17 -ph 2 Final Design\HARRYS TCP\BARRYKNOL DETOUR PLAN-3&4.dwg, 3/23/2026 9:47:02 AM, _DWG To PDF.pc3
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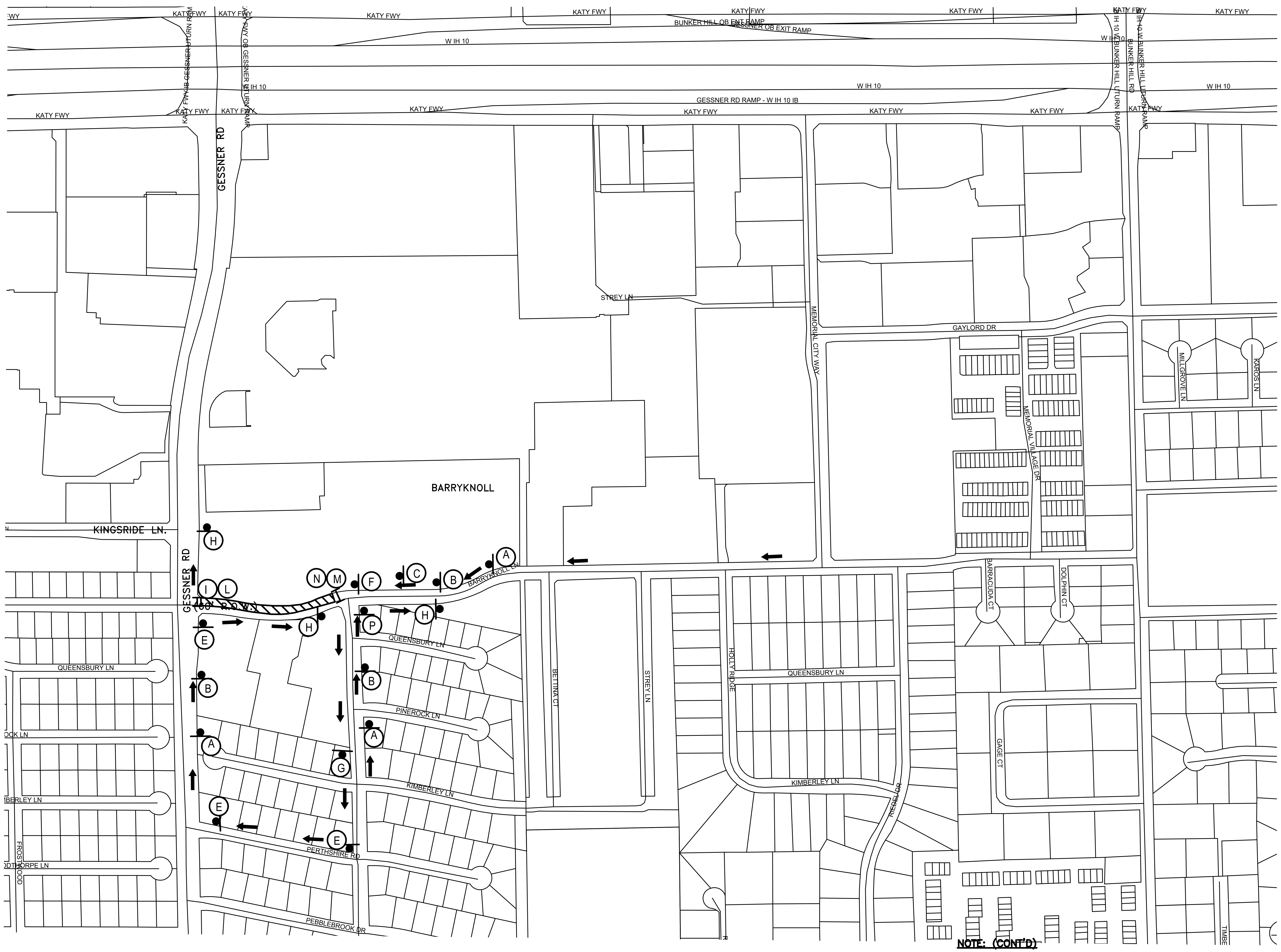
KATY FWY
W IH 10
BUNKER HILL OB ENT RAMP
BUNKER OB EXIT RAMP
GESSNER RD RAMP - W IH 10 IB
KATY FWY IB GESSNER UTURN RAMP
KATY FWY OB GESSNER UTURN RAMP
IH 10 W BUNKER HILL UTURN RAMP
BUNKER HILL RD
IH 10 W BUNKER HILL UTURN RAMP
GESSNER RD
STREY LN
MEMORIAL CITY WAY
GAYLORD DR
MILLGROVE LN
KAROS LN
MEMORIAL VILLAGE DR
BARRYKNOLL
KINGSRIDE LN.
BARRYKNOLL LN
(60' R.O.W.)
BARRACUDA CT
DOLPHIN CT
QUEENSBURY LN
PINEROCK LN
KIMBERLEY LN
PERTHSHIRE RD
PEBBLEBROOK DR
FROSTWOOD
THORPE LN
BETTINA CT
HOLLY RIDGE
RIESNER DR
GAGE CT
TIMBE
A
B
C
E
F
G
H
I
L
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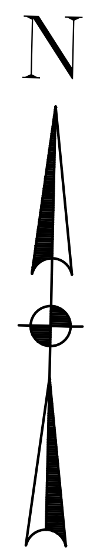

LEGEND

▨	WORK ZONE
●	DRUMS
⇨	DIRECTION OF TRAFFIC
●	TEMPORARY GROUND MOUNTED SIGNS
I	TYPE III BARRICADE W/ ROAD CLOSED SIGN AND TYPE A FLASHING WARNING LIGHTS
⇨	FLASHING ARROW BOARD PANEL
—	LOW PROFIL CTB

NOTE:

1. SEE TCP SHEET __ FOR CONSTRUCTION PHASING AND TRAFFIC CONTROL NOTES.
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NOTE: (CONT'D)

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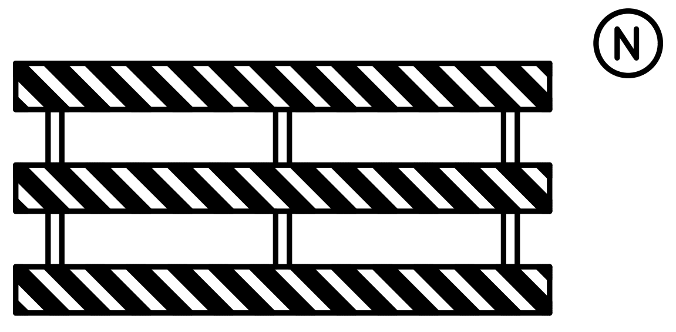
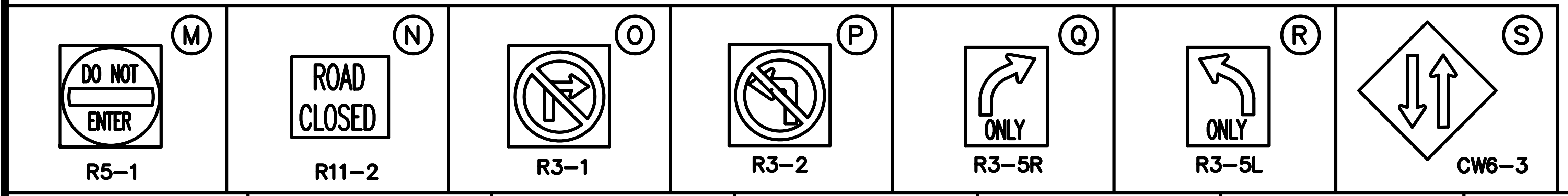
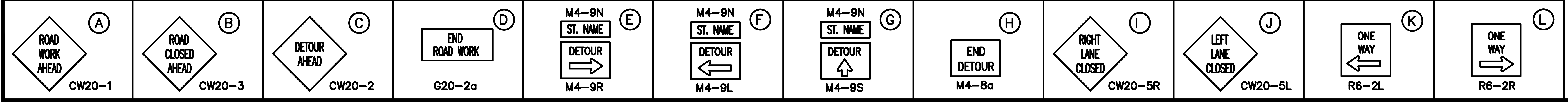


TYPE III BARRICADE W/ R11-2


M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3


A
ROAD WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R

No.	Date	Revisions	App.

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FAX: 713.965.0044

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FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
TRAFFIC CONTROL
PLANS

(DETOUR 3)

SHEET 3 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

N.T.S

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 45 OF 345

Y:\2022081 TIRZ No. 17 Detention\Memorial City Tirz 17 -ph 2 Final Design\HARRYS TCP\BARRYKNOL DETOUR PLAN-3&4.dwg, 3/23/2026 9:47:12 AM,_DWG To PDF.pc3

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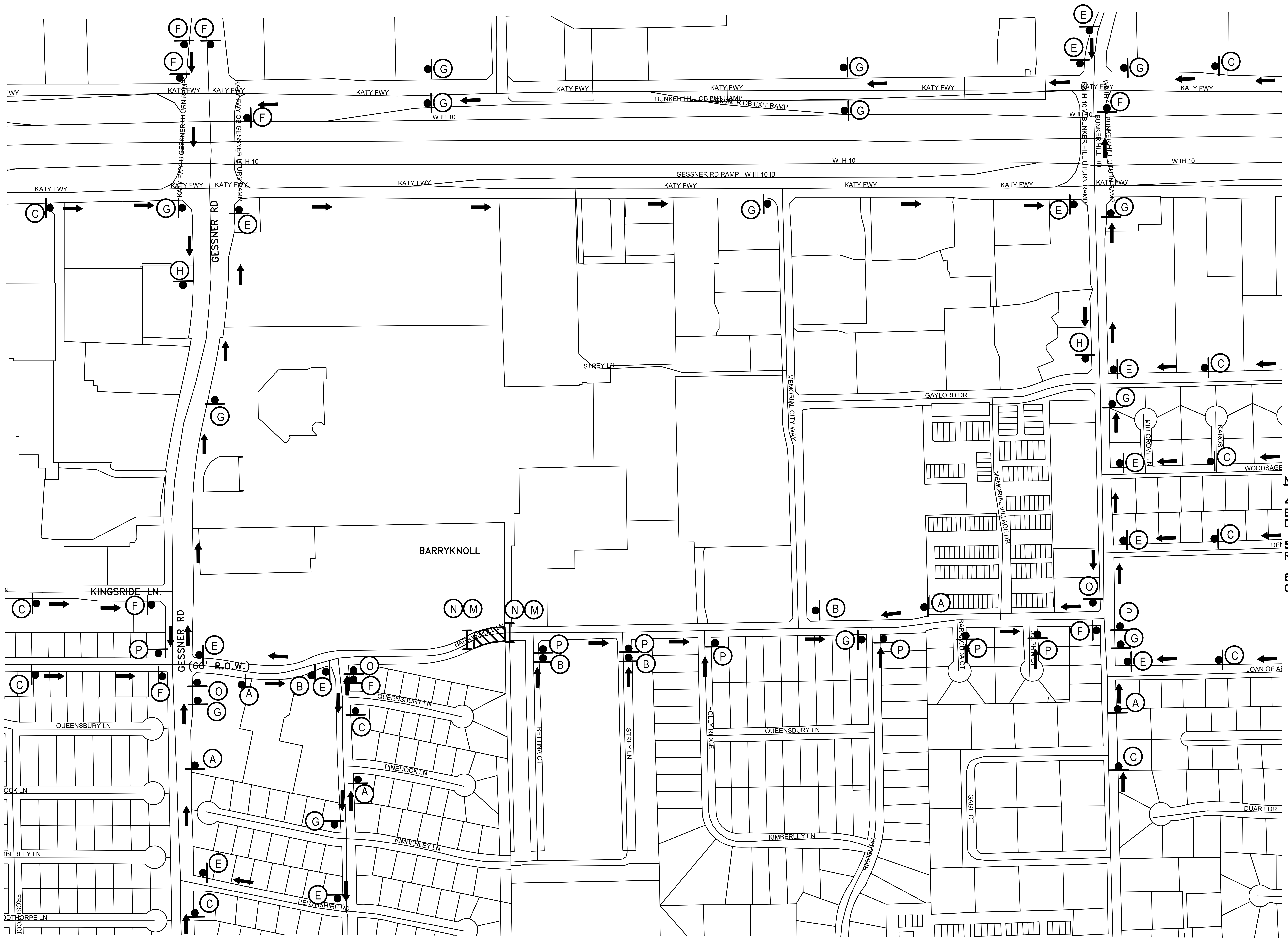
KATY FWY
W IH 10
BUNKER HILL OB ENT RAMP
GESSNER OB EXIT RAMP
GESSNER RD RAMP - W IH 10 IB
KATY FWY U-TURN RAMP
GESSNER U-TURN RAMP
IH 10 W BUNKER HILL RD
BUNKER HILL U-TURN RAMP
GESSNER RD
STREY LN
GAYLORD DR
MEMORIAL CITY WAY
MEMORIAL VILLAGE DR
MILLGROVE LN
KAROS
WOODSAGE
BARRYKNOLL
KINGSRIDE LN.
GESSNER RD (66' R.O.W.)
BARRYKNOLL LN
QUEENSBURY LN
PINEROCK LN
KIMBERLEY LN
PERTHSHIRE RD
FROSTWOOD
THORPE LN
BETTINA CT
STREY LN
HOLLY RIDGE
QUEENSBURY LN
KIMBERLEY LN
REESE DR
GAGE CT
BARRACUDA CT
DEL PHOS
JOAN OF ARC
DUART DR
A
B
C
E
F
G
H
M
N
O
P

N

LEGEND

▨	WORK ZONE
●	DRUMS
⇨	DIRECTION OF TRAFFIC
●	TEMPORARY GROUND MOUNTED SIGNS
I	TYPE III BARRICADE W/ ROAD CLOSED SIGN AND TYPE A FLASHING WARNING LIGHTS
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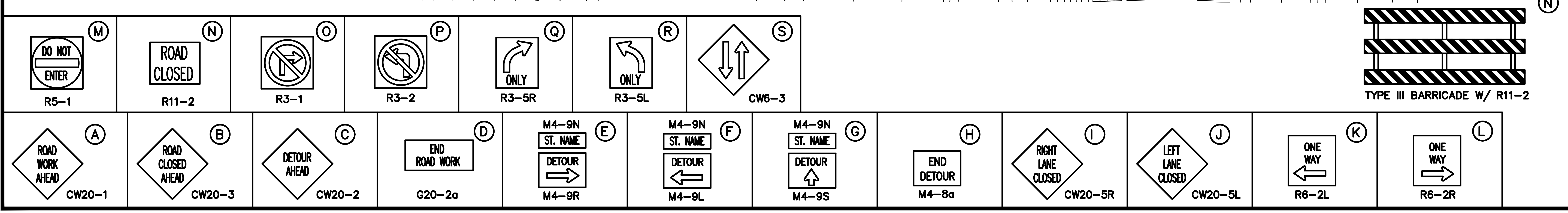
M
DO NOT ENTER
R5-1
N
ROAD CLOSED
R11-2
O
R3-1
P
R3-2
Q
ONLY
R3-5R
R
ONLY
R3-5L
S
CW6-3
TYPE III BARRICADE W/ R11-2
N
A
ROAD WORK AHEAD
CW20-1
B
ROAD CLOSED AHEAD
CW20-3
C
DETOUR AHEAD
CW20-2
D
END ROAD WORK
G20-2a
E
M4-9N
ST. NAME
DETOUR
M4-9R
F
M4-9N
ST. NAME
DETOUR
M4-9L
G
M4-9N
ST. NAME
DETOUR
M4-9S
H
END DETOUR
M4-8a
I
RIGHT LANE CLOSED
CW20-5R
J
LEFT LANE CLOSED
CW20-5L
K
ONE WAY
R6-2L
L
ONE WAY
R6-2R

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3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
TRAFFIC CONTROL
PLANS

(DETOUR 4)

SHEET 4 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

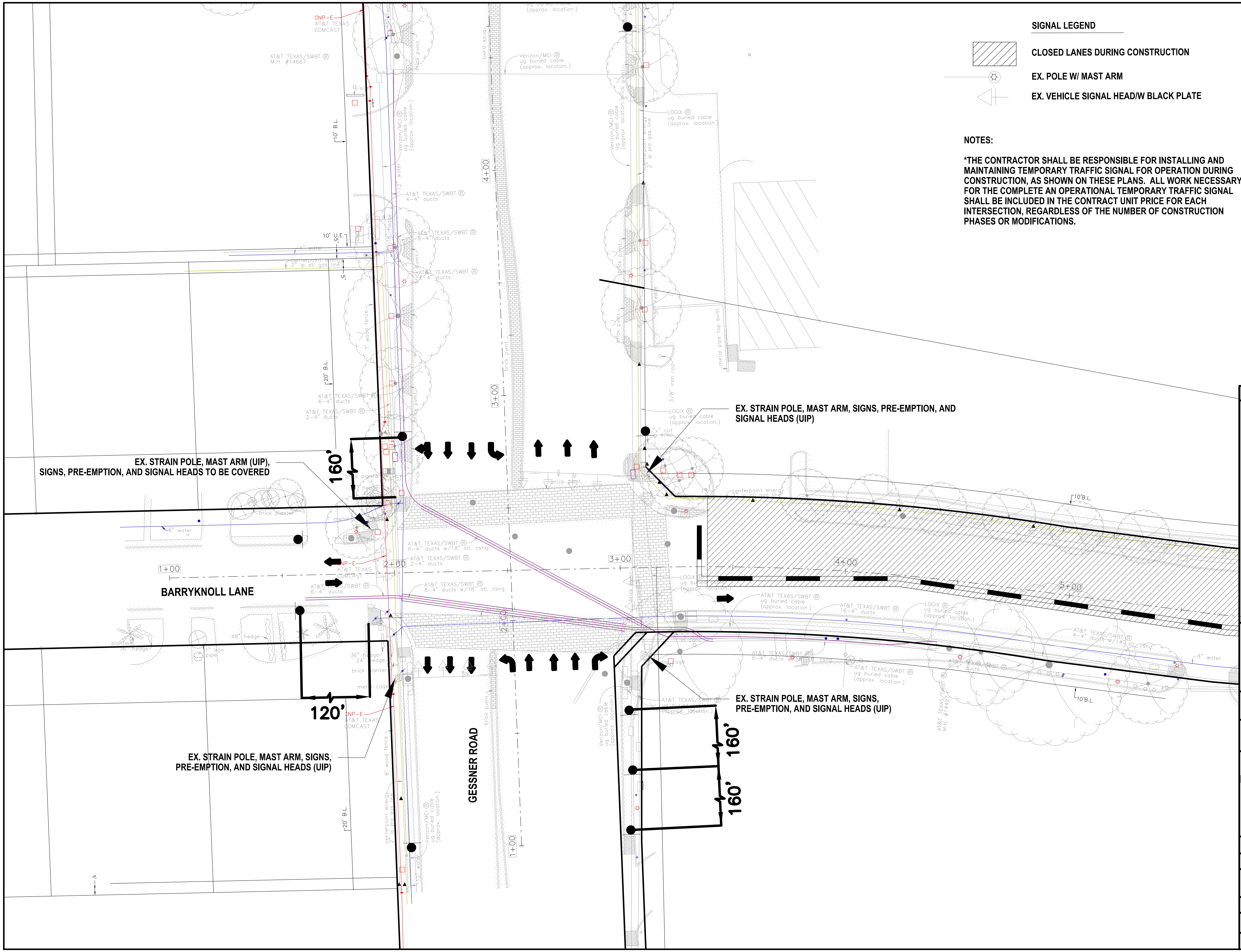
N.T.S

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 46 OF 345

No.	Date	Revisions	App.


EX. STRAIN POLE, MAST ARM, SIGNS, PRE-EMPTION, AND SIGNAL HEADS (UIP)
EX. STRAIN POLE, MAST ARM (UIP), SIGNS, PRE-EMPTION, AND SIGNAL HEADS TO BE COVERED
EX. STRAIN POLE, MAST ARM, SIGNS, PRE-EMPTION, AND SIGNAL HEADS (UIP)
EX. STRAIN POLE, MAST ARM, SIGNS, PRE-EMPTION, AND SIGNAL HEADS (UIP)
BARRYKNOLL LANE
GESSNER ROAD
160'
120'
160'
160'
1+00
2+00
3+00
4+00
5+00
AT&T TEXAS/SWBT M.H. #14667
Verizon/MCI ug buried cable (approx. location.)
LOGIX ug buried cable (approx. location.)
AT&T TEXAS/SWBT 4-4" ducts
AT&T TEXAS/SWBT 8-4" ducts
AT&T TEXAS/SWBT 6-4" ducts
AT&T TEXAS/SWBT 2-4" ducts
centerpoint energy 2" ip stl gas line
CNP-E AT&T TEXAS COMCAST
10' U.E.
10' B.L.
20' B.L.
brick pvmt
brick planter
8" water
4" water
12" water

SIGNAL LEGEND

▨	CLOSED LANES DURING CONSTRUCTION
☼	EX. POLE W/ MAST ARM
◁	EX. VEHICLE SIGNAL HEAD/W BLACK PLATE

NOTES:

*THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAL FOR OPERATION DURING CONSTRUCTION, AS SHOWN ON THESE PLANS. ALL WORK NECESSARY FOR THE COMPLETE AN OPERATIONAL TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH INTERSECTION, REGARDLESS OF THE NUMBER OF CONSTRUCTION PHASES OR MODIFICATIONS.

No.	Date	Revisions	App.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION) SIGNATURE VALID FOR SIX MONTHS. DATE

RECORDED DEC. 2, 1999

CABLE COMPANY DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

DANIEL T. SHANE
130285
Daniel T. Shane
4/15/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPORARY SIGNAL AT BARRYKNOLL AND GESSNER
PHASE VI STEP I

WBS NO. M-430296-0017-3

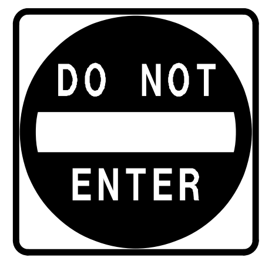
DRAWING SCALE

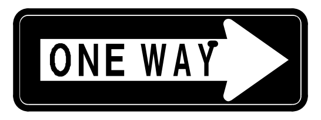
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

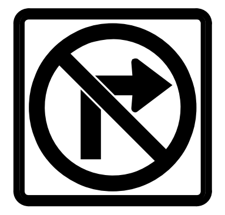
SHEET NO. 47 OF 345

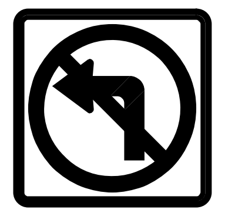
SIGN SCHEDULE:
S1: EX. STREET NAME SIGN (UIP)
S2: EX. LEFT ON GREEN (UIP)
S3: EX. STREET NAME SIGN (UIP)
S4: EX. LEFT ON GREEN (UIP)
S5: EX. LEFT ON GREEN (UIP)
S6: EX. STREET NAME SIGN (UIP)
S7: EX. STREET NAME SIGN (UIP)
S8: EX. LEFT ON GREEN (COVER)
S9: DO NOT ENTER SIGN
S10: NO RIGHT TURN SIGN
S11: ONE WAY IN ARROW (LEFT)
S12: NO LEFT TURN SIGN
S13: ONE WAY IN ARROW (RIGHT)

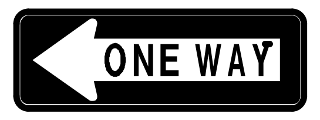

DO NOT
ENTER
R5-1
S9



R6-1R
S13


R3-1
S10


R3-2
S12



R6-1L
S11

TEMPORARY SIGNAL HEAD SCHEDULE

SIGNAL FACE	DESIGNATION
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	C D E F G H
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	A B
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	J I

NOTES

* EX. SIGNAL POLES, AND SPAN WIRES (UIP) DURING PHASE 6-1 AS TEMPORARY SIGNAL, EX. SIGNAL HEADS TO BE ALIGNED WITH THE TEMPORARY LANES AS NEEDED, AS SHOWN BELOW.

* LOCATION OF RELOCATED SIGNAL INDICATION TO BE APPROVED BY THE OWNERS REPRESENTATIVE

*USE EXISTING WIRES FOR SIGNAL HEADS A AND B TO POWER SIGNAL HEADS I AND J

*KEEP THE REPLACED SIGNAL HEADS A AND B WITH R,Y,G BALL CONFIGURATION IN STORAGE FOR FUTURE STAGES

* ADD 300 FEET OF 2-7/C#14 TO POWER SIGNAL HEADS A, AND B AS PART OF THE TEMPORARY SIGNAL.

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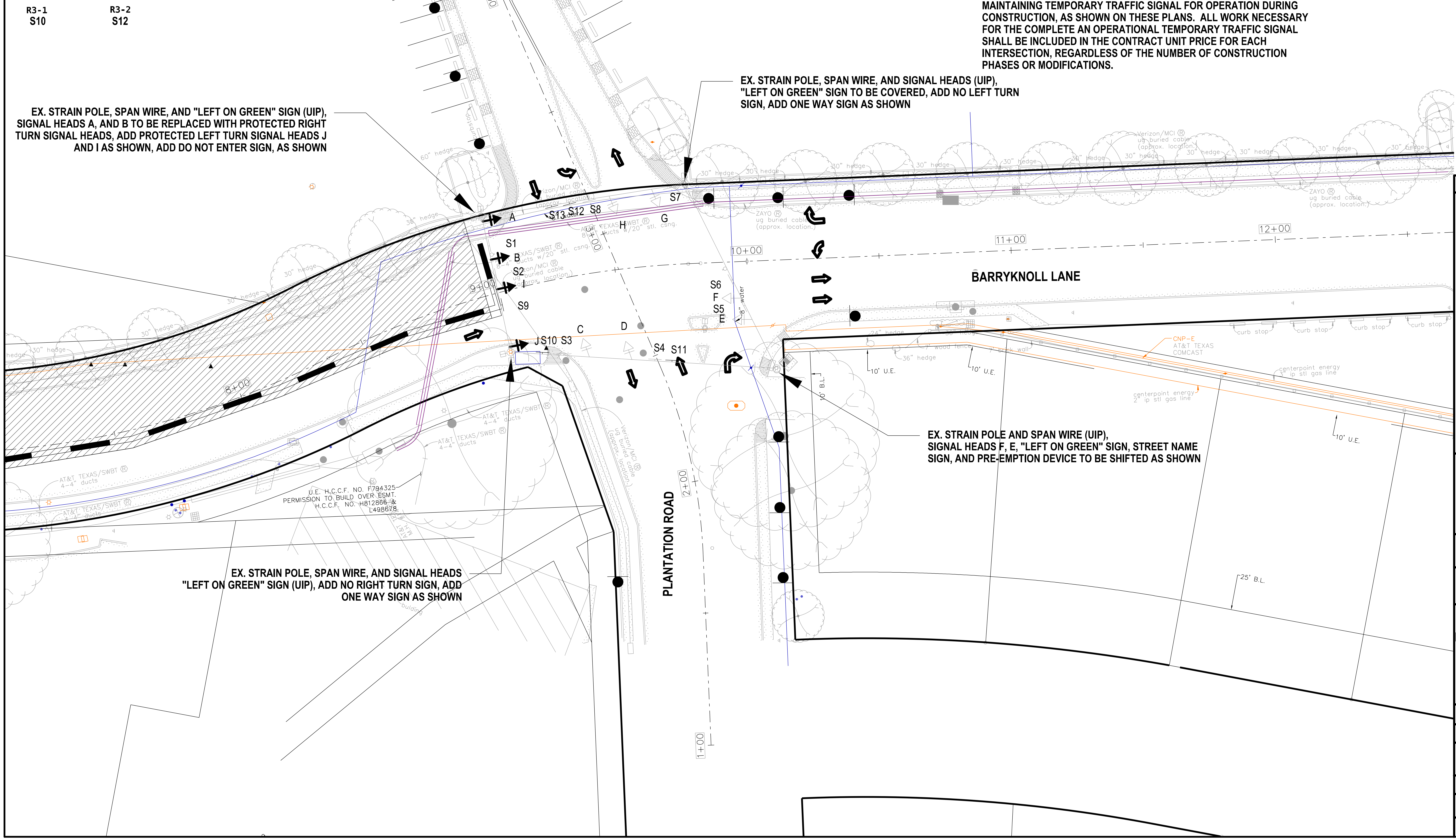
SIGNAL LEGEND

▨	CLOSED LANES DURING CONSTRUCTION
☼	EX. TRAFFIC SIGNAL POLE
⊣	EX. VEHICLE SIGNAL HEAD/W BLACK PLATE
⊣	VEHICLE SIGNAL HEAD/W BLACK PLATE
─┼─	EX. SPAN WIRE SIGN
─┼─	SPAN WIRE SIGN
───	EX. SPAN WIRE

No.	Date	Revisions	App.


4+55
4+00
S13
S12
S8
S7
A
G
H
S1
B
S2
I
9+00
S9
S6
F
S5
E
C
D
J
S10
S3
S4
S11
8+00
10+00
11+00
12+00
BARRYKNOLL LANE
PLANTATION ROAD
2+00
1+00
10' U.E.
10' B.L.
25' B.L.
AT&T TEXAS/SWBT 4-4" ducts
Verizon/MCI ug buried cable (approx. location)
ZAYO ug buried cable (approx. location)
CNP-E AT&T TEXAS COMCAST
centerpoint energy 2" ip stl gas line
8" water
30" hedge
curb stop
U.E. H.C.C.F. NO. F794325
PERMISSION TO BUILD OVER ESMT.
H.C.C.F. NO. H812866 &
L498678
EX. STRAIN POLE, SPAN WIRE, AND "LEFT ON GREEN" SIGN (UIP), SIGNAL HEADS A, AND B TO BE REPLACED WITH PROTECTED RIGHT TURN SIGNAL HEADS, ADD PROTECTED LEFT TURN SIGNAL HEADS J AND I AS SHOWN, ADD DO NOT ENTER SIGN, AS SHOWN

EX. STRAIN POLE, SPAN WIRE, AND SIGNAL HEADS (UIP), "LEFT ON GREEN" SIGN TO BE COVERED, ADD NO LEFT TURN SIGN, ADD ONE WAY SIGN AS SHOWN

EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS F, E, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN

EX. STRAIN POLE, SPAN WIRE, AND SIGNAL HEADS "LEFT ON GREEN" SIGN (UIP), ADD NO RIGHT TURN SIGN, ADD ONE WAY SIGN AS SHOWN

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NOTICE:
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VERIFICATION OF PRIVATE UTILITY LINES

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HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
Daniel T. Shane
4/15/2026

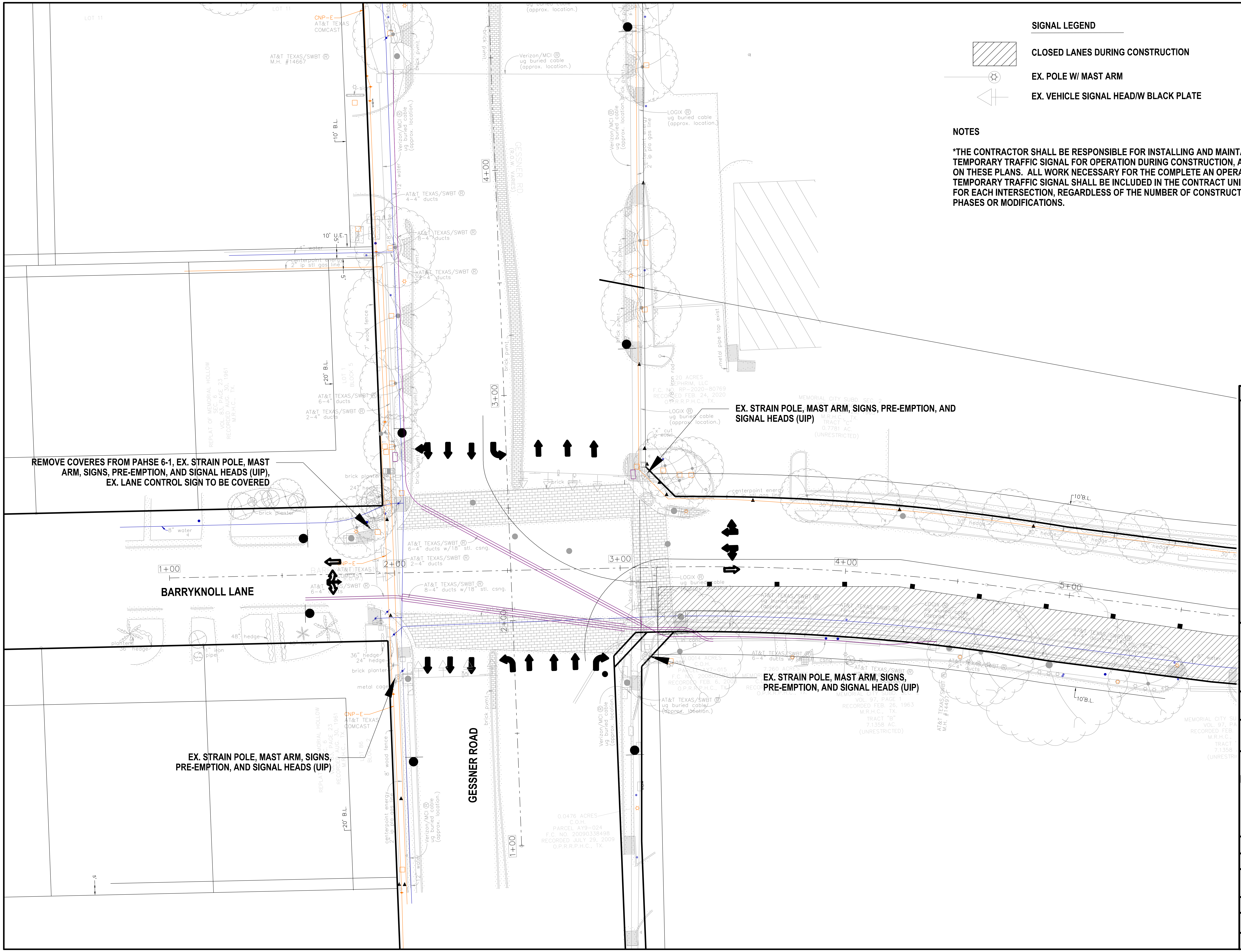
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPORARY SIGNAL AT BARRYKNOLL
AND PLANTATION
PHASE VI STEP I

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 48 OF 345


REMOVE COVERES FROM PAHSE 6-1, EX. STRAIN POLE, MAST ARM, SIGNS, PRE-EMPTION, AND SIGNAL HEADS (UIP), EX. LANE CONTROL SIGN TO BE COVERED
EX. STRAIN POLE, MAST ARM, SIGNS, PRE-EMPTION, AND SIGNAL HEADS (UIP)
EX. STRAIN POLE, MAST ARM, SIGNS, PRE-EMPTION, AND SIGNAL HEADS (UIP)
EX. STRAIN POLE, MAST ARM, SIGNS, PRE-EMPTION, AND SIGNAL HEADS (UIP)
BARRYKNOLL LANE
GESSNER ROAD
GESSNER RD
1+00
2+00
3+00
4+00
5+00
10' U.E.
10' B.L.
20' B.L.
AT&T TEXAS/SWBT M.H. #14667
brick pvmt
brick planter
wood fence
metal cage
hedge

SIGNAL LEGEND

▨	CLOSED LANES DURING CONSTRUCTION
☼	EX. POLE W/ MAST ARM
◁	EX. VEHICLE SIGNAL HEAD/W BLACK PLATE

NOTES

*THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAL FOR OPERATION DURING CONSTRUCTION, AS SHOWN ON THESE PLANS. ALL WORK NECESSARY FOR THE COMPLETE AN OPERATIONAL TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH INTERSECTION, REGARDLESS OF THE NUMBER OF CONSTRUCTION PHASES OR MODIFICATIONS.

No.	Date	Revisions	App.

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RECORDED DEC. 2, 1999

CABLE COMPANY — DATE

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPORARY SIGNAL AT BARRYKNOLL AND GESSNER
PHASE VI STEP 2

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 49 OF 345

TEMPORARY SIGNAL HEAD SCHEDULE

SIGNAL FACE	DESIGNATION
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	A B C D E F G H

NOTES

* EX. SIGNAL POLES, AND SPAN WIRES (UIP) DURING PHASE 6-2 AS TEMPORARY SIGNAL, EX. SIGNAL HEADS TO BE ALIGNED WITH THE TEMPORARY LANES AS NEEDED, AS SHOWN BELOW.

* LOCATION OF RELOCATED SIGNAL INDICATION TO BE APPROVED BY THE OWNERS REPRESENTATIVE

* REMOVE THE NEW SIGNAL HEADS AND SIGNS THAT HAVE BEEN ADDED AS PART OF PHASE 6-1

*RE-INSTALL EXISTING SIGNAL HEADS THAT WERE REMOVED AS PART OF PHASE 6-1 TO THEIR ORIGINAL PLACES

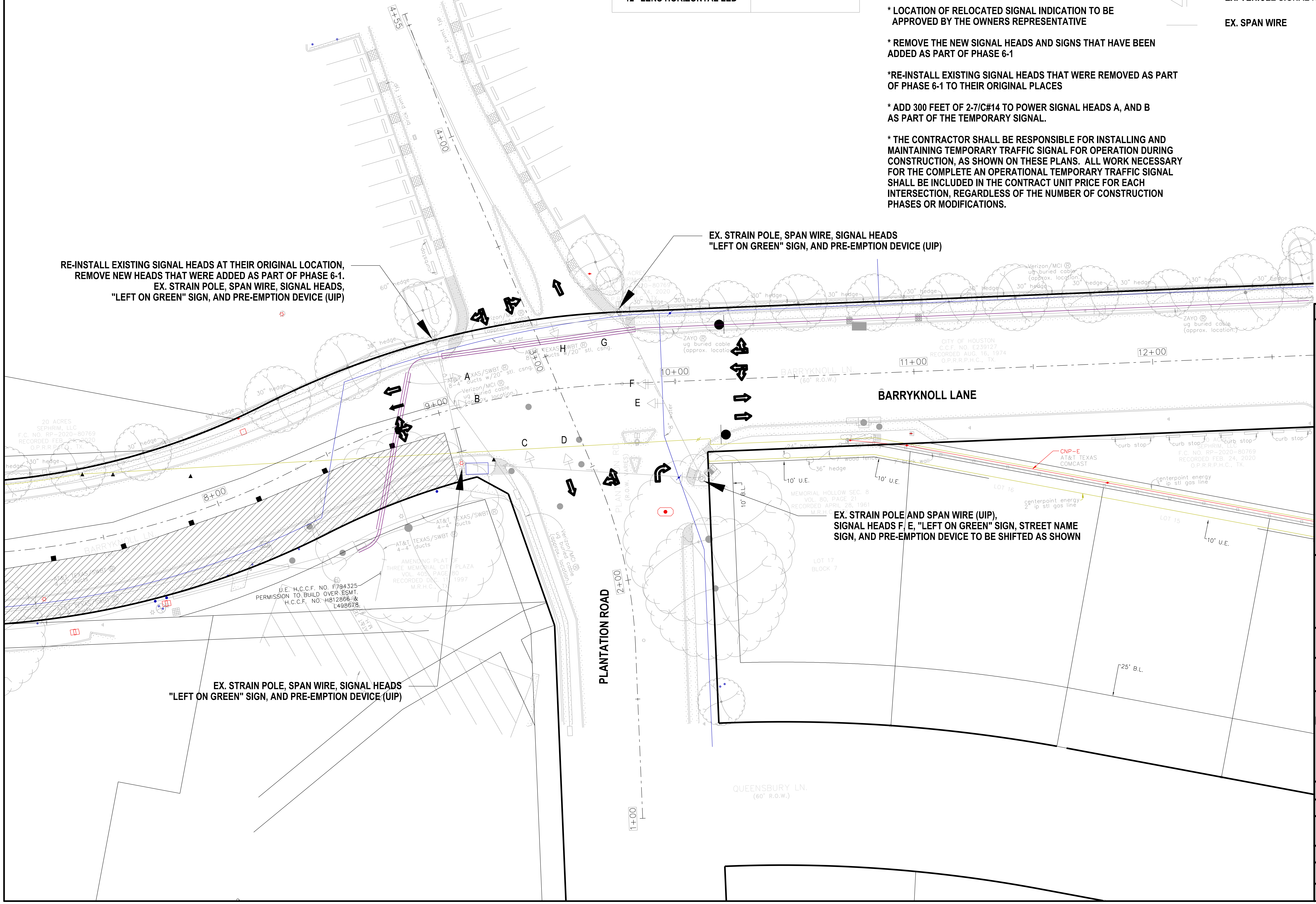
* ADD 300 FEET OF 2-7/C#14 TO POWER SIGNAL HEADS A, AND B AS PART OF THE TEMPORARY SIGNAL.

* THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING TEMPORARY TRAFFIC SIGNAL FOR OPERATION DURING CONSTRUCTION, AS SHOWN ON THESE PLANS. ALL WORK NECESSARY FOR THE COMPLETE AN OPERATIONAL TEMPORARY TRAFFIC SIGNAL SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH INTERSECTION, REGARDLESS OF THE NUMBER OF CONSTRUCTION PHASES OR MODIFICATIONS.

SIGNAL LEGEND

▨	CLOSED LANES DURING CONSTRUCTION
⊛	EX. TRAFFIC SIGNAL POLE
◁	EX. VEHICLE SIGNAL HEAD/W BLACK PLATE
—	EX. SPAN WIRE

No.	Date	Revisions	App.


EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS
"LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)
RE-INSTALL EXISTING SIGNAL HEADS AT THEIR ORIGINAL LOCATION,
REMOVE NEW HEADS THAT WERE ADDED AS PART OF PHASE 6-1.
EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS,
"LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)
EX. STRAIN POLE AND SPAN WIRE (UIP),
SIGNAL HEADS F, E, "LEFT ON GREEN" SIGN, STREET NAME
SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN
EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS
"LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)
BARRYKNOLL LANE
PLANTATION ROAD
A
B
C
D
E
F
G
H
4+55
4+00
3+00
2+00
1+00
8+00
9+00
10+00
11+00
12+00
BARRYKNOLL LN.
(60' R.O.W.)
QUEENSBURY LN.
(60' R.O.W.)
CITY OF HOUSTON
C.C.F. NO. E239127
RECORDED AUG. 16, 1974
O.P.R.R.P.H.C., TX.
20 ACRES
SEPHRUM, LLC.
F.C. NO. RP-2020-80769
RECORDED FEB. 24, 2020
O.P.R.R.P.H.C., TX
U.E. H.C.C.F. NO. F794325
PERMISSION TO BUILD OVER ESMT.
H.C.C.F. NO. H812866 &
L498678
AMENDING PLAT OF
THREE MEMORIAL CITY PLAZA
MEMORIAL HOLLOW SEC. 6
VOL. 80, PAGE 21
RECORDED APRIL 25, 1961
LOT 17
BLOCK 7
LOT 16
LOT 15
CNP-E
AT&T TEXAS
COMCAST
10' U.E.
10' B.L.
25' B.L.
ZAYO
ug buried cable
(approx. location)
Verizon/MCI
ug buried cable
(approx. location)
AT&T TEXAS/SWBT
4-4" ducts
centerpoint energy
2" ip stl gas line
30" hedge
36" hedge
60" hedge
curb stop
8" water

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Daniel T. Shane
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPORARY SIGNAL AT BARRYKNOLL AND PLANTATION
PHASE VI STEP 2

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 50 OF 345

TEMPORARY SIGNAL HEAD SCHEDULE

SIGNAL FACE	DESIGNATION
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	A B C D E F G H

NOTES

* EX. SIGNAL POLES, AND SPAN WIRES (UIP) DURING PHASE 7-1 AS TEMPORARY SIGNAL, EX. SIGNAL HEADS TO BE ALIGNED WITH THE TEMPORARY LANES AS NEEDED, AS SHOWN BELOW.

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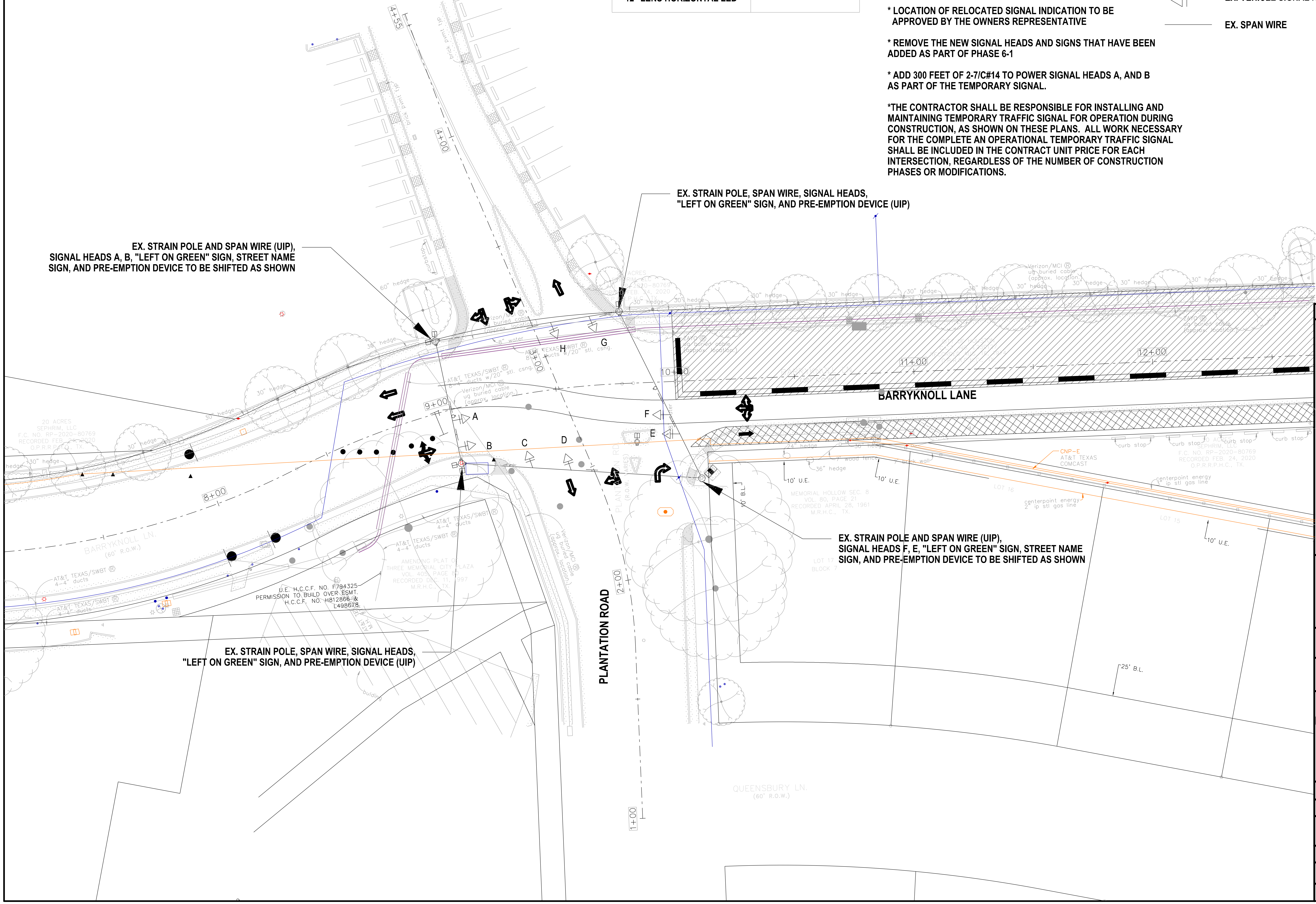
SIGNAL LEGEND

▨	CLOSED LANES DURING CONSTRUCTION
⊛	EX. TRAFFIC SIGNAL POLE
◁	EX. VEHICLE SIGNAL HEAD/W BLACK PLATE
—	EX. SPAN WIRE

No.	Date	Revisions	App.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EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS A, B, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN
EX. STRAIN POLE AND SPAN WIRE (UIP), SIGNAL HEADS F, E, "LEFT ON GREEN" SIGN, STREET NAME SIGN, AND PRE-EMPTION DEVICE TO BE SHIFTED AS SHOWN
EX. STRAIN POLE, SPAN WIRE, SIGNAL HEADS, "LEFT ON GREEN" SIGN, AND PRE-EMPTION DEVICE (UIP)
BARRYKNOLL LANE
BARRYKNOLL LN. (60' R.O.W.)
PLANTATION ROAD
QUEENSBURY LN. (60' R.O.W.)
A
B
C
D
E
F
G
H
4+55
4+00
3+00
2+00
1+00
8+00
9+00
10+00
11+00
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U.E. H.C.C.F. NO. F794325 PERMISSION TO BUILD OVER ESMT. H.C.C.F. NO. H812866 & L498678
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10' U.E.
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CNP-E AT&T TEXAS COMCAST
centerpoint energy 2" ip stl gas line
curb stop
30" hedge
MEMORIAL HOLLOW SEC. 8 VOL. 80, PAGE 21 RECORDED APRIL 28, 1961 M.R.H.C., TX.
AMENDING PLAT OF THREE MEMORIAL CITY PLAZA
20 ACRES SEPHRM, LLC. F.C. NO. RP-2020-80769 RECORDED FEB. 24, 2020 O.P.R.R.P.H.C., TX.

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DANIEL T. SHANE
130285
Daniel T. Shane
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPORARY SIGNAL AT BARRYKNOLL
AND PLANTATION
PHASE VII STEP I

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

No.	Date	Revisions	App.

TEMPORARY SIGNAL HEAD SCHEDULE

SIGNAL FACE	DESIGNATION
R Y G 1-WAY, 3 SECTION (SOLID) 12" LENS HORIZONTAL LED	A B C D E F G H

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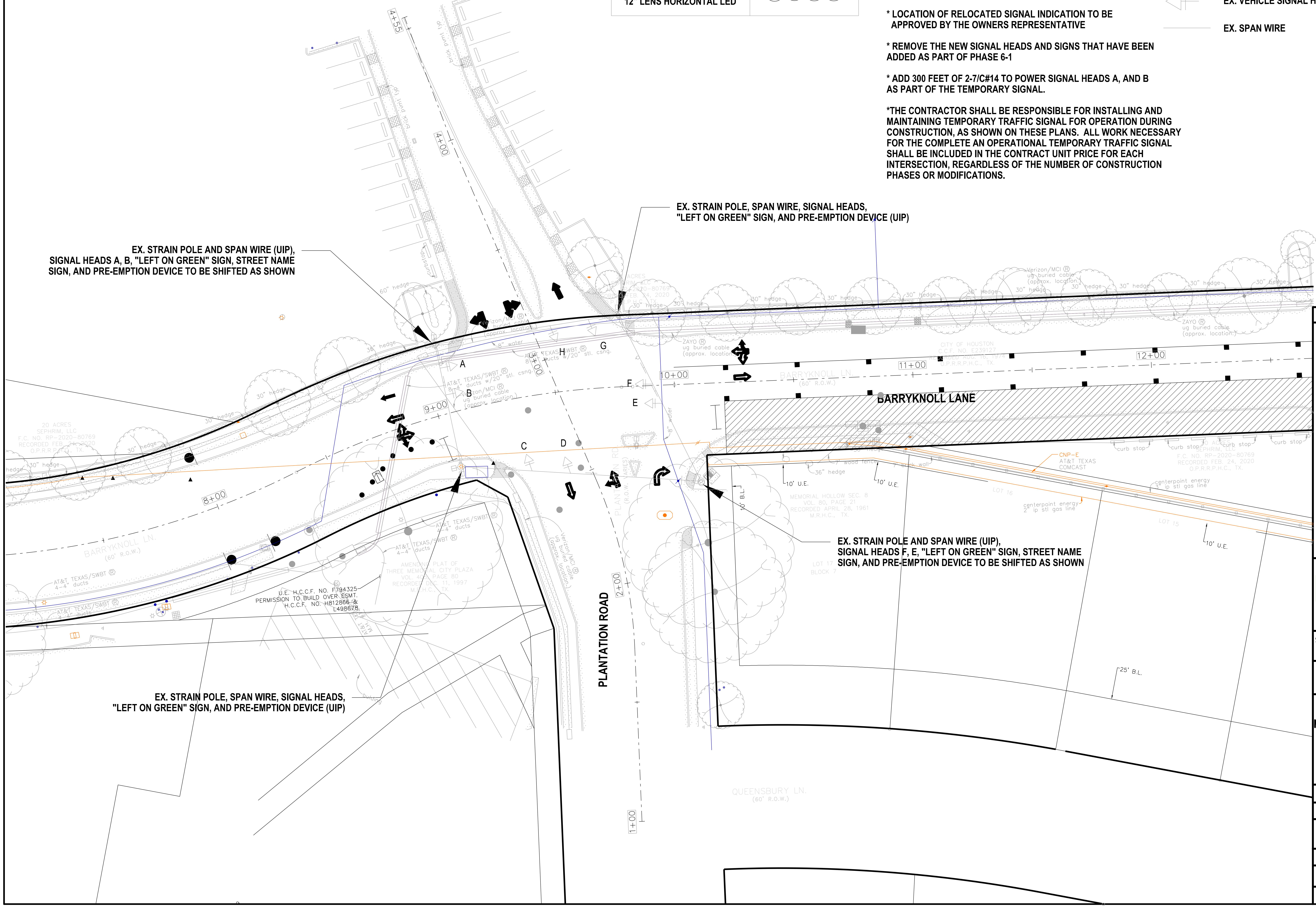
SIGNAL LEGEND

▨	CLOSED LANES DURING CONSTRUCTION
⊙	EX. TRAFFIC SIGNAL POLE
◁	EX. VEHICLE SIGNAL HEAD/W BLACK PLATE
—	EX. SPAN WIRE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4+55
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CNP-E AT&T TEXAS COMCAST
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TEMPORARY SIGNAL AT BARRYKNOLL AND PLANTATION
PHASE VII STEP I

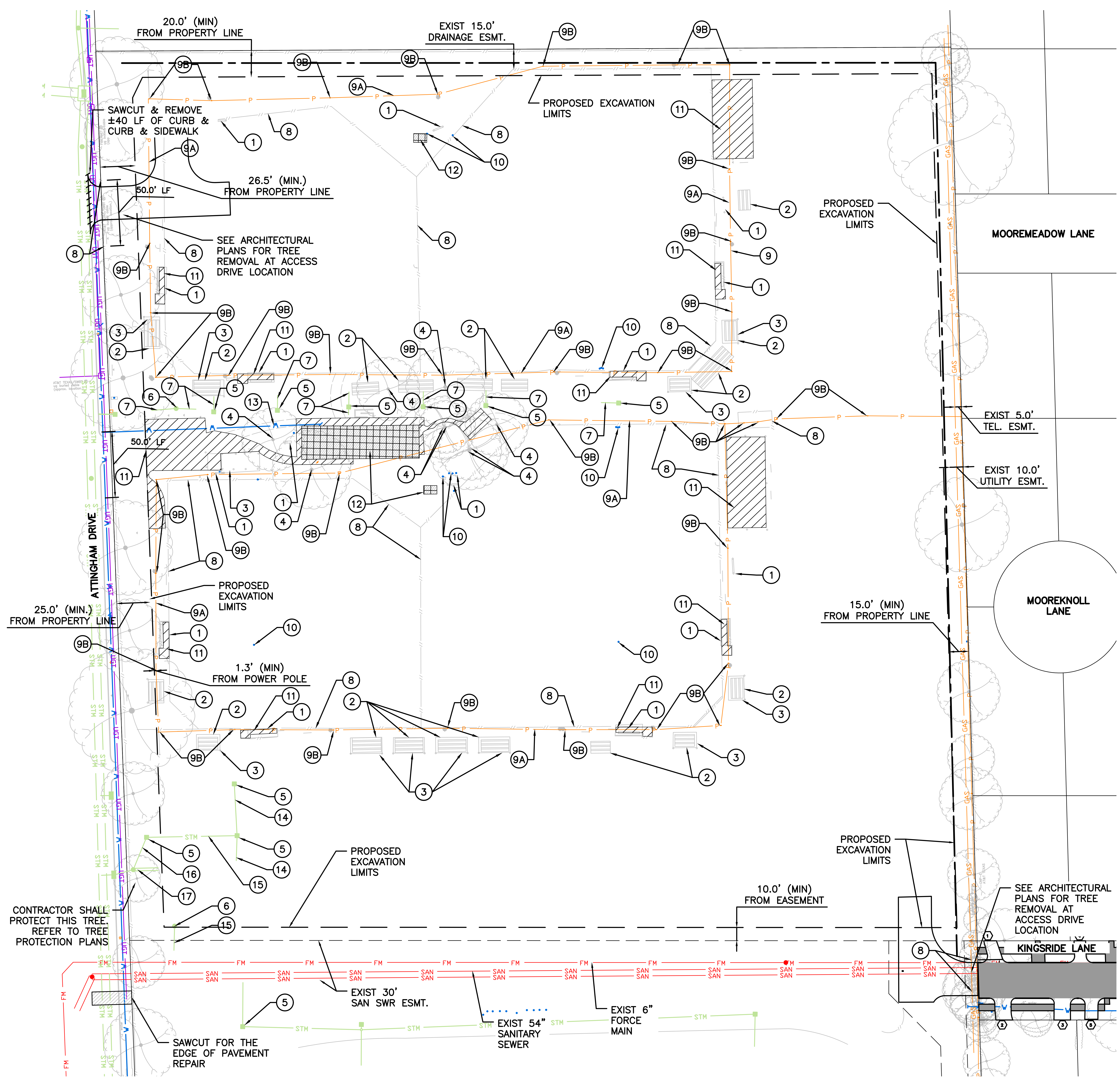
WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 52 OF 345


20.0' (MIN)
FROM PROPERTY LINE
EXIST 15.0'
DRAINAGE ESMT.
PROPOSED EXCAVATION
LIMITS
SAWCUT & REMOVE
±40 LF OF CURB &
CURB & SIDEWALK
26.5' (MIN.)
FROM PROPERTY LINE
50.0' LF
SEE ARCHITECTURAL
PLANS FOR TREE
REMOVAL AT ACCESS
DRIVE LOCATION
PROPOSED
EXCAVATION
LIMITS
MOOREMEADOW LANE
EXIST 5.0'
TEL. ESMT.
EXIST 10.0'
UTILITY ESMT.
50.0' LF
ATTINGHAM DRIVE
PROPOSED
EXCAVATION
LIMITS
25.0' (MIN.)
FROM PROPERTY LINE
1.3' (MIN)
FROM POWER POLE
15.0' (MIN)
FROM PROPERTY LINE
MOOREKNOLL
LANE
PROPOSED
EXCAVATION
LIMITS
PROPOSED
EXCAVATION
LIMITS
SEE ARCHITECTURAL
PLANS FOR TREE
REMOVAL AT
ACCESS DRIVE
LOCATION
10.0' (MIN)
FROM EASEMENT
CONTRACTOR SHALL
PROTECT THIS TREE.
REFER TO TREE
PROTECTION PLANS
KINGSRIDE LANE
EXIST 30'
SAN SWR ESMT.
EXIST 54"
SANITARY
SEWER
EXIST 6"
FORCE
MAIN
SAWCUT FOR THE
EDGE OF PAVEMENT
REPAIR
FM
SAN
STM
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9A
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LEGEND

① REMOVE & DISPOSE OF EXISTING BILLBOARD, TABLE OR BENCH AND ALL RELATED INFRASTRUCTURE

② REMOVE & DISPOSE OF EXISTING BLEACHERS AND ALL RELATED INFRASTRUCTURE

③ REMOVE & DISPOSE OF EXISTING OVERHEAD COVER

④ REMOVE & DISPOSE OF EXISTING TREE

⑤ REMOVE & DISPOSE OF EXISTING INLET

⑥ REMOVE & DISPOSE OF EXISTING MANHOLE

⑦ REMOVE & DISPOSE OF EXISTING SMALL DIAMETER STORM SEWER (2", 3", 5", 6" PIPE)

⑧ REMOVE & DISPOSE OF EXISTING FENCE

(9A) REMOVE & DISPOSE OF EXISTING POWER LINE. CONTRACTOR TO COORDINATE WITH CENTERPOINT ENERGY FOR PERMITING TO DE-ENERGIZE POWER LINE TO THE SITE

(9B) REMOVE & DISPOSE OF EXISTING POWER POLES. CONTRACTOR TO COORDINATE WITH CENTERPOINT ENERGY FOR PERMITING TO DE-ENERGIZE POWER LINE TO THE SITE

⑩ REMOVE & DISPOSE OF EXISTING IRRIGATION SYSTEM

⑪ ▨ REMOVE & DISPOSE OF EXISTING CONCRETE, ALL THICKNESSES

⑫ ▦ REMOVE & DISPOSE OF EXISTING BUILDINGS

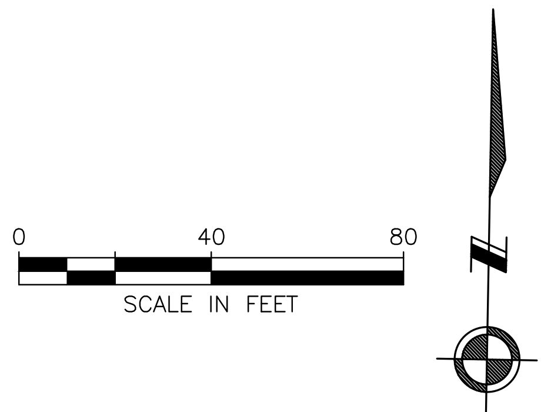
⑬ REMOVE & DISPOSE OF EXISTING WATER LINE

⑭ REMOVE & DISPOSE OF EXISTING 15" STORM LINE

⑮ REMOVE & DISPOSE OF EXISTING 18" STORM LINE

⑯ REMOVE & DISPOSE OF EXISTING 24" STORM LINE

⑰ CUT & PLUG EXISTING 3'x2' STORM SEWER PIPE


0
40
80
SCALE IN FEET

ITEM		QUANTITY	UNIT
1.	REMOVE CONCRETE BENCH	75	CY
2.	REMOVE BLEACHER	19	EA
3.	REMOVE OVERHEAD CANOPY	12	EA
4.	TREE REMOVAL & HAUL AWAY	9	EA
5.	REMOVE TYPE 'A' STORM INLET	10	EA
6.	REMOVE TYPE 'C' MANHOLE	2	EA
7A.	REMOVE & DISPOSE OF EXISTING 2-INCH DIAMETER STORM PIPE SYSTEM	4	LF
7B.	REMOVE & DISPOSE OF EXISTING 5-INCH DIAMETER STORM PIPE SYSTEM	61	LF
7C.	REMOVE & DISPOSE OF EXISTING 6-INCH DIAMETER STORM PIPE SYSTEM	34	LF
8.	REMOVE FENCE	3,370	LF
9A.	POWER LINE REMOVAL	2,784	LF
9B.	POWER POLE REMOVAL	40	EA
10.	IRRIGATON SYSTEM REMOVAL	1	LS
11.	REMOVE CONCRETE PAVEMENT	1,030	SY
12.	BUILDING REMOVAL	2,300	SF
13.	REMOVE & DISPOSE OF EXISTING 8-INCH DIAMETER WATER LINE PIPE	166	LF
14.	REMOVE & DISPOSE OF EXISTING 15-INCH DIAMETER STRM SWR PIPE	57	LF
15.	REMOVE & DISPOSE OF EXISTING 18-INCH DIAMETER STRM SWR PIPE	84	LF
16.	REMOVE & DISPOSE OF EXISTING 24-INCH DIAMETER STRM SWR PIPE	28	LF
17.	CUT & PLUG EXISTING 3' x 2' STORM SEWER PIPE	18	LF

WARNING – UNDERGROUND PIPELINE
CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THE VICINITY OF UNDERGROUND PIPELINES. UNDERGROUND PIPELINES ARE SHOWN AT APPROX. LOCATION BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION.

WARNING – OVERHEAD POWERLINES
CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING IN THE VICINITY OF OVERHEAD POWER LINES.

No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SCHOOL SITE DEMOLITION PLAN

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=40' (22x34)
V: N/A

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 53 OF 345

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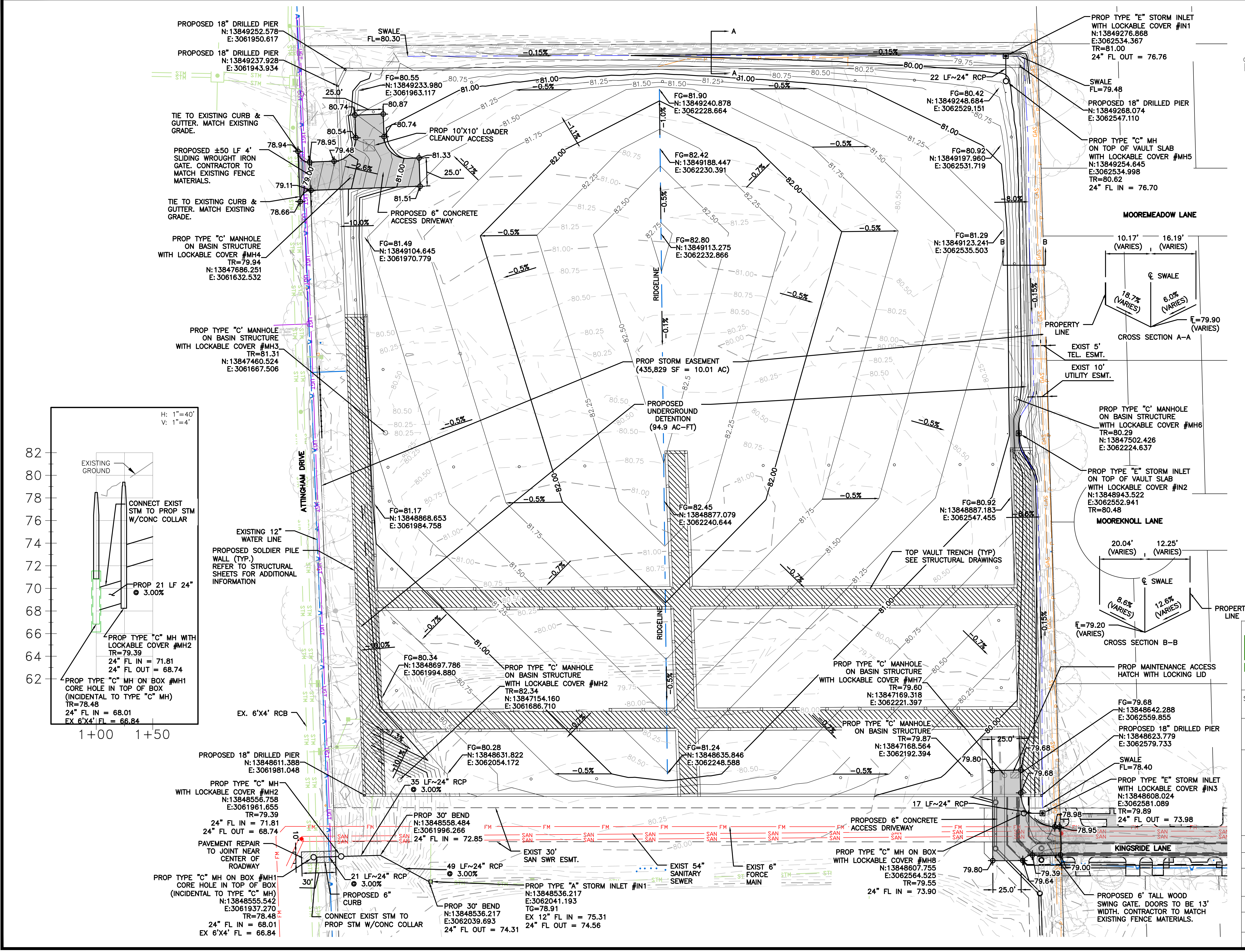
PROPOSED 18" DRILLED PIER N:13849252.578 E:3061950.617
PROPOSED 18" DRILLED PIER N:13849237.928 E:3061943.934
SWALE FL=80.30
TIE TO EXISTING CURB & GUTTER. MATCH EXISTING GRADE.
PROPOSED ±50 LF 4' SLIDING WROUGHT IRON GATE. CONTRACTOR TO MATCH EXISTING FENCE MATERIALS.
PROP 10'X10' LOADER CLEANOUT ACCESS
PROPOSED 6" CONCRETE ACCESS DRIVEWAY
PROP TYPE "C" MANHOLE ON BASIN STRUCTURE WITH LOCKABLE COVER #MH4 TR=79.94 N:13847686.251 E:3061632.532
PROP TYPE "C" MANHOLE ON BASIN STRUCTURE WITH LOCKABLE COVER #MH3 TR=81.31 N:13847460.524 E:3061667.506
FG=80.55 N:13849233.980 E:3061963.117
FG=81.90 N:13849240.878 E:3062228.664
FG=82.42 N:13849188.447 E:3062230.391
FG=82.80 N:13849113.275 E:3062232.866
FG=81.49 N:13849104.645 E:3061970.779
FG=80.42 N:13849248.684 E:3062529.151
FG=80.92 N:13849197.960 E:3062531.719
FG=81.29 N:13849123.241 E:3062535.503
FG=81.17 N:13848868.653 E:3061984.758
FG=82.45 N:13848877.079 E:3062240.644
FG=80.92 N:13848887.183 E:3062547.455
FG=80.34 N:13848697.786 E:3061994.880
FG=80.28 N:13848631.822 E:3062054.172
FG=81.24 N:13848635.846 E:3062248.588
FG=79.68 N:13848642.288 E:3062559.855
RIDGELINE
PROP STORM EASEMENT (435,829 SF = 10.01 AC)
PROPOSED UNDERGROUND DETENTION (94.9 AC-FT)
ATTINGHAM DRIVE
EXISTING 12" WATER LINE
PROPOSED SOLDIER PILE WALL (TYP.) REFER TO STRUCTURAL SHEETS FOR ADDITIONAL INFORMATION
EX. 6'X4' RCB
TOP VAULT TRENCH (TYP) SEE STRUCTURAL DRAWINGS
PROP TYPE "C" MANHOLE ON BASIN STRUCTURE WITH LOCKABLE COVER #MH2 TR=82.34 N:13847154.160 E:3061686.710
PROP TYPE "C" MANHOLE ON BASIN STRUCTURE WITH LOCKABLE COVER #MH7 TR=79.60 N:13847169.318 E:3062221.397
PROP TYPE "C" MANHOLE ON BASIN STRUCTURE TR=79.87 N:13847168.564 E:3062192.394
PROPOSED 18" DRILLED PIER N:13848611.388 E:3061981.048
PROP TYPE "C" MH WITH LOCKABLE COVER #MH2 N:13848556.758 E:3061961.655 TR=79.39 24" FL IN = 71.81 24" FL OUT = 68.74
PAVEMENT REPAIR TO JOINT NEAR CENTER OF ROADWAY
PROP TYPE "C" MH ON BOX #MH1 CORE HOLE IN TOP OF BOX (INCIDENTAL TO TYPE "C" MH) N:13848555.542 E:3061937.270 TR=78.48 24" FL IN = 68.01 EX 6'X4' FL = 66.84
35 LF~24" RCP @ 3.00%
PROP 30' BEND N:13848558.484 E:3061996.266 24" FL IN = 72.85
21 LF~24" RCP @ 3.00%
PROPOSED 6" CURB
CONNECT EXIST STM TO PROP STM W/CONC COLLAR
49 LF~24" RCP @ 3.00%
PROP 30' BEND N:13848536.217 E:3062039.693 24" FL OUT = 74.31
PROP TYPE "A" STORM INLET #IN1 N:13848536.217 E:3062041.193 TG=78.91 EX 12" FL IN = 75.31 24" FL OUT = 74.56
EXIST 30' SAN SWR ESMT.
EXIST 54" SANITARY SEWER
EXIST 6" FORCE MAIN
17 LF~24" RCP
PROPOSED 6" CONCRETE ACCESS DRIVEWAY
PROP TYPE "C" MH ON BOX WITH LOCKABLE COVER #MH8 N:13848607.755 E:3062564.525 TR=79.55 24" FL IN = 73.90
KINGSRIDE LANE
PROPOSED 6' TALL WOOD SWING GATE. DOORS TO BE 13' WIDTH. CONTRACTOR TO MATCH EXISTING FENCE MATERIALS.
PROP TYPE "E" STORM INLET WITH LOCKABLE COVER #IN1 N:13849276.868 E:3062534.367 TR=81.00 24" FL OUT = 76.76
22 LF~24" RCP
SWALE FL=79.48
PROPOSED 18" DRILLED PIER N:13849268.074 E:3062547.110
PROP TYPE "C" MH ON TOP OF VAULT SLAB WITH LOCKABLE COVER #MH5 N:13849254.645 E:3062534.998 TR=80.62 24" FL IN = 76.70
MOOREMEADOW LANE
PROPERTY LINE
EXIST 5' TEL. ESMT.
EXIST 10' UTILITY ESMT.
PROP TYPE "C" MANHOLE ON BASIN STRUCTURE WITH LOCKABLE COVER #MH6 TR=80.29 N:13847502.426 E:3062224.637
PROP TYPE "E" STORM INLET ON TOP OF VAULT SLAB WITH LOCKABLE COVER #IN2 N:13848943.522 E:3062552.941 TR=80.48
MOORKNOLL LANE
PROP MAINTENANCE ACCESS HATCH WITH LOCKING LID
PROPOSED 18" DRILLED PIER N:13848623.779 E:3062579.733
SWALE FL=78.40
PROP TYPE "E" STORM INLET WITH LOCKABLE COVER #IN3 N:13848608.024 E:3062581.089 TR=79.89 24" FL OUT = 73.98
10.17' (VARIES) 16.19' (VARIES)
℄ SWALE
18.7% (VARIES) 6.0% (VARIES)
℄=79.90 (VARIES)
CROSS SECTION A-A
20.04' (VARIES) 12.25' (VARIES)
8.6% (VARIES) 12.6% (VARIES)
℄=79.20 (VARIES)
CROSS SECTION B-B
H: 1"=40' V: 1"=4'
EXISTING GROUND
CONNECT EXIST STM TO PROP STM W/CONC COLLAR
PROP 21 LF 24" @ 3.00%
PROP TYPE "C" MH WITH LOCKABLE COVER #MH2 TR=79.39 24" FL IN = 71.81 24" FL OUT = 68.74
PROP TYPE "C" MH ON BOX #MH1 CORE HOLE IN TOP OF BOX (INCIDENTAL TO TYPE "C" MH) TR=78.48 24" FL IN = 68.01 EX 6'X4' FL = 66.84
82 80 78 76 74 72 70 68 66 64 62
1+00 1+50
0 40 80 SCALE IN FEET

LEGEND

835	EXISTING MAJOR CONTOUR
834	EXISTING MINOR CONTOUR
835.00	PROPOSED MAJOR CONTOUR
834.00	PROPOSED MINOR CONTOUR
―	BOUNDARY
— — —	EASEMENT
−0.5%	PROPOSED GRADE
―	SWALE CENTERLINE
―	PROP STORM SEWER
―	EXIST STORM SEWER
○	PROP MANHOLE
▨	EXIST INLET
●	EXIST MANHOLE
⊕ 81.36	PROPOSED SPOT GRADE
▭	CONCRETE ACCESS AND DRIVEWAY

NOTES:

1. SWALE WILL NOT BE ENGINEER COMPACTED AFTER EXCAVATION AND WILL BE SODDED BACK.
2. RESPONSIBILITY FOR MAINTENANCE OF THE DETENTION FACILITY WILL BE BY THE CITY OF HOUSTON.
3. SUBSURFACE DRAINAGE SYSTEMS ARE REQUIRED TO BE DRAINED IN 48 HOURS.
4. TEMPORARY 10-FT TALL SOLID PLYWOOD FENCE TO BE INSTALLED AT THE SOUTHERN LIMITS OF THE PROJECT AREA. NO SEPARATE PAY.
5. CONTRACTOR SHALL SURVEY COLUMNS, UTILITY TRENCH LIMITS, AND DRAINAGE ACCESS HATCHES PRIOR TO POURING TOP SLAB OR BACKFILLING AS APPROPRIATE. NO SEPARATE PAY.
6. CONTRACTOR SHALL SURVEY ENTIRE SITE AFTER CONSTRUCTION. NO SEPARATE PAY.
7. CITY OF HOUSTON IS ACQUIRING A STORM EASEMENT AND WILL MAINTAIN THE BASIN.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

GRADING & DRAINAGE PLAN

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=40' (22x34)
V: N/A

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 54 OF 345

No. Revisions Date App.

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No.	Date	Revisions	App.

STRUCTURAL NOTES

A. GENERAL

1. THE GENERAL CONTRACTOR AND SUB-CONTRACTORS SHALL DETERMINE THE SCOPE OF THE STRUCTURAL WORK FOR BIDDING AND CONSTRUCTION FROM THE CONTRACT DOCUMENTS TAKEN AS A WHOLE. DUE CONSIDERATION SHALL BE GIVEN TO OTHER STRUCTURAL WORK OR WORK RELATED TO THE STRUCTURE, INCLUDING NECESSARY COORDINATION DESCRIBED OR IMPLIED BY THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, CIVIL AND LANDSCAPE DRAWINGS.

2. THE STRUCTURAL NOTES ARE INTENDED FOR USE IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR INFORMATION SUPPLEMENTAL TO THESE DRAWINGS.

3. THE STRUCTURE HAS BEEN DESIGNED FOR THE IN-SERVICE LOADS ONLY. METHODS, PROCEDURES, AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE AT ALL STAGES OF CONSTRUCTION.

4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING DETAILS AND ACCURACY OF THE WORK; FOR CONFIRMING AND CORRELATING ALL QUANTITIES, DIMENSIONS AND EXISTING CONDITIONS; AND FOR PERFORMING WORK IN A SAFE AND SECURE MANNER PER OSHA AND DOSH STANDARDS.

5. WHERE CONFLICTS EXIST AMONG VARIOUS PARTS OF THE STRUCTURAL AND CIVIL DRAWINGS, GENERAL NOTES AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE ENGINEER, SHALL GOVERN. REPORT ANY DISCREPANCY TO THE ENGINEERS PRIOR TO THE FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBERS.

6. CONDITIONS DESCRIBED BY DETAILS, SECTIONS, NOTES AND SPECIFICATIONS INCLUDED IN THE CONTRACT DOCUMENTS SHALL ALSO APPLY TO SIMILAR CONDITIONS NOT SPECIFICALLY INCLUDED. IF CONDITIONS ARE FOUND NOT TO BE APPLICABLE, THE STRUCTURAL ENGINEER OF RECORD AND CIVIL ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH WORK.

7. THE REPRODUCTIVE USE OF THE STRUCTURAL CONTRACT DOCUMENTS OR ELECTRONIC FILES AS STRUCTURAL SHOP DRAWING DOCUMENTS BY THE CONTRACTOR OR SUB-CONTRACTORS IS AT THEIR OWN RISK. FRACTAL LLC ASSUMES NO LIABILITY AS THE RESULT OF THE REPRODUCTIVE USE OF THE STRUCTURAL CONTRACT DOCUMENTS FOR SHOP DRAWINGS.

8. SCALES NOTED ON THE DRAWINGS ARE FOR GENERAL REFERENCE ONLY. NO DIMENSIONAL INFORMATION SHALL BE OBTAINED BY DIRECT SCALING OF THE DRAWINGS.

9. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL RESULTING REVISIONS TO THE STRUCTURAL SYSTEM OR OTHER TRADES AS A RESULT OF ACCEPTANCE OF CONTRACTOR PROPOSED ALTERNATIVES OR SUBSTITUTIONS.

10. PRINCIPAL OPENINGS IN THE STRUCTURE ARE INDICATED ON THE CONTRACT DOCUMENTS. REFER TO THE CIVIL DRAWINGS FOR SLEEVES, CURBS, INSERTS, ETC. NOT HEREIN INDICATED. OPENINGS IN SLABS WITH A MAXIMUM SIDE DIMENSION OR DIAMETER OF 10 INCHES OR LESS SHALL NOT REQUIRE ADDITIONAL FRAMING OR REINFORCEMENT, UNLESS NOTED OTHERWISE. THE LOCATION OF SLEEVES OR OPENINGS IN STRUCTURAL MEMBERS SHALL BE SUBMITTED TO FRACTAL LLC FOR REVIEW.

11. PREFABRICATED ITEMS SHOWN ON THE STRUCTURAL DRAWINGS ARE REFERENCED FOR GENERAL COORDINATION PURPOSES ONLY.
    A. TYPICAL REFERENCED PREFABRICATED ITEMS INCLUDE BUT MAY NOT BE LIMITED TO: LADDERS, HANDRAILS, LIDS, JUNCTION BOXES, AND PREFABRICATED FRAMING ELEMENTS. SUCH SYSTEMS SHALL BE DESIGNED, FURNISHED AND INSTALLED AS REQUIRED BY OTHERS.

12. PERIODIC SITE OBSERVATION BY FRACTAL LLC IS SOLELY FOR THE PURPOSE OF BECOMING GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK COMPLETED AND DETERMINING, IN GENERAL, IF THE WORK, WHEN FULLY COMPLETED, WILL BE IN ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO KEEP THE OWNER REASONABLY INFORMED ABOUT THE PROGRESS AND QUALITY OF THE COMPLETED WORK.

B. DESIGN CRITERIA

1. THE STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE 2021 INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS.

2. THE DESIGN GRAVITY LOADS ARE AS FOLLOWS:

   SUPERIMPOSED DEAD LOADS (INCLUDED BUT NOT LIMITED TO THE FOLLOWING):

   RESERVOIR TOP SOIL UNIT WEIGHT: 125 PCF

   LIVE LOADS:

   UNIFORM SURCHARGE LOAD: 250 PSF
   (APPLIED AS A UNIFORM LOAD TO THE VAULT SLAB AND ALONG THE PERIMETER)

3. DESIGN LOADS CONSIDERED FOR FUTURE LOADING CONDITIONS FROM PROPOSED SCHOOL BUILDING AS FOLLOWS:

   ADDITIONAL COLUMN LOADS: 375 KIPS
   THE TOP VAULT SLAB HAS NOT BEEN DESIGNED FOR ADD'L POINT LOADS FROM BUILDING COLUMNS OPTIONS ARE AS FOLLOWS:
    A. ALIGN BUILDING COLUMNS WITH EXISTING COLUMNS
    B. SPAN NEW CONCRETE BEAMS BETWEEN EXISTING COLUMNS TO CARRY THE LOAD - REACTIONS NOT TO EXCEED 375 KIPS
    C. ADD NEW COLUMNS WITHIN DETENTION VAULT CAVITY ALIGNED WITH BUILDING COLUMNS - REACTIONS NOT TO EXCEED 375 KIPS.

   SLAB LOADING: 4'-0" OF SOIL AT WEIGHT NOTED ABOVE (500 PSF)
   TRENCH SLABS HAVE BEEN DESIGNED FOR AN ADD'L 4' OF SOIL (1000 PSF)

4. THE TOP VAULT SLAB AND MAT FOUNDATION SYSTEMS HAVE BEEN DESIGNED TO WITHSTAND A CONCENTRATED LOAD OF 2000 POUNDS PLACED UPON ANY SPACE 2'-6" SQUARE, IN ACCORDANCE WITH SECTION 1607.4 OF THE IBC.

5. THE UNDERGROUND BASIN HAS BEEN DESIGNED TO INDUSTRY STANDARDS TO PREVENT EXCESSIVE SETTLEMENT AND OTHER POTENTIAL ISSUES. IF THE FUTURE SCHOOL EXPERIENCES SETTLING, THEN THE STANDARD PROCESS FOR DETERMINING THE CAUSE OF THE SETTLING AND RESPONSIBILITY WILL BE FOLLOWED. DIFFERENTIAL SETTLEMENT IS EXPECTED TO OCCUR ONCE SOIL IS REMOVED FROM ONE SIDE OF THE BASIN TO FACILITATE SCHOOL CONSTRUCTION. ADDITIONAL SOIL SHALL NOT BE STOCKPILED ON THE REMAINING AREA OF THE BASIN. THE SCHOOL BUILDING ENGINEER AND CONTRACTOR ARE RESPONSIBLE FOR MANAGING DIFFERENTIAL SETTLEMENT DURING CONSTRUCTION OF THE SCHOOL STRUCTURE. ACCORDING TO THE PER REPORT, THE TOTAL SETTLEMENT BAY REACH UP TO ONE INCH, BUT THE DIFFERENTIAL SETTLEMENT DURING CONSTRUCTION OF THE SCHOOL WILL NEED TO BE ESTIMATE

C. FOUNDATION AND SLAB ON GRADE

1. THE SUBSURFACE INFORMATION AND FOUNDATION DESIGN ARE BASED ON A REPORT PREPARED BY HVJ ASSOCIATES, INC. PROJECT NUMBER HG2110495.1, DATED MARCH 06, 2025. THE CONTRACTOR SHALL PERFORM EXCAVATIONS, FOOTING CONSTRUCTION, AND PREPARATION OF THE SUBGRADE UNDER THE SLAB ON GRADE IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT AND THE PROJECT SPECIFICATIONS.

2. THE BOTTOM MAT FOUNDATION FOR THE STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING ALLOWABLE SOIL BEARING PRESSURES AT A BEARING DEPTH OF APPROXIMATELY TWENTY (20) FEET BELOW EXISTING GRADE AT THE TIME THAT THE GEOTECHNICAL REPORT WAS PREPARED:

   TOTAL LOAD..9000 PSF
   DEAD LOAD PLUS SUSTAINED LIVE LOAD........6000 PSF

3. SOLDIER PILES SHALL BE EXCAVATED, CLEANED, REINFORCED AND THE CONCRETE SHALL BE PLACED ON THE SAME DAY. POILES WITH LESS THAN 2'-0" CLEAR BETWEEN SHAFTS SHALL BE EXCAVATED AND CONCRETE PLACED A MINIMUM OF 24 HOURS APART.

4. EXCAVATIONS FOR FOOTINGS SHALL BE CLEANED AND HAND TAMPED TO A UNIFORM SURFACE. FOOTING EXCAVATIONS SHALL HAVE THE SIDES AND BOTTOMS TEMPORARILY LINED WITH 6 MIL VISQUEEN IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HOURS OF THE EXCAVATION OF THE FOOTING.

5. FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION, WHICH DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE ARCHITECT, GEOTECHNICAL ENGINEER AND FRACTAL LLC BEFORE FURTHER CONSTRUCTION IS ATTEMPTED.

6. REINFORCEMENT PLACEMENT SEQUENCE FOR FOOTINGS IS NOTED ONLY FOR MAJOR REINFORCEMENT BAR LAYERS. IN SPREAD FOOTINGS AND MATS THE CONTRACTOR SHALL SEQUENCE ALL OTHER BAR PLACEMENTS AS REQUIRED TO CONFORM TO THE CONTRACT DOCUMENTS.

7. GENERAL CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEER AND FRACTAL LLC., 48 HOURS PRIOR TO PLACEMENT OF CONCRETE IN THE FOOTINGS.

8. SUBGRADE SHALL BE PREPARED AND COMPACTED IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT.

9. THE FOUNDATION EXCAVATIONS AND FLOOR SUBGRADE SHALL BE PROPERLY COMPACTED AND FREE OF STANDING WATER, MUD, AND FROZEN SOIL.

10. THE BOTTOM MAT FOUNDATION AND VAULT SLAB SHALL HAVE CONSTRUCTION JOINTS PROVIDED USING THE FOLLOWING GUIDELINES: (SEE S3.00 & S3.02 FOR ADD'L DETAILS AND REINFORCEMENT)
    A. CONSTRUCTION JOINTS IN THE TOP AND BOTTOM SLABS SHOULD OCCUR MID-BAY.
    B. MAX AREA IN POUR SHOULD NOT EXCEED 6000 SQUARE FEET. SUBMIT LOCATIONS FOR JOINTS TO EOR FOR REVIEW PRIOR TO CONSTRUCTION.
    C. MAXIMUM ASPECT RATIO (LENGTH/WIDTH) = 1.5.
    D. NO RE-ENTRANT CORNERS.

D. SPECIAL INSPECTION REQUIREMENTS

1. IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, SECTION 110, THE PERMITTED WORK IS SUBJECT TO INSPECTIONS PERFORMED BY THE LOCAL BUILDING OFFICIAL. THE GENERAL CONTRACTOR SHALL KEEP THE WORK ACCESSIBLE AND EXPOSED FOR INSPECTION PURPOSES UNTIL SUCH INSPECTIONS ARE COMPLETED AND APPROVAL TO PROCEED WITH SUBSEQUENT WORK IS GRANTED.

2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE BUILDING OFFICIAL WHEN WORK IS READY FOR INSPECTION.

3. INSPECTIONS PERFORMED UNDER THIS CATEGORY (THAT PERTAINS TO THE STRUCTURAL DOCUMENTS) INCLUDE: FOOTINGS & FOUNDATIONS, CONCRETE SLABS, STRUCTURAL FRAMEWORK, AND ANY OTHER STRUCTURAL ITEM OF INTEREST TO THE BUILDING OFFICIAL.

4. IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, SECTION 1704, SPECIAL INSPECTIONS MUST ALSO BE PERFORMED ON THE WORK. THE OWNER SHALL SELECT SPECIAL INSPECTORS AND SUBMIT THEIR QUALIFICATIONS TO THE BUILDING OFFICIAL FOR ACCEPTANCE. THE SPECIAL INSPECTORS SHALL MAINTAIN A RECORD OF INSPECTIONS AND INSPECTION REPORTS SHALL BE FURNISHED TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE.

REQUIRED SPECIAL INSPECTIONS ARE AS FOLLOWS:

MATERIAL OR WORK TO BE INSPECTED	**TYPE OF INSPECTION**
STEEL CONSTRUCTION	IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTIONS REQUIREMENTS OF AISC 360.
STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL	AS OUTLINED IN TABLE 1705.2.2 OF IBC 2021
CONCRETE CONSTRUCTION	AS OUTLINED IN TABLE 1705.3 OF IBC 2021
SHOTCRETE	AS OUTLINED IN TABLE 1705.3 OF IBC 2021
SOILS	AS OUTLINED IN TABLE 1705.6 OF IBC 2021
CAST-IN-PLACE DEEP FOUNDATIONS	AS OUTLINED IN TABLE 1705.8 OF IBC 2021

6. AT THE COMPLETION OF CONSTRUCTION, A FINAL REPORT WRITTEN BY THE REGISTERED DESIGN PROGESSIONAL IN RESPONSIBLE CHARGE THAT DOCUMENTS ALL OF THE SPECIAL INSPECTIONS REQUIRED WILL BE SUBMITTED TO THE BUILDING OFFICIAL, VIA THE OWNER. IT IS OUR UNDERSTANDING THAT A CERTIFICATE OF OCCUPANCY WILL NOT BE ISSUED BY THE CITY UNTIL THIS FINAL REPORT HAS BEEN RECEIVED, INDICATING THAT THERE ARE NO REMAINING DEFICIENCIES.

E. CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" AND ACI 301 "SPECIFICATION FOR STRUCTURAL CONCRETE".
2. CONCRETE SHALL HAVE NATURAL SAND FINE AGGREGATE AND NORMAL WEIGHT COARSE AGGREGATES CONFORMING TO ASTM C33, TYPE I PORTLAND CEMENT CONFORMING TO ASTM C150, AND SHALL HAVE THE FOLLOWING COMPRESSIVE STRENGTH (F'c) AT 28 DAYS.

AUGER CAST SOLDIER PILES	4000 PSI
BOTTOM VAULT SLAB	5000 PSI
TOP VAULT SLAB AND BEAMS	6000 PSI
COLUMNS	5000 PSI

3. FLY ASH MAY BE USED AS A POZZOLAN TO REPLACE A PORTION OF THE PORTLAND CEMENT IN A CONCRETE MIX, SUBJECT TO THE APPROVAL OF THE GENERAL CONTRACTOR AND THE STRUCTURAL ENGINEER. FLY ASH, WHEN USED, SHALL CONFORM TO ASTM C618, TYPE C OR F. CONCRETE MIXES USING FLY ASH SHALL BE PROPORTIONED TO ACCOUNT FOR THE PROPERTIES OF THE SPECIFIC FLY ASH USED AND TO ACCOUNT FOR THE SPECIFIC PROPERTIES OF THE FLY ASH CONCRETE THUS RESULTING. THE RATIO OF THE AMOUNT OF THE FLY ASH TO THE TOTAL AMOUNT OF FLY ASH AND CEMENT IN THE MIX SHALL NOT EXCEED 25 PERCENT.

4. SLUMP TESTS SHALL BE MADE PRIOR TO THE ADDITION OF PLASTICIZERS. CONCRETE FOR THE PREPARATION OF TEST CYLINDERS SHALL BE TAKEN FROM THE HOSE END FOR CONCRETE PLACED BY PUMP.

5. WATER SHALL NOT BE ADDED TO THE CONCRETE AT THE JOBSITE UNLESS THE TOTAL WATER QUANTITY INCLUDING THE WATER ADDED AT THE JOBSITE DOES NOT EXCEED THE TOTAL WATER QUANTITY OF THE REVIEWED MIX DESIGN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE REQUIREMENTS OF THE CONCRETE SUPPLIER AND PUMPER TO MEET THIS REQUIREMENT AND TO ENSURE A PUMPABLE AND WORKABLE MIX. THE USE OF PLASTICIZERS, RETARDANTS, AND OTHER ADDITIVES SHALL BE AT THE OPTION OF THE CONTRACTOR SUBJECT TO THE APPROVAL OF FRACTAL LLC. FOLLOW THE RECOMMENDATIONS OF THE MANUFACTURER FOR THE PROPER USE OF ADDITIVES. THE USE OF CALCIUM CHLORIDE OR OTHER CHLORIDE BEARING SALTS IS NOT PERMITTED.

6. PLACE CONCRETE IN A MANNER SO AS TO PREVENT SEGREGATION OF THE MIX. DELAY FLOATING AND TROWELING OPERATIONS UNTIL THE CONCRETE HAS LOST SURFACE WATER SHEEN OR ALL FREE WATER. DO NOT SPRINKLE FREE CEMENT ON THE SLAB SURFACE. FINISHING OF SLAB SURFACES SHALL COMPLY WITH THE RECOMMENDATIONS OF ACI 302.1 AND 304.

7. PROVIDE CURING OF DECK IMMEDIATELY AFTER FINISHING. REFER TO THE SPECIFICATIONS FOR REQUIREMENTS. PROTECT THE CONCRETE SURFACE BETWEEN FINISHING OPERATIONS ON HOT, DRY, OR WINDY DAYS OR ANY TIME PLASTIC SHRINKAGE CRACKS COULD DEVELOP BY USING WET BURLAP, PLASTIC MEMBRANES, OR FOGGING. PROTECT CONCRETE DECK AT ALL TIMES FROM RAIN, HAIL, OR OTHER INJURIOUS EFFECTS.

8. THE CONTRACTOR SHALL SUBMIT FOR REVIEW A MIX DESIGN FOR THE PROPOSED CONCRETE. MIX DESIGNS SHALL BE IN COMPLIANCE WITH THE METHODS PERMITTED IN IBC AND PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL NOT VARY FROM THE MIX DESIGN WITHOUT THE APPROVAL OF FRACTAL LLC.

9. DETAILING AND PLACING OF CONCRETE REINFORCEMENT BARS AND ACCESSORIES SHALL CONFORM TO THE RECOMMENDATIONS OF ACI SP-66 "DETAILING MANUAL" AND CRSI "MANUAL OF STANDARD PRACTICE".

10. MINIMUM CONCRETE COVER PROTECTION FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS (SEE ACI 318 SECTION 7.7 FOR CONDITIONS NOT NOTED):

    CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH...........................3 INCHES
    CONCRETE EXPOSED TO EARTH OR WEATHER:
        #5 BARS AND SMALLER...1-1/2 INCHES
        ALL OTHER BARS...2 INCHES
    CONCRETE NOT EXPOSED WEATHER OR IN CONTACT WITH GROUND:
        SLABS, WALLS, JOISTS (#11 BARS AND SMALLER)...3/4 INCHES
        SLABS, WALLS, JOISTS (ALL OTHER BARS)...1-1/2 INCHES
        BEAMS AND COLUMNS...1-1/2 INCHES

    PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN CONCRETE PROTECTION SPECIFIED.

11. CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 75 FOR #6 BARS AND LARGER, AND ASTM A615 GRADE 60 FOR #5 BARS AND SMALLER.

12. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. FABRIC SHALL BE SUPPLIED IN FLAT SHEETS. FABRIC SHALL BE LAPPED TWO MESH AT SPLICES.

13. REINFORCEMENT BARS SHALL NOT BE TACK WELDED, WELDED, HEATED, OR CUT UNLESS INDICATED ON THE CONTRACT DOCUMENTS OR REVIEWED BY THE STRUCTURAL ENGINEER.

14. WELDING OF REINFORCEMENT BARS, WHEN ACCEPTED BY THE STRUCTURAL ENGINEER, SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD D1.4. ELECTRODES FOR SHOP AND FIELD WELDING OF REINFORCEMENT BARS SHALL CONFORM TO ASTM A233, CLASS E90XX.

15. REINFORCEMENT DESIGNATED AS "CONTINUOUS" MAY BE SPLICED USING TYPE "B" SPLICES. REINFORCEMENT BAR SPLICE LENGTHS IN BEAMS WHICH ARE LOCATED AT THE CENTERLINE OF SUPPORTS FOR BOTTOM BARS AND AT MIDSPAN FOR TOP BARS MAY BE 36 BAR DIAMETERS, UNLESS NOTED OTHERWISE. PROVIDE STANDARD ACI HOOKS FOR TOP AND BOTTOM BARS AT DISCONTINUOUS ENDS OF ALL GRADE BEAMS.

16. HORIZONTAL FOOTING AND HORIZONTAL WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90- DEGREE BENDS AND EXTENSIONS, OR CORNER BARS OF EQUIVALENT SIZE LAPPED 36 BAR DIAMETERS, AT CORNERS AND INTERSECTIONS.

17. HORIZONTAL JOINTS WILL NOT BE PERMITTED IN CONCRETE CONSTRUCTION EXCEPT AS SHOWN ON THE CONTRACT DOCUMENTS. VERTICAL JOINTS MAY OCCUR AT CENTER OF SPANS AT LOCATIONS REVIEWED BY FRACTAL LLC.

18. CONDUIT, PIPES, AND SLEEVES EMBEDDED IN CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318, CHAPTER 6.3.

DETENTION VOLUME: 94 ACRE FEET

F. STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND THE AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".

2. CONTRACTOR SHALL FABRICATE AND ERECT STEEL IN ACCORDANCE WITH LATEST OSHA SAFETY REQUIREMENTS, INCLUDING 29 CFR PART 1926 SAFETY STANDARDS FOR STEEL ERECTION.

3. STRUCTURAL STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS UNLESS NOTED OTHERWISE ON THE CONTRACT DOCUMENTS:

WIDE FLANGE SHAPES (W)	ASTM A992,	GRADE 50 (50 KSI)
CHANNELS, AND ANGLES	ASTM A36	(36 KSI)
STEEL PIPE	ASTM A53	GRADE B (35 KSI)
PLATES AND BARS	ASTM A36	(36 KSI)
ANCHOR BOLTS (ANCHOR RODS)	ASTM F1554 OR ASTM A307	(36 KSI)

4. THE DETAILS ON THESE DRAWINGS INDICATE GENERAL CRITERIA FOR DESIGN AND DETAILING OF CONNECTIONS AND ARE NOT INTENDED TO CONVEY COMPLETE CONNECTION DESIGN. ALL CONNECTIONS, SPLICES AND ERECTION PIECES SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR'S STRUCTURAL ENGINEER LICENSED IN THE JURISDICTION OF THE PROJECT, UNLESS CONNECTIONS ARE INDICATED AS BEING FULLY DESIGNED IN THE STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL BE SUBMITTED BEARING THE ENGINEER'S SEAL AND SIGNATURE. CALCULATIONS BEARING THE ENGINEER'S SEAL AND SIGNATURE SHALL BE AVAILABLE UPON REQUEST OF THE STRUCTURAL ENGINEER.

5. DESIGN ALL CONNECTIONS FOR FORCES INDICATED ON THE DRAWINGS. CONNECTION DESIGN FORCES INDICATED ON THE DRAWINGS ARE UNFACTORED U.N.O. WHERE THE REACTION IS OMITTED FROM THE DRAWINGS, DESIGN THE CONNECTION FOR ONE HALF OF THE MAXIMUM TOTAL UNIFORM LOAD AS DEFINED IN THE AISC STEEL CONSTRUCTION MANUAL 13TH EDITION, TABLE 3-6. MOMENT CONNECTIONS SHALL BE DESIGNED FOR THE FULL PLASTIC MOMENT OF THE BEAM IF THE MOMENT IS OMITTED FROM THE DRAWINGS.

6. CONNECTION BOLTS FOR STRUCTURAL STEEL MEMBERS SHALL BE HIGH STRENGTH BOLTS WHICH MEET OR EXCEED THE REQUIREMENTS OF ASTM A325, TYPE N, X, OR SC CLASS A. BOLTS SHALL BE DESIGNED AS BEARING TYPE BOLTS, EXCEPT AS NOTED. BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH THE "SNUG TIGHT" CONDITION AS OUTLINED IN THE "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". BOLTS SHALL HAVE A HARDENED WASHER PLACED UNDER THE ELEMENT TO BE TIGHTENED.

7. NO CONNECTION SHALL CONSIST OF LESS THAN (2) 3/4" DIA. A325-N BOLTS OR WELDS DEVELOPING LESS THAN 12 KIPS. MINIMUM WELD SIZE SHALL BE 3/16" FILLET WELD.

8. DO NOT USE OVERSIZED OR SLOTTED HOLES FOR ANY CONNECTIONS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.

9. PRIOR TO DETAILING CONNECTIONS FOR STRUCTURAL STEEL, THE STEEL FABRICATOR SHALL SUBMIT FOR APPROVAL REPRESENTATIVE DETAILS AND CALCULATIONS FOR EACH TYPE OF STRUCTURAL STEEL CONNECTION TO BE UTILIZED. AFTER APPROVAL, THE CONNECTIONS MAY BE INCORPORATED INTO THE SHOP DRAWINGS.

10. WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD D1.1. ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO AWS A5.1 OR AWS A5.5, CLASS E70XX, LOW HYDROGEN.

11. SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON THE CONTRACT DOCUMENTS IS PROHIBITED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION, TYPE OF SPLICE AND CONNECTION TO BE MADE.

12. NO MISFABRICATED STRUCTURAL STEEL MAY BE ERECTED PRIOR TO REVIEW BY THE ENGINEER.

13. PENETRATIONS SHALL NOT BE CUT IN STRUCTURAL STEEL MEMBERS UNLESS SO INDICATED IN THE DRAWINGS OR AS REVIEWED BY THE ENGINEER.

14. HEADED CONCRETE ANCHORS SHALL BE NELSON OR KSM HEADED CONCRETE ANCHORS (OR ACCEPTABLE EQUAL), AND SHALL CONFORM TO ASTM A108, GRADES C-1010 THROUGH C-1020. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE STUD WELDING EQUIPMENT. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY OR THE KSM WELDING SYSTEMS COMPANY.

15. DEFORMED BAR ANCHORS (D.B.A.) SHALL BE NELSON OR KSM DEFORMED BAR ANCHORS (OR ACCEPTABLE EQUAL), AND SHALL BE MADE FROM COLD DRAWN WIRE PER ASTM A496 CONFORMING TO ASTM A108 WITH A MINIMUM YIELD STRENGTH OF 70 KSI. ANCHORS SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE WELDING EQUIPMENT. WELDING SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE NELSON STUD WELDING COMPANY OR THE KSM WELDING SYSTEMS COMPANY.

16. TEMPORARY STEEL SHORING MEMBERS ARE NOT REQUIRED TO BE HOT-DIP GALVANIZED.

H. SHOTCRETE

1. STRUCTURAL WET-MIX SHOTCRETE SHALL BE ALLOWED WHEN SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS AND WHERE THE OWNER, CONTRACTOR AND CONCRETE SUPPLIER COMPLY WITH THESE PROCEDURES, IN ADDITION TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE (IBC) SECTION 1908, ACI 318 AND ACI 506R
2. PRE-CONSTRUCTION TEST:
    A. TEST PANELS SHALL BE REPRESENTATIVE OF THE PROJECT AND SIMULATE JOB CONDITIONS AS CLOSE AS POSSIBLE. PANEL THICKNESS AND REINFORCING SHALL REPRODUCE THE THICKEST AND MOST CONGESTED AREA SPECIFIED IN STRUCTURAL DESIGN. MULTIPLE TEST PANELS MAY BE NECESSARY TO PROVIDE A COMPLETE REPRESENTATION OF THE ACTUAL CONDITIONS WHERE SHOTCRETE IS TO BE USED.
    B. TEST PANELS SHALL BE SHOT AT THE SAME ANGLE, USING THE SAME EQUIPMENT AND NOZZLEMAN, AND WITH THE SAME CONCRETE MIX DESIGN THAT WILL BE USED ON THE PROJECT.
    C. THE TEST PANELS SHALL BE CURED, THEN DISASSEMBLED, EXAMINED, SAWED AND/OR CORE DRILLED AT THE DISCRETION OF THE STRUCTURAL ENGINEER AND INSPECTOR, AND TESTED PRIOR TO COMMENCEMENT OF SHOTCRETE WORK.
    D. TEST PANELS SHALL BE A MINIMUM OF 4 FEET SQUARE
3. MATERIALS:
    A. CEMENT SHALL COMPY WITH ASTM C150, TYPE I OR TYPE II LOW ALKALI.
    B. AGGREGATE SHALL BE NORMAL WEIGHT COMPLYING WITH ASTM C33. COMBINED AGGREGATE GRADATION SHALL MEET ACI 506R, TABLE 1.1, GRADATION NO. 2.
    C. WATER SHALL BE CLEAN AND POTABLE.
    D. ADD WATERPROOFING ADMIXTURE PER WATERPROOFING CONSULTANTS RECOMMENDATIONS AT PERIMETER RETAINING WALLS.

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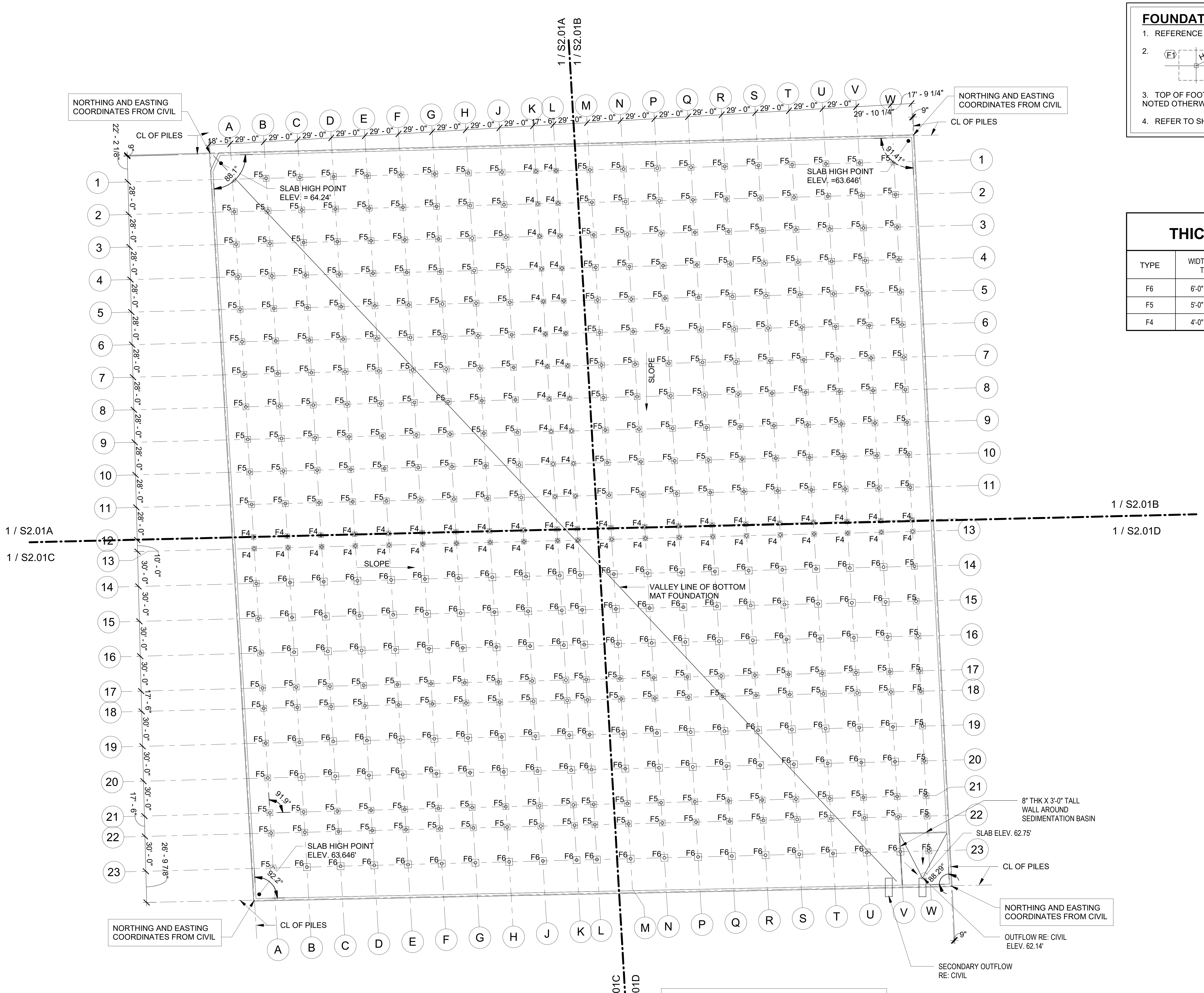
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

STRUCTURAL NOTES

WBS NO. M-430296-0017-3
12" = 1'-0"
S1.00
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 55 OF 345


1 / S2.01A
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18
19
20
21
22
23
18' - 5"
29' - 0"
17' - 6"
17' - 9 1/4"
29' - 10 1/4"
9"
22' - 2 1/8"
28' - 0"
10' - 0"
30' - 0"
26' - 9 7/8"
NORTHING AND EASTING COORDINATES FROM CIVIL
CL OF PILES
SLAB HIGH POINT ELEV. = 64.24'
SLAB HIGH POINT ELEV. =63.646'
SLAB HIGH POINT ELEV. 63.646'
88.1°
91.41°
91.9°
92.2°
88.29°
F4
F5
F6
SLOPE
VALLEY LINE OF BOTTOM MAT FOUNDATION
8" THK X 3'-0" TALL WALL AROUND SEDIMENTATION BASIN
SLAB ELEV. 62.75'
OUTFLOW RE: CIVIL ELEV. 62.14'
SECONDARY OUTFLOW RE: CIVIL

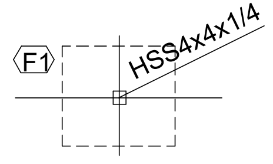
NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

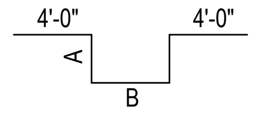
NOTE: GRID LINES (EXCEPT FOR GRID W) ARE PARALLEL WITH THE WEST WALL OF DETENTION BASIN. THE OTHER THREE WALLS ARE NOT PARALLEL WITH GRIDS. FOLLOW CORNER COORDINATES FROM CIVIL DRAWINGS COORDINATED WITH THE PILE CENTERLINE DIMENSIONS.

NOTE: FOR NORTHING AND EASTING COORDINATES AT THE DETENTION BASIN CORNERS REFER TO CIVIL DRAWINGS. THESE COORDINATES CORRESPOND TO THE INTERSECTION OF THE PILE CENTERLINES ALONG EACH WALL.

1 OVERALL BOTTOM MAT FOUNDATION PLAN
SCALE: 1" = 50'-0"

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. 
F1
HSS4x4x1/4
HSS4x4x1/4 (example) DENOTES COLUMN SIZE
F1 (example) INDICATES SPREAD FOOTING TYPE.
SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.



THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

No.	Date	Revisions	App.

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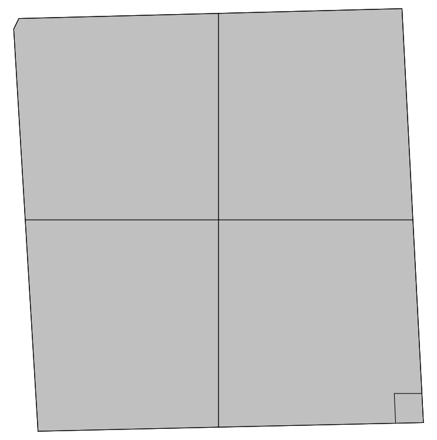
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION



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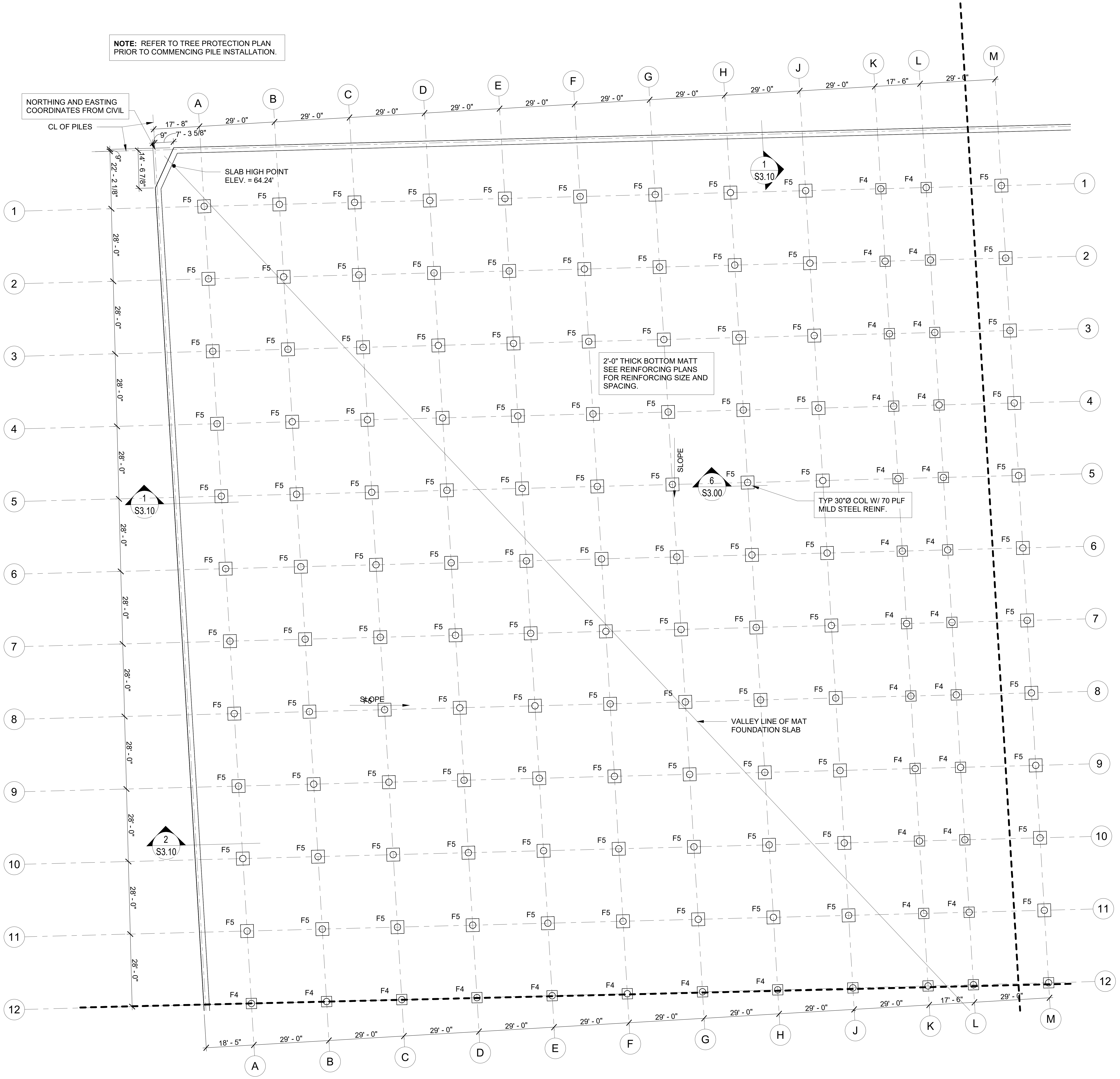


NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

NORTHING AND EASTING COORDINATES FROM CIVIL

CL OF PILES

SLAB HIGH POINT ELEV. = 64.24'

2'-0" THICK BOTTOM MATT SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.

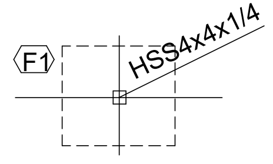
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.

VALLEY LINE OF MAT FOUNDATION SLAB

1 BOTTOM MAT FOUNDATION PLAN - SECTION A

SCALE: 3/64" = 1'-0"

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. 

HSS4x4x1/4 (example) DENOTES COLUMN SIZE
F1 (example) INDICATES SPREAD FOOTING TYPE.
SEE FOOTING SCHEDULE FOR SIZE AND REINF.
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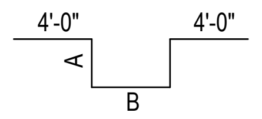
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.



THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
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F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

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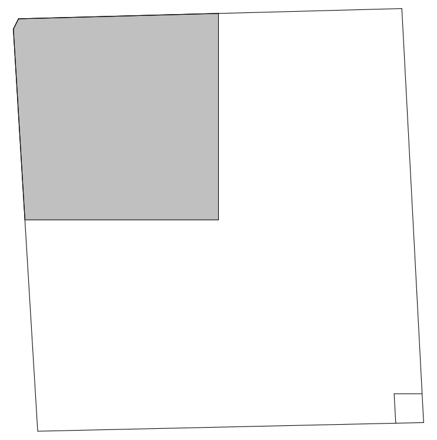
BOTTOM MAT FOUNDATION - SECTION A



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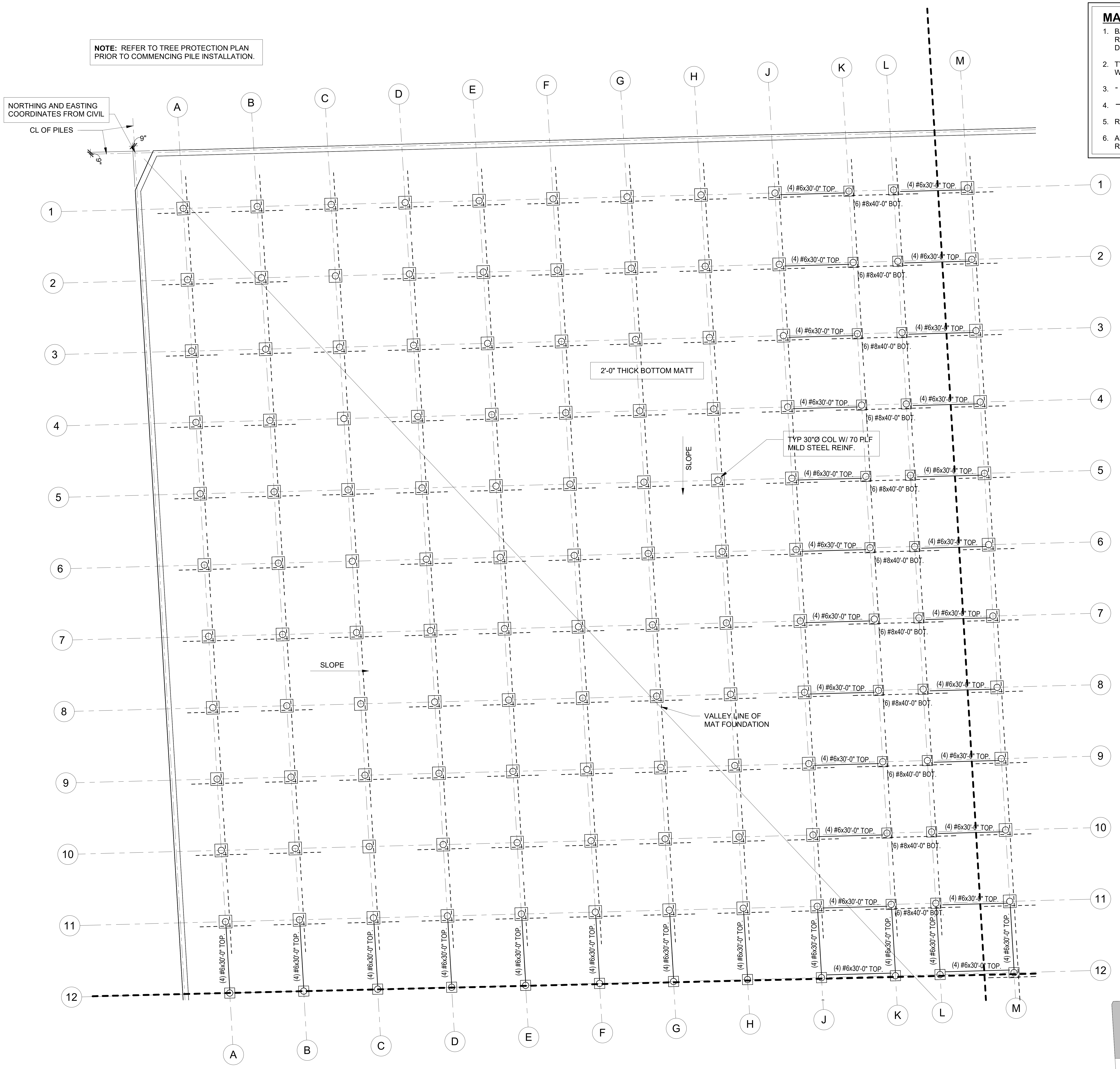

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.
NORTHING AND EASTING COORDINATES FROM CIVIL
CL OF PILES
9"
9"
A
B
C
D
E
F
G
H
J
K
L
M
1
2
3
4
5
6
7
8
9
10
11
12
(4) #6x30'-0" TOP.
(6) #8x40'-0" BOT.
2'-0" THICK BOTTOM MATT
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
SLOPE
SLOPE
VALLEY LINE OF MAT FOUNDATION

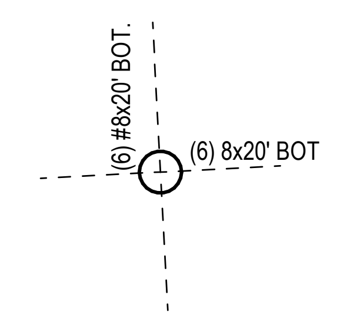
1 BOTTOM MAT FOUNDATION - SECTION A - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

MAT FOUNDATION REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2 AND FOOTING REINFORCEMENT SHOWN IN DETAIL AND SCHEDULE.
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - INDICATES BOTTOM BAR.
4. ———————— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL MAT REINFORCING INDICATED ABOVE.

TYPICAL ADD'L REINFORCING AT COLUMNS (UON SEE PLAN)


(6) #8x20' BOT.
(6) 8x20' BOT

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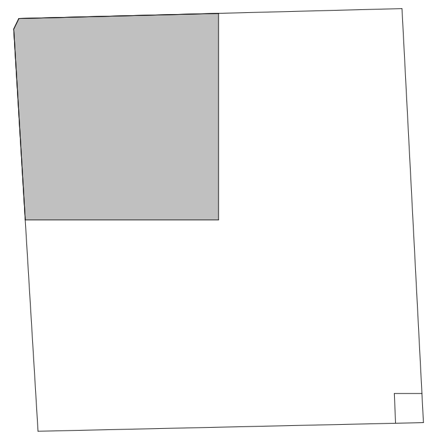
BOTTOM MAT FOUNDATION - REINFORCING - SECTION A



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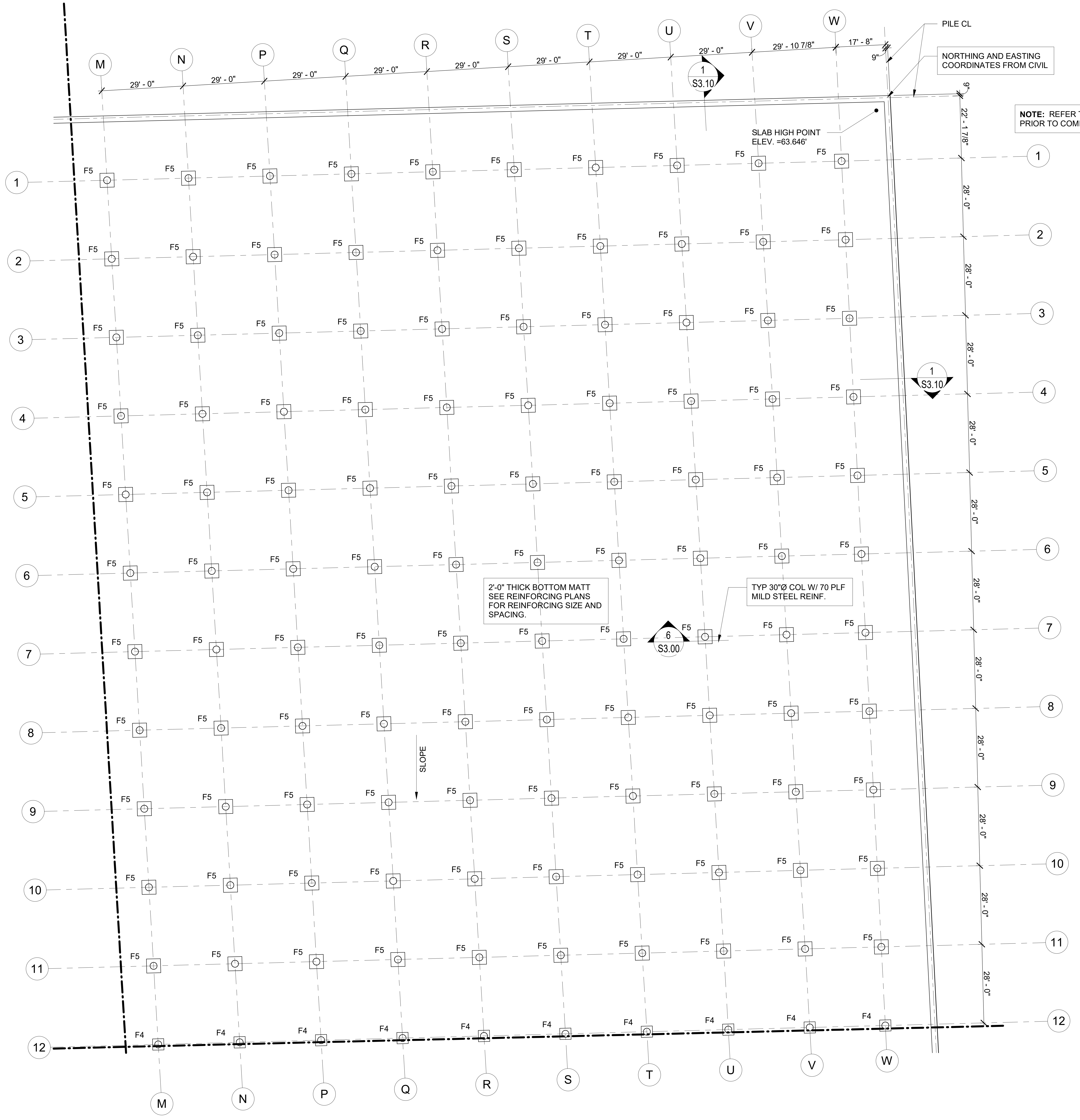
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.


M
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W
29' - 0"
29' - 10 7/8"
17' - 8"
9"
PILE CL
NORTHING AND EASTING COORDINATES FROM CIVIL
1
S3.10
SLAB HIGH POINT ELEV. =63.646'
22' - 1 7/8"
28' - 0"
1
2
3
4
5
6
7
8
9
10
11
12
F5
F4
2'-0" THICK BOTTOM MATT SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
6
S3.00
SLOPE

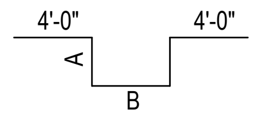
1 BOTTOM MAT FOUNDATION PLAN - SECTION B

SCALE: 3/64" = 1'-0"

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. F1 HSS4x4x1/4 — HSS4x4x1/4 (example) DENOTES COLUMN SIZE
   F1 (example) INDICATES SPREAD FOOTING TYPE.
   SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.



THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

ADAM DAVID LAW
98553
04/15/2026

No.	Date	Revisions	App.

FRACTAL
Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

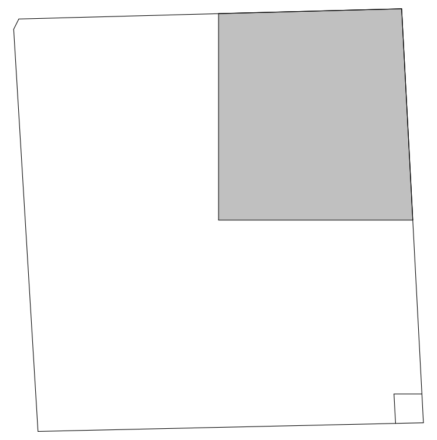
ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: ADAM D. LAW
P.E. REGISTRATION NO.98553
DATE:

SURVEYED BY: UNITED ENGINEER, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

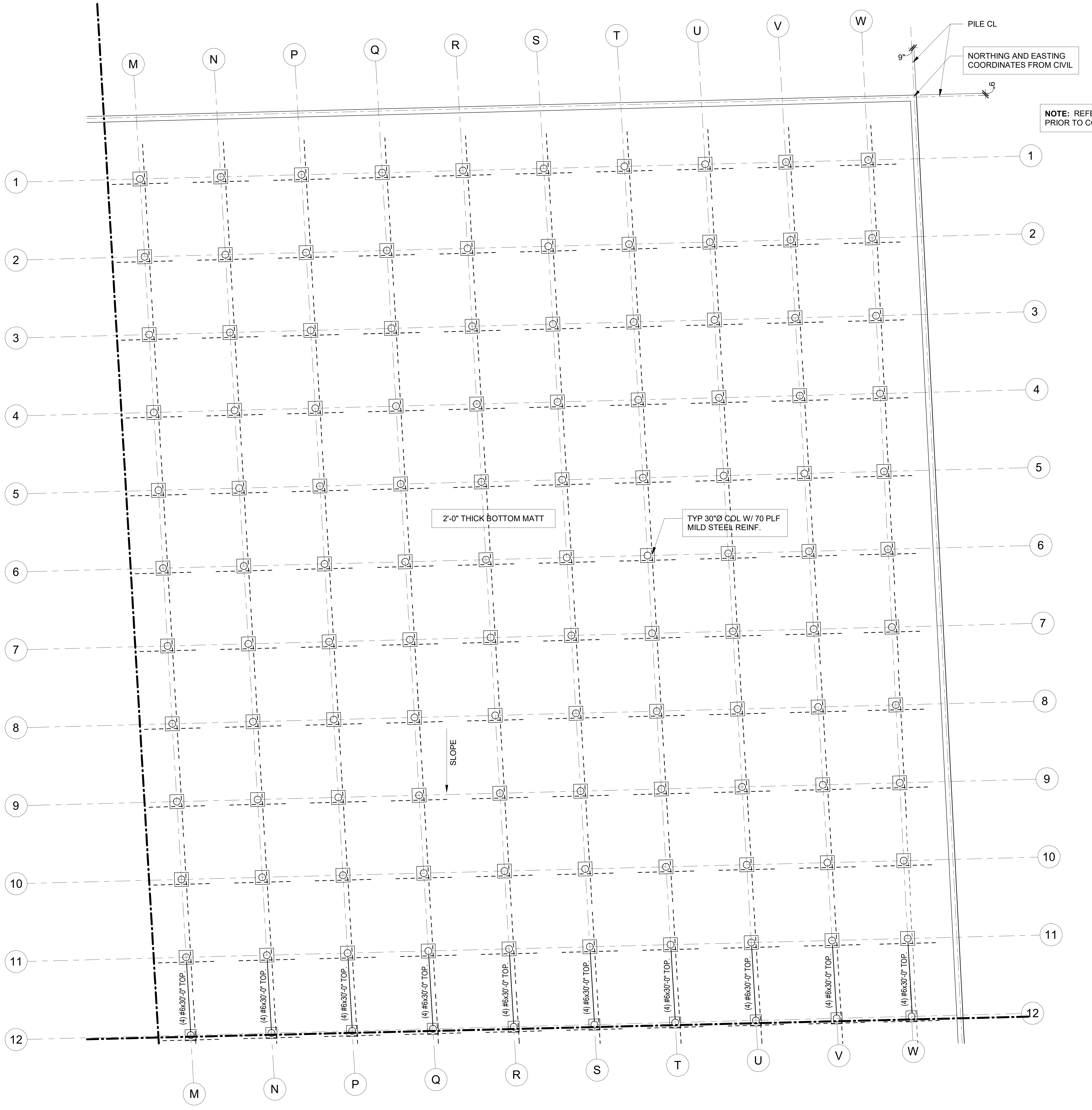
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - SECTION B



WBS NO. M-430296-0017-3
As indicated
S2.01B
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 59 OF 345

No.	Date	Revisions	App.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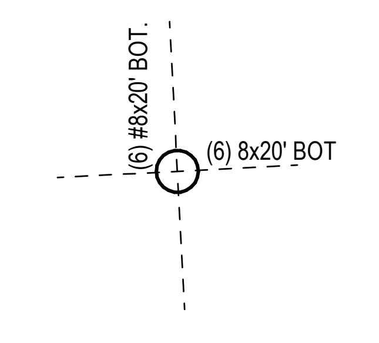
PILE CL
NORTHING AND EASTING COORDINATES FROM CIVIL
9"
9"
2'-0" THICK BOTTOM MATT
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
SLOPE
(4) #6x30'-0" TOP

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

1 BOTTOM MAT FOUNDATION - SECTION B - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

TYPICAL ADD'L REINFORCING AT COLUMNS (UON SEE PLAN)


(6) #8x20' BOT.
(6) 8x20' BOT

MAT FOUNDATION REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2 AND FOOTING REINFORCEMENT SHOWN IN DETAIL AND SCHEDULE.
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - INDICATES BOTTOM BAR.
4. ———————— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL MAT REINFORCING INDICATED ABOVE.

ADAM DAVID LAW
98553
04/15/2026

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P.E. REGISTRATION NO.98553
DATE:

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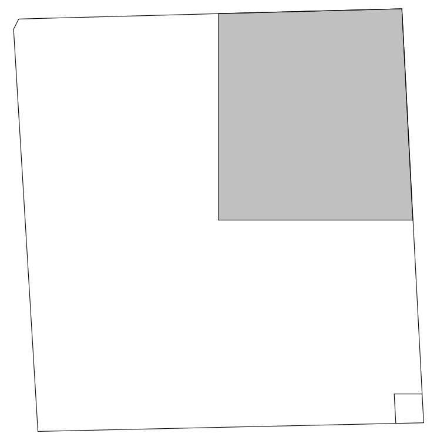
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - REINFORCING - SECTION B



WBS NO. M-430296-0017-3

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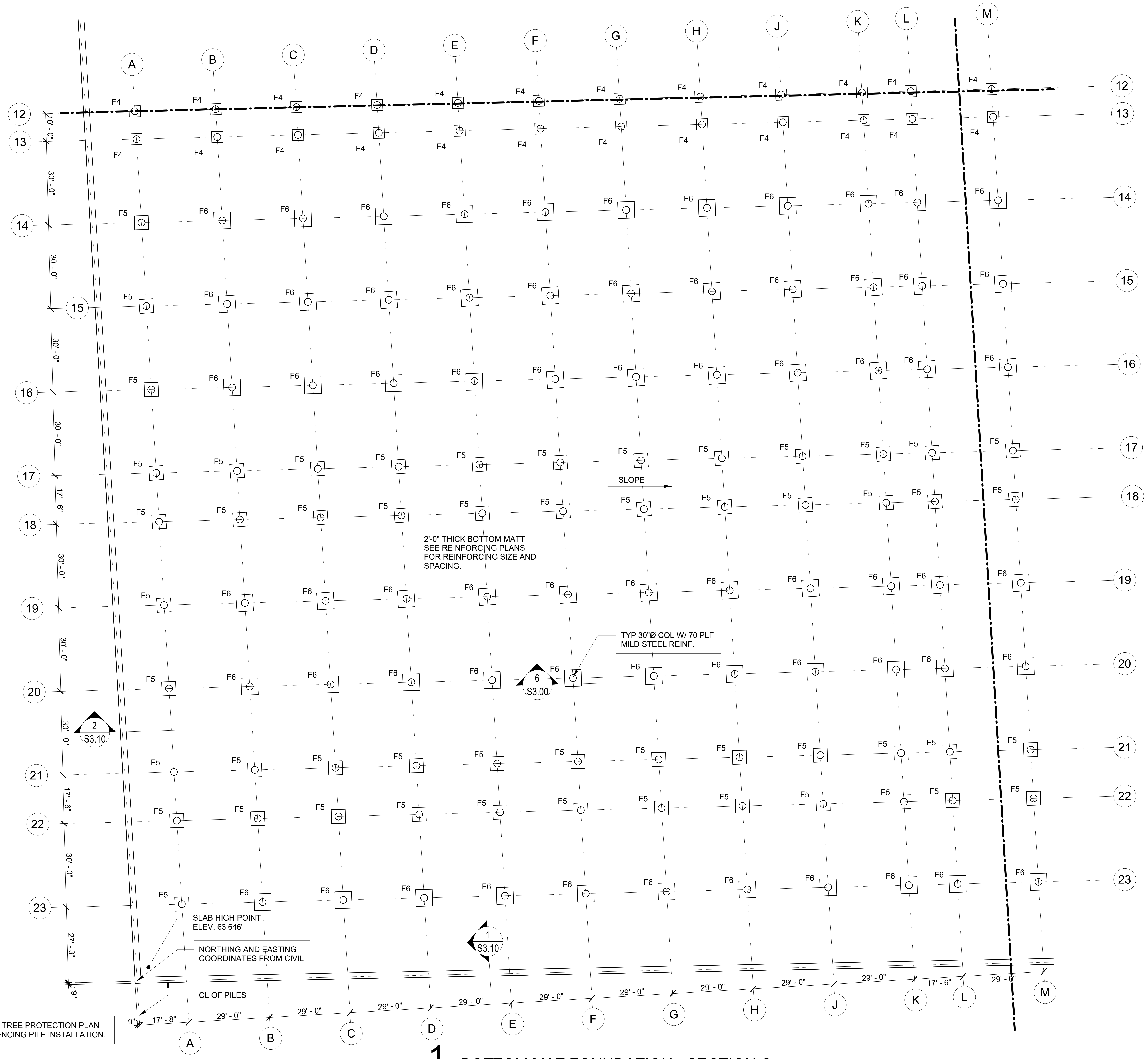
S2.01BR

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 60 OF 345

No.	Date	Revisions	App.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F6
10' - 0"
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17' - 6"
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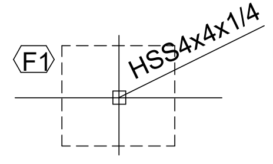
30' - 0"
17' - 6"
30' - 0"
27' - 3"
9"
9"
17' - 8"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
17' - 6"
29' - 0"
SLOPE
2'-0" THICK BOTTOM MATT SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
6
S3.00
2
S3.10
1
S3.10
SLAB HIGH POINT ELEV. 63.646'
NORTHING AND EASTING COORDINATES FROM CIVIL
CL OF PILES

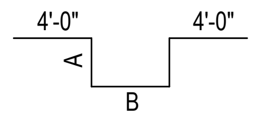
NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

1 BOTTOM MAT FOUNDATION - SECTION C

SCALE: 3/64" = 1'-0"

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. 
F1
HSS4x4x1/4
HSS4x4x1/4 (example) DENOTES COLUMN SIZE
F1 (example) INDICATES SPREAD FOOTING TYPE.
SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.



THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

STATE OF TEXAS
ADAM DAVID LAW
98553
LICENSED PROFESSIONAL ENGINEER
04/15/2026

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Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

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P.E. REGISTRATION NO.98553
DATE:

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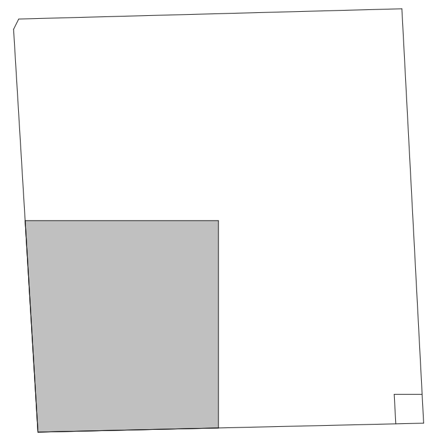
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - SECTION C



WBS NO. M-430296-0017-3
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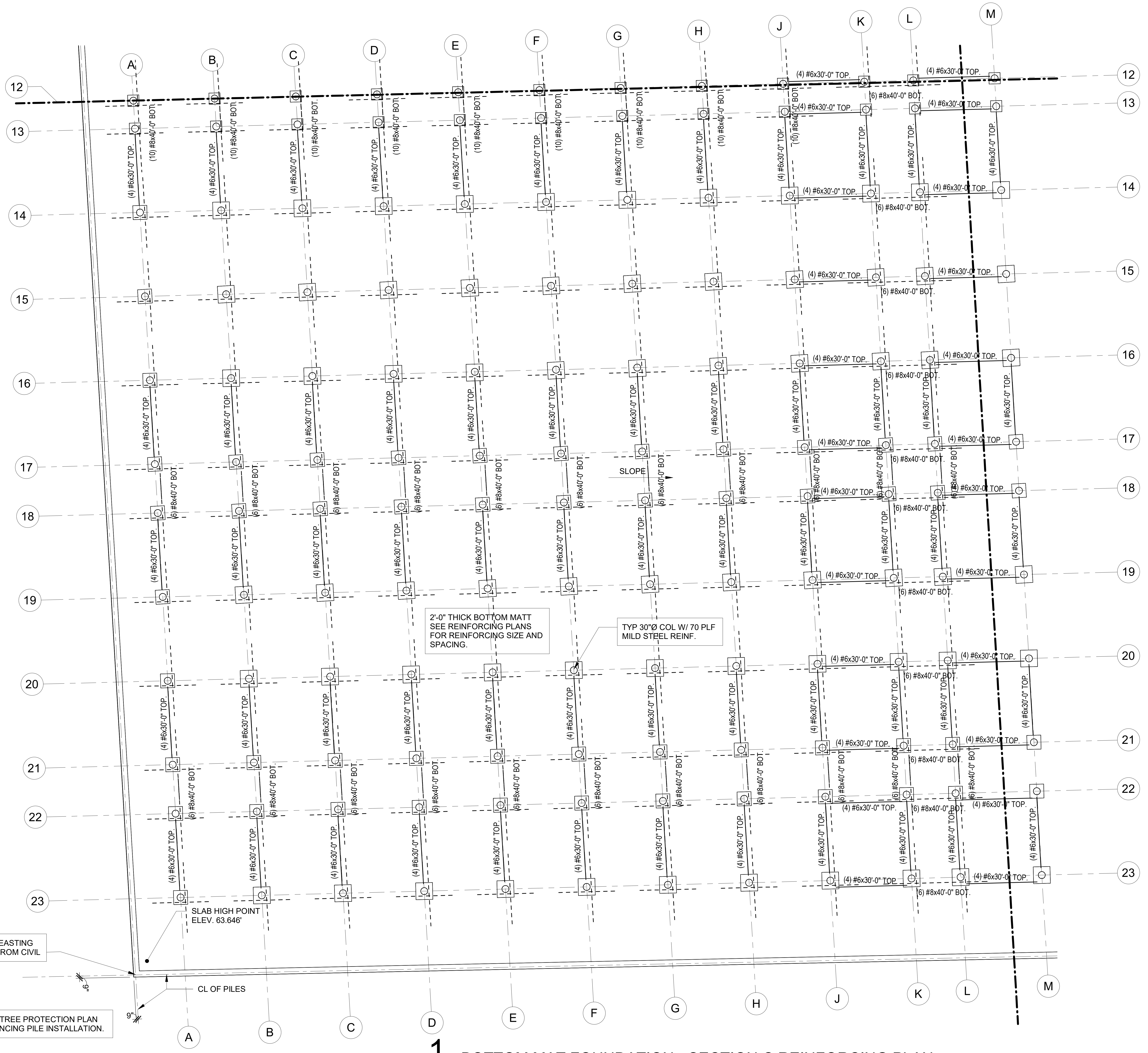
S2.01C

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 61 OF 345

No.	Date	Revisions	App.



2'-0" THICK BOTTOM MATT SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.

TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.

SLAB HIGH POINT ELEV. 63.646'

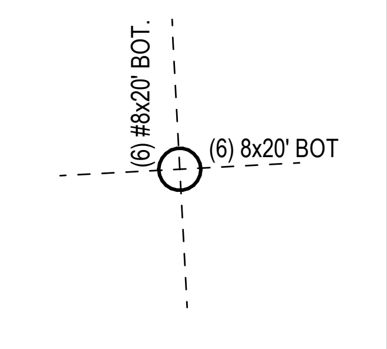
NORTHING AND EASTING COORDINATES FROM CIVIL

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

1 BOTTOM MAT FOUNDATION - SECTION C REINFORCING PLAN

SCALE: 3/64" = 1'-0"

TYPICAL ADD'L REINFORCING AT COLUMNS (UON SEE PLAN)



MAT FOUNDATION REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2 AND FOOTING REINFORCEMENT SHOWN IN DETAIL AND SCHEDULE.
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - - INDICATES BOTTOM BAR.
4. ———————— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL MAT REINFORCING INDICATED ABOVE.

ADAM DAVID LAW
98553
04/15/2026

FRACTAL
Texas Firm Registration No. F-16958
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P.E. REGISTRATION NO.98553
DATE:____________________

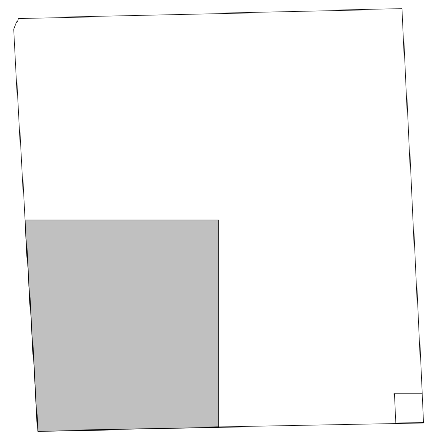
SURVEYED BY: UNITED ENGINEER, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - REINFORCING - SECTION C



WBS NO. M-430296-0017-3
As indicated

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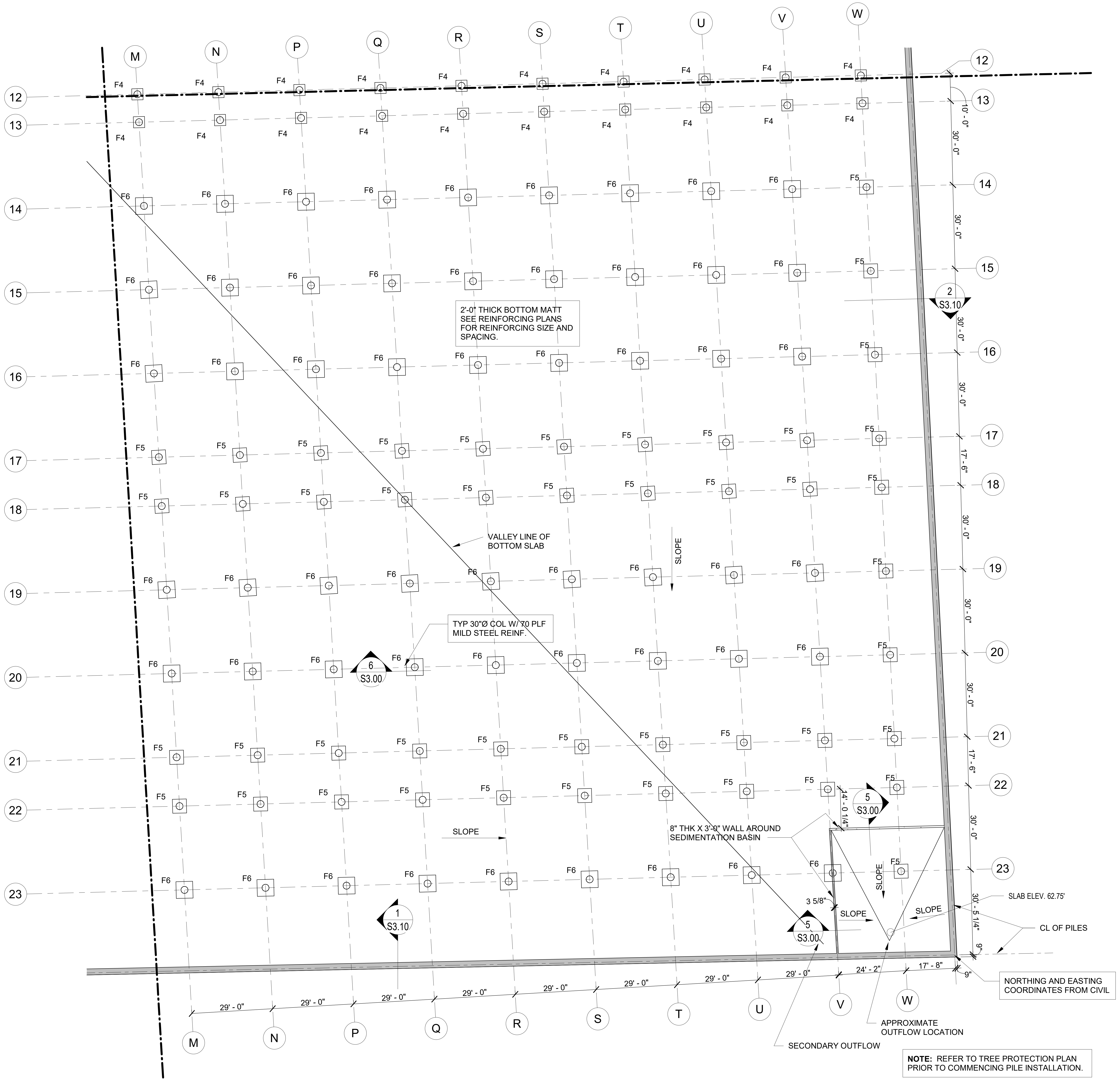
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 62 OF 345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10' - 0"
30' - 0"
17' - 6"
30' - 5 1/4"
9"
29' - 0"
24' - 2"
17' - 8"
14' - 0 1/4"
3 5/8"
2
S3.10
6
S3.00
1
S3.10
5
S3.00
2'-0" THICK BOTTOM MATT SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.
VALLEY LINE OF BOTTOM SLAB
SLOPE
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
8" THK X 3'-0" WALL AROUND SEDIMENTATION BASIN
SLAB ELEV. 62.75'
CL OF PILES
NORTHING AND EASTING COORDINATES FROM CIVIL
APPROXIMATE OUTFLOW LOCATION
SECONDARY OUTFLOW

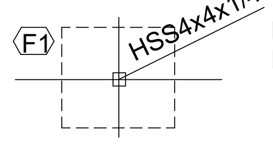
NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

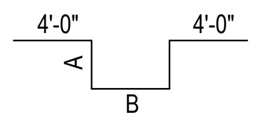
1 BOTTOM MAT FOUNDATION - SECTION D

SCALE: 3/64" = 1'-0"

FOUNDATION PLAN

1. REFERENCE FINISH FLOOR ELEVATION = 0'-0" FINISH FLOOR ELEVATION = 63'
2. HSS4x4x1/4 (example) DENOTES COLUMN SIZE
   F1 (example) INDICATES SPREAD FOOTING TYPE.
   SEE FOOTING SCHEDULE FOR SIZE AND REINF.
3. TOP OF FOOTING ELEVATION = TOP OF MAT FOUNDATION. (TYPICAL UNLESS NOTED OTHERWISE)
4. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.


F1
HSS4x4x1/4



THICKENED FOOTING SCHEDULE

TYPE	WIDTH X LENGTH X THICKNESS	REINFORCING	A(IN)	B(IN)
F6	6'-0" X 6'-0" X 3'-6"	(12) #8 EA WAY	24	64
F5	5'-0" X 5'-0" X 3'-0"	(10) #8 EA WAY	18	52
F4	4'-0" X 4'-0" X 2'-6"	(8) #8 EA WAY	12	40

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ADAM DAVID LAW
98553
04/15/2026

FRACTAL

Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

HRGreen
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DATE:

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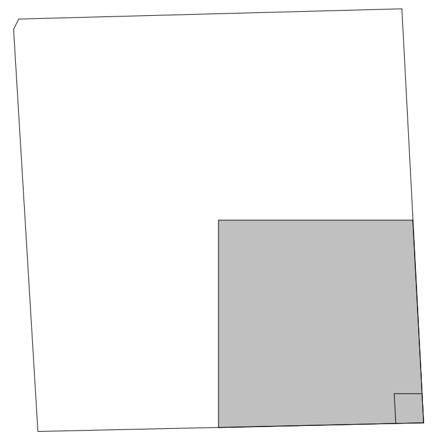
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - SECTION D



WBS NO. M-430296-0017-3

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S2.01D

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 63 OF 345

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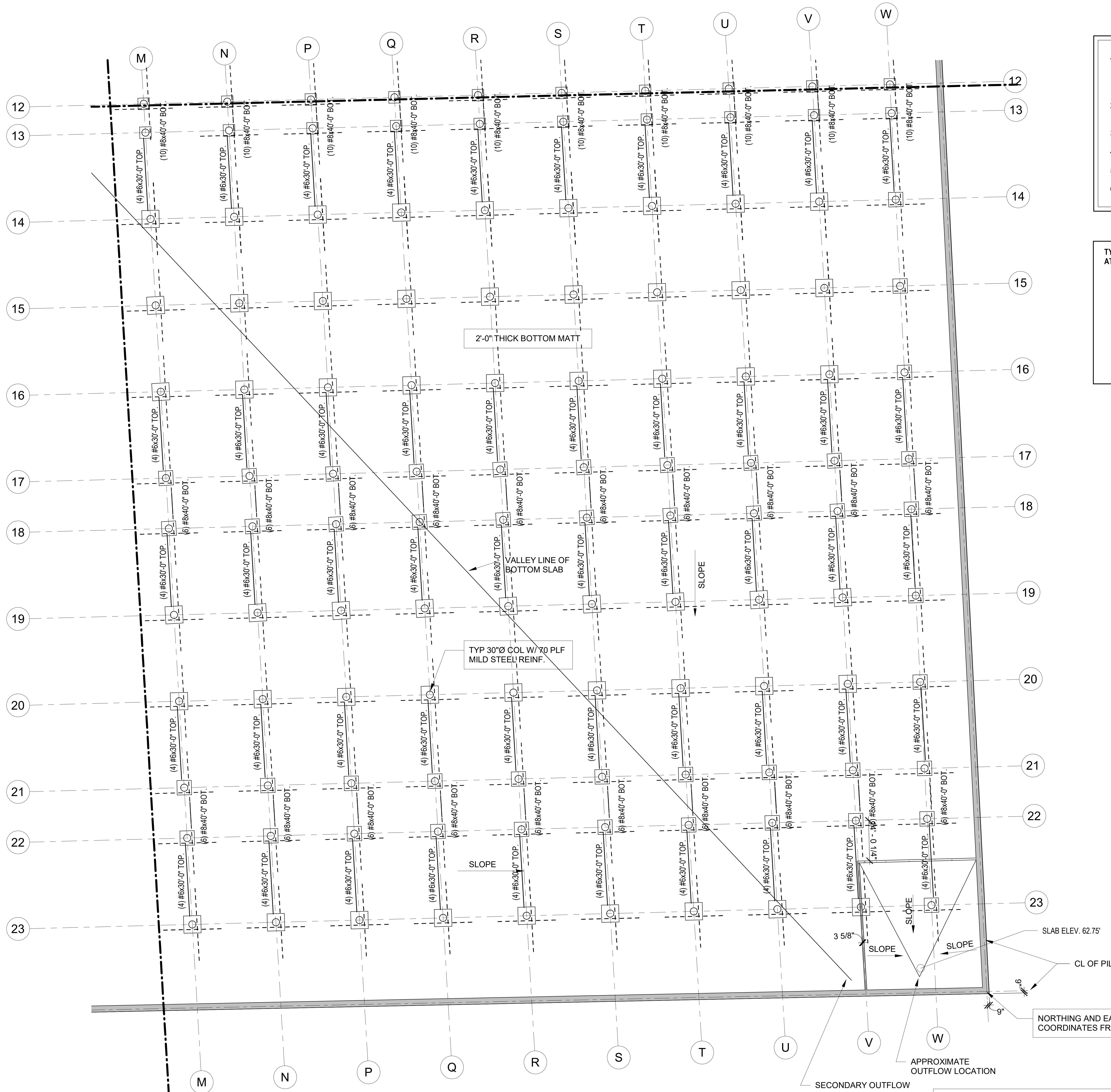

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22
23
(4) #6x30'-0" TOP.
(10) #8x40'-0" BOT.
(6) #8x40'-0" BOT.
2'-0" THICK BOTTOM MATT
VALLEY LINE OF BOTTOM SLAB
SLOPE
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
14' - 0 1/4"
3 5/8"
SLAB ELEV. 62.75'
CL OF PILES
9"
NORTHING AND EASTING COORDINATES FROM CIVIL
APPROXIMATE OUTFLOW LOCATION
SECONDARY OUTFLOW

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

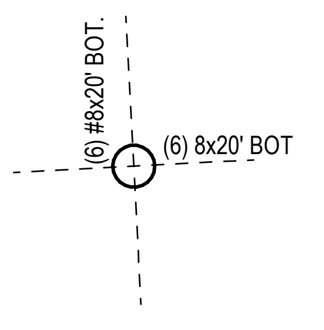
1 BOTTOM MAT FOUNDATION - SECTION D - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

MAT FOUNDATION REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2 AND FOOTING REINFORCEMENT SHOWN IN DETAIL AND SCHEDULE.
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - - INDICATES BOTTOM BAR.
4. ———————— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL MAT REINFORCING INDICATED ABOVE.

TYPICAL ADD'L REINFORCING AT COLUMNS (UON SEE PLAN)



(6) #8x20' BOT.
(6) 8x20' BOT

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BOTTOM MAT FOUNDATION - REINFORCING - SECTION D

WBS NO. M-430296-0017-3

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CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 64 OF 345

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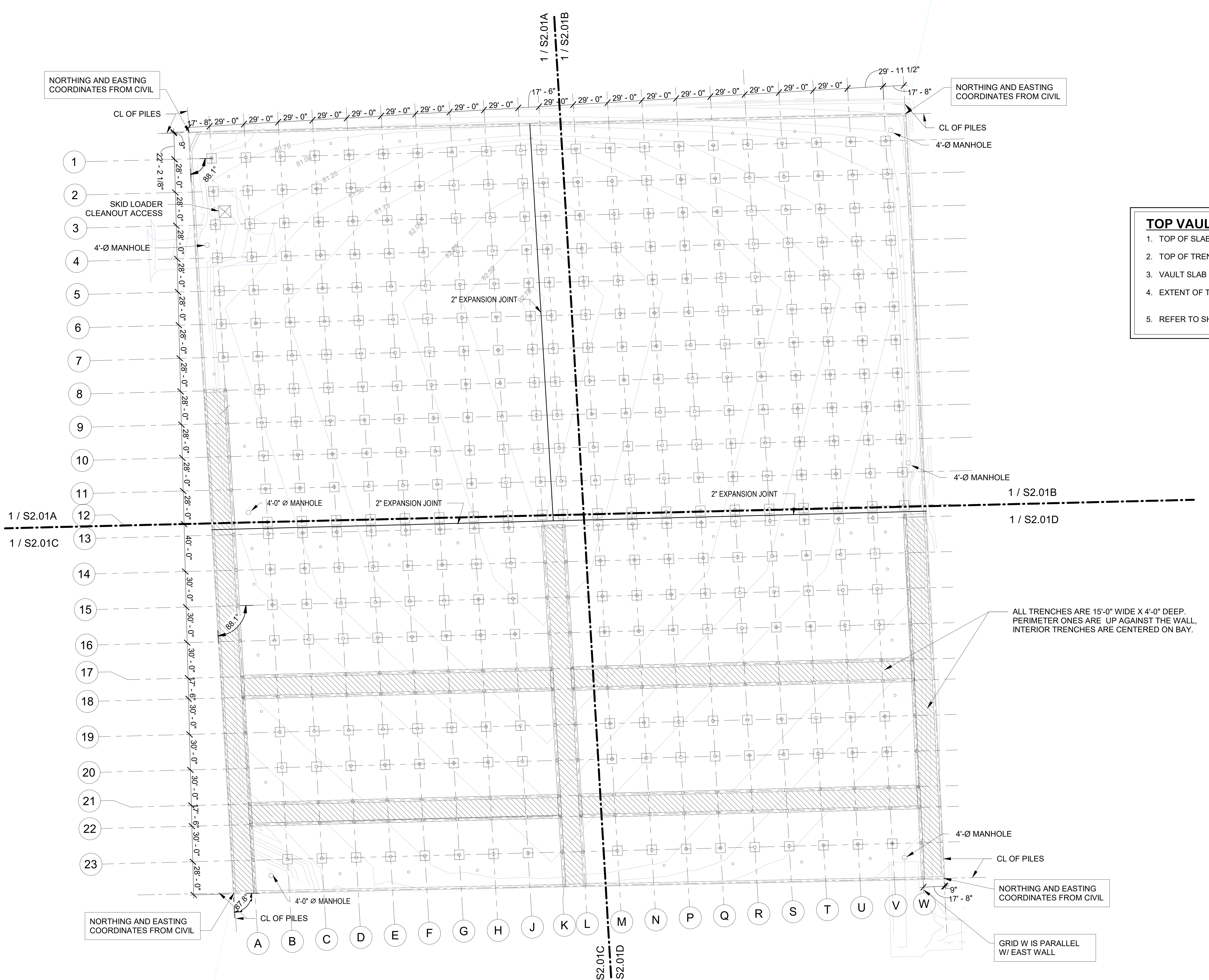
1 / S2.01A
1 / S2.01B
1 / S2.01C
1 / S2.01D
NORTHING AND EASTING COORDINATES FROM CIVIL
CL OF PILES
4'-Ø MANHOLE
4'-0" Ø MANHOLE
SKID LOADER CLEANOUT ACCESS
2" EXPANSION JOINT
88.1°
17' - 8"
29' - 0"
29' - 11 1/2"
17' - 6"
9"
22' - 2 1/8"
28' - 0"
40' - 0"
30' - 0"
17' - 6"
1
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W
ALL TRENCHES ARE 15'-0" WIDE X 4'-0" DEEP. PERIMETER ONES ARE UP AGAINST THE WALL, INTERIOR TRENCHES ARE CENTERED ON BAY.
GRID W IS PARALLEL W/ EAST WALL

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

NOTE: GRID LINES (EXCEPT FOR GRID W) ARE PARALLEL WITH THE WEST WALL OF DETENTION BASIN. THE OTHER THREE WALLS ARE NOT PARALLEL WITH GRIDS. FOLLOW CORNER COORDINATES FROM CIVIL DRAWINGS COORDINATED WITH THE PILE CENTERLINE DIMENSIONS.

1 OVERALL TOP VAULT SLAB PLAN

SCALE: 1" = 50'-0"

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB: ▨
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

ADAM DAVID LAW
98553
04/15/2026

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DATE:

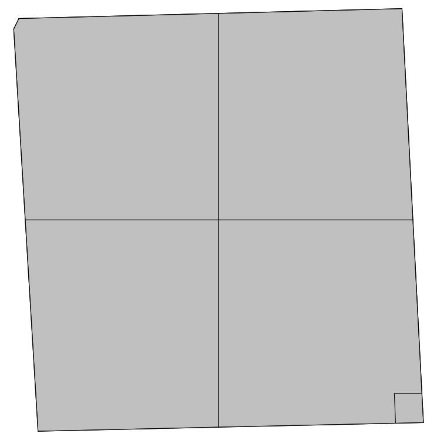
SURVEYED BY: UNITED ENGINEER, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB



WBS NO. M-430296-0017-3
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CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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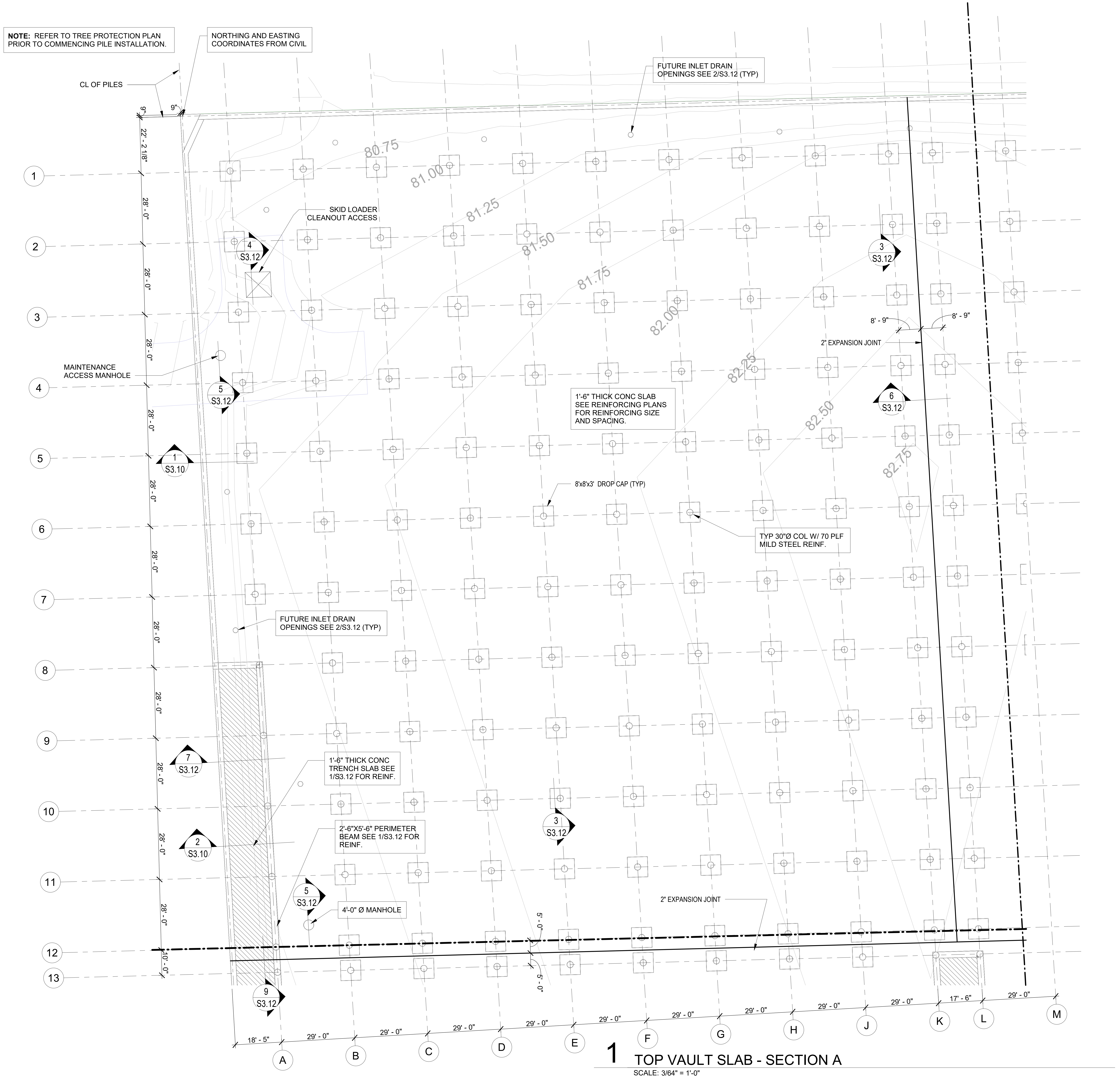
NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

NORTHING AND EASTING COORDINATES FROM CIVIL



CL OF PILES
9"
9"
22' - 2 1/8"
28' - 0"
10' - 0"
1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
J
K
L
M
18' - 5"
29' - 0"
17' - 6"
8' - 9"
5' - 0"
80.75
81.00
81.25
81.50
81.75
82.00
82.25
82.50
82.75
FUTURE INLET DRAIN OPENINGS SEE 2/S3.12 (TYP)
SKID LOADER CLEANOUT ACCESS
MAINTENANCE ACCESS MANHOLE
2" EXPANSION JOINT
1'-6" THICK CONC SLAB SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.
8'x8'x3' DROP CAP (TYP)
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
1'-6" THICK CONC TRENCH SLAB SEE 1/S3.12 FOR REINF.
2'-6"X5'-6" PERIMETER BEAM SEE 1/S3.12 FOR REINF.
4'-0" Ø MANHOLE
4 S3.12
5 S3.12
1 S3.10
7 S3.12
2 S3.10
5 S3.12
9 S3.12
3 S3.12
3 S3.12
6 S3.12

1 TOP VAULT SLAB - SECTION A

SCALE: 3/64" = 1'-0"

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB: ▨
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

ADAM DAVID LAW
98553
04/15/2026

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FRACTAL Project No.25-101-00

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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HOUSTON, TX 77079
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BY: ADAM D. LAW
P.E. REGISTRATION NO.98553
DATE:

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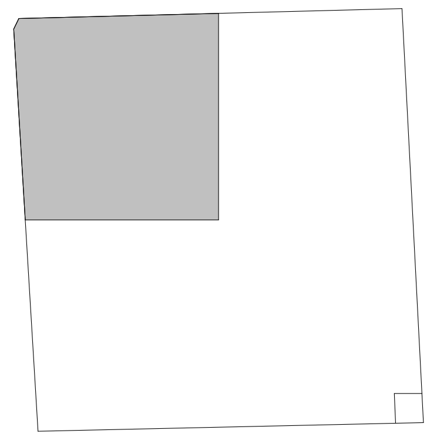
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - SECTION A



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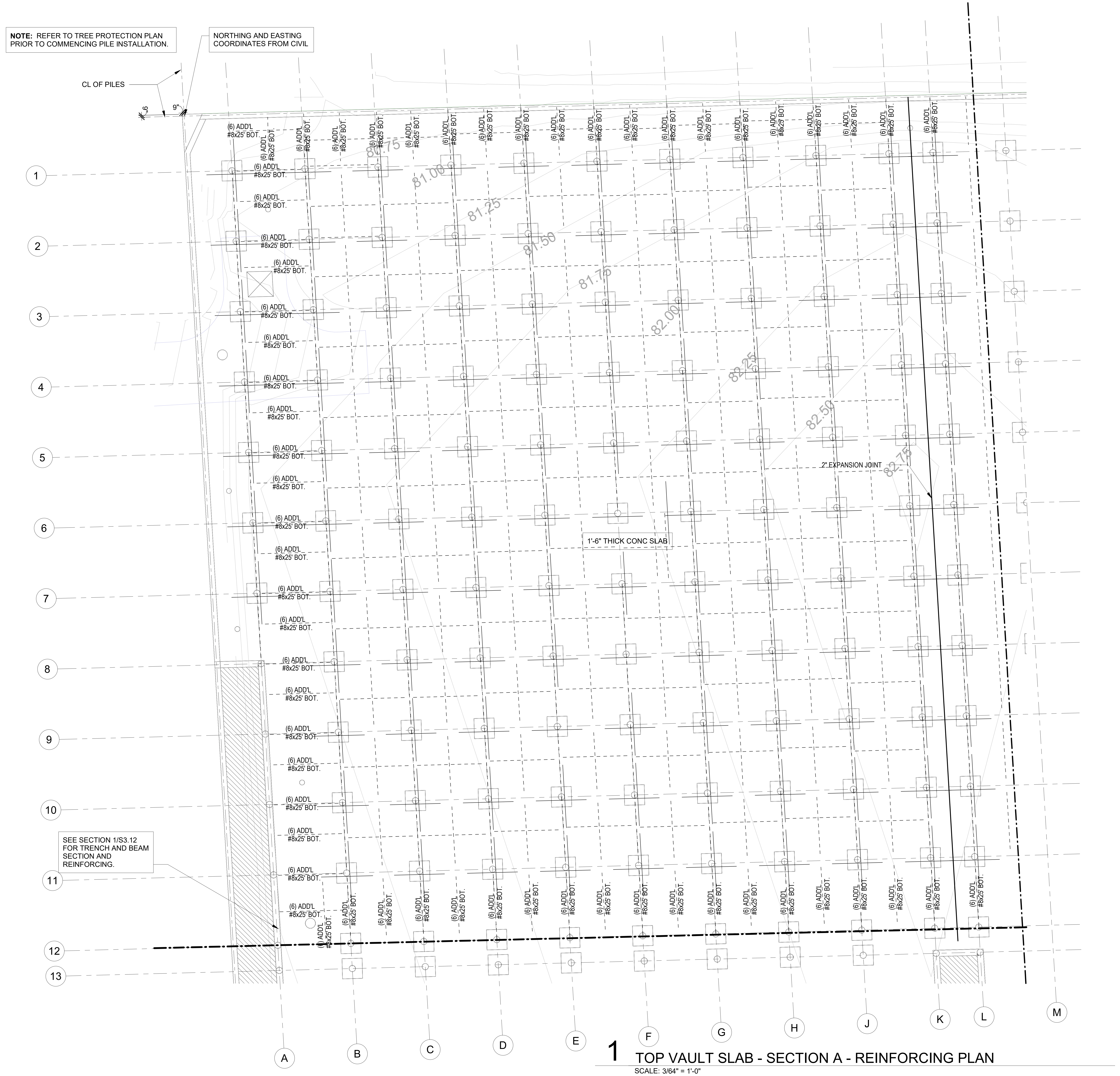
S2.02A

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 66 OF 345


NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.
NORTHING AND EASTING COORDINATES FROM CIVIL
CL OF PILES
9"
9"
(6) ADD'L #8x25' BOT.
(6) ADD'L #8x25' BOT.
80.75
81.00
81.25
81.50
81.75
82.00
82.25
82.50
82.75
2" EXPANSION JOINT
1'-6" THICK CONC SLAB
SEE SECTION 1/S3.12 FOR TRENCH AND BEAM SECTION AND REINFORCING.
1
2
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4
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12
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A
B
C
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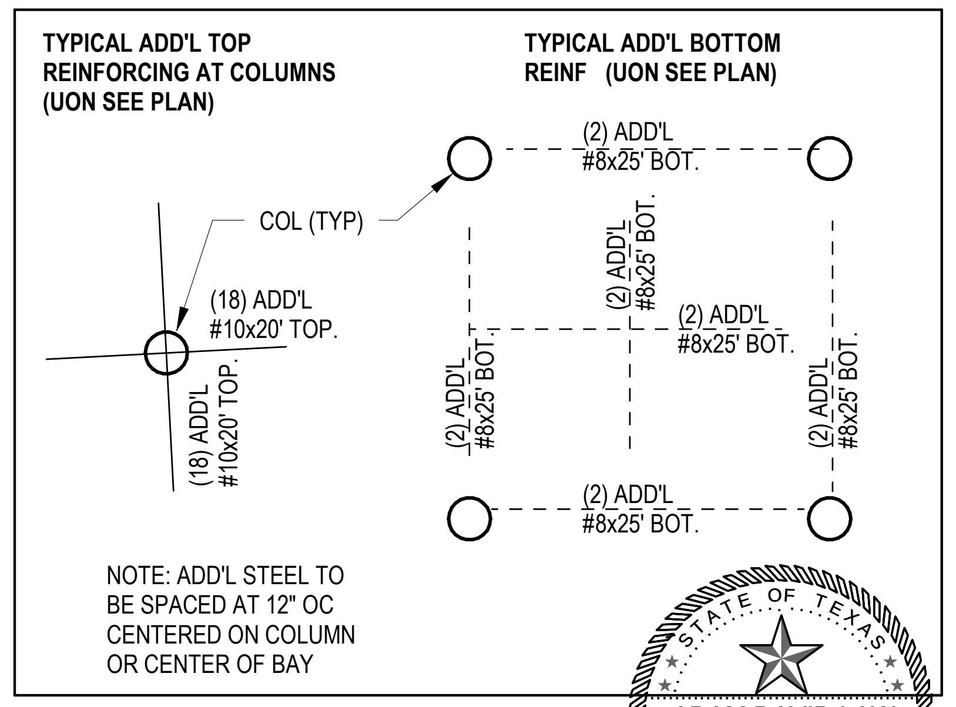
1 TOP VAULT SLAB - SECTION A - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

TOP VAULT REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - INDICATES BOTTOM BAR.
4. ——┼—— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL SLAB REINFORCING INDICATED ABOVE.


TYPICAL ADD'L TOP REINFORCING AT COLUMNS (UON SEE PLAN)
TYPICAL ADD'L BOTTOM REINF (UON SEE PLAN)
COL (TYP)
(18) ADD'L #10x20' TOP.
(18) ADD'L #10x20' TOP.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.

NOTE: ADD'L STEEL TO BE SPACED AT 12" OC CENTERED ON COLUMN OR CENTER OF BAY

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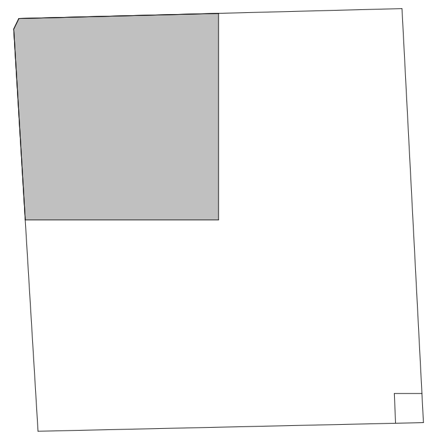
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - REINFORCING - SECTION A



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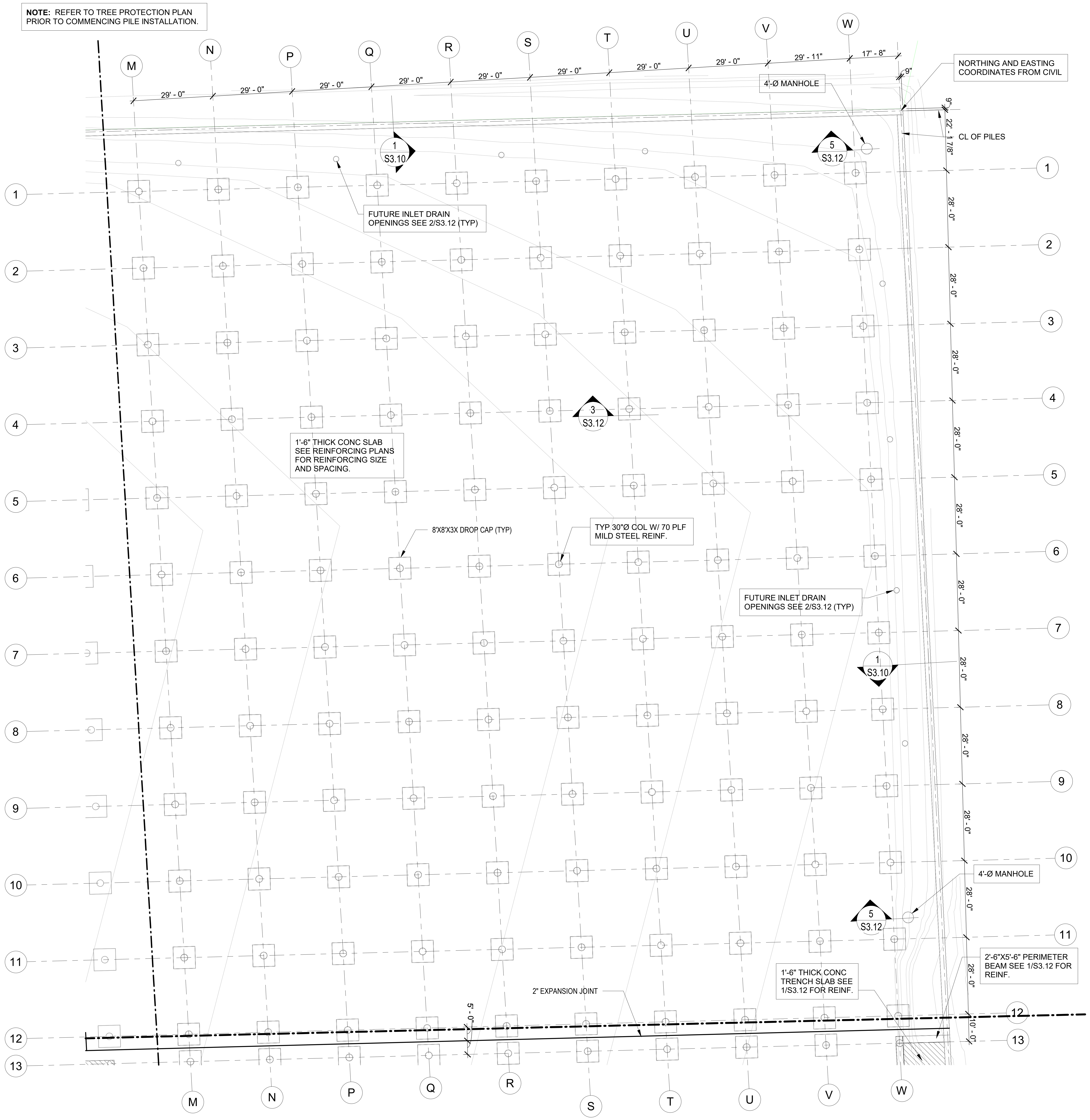
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 67 OF 345


NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.
M
N
P
Q
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S
T
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V
W
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 11"
17' - 8"
9"
NORTHING AND EASTING COORDINATES FROM CIVIL
4'-Ø MANHOLE
9"
22' - 1 7/8"
CL OF PILES
1 S3.10
5 S3.12
FUTURE INLET DRAIN OPENINGS SEE 2/S3.12 (TYP)
1
2
3
4
5
6
7
8
9
10
11
12
13
28' - 0"
3 S3.12
1'-6" THICK CONC SLAB SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.
8'X8'X3X DROP CAP (TYP)
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
FUTURE INLET DRAIN OPENINGS SEE 2/S3.12 (TYP)
1 S3.10
4'-Ø MANHOLE
5 S3.12
2'-6"X5'-6" PERIMETER BEAM SEE 1/S3.12 FOR REINF.
1'-6" THICK CONC TRENCH SLAB SEE 1/S3.12 FOR REINF.
2" EXPANSION JOINT
5' - 0"
10' - 0"

1 TOP VAULT SLAB - SECTION B

SCALE: 3/64" = 1'-0"

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB: ▨
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

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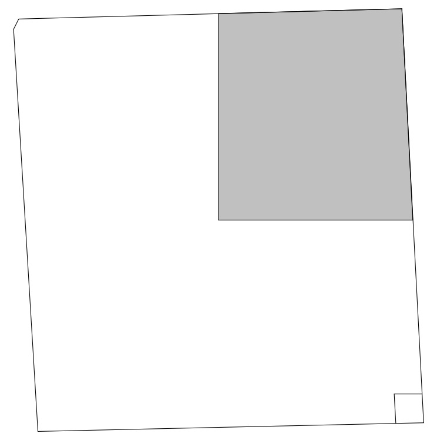
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - SECTION B



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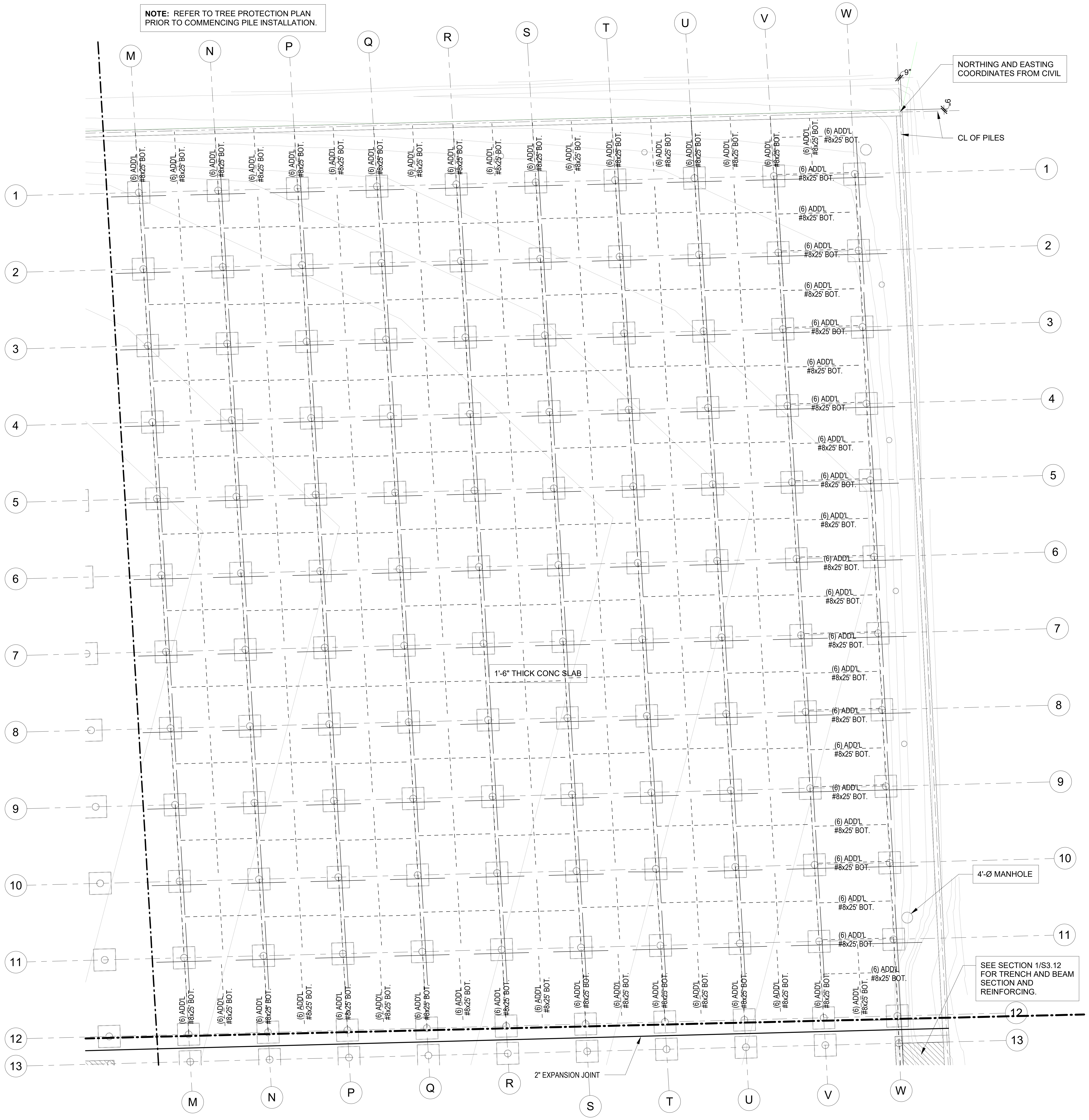
SHEET NO. 68 OF 345


NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.
M
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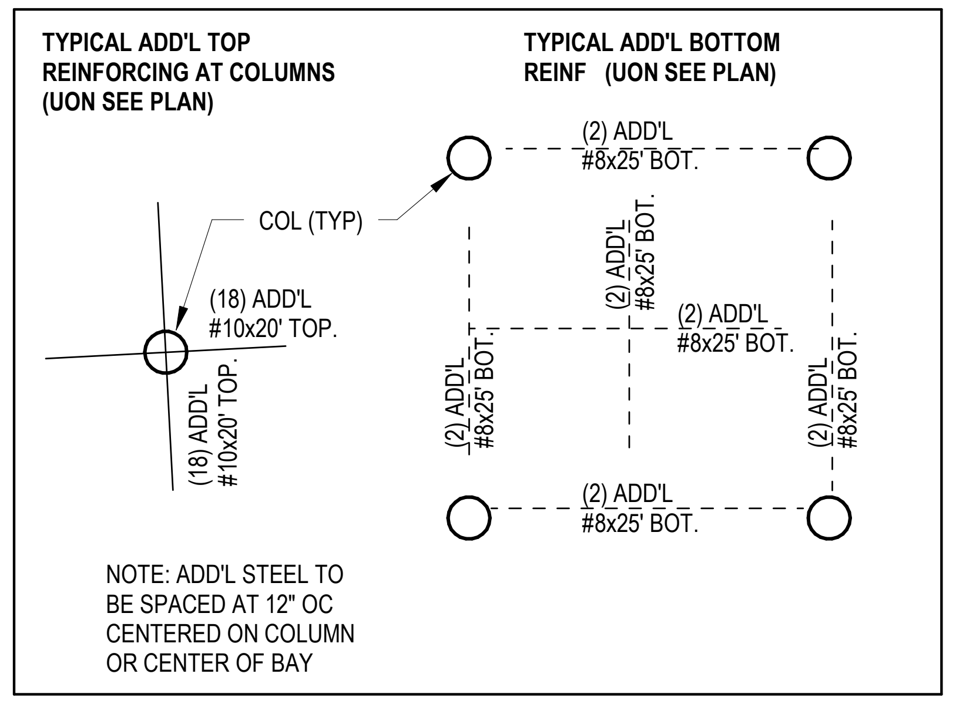
13
NORTHING AND EASTING COORDINATES FROM CIVIL
9"
CL OF PILES
(6) ADD'L #8x25' BOT.
1'-6" THICK CONC SLAB
4'-Ø MANHOLE
SEE SECTION 1/S3.12 FOR TRENCH AND BEAM SECTION AND REINFORCING.
2" EXPANSION JOINT

1 TOP VAULT SLAB - SECTION B - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

TOP VAULT REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - - INDICATES BOTTOM BAR.
4. ——+—— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL SLAB REINFORCING INDICATED ABOVE.


TYPICAL ADD'L TOP REINFORCING AT COLUMNS (UON SEE PLAN)
TYPICAL ADD'L BOTTOM REINF (UON SEE PLAN)
COL (TYP)
(18) ADD'L #10x20' TOP.
(18) ADD'L #10x20' TOP.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.

NOTE: ADD'L STEEL TO BE SPACED AT 12" OC CENTERED ON COLUMN OR CENTER OF BAY

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - REINFORCING - SECTION B

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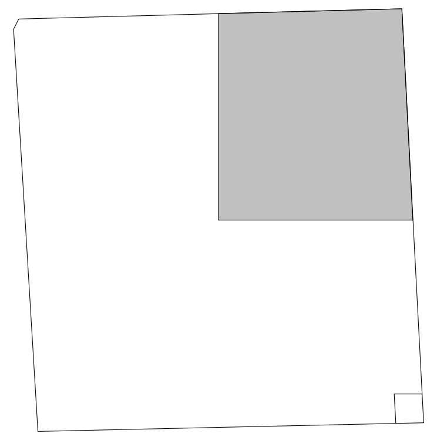

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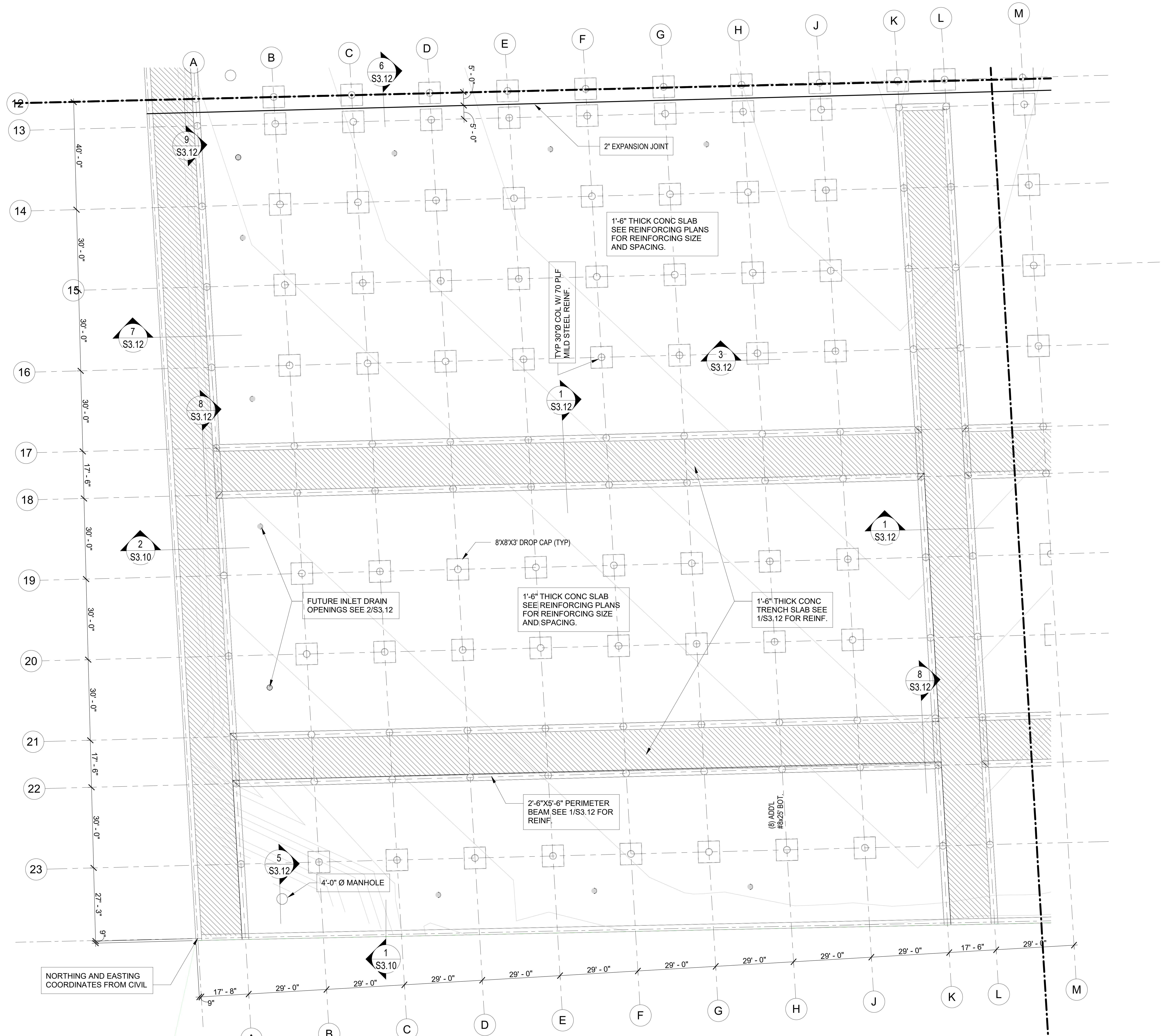
KEVIN HAMMOND, P.E.
SHEET NO. 69 OF 345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27' - 3"
9"
5' - 0"
5' - 0"
17' - 8"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
17' - 6"
29' - 0"
9"
6 S3.12
9 S3.12
7 S3.12
8 S3.12
2 S3.10
5 S3.12
1 S3.10
1 S3.12
3 S3.12
1 S3.12
8 S3.12
2" EXPANSION JOINT
1'-6" THICK CONC SLAB SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
8'X8'X3' DROP CAP (TYP)
FUTURE INLET DRAIN OPENINGS SEE 2/S3.12
1'-6" THICK CONC SLAB SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.
1'-6" THICK CONC TRENCH SLAB SEE 1/S3.12 FOR REINF.
2'-6"X5'-6" PERIMETER BEAM SEE 1/S3.12 FOR REINF.
(8) ADD'L #8x25' BOT.
4'-0" Ø MANHOLE
NORTHING AND EASTING COORDINATES FROM CIVIL

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

1 TOP VAULT SLAB - SECTION C

SCALE: 3/64" = 1'-0"

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB: ▨
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

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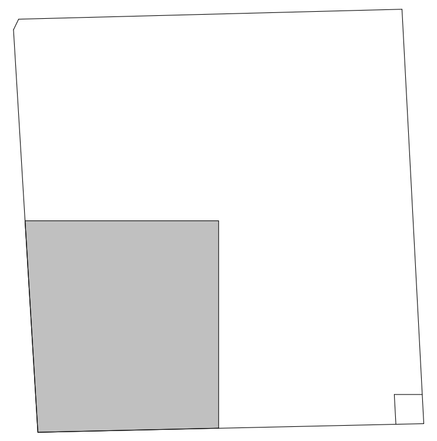
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - SECTION C



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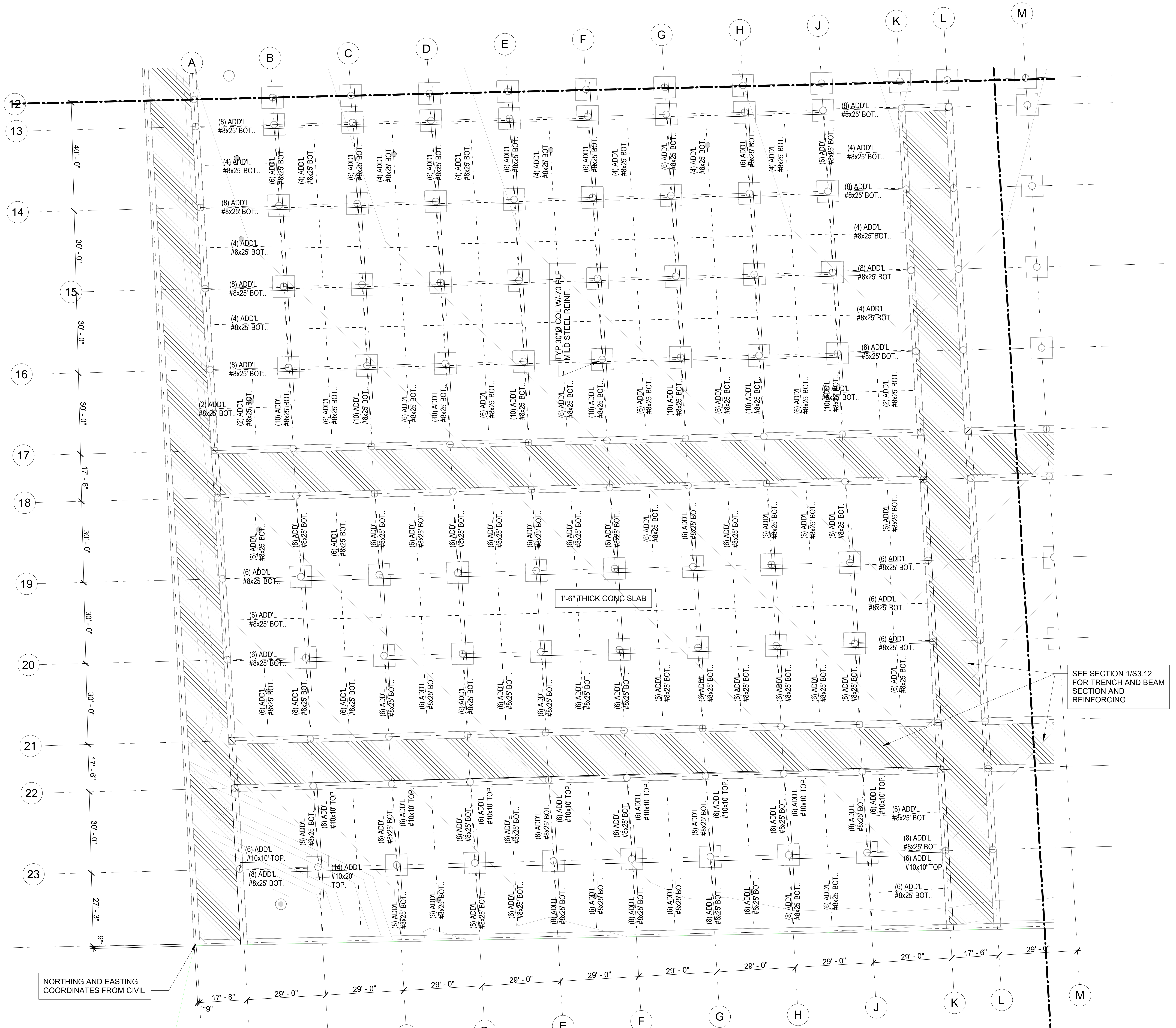
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 70 OF 345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30' - 0"
30' - 0"
17' - 6"
30' - 0"
30' - 0"
30' - 0"
17' - 6"
30' - 0"
27' - 3"
9"
17' - 8"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
29' - 0"
17' - 6"
29' - 0"
9"
(8) ADD'L #8x25' BOT.
(4) ADD'L #8x25' BOT.
(6) ADD'L #8x25' BOT.
(10) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(6) ADD'L #10x10' TOP.
(8) ADD'L #10x10' TOP.
(14) ADD'L #10x20' TOP.
TYP 30"Ø COL W/70 PLF MILD STEEL REINF.
1'-6" THICK CONC SLAB
SEE SECTION 1/S3.12 FOR TRENCH AND BEAM SECTION AND REINFORCING.
NORTHING AND EASTING COORDINATES FROM CIVIL

1 TOP VAULT SLAB - SECTION C - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

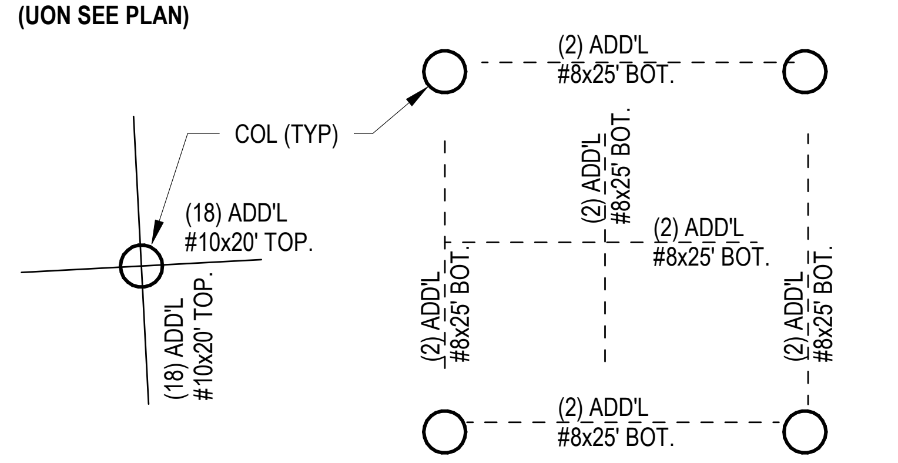
NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

TOP VAULT REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - - - INDICATES BOTTOM BAR.
4. ——┼—— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL SLAB REINFORCING INDICATED ABOVE.

TYPICAL ADD'L TOP REINFORCING AT COLUMNS (UON SEE PLAN)

TYPICAL ADD'L BOTTOM REINF (UON SEE PLAN)


COL (TYP)
(18) ADD'L #10x20' TOP.
(18) ADD'L #10x20' TOP.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.

NOTE: ADD'L STEEL TO BE SPACED AT 12" OC CENTERED ON COLUMN OR CENTER OF BAY

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TOP VAULT SLAB - REINFORCING - SECTION C

WBS NO. M-430296-0017-3

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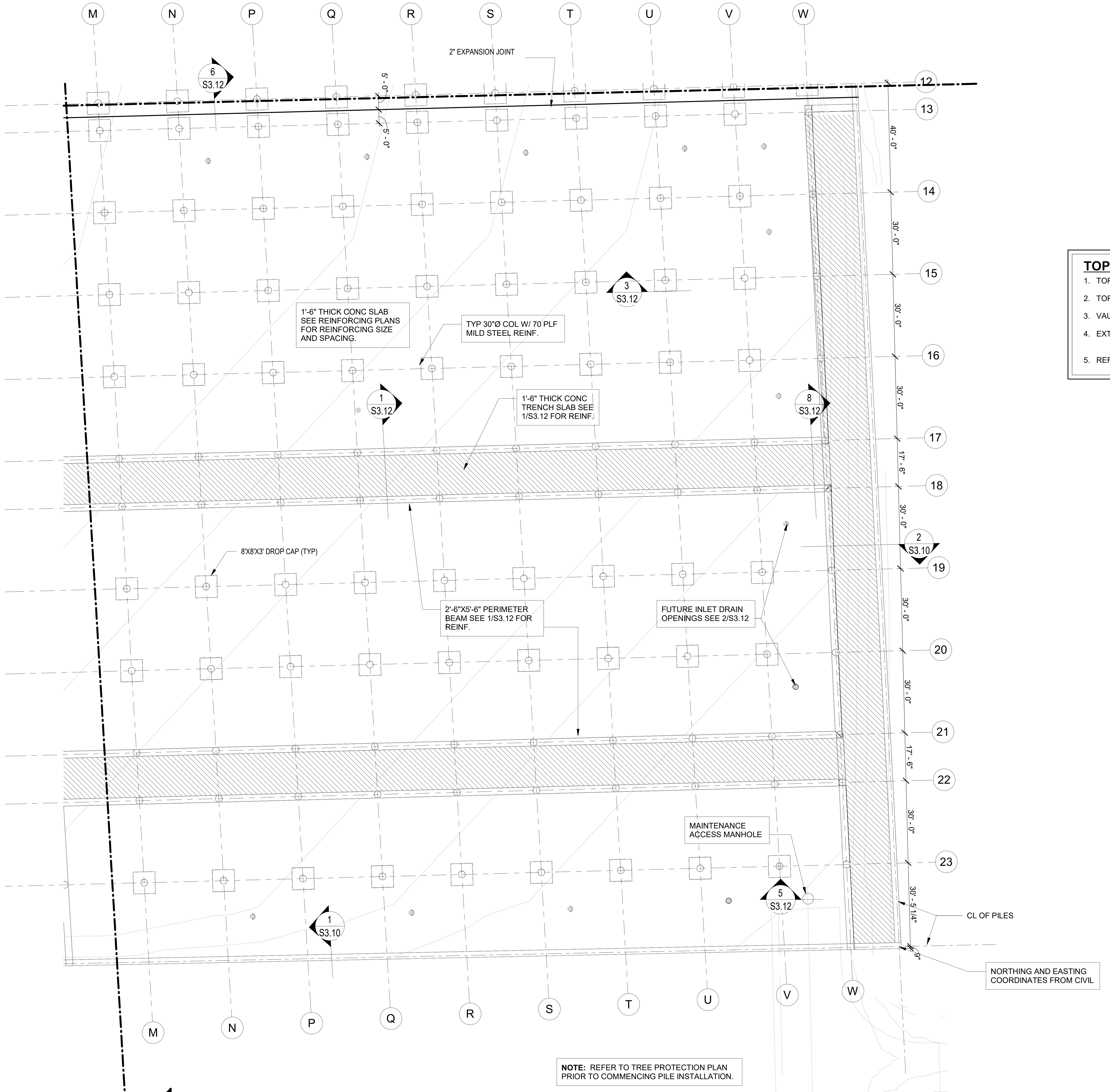
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 71 OF 345

No.	Date	Revisions	App.


M
N
P
Q
R
S
T
U
V
W
2" EXPANSION JOINT
6
S3.12
5' - 0"
5' - 0"
12
13
40' - 0"
14
30' - 0"
15
30' - 0"
16
30' - 0"
17
17' - 6"
18
30' - 0"
2
S3.10
19
30' - 0"
20
30' - 0"
21
17' - 6"
22
30' - 0"
23
30' - 5 1/4"
9"
3
S3.12
1'-6" THICK CONC SLAB SEE REINFORCING PLANS FOR REINFORCING SIZE AND SPACING.
TYP 30"Ø COL W/ 70 PLF MILD STEEL REINF.
1
S3.12
1'-6" THICK CONC TRENCH SLAB SEE 1/S3.12 FOR REINF.
8
S3.12
8'X8'X3' DROP CAP (TYP)
2'-6"X5'-6" PERIMETER BEAM SEE 1/S3.12 FOR REINF.
FUTURE INLET DRAIN OPENINGS SEE 2/S3.12
MAINTENANCE ACCESS MANHOLE
5
S3.12
1
S3.10
CL OF PILES
NORTHING AND EASTING COORDINATES FROM CIVIL

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

1 TOP VAULT SLAB - SECTION D

SCALE: 3/64" = 1'-0"

TOP VAULT SLAB PLAN NOTES

1. TOP OF SLAB ELEVATION = 76'-0"
2. TOP OF TRENCH SLAB ELEVATION = 72'-0"
3. VAULT SLAB TO BE 18" THICK. SEE REINFORCING PLANS FOR SLAB REINFORCING
4. EXTENT OF TRENCH SLAB: ▨
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.

ADAM DAVID LAW
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04/15/2026

FRACTAL

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FRACTAL Project No.25-101-00

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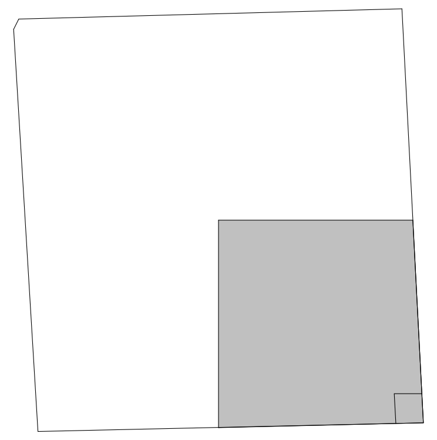
BY: ADAM D. LAW
P.E. REGISTRATION NO.98553
DATE:

SURVEYED BY: UNITED ENGINEER, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - SECTION D



WBS NO. M-430296-0017-3

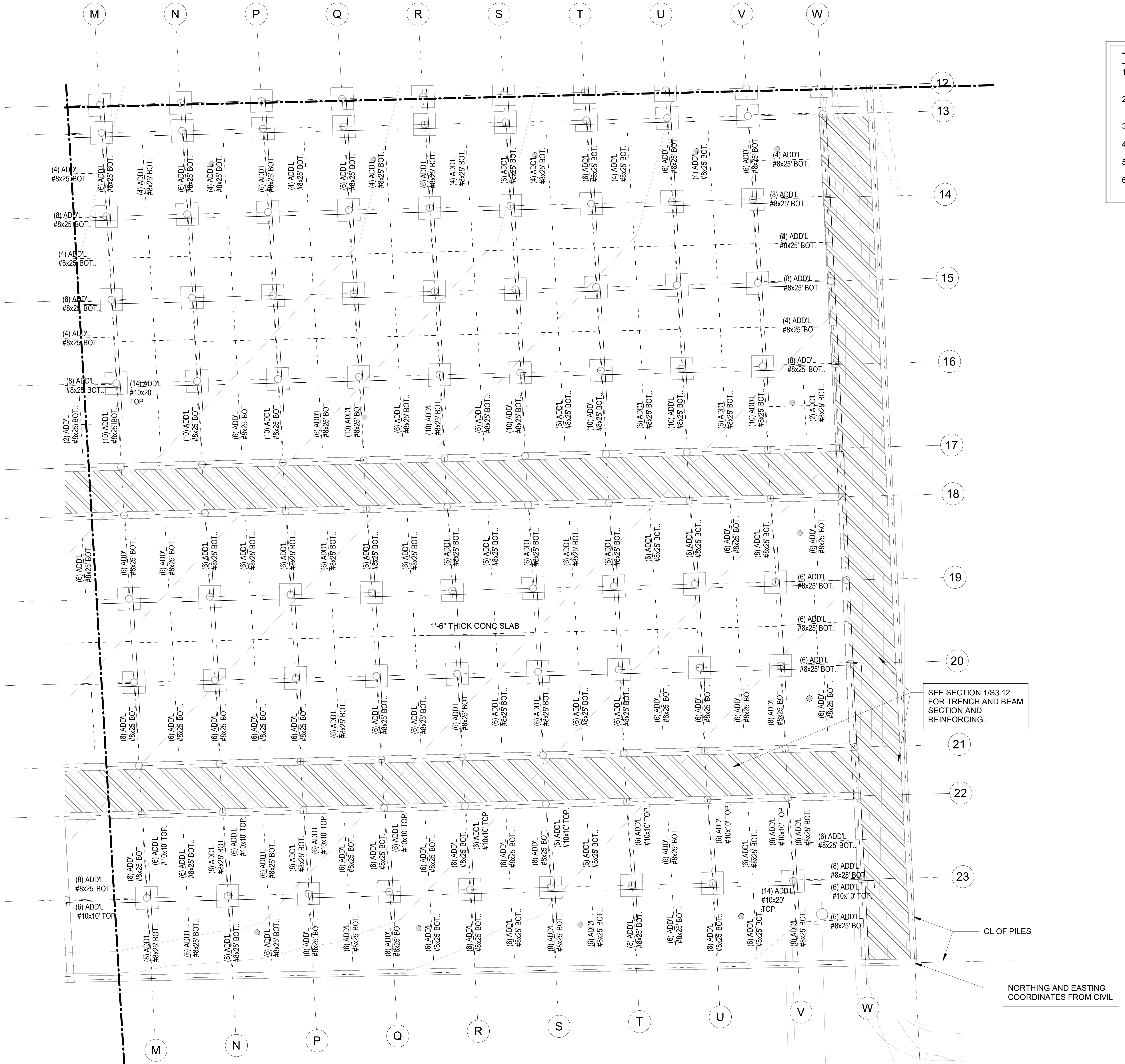
As indicated

S2.02D

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 72 OF 345


M
N
P
Q
R
S
T
U
V
W
12
13
14
15
16
17
18
19
20
21
22
23
(4) ADD'L #8x25' BOT.
(8) ADD'L #8x25' BOT.
(6) ADD'L #8x25' BOT.
(10) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(14) ADD'L #10x20' TOP.
(6) ADD'L #10x10' TOP.
(8) ADD'L #8x25' BOT.
1'-6" THICK CONC SLAB
SEE SECTION 1/S3.12 FOR TRENCH AND BEAM SECTION AND REINFORCING.
CL OF PILES
NORTHING AND EASTING COORDINATES FROM CIVIL

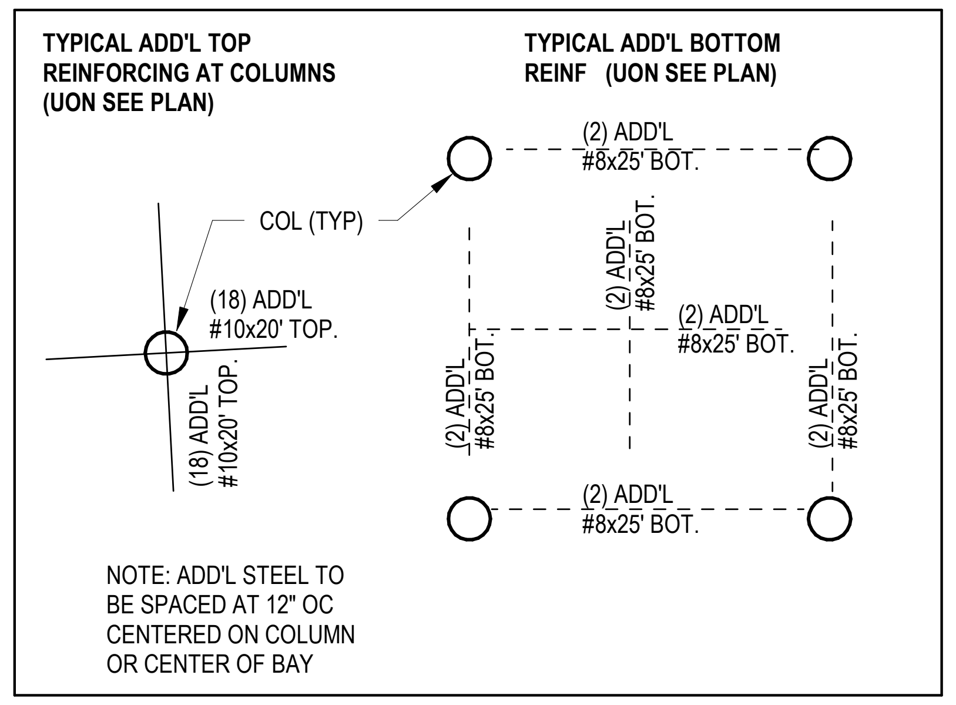
NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO COMMENCING PILE INSTALLATION.

1 TOP VAULT SLAB - SECTION D - REINFORCING PLAN

SCALE: 3/64" = 1'-0"

TOP VAULT REINFORCING PLAN NOTES

1. BARS SHOWN ON THIS PLAN ARE IN ADDITION TO THE TYPICAL MAT SLAB REINFORCING INDICATED IN NOTE #2
2. TYPICAL MAT FOUNDATION REINFORCING TO CONSIST OF #8 BARS @ 12" OC EA WAY, TOP & BOTTOM.
3. - - - - - - - - INDICATES BOTTOM BAR.
4. ——+—— INDICATES TOP BAR.
5. REFER TO SHEET S1.00 FOR STRUCTURAL NOTES.
6. ADDED BARS SHALL BE SPACED @ 12" OC, UON ALTERNATING WITH TYPICAL SLAB REINFORCING INDICATED ABOVE.


TYPICAL ADD'L TOP REINFORCING AT COLUMNS (UON SEE PLAN)
TYPICAL ADD'L BOTTOM REINF (UON SEE PLAN)
COL (TYP)
(18) ADD'L #10x20' TOP.
(18) ADD'L #10x20' TOP.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.
(2) ADD'L #8x25' BOT.

NOTE: ADD'L STEEL TO BE SPACED AT 12" OC CENTERED ON COLUMN OR CENTER OF BAY

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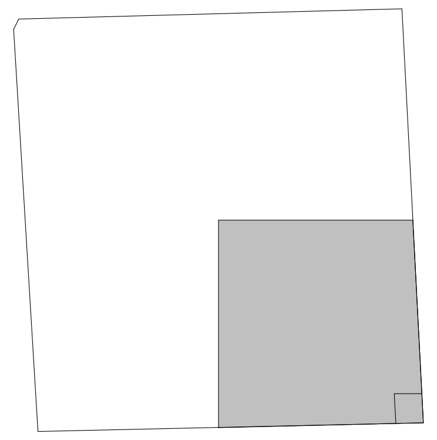
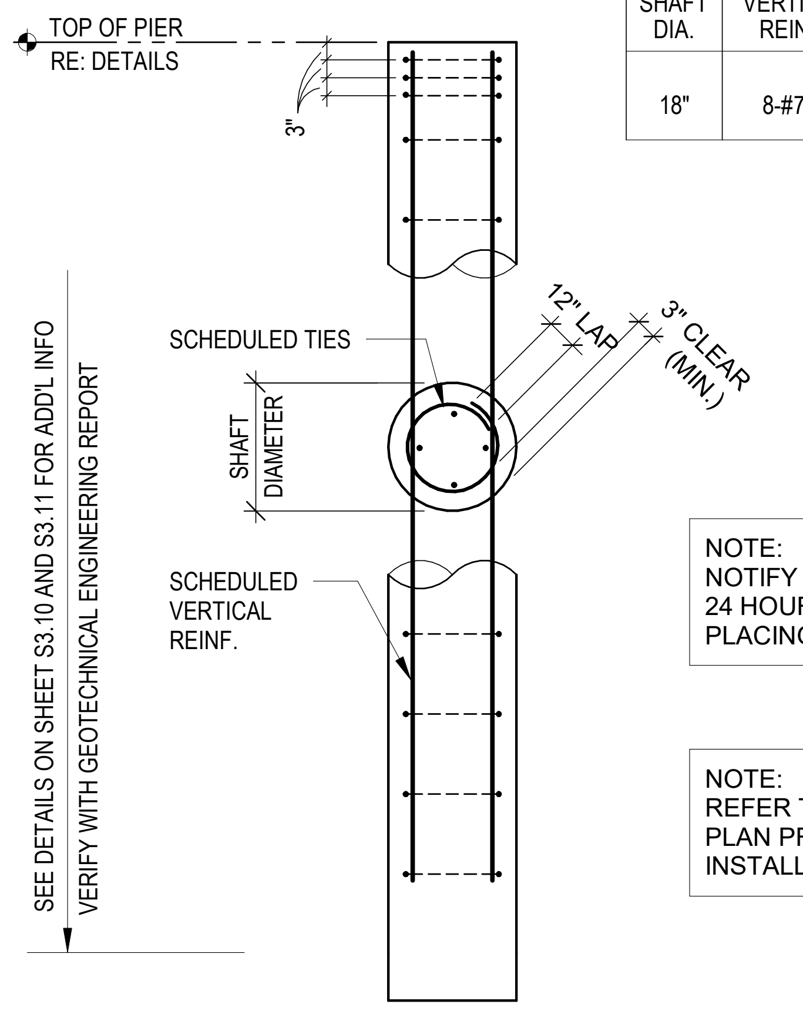
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TOP VAULT SLAB - REINFORCING - SECTION D



WBS NO. M-430296-0017-3	
As indicated	
S2.02DR	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 73 OF 345	

No.	Revisions	Date	App.


TOP OF PIER
RE: DETAILS
3"
SCHEDULED TIES
SHAFT DIAMETER
12" LAP
3" CLEAR (MIN.)
SCHEDULED VERTICAL REINF.
SEE DETAILS ON SHEET S3.10 AND S3.11 FOR ADD'L INFO
VERIFY WITH GEOTECHNICAL ENGINEERING REPORT

FOOTING SCHEDULE			
SHAFT DIA.	VERTICAL REINF.	TIES	NOTES
18"	8-#7	#3 @ 12"	◌ TIES

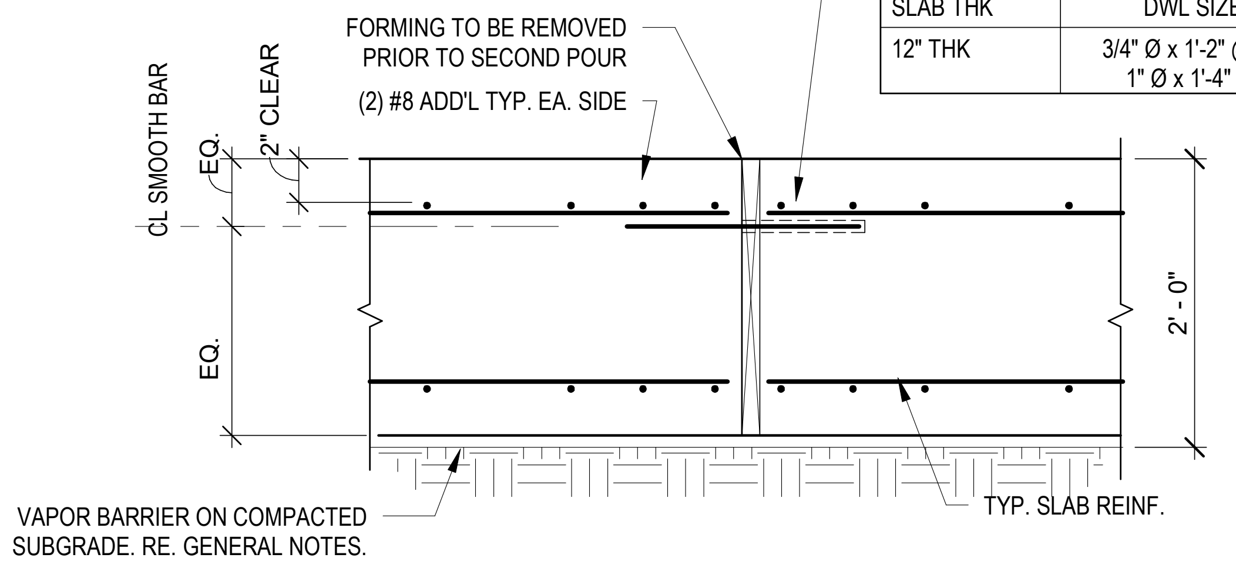
NOTE:
NOTIFY STRUCTURAL ENGINEER 24 HOURS PRIOR TO DRILLING AND PLACING CONCRETE IN FOOTINGS

NOTE:
REFER TO TREE PROTECTION PLAN PRIOR TO BEGINNING PILE INSTALLATION

1 SOLDIER PILE DETAIL

SCALE: 3/4" = 1'-0"

NOTE: G.C. SHALL TAKE APPROPRIATE MEASURES TO ENSURE THAT ALL DOWELS ARE PERPENDICULAR TO SLAB FACE AT THE JOINT TO FACILITATE SLIPPAGE.

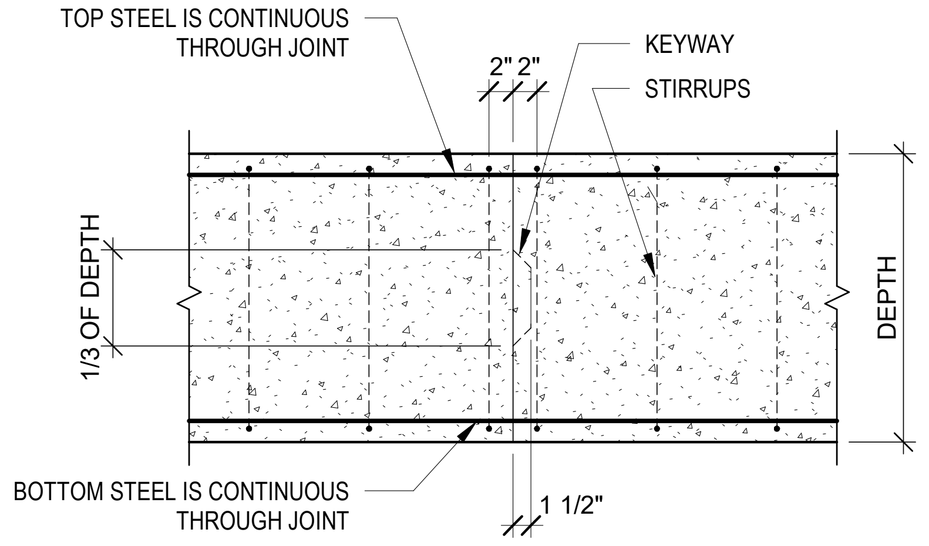

SMOOTH BAR DOWELS. GREASE ONE END OR USE SLIP TUBE ONE END.
FORMING TO BE REMOVED PRIOR TO SECOND POUR
(2) #8 ADD'L TYP. EA. SIDE
CL SMOOTH BAR
EQ.
2" CLEAR
EQ.
2' - 0"
VAPOR BARRIER ON COMPACTED SUBGRADE. RE. GENERAL NOTES.
TYP. SLAB REINF.

SLAB THK	DWL SIZE
12" THK	3/4" Ø x 1'-2" @ 12" O.C. 1" Ø x 1'-4" @ 12" O.C.

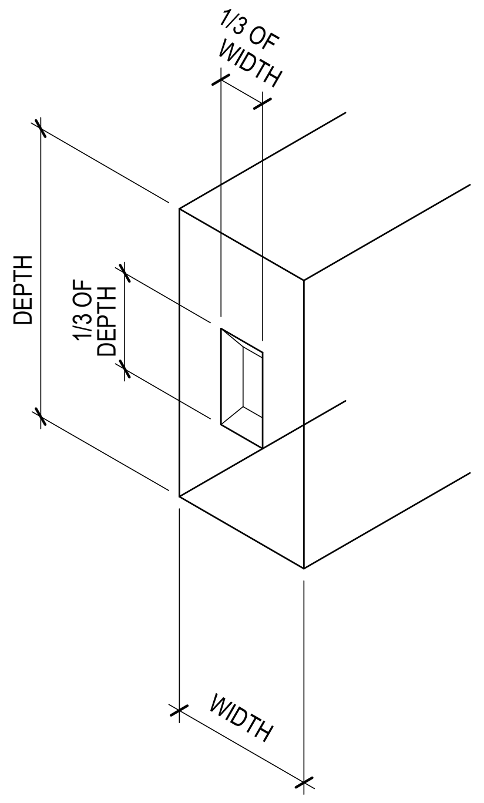
TYPICAL CONSTRUCTION JOINT

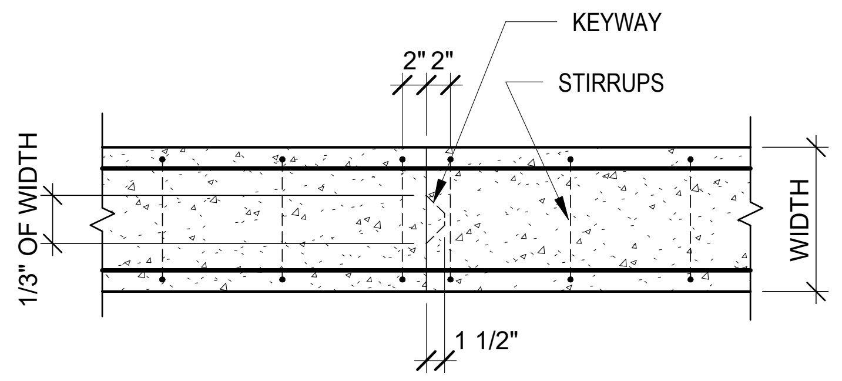
2 TYP. CONSTRUCTION/CONTROL JOINT

SCALE: 3/4" = 1'-0"


TOP STEEL IS CONTINUOUS THROUGH JOINT
2" 2"
KEYWAY
STIRRUPS
1/3 OF DEPTH
DEPTH
BOTTOM STEEL IS CONTINUOUS THROUGH JOINT
1 1/2"

SECTION - SIDE


1/3 OF WIDTH
DEPTH
1/3 OF DEPTH
WIDTH

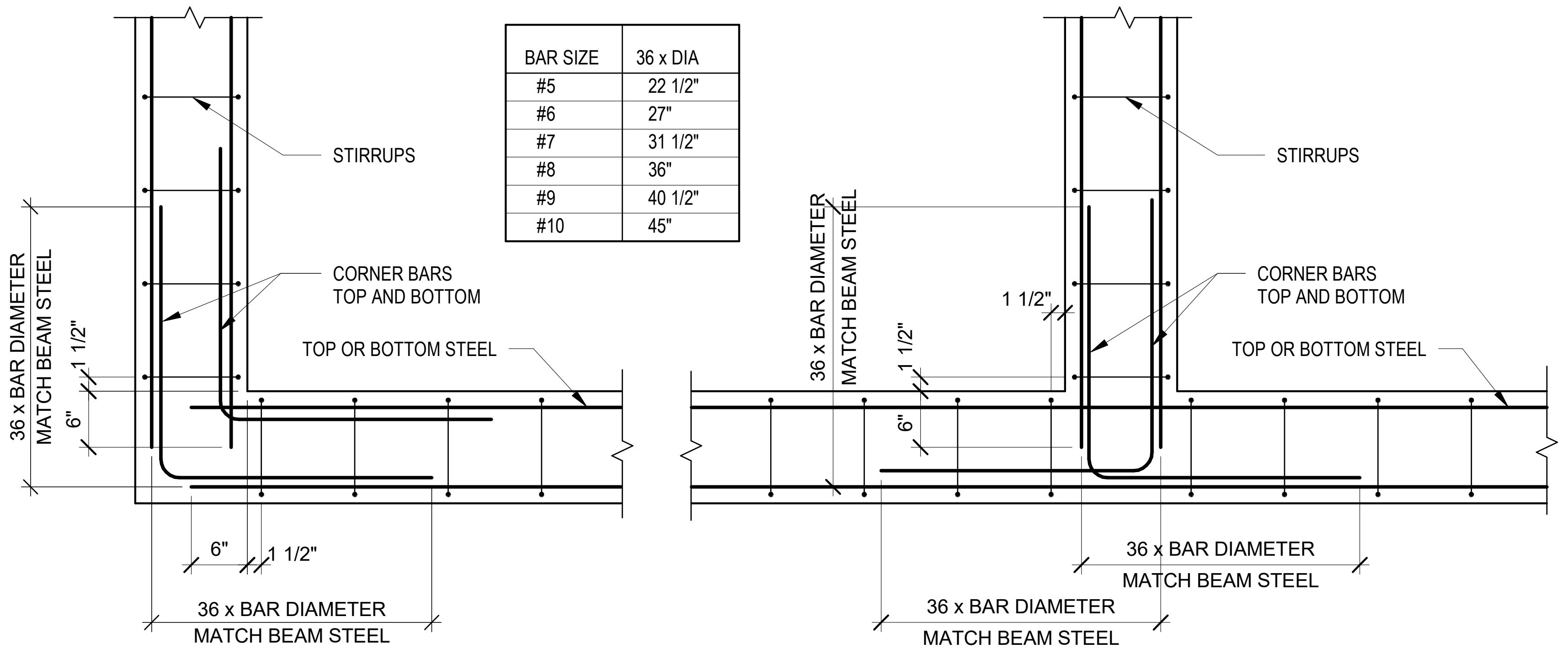

KEYWAY
2" 2"
STIRRUPS
1/3" OF WIDTH
WIDTH
1 1/2"

SECTION - PLAN

NOTES
1. CONSTRUCTION JOINT SHALL BE LOCATED BETWEEN THE 1/4 AND 1/3 POINTS OF THE CLEAR SPAN BETWEEN PIERS.
2. DO NOT PLACE JOINT IN THE FIRST SPAN FROM A CORNER OR INTERSECTION.
3. DO NOT PLACE JOINT IN A CLEAR SPAN OF 8'-0" OR LESS.

3 STANDARD CONCRETE FOUNDATION BEAM CONSTRUCTION JOINT DETAIL

SCALE: 3/4" = 1'-0"


STIRRUPS
CORNER BARS TOP AND BOTTOM
TOP OR BOTTOM STEEL
36 x BAR DIAMETER MATCH BEAM STEEL
1 1/2"
6"
6"
1 1/2"
36 x BAR DIAMETER
MATCH BEAM STEEL
STIRRUPS
CORNER BARS TOP AND BOTTOM
TOP OR BOTTOM STEEL
1 1/2"
36 x BAR DIAMETER MATCH BEAM STEEL
1 1/2"
6"
36 x BAR DIAMETER
MATCH BEAM STEEL
36 x BAR DIAMETER
MATCH BEAM STEEL

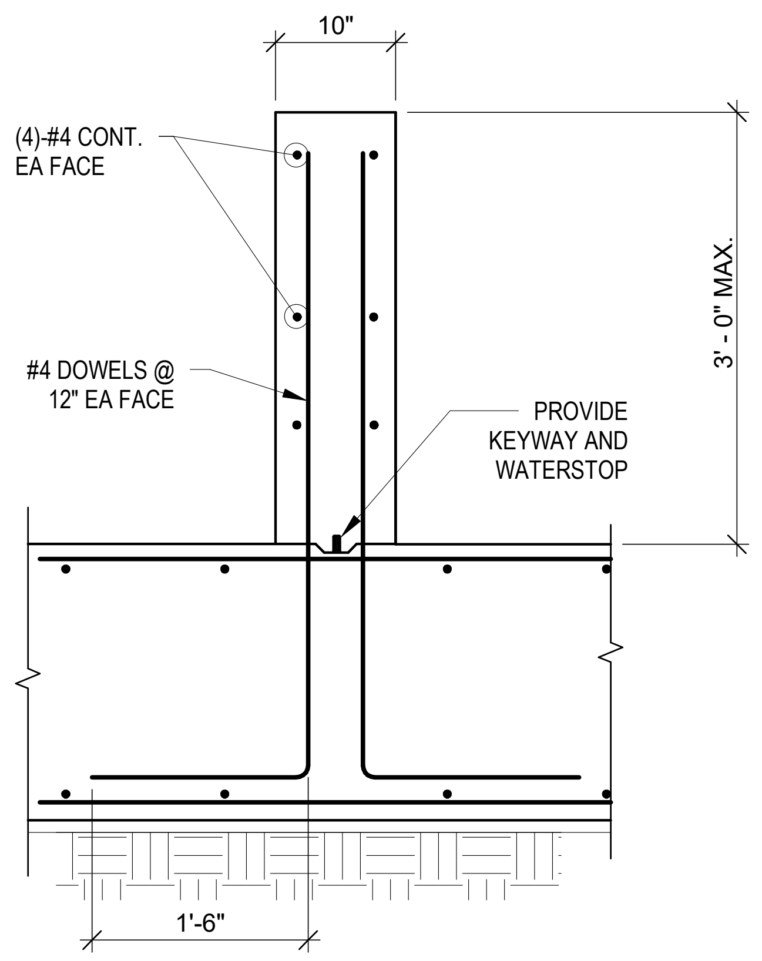
BAR SIZE	36 x DIA
#5	22 1/2"
#6	27"
#7	31 1/2"
#8	36"
#9	40 1/2"
#10	45"

PLAN AT

PLAN AT

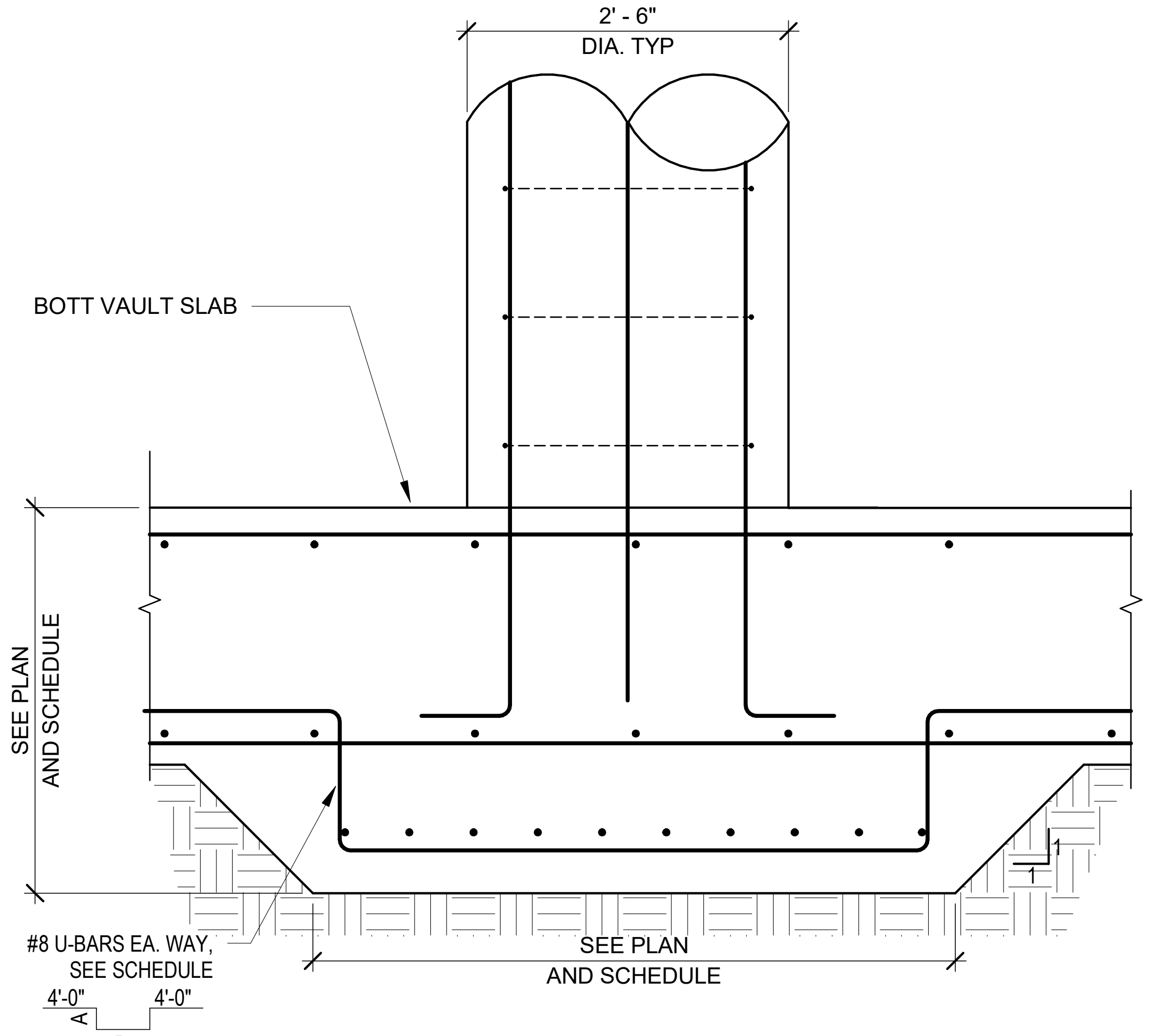
4 STANDARD GRADE BEAM/WALL CORNER BAR PLACEMENT

SCALE: 3/4" = 1'-0"


10"
(4)-#4 CONT. EA FACE
#4 DOWELS @ 12" EA FACE
PROVIDE KEYWAY AND WATERSTOP
3' - 0" MAX.
1'-6"

5 SECTION AT SEDIMENTATION WALL

SCALE: 3/4" = 1'-0"


2' - 6"
DIA. TYP
BOTT VAULT SLAB
SEE PLAN AND SCHEDULE
#8 U-BARS EA. WAY, SEE SCHEDULE
4'-0"
4'-0"
A
B
1
1
SEE PLAN AND SCHEDULE

6 SECTION AT COLUMN BASE

SCALE: 3/4" = 1'-0"

No.	Date	Revisions	App.

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONCRETE DETAILS

WBS NO. M-430296-0017-3
3/4" = 1'-0"

S3.00

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 74 OF 345

TENSION DEVELOPMENT LENGTH ('ℓd')

(FOR GRADE 75 UNCOATED BARS IN NORMAL WEIGHT CONCRETE)
(ADJUST TABULATED LENGTHS AS REQUIRED BY NOTES BELOW)

BAR SIZE	f'c= 3000 PSI		f'c= 4000 PSI		f'c= 5000 PSI		f'c= 6000 PSI		f'c= 7000 PSI		f'c= 8000 PSI	
	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT	ℓd TOP	ℓd BOT
#3	1'-11"	1'-9"	1'-8"	1'-6"	1'-6"	1'-4"	1'-4"	1'-3"	1'-3"	1'-3"	1'-4"	1'-3"
#4	3'-0"	2'-1"	2'-7"	2'-1"	2'-4"	1'-10"	2'-1"	1'-8"	2'-1"	1'-6"	1'-10"	1'-4"
#5	3'-9"	2'-11"	3'-3"	2'-6"	3'-0"	2'-4"	2'-7"	2'-1"	2'-6"	2'-0"	2'-4"	1'-11"
#6	4'-7"	3'-5"	3'-11"	3'-0"	3'-7"	2'-8"	3'-3"	2'-4"	3'-0"	2'-1"	2'-9"	2'-3"
#7	6'-6"	5'-0"	5'-8"	4'-6"	4'-10"	3'-11"	4'-9"	3'-5"	4'-0"	3'-6"	4'-0"	3'-1"
#8	7'-5"	5'-10"	6'-6"	5'-1"	5'-11"	4'-6"	5'-3"	4'-2"	5'-0"	3'-10"	4'-10"	3'-4"
#9	8'-6"	6'-6"	7'-1"	5'-7"	6'-6"	5'-0"	6'-1"	4'-9"	5'-7"	4'-4"	5'-1"	4'-0"
#10	9'-6"	7'-2"	8'-3"	6'-3"	7'-4"	5'-9"	6'-9"	5'-1"	6'-3"	4'-10"	5'-11"	4'-7"
#11	10'-6"	8'-1"	9'-2"	7'-1"	8'-3"	6'-6"	7'-3"	5'-10"	6'-11"	5'-4"	6'-4"	4'-10"

NOTES:
1. TABULATED VALUES ARE APPLICABLE ONLY IF CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 'db', CLEAR COVER IS NOT LESS THAN 'db', AND STIRRUPS OR TIES THROUGHOUT 'ld' IS NOT LESS THAN CODE MINIMUM, OR CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 2*'db' AND CLEAR COVER IS NOT LESS THAN 'db'. FOR OTHER CASES, MULTIPLY TABULATED VALUES BY 1.5.
2. 'TOP' BARS ARE HORIZONTAL REBARS WITH MORE THAN 12 IN OF FRESH CONCRETE CAST BELOW THE BARS AT THE DEVELOPEMENT LENGTH.
3. FOR LIGHT WEIGHT CONCRETE MULTIPLY THE TABULATED VALUES BY 1.3.
4. FOR EPOXY COATED BARS, MULTIPLY THE TABULATED VALUES BY 1.5 FOR BOT BARS, OR BY 1.3 FOR TOP BARS.
5. FOR REINFORCEMENT OTHER THAN GRADE 60, MODIFY THE TABULATED VALUES BY THE RATIO OF THE REINFORCEMENT YIELD STRENGTH DIVIDED BY 60 KSI.

1 TENSION DEVELOPMENT LENGTH TABLE

SCALE: 3/4" = 1'-0"

TENSION LAP SPLICES-CLASS B-TOP & BOT BARS

(FOR GRADE 75 UNCOATED BARS IN NORMAL WEIGHT CONCRETE)
(ADJUST TABULATED LENGTHS AS REQUIRED BY NOTES BELOW)

BAR SIZE	f'c= 3000 PSI		f'c= 4000 PSI		f'c= 5000 PSI		f'c= 6000 PSI		f'c= 7000 PSI		f'c= 8000 PSI	
	TOP	BOT	TOP	BOT	TOP	BOT	TOP	BOT	TOP	BOT	TOP	BOT
#3	3'-0"	2'-4"	2'-6"	1'-11"	2'-3"	1'-10"	2'-1"	1'-8"	2'-1"	1'-8"	1'-11"	1'-8"
#4	3'-10"	3'-0"	3'-6"	2'-7"	3'-2"	2'-4"	2'-9"	2'-1"	2'-7"	2'-1"	2'-5"	1'-11"
#5	4'-10"	3'-9"	4'-3"	3'-5"	3'-9"	3'-0"	3'-4"	2'-7"	3'-4"	2'-7"	3'-0"	2'-3"
#6	6'-0"	4'-7"	5'-0"	3'-11"	4'-8"	3'-7"	4'-1"	3'-2"	3'-7"	3'-0"	3'-7"	2'-8"
#7	8'-2"	6'-8"	6'-4"	5'-8"	5'-8"	5'-0"	6'-1"	4'-10"	5'-8"	4'-5"	5'-3"	4'-1"
#8	9'-7"	7'-4"	8'-4"	6'-6"	7'-6"	5'-11"	6'-11"	5'-3"	6'-4"	4'-11"	6'-1"	4'-9"
#9	10'-10"	8'-4"	9'-6"	7'-4"	8'-5"	6'-6"	7'-9"	6'-1"	7'-4"	5'-7"	6'-9"	5'-1"
#10	12'-1"	9'-5"	10'-8"	8'-3"	9'-8"	7'-4"	8'-11"	6'-9"	8'-3"	6'-3"	7'-6"	5'-11"
#11	13'-8"	10'-5"	11'-10"	9'-1"	10'-7"	8'-3"	9'-8"	7'-4"	9'-0"	6'-11"	8'-6"	6'-4"

NOTES:
1. TABULATED VALUES ARE APPLICABLE ONLY IF CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 'db', CLEAR COVER IS NOT LESS THAN 'db', AND STIRRUPS OR TIES THROUGHOUT 'ld' IS NOT LESS THAN CODE MINIMUM, OR CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 2*'db' AND CLEAR COVER IS NOT LESS THAN 'db'. FOR OTHER CASES, MULTIPLY TABULATED VALUES BY 1.5.
2. 'TOP' BARS ARE HORIZONTAL REBARS WITH MORE THAN 12 IN OF FRESH CONCRETE CAST BELOW THE BARS AT THE DEVELOPEMENT LENGTH.
3. FOR LIGHT WEIGHT CONCRETE MULTIPLY THE TABULATED VALUES BY 1.3.
4. FOR EPOXY COATED BARS, MULTIPLY THE TABULATED VALUES BY 1.5 FOR BOT BARS, OR BY 1.3 FOR TOP BARS.
5. FOR REINFORCEMENT OTHER THAN GRADE 60, MODIFY THE TABULATED VALUES BY THE RATIO OF THE REINFORCEMENT YIELD STRENGTH DIVIDED BY 60 KSI.
6. FOR CLASS 'A' SPLICE USE SAME AS TENSION DEVELOPMENT LENGTH.

2 TENSION LAP SPLICE LENGTH TABLE

SCALE: 3/4" = 1'-0"

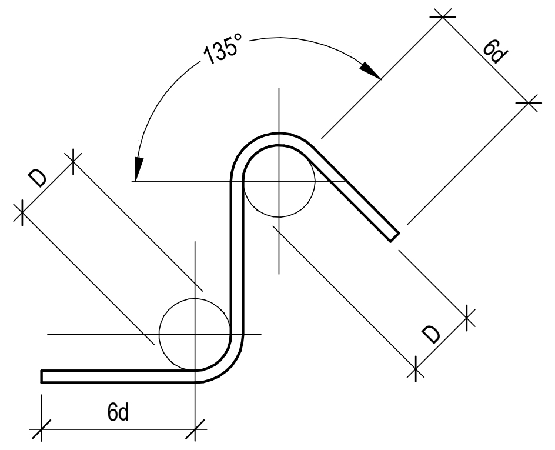
COMPRESSION DEVELOPMENT LENGTH ('ℓc') AND COMPRESSION LAP SPLICES (C)

(FOR GRADE 60 & 75 UNCOATED BARS IN NORMAL WEIGHT CONCRETE-f'c=3000 PSI MIN)

BAR SIZE	GRADE 60		GRADE 75	
	'ℓc'	C	'ℓc'	C
#3	1'-0"	1'-0"	1'-0"	1'-5"
#4	1'-0"	1'-3"	1'-2"	1'-10"
#5	1'-2"	1'-7"	1'-6"	2'-4"
#6	1'-5"	1'-11"	1'-9"	2'-9"
#7	1'-8"	2'-3"	2'-1"	3'-3"
#8	1'-10"	2'-6"	2'-4"	3'-8"
#9	2'-1"	2'-10"	2'-8"	4'-2"
#10	2'-4"	3'-3"	2'-11"	4'-8"
#11	2'-7"	3'-7"	3'-3"	5'-2"
#14	3'-2"	☒	3'-11"	☒
#18	4'-2"	☒	5'-3"	☒

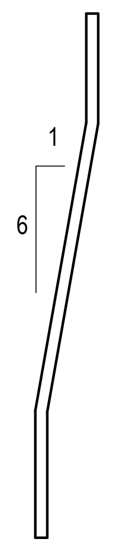
3 COMPRESSION DEVELOPMENT LENGTH TABLE

SCALE: 3/4" = 1'-0"

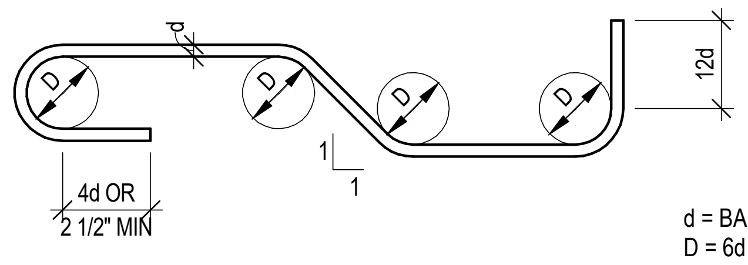


FOR STIRRUPS AND TIES

BAR	D
#3	1 1/2"
#4	2"
#5	2 1/2"
#6	6d
#7	6d
#8	6d



OFFSET



FOR REINFORCING BARS

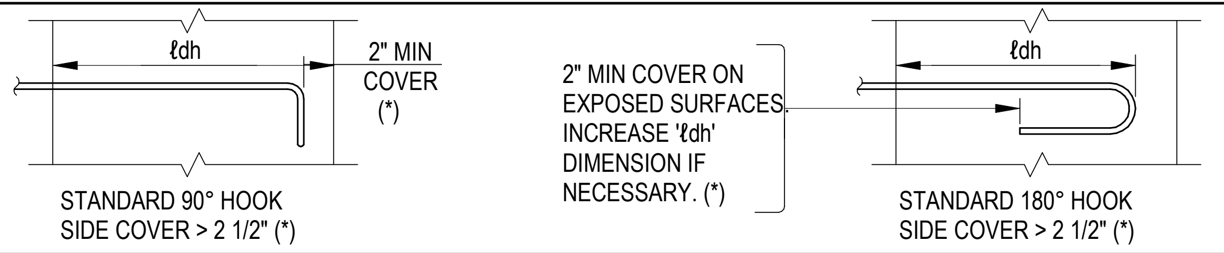
d = BAR DIAMETER
D = 6d FOR #3 THRU #8
D = 8d FOR #9 THRU #11

4 BAR BENDING

SCALE: 3/4" = 1'-0"

'ℓdh' TENSION DEVELOPMENT LENGTH (EMBEDMENT LENGTH) FOR STANDARD END HOOKS

(FOR GRADE 75 UNCOATED BARS IN NORMAL WEIGHT CONCRETE)
(ADJUST TABULATED LENGTHS AS REQUIRED BY NOTES BELOW)



STANDARD 90° HOOK
SIDE COVER > 2 1/2" (*)

2" MIN COVER ON EXPOSED SURFACES. INCREASE 'ℓdh' DIMENSION IF NECESSARY. (*)

STANDARD 180° HOOK
SIDE COVER > 2 1/2" (*)

BAR SIZE	f'c= 3000 PSI	f'c= 4000 PSI	f'c= 5000 PSI	f'c= 6000PSI	f'c= 7000 PSI	f'c= 8000 PSI
	ℓdh	ℓdh	ℓdh	ℓdh	ℓdh	ℓdh
#3	8"	8"	8"	8"	8"	8"
#4	10"	9"	8"	8"	8"	8"
#5	1'-1"	11"	10"	9"	9"	8"
#6	1'-3"	1'-1"	11"	11"	10"	9"
#7	1'-6"	1'-3"	1'-2"	1'-1"	11"	11"
#8	1'-8"	1'-6"	1'-3"	1'-2"	1'-1"	1'-1"
#9	1'-11"	1'-7"	1'-6"	1'-4"	1'-3"	1'-2"
#10	2'-1"	1'-11"	1'-8"	1'-6"	1'-4"	1'-3"
#11	2'-4"	2'-2"	1'-11"	1'-8"	1'-7"	1'-4"

NOTES:
1. (*) WHEN EITHER SIDE OR END COVER IS SMALLER THAN THESE NUMBERS, MULTIPLY 'ldh' BY 1.4.
2. FOR LIGHT WEIGHT CONCRETE MULTIPLY THE TABULATED VALUES BY 1.3.
3. FOR EPOXY COATED BARS MULTIPLY THE tABULATED VALUES BY 1.2.
4. FOR REINFORCEMENT OTHER THAN GRADE 60, MODIFY THE TABULATED VALUES BY THE RATION OF THE REINFORCEMENT YIELD STRENGTH DIVIDED BY 60 KSI.

5 STANDARD HOOK DEVELOPMENT LENGTH TABLE

SCALE: 3/4" = 1'-0"

No.	Date	Revisions	App.

ADAM DAVID LAW
98553
04/15/2026

FRACTAL
Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
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BY: ADAM D. LAW
P.E. REGISTRATION NO.98553
DATE:

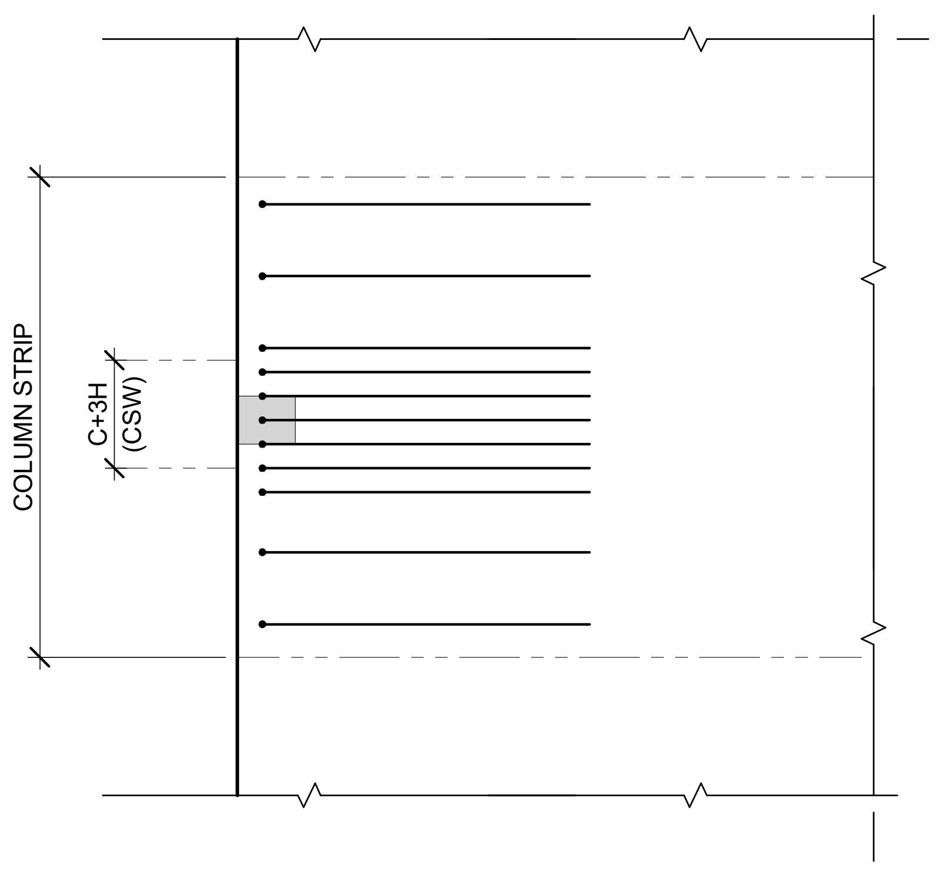
SURVEYED BY: UNITED ENGINEER, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

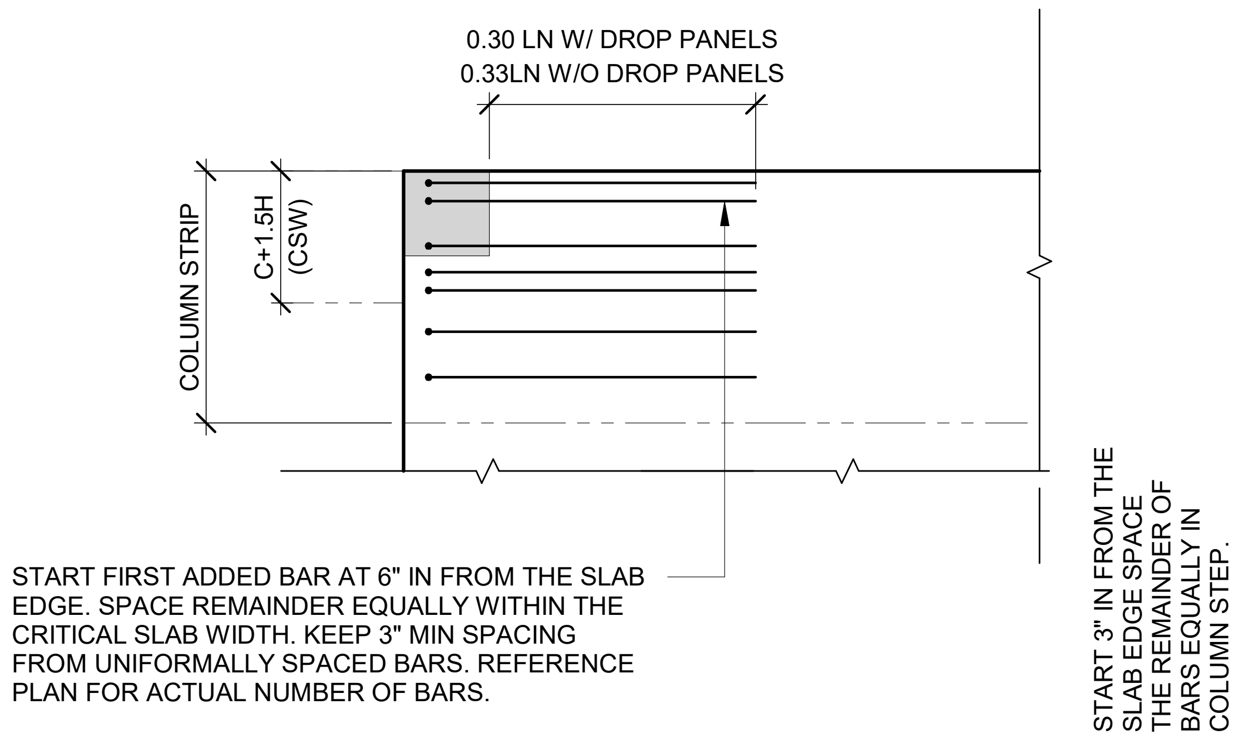
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONCRETE DETAILS

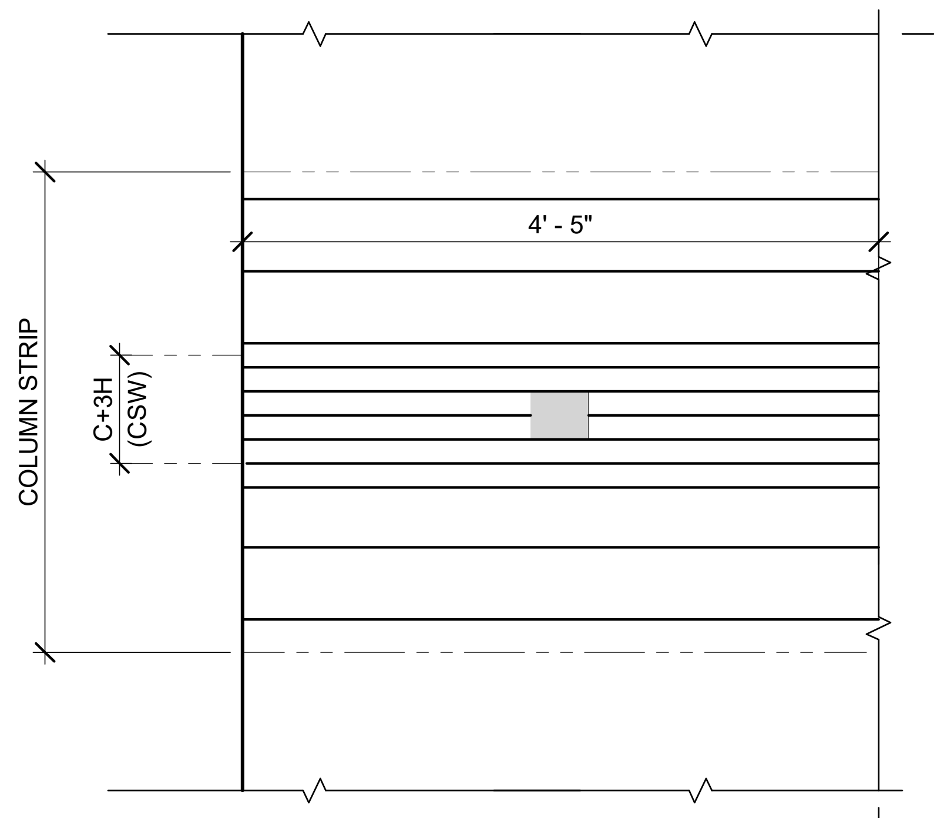
WBS NO. M-430296-0017-3
3/4" = 1'-0"
S3.01
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 75 OF 345


COLUMN STRIP
C+3H
(CSW)

A TOP BARS AT EDGE COLUMNS


0.30 LN W/ DROP PANELS
0.33LN W/O DROP PANELS
COLUMN STRIP
C+1.5H
(CSW)
START FIRST ADDED BAR AT 6" IN FROM THE SLAB EDGE. SPACE REMAINDER EQUALLY WITHIN THE CRITICAL SLAB WIDTH. KEEP 3" MIN SPACING FROM UNIFORMALLY SPACED BARS. REFERENCE PLAN FOR ACTUAL NUMBER OF BARS.
START 3" IN FROM THE SLAB EDGE SPACE THE REMAINDER OF BARS EQUALLY IN COLUMN STEP.

B TOP BARS AT CORNER COLUMNS

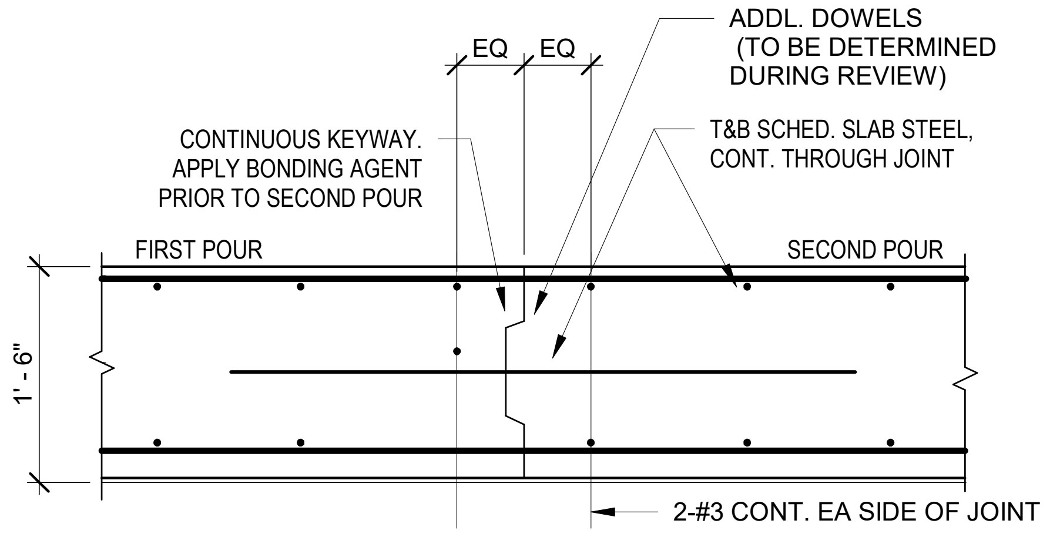

4' - 5"
COLUMN STRIP
C+3H
(CSW)

C TOP BARS AT INTERIORCOLUMNS

NOTES:
1. REFERENCE PLANS AND SCHEDULES FOR ACTUAL NUMBER OR SPACING OF BARS.
2. C= COLUMN DIMENSION DIRECTION SHOWN ABOVE. H = SLAB THICKNESS (INCLUDING DROP PANEL WHERE APPLICABLE.)
3. CSW STANDS FOR "CRITICAL SLAB WIDTH".
4. LN= CLEAR DISTANCE TO ADJACENT COLUMN.
5. PROVIDE HALF OF THE TOP & BOTTOM REINFORCEMEN IN THE COLUMN STRIP TO BE PLACED IN THE "CRITICAL SLAB WIDTH".

1 PLAN VIEW - TYPICAL TOP REINFORCEMENT FOR FLT PLATE AND FLAT SLAB

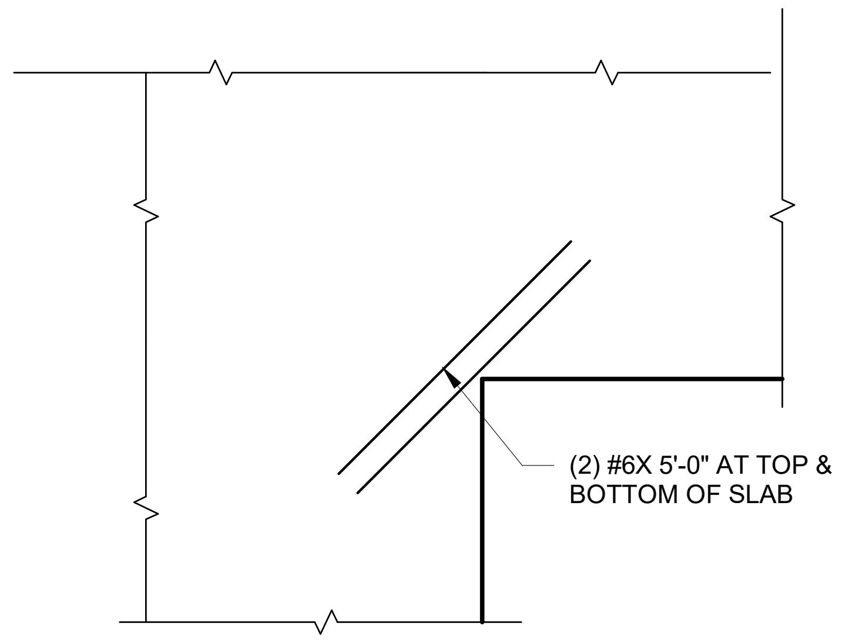
SCALE: 3/4" = 1'-0"


EQ
EQ
ADDL. DOWELS
(TO BE DETERMINED
DURING REVIEW)
CONTINUOUS KEYWAY.
APPLY BONDING AGENT
PRIOR TO SECOND POUR
T&B SCHED. SLAB STEEL,
CONT. THROUGH JOINT
FIRST POUR
SECOND POUR
1' - 6"
2-#3 CONT. EA SIDE OF JOINT

NOTES:
1. CONSTRUCTION JOINT SHALL GENERALLY BE LOCATED WITHIN THE MIDDLE 1/3 OF SLAB SPAN WITH VERTICAL BULCKHEADS AND SHEAR KEY AS SHOWN.
2. SUBMIT PROPOSED SLAB JOINT LOCATIONS FOR REVIEW BY ENGINEER PRIOR TO POURING SLAB.

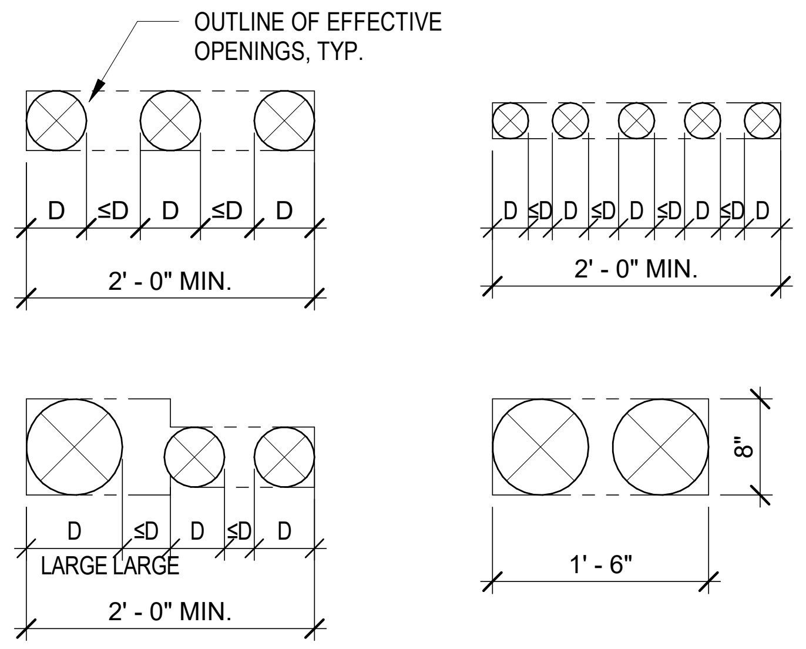
2 TYP. FLAT PLATE AND FLAT SLAB CONSTRUCTION JOINT

SCALE: 3/4" = 1'-0"


(2) #6X 5'-0" AT TOP &
BOTTOM OF SLAB

3 PLAN AT INSIDE CORNER AT FLAT PLATE

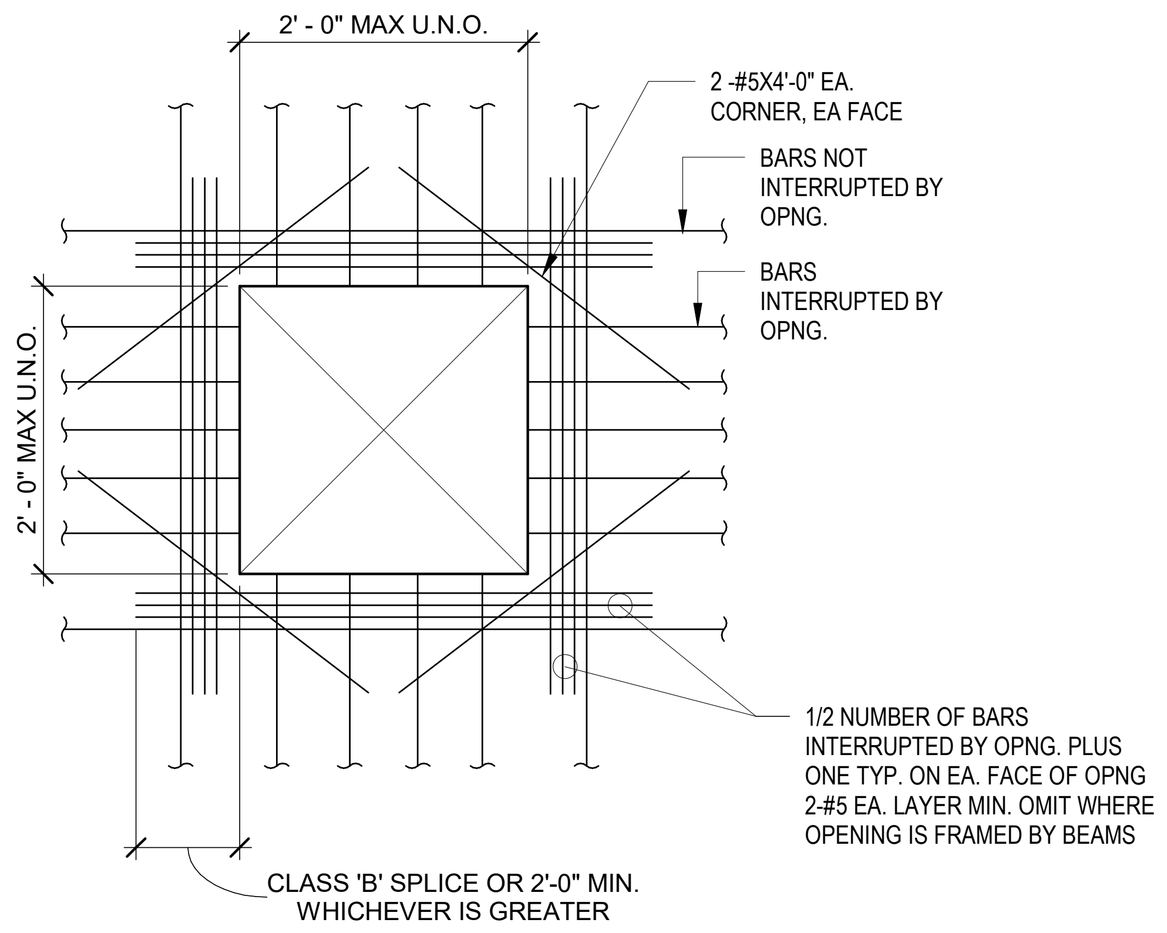
SCALE: 3/4" = 1'-0"


OUTLINE OF EFFECTIVE
OPENINGS, TYP.
D
≤D
D
≤D
D
2' - 0" MIN.
D ≤D D ≤D D ≤D D ≤D D
2' - 0" MIN.
D
≤D
D
≤D
D
LARGE LARGE
2' - 0" MIN.
8"
1' - 6"

NOTE:
ALL OF THESE CONDITIONS NEED 1-#5 TOP & BOTTOM TRIM BARS ALL ARROUND EFFECTIVE OPENING WITH 1'-0" EMBEDMENT PAST THE OPENING EDGE. DIAGONAL BARS ARE NOT NECESSARY AT THESE CONDITIONS.

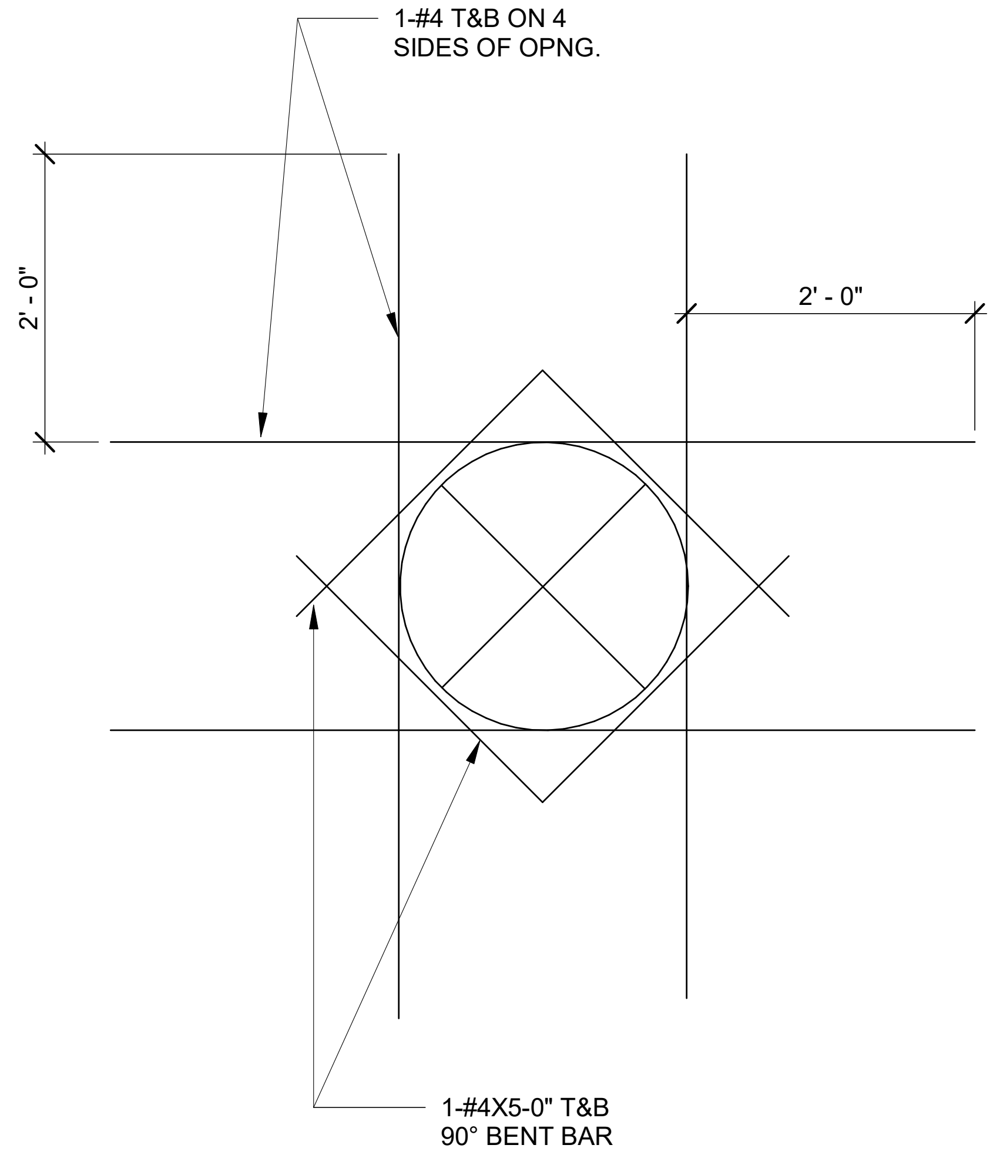
4 MULTIPLE SLAB OPENINGS

SCALE: 3/4" = 1'-0"


2' - 0" MAX U.N.O.
2 -#5X4'-0" EA.
CORNER, EA FACE
BARS NOT
INTERRUPTED BY
OPNG.
BARS
INTERRUPTED BY
OPNG.
2' - 0" MAX U.N.O.
1/2 NUMBER OF BARS
INTERRUPTED BY OPNG. PLUS
ONE TYP. ON EA. FACE OF OPNG
2-#5 EA. LAYER MIN. OMIT WHERE
OPENING IS FRAMED BY BEAMS
CLASS 'B' SPLICE OR 2'-0" MIN.
WHICHEVER IS GREATER

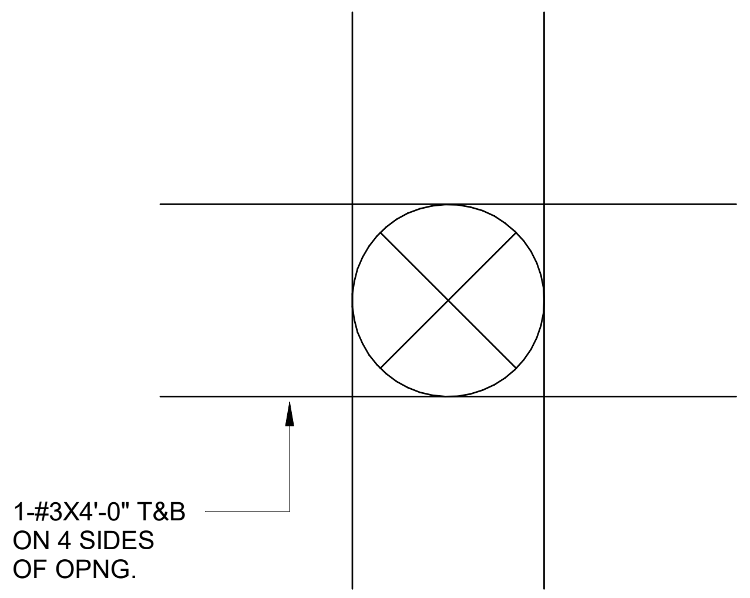
5 TYP. ADDITIONAL BAR PLACING DETAIL FOR SLAB OPENINGS

SCALE: 3/4" = 1'-0"

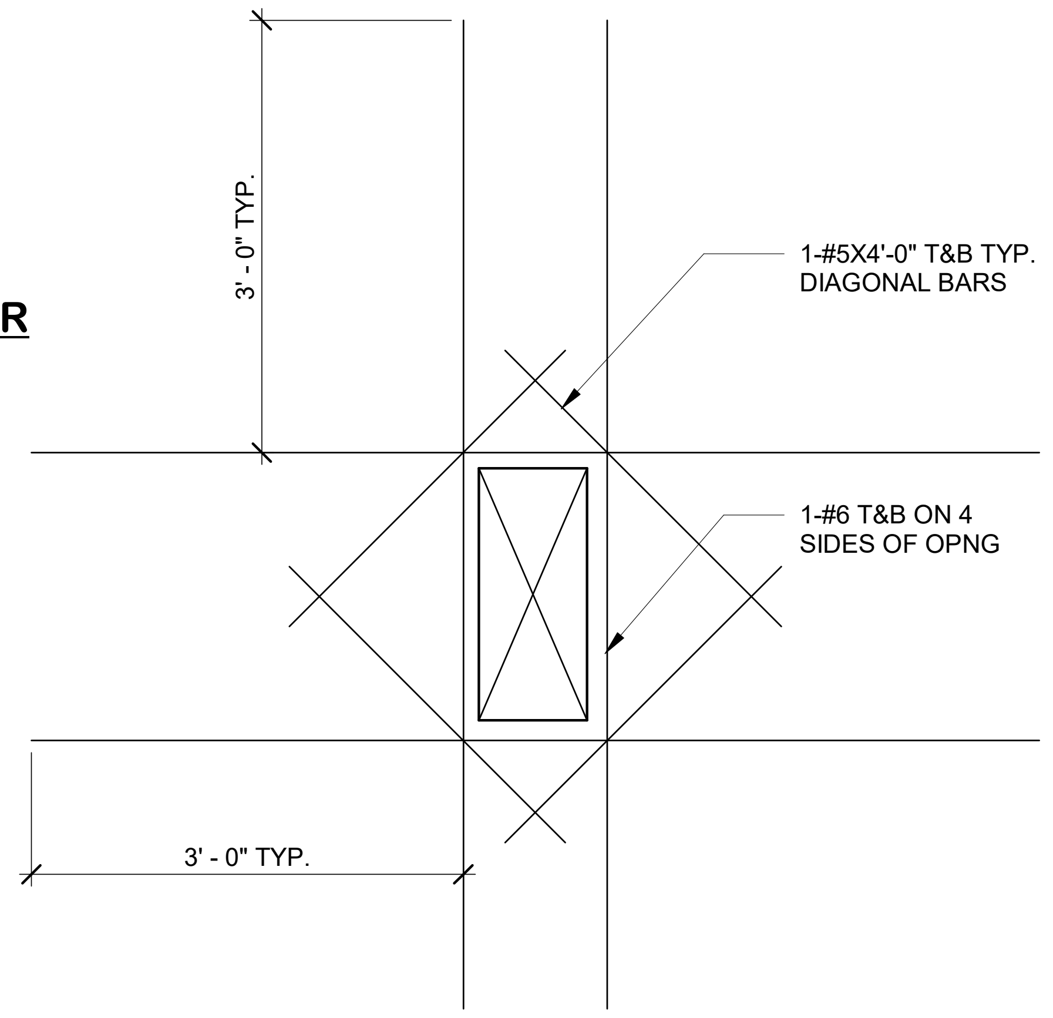

1-#4 T&B ON 4
SIDES OF OPNG.
2' - 0"
2' - 0"
1-#4X5-0" T&B
90° BENT BAR

A SLEEVED OPENINGS OF 14" TO 28" DIAMETER

NOTE:
THE GENERAL CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL & MECHANICAL DRAWINGS FOR REQD OPENINGS-WHETHER OR NOT SHOWN ON THESE DRAWINGS, AND SHALL VERIFY SIZE AND LOCATIONS OF ALL OPENINGS WITH MECHANICAL CONTRACTOR & STRUCTURAL ENGINEER.


1-#3X4'-0" T&B
ON 4 SIDES
OF OPNG.

B SLEEVED OPENINGS OF 6" TO 12" DIAMETER


3' - 0" TYP.
1-#5X4'-0" T&B TYP.
DIAGONAL BARS
1-#6 T&B ON 4
SIDES OF OPNG
3' - 0" TYP.

C RECTANGULAR OR SQUARE OPENING

6 MULTIPLE SLAB OPENINGS

SCALE: 3/4" = 1'-0"

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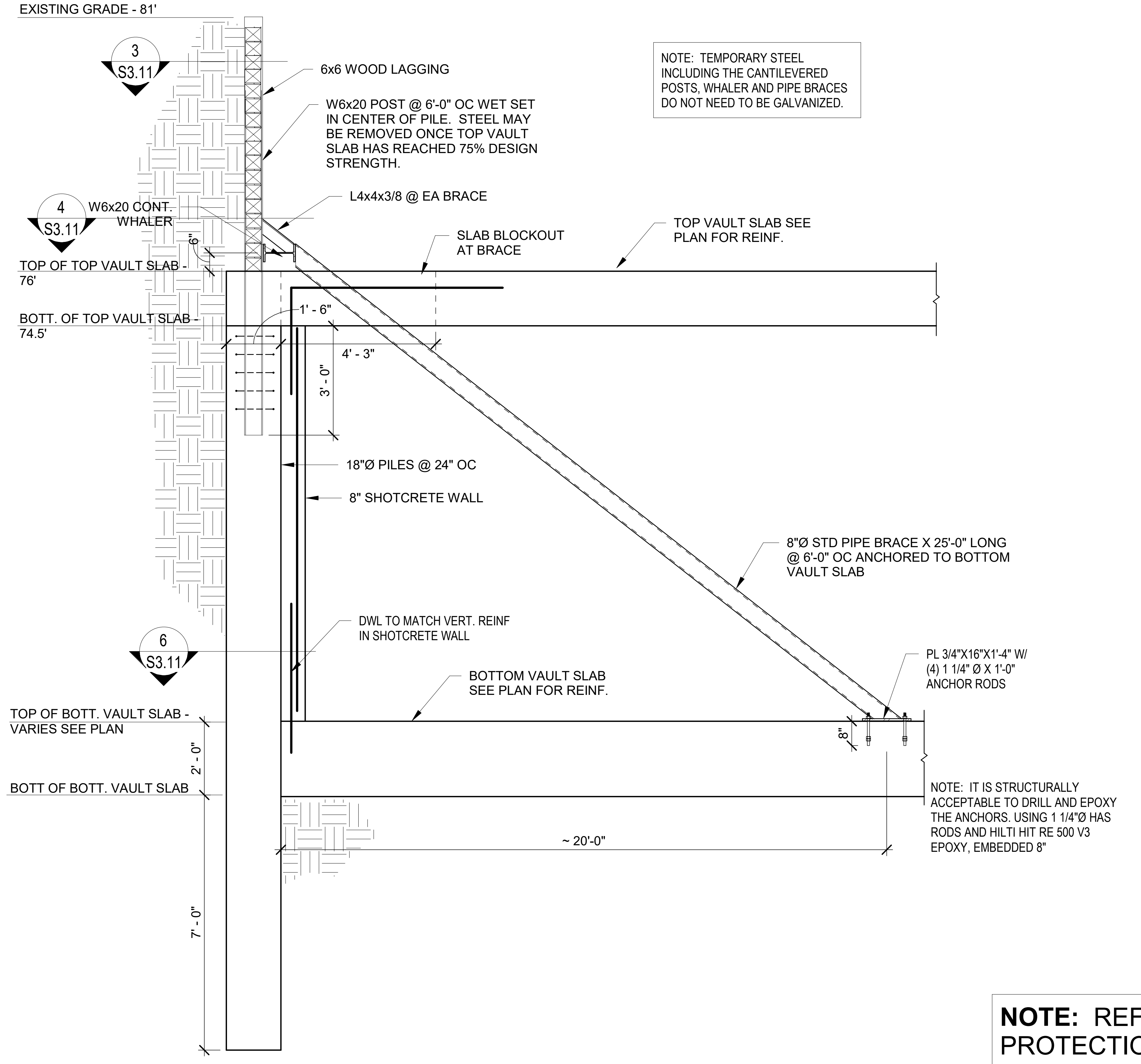
WBS NO. M-430296-0017-3
3/4" = 1'-0"
S3.02
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 76 OF 345

REFER TO S3.11 FOR ADD'L INFORMATION

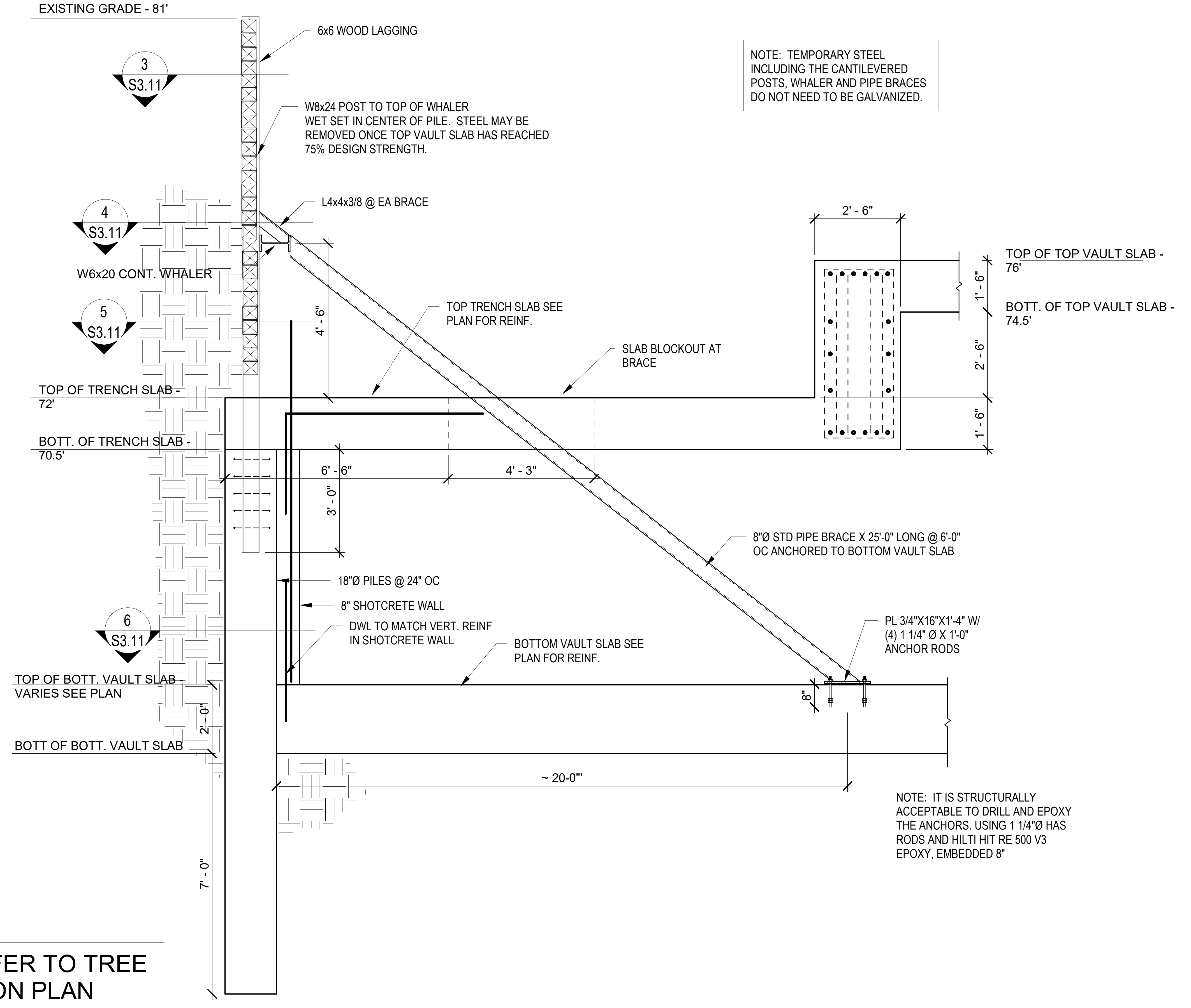

EXISTING GRADE - 81'
3
S3.11
6x6 WOOD LAGGING
W6x20 POST @ 6'-0" OC WET SET IN CENTER OF PILE. STEEL MAY BE REMOVED ONCE TOP VAULT SLAB HAS REACHED 75% DESIGN STRENGTH.
4
S3.11
W6x20 CONT. WHALER
L4x4x3/8 @ EA BRACE
SLAB BLOCKOUT AT BRACE
TOP VAULT SLAB SEE PLAN FOR REINF.
6"
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
1' - 6"
4' - 3"
3' - 0"
18"Ø PILES @ 24" OC
8" SHOTCRETE WALL
8"Ø STD PIPE BRACE X 25'-0" LONG @ 6'-0" OC ANCHORED TO BOTTOM VAULT SLAB
DWL TO MATCH VERT. REINF IN SHOTCRETE WALL
6
S3.11
PL 3/4"X16"X1'-4" W/ (4) 1 1/4" Ø X 1'-0" ANCHOR RODS
BOTTOM VAULT SLAB SEE PLAN FOR REINF.
TOP OF BOTT. VAULT SLAB - VARIES SEE PLAN
8"
2' - 0"
BOTT OF BOTT. VAULT SLAB
~ 20'-0"
7' - 0"

NOTE: TEMPORARY STEEL INCLUDING THE CANTILEVERED POSTS, WHALER AND PIPE BRACES DO NOT NEED TO BE GALVANIZED.

NOTE: IT IS STRUCTURALLY ACCEPTABLE TO DRILL AND EPOXY THE ANCHORS. USING 1 1/4"Ø HAS RODS AND HILTI HIT RE 500 V3 EPOXY, EMBEDDED 8"

1 TYPICAL SOLDIER PILE WALL SECTION @ BRACE LOCATION

SCALE: 3/8" = 1'-0"

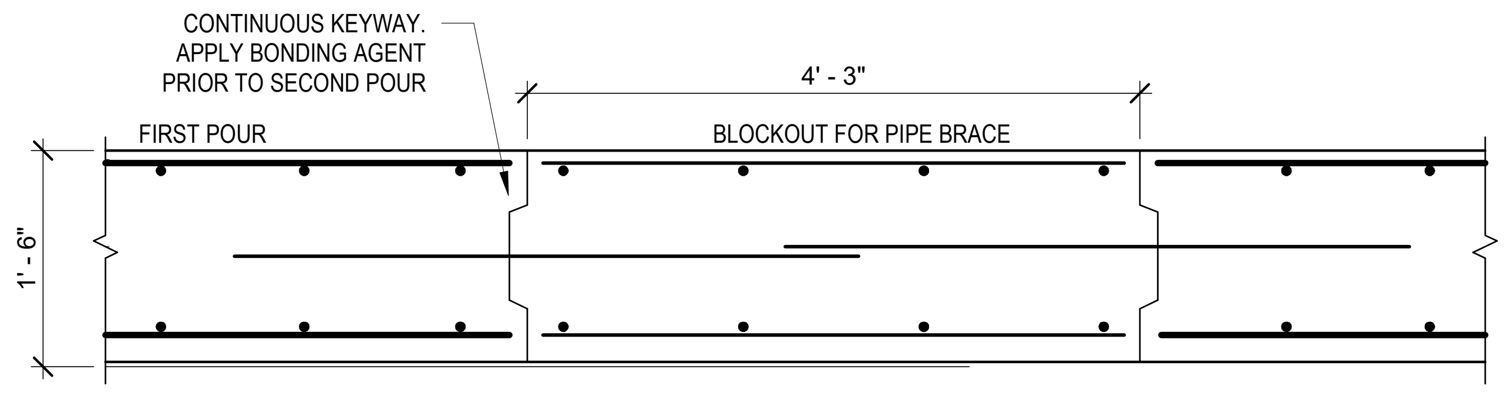

EXISTING GRADE - 81'
6x6 WOOD LAGGING
3
S3.11
W8x24 POST TO TOP OF WHALER WET SET IN CENTER OF PILE. STEEL MAY BE REMOVED ONCE TOP VAULT SLAB HAS REACHED 75% DESIGN STRENGTH.
L4x4x3/8 @ EA BRACE
4
S3.11
W6x20 CONT. WHALER
5
S3.11
2' - 6"
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
1' - 6"
2' - 6"
1' - 6"
4' - 6"
TOP TRENCH SLAB SEE PLAN FOR REINF.
SLAB BLOCKOUT AT BRACE
TOP OF TRENCH SLAB - 72'
BOTT. OF TRENCH SLAB - 70.5'
6' - 6"
4' - 3"
3' - 0"
8"Ø STD PIPE BRACE X 25'-0" LONG @ 6'-0" OC ANCHORED TO BOTTOM VAULT SLAB
18"Ø PILES @ 24" OC
8" SHOTCRETE WALL
DWL TO MATCH VERT. REINF IN SHOTCRETE WALL
6
S3.11
BOTTOM VAULT SLAB SEE PLAN FOR REINF.
PL 3/4"X16"X1'-4" W/ (4) 1 1/4" Ø X 1'-0" ANCHOR RODS
TOP OF BOTT. VAULT SLAB - VARIES SEE PLAN
8"
2' - 0"
BOTT OF BOTT. VAULT SLAB
~ 20-0"
7' - 0"

NOTE: TEMPORARY STEEL INCLUDING THE CANTILEVERED POSTS, WHALER AND PIPE BRACES DO NOT NEED TO BE GALVANIZED.

NOTE: IT IS STRUCTURALLY ACCEPTABLE TO DRILL AND EPOXY THE ANCHORS. USING 1 1/4"Ø HAS RODS AND HILTI HIT RE 500 V3 EPOXY, EMBEDDED 8"

2 SOLDIER PILE WALL SECTION AT TRENCH @ BRACE LOCATION

SCALE: 3/8" = 1'-0"


CONTINUOUS KEYWAY. APPLY BONDING AGENT PRIOR TO SECOND POUR
4' - 3"
FIRST POUR
BLOCKOUT FOR PIPE BRACE
1' - 6"

NOTES:
1. SEE SECTIONS 1 AND 2 FOR LOCATION OF BLOCKOUT
2. BLOCKOUT TO BE 2'-0" WIDE

3 BLOCKOUT POUR BACK DETAIL

SCALE: 3/4" = 1'-0"

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

SEE SHEET S3.11 FOR ADDITIONAL INFORMATION
REGARDING PILES, POSTS AND LAGGING

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04/15/2026

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

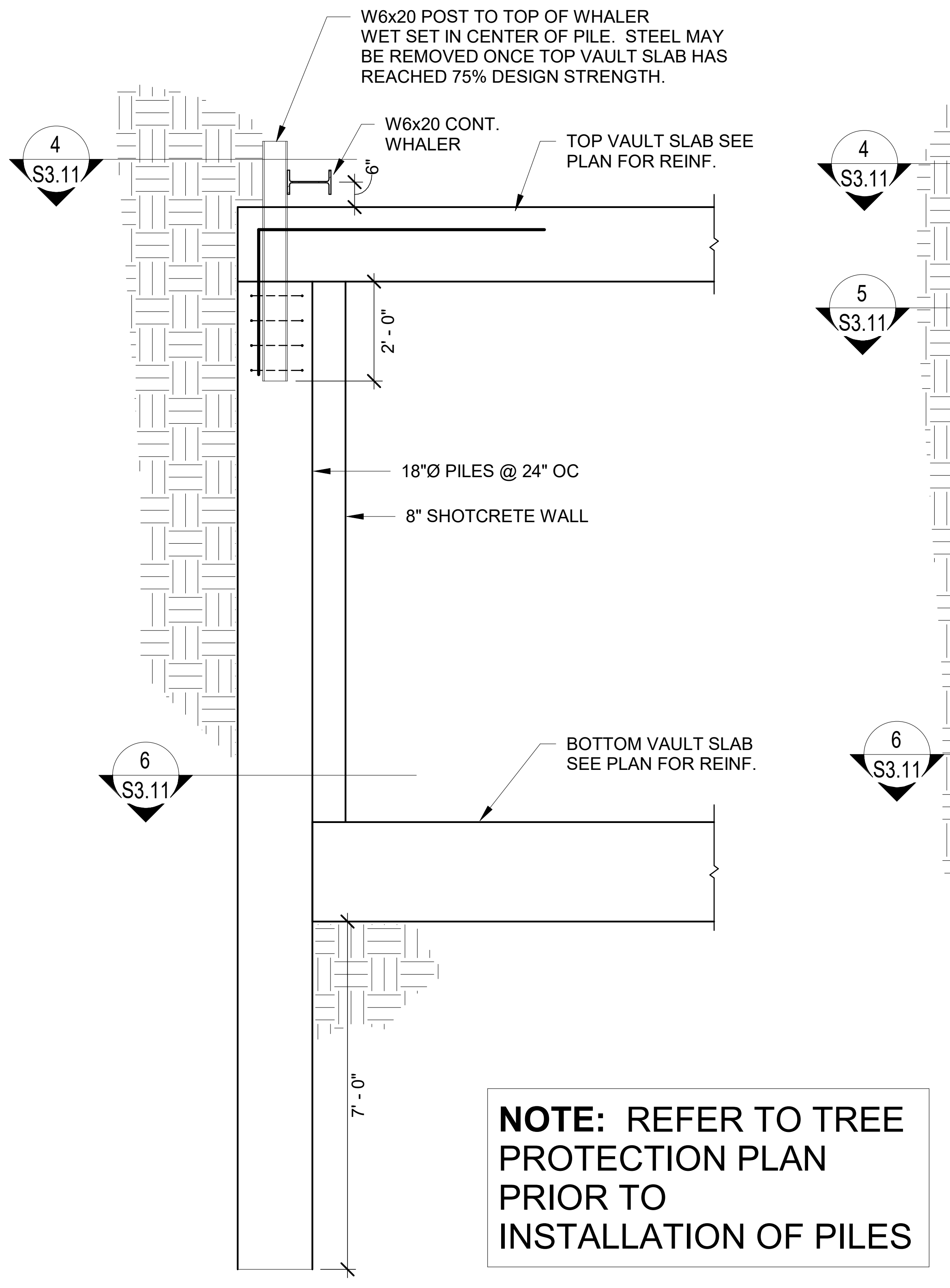
FOUNDATION DETAILS

WBS NO. M-430296-0017-3
As indicated

S3.10

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

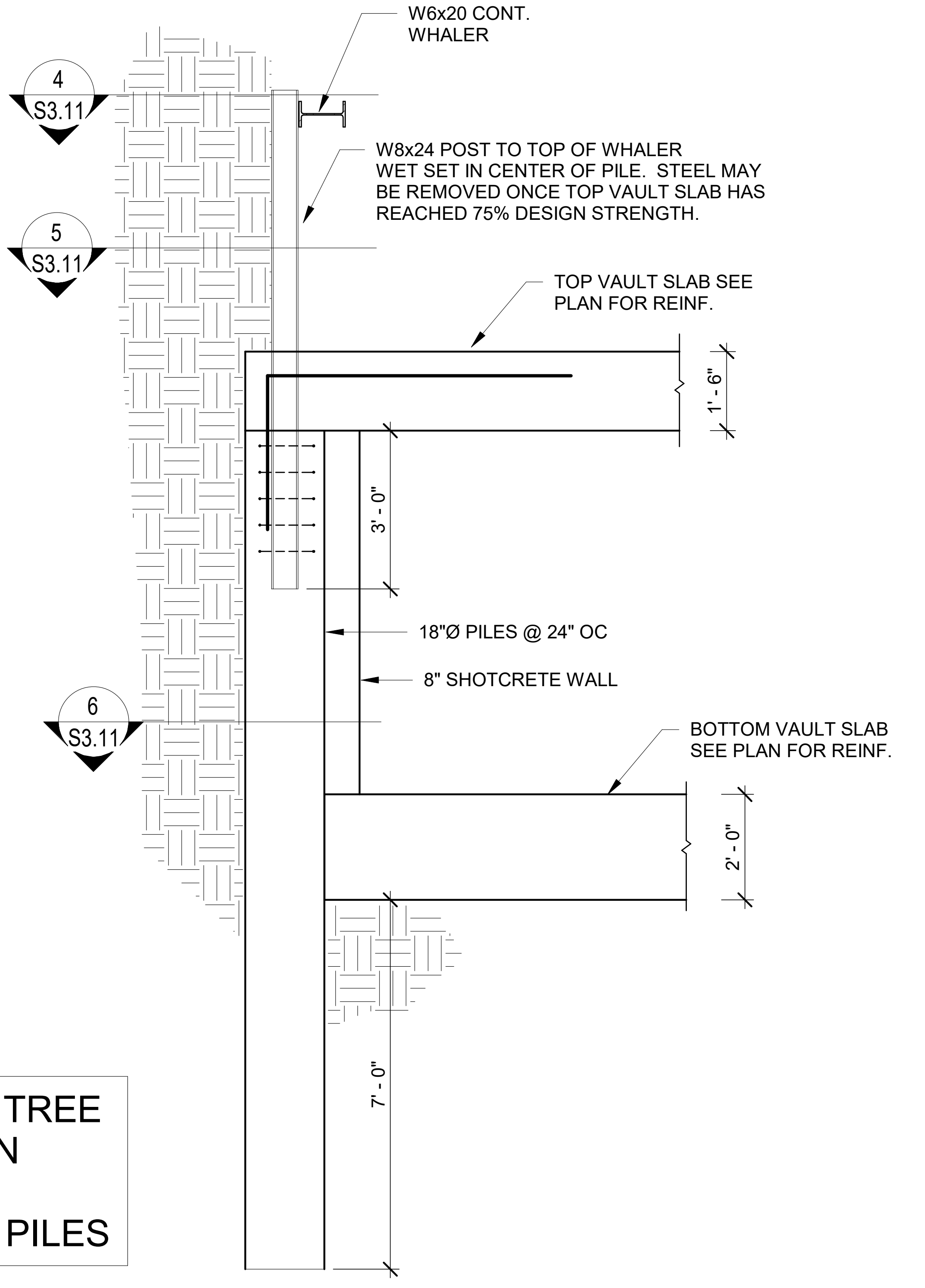
SHEET NO. 77 OF 345


W6x20 POST TO TOP OF WHALER WET SET IN CENTER OF PILE. STEEL MAY BE REMOVED ONCE TOP VAULT SLAB HAS REACHED 75% DESIGN STRENGTH.
W6x20 CONT. WHALER
TOP VAULT SLAB SEE PLAN FOR REINF.
4 S3.11
6"
2' - 0"
18"Ø PILES @ 24" OC
8" SHOTCRETE WALL
6 S3.11
BOTTOM VAULT SLAB SEE PLAN FOR REINF.
7' - 0"

NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

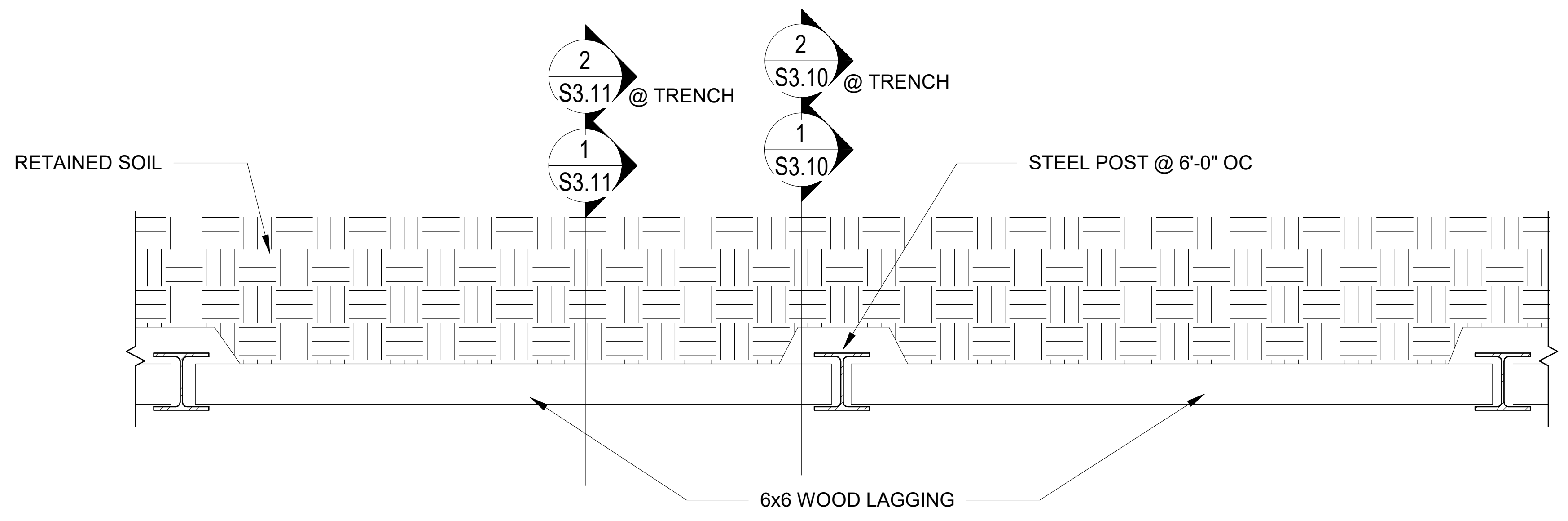
1 TYPICAL SOLDIER PILE WALL SECTION

SCALE: 3/8" = 1'-0"


W6x20 CONT. WHALER
4 S3.11
W8x24 POST TO TOP OF WHALER WET SET IN CENTER OF PILE. STEEL MAY BE REMOVED ONCE TOP VAULT SLAB HAS REACHED 75% DESIGN STRENGTH.
5 S3.11
TOP VAULT SLAB SEE PLAN FOR REINF.
1' - 6"
3' - 0"
18"Ø PILES @ 24" OC
8" SHOTCRETE WALL
6 S3.11
BOTTOM VAULT SLAB SEE PLAN FOR REINF.
2' - 0"
7' - 0"

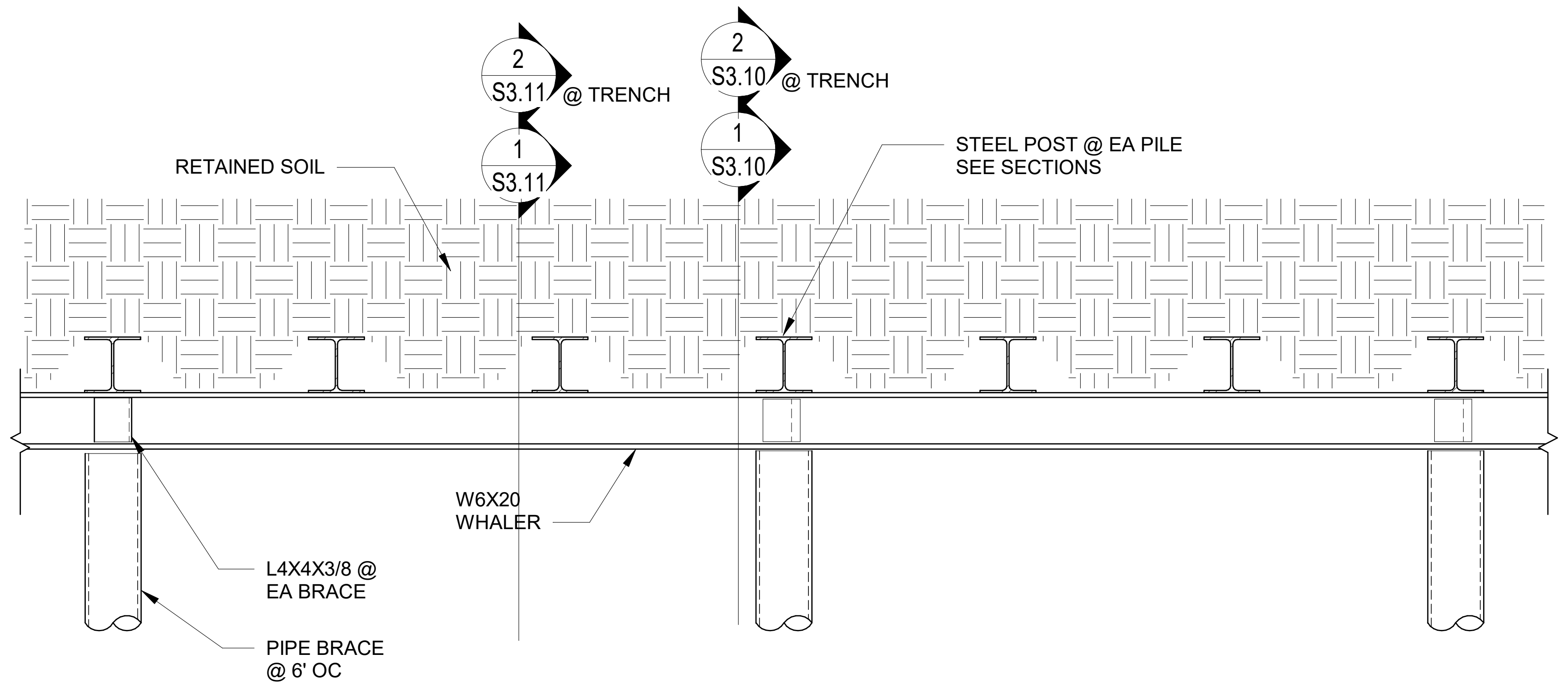
2 TYPICAL SOLDIER PILE WALL SECTION @ TRENCH

SCALE: 3/8" = 1'-0"


2 S3.11 @ TRENCH
1 S3.11
2 S3.10 @ TRENCH
1 S3.10
RETAINED SOIL
STEEL POST @ 6'-0" OC
6x6 WOOD LAGGING

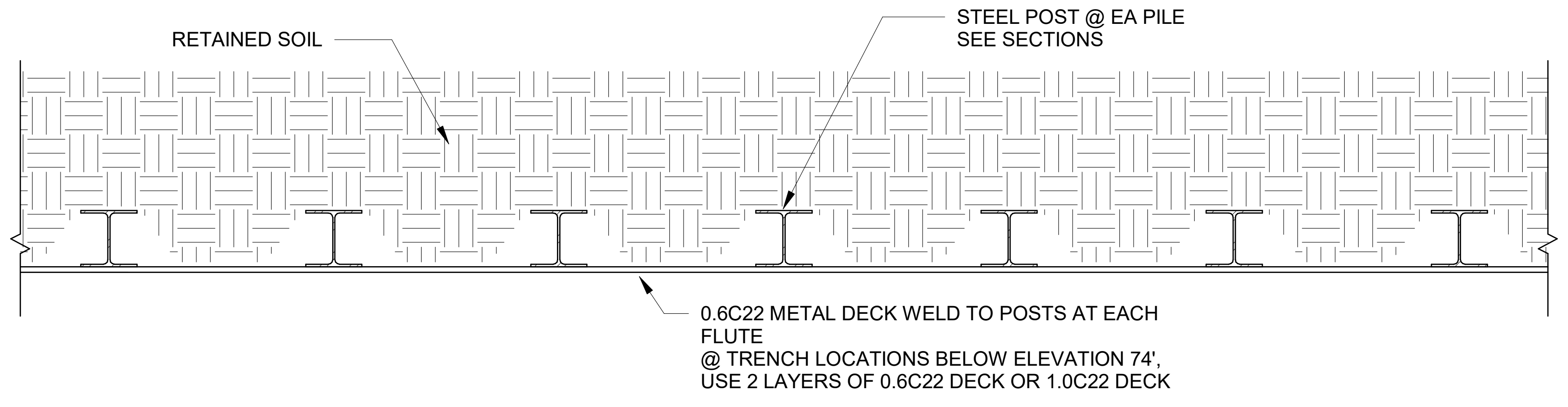
3 PLAN VIEW AT WOOD LAGGING WITH SUPPORT POSTS @ 6'-0" OC

SCALE: 3/4" = 1'-0"


2 S3.11 @ TRENCH
1 S3.11
2 S3.10 @ TRENCH
1 S3.10
RETAINED SOIL
STEEL POST @ EA PILE SEE SECTIONS
W6X20 WHALER
L4X4X3/8 @ EA BRACE
PIPE BRACE @ 6' OC

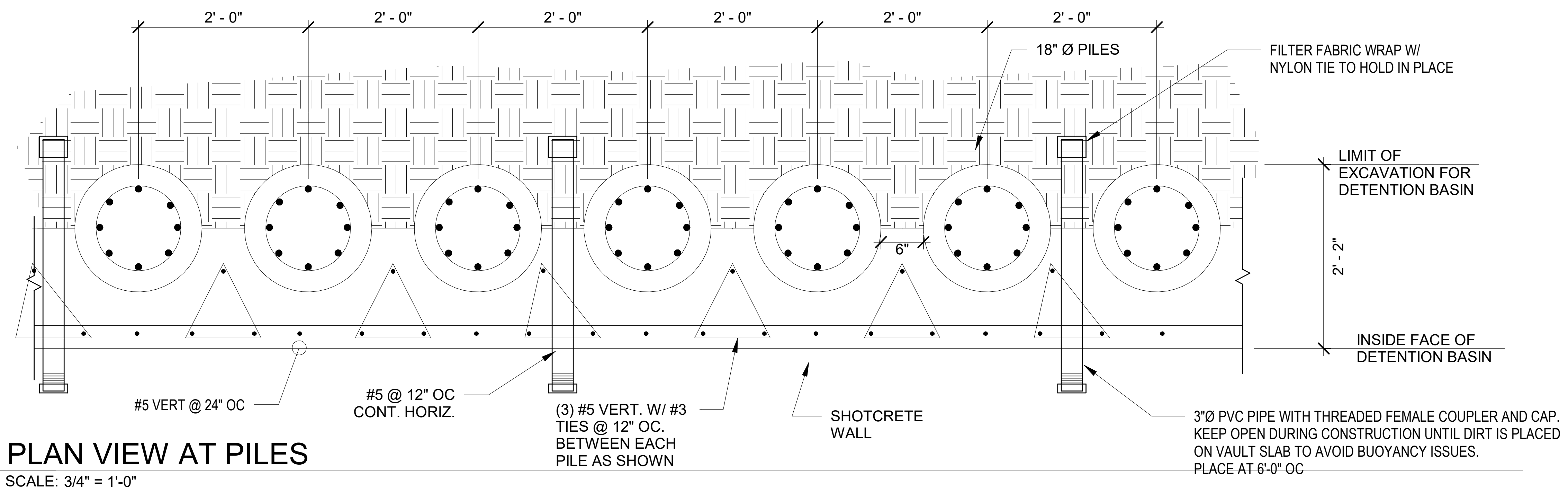
4 PLAN VIEW AT WHALER ELEVATION

SCALE: 3/4" = 1'-0"


RETAINED SOIL
STEEL POST @ EA PILE SEE SECTIONS
0.6C22 METAL DECK WELD TO POSTS AT EACH FLUTE
@ TRENCH LOCATIONS BELOW ELEVATION 74', USE 2 LAYERS OF 0.6C22 DECK OR 1.0C22 DECK

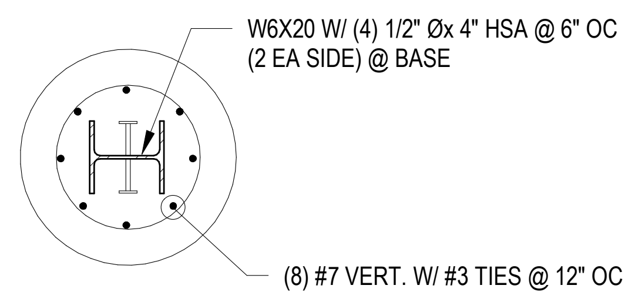
5 PLAN VIEW BETWEEN WHALER AND TOP OF PILE

SCALE: 3/4" = 1'-0"


2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
18" Ø PILES
FILTER FABRIC WRAP W/ NYLON TIE TO HOLD IN PLACE
LIMIT OF EXCAVATION FOR DETENTION BASIN
6"
2' - 2"
INSIDE FACE OF DETENTION BASIN
#5 VERT @ 24" OC
#5 @ 12" OC CONT. HORIZ.
(3) #5 VERT. W/ #3 TIES @ 12" OC. BETWEEN EACH PILE AS SHOWN
SHOTCRETE WALL
3"Ø PVC PIPE WITH THREADED FEMALE COUPLER AND CAP. KEEP OPEN DURING CONSTRUCTION UNTIL DIRT IS PLACED ON VAULT SLAB TO AVOID BUOYANCY ISSUES. PLACE AT 6'-0" OC

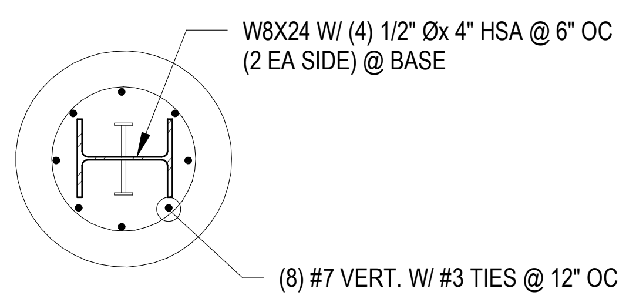
6 PLAN VIEW AT PILES

SCALE: 3/4" = 1'-0"


W6X20 W/ (4) 1/2" Øx 4" HSA @ 6" OC (2 EA SIDE) @ BASE
(8) #7 VERT. W/ #3 TIES @ 12" OC

7 CROSS SECTION OF PILE WITH W6 EMBEDDED STEEL POST

SCALE: 3/4" = 1'-0"


W8X24 W/ (4) 1/2" Øx 4" HSA @ 6" OC (2 EA SIDE) @ BASE
(8) #7 VERT. W/ #3 TIES @ 12" OC

8 CROSS SECTION OF PILE WITH W8 EMBEDDED STEEL POST

SCALE: 3/4" = 1'-0"

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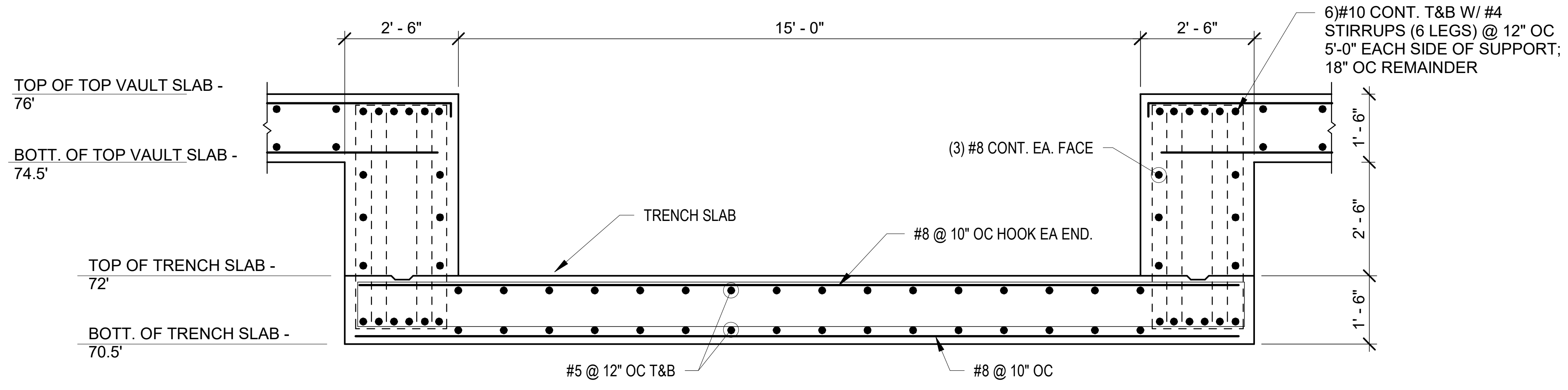
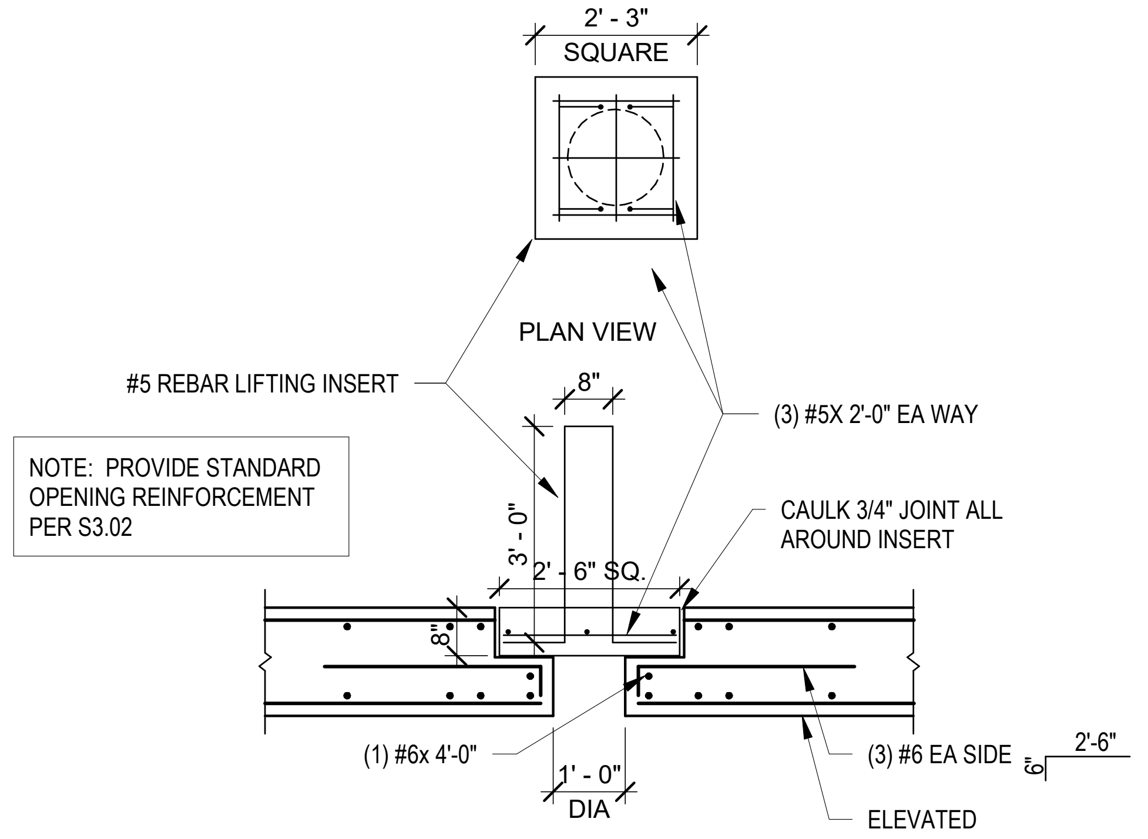

2' - 6"
15' - 0"
2' - 6"
6)#10 CONT. T&B W/ #4 STIRRUPS (6 LEGS) @ 12" OC 5'-0" EACH SIDE OF SUPPORT; 18" OC REMAINDER
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
(3) #8 CONT. EA. FACE
TRENCH SLAB
#8 @ 10" OC HOOK EA END.
TOP OF TRENCH SLAB - 72'
BOTT. OF TRENCH SLAB - 70.5'
#5 @ 12" OC T&B
#8 @ 10" OC
1' - 6"
2' - 6"
1' - 6"

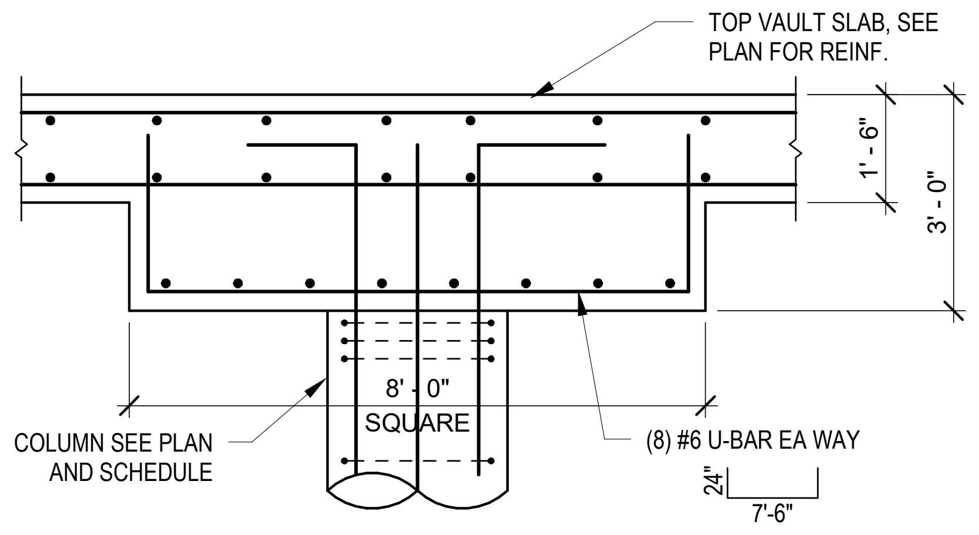
1 TRENCH SECTION

SCALE: 3/8" = 1'-0"


2' - 3"
SQUARE
PLAN VIEW
#5 REBAR LIFTING INSERT
8"
(3) #5X 2'-0" EA WAY
NOTE: PROVIDE STANDARD OPENING REINFORCEMENT PER S3.02
3' - 0"
2' - 6" SQ.
CAULK 3/4" JOINT ALL AROUND INSERT
8"
(1) #6x 4'-0"
1' - 0"
DIA
(3) #6 EA SIDE
6"
2'-6"
ELEVATED VAULT SLAB

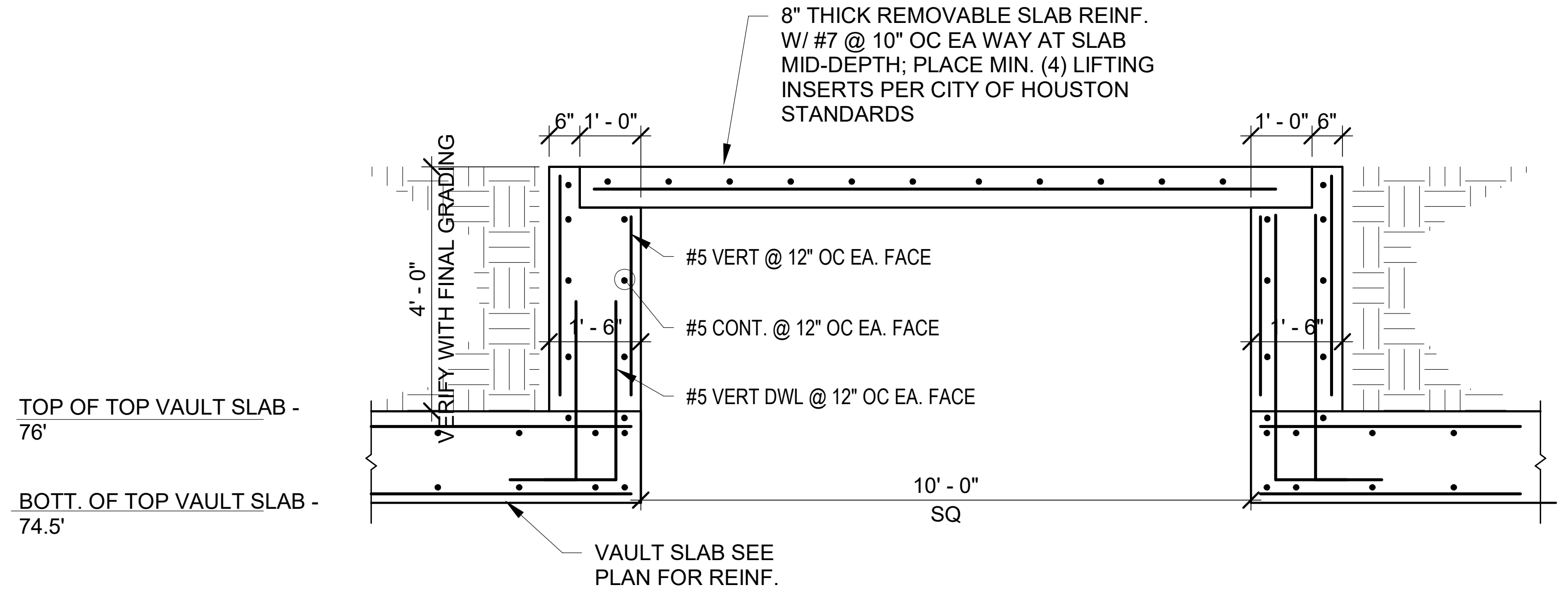
2 SECTION AT FUTURE INLET

SCALE: 3/8" = 1'-0"


TOP VAULT SLAB, SEE PLAN FOR REINF.
1' - 6"
3' - 0"
8' - 0"
SQUARE
COLUMN SEE PLAN AND SCHEDULE
(8) #6 U-BAR EA WAY
24"
7'-6"

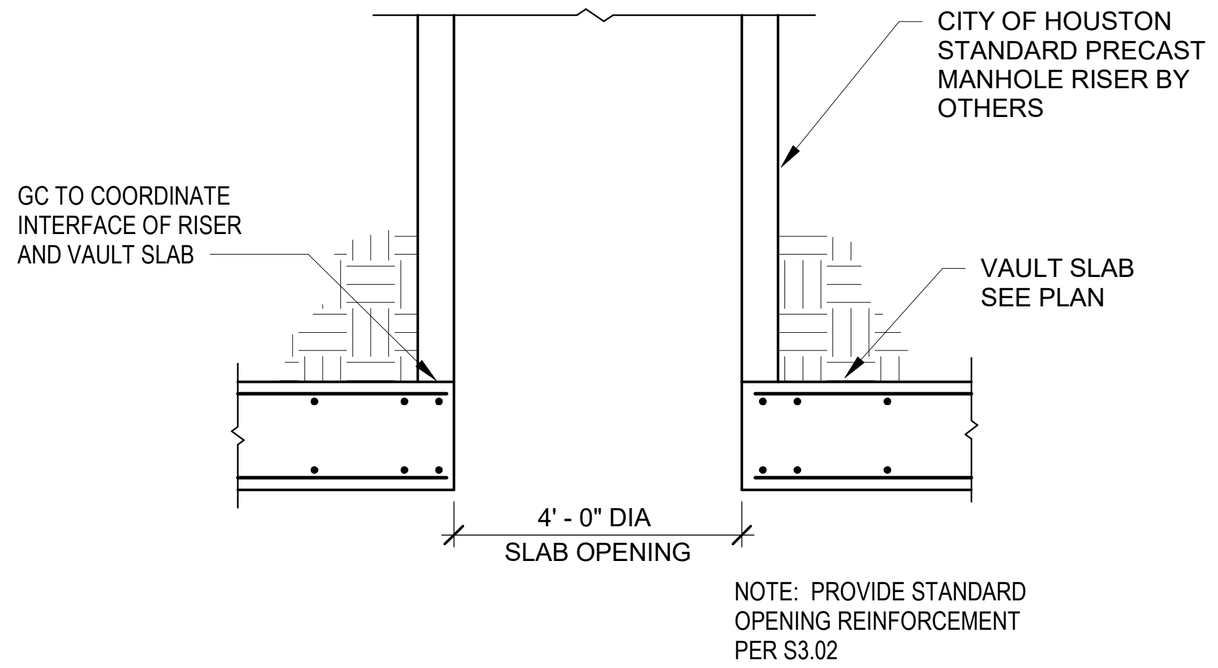
3 SECTION AT COLUMN

SCALE: 3/8" = 1'-0"


8" THICK REMOVABLE SLAB REINF. W/ #7 @ 10" OC EA WAY AT SLAB MID-DEPTH; PLACE MIN. (4) LIFTING INSERTS PER CITY OF HOUSTON STANDARDS
6"
1' - 0"
1' - 0"
6"
4' - 0"
VERIFY WITH FINAL GRADING
#5 VERT @ 12" OC EA. FACE
1' - 6"
#5 CONT. @ 12" OC EA. FACE
1' - 6"
#5 VERT DWL @ 12" OC EA. FACE
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
10' - 0"
SQ
VAULT SLAB SEE PLAN FOR REINF.

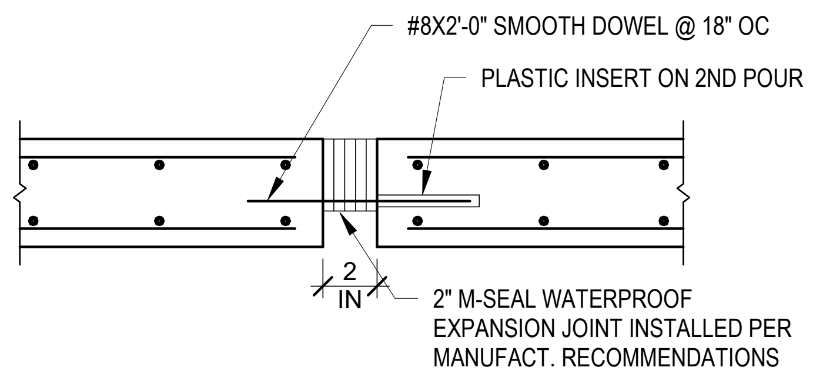
4 SECTION AT MAINTENANCE OPENING

SCALE: 3/8" = 1'-0"


CITY OF HOUSTON STANDARD PRECAST MANHOLE RISER BY OTHERS
GC TO COORDINATE INTERFACE OF RISER AND VAULT SLAB
VAULT SLAB SEE PLAN
4' - 0" DIA
SLAB OPENING
NOTE: PROVIDE STANDARD OPENING REINFORCEMENT PER S3.02

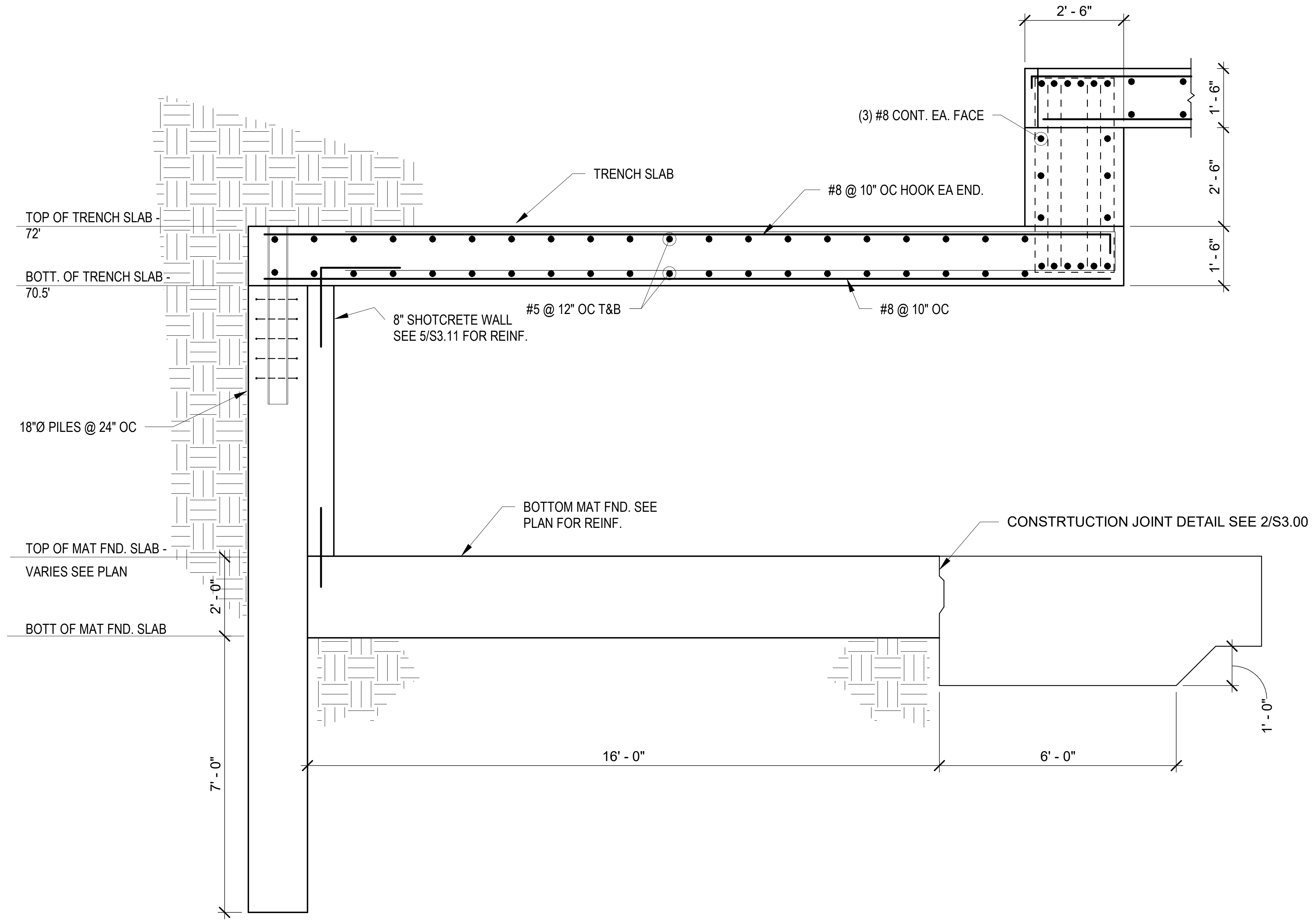
5 SECTION AT ACCESS MANHOLE

SCALE: 3/8" = 1'-0"


#8X2'-0" SMOOTH DOWEL @ 18" OC
PLASTIC INSERT ON 2ND POUR
2
IN
2" M-SEAL WATERPROOF EXPANSION JOINT INSTALLED PER MANUFACT. RECOMMENDATIONS

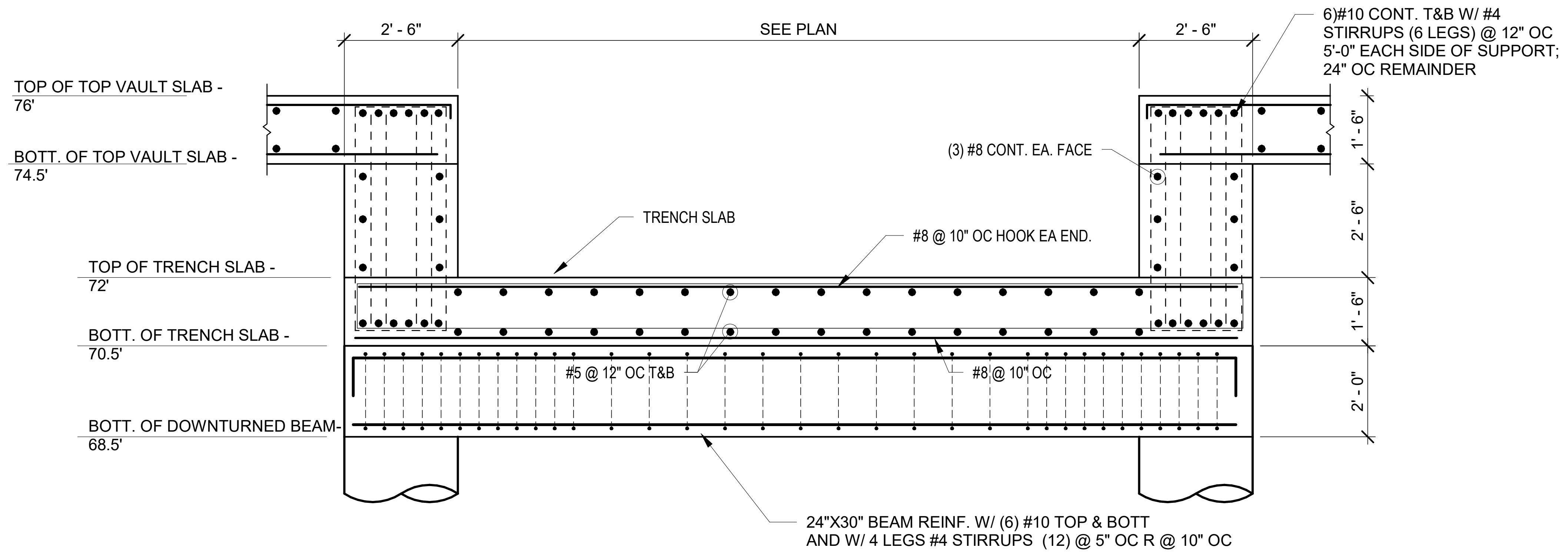
6 SLAB @ EXPANSION JOINT

SCALE: 3/8" = 1'-0"


2' - 6"
(3) #8 CONT. EA. FACE
1' - 6"
TRENCH SLAB
#8 @ 10" OC HOOK EA END.
2' - 6"
TOP OF TRENCH SLAB - 72'
1' - 6"
BOTT. OF TRENCH SLAB - 70.5'
#5 @ 12" OC T&B
#8 @ 10" OC
8" SHOTCRETE WALL SEE 5/S3.11 FOR REINF.
18"Ø PILES @ 24" OC
BOTTOM MAT FND. SEE PLAN FOR REINF.
CONSTRTUCTION JOINT DETAIL SEE 2/S3.00
TOP OF MAT FND. SLAB - VARIES SEE PLAN
2' - 0"
BOTT OF MAT FND. SLAB
1' - 0"
16' - 0"
6' - 0"
7' - 0"

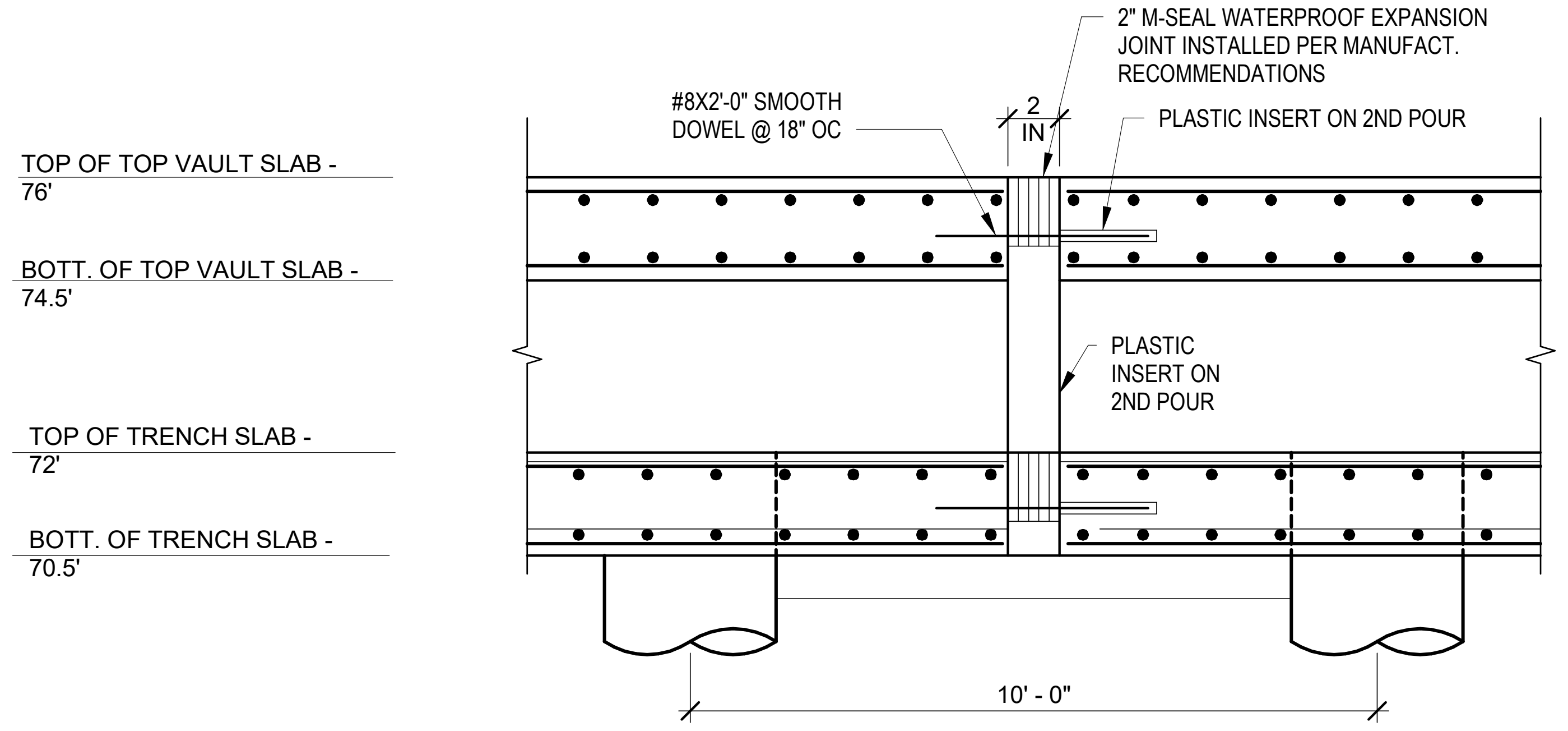
7 TRENCH SECTION

SCALE: 3/8" = 1'-0"


2' - 6"
SEE PLAN
2' - 6"
6)#10 CONT. T&B W/ #4 STIRRUPS (6 LEGS) @ 12" OC 5'-0" EACH SIDE OF SUPPORT; 24" OC REMAINDER
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
(3) #8 CONT. EA. FACE
1' - 6"
TRENCH SLAB
2' - 6"
#8 @ 10" OC HOOK EA END.
TOP OF TRENCH SLAB - 72'
1' - 6"
BOTT. OF TRENCH SLAB - 70.5'
#5 @ 12" OC T&B
#8 @ 10" OC
2' - 0"
BOTT. OF DOWNTURNED BEAM - 68.5'
24"X30" BEAM REINF. W/ (6) #10 TOP & BOTT AND W/ 4 LEGS #4 STIRRUPS (12) @ 5" OC R @ 10" OC

8 TRENCH AT INTERSECTION

SCALE: 3/8" = 1'-0"


2" M-SEAL WATERPROOF EXPANSION JOINT INSTALLED PER MANUFACT. RECOMMENDATIONS
#8X2'-0" SMOOTH DOWEL @ 18" OC
2
IN
PLASTIC INSERT ON 2ND POUR
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
PLASTIC INSERT ON 2ND POUR
TOP OF TRENCH SLAB - 72'
BOTT. OF TRENCH SLAB - 70.5'
10' - 0"

9 TRENCH @ EXPANSION JOINT

SCALE: 3/8" = 1'-0"

No.
Date
Revisions
App.

ADAM DAVID LAW
98553
04/15/2026

FRACTAL
Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
BY: ADAM D. LAW
P.E. REGISTRATION NO.98553
DATE:

SURVEYED BY: UNITED ENGINEER, INC.

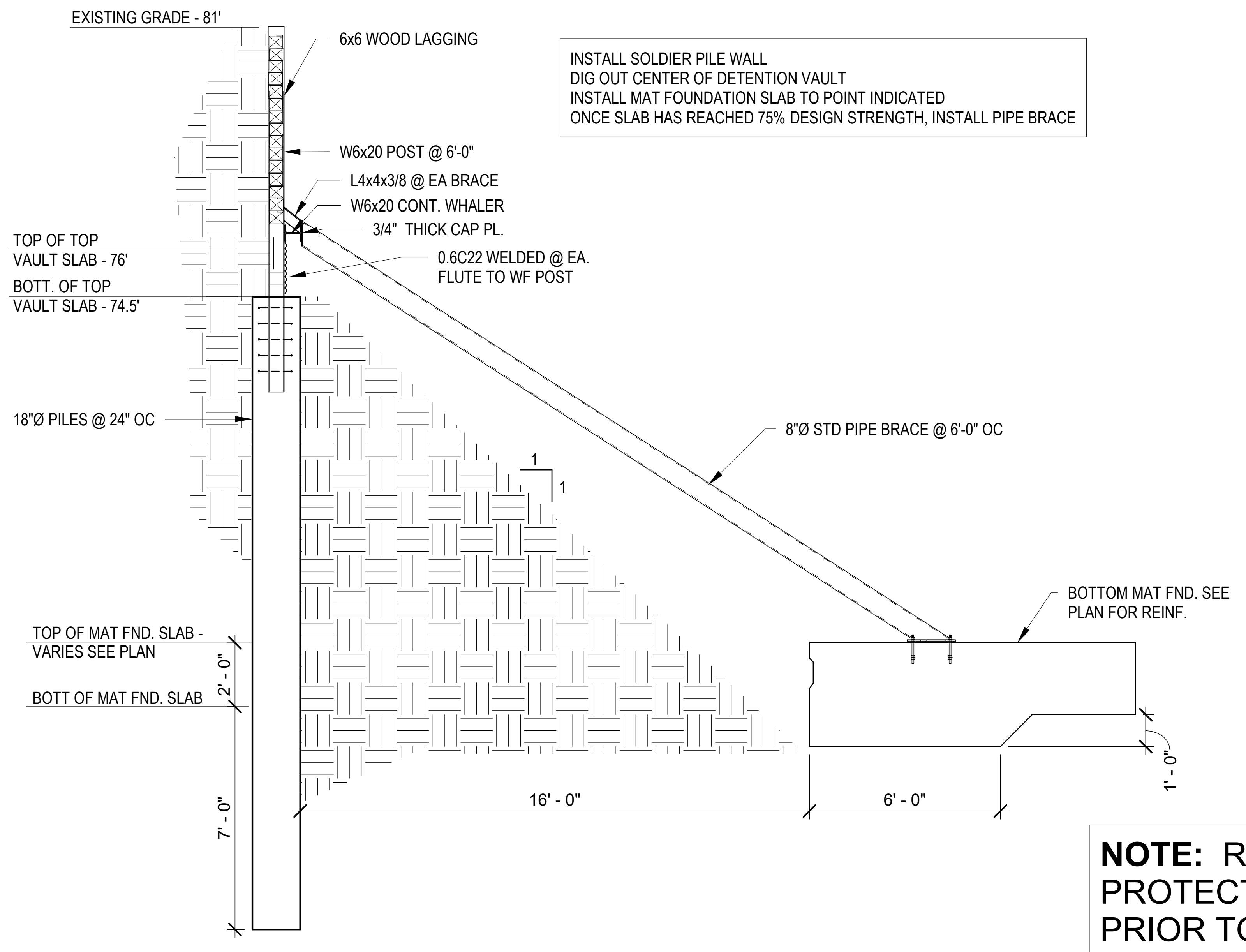
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

VAULT DETAILS

WBS NO. M-430296-0017-3
3/8" = 1'-0"
S3.12
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 79 OF 345

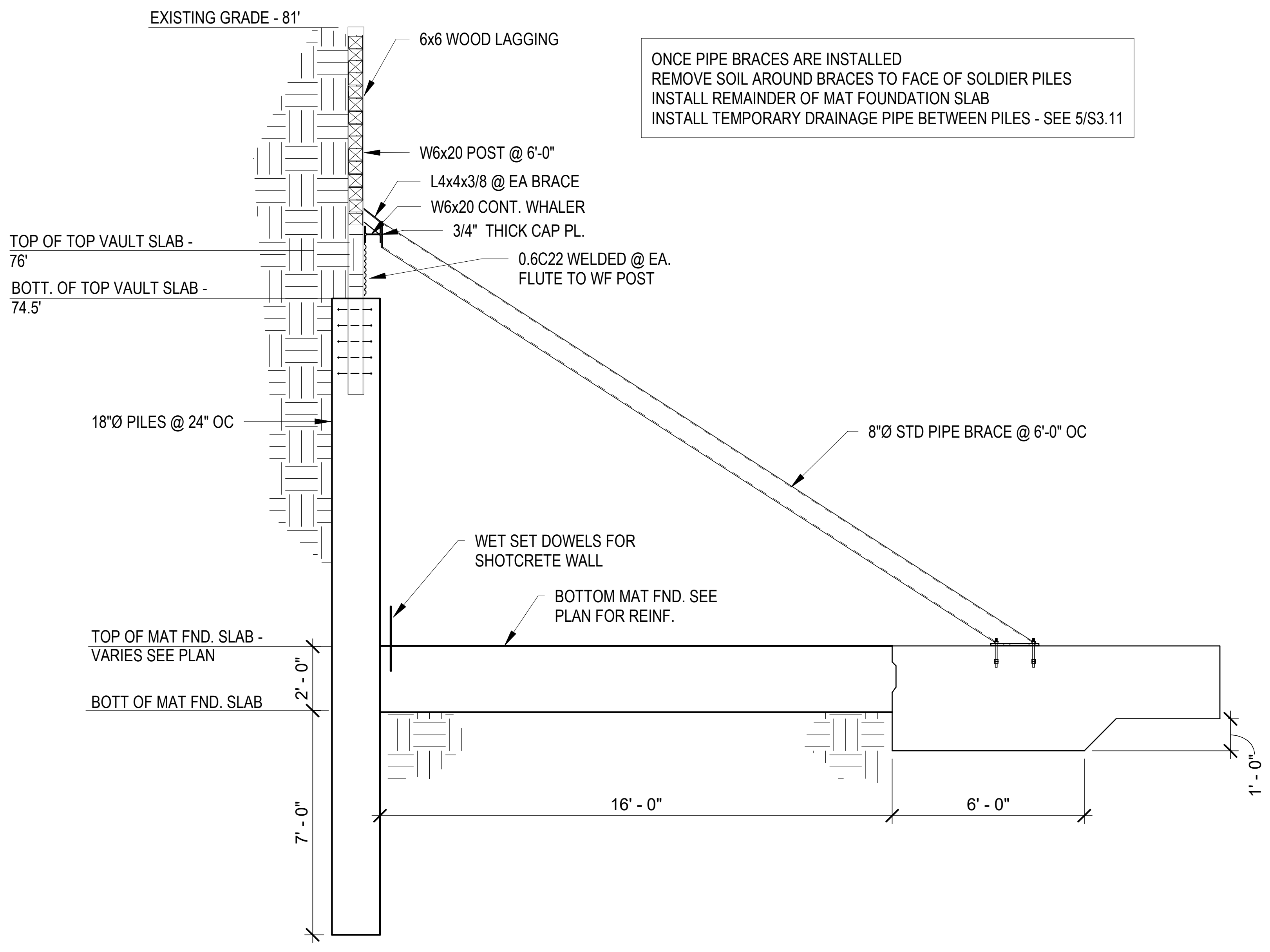
No.	Date	Revisions	App.


EXISTING GRADE - 81'
6x6 WOOD LAGGING
W6x20 POST @ 6'-0"
L4x4x3/8 @ EA BRACE
W6x20 CONT. WHALER
3/4" THICK CAP PL.
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
0.6C22 WELDED @ EA. FLUTE TO WF POST
18"Ø PILES @ 24" OC
8"Ø STD PIPE BRACE @ 6'-0" OC
1
1
BOTTOM MAT FND. SEE PLAN FOR REINF.
TOP OF MAT FND. SLAB - VARIES SEE PLAN
BOTT OF MAT FND. SLAB
2' - 0"
7' - 0"
16' - 0"
6' - 0"
1' - 0"

INSTALL SOLDIER PILE WALL
DIG OUT CENTER OF DETENTION VAULT
INSTALL MAT FOUNDATION SLAB TO POINT INDICATED
ONCE SLAB HAS REACHED 75% DESIGN STRENGTH, INSTALL PIPE BRACE

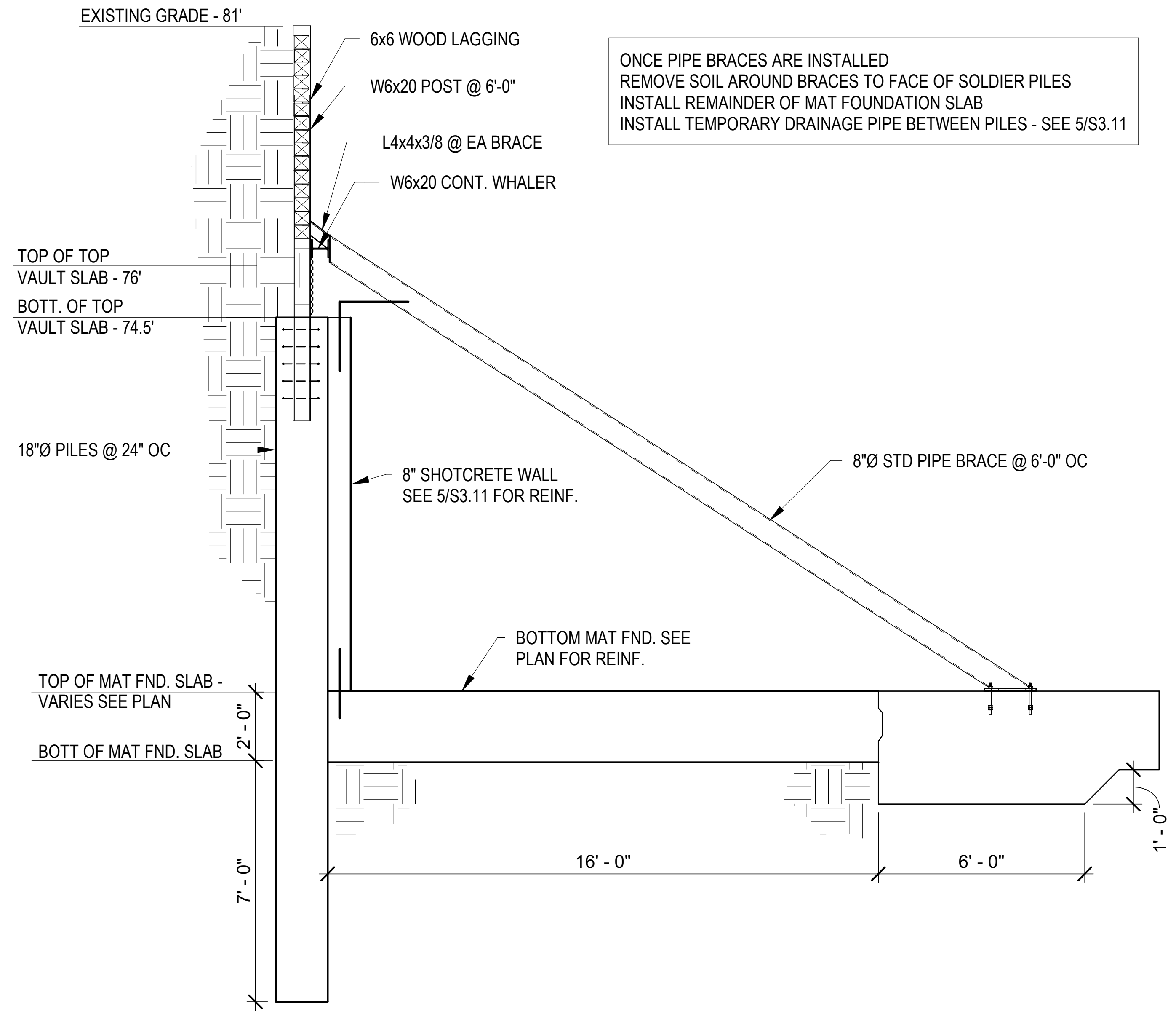
NOTE: REFER TO TREE PROTECTION PLAN PRIOR TO INSTALLATION OF PILES

1 PROPOSED SEQUENCE OF CONSTRUCTION
SCALE: 1/4" = 1'-0"


EXISTING GRADE - 81'
6x6 WOOD LAGGING
W6x20 POST @ 6'-0"
L4x4x3/8 @ EA BRACE
W6x20 CONT. WHALER
3/4" THICK CAP PL.
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
0.6C22 WELDED @ EA. FLUTE TO WF POST
18"Ø PILES @ 24" OC
8"Ø STD PIPE BRACE @ 6'-0" OC
WET SET DOWELS FOR SHOTCRETE WALL
BOTTOM MAT FND. SEE PLAN FOR REINF.
TOP OF MAT FND. SLAB - VARIES SEE PLAN
BOTT OF MAT FND. SLAB
2' - 0"
7' - 0"
16' - 0"
6' - 0"
1' - 0"

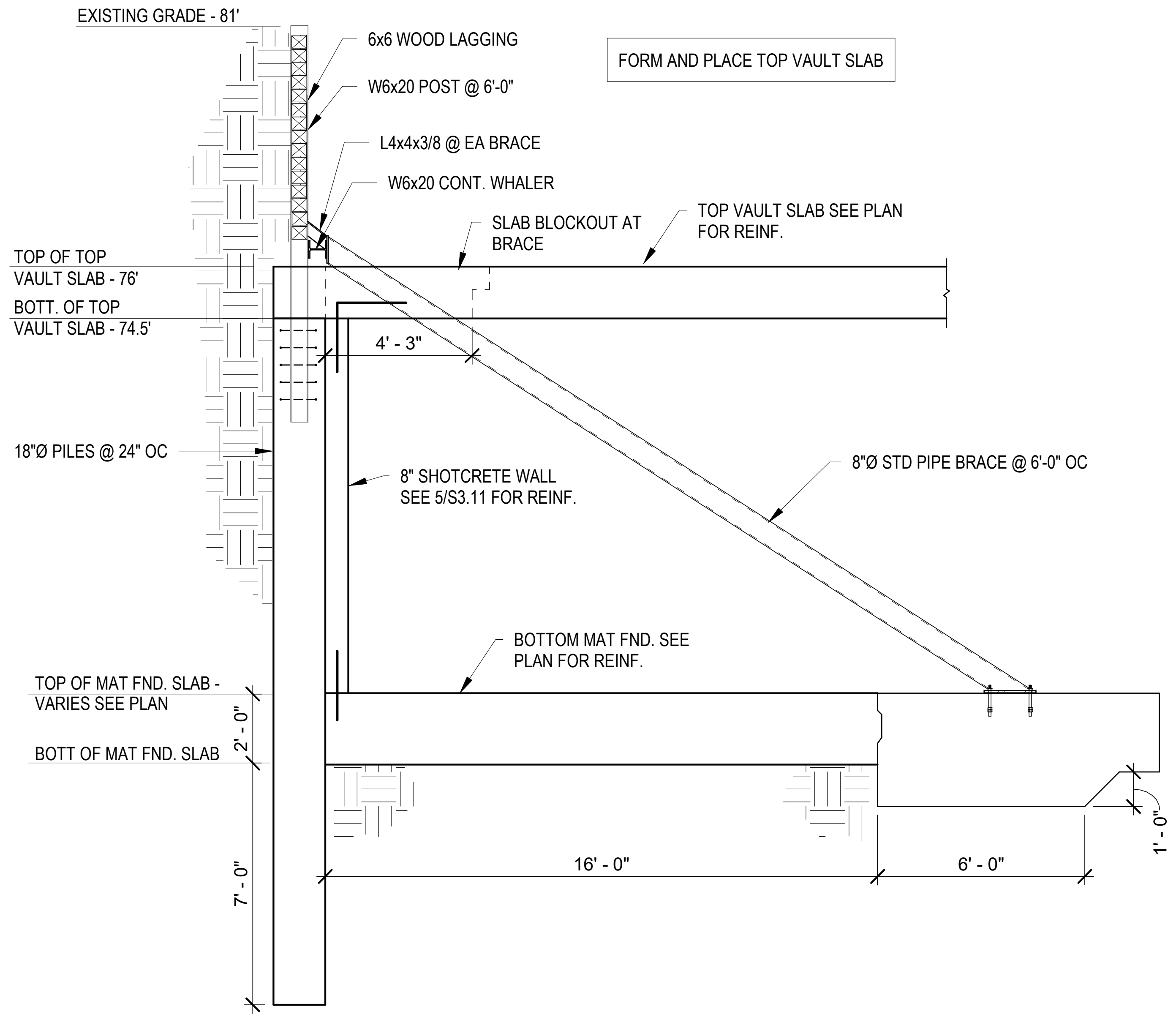
ONCE PIPE BRACES ARE INSTALLED
REMOVE SOIL AROUND BRACES TO FACE OF SOLDIER PILES
INSTALL REMAINDER OF MAT FOUNDATION SLAB
INSTALL TEMPORARY DRAINAGE PIPE BETWEEN PILES - SEE 5/S3.11

2 PROPOSED SEQUENCE OF CONSTRUCTION
SCALE: 1/4" = 1'-0"


EXISTING GRADE - 81'
6x6 WOOD LAGGING
W6x20 POST @ 6'-0"
L4x4x3/8 @ EA BRACE
W6x20 CONT. WHALER
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
18"Ø PILES @ 24" OC
8" SHOTCRETE WALL SEE 5/S3.11 FOR REINF.
8"Ø STD PIPE BRACE @ 6'-0" OC
BOTTOM MAT FND. SEE PLAN FOR REINF.
TOP OF MAT FND. SLAB - VARIES SEE PLAN
BOTT OF MAT FND. SLAB
2' - 0"
7' - 0"
16' - 0"
6' - 0"
1' - 0"

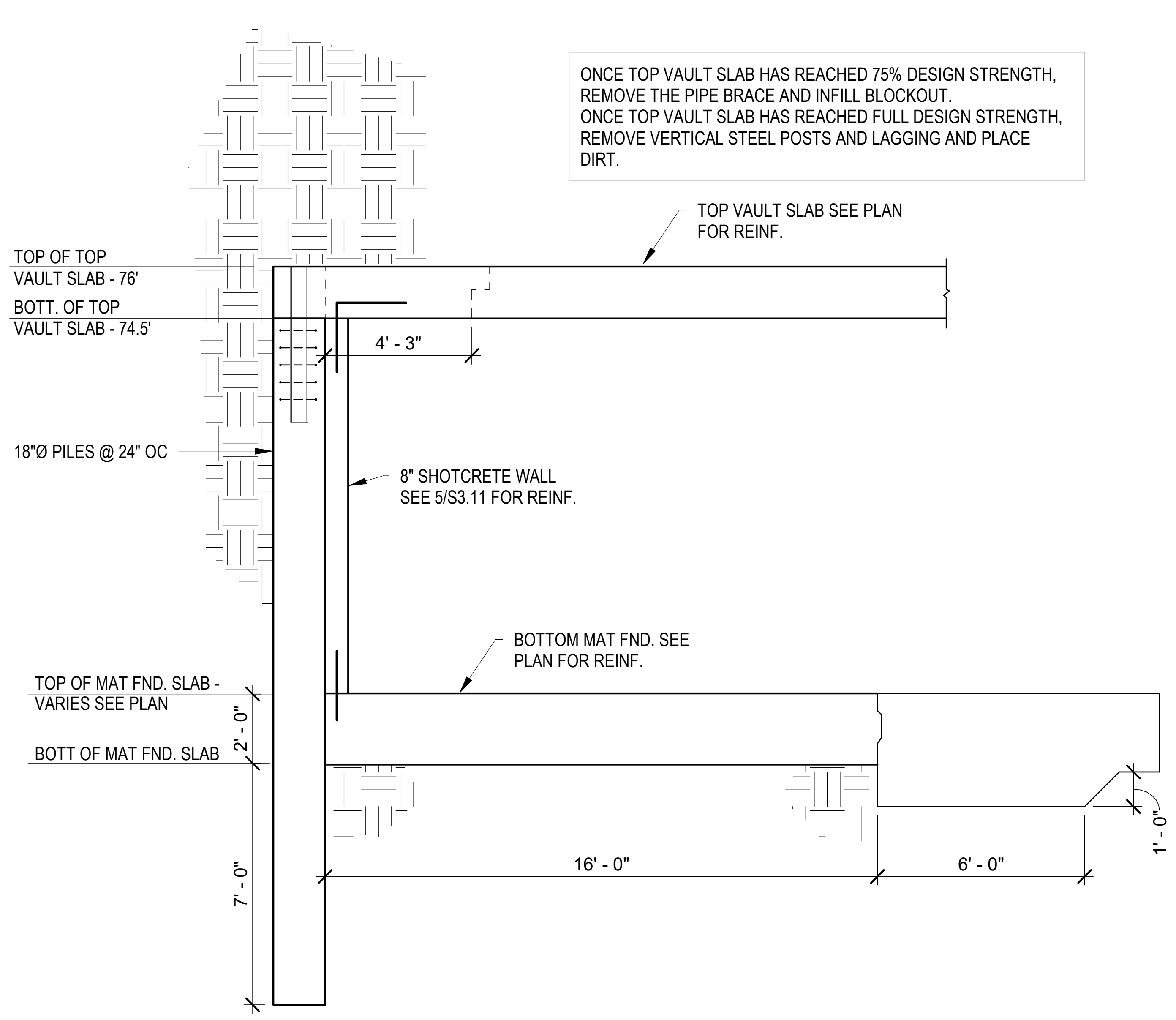
ONCE PIPE BRACES ARE INSTALLED
REMOVE SOIL AROUND BRACES TO FACE OF SOLDIER PILES
INSTALL REMAINDER OF MAT FOUNDATION SLAB
INSTALL TEMPORARY DRAINAGE PIPE BETWEEN PILES - SEE 5/S3.11

3 PROPOSED SEQUENCE OF CONSTRUCTION
SCALE: 1/4" = 1'-0"


EXISTING GRADE - 81'
6x6 WOOD LAGGING
W6x20 POST @ 6'-0"
L4x4x3/8 @ EA BRACE
W6x20 CONT. WHALER
SLAB BLOCKOUT AT BRACE
TOP VAULT SLAB SEE PLAN FOR REINF.
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
4' - 3"
18"Ø PILES @ 24" OC
8" SHOTCRETE WALL SEE 5/S3.11 FOR REINF.
8"Ø STD PIPE BRACE @ 6'-0" OC
BOTTOM MAT FND. SEE PLAN FOR REINF.
TOP OF MAT FND. SLAB - VARIES SEE PLAN
BOTT OF MAT FND. SLAB
2' - 0"
7' - 0"
16' - 0"
6' - 0"
1' - 0"

FORM AND PLACE TOP VAULT SLAB

4 PROPOSED SEQUENCE OF CONSTRUCTION
SCALE: 1/4" = 1'-0"


TOP VAULT SLAB SEE PLAN FOR REINF.
TOP OF TOP VAULT SLAB - 76'
BOTT. OF TOP VAULT SLAB - 74.5'
4' - 3"
18"Ø PILES @ 24" OC
8" SHOTCRETE WALL SEE 5/S3.11 FOR REINF.
BOTTOM MAT FND. SEE PLAN FOR REINF.
TOP OF MAT FND. SLAB - VARIES SEE PLAN
BOTT OF MAT FND. SLAB
2' - 0"
7' - 0"
16' - 0"
6' - 0"
1' - 0"

ONCE TOP VAULT SLAB HAS REACHED 75% DESIGN STRENGTH, REMOVE THE PIPE BRACE AND INFILL BLOCKOUT.
ONCE TOP VAULT SLAB HAS REACHED FULL DESIGN STRENGTH, REMOVE VERTICAL STEEL POSTS AND LAGGING AND PLACE DIRT.

5 PROPOSED SEQUENCE OF CONSTRUCTION
SCALE: 1/4" = 1'-0"

SEE SHEET S3.10 & S3.11 FOR ADDITIONAL INFORMATION REGARDING PILES, POSTS AND LAGGING

GC TO CONFIRM PROPOSED SEQUENCE, AND DISCUSS ANY ALTERNATES WITH DESIGN TEAM.

ADAM DAVID LAW
98553
04/15/2026

FRACTAL
Texas Firm Registration No. F-16958
FRACTAL Project No.25-101-00

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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DATE:

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

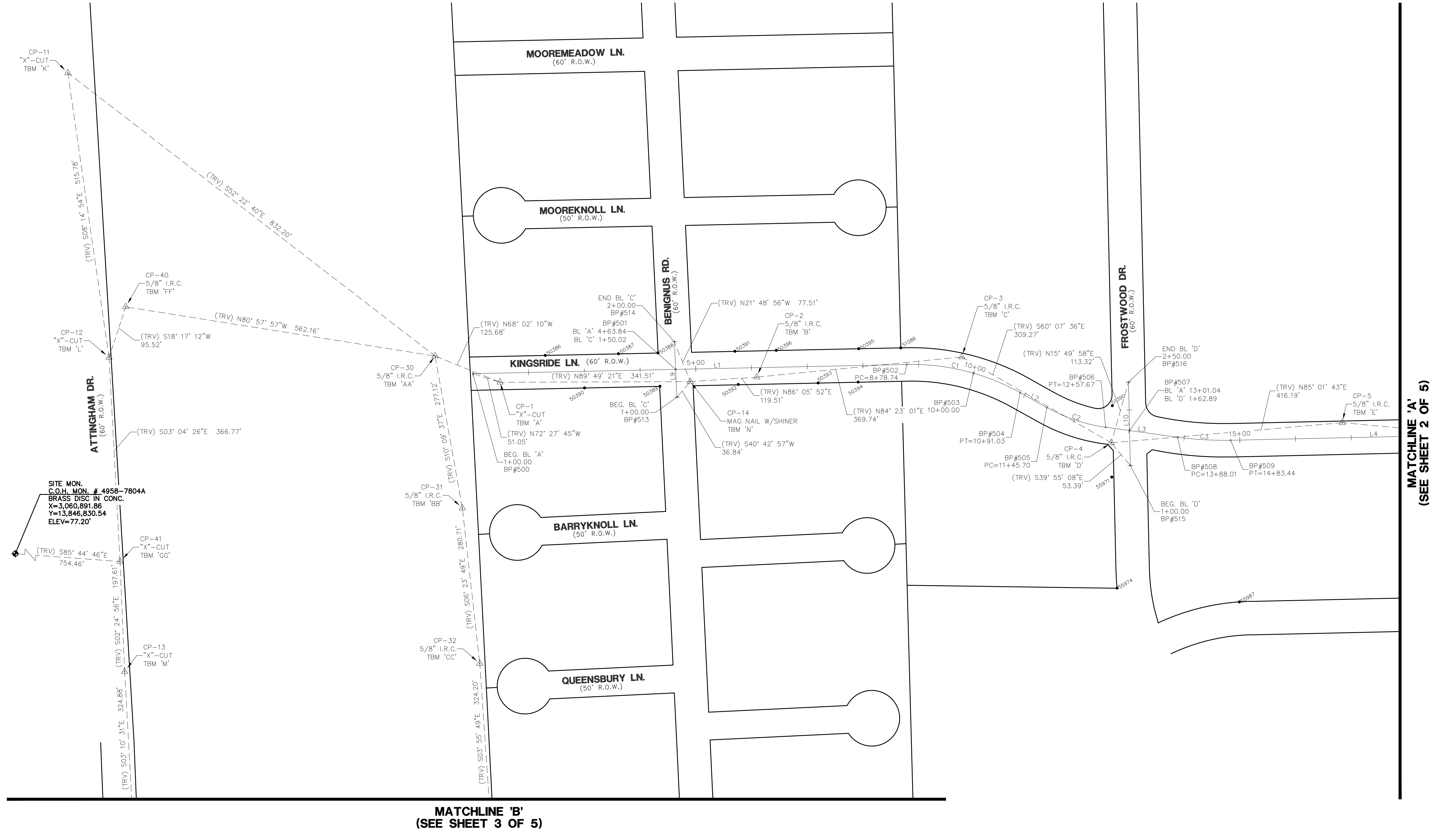
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

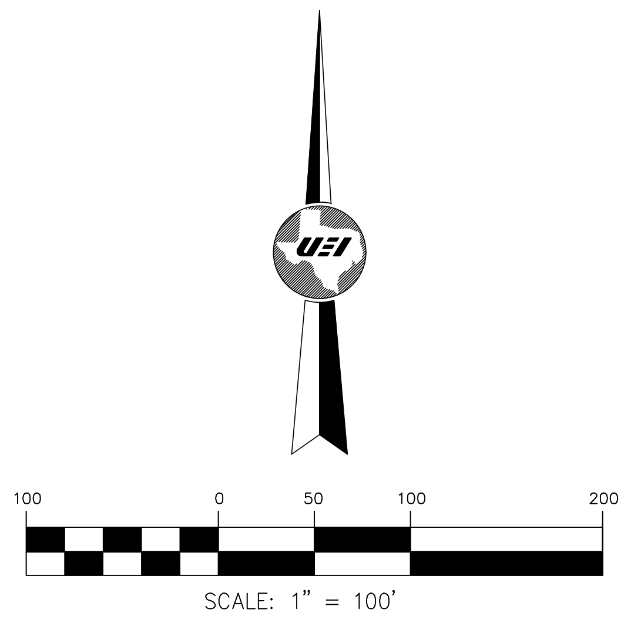
FOUNDATION DETAILS

WBS NO. M-430296-0017-3
1/4" = 1'-0"

S3.13

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 80 OF 345


CP-11
"X"-CUT
TBM 'K'
(TRV) S08° 14' 54"E 515.78'
(TRV) S52° 22' 40"E 832.20'
CP-40
5/8" I.R.C.
TBM 'FF'
(TRV) N80° 57' 57"W 562.16'
CP-12
"X"-CUT
TBM 'L'
(TRV) S18° 17' 12"W
95.52'
ATTINGHAM DR.
(60' R.O.W.)
(TRV) S03° 04' 26"E 366.77'
SITE MON.
C.O.H. MON. # 4958-7804A
BRASS DISC IN CONC.
X=3,060,891.86
Y=13,846,830.54
ELEV=77.20'
(TRV) S85° 44' 46"E
754.46'
CP-41
"X"-CUT
TBM 'GG'
(TRV) S02° 24' 56"E 197.61'
CP-13
"X"-CUT
TBM 'M'
(TRV) S03° 10' 31"E 324.88'
CP-30
5/8" I.R.C.
TBM 'AA'
(TRV) S10° 09' 37"E 277.12'
CP-31
5/8" I.R.C.
TBM 'BB'
(TRV) S06° 23' 49"E 280.71'
CP-32
5/8" I.R.C.
TBM 'CC'
(TRV) S03° 55' 49"E 324.20'
MOOREMEADOW LN.
(60' R.O.W.)
MOOREKNOLL LN.
(50' R.O.W.)
BENIGNUS RD.
(60' R.O.W.)
KINGSRIDE LN. (60' R.O.W.)
BARRYKNOLL LN.
(50' R.O.W.)
QUEENSBURY LN.
(50' R.O.W.)
FROSTWOOD DR.
(60' R.O.W.)
(TRV) N68° 02' 10"W
125.68'
END BL 'C'
2+00.00
BP#514
BP#501
BL 'A' 4+63.84
BL 'C' 1+50.02
(TRV) N21° 48' 56"W 77.51'
CP-2
5/8" I.R.C.
TBM 'B'
50386
50387
50388
50391
50396
50395
51086
5+00
L1
L9
(TRV) N89° 49' 21"E 341.51'
50390
50389
50392
50393
50394
CP-1
"X"-CUT
TBM 'A'
(TRV) N72° 27' 45"W
51.05'
BEG. BL 'A'
1+00.00
BP#500
BEG. BL 'C'
1+00.00
BP#513
CP-14
MAG NAIL W/SHINER
TBM 'N'
(TRV) S40° 42' 57"W
36.84'
(TRV) N86° 05' 52"E
119.51'
BP#502
PC=8+78.74
(TRV) N84° 23' 01"E
369.74'
BP#503
10+00.00
C1 10+00
CP-3
5/8" I.R.C.
TBM 'C'
(TRV) S60° 07' 36"E
309.27'
(TRV) N15° 49' 58"E
113.32'
BP#506
PT=12+57.67
L2
C2
BP#504
PT=10+91.03
BP#505
PC=11+45.70
CP-4
5/8" I.R.C.
TBM 'D'
(TRV) S39° 55' 08"E
53.39'
51390
55971
55974
55987
END BL 'D'
2+50.00
BP#516
BP#507
BL 'A' 13+01.04
BL 'D' 1+62.89
L10
L3
C3
15+00
L4
BEG. BL 'D'
1+00.00
BP#515
BP#508
PC=13+88.01
BP#509
PT=14+83.44
(TRV) N85° 01' 43"E
416.19'
CP-5
5/8" I.R.C.
TBM 'E'
MATCHLINE 'A'
(SEE SHEET 2 OF 5)
MATCHLINE 'B'
(SEE SHEET 3 OF 5)


UEI
100
0
50
100
200
SCALE: 1" = 100'

LEGEND:

- - - - - - - - - -	HCAD PROPERTY LINE
10' U.E.	EASEMENT
———————	RIGHT-OF-WAY PROPERTY LINE
(TRV.) N 00° 00' 00" E.	TRAVERSE LINE
(BL.) N 00° 00' 00" E.	BASELINE
● 6969	CONTROL MONUMENTS

GENERAL NOTES:

CP- indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C.. indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

SEE SHEET 4 OF 5
LINE & CURVE TABLE

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207 4-14-26
DATE

STATE OF TEXAS
REGISTERED
CHRISTIN MICHAEL NORRIS
6207
PROFESSIONAL
LAND SURVEYOR

United Engineers, Inc.
CIVIL ENGINEERING ◆ LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING ◆ UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL. (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND
AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL

SURVEY CONTROL MAP
SHEET 1 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 81 OF 345	

100% SUBMITTAL

PLOTTED: 4/15/2026 8:14 AM
FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SHEET 1.dwg

PLOTTED: 4/15/2026 8:14 AM

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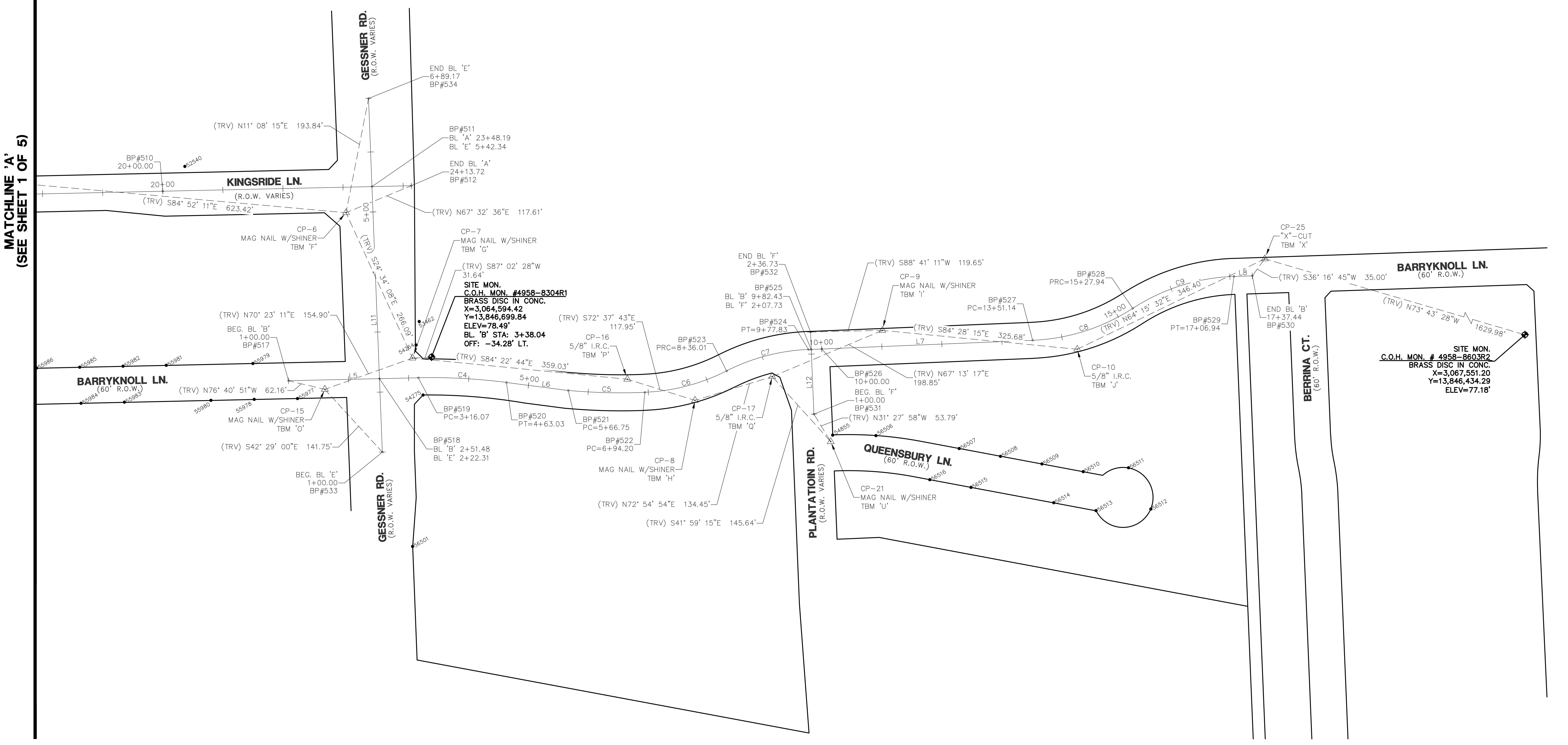
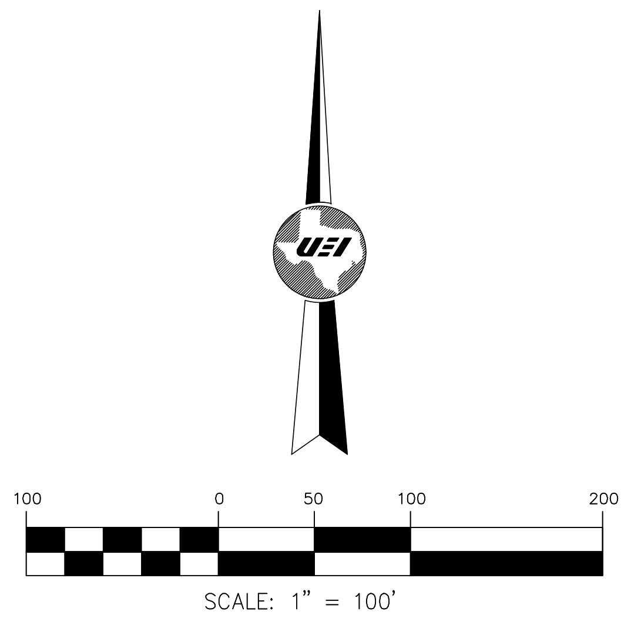

MATCHLINE 'A'
(SEE SHEET 1 OF 5)
GESSNER RD.
(R.O.W. VARIES)
END BL 'E'
6+89.17
BP#534
(TRV) N11° 08' 15"E 193.84'
BP#511
BL 'A' 23+48.19
BL 'E' 5+42.34
END BL 'A'
24+13.72
BP#512
BP#510
20+00.00
52540
20+00
KINGSRIDE LN.
(R.O.W. VARIES)
(TRV) S84° 52' 11"E 623.42'
(TRV) N67° 32' 36"E 117.61'
5+00
CP-6
MAG NAIL W/SHINER
TBM 'F'
CP-7
MAG NAIL W/SHINER
TBM 'G'
(TRV) S24° 34' 08"E 266.09'
(TRV) S87° 02' 28"W
31.64'
SITE MON.
C.O.H. MON. #4958-8304R1
BRASS DISC IN CONC.
X=3,064,594.42
Y=13,846,699.84
ELEV=78.49'
BL. 'B' STA: 3+38.04
OFF: -34.28' LT.
L11
53462
54264
(TRV) N70° 23' 11"E 154.90'
BEG. BL 'B'
1+00.00
BP#517
55986
55985
55982
55981
55979
BARRYKNOLL LN.
(60' R.O.W.)
55984
55983
55980
55978
55977
L5
(TRV) N76° 40' 51"W 62.16'
CP-15
MAG NAIL W/SHINER
TBM 'O'
(TRV) S42° 29' 00"E 141.75'
BEG. BL 'E'
1+00.00
BP#533
GESSNER RD.
(R.O.W. VARIES)
56501
(TRV) S84° 22' 44"E 359.03'
C4
5+00
L6
C5
54275
BP#519
PC=3+16.07
BP#518
BL 'B' 2+51.48
BL 'E' 2+22.31
BP#520
PT=4+63.03
BP#521
PC=5+66.75
BP#522
PC=6+94.20
(TRV) S72° 37' 43"E
117.95'
CP-16
5/8" I.R.C.
TBM 'P'
BP#523
PRC=8+36.01
C6
C7
CP-8
MAG NAIL W/SHINER
TBM 'H'
CP-17
5/8" I.R.C.
TBM 'Q'
(TRV) N72° 54' 54"E 134.45'
(TRV) S41° 59' 15"E 145.64'
END BL 'F'
2+36.73
BP#532
BP#525
BL 'B' 9+82.43
BL 'F' 2+07.73
BP#524
PT=9+77.83
10+00
L12
BP#526
10+00.00
BEG. BL 'F'
1+00.00
BP#531
(TRV) N31° 27' 58"W 53.79'
PLANTATIOIN RD.
(R.O.W. VARIES)
54855
CP-21
MAG NAIL W/SHINER
TBM 'U'
QUEENSBURY LN.
(60' R.O.W.)
56506
56507
56508
56509
56510
56511
56512
56513
56514
56515
56516
(TRV) S88° 41' 11"W 119.65'
CP-9
MAG NAIL W/SHINER
TBM 'I'
(TRV) S84° 28' 15"E 325.68'
L7
(TRV) N67° 13' 17"E
198.85'
BP#527
PC=13+51.14
C8
15+00
(TRV) N64° 15' 32"E 346.40'
C9
BP#528
PRC=15+27.94
CP-10
5/8" I.R.C.
TBM 'J'
BP#529
PT=17+06.94
L8
CP-25
"X"-CUT
TBM 'X'
(TRV) S36° 16' 45"W 35.00'
END BL 'B'
17+37.44
BP#530
BERRINA CT.
(60' R.O.W.)
BARRYKNOLL LN.
(60' R.O.W.)
(TRV) N73° 43' 28"W 1629.98'
SITE MON.
C.O.H. MON. # 4958-8603R2
BRASS DISC IN CONC.
X=3,067,551.20
Y=13,846,434.29
ELEV=77.18'


100
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50
100
200
SCALE: 1" = 100'

LEGEND:

--------------	HCAD PROPERTY LINE
10' U.E.	EASEMENT
———	RIGHT-OF-WAY PROPERTY LINE
(TRV.) N 00° 00' 00" E.	TRAVERSE LINE
(BL.) N 00° 00' 00" E.	BASELINE
● 6969	CONTROL MONUMENTS

GENERAL NOTES:
CP- indicates Traverse Point
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Fnd. indicates Found
RT indicates Right
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I.P. indicates Iron Pipe
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P.I.P. indicates Pinch Iron Pipe
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SEE SHEET 4 OF 5
LINE & CURVE TABLE

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

4-14-26
CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

CHRISTIN MICHAEL NORRIS
6207

United Engineers, Inc.
CIVIL ENGINEERING ◆ LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING ◆ UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL. (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND
AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

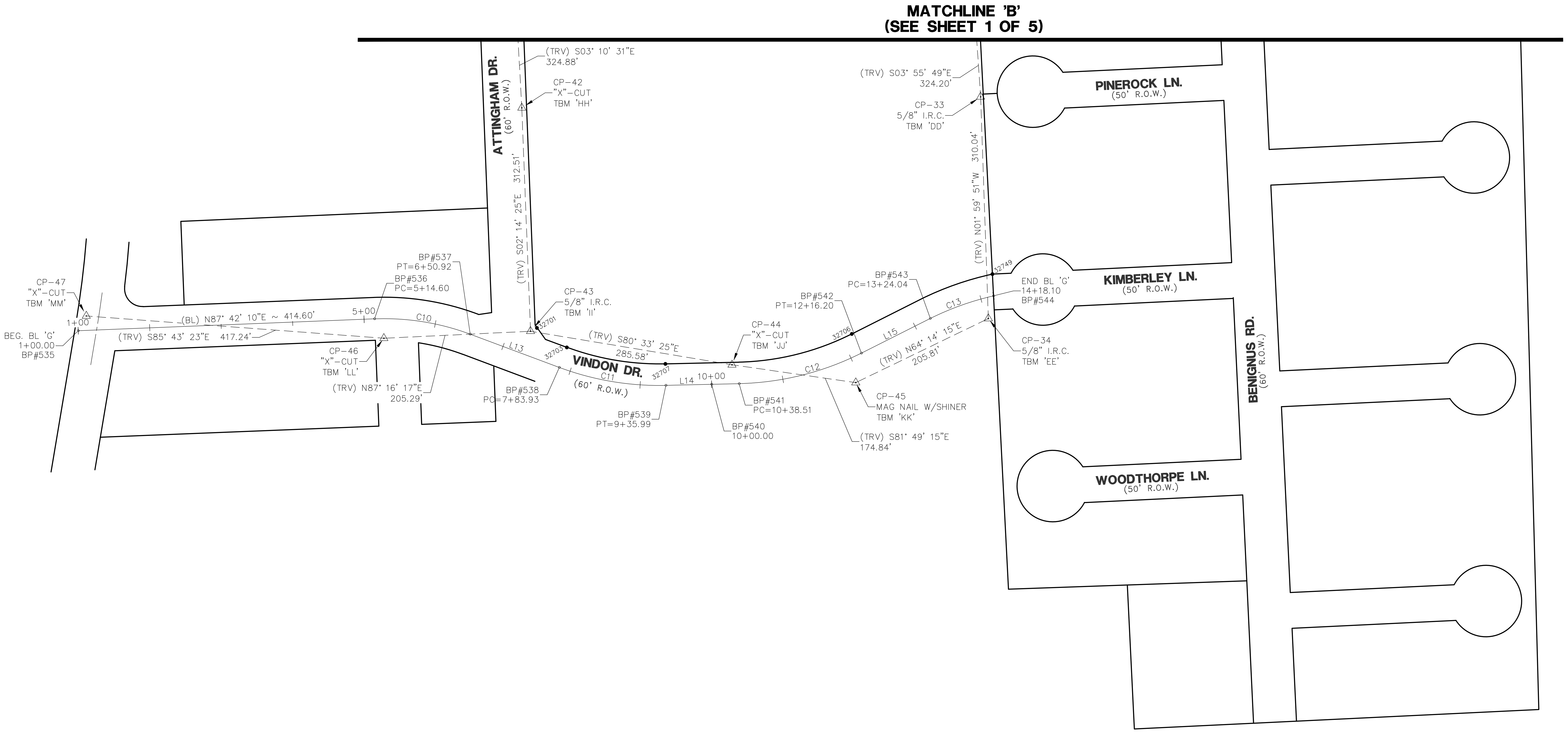
GENERAL
SURVEY CONTROL MAP
SHEET 2 OF 5

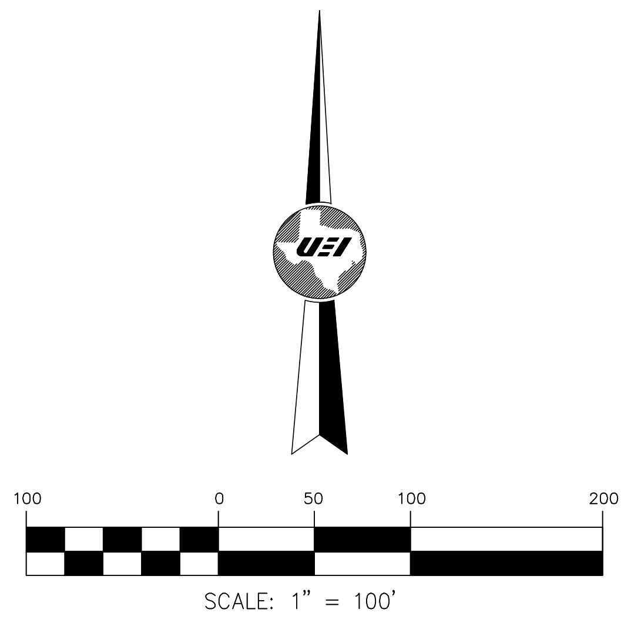
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 82 OF 345	

100% SUBMITTAL

PLOTTED: 4/15/2026 8:14 AM

FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SHEET 3.dwg


MATCHLINE 'B'
(SEE SHEET 1 OF 5)
ATTINGHAM DR.
(60' R.O.W.)
(TRV) S03° 10' 31"E
324.88'
CP-42
"X"-CUT
TBM 'HH'
(TRV) S02° 14' 25"E 312.51'
CP-47
"X"-CUT
TBM 'MM'
1+00
BEG. BL 'G'
1+00.00
BP#535
(BL) N87° 42' 10"E ~ 414.60'
(TRV) S85° 43' 23"E 417.24'
5+00
BP#537
PT=6+50.92
BP#536
PC=5+14.60
C10
CP-46
"X"-CUT
TBM 'LL'
(TRV) N87° 16' 17"E
205.29'
CP-43
5/8" I.R.C.
TBM 'II'
32701
L13
32703
VINDON DR.
(60' R.O.W.)
C11
BP#538
PC=7+83.93
(TRV) S80° 33' 25"E
285.58'
32707
L14
10+00
BP#539
PT=9+35.99
BP#540
10+00.00
BP#541
PC=10+38.51
CP-44
"X"-CUT
TBM 'JJ'
C12
CP-45
MAG NAIL W/SHINER
TBM 'KK'
(TRV) S81° 49' 15"E
174.84'
32706
BP#542
PT=12+16.20
L15
(TRV) N64° 14' 15"E
205.81'
BP#543
PC=13+24.04
C13
(TRV) S03° 55' 49"E
324.20'
CP-33
5/8" I.R.C.
TBM 'DD'
(TRV) N01° 59' 51"W 310.04'
32749
END BL 'G'
14+18.10
BP#544
CP-34
5/8" I.R.C.
TBM 'EE'
PINEROCK LN.
(50' R.O.W.)
KIMBERLEY LN.
(50' R.O.W.)
WOODTHORPE LN.
(50' R.O.W.)
BENIGNUS RD.
(60' R.O.W.)


100
0
50
100
200

SCALE: 1" = 100'

LEGEND:

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10' U.E. EASEMENT
RIGHT-OF-WAY PROPERTY LINE
(TRV.) N 00° 00' 00" E. TRAVERSE LINE
(BL.) N 00° 00' 00" E. BASELINE
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SEE SHEET 4 OF 5
LINE & CURVE TABLE

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4-14-26

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

CHRISTIN MICHAEL NORRIS
6207

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HOUSTON, TX 77042
PH: 713.965.9996
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SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL

SURVEY CONTROL MAP
SHEET 3 OF 5

WBS NUMBER
M-430296-0017

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
AS NOTED

CITY OF HOUSTON PM
RAJESH DANAYAK, P.E.

SHEET NO. 83 OF 345

100% SUBMITTAL

TSARP CONVERSION REFERENCE MONUMENT

(TSARP) HARRIS COUNTY FLOODPLAIN REFERENCE MARK NUMBER 210155:
FLOOD PLAIN REFERENCE MARK, BRASS DISK STAMPED W100 BM05.
FROM THE INTERSECTION OF BRIAR HILL DRIVE AND SAM HOUSTON TOLL ROAD,
TRAVEL SAM HOUSTON TOLL ROAD FEEDER APPROXIMATELY 150 FEET TO BRIDGE.
MONUMENT IS LOCATED ON DOWNSTREAM CENTERLINE OF BRIDGE.
PUBLISHED ELEV= 70.12 (NAVD 1988, 2001 ADJ.)
OBSERVED ELEV= 69.90 (NAVD 1988, CORS '96) GD 12B

PROJECT SITE MONUMENT:

SITE MONUMENT #4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV= 77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

SITE MONUMENT #4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED AT NORTHEAST
CORNER OF GESSNER ROAD AND BARRYKNOLL LANE.
ELEV= 78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

SITE MONUMENT #4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED AT SOUTHWEST
CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV= 77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)

TBM LIST:

TBM 'A', CP-1, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 79.85'

TBM 'B', CP-2, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.31'

TBM 'C', CP-3, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 80.41'

TBM 'D', CP-4, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.64'

TBM 'E', CP-5, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 80.17'

TBM 'F', CP-6, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.80'

TBM 'G', CP-7, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.02'

TBM 'H', CP-8, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.38'

TBM 'I', CP-9, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.81'

TBM 'J', CP-10, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.32'

TBM 'K', CP-11, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.62'

TBM 'L', CP-12, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.98'

TBM 'M', CP-13, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 77.94'

TBM 'N', CP-14, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.15'

TBM 'O', CP-15, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 78.52'

TBM 'P', CP-16, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 77.71'

TBM 'Q', CP-17, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 78.48'

TBM 'U', CP-21, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 77.89'

TBM 'X', CP-25, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.89'

TBM 'AA', CP-30, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.96'

TBM 'BB', CP-31, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.74'

TBM 'CC', CP-32, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 78.20'

TBM 'DD', CP-33, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 78.83'

TBM 'EE', CP-34, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 77.87'

TBM 'FF', CP-40, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 79.52'

TBM 'GG', CP-41, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.79'

TBM 'HH', CP-42, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 78.15'

TBM 'II', CP-43, 5/8-INCH IRON ROD WITH CAP. (SEE RECOVERY SKETCH)
ELEV= 75.86'

TBM 'JJ', CP-44, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 76.86'

TBM 'KK', CP-45, MAG NAIL WITH SHINER. (SEE RECOVERY SKETCH)
ELEV= 77.54'

TBM 'LL', CP-46, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 74.63'

TBM 'MM', CP-47, X-CUT IN CONCRETE. (SEE RECOVERY SKETCH)
ELEV= 74.57'

HORIZONTAL AND VERTICAL TRAVERSE TABLE

POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	1+48.34	16.41'R	A	13,847,096.21'	3,062,326.13'	79.85'	SET X-CUT
2	6+09.16	16.99'R	A	13,847,105.40'	3,062,786.81'	79.31'	SET 5/8"I.R.C.
3	9+73.27	-23.15'L	A	13,847,141.58'	3,063,154.74'	80.41'	SET 5/8"I.R.C.
4	12+71.48	26.21'R	A	13,846,987.55'	3,063,422.89'	79.64'	SET 5/8"I.R.C.
5	16+84.52	-27.01'L	A	13,847,023.62'	3,063,837.47'	80.17'	SET 5/8"I.R.C.
6	23+04.06	42.50'R	A	13,846,967.88'	3,064,458.32'	78.80'	SET MAG NAIL
14	4+89.79	22.59'R	A	13,847,097.27'	3,062,667.59'	78.15'	SET MAG NAIL

HORIZONTAL AND VERTICAL TRAVERSE TABLE

POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
7	3+07.18	-33.09'L	B	13,846,725.90'	3,064,568.95'	78.02'	SET MAG NAIL
8	7+71.58	26.49'R	B	13,846,655.53'	3,065,038.77'	78.38'	SET MAG NAIL
9	11+02.06	-26.82'L	B	13,846,772.00'	3,065,350.59'	78.81'	SET MAG NAIL
10	14+19.87	25.57'R	B	13,846,740.62'	3,065,674.72'	79.32'	SET 5/8"I.R.C.
15	1+60.15	15.66'R	B	13,846,673.91'	3,064,423.05'	78.52'	SET MAG NAIL
16	6+65.33	-22.67'L	B	13,846,690.74'	3,064,926.22'	77.71'	SET 5/8"I.R.C.
17	9+07.59	35.93'R	B	13,846,695.02'	3,065,167.27'	78.48'	SET 5/8"I.R.C.
25	17+59.10	27.50'L	B	13,846,891.05'	3,065,986.71'	78.89'	SET X-CUT

HORIZONTAL AND VERTICAL TRAVERSE TABLE

POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
21			F	13,846,586.78'	3,065,264.69'	77.89'	SET MAG NAIL

HORIZONTAL AND VERTICAL TRAVERSE TABLE

POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
34	14+02.82	29.05'R	G	13,845,958.31'	3,062,322.76'	77.87'	SET 5/8"I.R.C.
43	7+28.59	-33.34'L	G	13,845,940.59'	3,061,682.69'	75.86'	SET 5/8"I.R.C.
44	10+29.12	-26.65'L	G	13,845,893.74'	3,061,964.37'	76.86'	SET X-CUT
45	11+92.57	33.97'R	G	13,845,868.87'	3,062,137.42'	77.54'	SET MAG NAIL
46	5+27.65	27.38'R	G	13,845,930.82'	3,061,477.66'	74.63'	SET X-CUT
47	1+12.11	-20.17'L	G	13,845,961.93'	3,061,061.63'	74.57'	SET X-CUT

HORIZONTAL AND VERTICAL TRAVERSE TABLE

POINT #	STATION	OFFSET	BASELINE	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
11				13,847,651.18'	3,061,550.50'	78.62'	SET X-CUT
12				13,847,140.79'	3,061,624.49'	78.98'	SET X-CUT
13				13,846,577.17'	3,061,652.48'	77.94'	SET X-CUT
30				13,847,143.21'	3,062,209.58'	79.96'	SET 5/8"I.R.C.
31				13,846,870.47'	3,062,258.46'	79.74'	SET 5/8"I.R.C.
32				13,846,591.53'	3,062,289.73'	78.20'	SET 5/8"I.R.C.
33				13,846,268.13'	3,062,311.95'	78.83'	SET 5/8"I.R.C.
40				13,847,231.47'	3,061,654.46'	79.52'	SET 5/8"I.R.C.
41				13,846,774.58'	3,061,644.16'	78.49'	SET X-CUT
42				13,846,252.82'	3,061,670.48'	78.15'	SET X-CUT

RIGHT OF WAY CONTROL MONUMENT TABLE

POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
50386	2+30.47	-30.00'L	A	1" IRON PIPE	CM
50390	2+99.75	29.76'R	A	3/8" IRON ROD	CM
50387	3+61.90	-30.36'L	A	1" IRON PIPE	CM
50388	4+32.80	-30.23'L	A	3/8" IRON ROD	CM
50389	4+35.09	29.74'R	A	3/8" IRON ROD	CM
50391	5+70.96	-30.23'L	A	3/8" IRON ROD	CM
50392	5+75.65	29.41'R	A	3/8" IRON ROD	CM
50396	6+45.12	-30.22'L	A	3/8" IRON ROD	CM
50393	7+18.98	29.80'R	A	3/8" IRON ROD	CM
50394	7+90.88	29.72'R	A	3/8" IRON ROD	CM
50395	7+93.12	-30.17'L	A	3/8" IRON ROD	CM
51086	8+68.63	-30.00'L	A	1" IRON PIPE	CM
51390	12+64.26	-40.08'L	A	X	-
55971	12+80.74	86.92'R	A	5/8" IRON ROD W/CAP	-
55974	13+17.31	283.01'R	A	5/8" IRON ROD W/CAP	CM
55987	14+92.70	290.34'R	A	5/8" IRON ROD	CM
55986	17+83.57	289.49'R	A	1" IRON PIPE	CM
55985	18+55.37	289.72'R	A	1" IRON PIPE	CM
55984	18+56.25	349.77'R	A	3/8" IRON ROD	CM
55982	19+27.49	289.74'R	A	1" IRON PIPE	CM
55983	19+28.48	349.53'R	A	1" IRON PIPE	CM
55981	19+99.46	289.73'R	A	1" IRON PIPE	CM
52540	20+37.71	-40.56'L	A	3/4" IRON ROD	-
55980	20+72.48	349.72'R	A	1" IRON PIPE	CM
55979	21+43.63	289.98'R	A	1" IRON PIPE	CM
55978	21+44.46	349.76'R	A	1" IRON PIPE	CM

RIGHT OF WAY CONTROL MONUMENT TABLE

POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
55977	1+14.39	30.00'R	B	1" IRON PIPE	CM
54275	3+23.47	28.78'R	B	X	CM
54855	10+12.23	143.94'R	B	1" IRON PIPE	CM
56506	10+84.15	147.72'R	B	1" IRON PIPE	CM
56516	11+70.55	224.71'R	B	1" IRON PIPE	CM
56507	12+21.59	174.87'R	B	3/8" IRON ROD W/CAP	CM
56515	12+38.59	240.32'R	B	3/8" IRON ROD W/CAP	CM
56508	12+89.76	190.61'R	B	3/8" IRON ROD W/CAP	CM
56509	13+55.43	206.22'R	B	5/8" IRON ROD	CM
56514	13+64.27	271.94'R	B	1" IRON PIPE	CM
56510	13+95.80	226.89'R	B	1" IRON PIPE	CM
56513	14+00.85	294.60'R	B	3/8" IRON ROD W/CAP	CM
56511	14+39.60	238.77'R	B	3/8" IRON ROD W/CAP	CM
56512	14+47.01	315.66'R	B	5/8" IRON ROD	CM

RIGHT OF WAY CONTROL MONUMENT TABLE

POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
56501			E	5/8" IRON ROD W/CAP	CM
54264	2+76.14	62.96'R	E	X	CM
53462	3+14.85	69.80'R	E	3/8" IRON ROD	-

RIGHT OF WAY CONTROL MONUMENT TABLE

POINT #	STATION	OFFSET	BASELINE	DESCRIPTION	CONTROL MONUMENT
32701	7+35.40	-40.80'L	G	5/8" IRON ROD	CM
32703	7+84.01	-29.94'L	G	5/8" IRON ROD	CM
32706	12+16.23	-30.00'L	G	5/8" IRON ROD	CM
32707	9+35.99	-30.00'L	G	5/8" IRON ROD	CM
32749	14+23.00	-30.05'L	G	5/8" IRON ROD	CM

BASELINE POINT TABLE

BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
500	1+00.00	A	13,847,111.59'	3,062,277.46'	MAG W/SHINER
501	4+63.84	A	13,847,119.30'	3,062,641.18'	5/8" I.R.C.
502	8+78.74	A	13,847,128.09'	3,063,055.94'	X-CUT
503	10+00.00	A	13,847,112.39'	3,063,175.70'	X-CUT
504	10+91.03	A	13,847,077.38'	3,063,259.50'	X-CUT
505	11+45.70	A	13,847,050.72'	3,063,307.22'	X-CUT
506	12+57.67	A	13,847,015.39'	3,063,412.79'	X-CUT
507	13+01.04	A	13,847,009.48'	3,063,455.74'	X-CUT
508	13+88.01	A	13,846,997.61'	3,063,541.89'	X-CUT
509	14+83.44	A	13,846,992.15'	3,063,637.05'	X-CUT
510	20+00.00	A	13,847,003.61'	3,064,153.43'	X-CUT
511	23+48.19	A	13,847,011.34'	3,064,501.50'	X-CUT
512	24+13.72	A	13,847,012.79'	3,064,567.00'	X-CUT

BASELINE POINT TABLE

BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
517	1+00.00	B	13,846,688.23'	3,064,362.57'	60D W/SHINER
518	2+51.48	B	13,846,691.59'	3,064,514.00'	X-CUT
519	3+16.07	B	13,846,693.02'	3,064,578.57'	X-CUT
520	4+63.03	B	13,846,685.24'	3,064,725.17'	X-CUT
521	5+66.75	B	13,846,671.98'	3,064,828.03'	X-CUT
522	6+94.20	B	13,846,668.83'	3,064,955.33'	60D W/SHINER
523	8+36.01	B	13,846,704.46'	3,065,091.45'	X-CUT
524	9+77.83	B	13,846,740.10'	3,065,227.58'	X-CUT
525	9+82.43	B	13,846,740.29'	3,065,232.18'	X-CUT
526	10+00.00	B	13,846,741.01'	3,065,249.73'	X-CUT
527	13+51.14	B	13,846,755.46'	3,065,600.53'	X-CUT
528	15+27.94	B	13,846,808.59'	3,065,766.93'	X-CUT
529	17+06.94	B	13,846,861.81'	3,065,935.53'	X-CUT
530	17+37.44	B	13,846,862.84'	3,065,966.01'	X-CUT

BASELINE POINT TABLE

BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
513	1+00.00	C	13,847,069.34'	3,062,643.56'	X-CUT
514	2+00.00	C	13,847,169.22'	3,062,638.79'	60D W/SHINER

BASELINE POINT TABLE

BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
515	1+00.00	D	13,846,946.61'	3,063,457.14'	X-CUT
516	2+50.00	D	13,847,096.56'	3,063,453.80'	X-CUT

BASELINE POINT TABLE

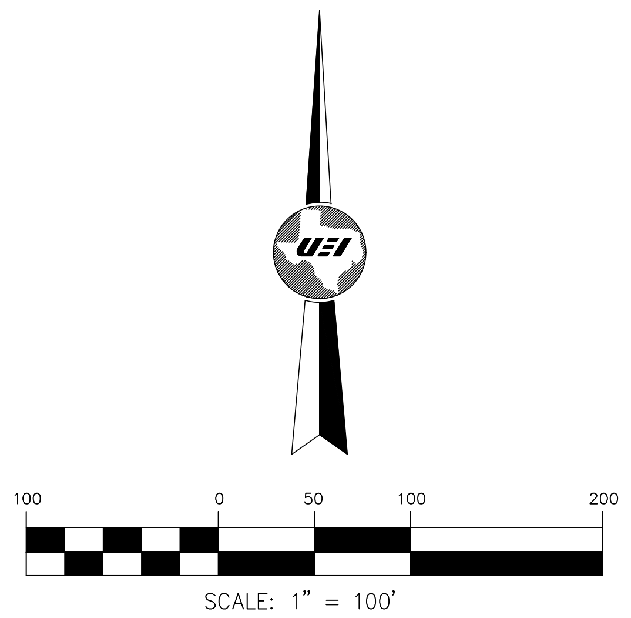
BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
533	1+00.00	E	13,846,569.39'	3,064,518.78'	X-CUT
534	6+89.17	E	13,847,158.05'	3,064,495.76'	X-CUT

BASELINE POINT TABLE

BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
531	1+00.00	F	13,846,632.66'	3,065,236.61'	60D W/SHINER
532	2+36.73	F	13,846,769.26'	3,065,230.98'	5/8" I.R.C.

BASELINE POINT TABLE

BP #	STATION	BASELINE	GRID NORTHING	GRID EASTING	DESCRIPTION
535	1+00.00	G	13,845,941.30'	3,061,050.34'	X-CUT
536	5+14.60	G	13,845,957.91'	3,061,464.56'	X-CUT
537	6+50.92	G	13,845,936.52'	3,061,598.27'	X-CUT
538	7+83.93	G	13,845,890.00'	3,061,722.86'	X-CUT
539	9+35.99	G	13,845,864.93'	3,061,871.90'	X-CUT
540	10+00.00	G	13,845,866.42'	3,061,935.89'	X-CUT
541	10+38.51	G	13,845,867.32'	3,061,974.38'	X-CUT
542	12+16.20	G	13,845,910.06'	3,062,145.34'	X-CUT
543	13+24.04	G	13,845,958.55'	3,062,241.64'	X-CUT
544	14+18.10	G	13,845,990.05'	3,062,330.03'	X-CUT



SCALE: 1" = 100'

LEGEND:

---------------	HCAD PROPERTY LINE
10' U.E.	EASEMENT
———	RIGHT-OF-WAY PROPERTY LINE
(TRV.) N 00° 00' 00" E.	TRAVERSE LINE
(BL.) N 00° 00' 00" E.	BASELINE
● 6969	CONTROL MONUMENTS

GENERAL NOTES:
CP- indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C.. indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

ALIGNMENT CURVE TABLE

CURVE	DELTA	RADIUS	LENGTH	CHORD
C1	30°24'28"	400.00'	212.29'	S76° 00' 38"E ~ 209.80'
C2	21°23'09"	300.00'	111.98'	S71° 29' 59"E ~ 111.33'
C3	9°06'47"	600.00'	95.43'	S86° 42' 54"E ~ 95.33'
C4	8°37'04"	977.06'	146.96'	S86° 57' 46"E ~ 146.82'
C5	7°33'35"	965.96'	127.45'	S88° 34' 50"E ~ 127.36'
C6	24°37'15"	330.00'	141.81'	N75° 19' 43"E ~ 140.72'
C7	24°38'00"	329.87'	141.82'	N75° 19' 54"E ~ 140.73'
C8	30°41'47"	330.00'	176.80'	N72° 17' 32"E ~ 174.69'
C9	31°04'42"	330.00'	179.00'	N72° 29' 00"E ~ 176.81'
C10	22°46'20"	342.98'	136.32'	S80° 54' 40"E ~ 135.42'
C11	21°47'03"	399.94'	152.06'	S80° 26' 58"E ~ 151.14'
C12	25°27'28"	399.93'	177.70'	N75° 57' 46"E ~ 176.24'
C13	13°28'23"	400.00'	94.06'	N70° 22' 54"E ~ 93.84'

ALIGNMENT LINE TABLE

LINE	BEARING	DISTANCE
L1	N 88°47'08" E	778.74'
L2	S 60°48'24" E	54.67'
L3	S 82°09'31" E	130.34'
L4	N 88°43'42" E	930.27'
L5	N 88°43'42" E	216.07'
L6	S 82°39'14" E	103.72'
L7	N 87°38'26" E	373.31'
L8	N 88°03'26" E	30.50'
L9	N 02°44'07" W	100.00'
L10	N 01°16'37" W	150.00'
L11	N 02°14'20" W	589.17'
L12	N 02°21'34" W	136.73'
L13	S 69°31'30" E	133.01'
L14	N 88°39'57" E	102.52'
L15	N 63°16'28" E	107.84'

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

4-14-26

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

CHRISTIN MICHAEL NORRIS
6207

United Engineers, Inc.
CIVIL ENGINEERING ◆ LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING ◆ UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL. (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND
AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL

SURVEY CONTROL MAP
SHEET 4 OF 5

WBS NUMBER
M-430296-0017

DRAWING SCALE
AS NOTED

CITY OF HOUSTON PM
RAJESH DANAYAK, P.E.

FOR CITY OF HOUSTON USE ONLY

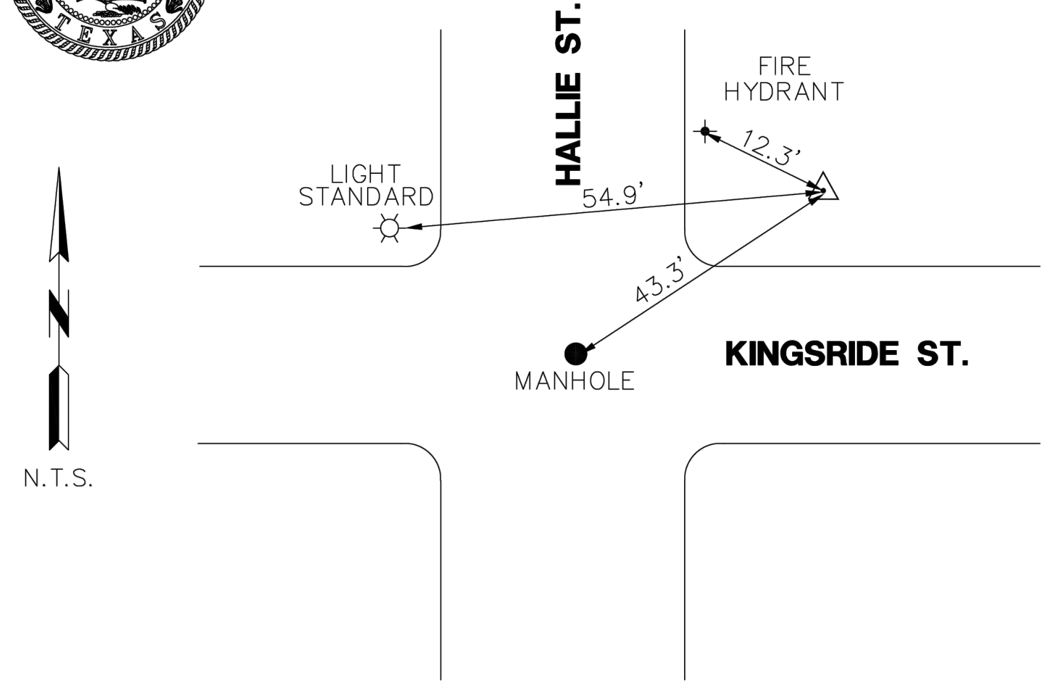
100% SUBMITTAL

PLOTTED: 4/15/2026 8:14 AM

FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SHEET 5.dwg

CITY OF HOUSTON

CITY SURVEY 4958-7804A
SITE CONTROL MONUMENT



Project WBS# M-430296-0017
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,060,891.86
Y= 13,846,830.54
Lat.= N 29°38'09.10"
Lon.= W 95°20'20.94"
Keymap Page: 4958 C4
Orthometric Elevation = 77.20
Ellipsoid Height= −89.50
Geoid: GEOID 99
Datum Source & Adjustment: NAD '83 (2001 ADJ.)
Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (2001 ADJ.)
General Location: NORTHEAST CORNER OF HALLIE DR. AND KINGSRIDE LN. INTERSECTION

Date Set: 12/15/2022 Type of Mark: ALUMINUM DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-11, "X" CUT IN CONC. – N 38°45'01" E ~ 1052.38'
TO CP-12, "X" CUT IN CONC. – N 67°02'55" E ~ 795.70'
TO CP-13, "X" CUT IN CONC. – S 71°34'37" E ~ 801.80'

NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999893737841
3. Surface= $\frac{\text{Grid}}{\text{S.F.}}$

CHRISTIN MICHAEL NORRIS 6207

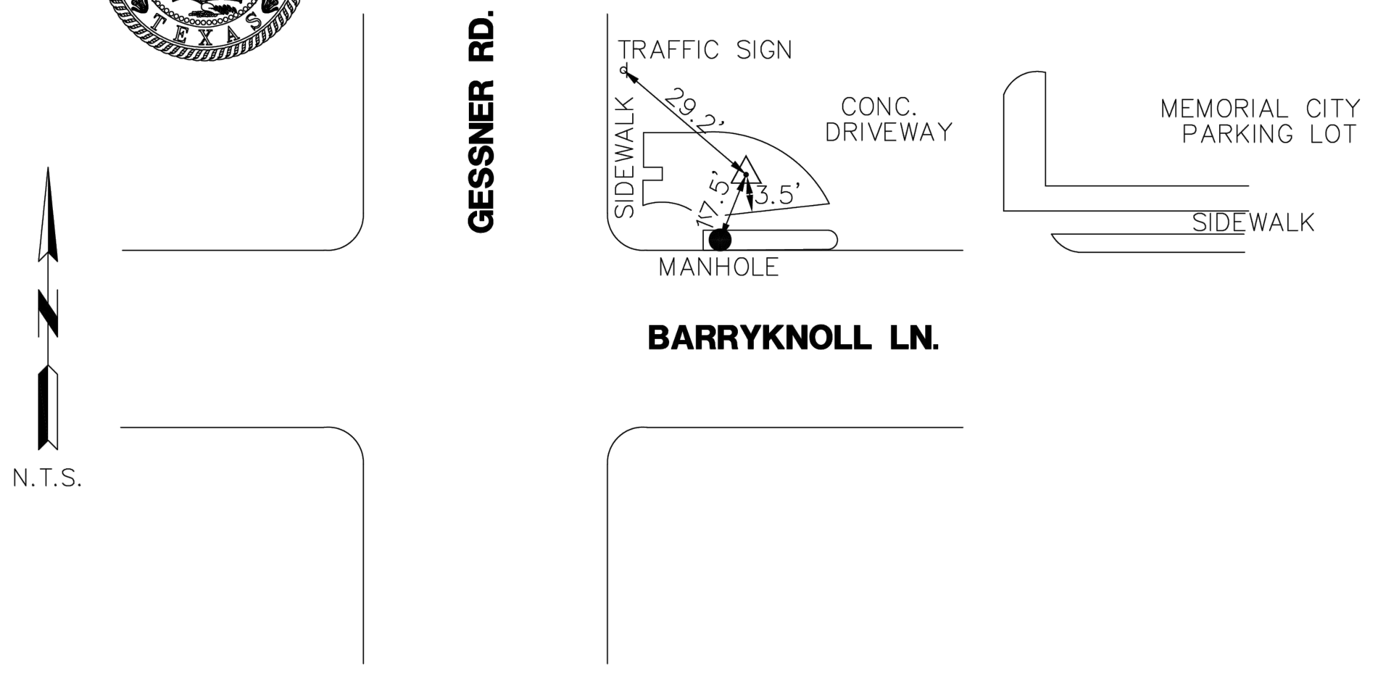
1-19-23

United Engineers, Inc.
9301 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074
ENGINEERING FIRM # F-00142
TEL. (713) 271-2900
FAX (713) 271-2999
SURVEY FIRM # 101178-00

Date Observed: December 20, 2022
City of Houston, Harris County, Texas

CITY OF HOUSTON

CITY SURVEY 4958-8304R1
SITE CONTROL MONUMENT



Project WBS# M-430296-0017
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,064,600.55
Y= 13,846,727.54
Lat.= N 29°46'41.84"
Lon.= W 95°32'29.10"
Keymap Page: 4958-D-3
Orthometric Elevation = 78.49
Ellipsoid Height= −89.52
Geoid: GEOID 99
Datum Source & Adjustment: NAD '83 (2001 ADJ.)
Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (2001 ADJ.)
General Location: AT THE NORTHEAST CORNER OF GESSNER RD. AND BARRYKNOLL LN.

Date Set: 02/23/2010 Type of Mark: BRASS DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-6, MAG NAIL W/SHINER – N 30°36'56" W ~ 279.30'
TO CP-7, MAG NAIL W/SHINER – S 87°02'28" W ~ 31.64'
TO CP-8, MAG NAIL W/SHINER – S 80°40'07" E ~ 444.15'

NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999893737841
3. Surface= $\frac{\text{Grid}}{\text{S.F.}}$

CHRISTIN MICHAEL NORRIS 6207

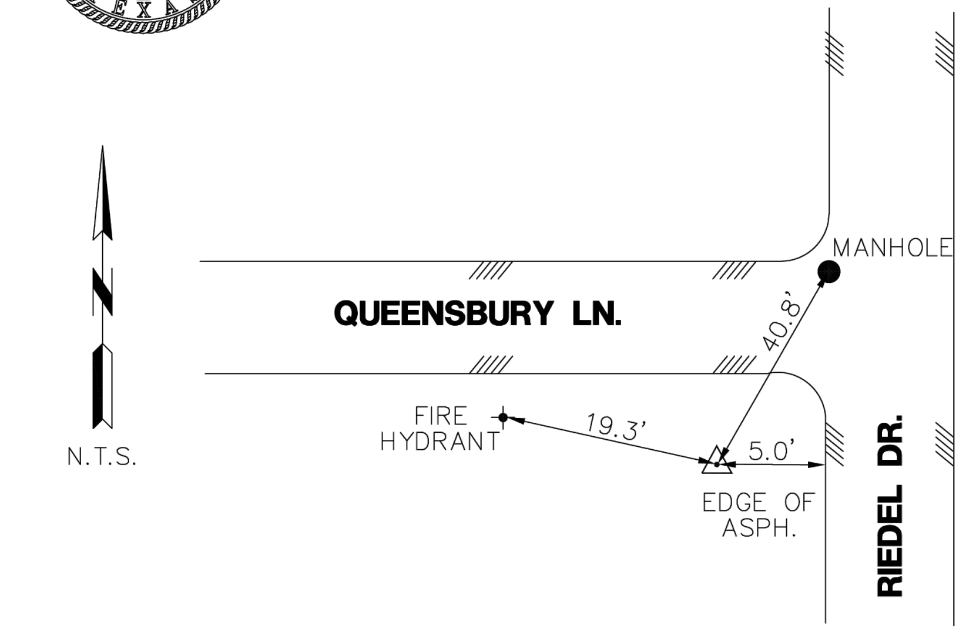
1-19-23

United Engineers, Inc.
9301 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074
ENGINEERING FIRM # F-00142
TEL. (713) 271-2900
FAX (713) 271-2999
SURVEY FIRM # 101178-00

Date Revised: December 19, 2022
City of Houston, Harris County, Texas

CITY OF HOUSTON

CITY SURVEY 4958-8603R2
SITE CONTROL MONUMENT



Project WBS# M-430296-0017
Texas Coordinate System of 1983,
South Central Zone, U. S. Survey Feet
X= 3,067,551.20
Y= 13,846,434.29
Lat.= N 29°46'38.08"
Lon.= W 95°32'05.73"
Keymap Page: 490-F
Orthometric Elevation = 77.18
Ellipsoid Height= −89.53
Geoid: GEOID 99
Datum Source & Adjustment: NAD '83 (2001 ADJ.)
Reference Frame Used: ITRF (EPOCH: 2010.0000)
Vertical Adjustment used: NAVD '88 (2001 ADJ.)
General Location: SOUTHWEST CORNER OF QUEENSBURYLN. AND RIEDEL DR. INTERSECTION
Date Set: 09/30/2008 Type of Mark: BRASS DISK IN CONC.

3 Nearest project control points (bearings and distances stated below):
TO CP-8, MAG NAIL W/SHINER – N 84°58'03" W ~ 2522.42'
TO CP-9, MAG NAIL W/SHINER – N 81°16'31" W ~ 2226.61'
TO CP-10, 5/8" IRON ROD W/CAP – N 80°43'41" W ~ 1901.52'

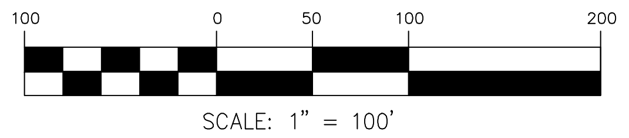
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999893737841
3. Surface= $\frac{\text{Grid}}{\text{S.F.}}$

CHRISTIN MICHAEL NORRIS 6207

1-19-23

United Engineers, Inc.
9301 SOUTHWEST FREEWAY, SUITE 500
HOUSTON, TEXAS 77074
ENGINEERING FIRM # F-00142
TEL. (713) 271-2900
FAX (713) 271-2999
SURVEY FIRM # 101178-00

Date Revised: December 19, 2022
City of Houston, Harris County, Texas



SCALE: 1" = 100'

LEGEND:

- - - - - - -	HCAD PROPERTY LINE
10' U.E.	EASEMENT
———	RIGHT-OF-WAY PROPERTY LINE
(TRV.) N 00° 00' 00" E.	TRAVERSE LINE
(BL.) N 00° 00' 00" E.	BASELINE
● 6969	CONTROL MONUMENTS

GENERAL NOTES:
CP- indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
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CM indicates Control Monument
Fnd. indicates Found
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H.C.C.F. indicates Harris County Clerk's File
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NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

4-14-26
CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

CHRISTIN MICHAEL NORRIS 6207

United Engineers, Inc.
CIVIL ENGINEERING ◆ LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING ◆ UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL. (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND
AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

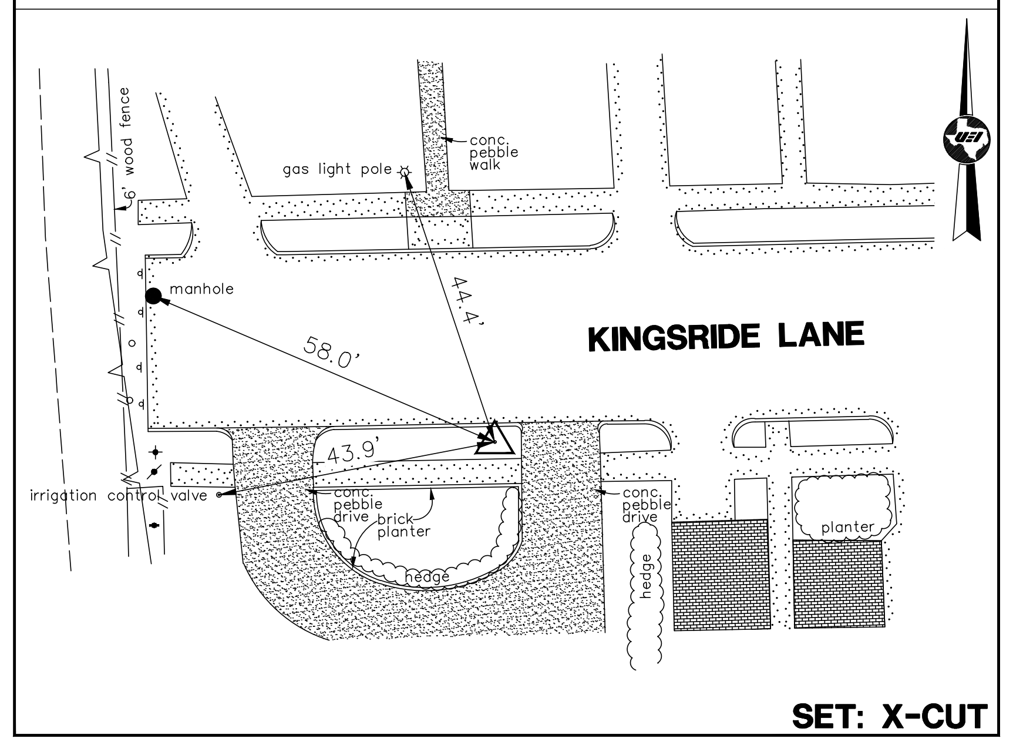
GENERAL
SURVEY CONTROL MAP
SHEET 5 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 85 OF 345	

100% SUBMITTAL

STA: 1+48.34 BL "A"
OFFSET: 16.41' RT

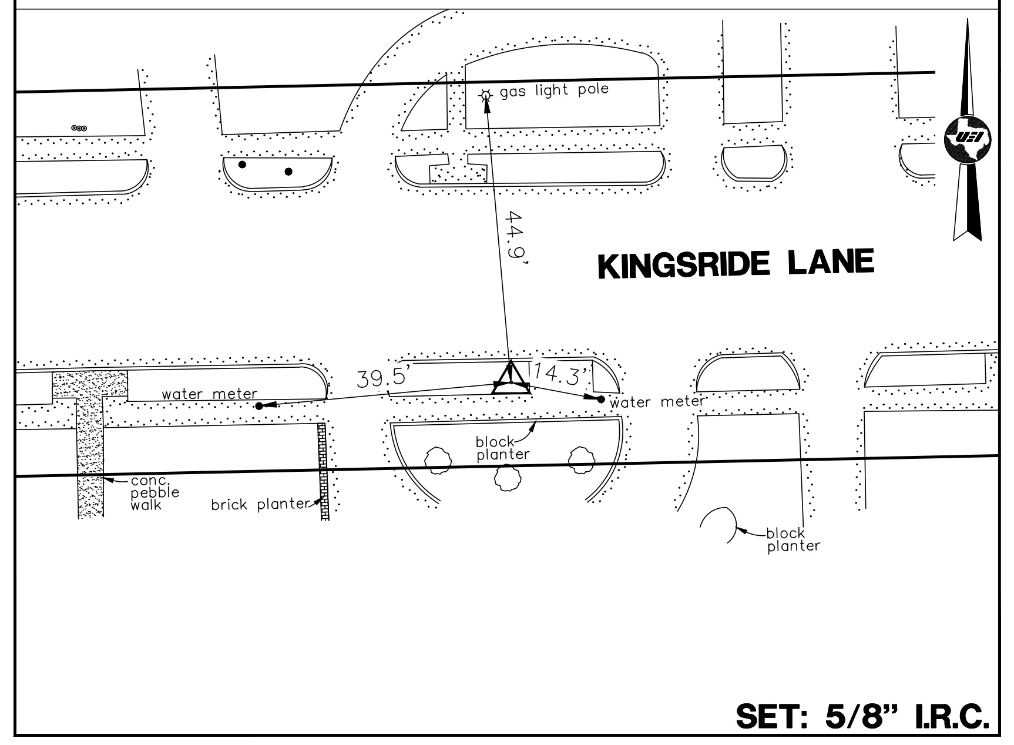
CONTROL PT. #1


6' wood fence
gas light pole
conc. pebble walk
manhole
44.4'
58.0'
KINGSRIDE LANE
43.9'
irrigation control valve
conc. pebble drive
brick planter
hedge
conc. pebble drive
hedge
planter

SET: X-CUT

STA: 6+09.16 BL "A"
OFFSET: 16.99' RT

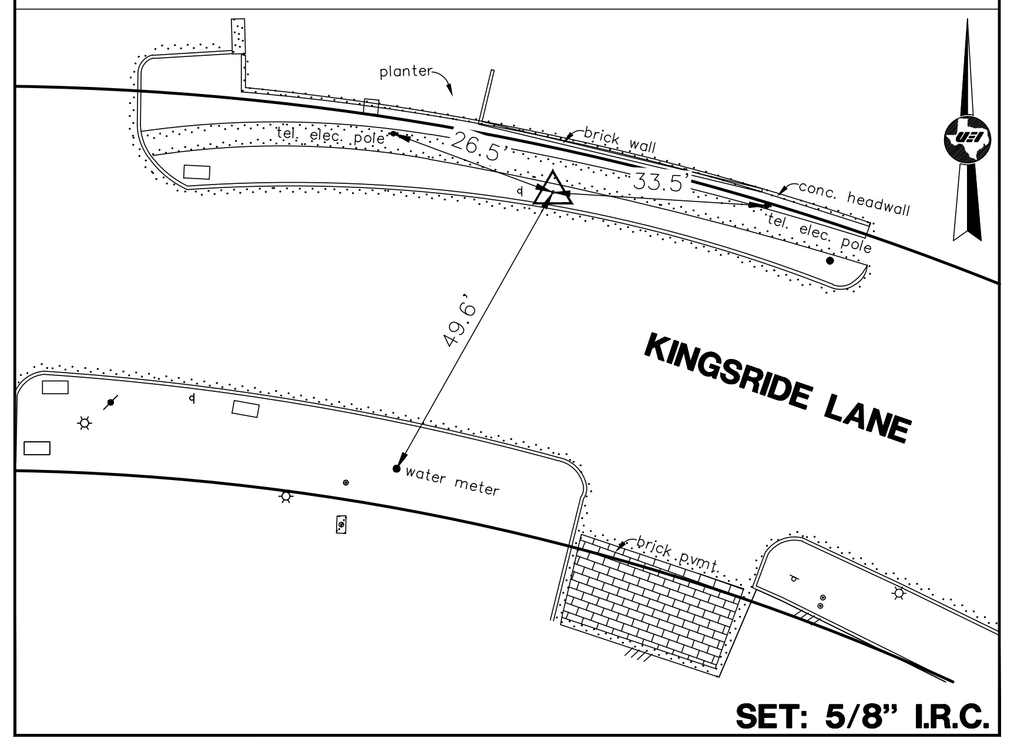
CONTROL PT. #2


gas light pole
44.9'
KINGSRIDE LANE
water meter
39.5'
14.3'
water meter
block planter
conc. pebble walk
brick planter
block planter

SET: 5/8" I.R.C.

STA: 9+73.27 BL "A"
OFFSET: 23.15' LT

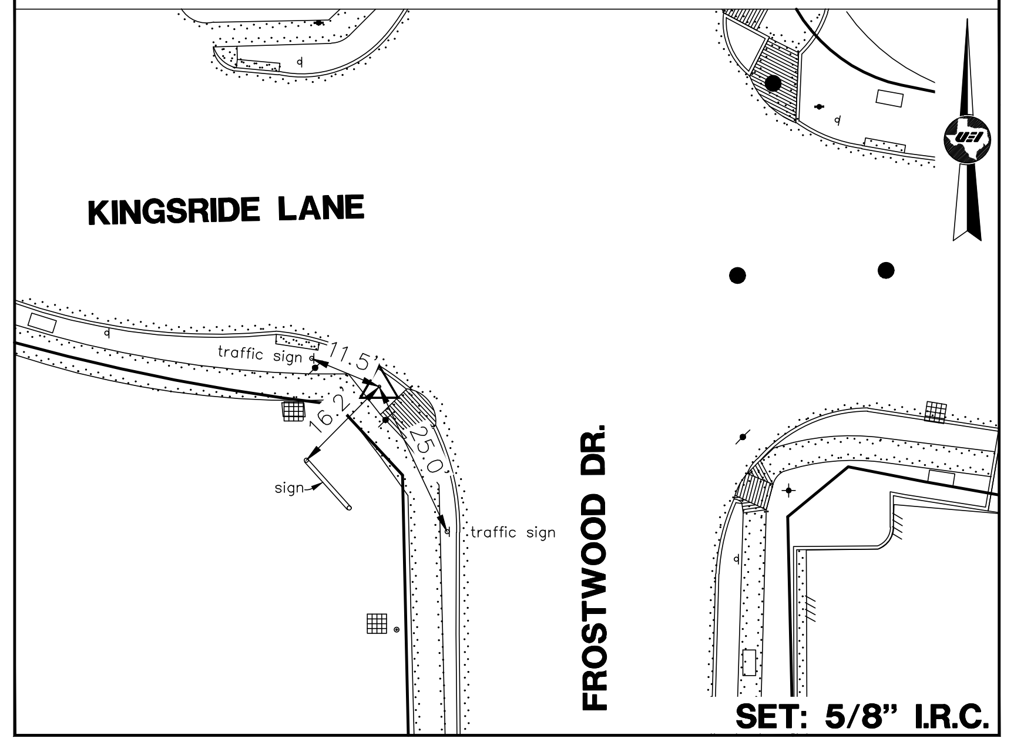
CONTROL PT. #3


planter
tel. elec. pole
26.5'
brick wall
33.5'
conc. headwall
tel. elec. pole
49.6'
KINGSRIDE LANE
water meter
brick pvmt.

SET: 5/8" I.R.C.

STA: 12+71.48 BL "A"
OFFSET: 26.21' RT

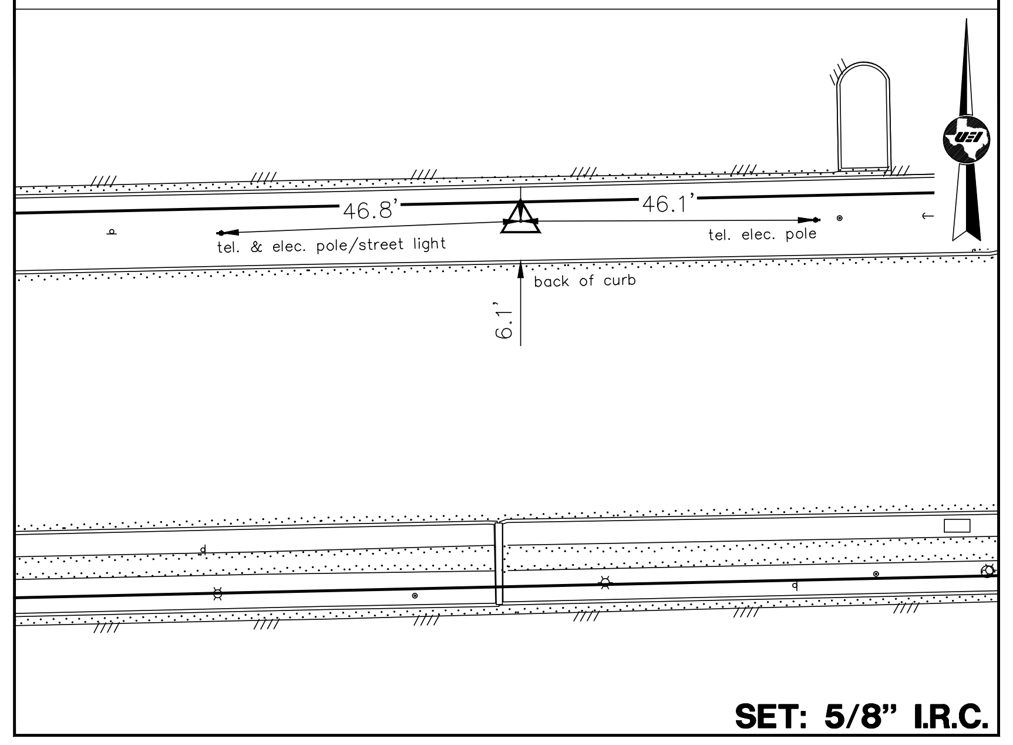
CONTROL PT. #4


KINGSRIDE LANE
traffic sign
11.5'
16.2'
25.0'
sign
traffic sign
FROSTWOOD DR.

SET: 5/8" I.R.C.

STA: 16+84.52 BL "A"
OFFSET: 27.01' LT

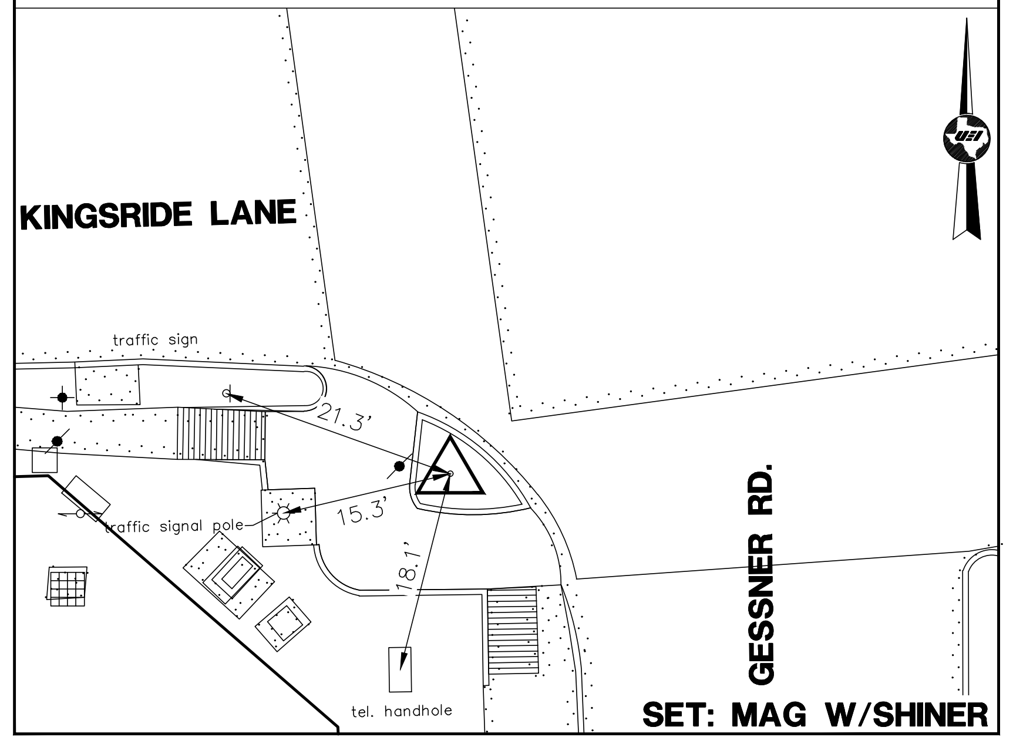
CONTROL PT. #5


46.8'
46.1'
tel. & elec. pole/street light
tel. elec. pole
back of curb
6.1'

SET: 5/8" I.R.C.

STA: 23+04.06 BL "A"
OFFSET: 42.50' RT

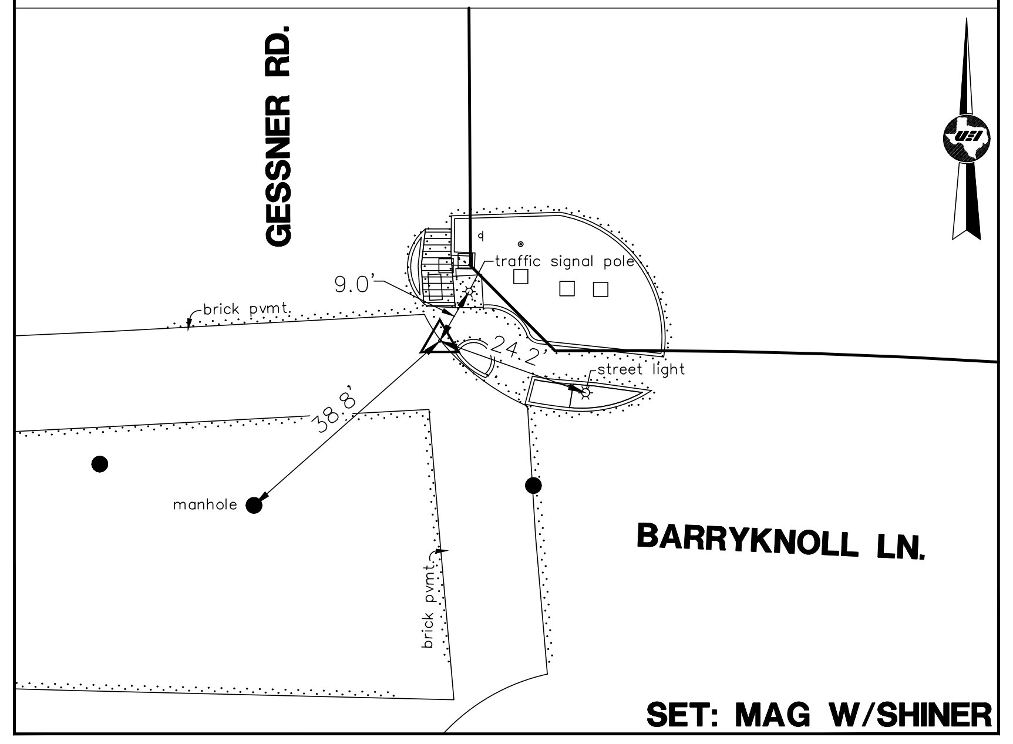
CONTROL PT. #6


KINGSRIDE LANE
traffic sign
21.3'
15.3'
traffic signal pole
18.1'
tel. handhole
GESSNER RD.

SET: MAG W/SHINER

STA: 3+07.18 BL "B"
OFFSET: 33.09' LT

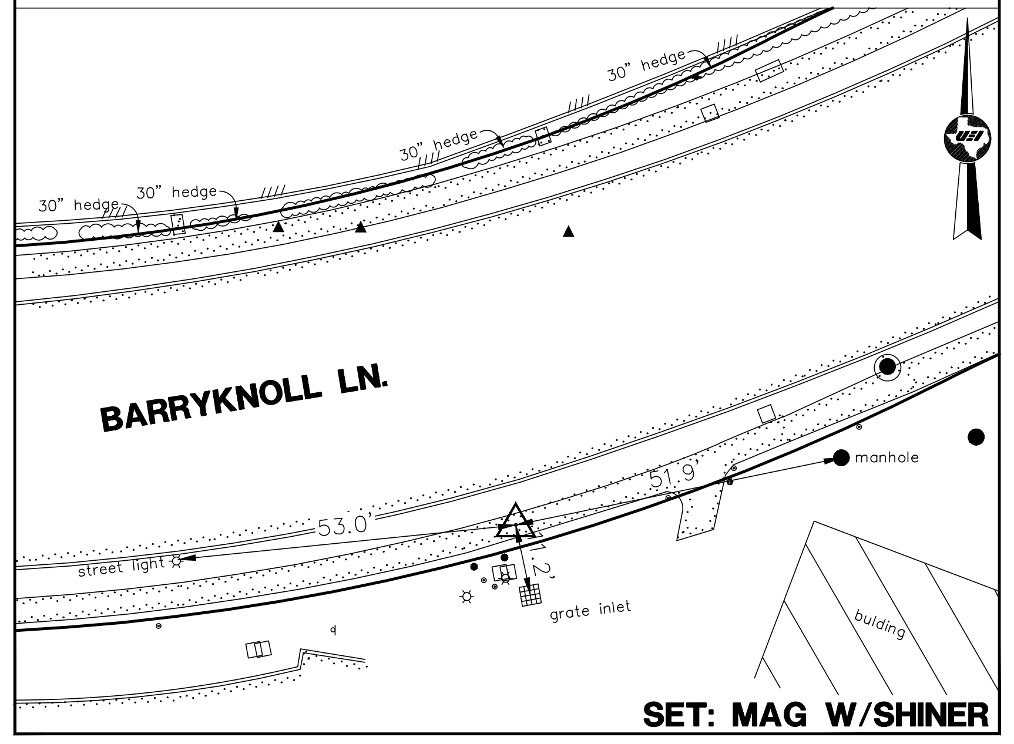
CONTROL PT. #7


GESSNER RD.
traffic signal pole
9.0'
brick pvmt.
24.2'
street light
38.8'
manhole
brick pvmt.
BARRYKNOLL LN.

SET: MAG W/SHINER

STA: 7+71.58 BL "B"
OFFSET: 26.49' RT

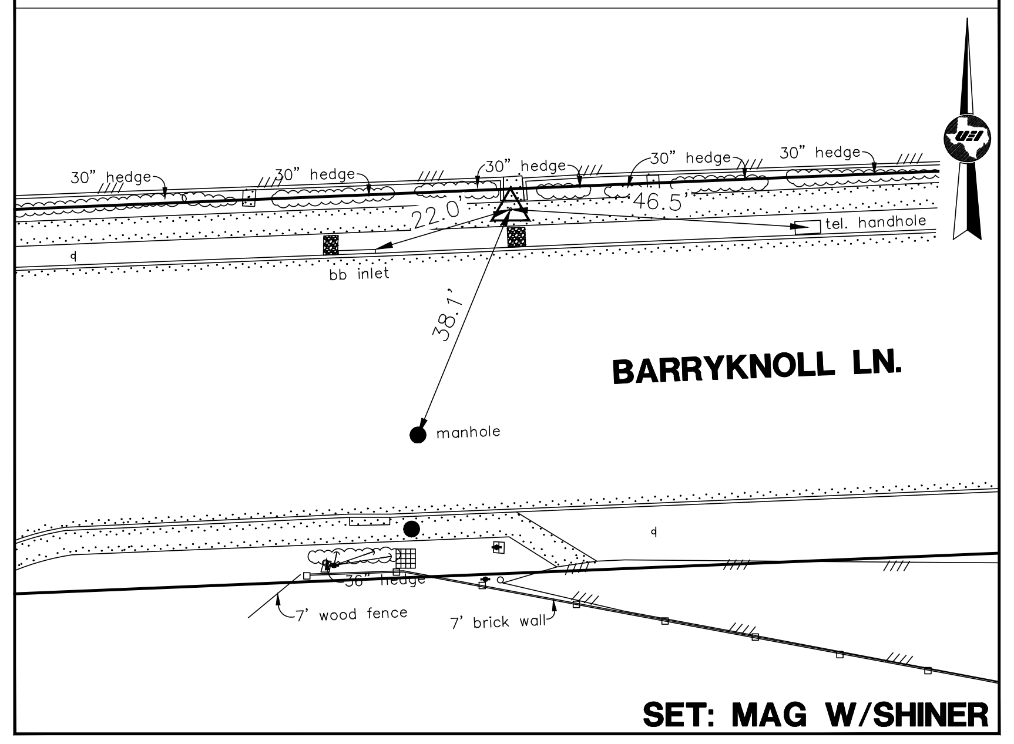
CONTROL PT. #8


30" hedge
30" hedge
30" hedge
30" hedge
BARRYKNOLL LN.
53.0'
street light
51.9'
manhole
1.2'
grate inlet
bulding

SET: MAG W/SHINER

STA: 11+02.06 BL "B"
OFFSET: 26.82' LT

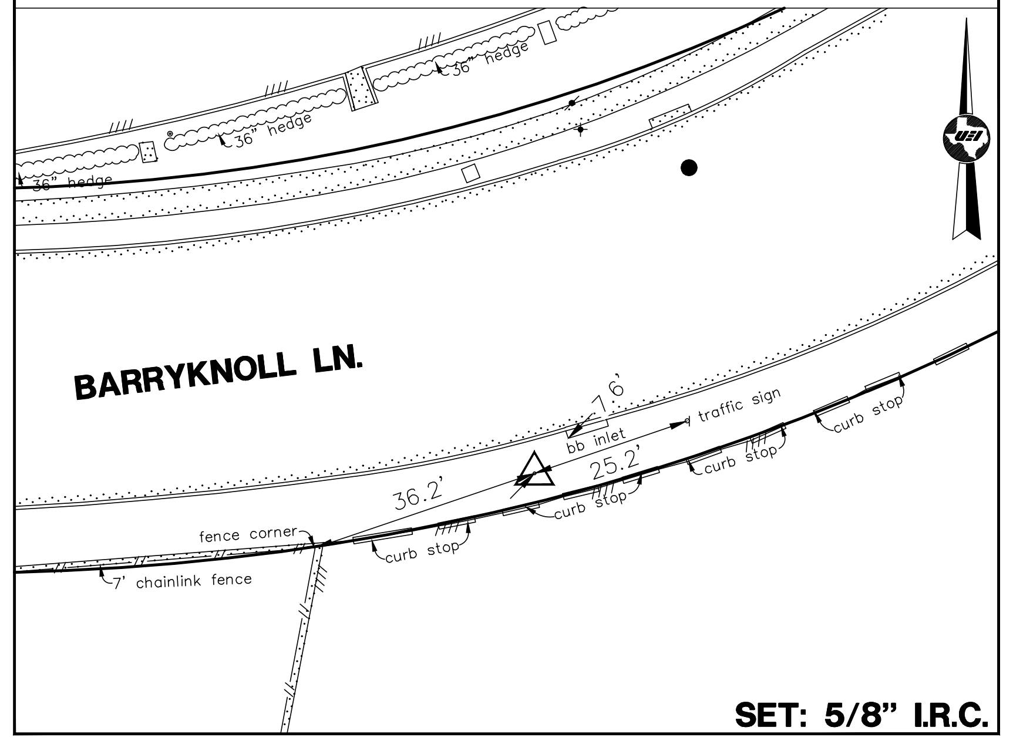
CONTROL PT. #9


30" hedge
30" hedge
30" hedge
30" hedge
30" hedge
22.0'
46.5'
tel. handhole
bb inlet
38.1'
manhole
BARRYKNOLL LN.
30" hedge
7' wood fence
7' brick wall

SET: MAG W/SHINER

STA: 14+19.87 BL "B"
OFFSET: 25.57' RT

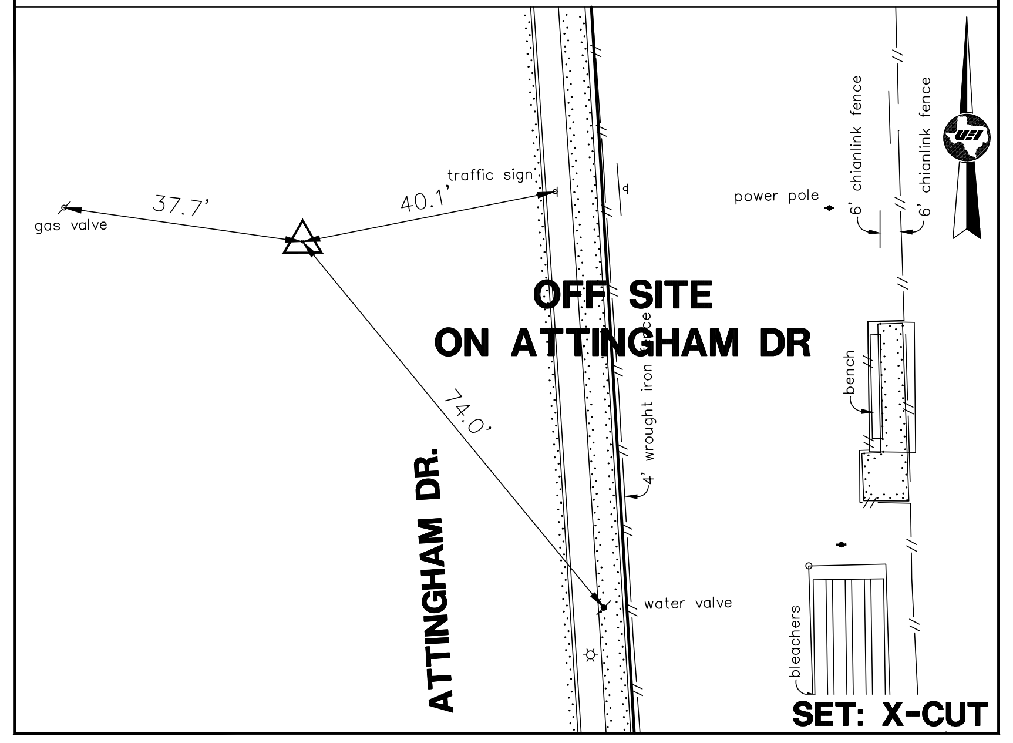
CONTROL PT. #10


36" hedge
36" hedge
36" hedge
BARRYKNOLL LN.
7.6'
bb inlet
traffic sign
curb stop
25.2'
curb stop
36.2'
curb stop
fence corner
curb stop
7' chainlink fence

SET: 5/8" I.R.C.

STA: N/A
OFFSET: N/A

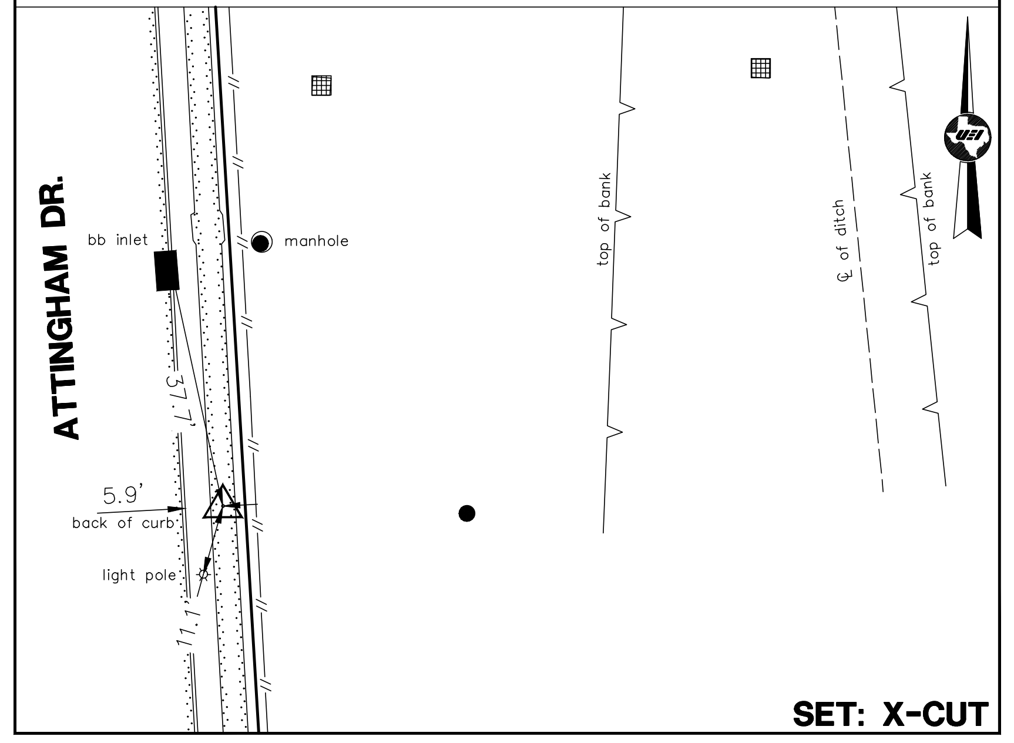
CONTROL PT. #11


gas valve
37.7'
40.1'
traffic sign
power pole
6' chianlink fence
6' chianlink fence
OFF SITE
ON ATTINGHAM DR
74.0'
4' wrought iron fence
bench
ATTINGHAM DR.
water valve
bleachers

SET: X-CUT

STA: N/A
OFFSET: N/A

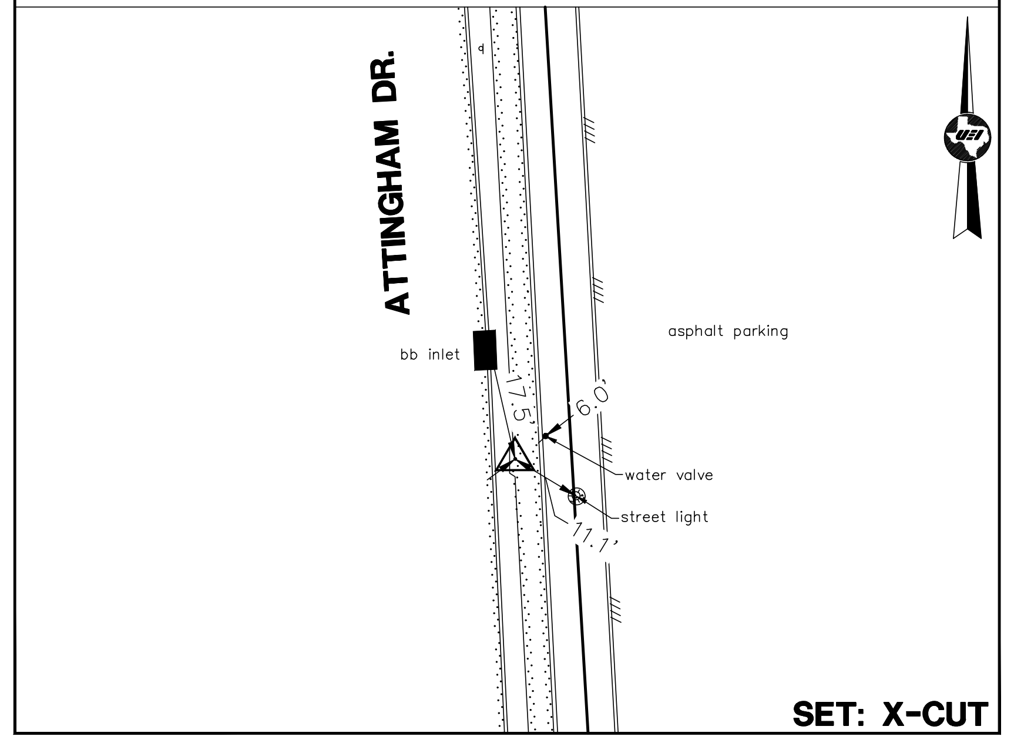
CONTROL PT. #12


ATTINGHAM DR.
bb inlet
manhole
top of bank
℄ of ditch
top of bank
37.7'
5.9'
back of curb
light pole
11.1'

SET: X-CUT

STA: N/A
OFFSET: N/A

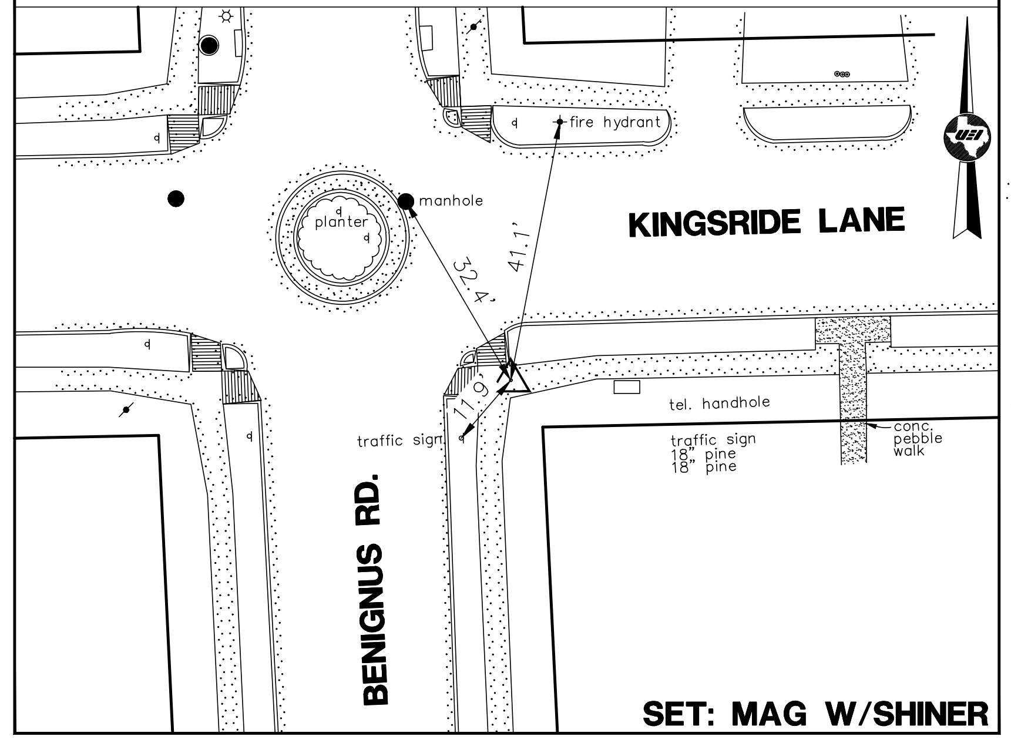
CONTROL PT. #13


ATTINGHAM DR.
bb inlet
asphalt parking
17.5'
6.0'
water valve
street light
11.7'

SET: X-CUT

STA: 4+89.79 BL "A"
OFFSET: 22.59' RT

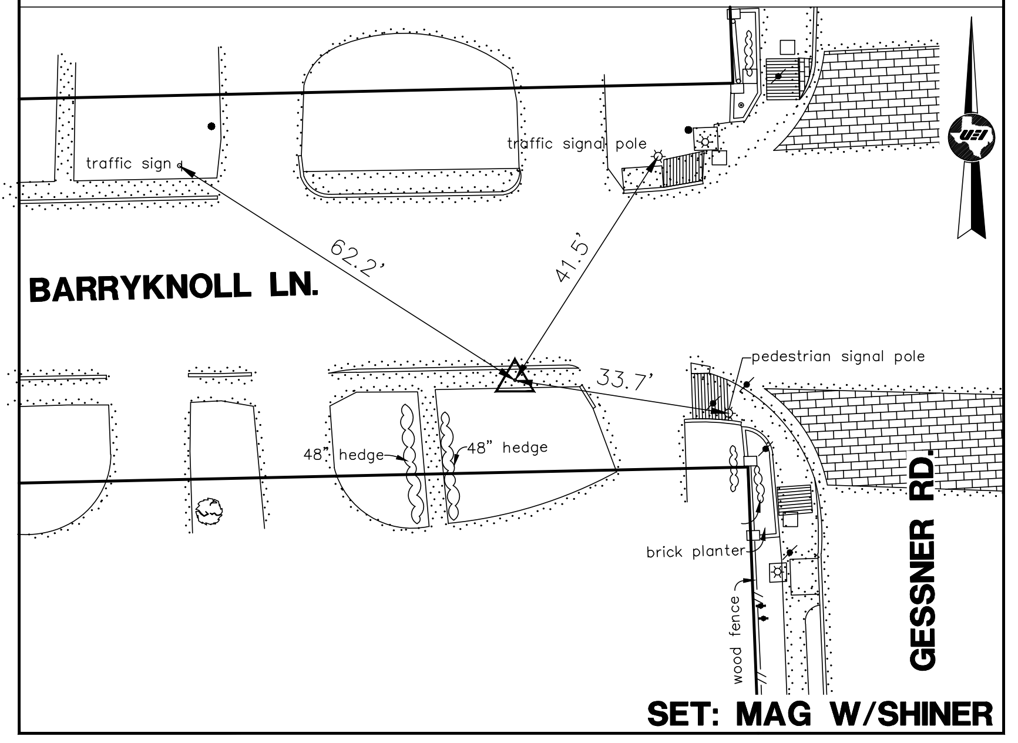
CONTROL PT. #14


fire hydrant
manhole
planter
41.1'
32.4'
KINGSRIDE LANE
11.9'
traffic sign
tel. handhole
traffic sign
18" pine
18" pine
conc. pebble walk
BENIGNUS RD.

SET: MAG W/SHINER

STA: 1+60.15 BL "B"
OFFSET: 15.66' RT

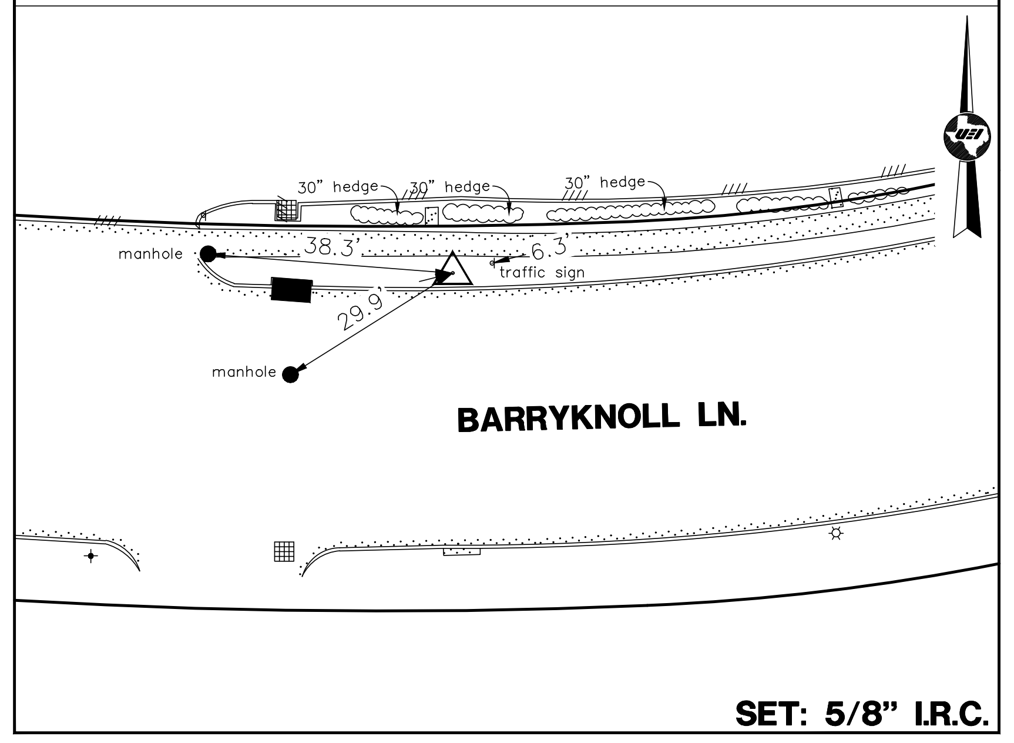
CONTROL PT. #15


traffic sign
traffic signal pole
BARRYKNOLL LN.
62.2'
41.5'
33.7'
pedestrian signal pole
48" hedge
48" hedge
brick planter
wood fence
GESSNER RD.

SET: MAG W/SHINER

STA: 6+65.33 BL "B"
OFFSET: 22.67' LT

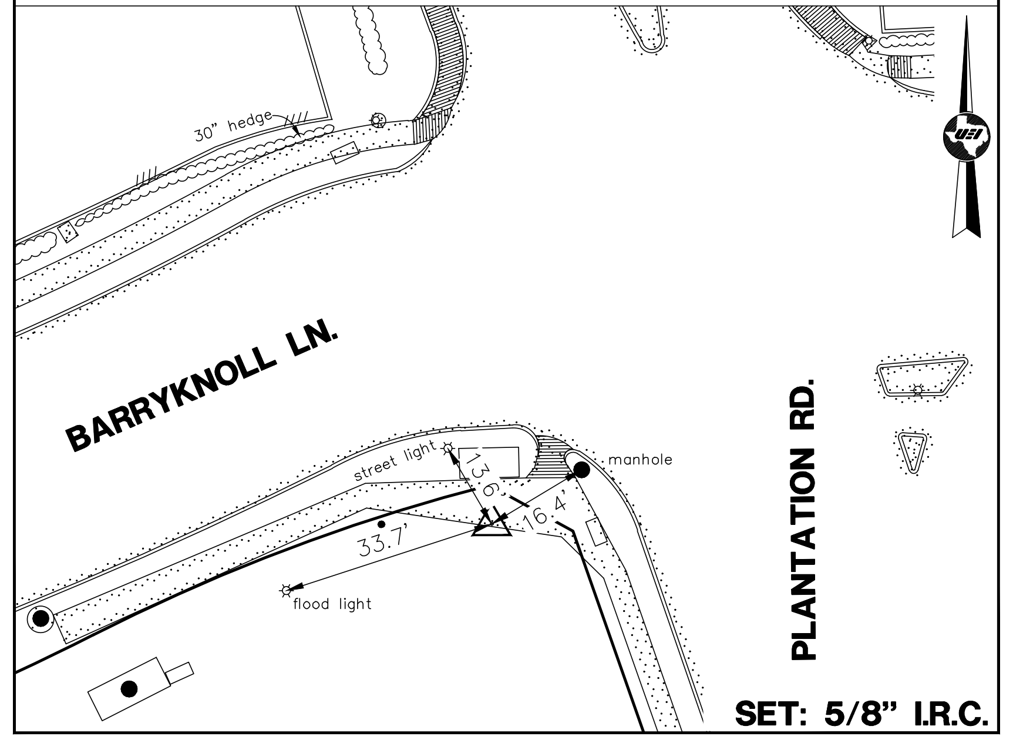
CONTROL PT. #16


30" hedge
30" hedge
30" hedge
manhole
38.3'
6.3'
traffic sign
29.9'
manhole
BARRYKNOLL LN.

SET: 5/8" I.R.C.

STA: 9+07.59 BL "B"
OFFSET: 35.93' RT

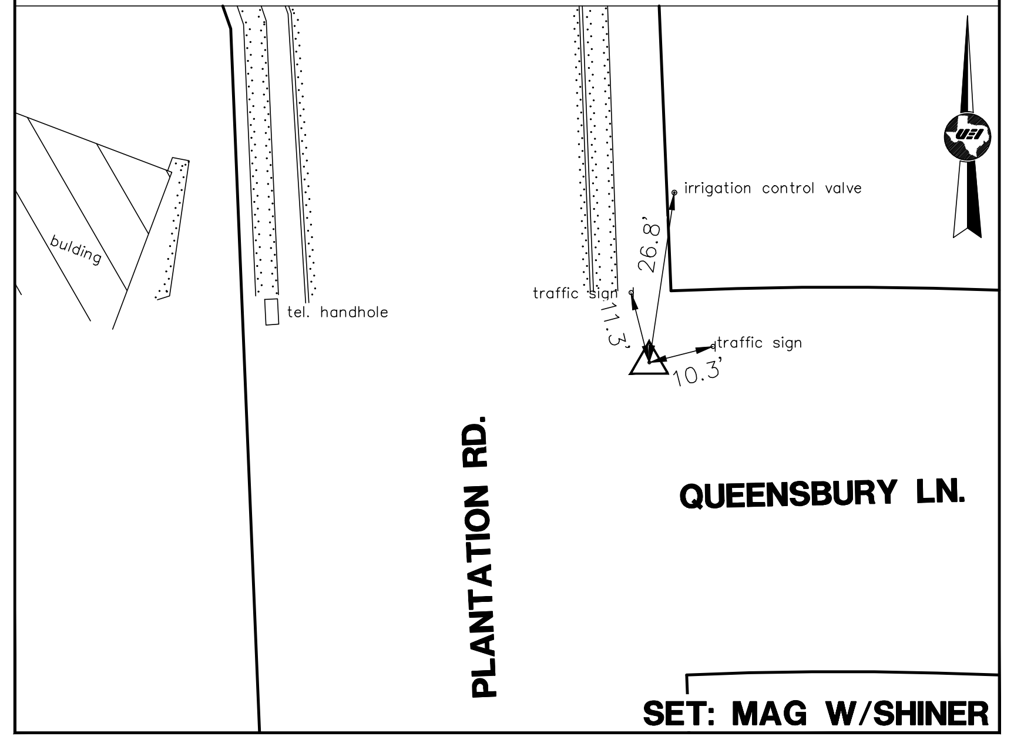
CONTROL PT. #17


30" hedge
BARRYKNOLL LN.
street light
13.6'
manhole
16.4'
33.7'
flood light
PLANTATION RD.

SET: 5/8" I.R.C.

STA: 0+53.00 BL "F"
OFFSET: 26.17' RT

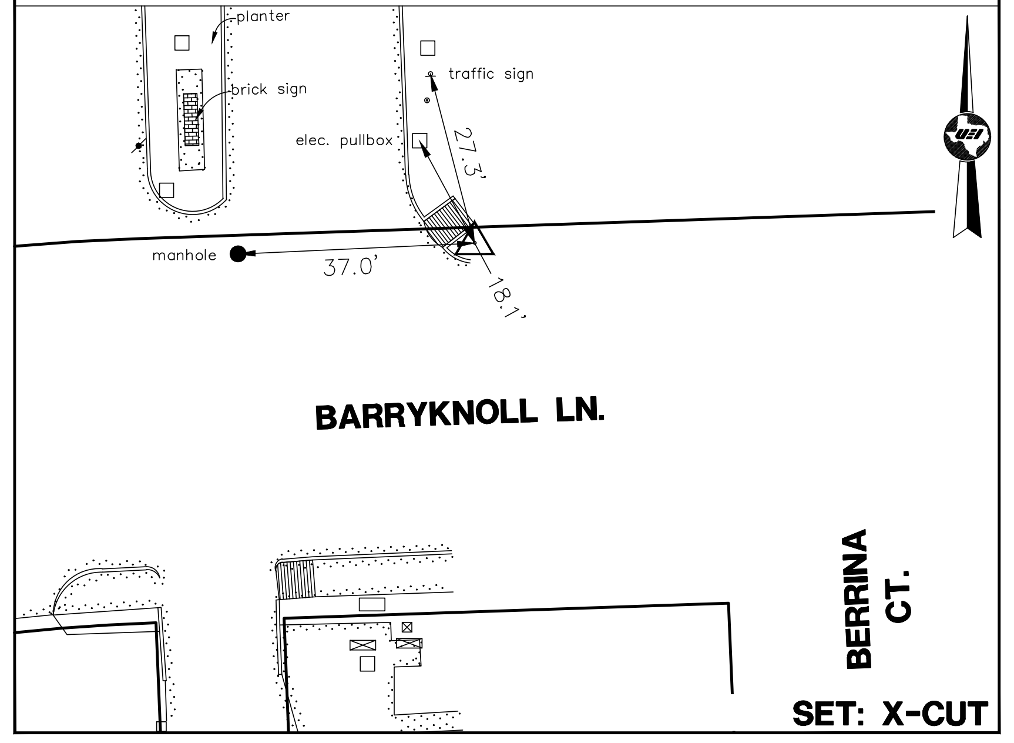
CONTROL PT. #21


bulding
tel. handhole
irrigation control valve
26.8'
traffic sign
11.3'
traffic sign
10.3'
PLANTATION RD.
QUEENSBURY LN.

SET: MAG W/SHINER

STA: 17+59.10 BL "B"
OFFSET: 27.50' LT

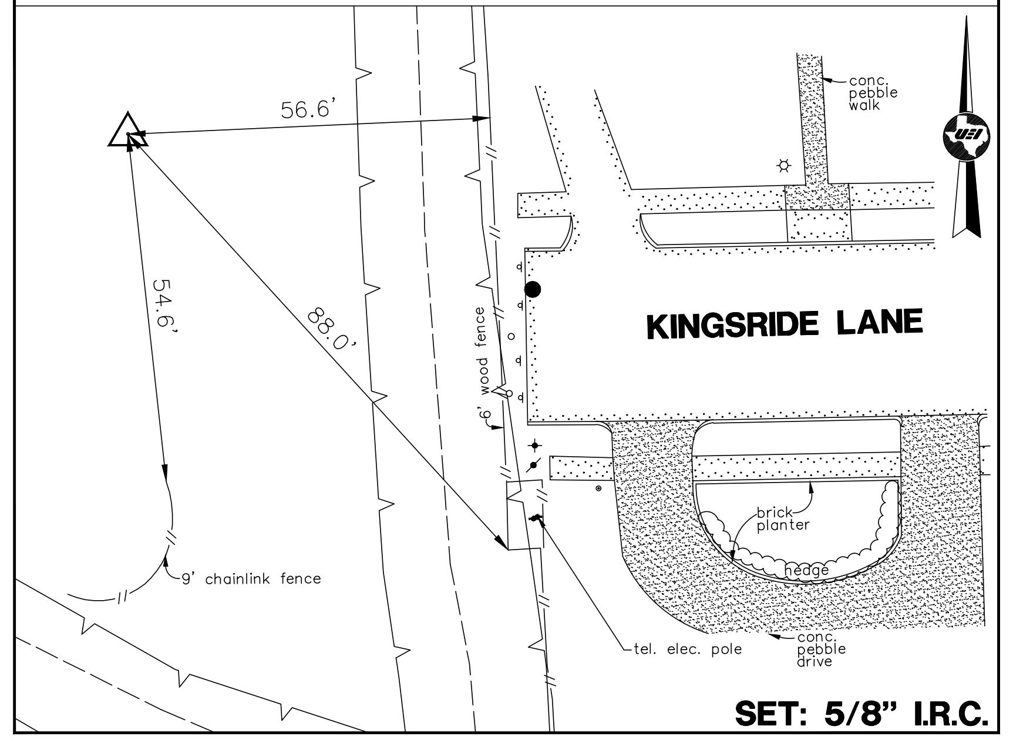
CONTROL PT. #25


planter
brick sign
traffic sign
elec. pullbox
27.3'
manhole
37.0'
18.1'
BARRYKNOLL LN.
BERRINA CT.

SET: X-CUT

STA: N/A
OFFSET: N/A

CONTROL PT. #30


56.6'
conc. pebble walk
54.6'
88.0'
6' wood fence
KINGSRIDE LANE
brick planter
hedge
9' chainlink fence
tel. elec. pole
conc. pebble drive

SET: 5/8" I.R.C.

GENERAL NOTES:
CP– indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C.. indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

CHRISTIN M. NORRIS, R.P.L.S. 6207

4-14-26
DATE

CHRISTIN MICHAEL NORRIS
6207

United Engineers, Inc.
CIVIL ENGINEERING ◆ LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING ◆ UTILITY ENGINEERING
ENGINEERING FIRM # F–000142 SURVEY FIRM # 101178–00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL. (713) 271–2900
HOUSTON, TEXAS 77074 FAX (713) 271–2999

HRGreen
FIRM NO. F–16690
11011 RICHMOND
AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P–6422

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL

SWINGTIES
SHEET 1 OF 5

WBS NUMBER
M–430296–0017

DRAWING SCALE
AS NOTED

CITY OF HOUSTON PM
RAJESH DANAYAK, P.E.

FOR CITY OF HOUSTON USE ONLY

SHEET NO. 86 OF 345

100% SUBMITTAL

PLOTTED: 4/15/2026 8:15 AM

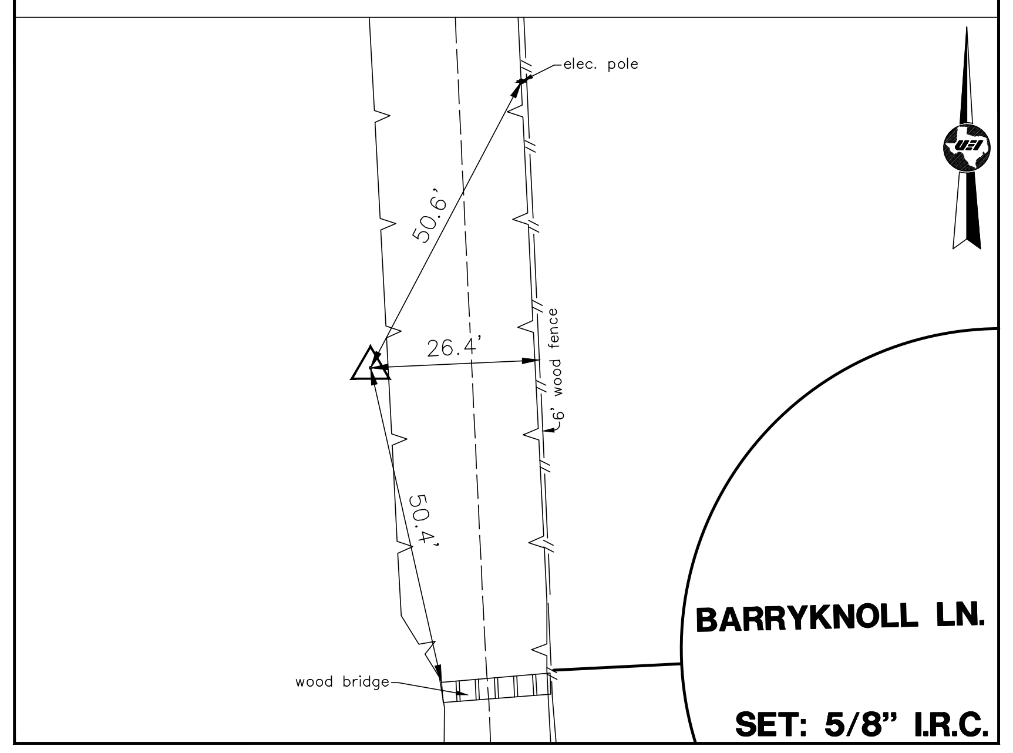
FILE PATH: K:\CIV\222-101 – TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 1.dwg

PLOTTED: 4/15/2026 8:15 AM

FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 2.dwg

STA: N/A
OFFSET: N/A

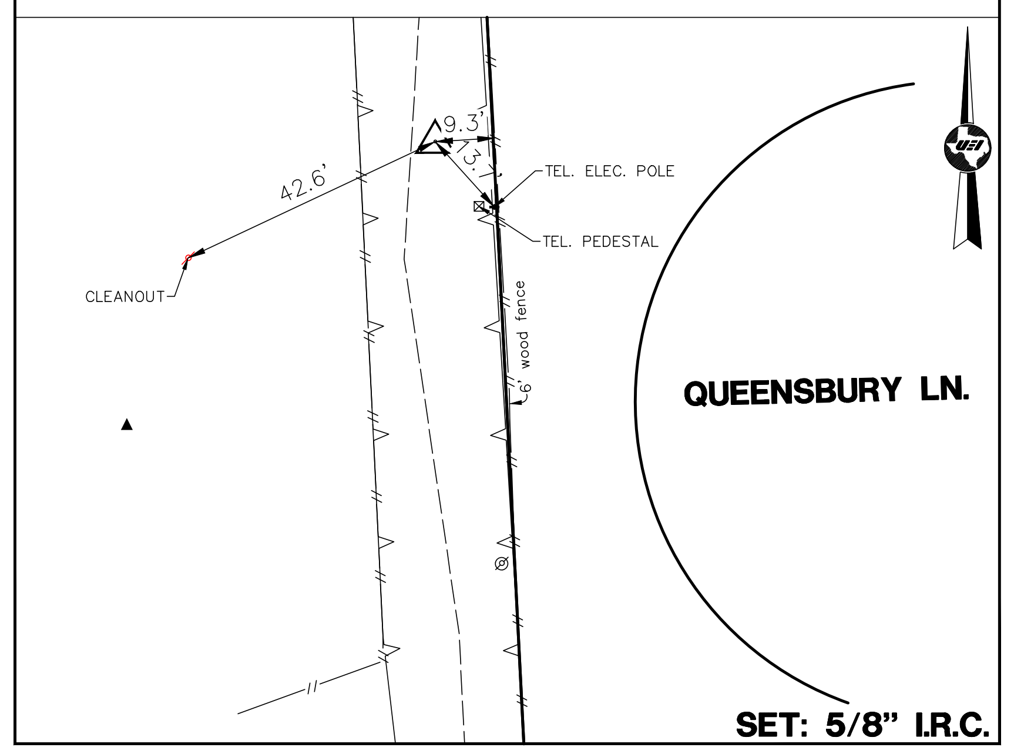
CONTROL PT. #31


elec. pole
50.6'
26.4'
6' wood fence
50.4'
BARRYKNOLL LN.
wood bridge

SET: 5/8" I.R.C.

STA: N/A
OFFSET: N/A

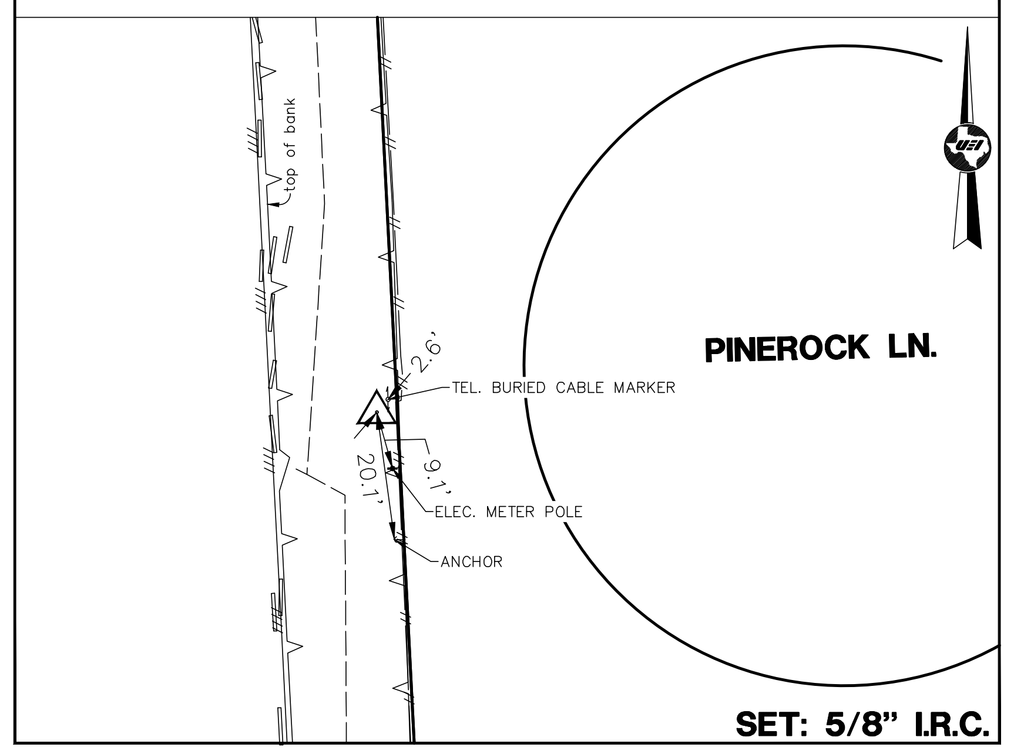
CONTROL PT. #32


9.3'
13.7'
42.6'
TEL. ELEC. POLE
TEL. PEDESTAL
CLEANOUT
6' wood fence
QUEENSBURY LN.

SET: 5/8" I.R.C.

STA: N/A
OFFSET: N/A

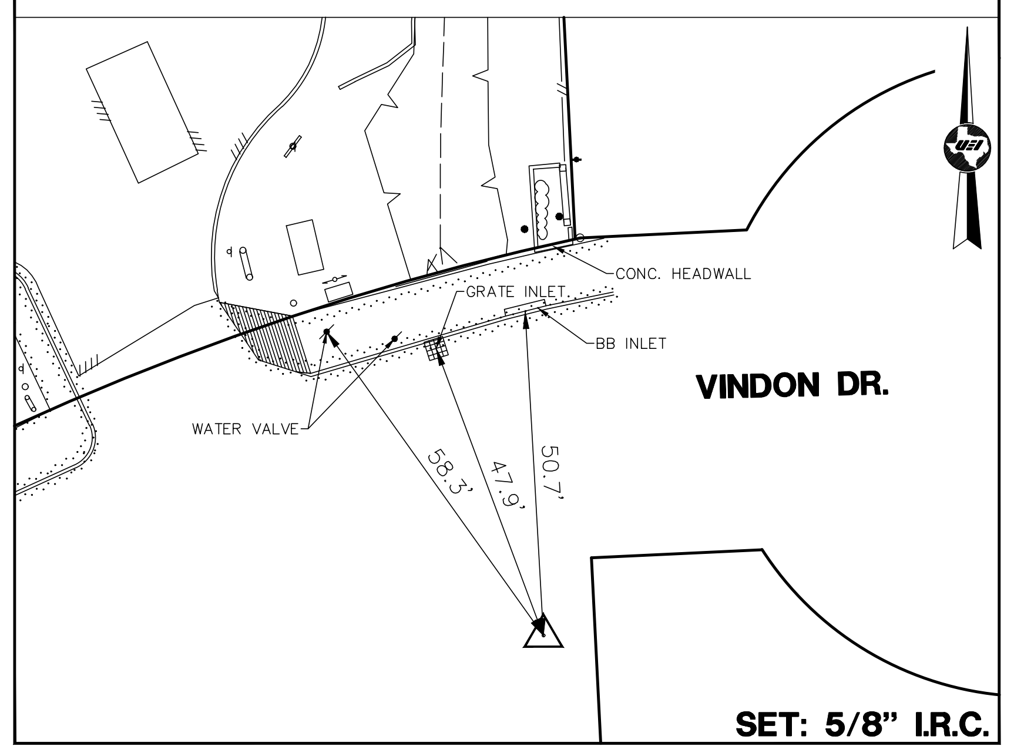
CONTROL PT. #33


top of bank
2.6'
TEL. BURIED CABLE MARKER
20.1'
9.1'
ELEC. METER POLE
ANCHOR
PINEROCK LN.

SET: 5/8" I.R.C.

STA: 14+02.82 BL "G"
OFFSET: 29.05' RT

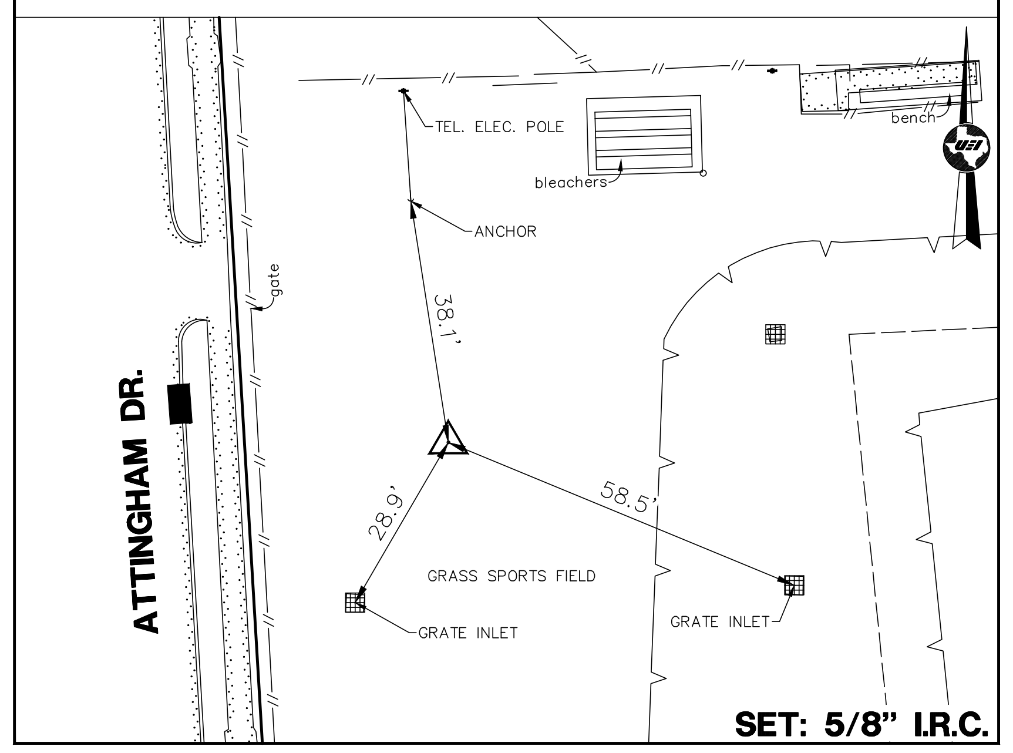
CONTROL PT. #34


CONC. HEADWALL
GRATE INLET
BB INLET
WATER VALVE
VINDON DR.
58.3'
47.9'
50.7'

SET: 5/8" I.R.C.

STA: N/A
OFFSET: N/A

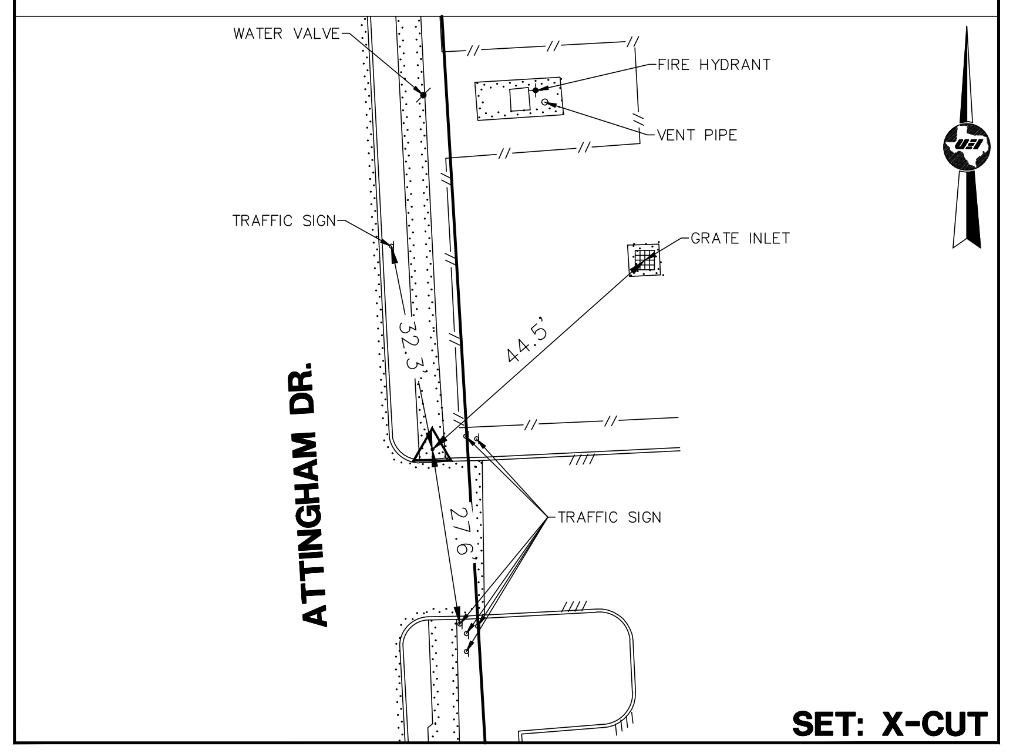
CONTROL PT. #40


TEL. ELEC. POLE
bleachers
bench
ANCHOR
gate
ATTINGHAM DR.
38.1'
28.9'
58.5'
GRASS SPORTS FIELD
GRATE INLET
GRATE INLET

SET: 5/8" I.R.C.

STA: N/A
OFFSET: N/A

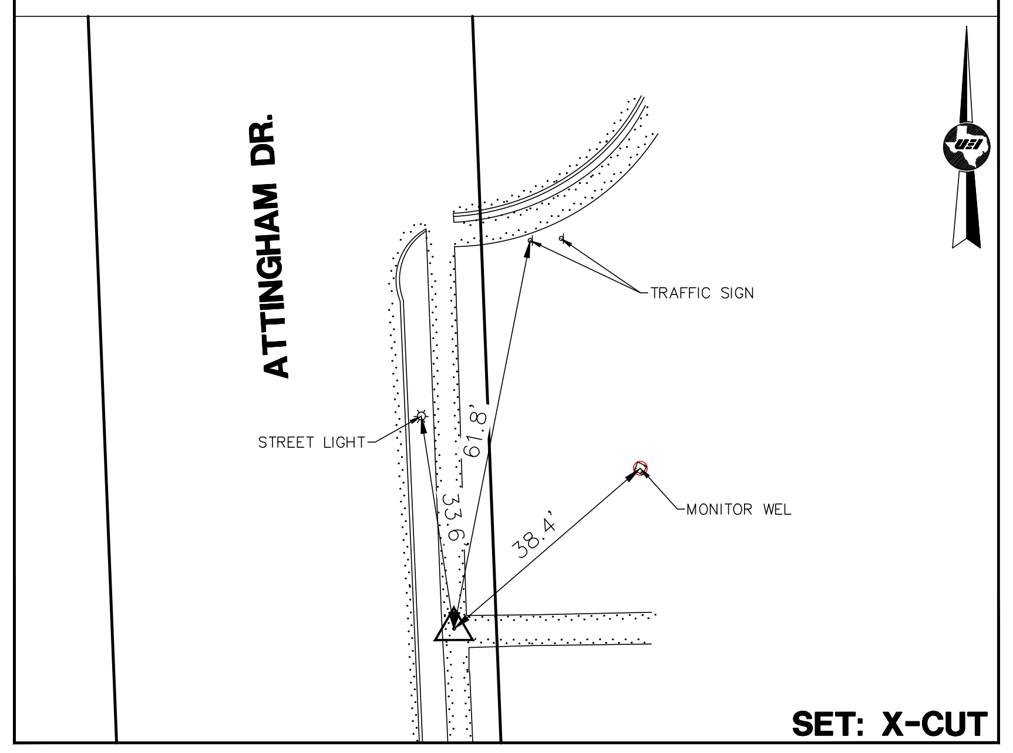
CONTROL PT. #41


WATER VALVE
FIRE HYDRANT
VENT PIPE
TRAFFIC SIGN
GRATE INLET
32.3'
44.5'
ATTINGHAM DR.
27.6'
TRAFFIC SIGN

SET: X-CUT

STA: N/A
OFFSET: N/A

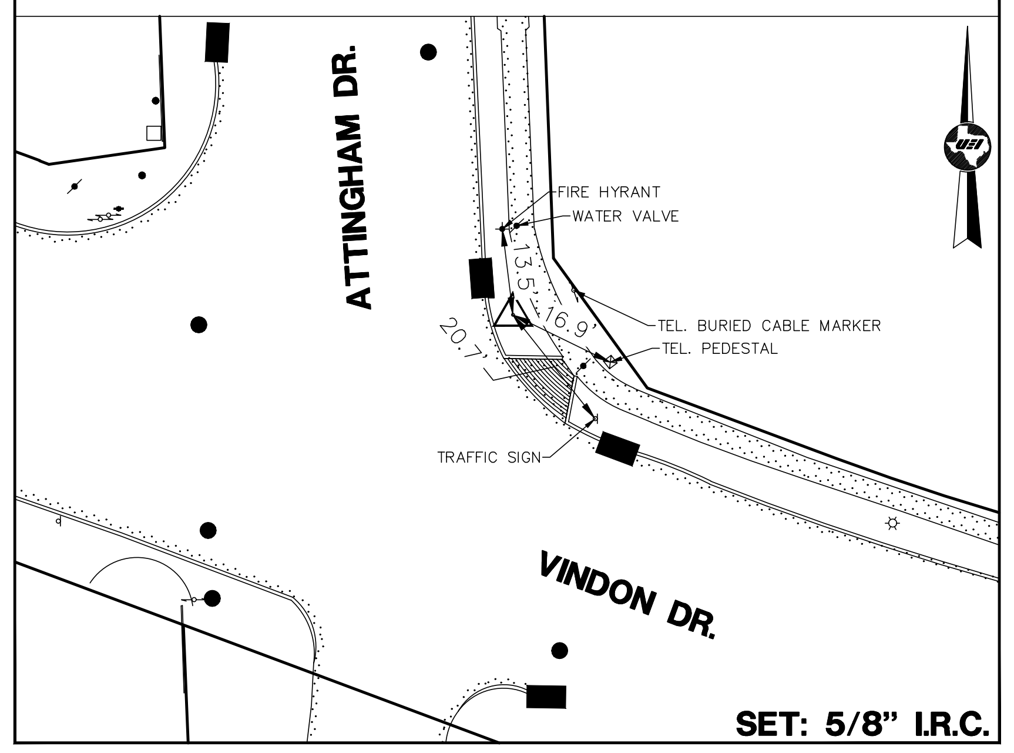
CONTROL PT. #42


ATTINGHAM DR.
TRAFFIC SIGN
STREET LIGHT
61.8'
33.6'
38.4'
MONITOR WEL

SET: X-CUT

STA: 7+28.59 BL "G"
OFFSET: 33.34' LT

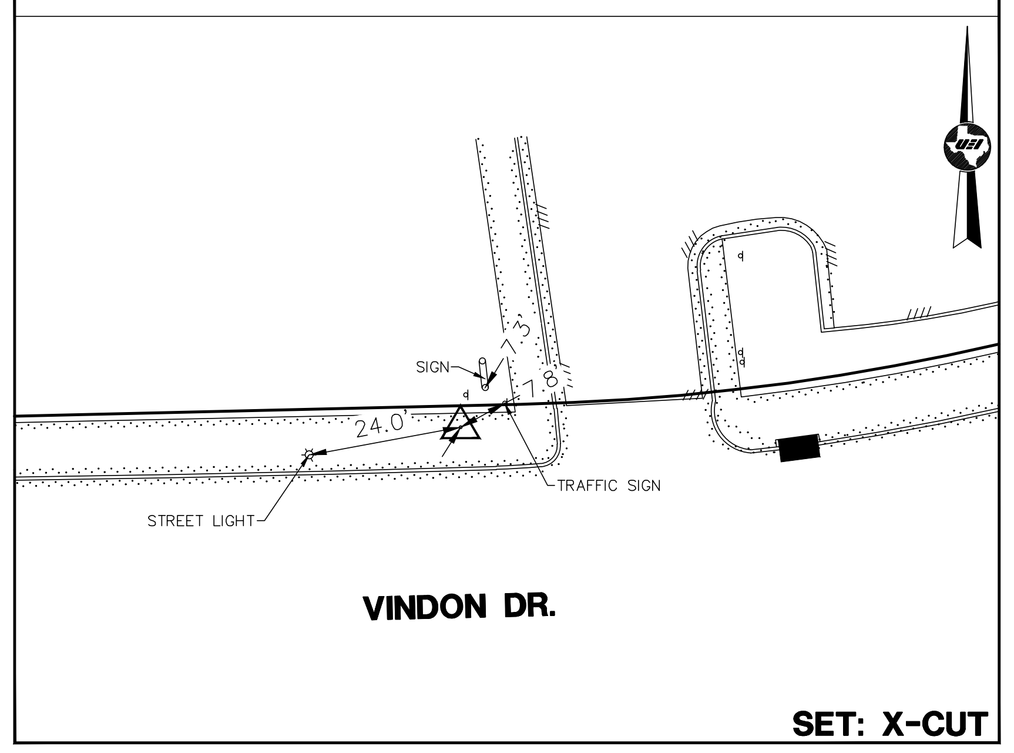
CONTROL PT. #43


ATTINGHAM DR.
FIRE HYRANT
WATER VALVE
13.5'
16.9'
20.7'
TEL. BURIED CABLE MARKER
TEL. PEDESTAL
TRAFFIC SIGN
VINDON DR.

SET: 5/8" I.R.C.

STA: 10+29.12 BL "G"
OFFSET: 26.65' LT

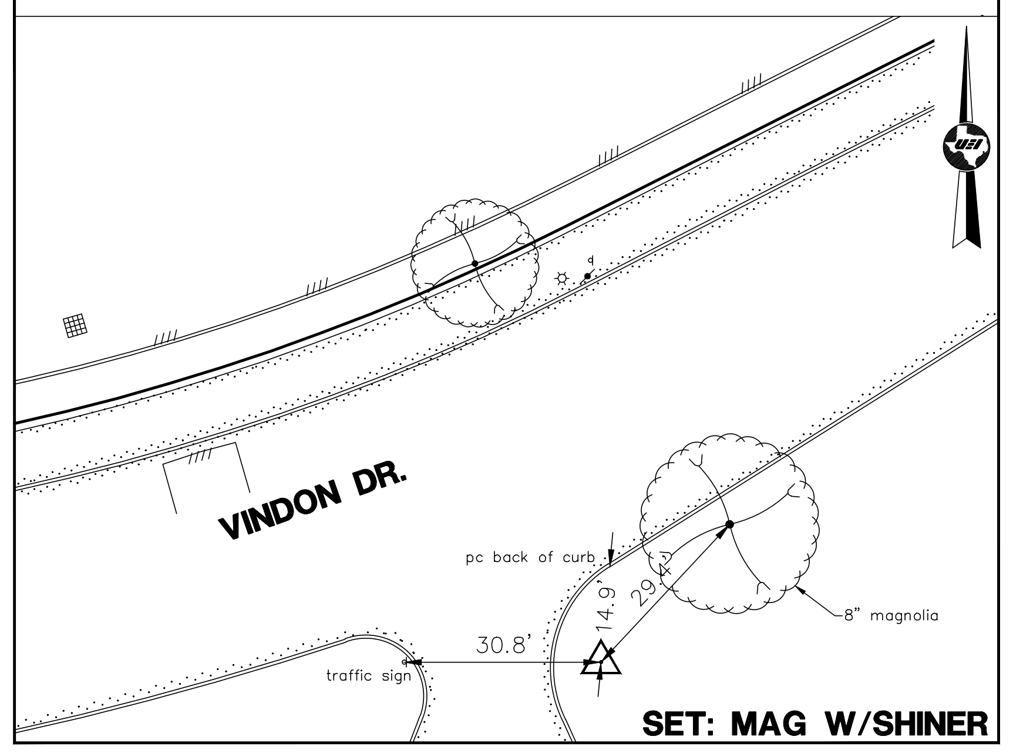
CONTROL PT. #44


SIGN
7.3'
7.8'
24.0'
STREET LIGHT
TRAFFIC SIGN
VINDON DR.

SET: X-CUT

STA: 11+92.57 BL "G"
OFFSET: 33.97' RT

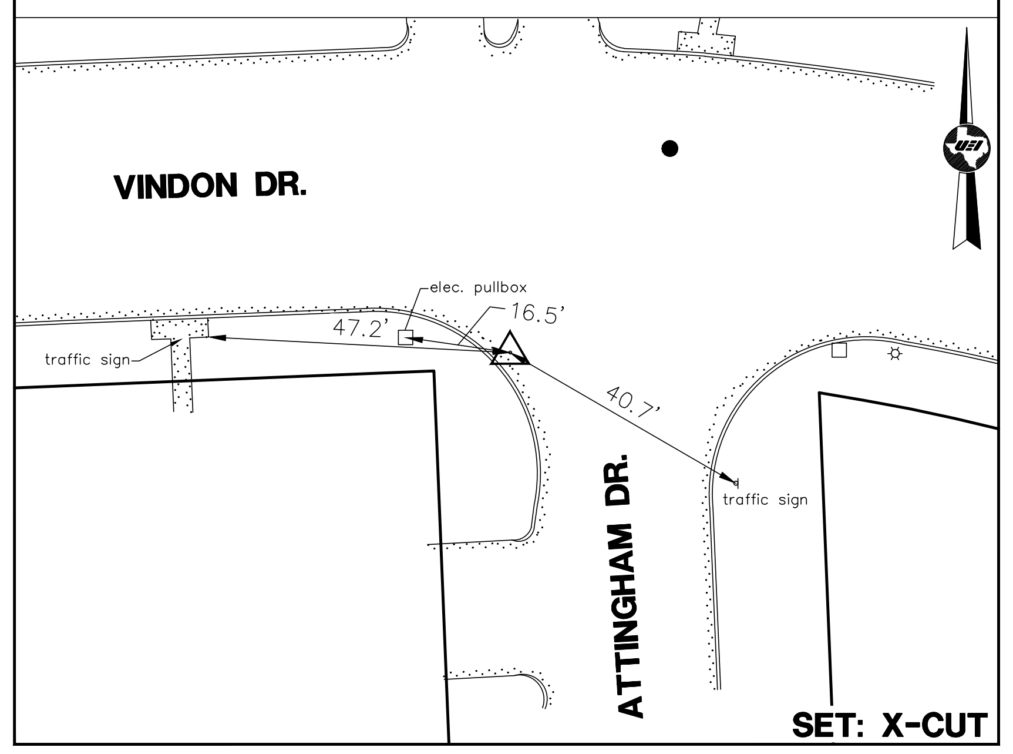
CONTROL PT. #45


VINDON DR.
pc back of curb
14.9'
29.4'
8" magnolia
30.8'
traffic sign

SET: MAG W/SHINER

STA: 5+27.65 BL "G"
OFFSET: 27.38' RT

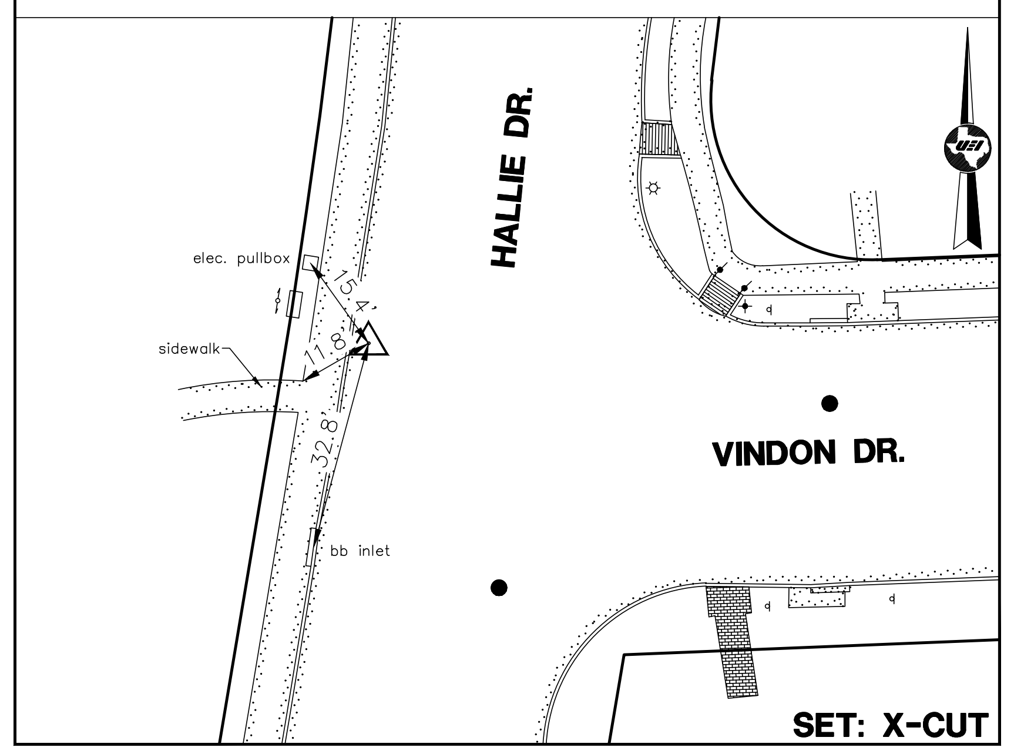
CONTROL PT. #46


VINDON DR.
elec. pullbox
47.2'
16.5'
traffic sign
40.7'
ATTINGHAM DR.
traffic sign

SET: X-CUT

STA: 1+12.11 BL "G"
OFFSET: 20.17' LT

CONTROL PT. #47


HALLIE DR.
elec. pullbox
15.4'
sidewalk
11.8'
32.8'
bb inlet
VINDON DR.

SET: X-CUT

GENERAL NOTES:

CP– indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C.. indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

4-14-26

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

CHRISTIN MICHAEL NORRIS
6207

United Engineers, Inc.
CIVIL ENGINEERING ◆ LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING ◆ UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL. (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND
AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL

SWINGTIES
SHEET 2 OF 5

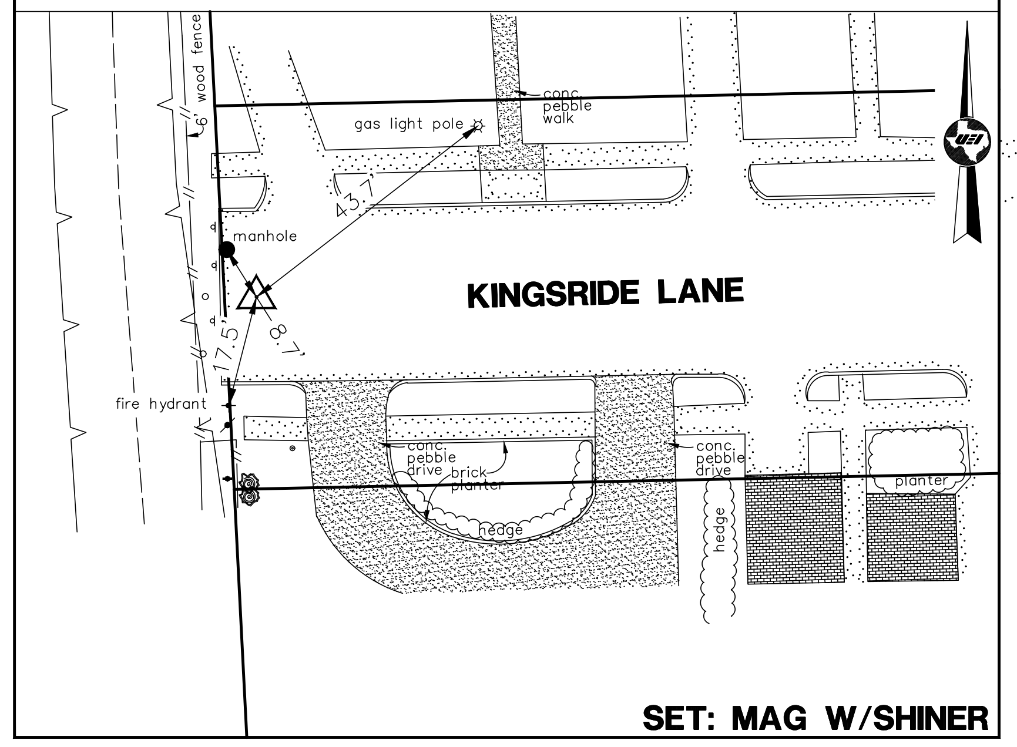
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
M-430296-0017	
DRAWING SCALE	
AS NOTED	
CITY OF HOUSTON PM	
RAJESH DANAYAK, P.E.	
SHEET NO. 87 OF 345	

100% SUBMITTAL

PLOTTED: 4/15/2026 8:16 AM

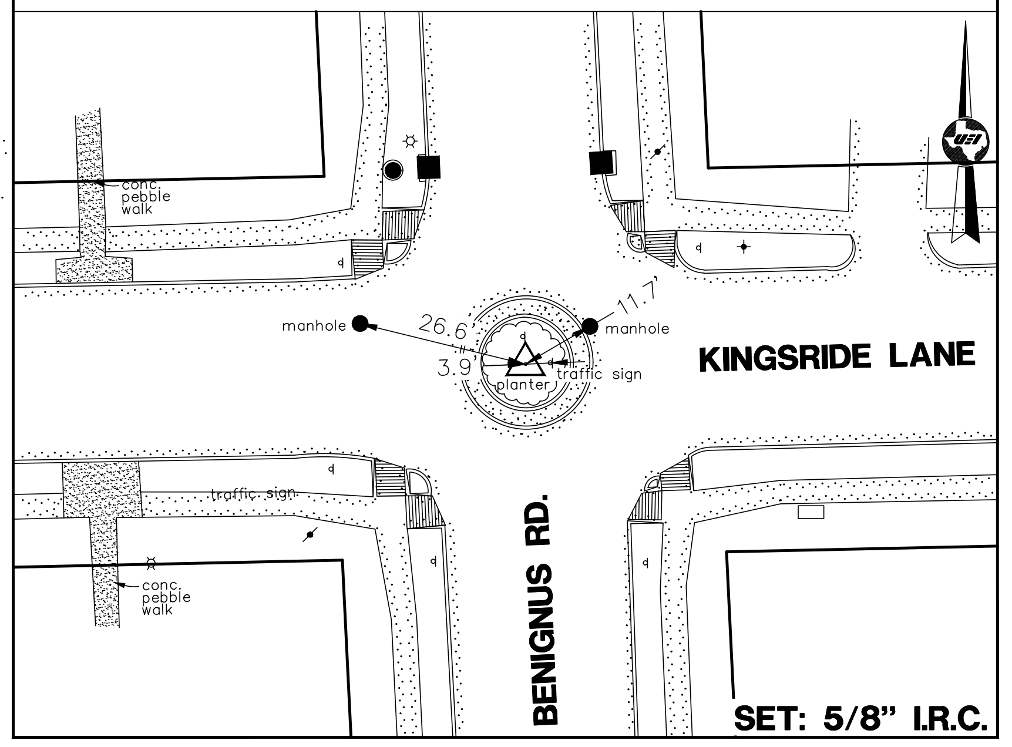
FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 3.dwg

STA: 1+00.00 BL "A" **BASELINE PT. #500**


wood fence
gas light pole
conc. pebble walk
manhole
43.7'
17.5'
8.7'
KINGSRIDE LANE
fire hydrant
pebble drive
hedge
planter
conc. pebble walk

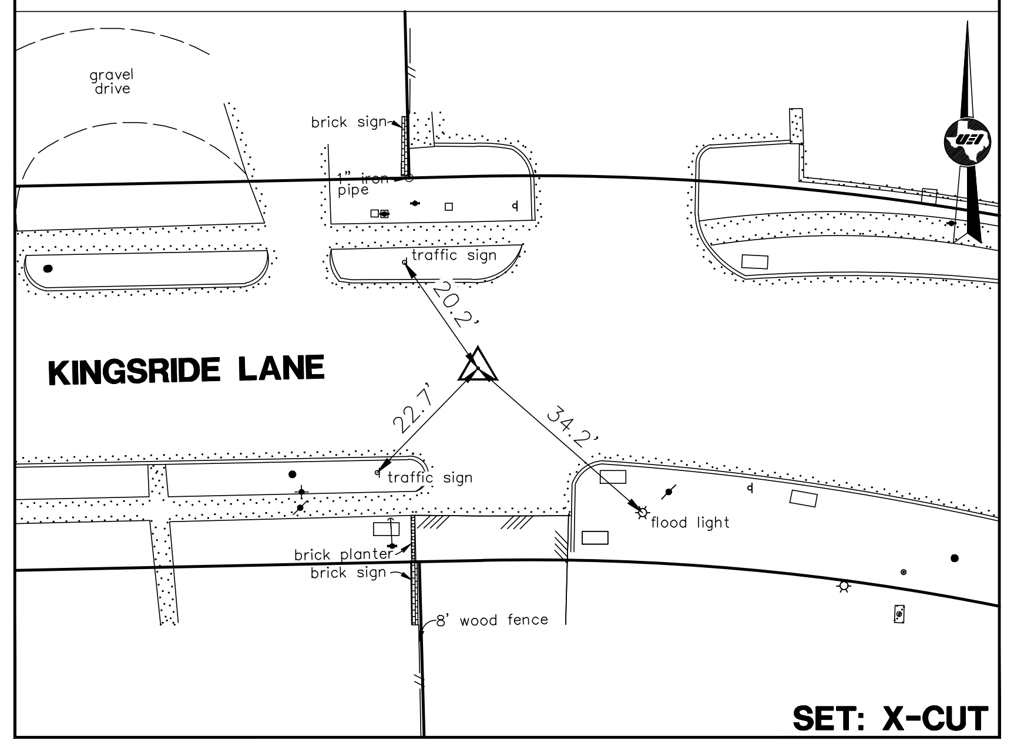
SET: MAG W/SHINER

STA: 4+63.84 BL "A" **BASELINE PT. #501**


conc. pebble walk
manhole
26.6'
11.7'
3.9'
planter
traffic sign
KINGSRIDE LANE
BENIGNUS RD.
conc. pebble walk

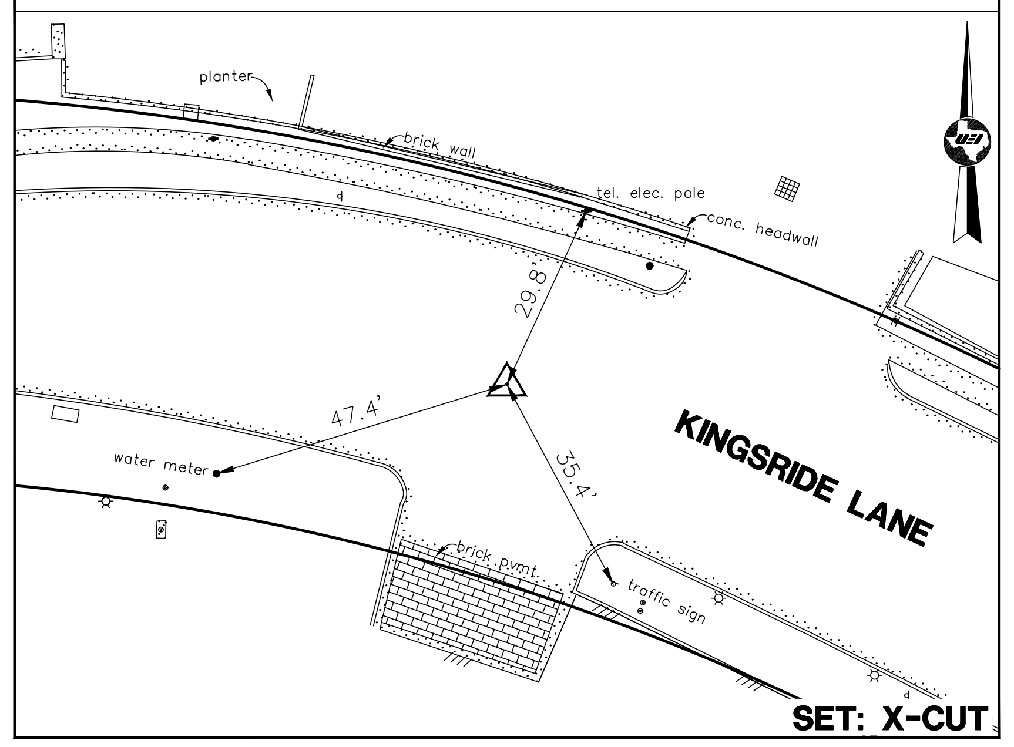
SET: 5/8" I.R.C.

STA: 8+78.74 BL "A" **BASELINE PT. #502**


gravel drive
brick sign
pipe
traffic sign
20.2'
22.7'
34.2'
KINGSRIDE LANE
traffic sign
flood light
brick planter
brick sign
8' wood fence

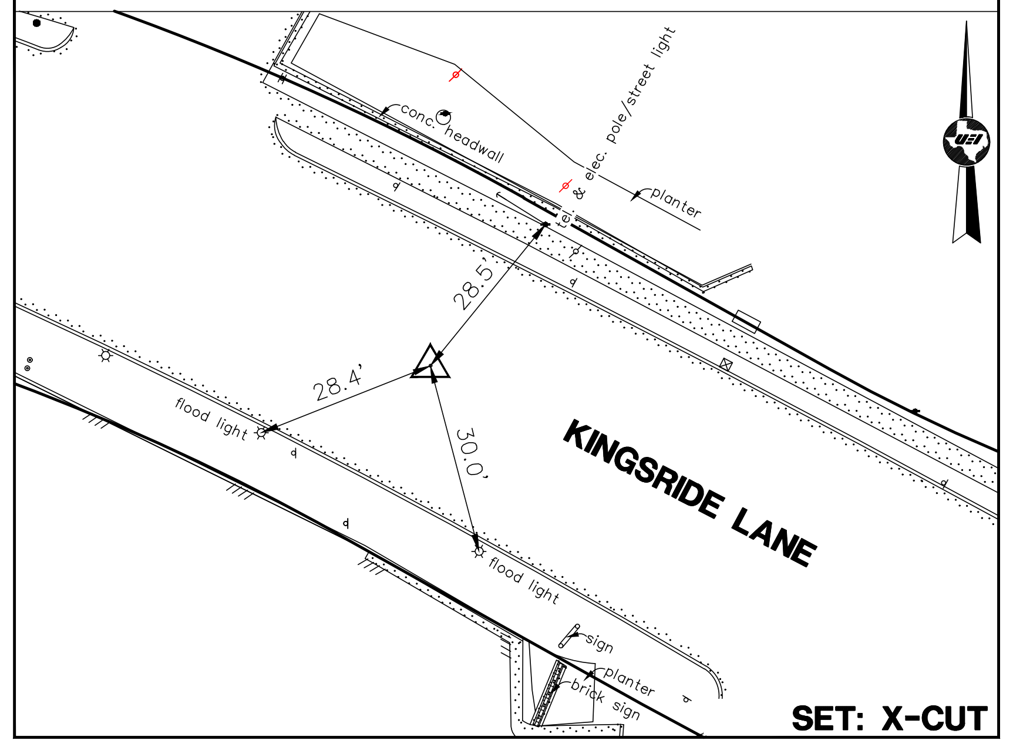
SET: X-CUT

STA: 10+00.00 BL "A" **BASELINE PT. #503**


planter
brick wall
tel. elec. pole
conc. headwall
29.8'
47.4'
35.4'
water meter
KINGSRIDE LANE
brick pvmt.
traffic sign

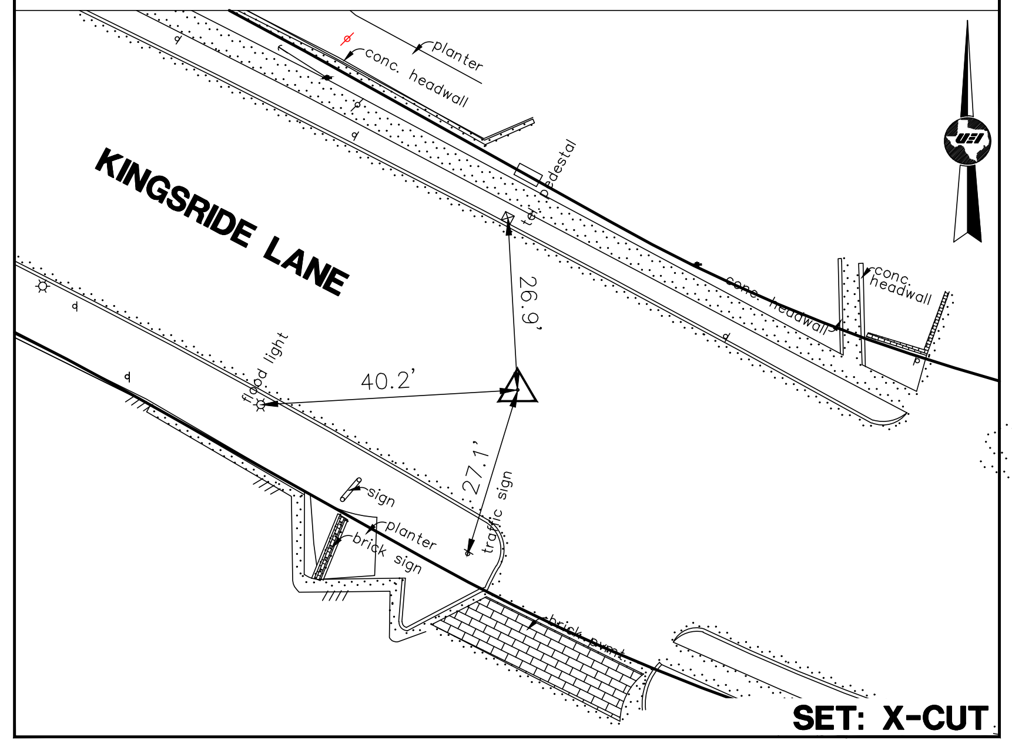
SET: X-CUT

STA: 10+91.03 BL "A" **BASELINE PT. #504**


conc. headwall
elec. pole/street light
planter
28.5'
28.4'
30.0'
flood light
KINGSRIDE LANE
flood light
sign

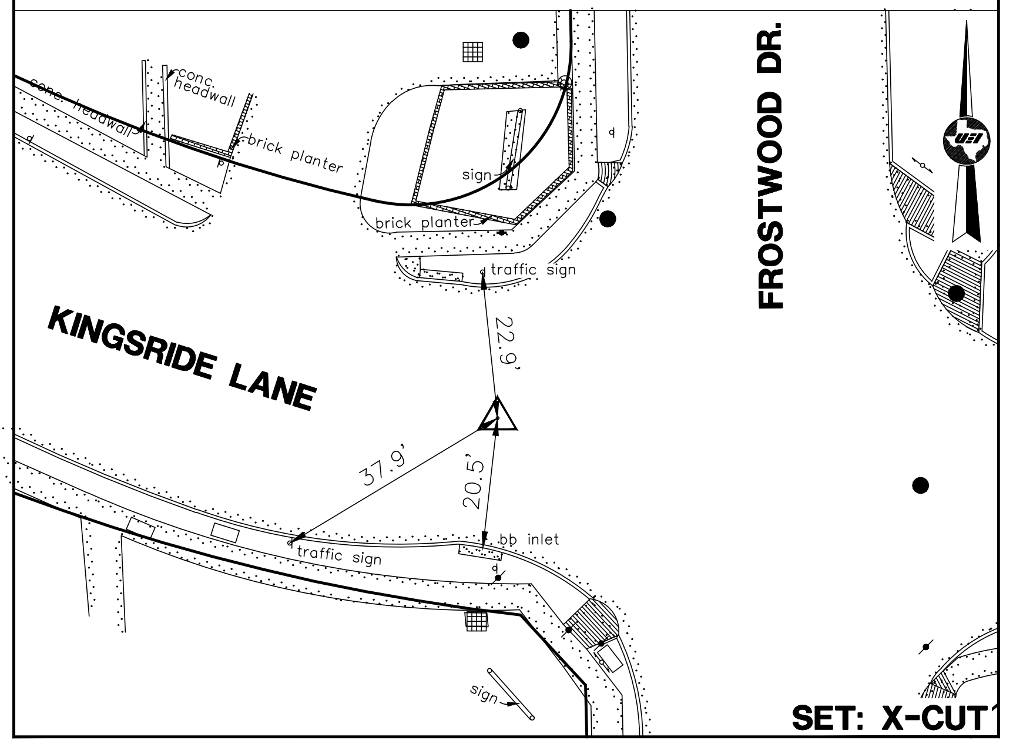
SET: X-CUT

STA: 11+45.70 BL "A" **BASELINE PT. #505**


planter
conc. headwall
KINGSRIDE LANE
conc. headwall
26.9'
40.2'
27.1'
light
sign
planter

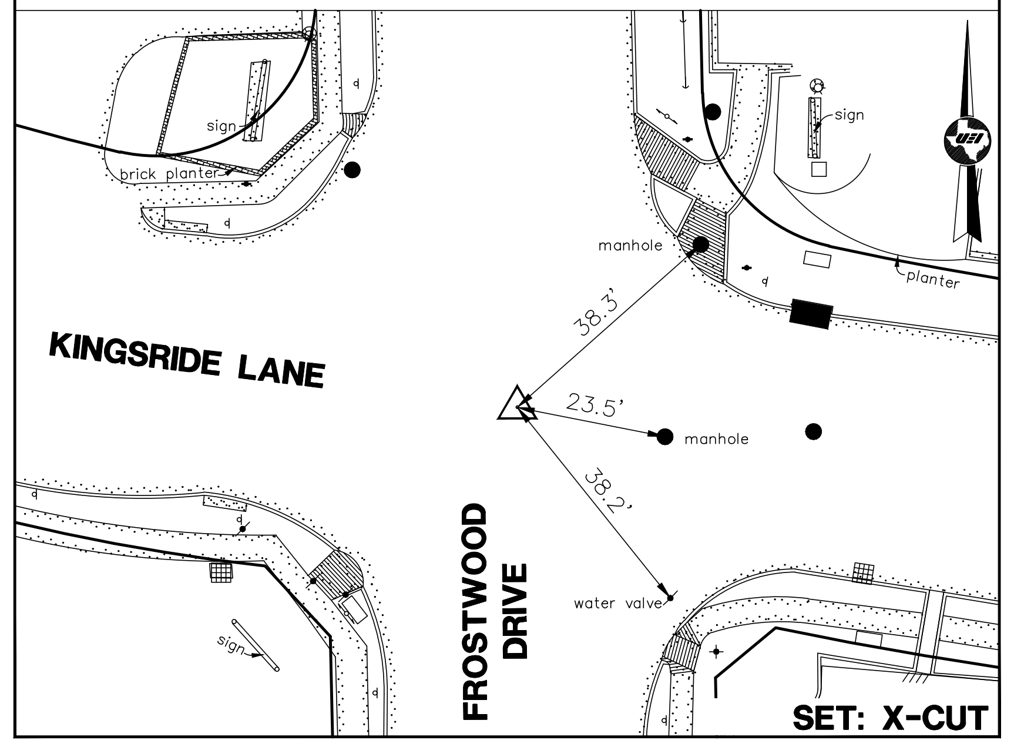
SET: X-CUT

STA: 12+57.67 BL "A" **BASELINE PT. #506**


conc. headwall
brick planter
sign
brick planter
traffic sign
FROSTWOOD DR.
KINGSRIDE LANE
22.9'
37.9'
20.5'
traffic sign
bb inlet
sign

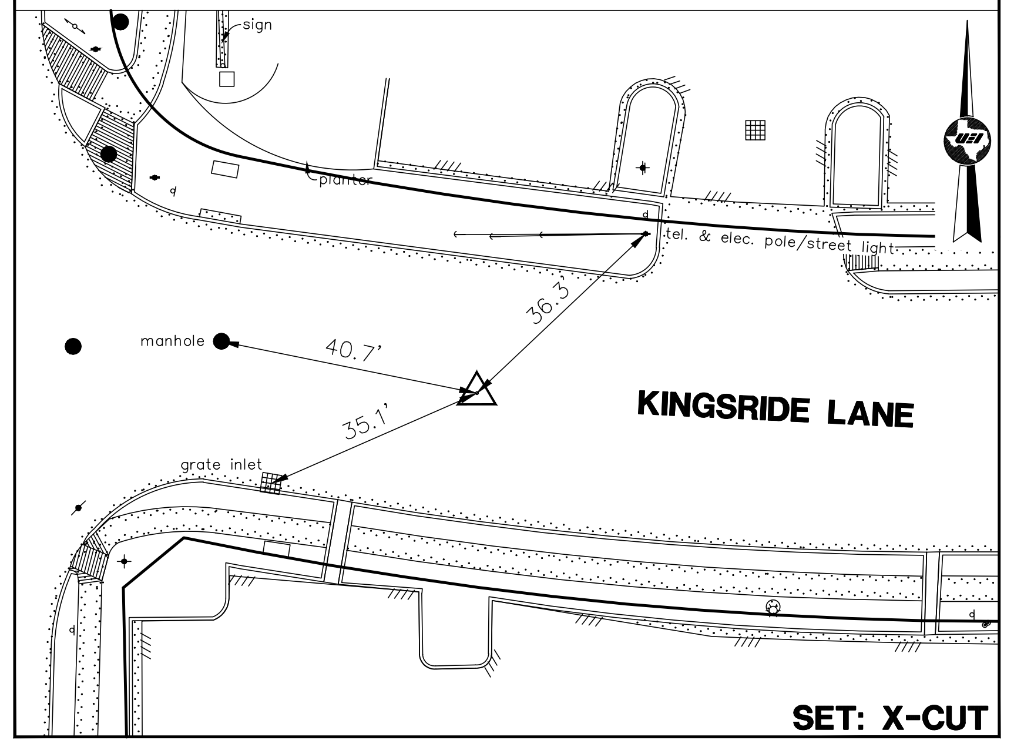
SET: X-CUT

STA: 13+01.04 BL "A" **BASELINE PT. #507**


brick planter
sign
manhole
planter
KINGSRIDE LANE
38.3'
23.5'
manhole
38.2'
FROSTWOOD DRIVE
sign
water valve

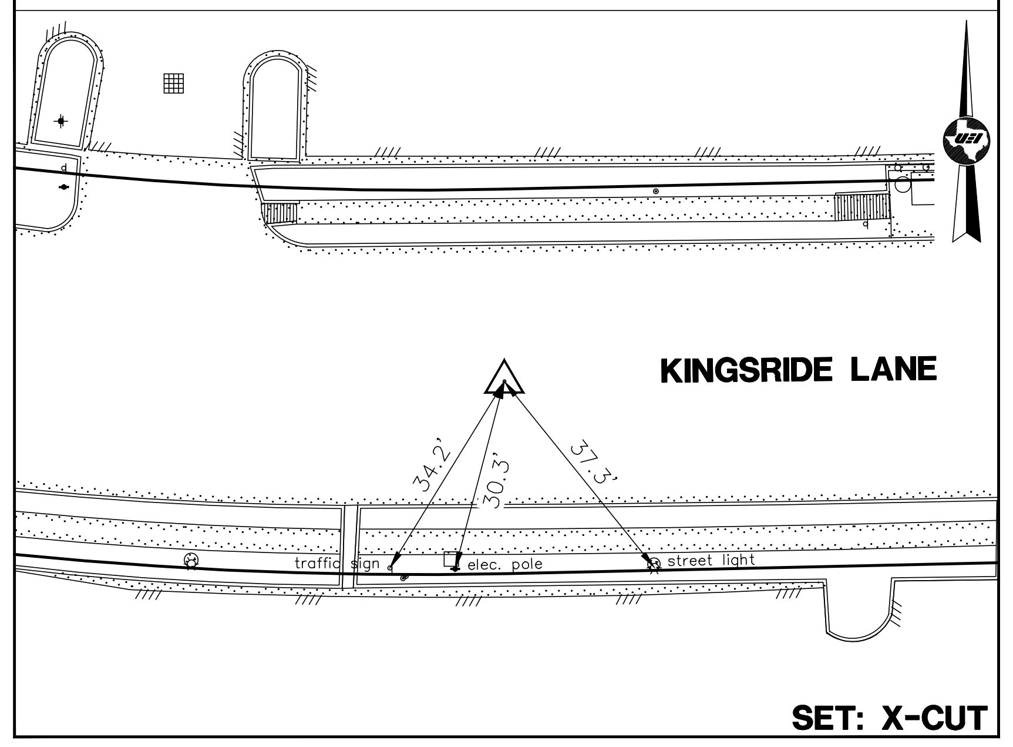
SET: X-CUT

STA: 13+88.01 BL "A" **BASELINE PT. #508**


sign
tel. & elec. pole/street light
manhole
40.7'
36.3'
35.1'
grate inlet
KINGSRIDE LANE

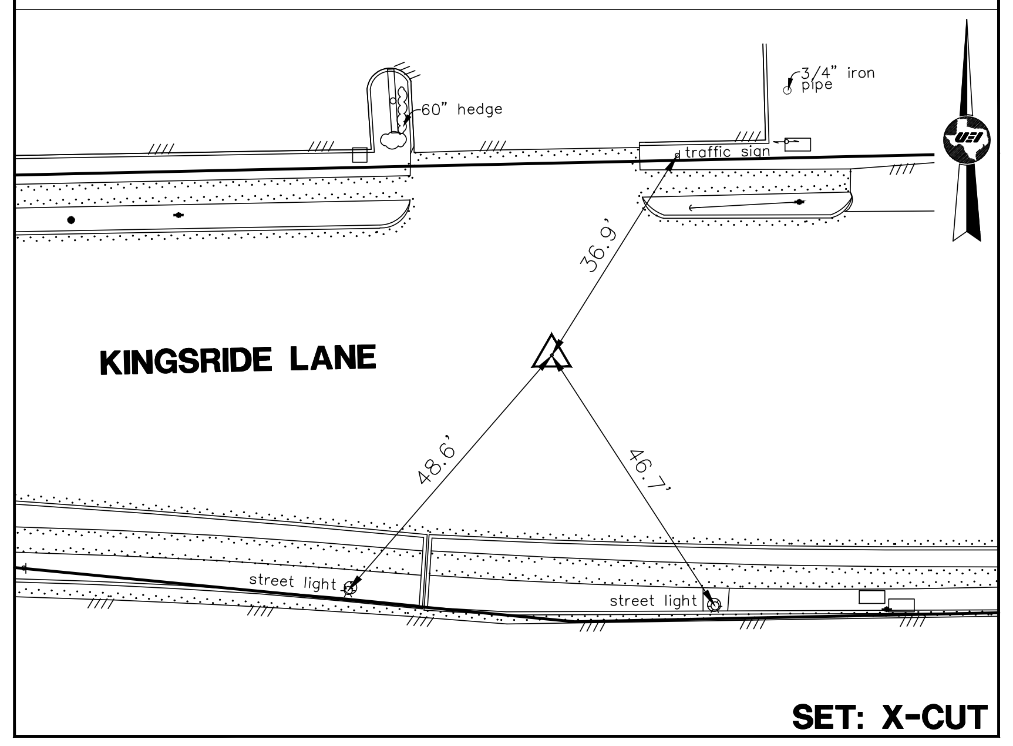
SET: X-CUT

STA: 14+83.44 BL "A" **BASELINE PT. #509**


KINGSRIDE LANE
34.2'
30.3'
37.3'
traffic sign
elec. pole
street light

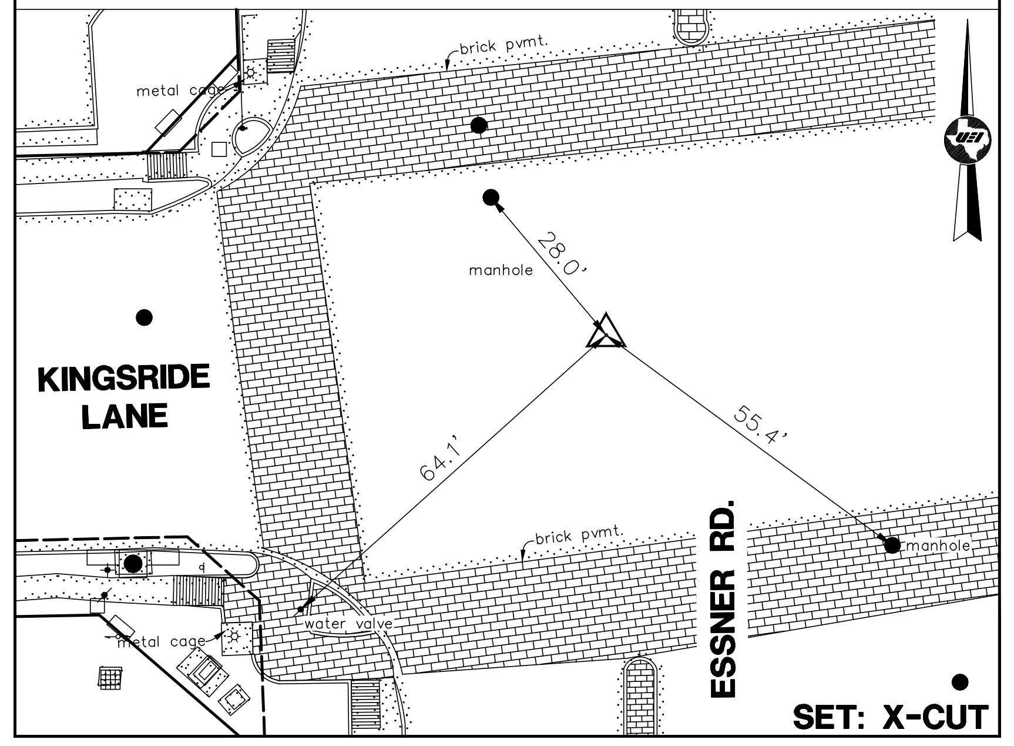
SET: X-CUT

STA: 20+00.00 BL "A" **BASELINE PT. #510**


60" hedge
3/4" iron pipe
traffic sign
36.9'
KINGSRIDE LANE
48.6'
46.7'
street light
street light

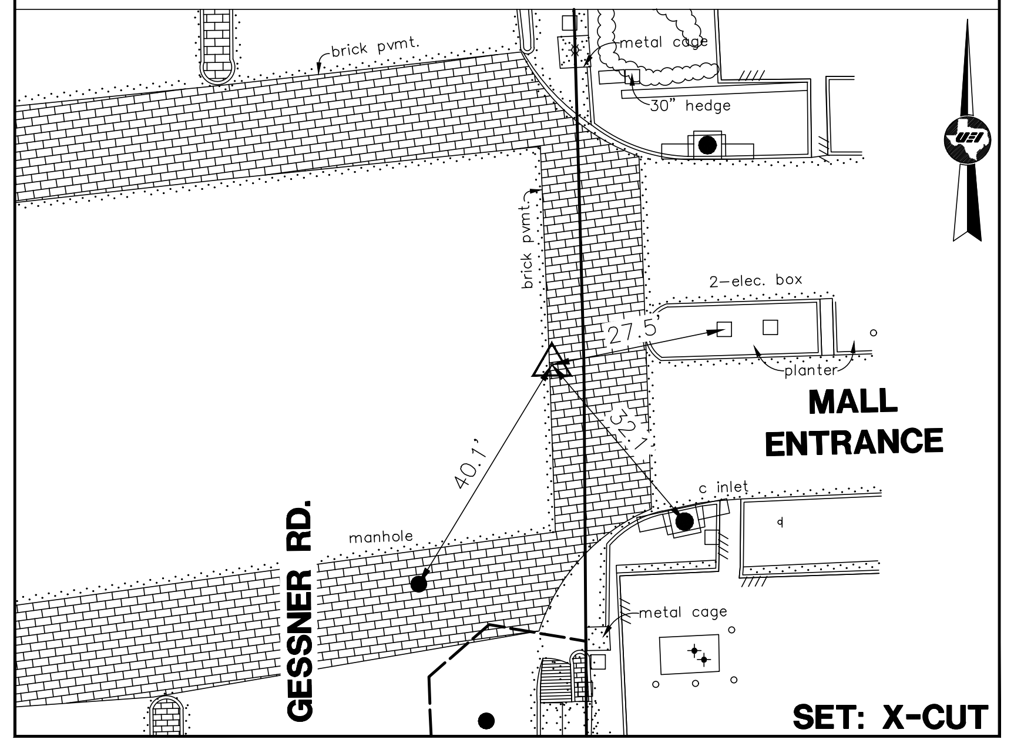
SET: X-CUT

STA: 23+48.19 BL "A" **BASELINE PT. #511**


metal cage
brick pvmt.
manhole
28.0'
KINGSRIDE LANE
64.1'
55.4'
brick pvmt.
ESSNER RD.
metal cage
water

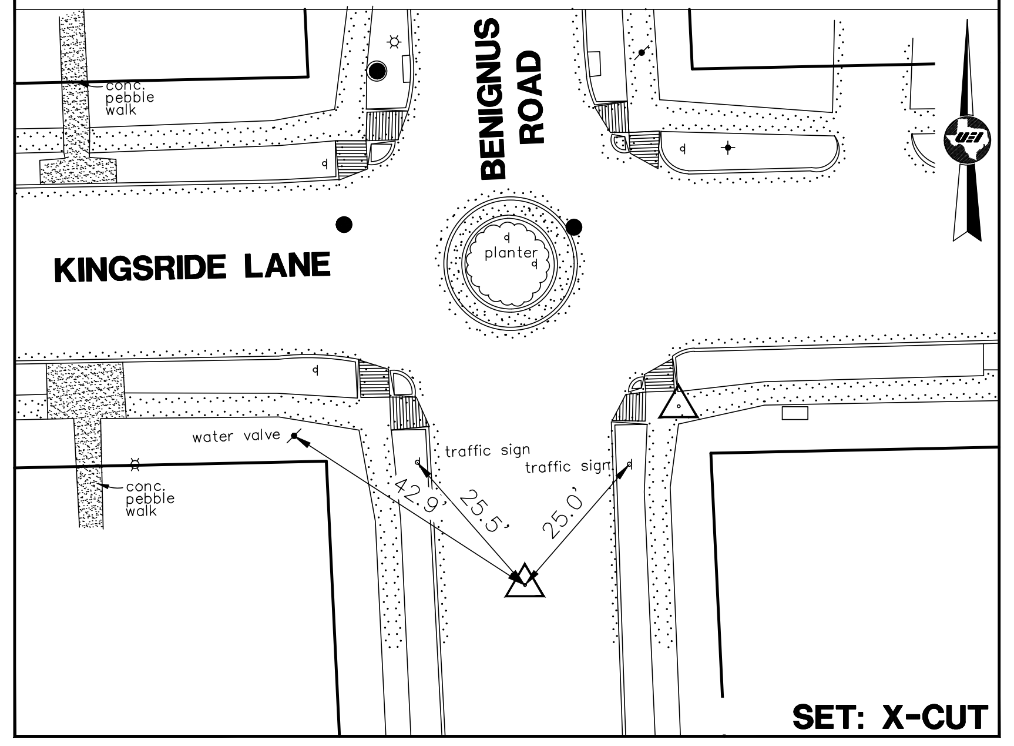
SET: X-CUT

STA: 24+13.72 BL "A" **BASELINE PT. #512**


brick pvmt.
metal cage
30" hedge
brick pvmt.
2-elec. box
27.5'
planter
MALL ENTRANCE
40.1'
c inlet
manhole
metal cage
GESSNER RD.

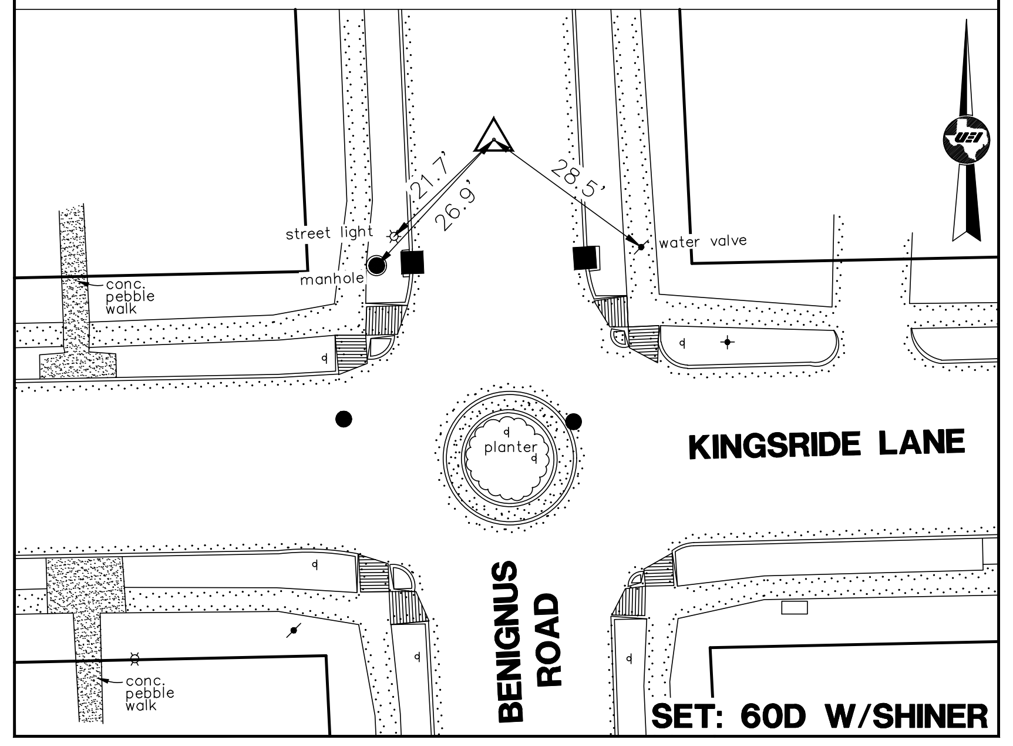
SET: X-CUT

STA: 1+00.00 BL "C" **BASELINE PT. #513**


conc. pebble walk
BENIGNUS ROAD
planter
KINGSRIDE LANE
water valve
traffic sign
traffic sign
42.9'
25.5'
25.0'
conc. pebble walk

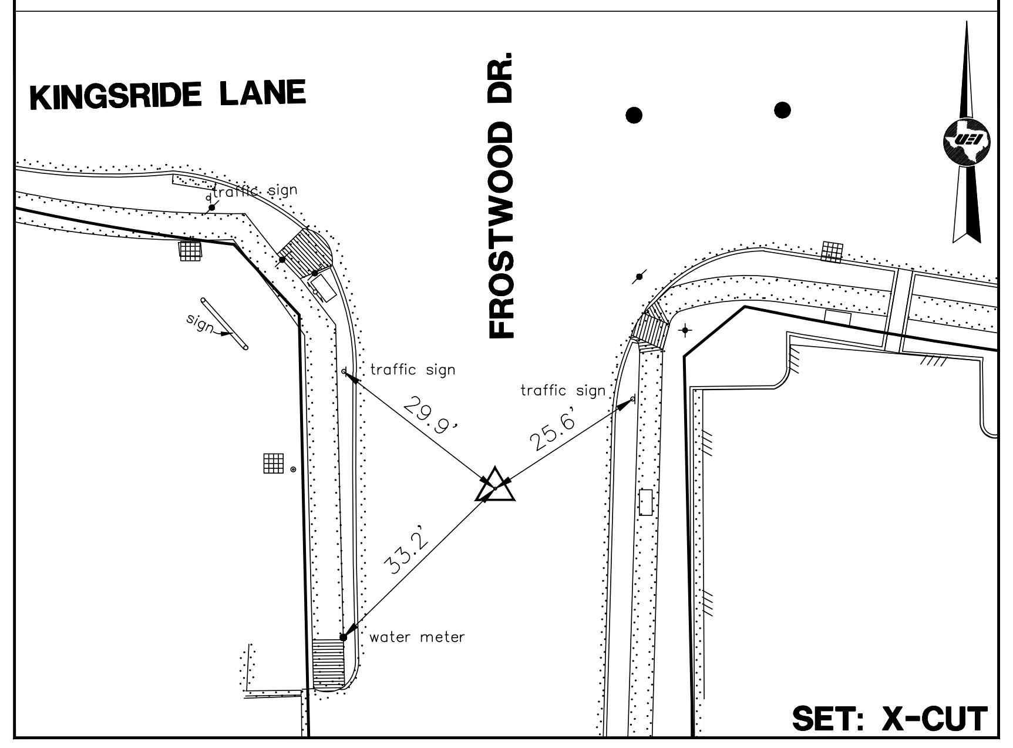
SET: X-CUT

STA: 2+00.0 BL "C" **BASELINE PT. #514**


street light
manhole
21.7'
26.9'
28.5'
water valve
conc. pebble walk
planter
KINGSRIDE LANE
BENIGNUS ROAD
conc. pebble walk

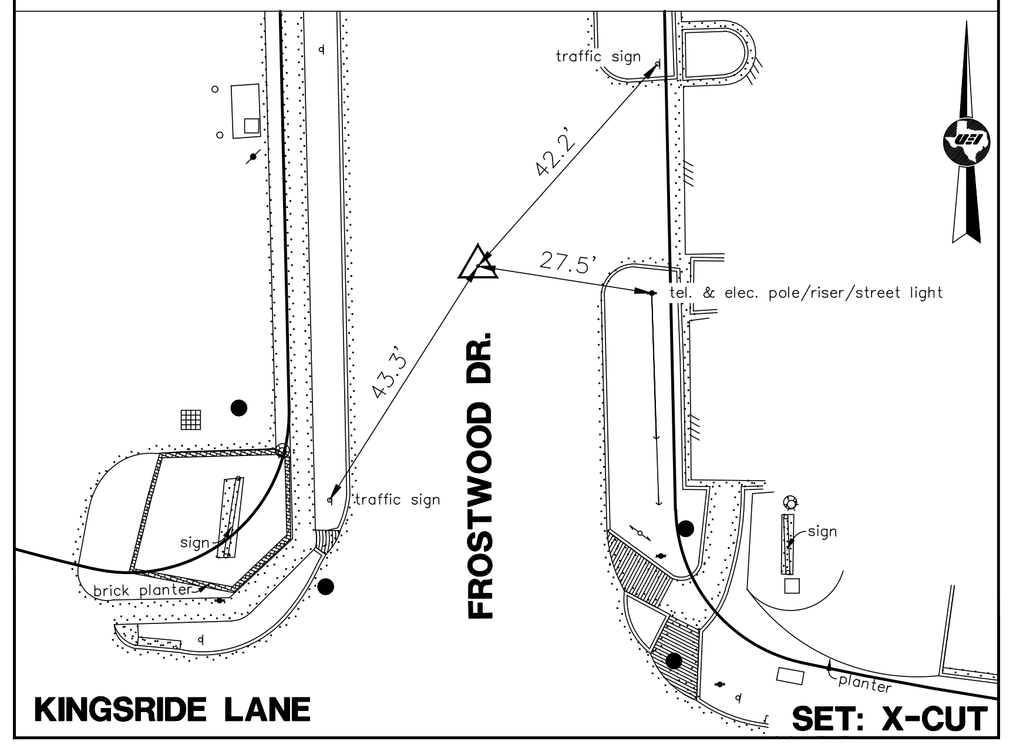
SET: 60D W/SHINER

STA: 1+00.00 BL "D" **BASELINE PT. #515**


KINGSRIDE LANE
sign
FROSTWOOD DR.
traffic sign
29.9'
25.6'
33.2'
water meter

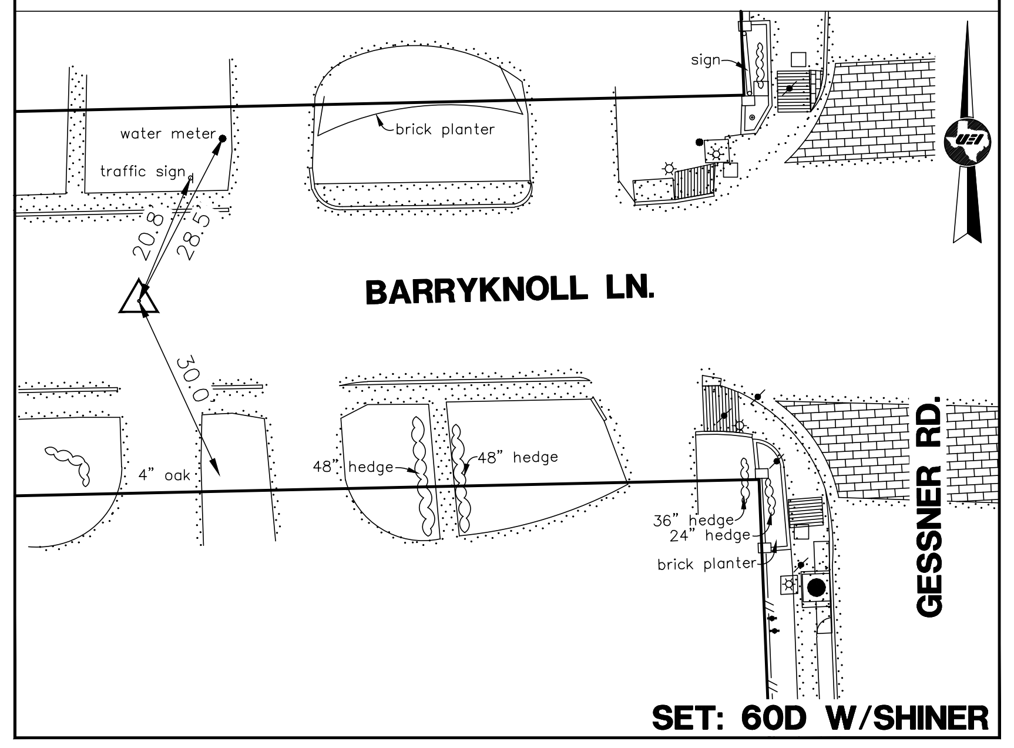
SET: X-CUT

STA: 2+50.00 BL "D" **BASELINE PT. #516**


traffic sign
42.2'
27.5'
tel. & elec. pole/riser/street light
43.3'
traffic sign
sign
brick planter
FROSTWOOD DR.
sign
planter
KINGSRIDE LANE

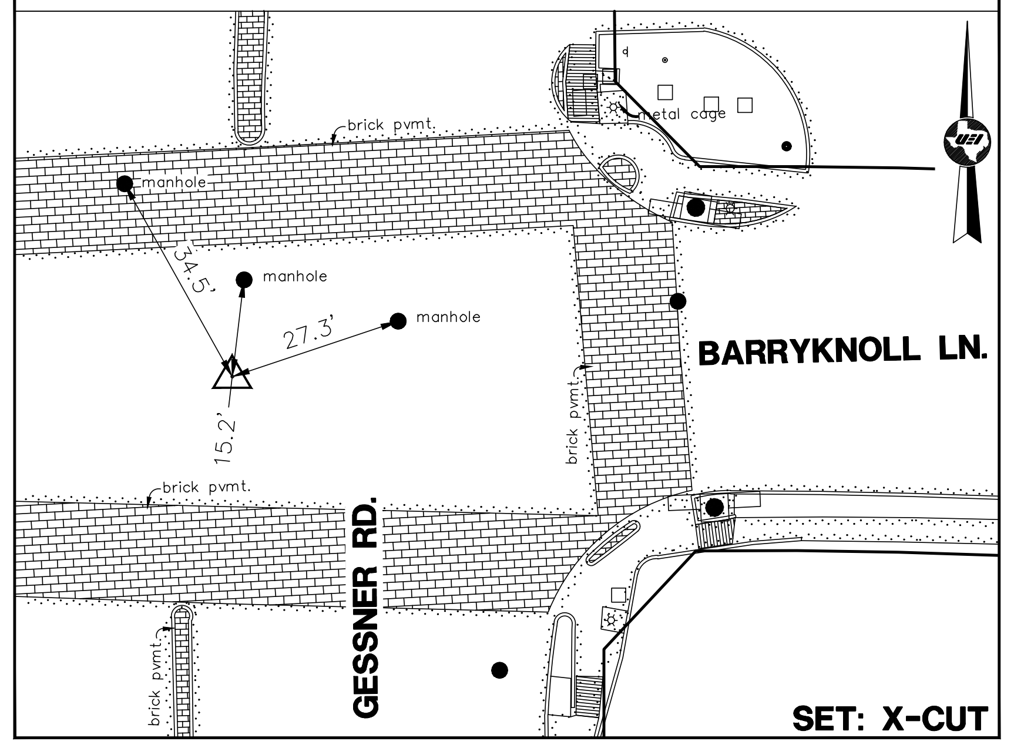
SET: X-CUT

STA: 1+00.00 BL "B" **BASELINE PT. #517**


sign
water meter
brick planter
traffic sign
20.8'
28.3'
BARRYKNOLL LN.
30.0'
4" oak
48" hedge
48" hedge
36" hedge
24" hedge
brick planter
GESSNER RD.

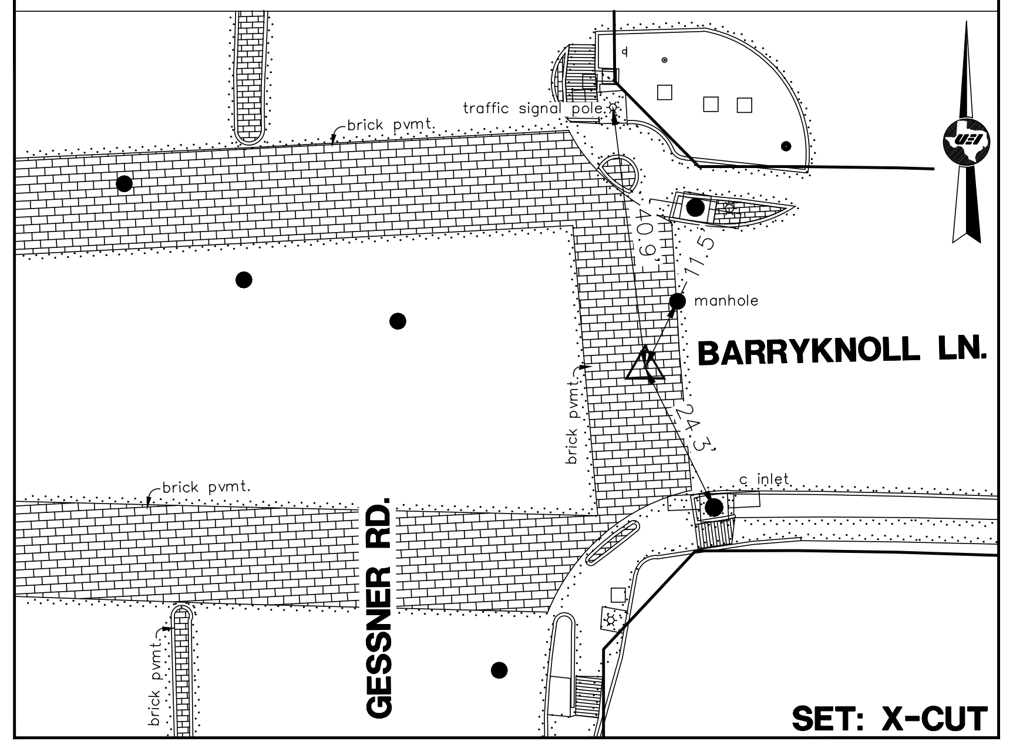
SET: 60D W/SHINER

STA: 2+51.48 BL "B" **BASELINE PT. #518**


brick pvmt.
metal cage
manhole
14.5'
27.3'
manhole
15.2'
BARRYKNOLL LN.
brick pvmt.
brick pvmt.
GESSNER RD.
brick pvmt.

SET: X-CUT

STA: 3+16.07 BL "B" **BASELINE PT. #519**


brick pvmt.
traffic signal pole
11.5'
BARRYKNOLL LN.
24.1'
brick pvmt.
c inlet
GESSNER RD.
brick pvmt.

SET: X-CUT

GENERAL NOTES:

CP= indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C.. indicates Official Public Records Real Property Harris County

NOTES:

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4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

4-14-26

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

CHRISTIN MICHAEL NORRIS
6207

United Engineers, Inc.
CIVIL ENGINEERING • LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING • UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500
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HRGreen
FIRM NO. F-16690
11011 RICHMOND AVENUE, SUITE 200
HOUSTON, TX 77042
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FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON

HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL

SWINGTIES
SHEET 3 OF 5

WBS NUMBER
M-430296-0017

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
AS NOTED

CITY OF HOUSTON PM
RAJESH DANAYAK, P.E.

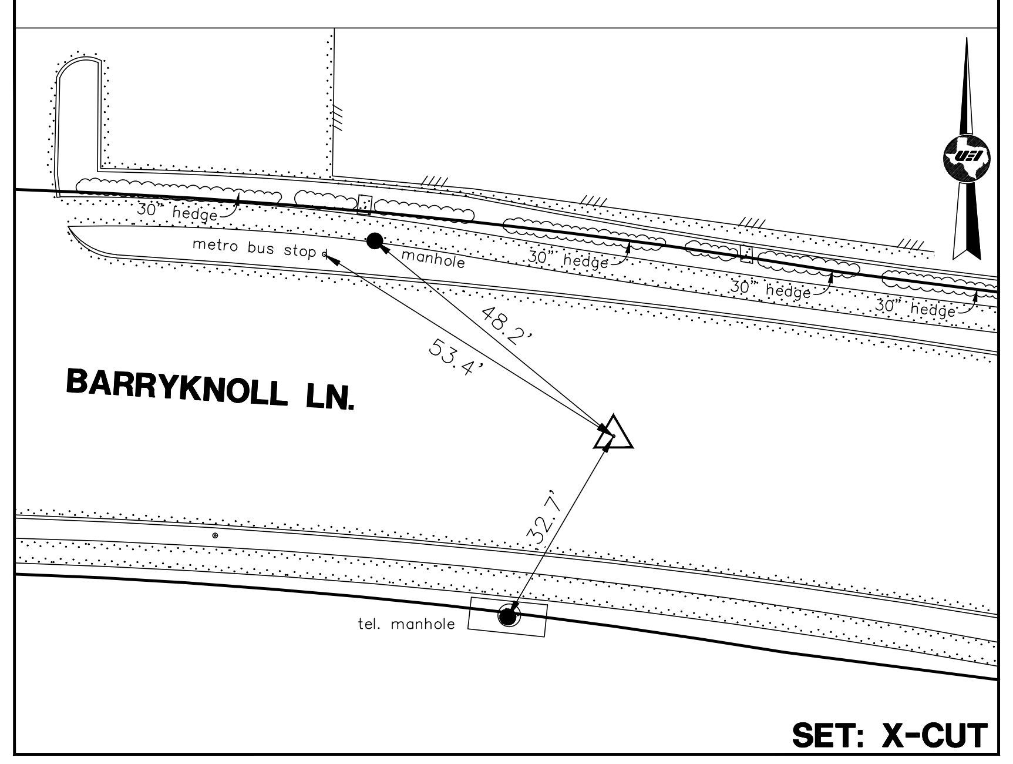
SHEET NO. 88 OF 345

100% SUBMITTAL

PLOTTED: 4/15/2026 8:16 AM

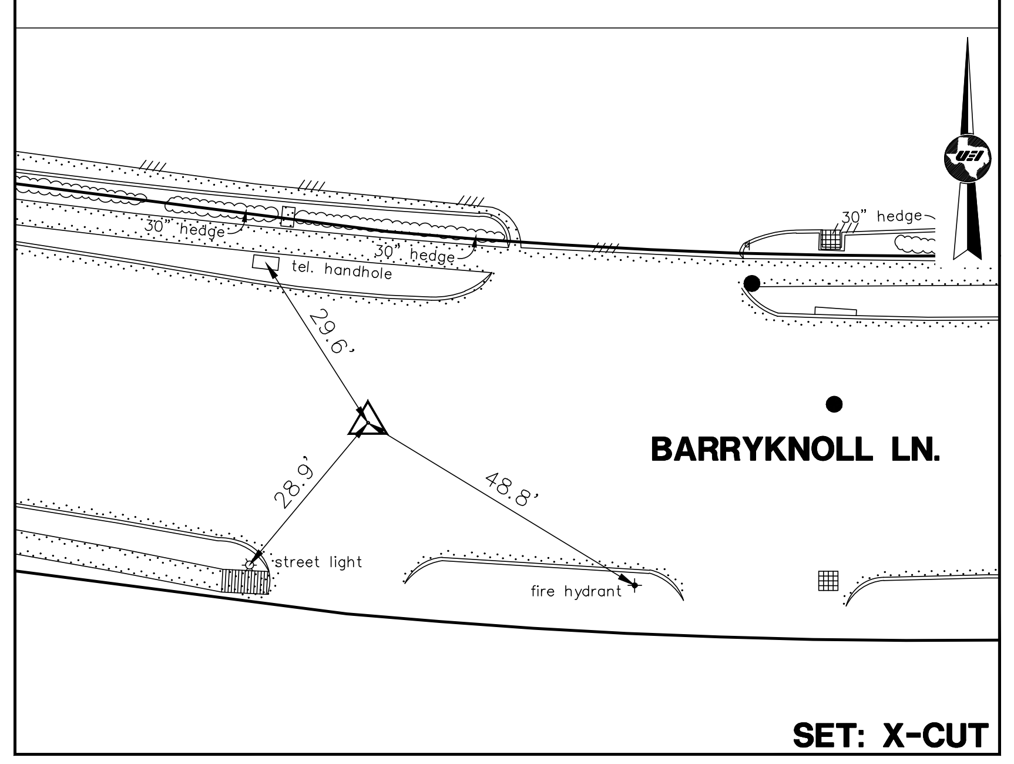
FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 4.dwg

STA: 4+63.03 BL "B" **BASELINE PT. #520**


30" hedge
metro bus stop
manhole
30" hedge
48.2'
53.4'
BARRYKNOLL LN.
32.7'
tel. manhole

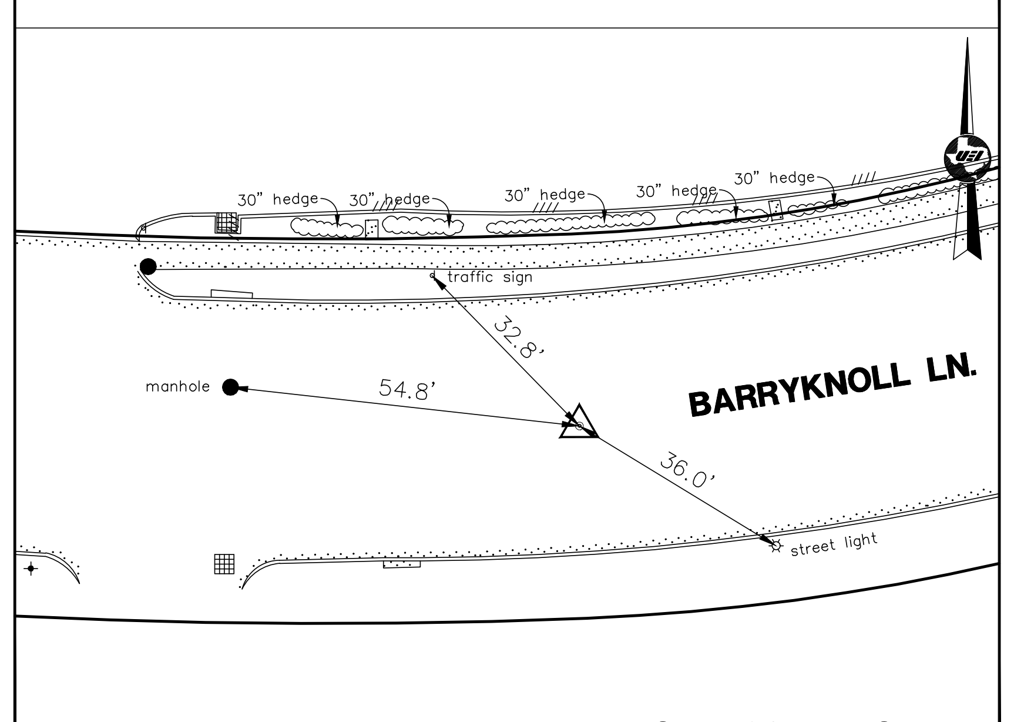
SET: X-CUT

STA: 5+66.75 BL "B" **BASELINE PT. #521**


30" hedge
tel. handhole
29.6'
28.9'
48.8'
BARRYKNOLL LN.
street light
fire hydrant

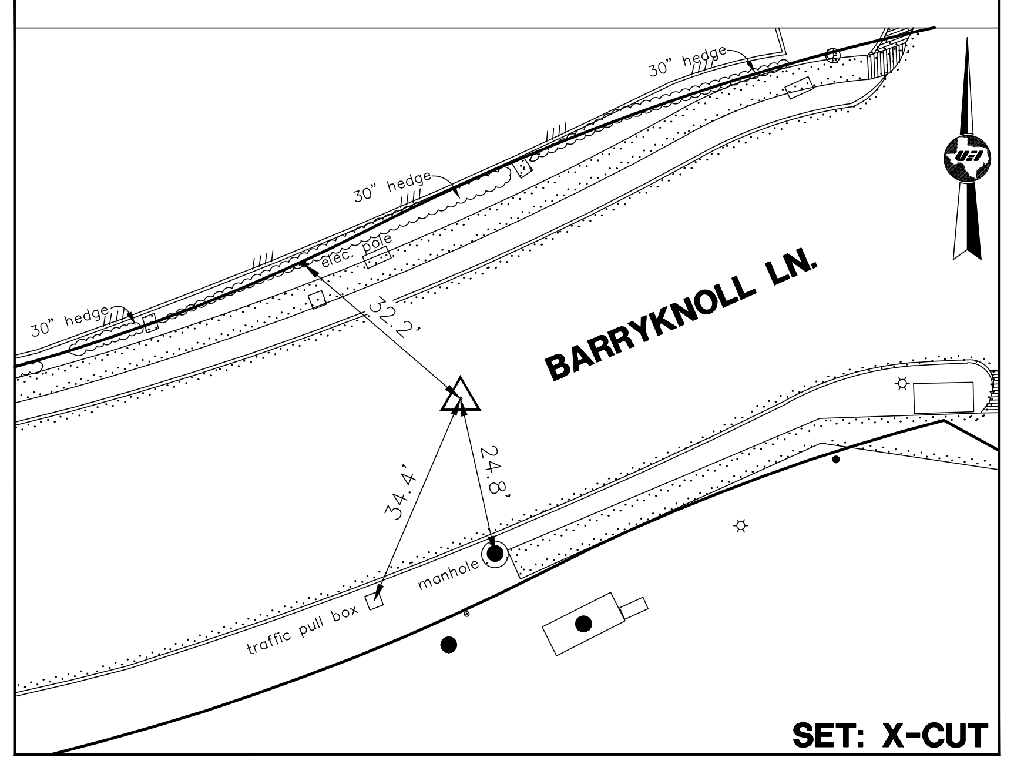
SET: X-CUT

STA: 6+94.20 BL "B" **BASELINE PT. #522**


30" hedge
traffic sign
manhole
54.8'
32.8'
36.0'
BARRYKNOLL LN.
street light

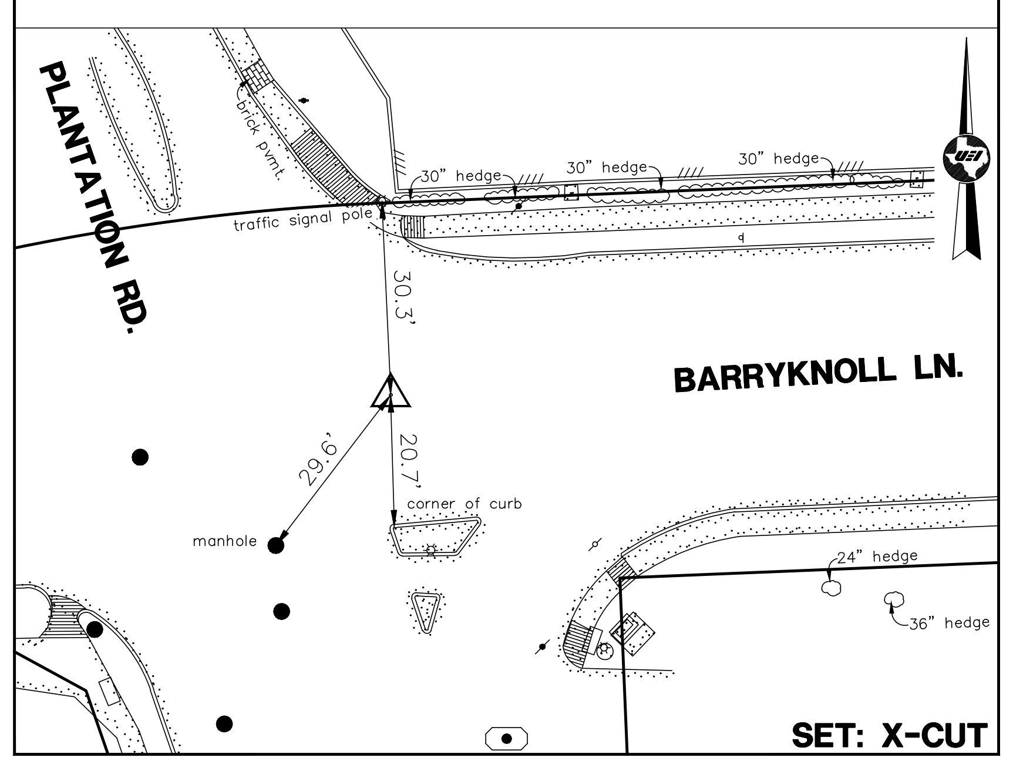
SET: 60D W/SHINER

STA: 8+36.01 BL "B" **BASELINE PT. #523**


30" hedge
33.2'
BARRYKNOLL LN.
34.4'
24.8'
traffic pull box
manhole

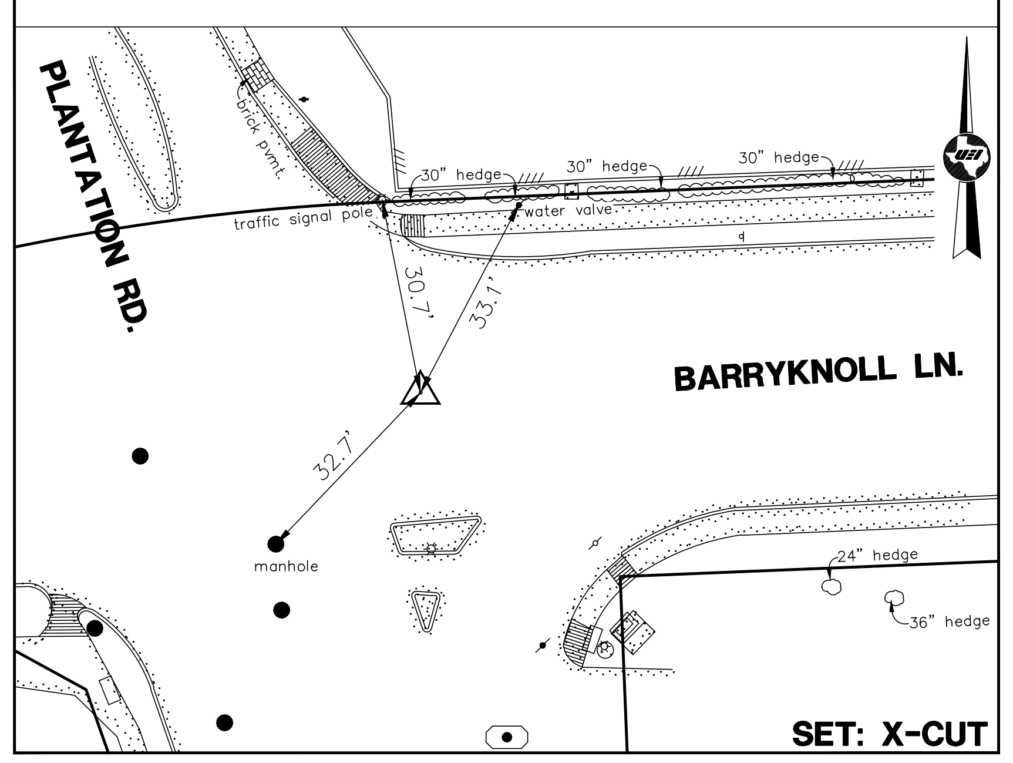
SET: X-CUT

STA: 9+77.83 BL "B" **BASELINE PT. #524**


PLANTATION RD.
traffic signal pole
30" hedge
30.3'
BARRYKNOLL LN.
29.6'
20.7'
manhole
corner of curb
24" hedge
36" hedge

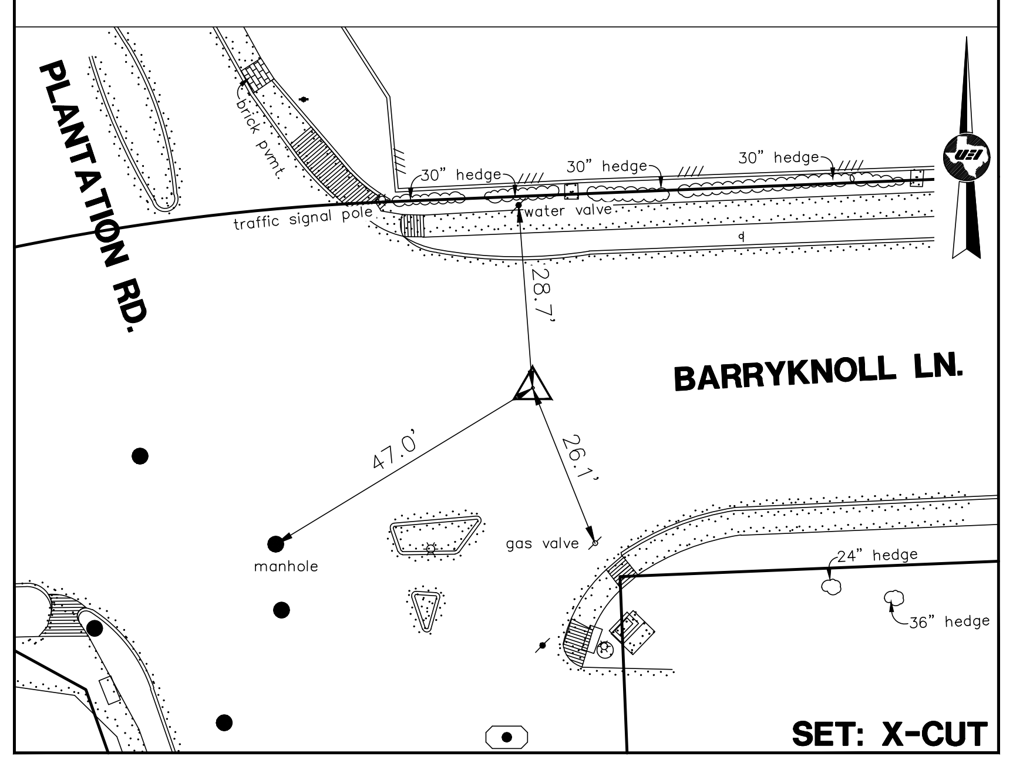
SET: X-CUT

STA: 9+82.43 BL "B" **BASELINE PT. #525**


PLANTATION RD.
traffic signal pole
30" hedge
30.7'
33.1'
BARRYKNOLL LN.
32.7'
manhole
24" hedge
36" hedge

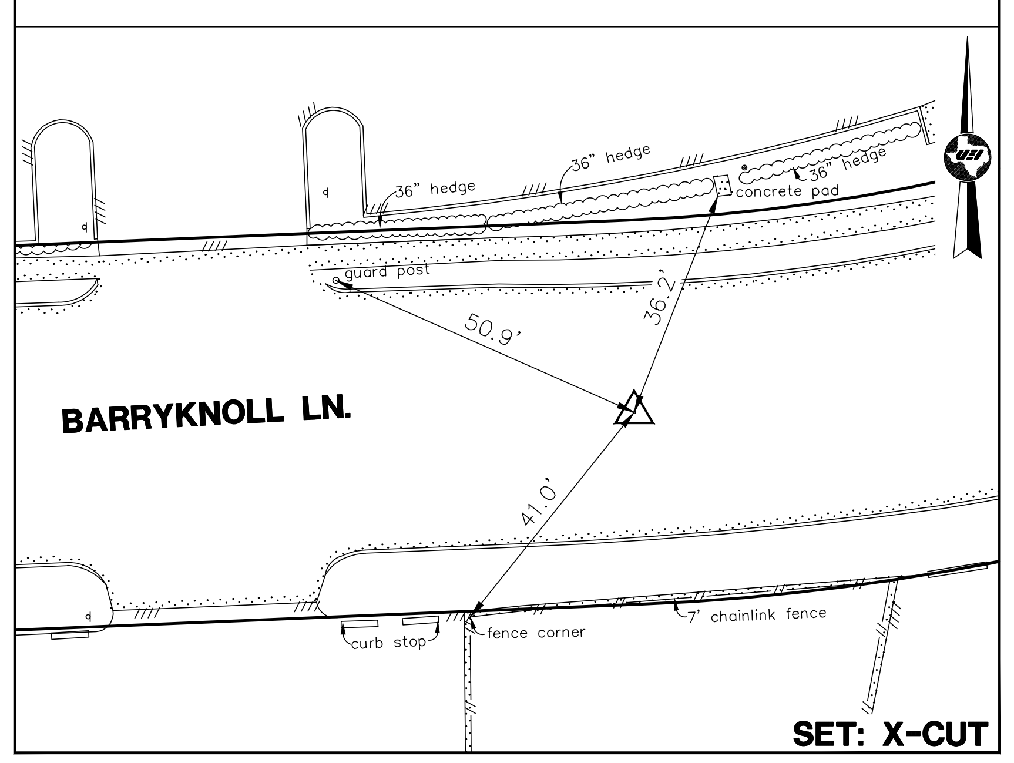
SET: X-CUT

STA: 10+00.00 BL "B" **BASELINE PT. #526**


PLANTATION RD.
traffic signal pole
water valve
30" hedge
28.7'
47.0'
26.1'
BARRYKNOLL LN.
manhole
gas valve
24" hedge
36" hedge

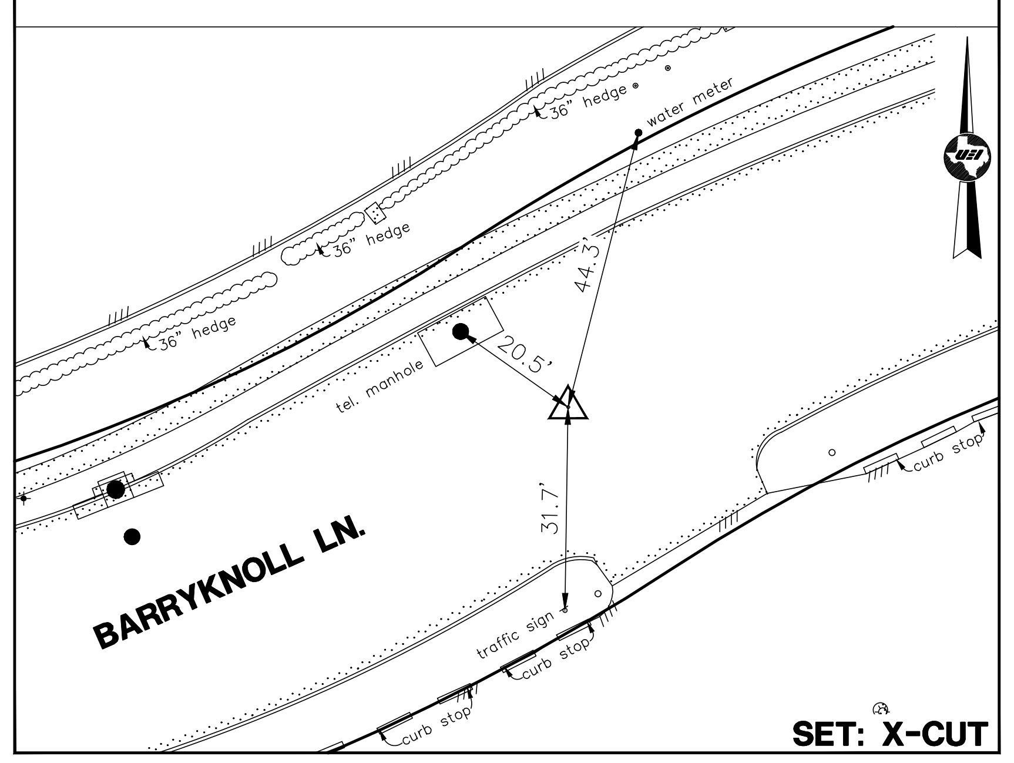
SET: X-CUT

STA: 13+51.14 BL "B" **BASELINE PT. #527**


36" hedge
guard post
concrete pad
50.9'
BARRYKNOLL LN.
41.0'
curb stop
fence corner
7' chainlink fence

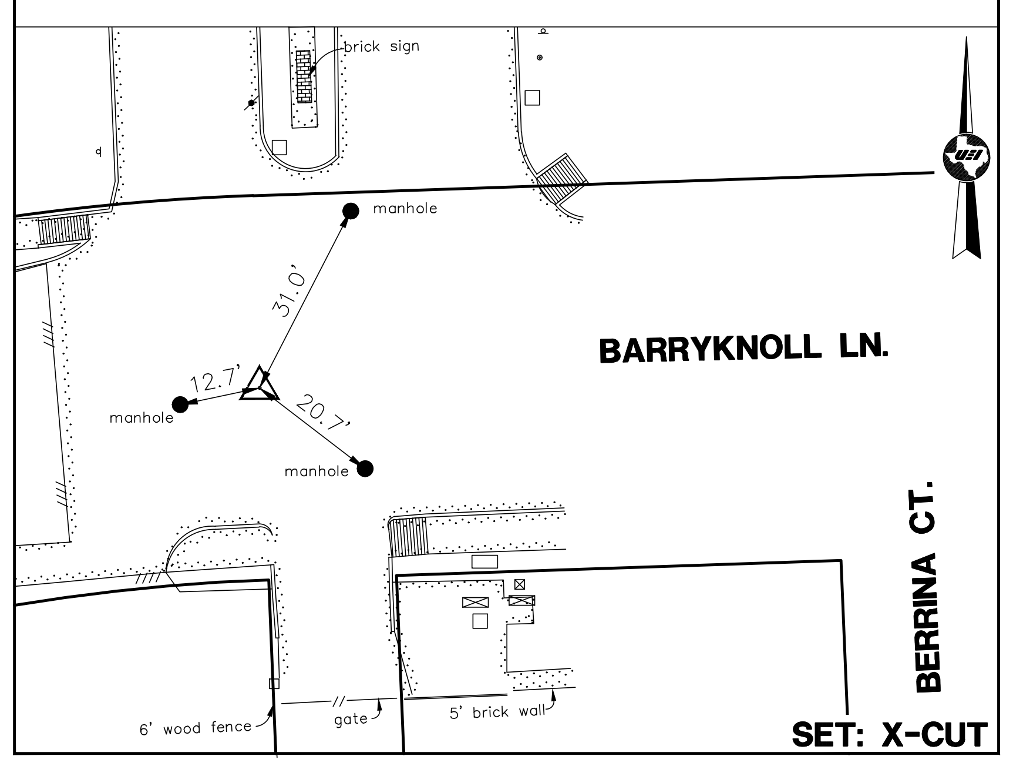
SET: X-CUT

STA: 15+27.94 BL "B" **BASELINE PT. #528**


36" hedge
water meter
tel. manhole
20.5'
31.7'
BARRYKNOLL LN.
curb stop
traffic signal

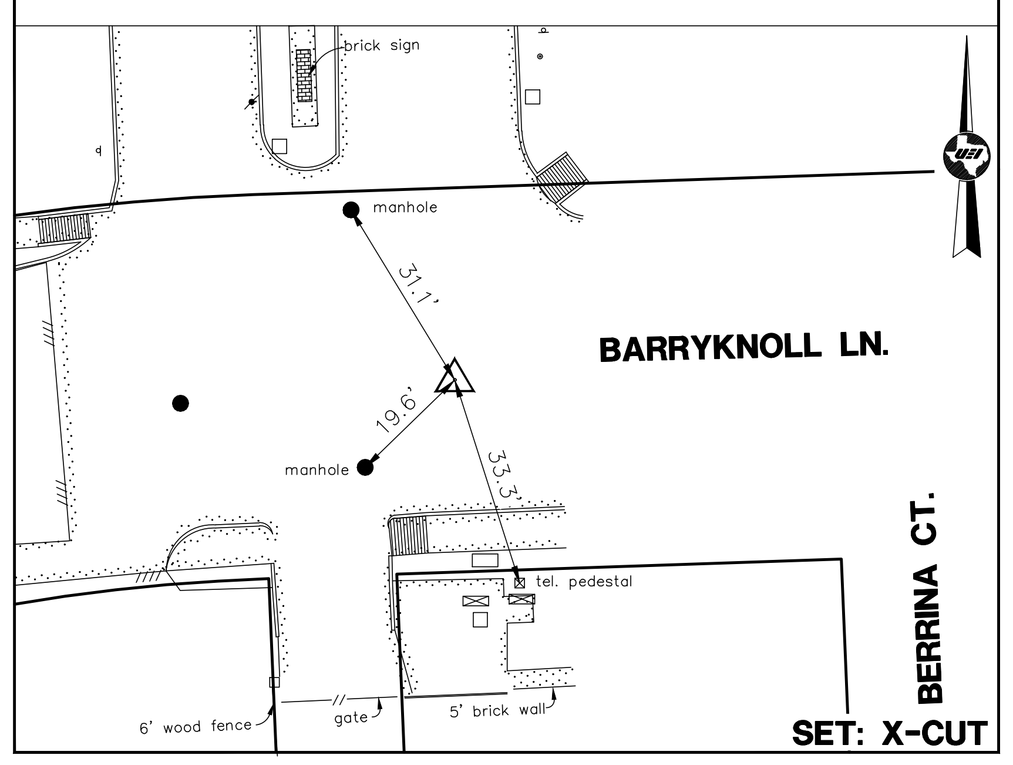
SET: X-CUT

STA: 17+06.94 BL "B" **BASELINE PT. #529**


brick sign
manhole
31.0'
12.7'
20.7'
manhole
BARRYKNOLL LN.
BERRINA CT.
6' wood fence
gate
5' brick wall

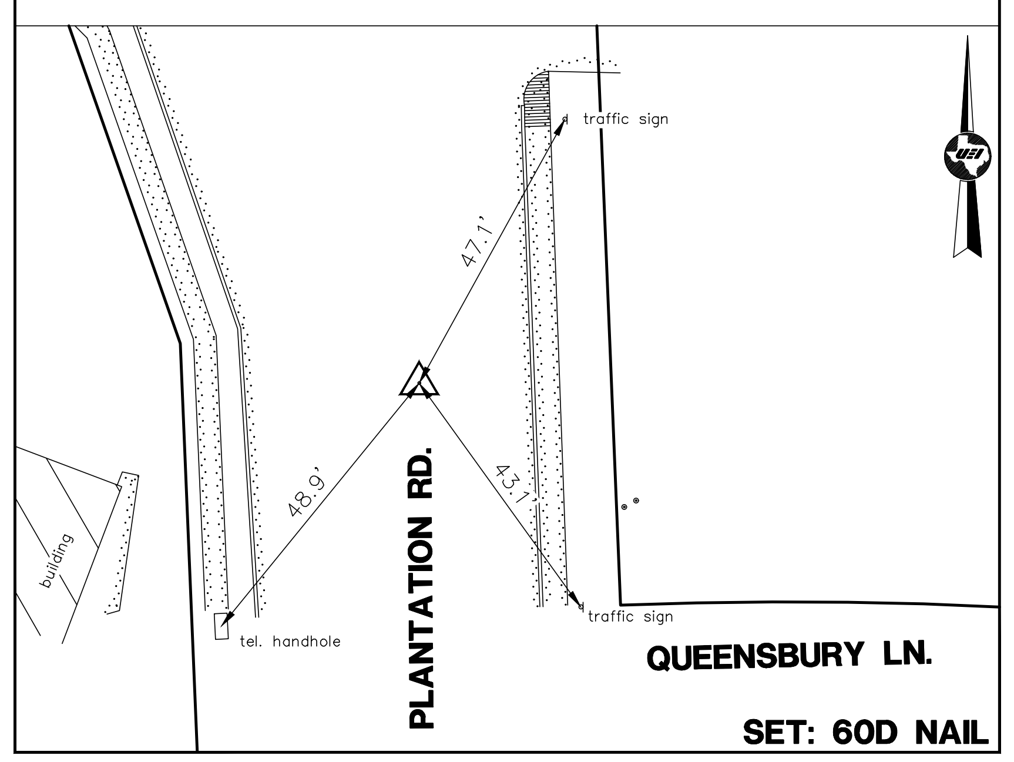
SET: X-CUT

STA: 17+37.44 BL "B" **BASELINE PT. #530**


brick sign
manhole
31.1'
19.6'
33.3'
manhole
tel. pedestal
BARRYKNOLL LN.
BERRINA CT.
6' wood fence
gate
5' brick wall

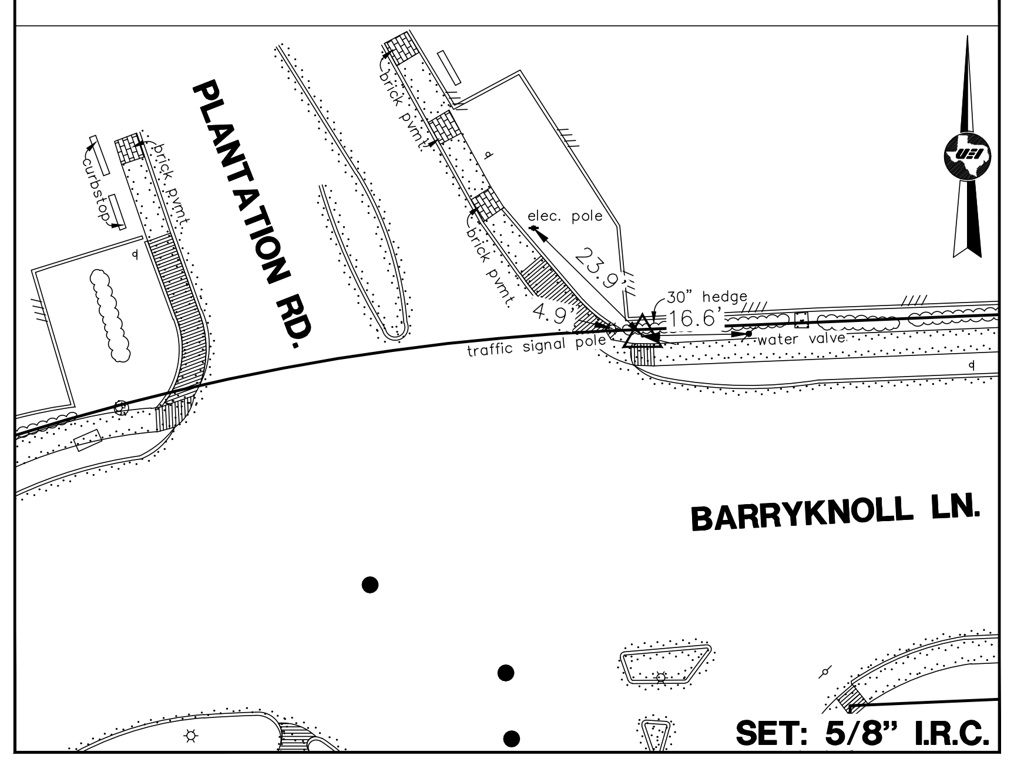
SET: X-CUT

STA: 1+00.00 BL "F" **BASELINE PT. #531**


traffic sign
47.1'
48.9'
43.1'
PLANTATION RD.
tel. handhole
traffic sign
QUEENSBURY LN.
building

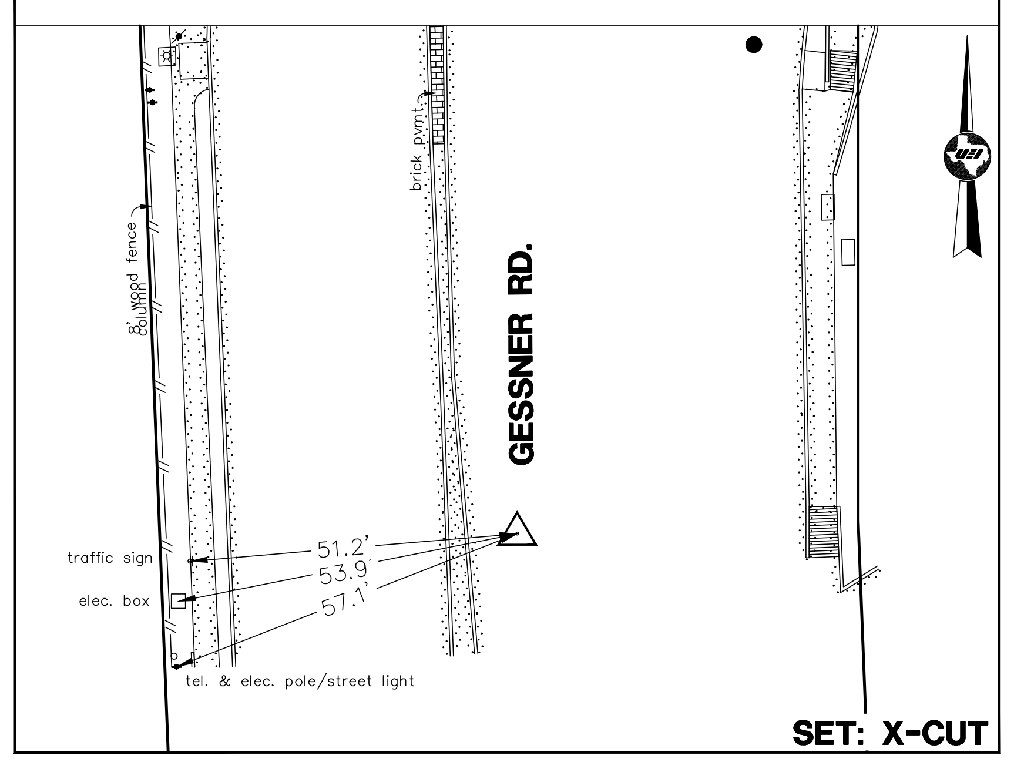
SET: 60D NAIL

STA: 2+36.73 BL "F" **BASELINE PT. #532**


PLANTATION RD.
elec. pole
23.9'
4.9'
16.6'
30" hedge
traffic signal pole
water valve
BARRYKNOLL LN.

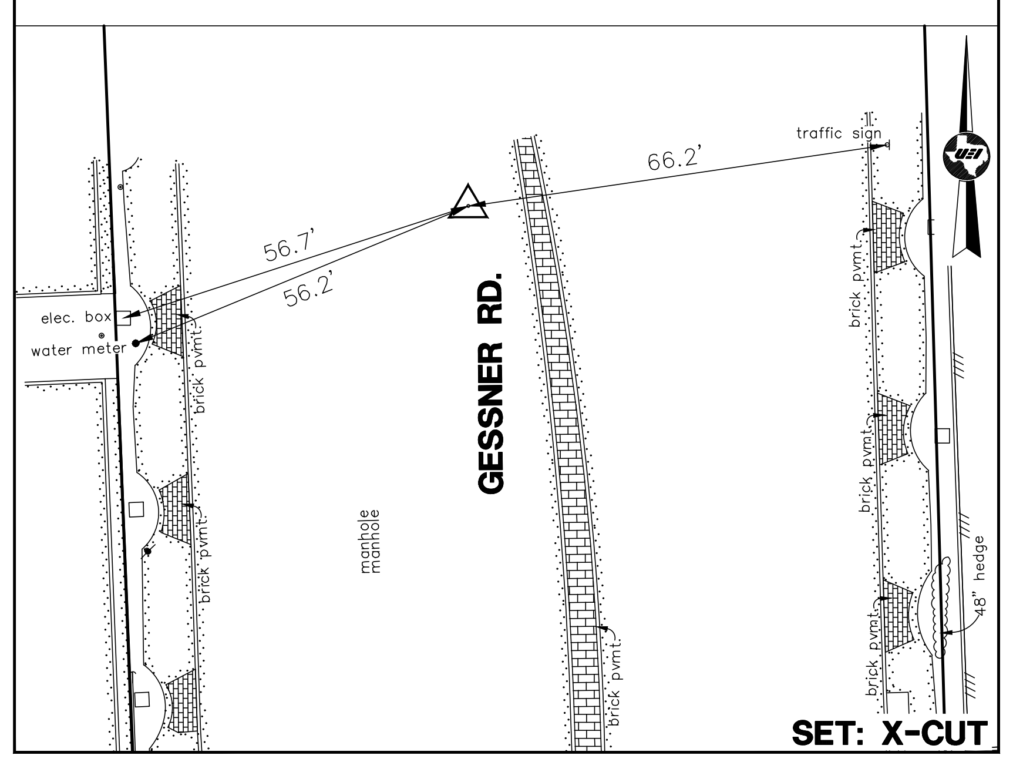
SET: 5/8" I.R.C.

STA: 1+00.00 BL "E" **BASELINE PT. #533**


GESSNER RD.
traffic sign
elec. box
51.2'
53.9'
57.1'
tel. & elec. pole/street light

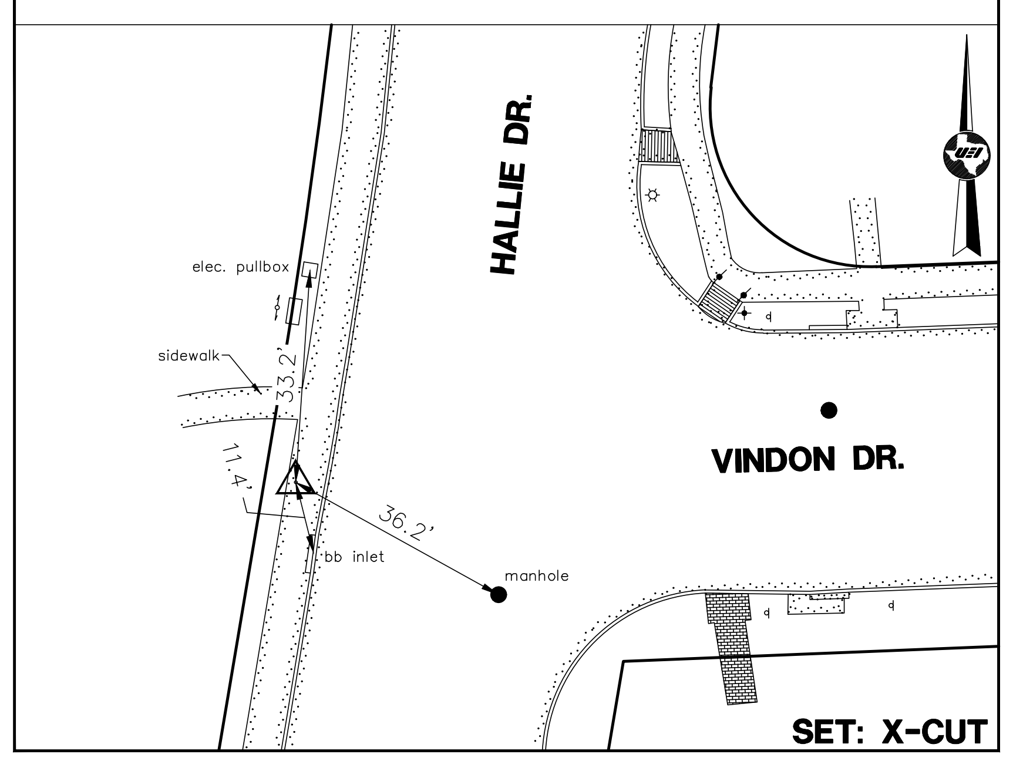
SET: X-CUT

STA: 6+89.17 BL "E" **BASELINE PT. #534**


traffic sign
66.2'
56.7'
56.2'
elec. box
water meter
GESSNER RD.
36" hedge

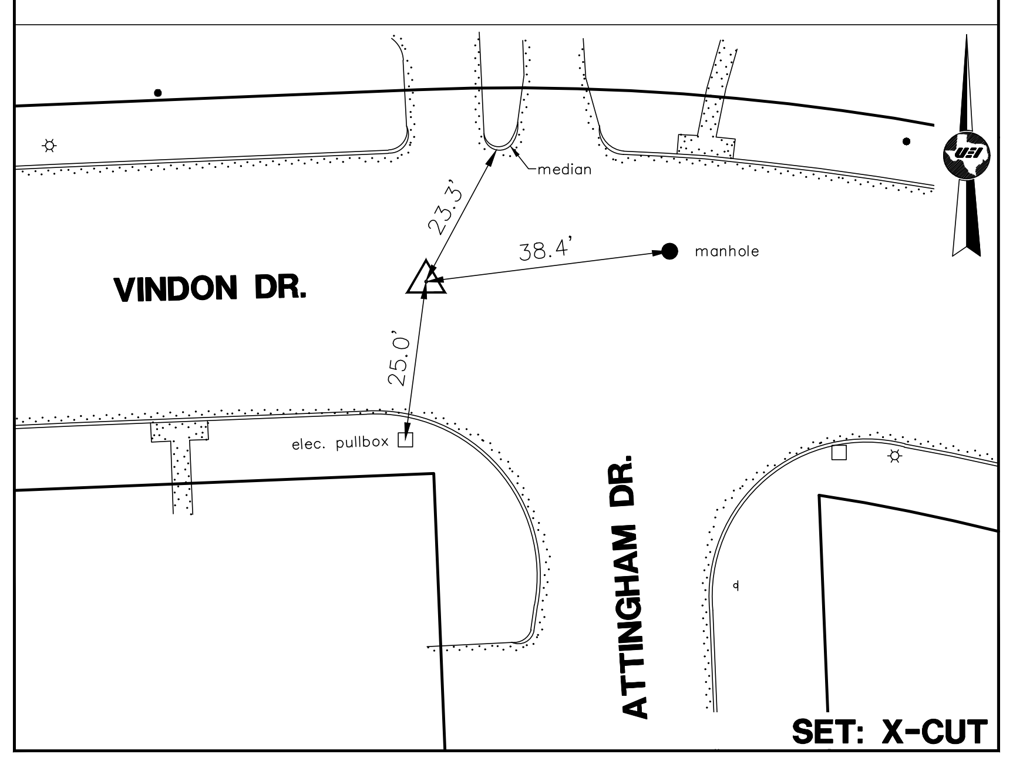
SET: X-CUT

STA: 1+00.00 BL "G" **BASELINE PT. #535**


HALLIE DR.
elec. pullbox
sidewalk
33.2'
11.4'
36.2'
bb inlet
manhole
VINDON DR.

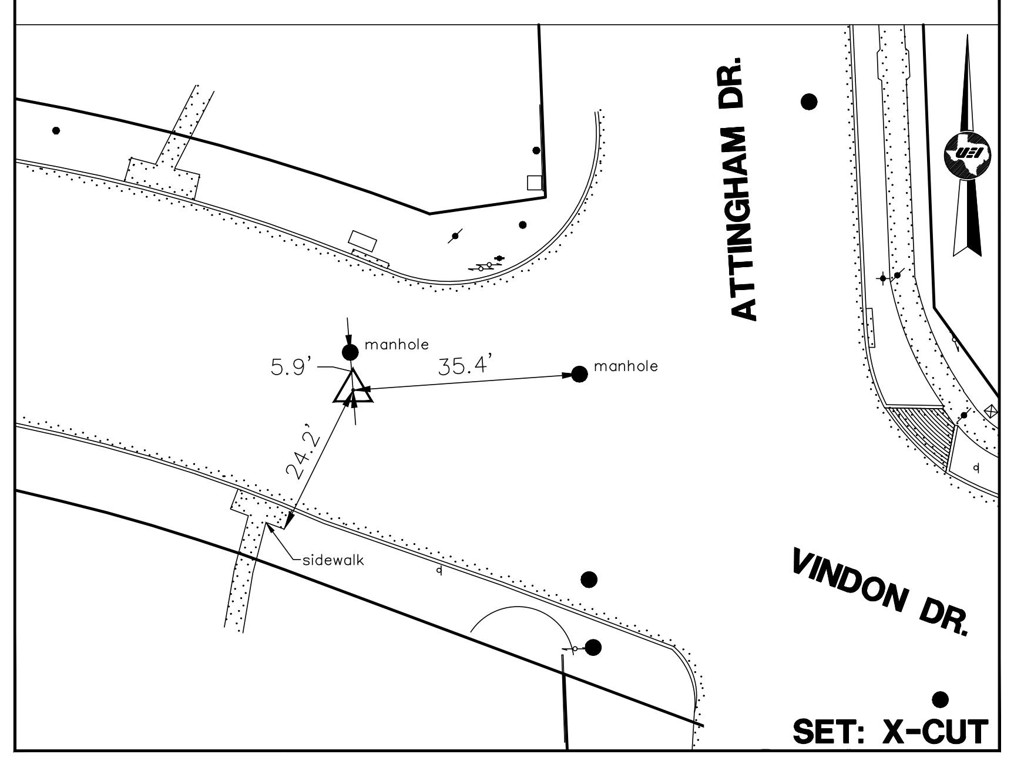
SET: X-CUT

STA: 5+14.60 BL "G" **BASELINE PT. #536**


median
23.3'
38.4'
manhole
VINDON DR.
25.0'
elec. pullbox
ATTINGHAM DR.

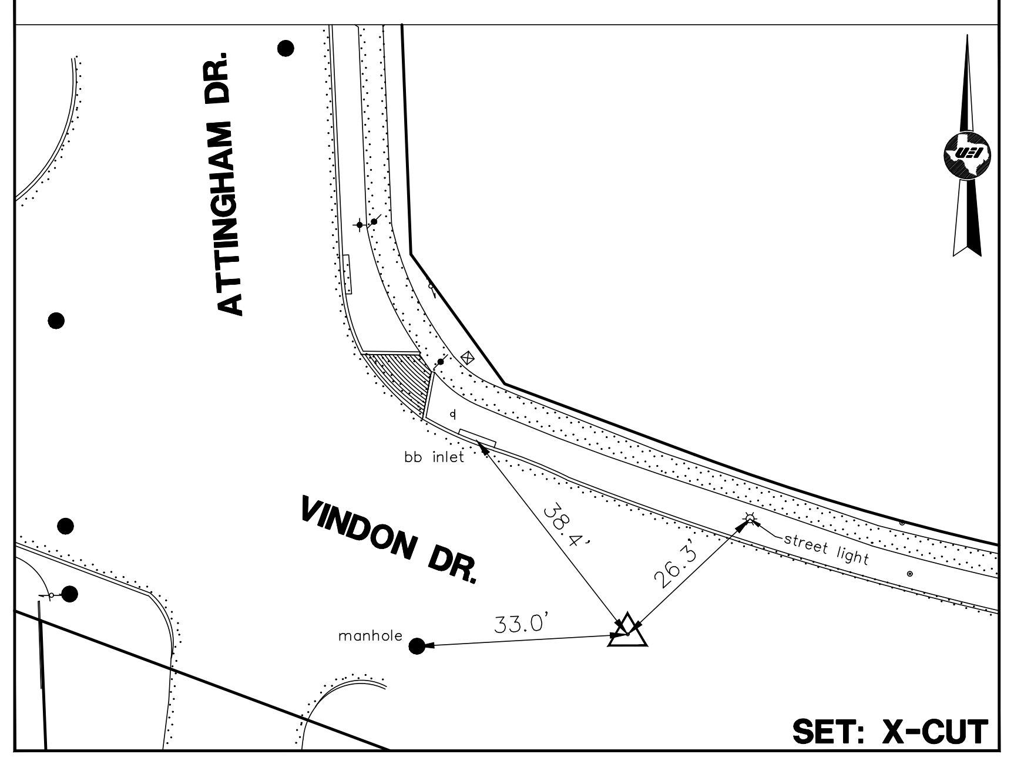
SET: X-CUT

STA: 6+50.92 BL "G" **BASELINE PT. #537**


ATTINGHAM DR.
manhole
5.9'
35.4'
manhole
24.2'
sidewalk
VINDON DR.

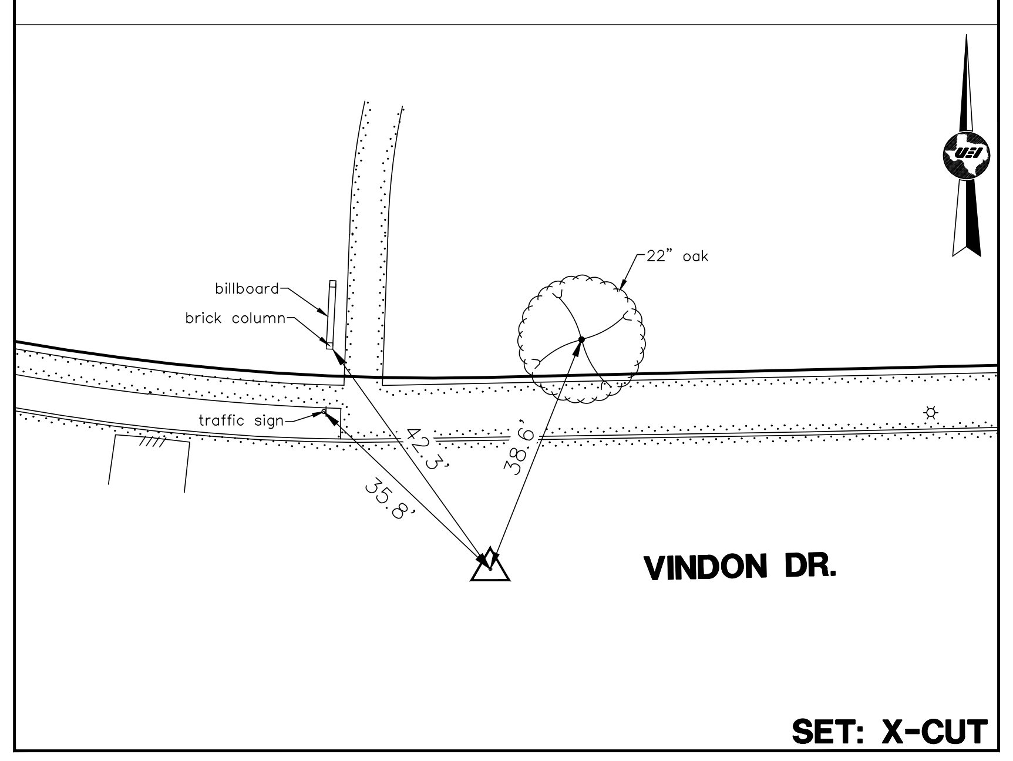
SET: X-CUT

STA: 7+83.93 BL "G" **BASELINE PT. #538**


ATTINGHAM DR.
bb inlet
VINDON DR.
38.4'
26.3'
street light
manhole
33.0'

SET: X-CUT

STA: 9+35.99 BL "G" **BASELINE PT. #539**


billboard
brick column
22" oak
traffic sign
43.3'
38.6'
35.8'
VINDON DR.

SET: X-CUT

GENERAL NOTES:

CP– indicates Traverse Point
BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
LT indicates Left
XC indicates 'X' Cut
I.P. indicates Iron Pipe
I.R. indicates Iron Rod
I.R.C. indicates Iron Rod w/Cap
P.I.P. indicates Pinch Iron Pipe
MAG indicates MAG Nail
PC indicates Point of Curve
PCC indicates Point of Compound Curvature
PT indicates Point of Tangent
TBM indicates Temporary Benchmark
#XXXX indicates Address
W.L.E. indicates Water Line Easement
U.E. indicates Utility Easement
S.S.E. indicates Sanitary Sewer Easement
S.E. indicates Storm Sewer Easement
B.L. indicates Building Line
M.R.H.C. indicates Map Records Harris County
D.R.H.C. indicates Deed Records Harris County
H.C.C.F. indicates Harris County Clerk's File
O.P.R.R.P.H.C.. indicates Official Public Records Real Property Harris County

NOTES:

1. ALL BEARINGS AND COORDINATES SHOWN HEREON ARE TIED TO THE NSRS AND EXPRESSED IN THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE 4204, NAD 83' (CORS '96), ITRF (EPOCH 2010.0000), NAVD '88 (GD 99).
2. ALL DISTANCES SHOWN HEREON ARE SURFACE VALUES. ALL COORDINATES SHOWN HEREON ARE GRID VALUES UNLESS OTHERWISE NOTED. TO CONVERT SURFACE VALUES TO GRID VALUES MULTIPLY BY THE SCALE FACTOR OF 0.999893737841.
3. THE RIGHT OF WAY SHOWN HEREON IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY COUPLED WITH THE DOCUMENTS OF RECORD IN THE COUNTY CLERK'S OFFICE DOWNLOADED FROM COURTHOUSE DIRECT.
4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

CERTIFICATION:

I HEREBY CERTIFY THAT: (1) THIS PLAT WAS PREPARED FROM AN ON THE GROUND SURVEY MADE UNDER MY SUPERVISION; (2) THAT THIS PLAT CORRECTLY REPRESENTS THE FACTS FOUND AT THE TIME OF SURVEY; (3) THAT THIS PLAT AND THE SURVEY IT REPRESENTS, CONFORMS TO THE REQUIREMENTS OF THE LAND SURVEYING PRACTICES ACT IN EFFECT AT THE TIME OF THE SURVEY FOR THE TYPE OF PROFESSIONAL SERVICE SO STATED.

TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

4-14-26

CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

STATE OF TEXAS
REGISTERED
CHRISTIN MICHAEL NORRIS
6207
PROFESSIONAL
LAND SURVEYOR

United Engineers, Inc.
CIVIL ENGINEERING ◆ LAND DEVELOPMENT
CONSTRUCTION MANAGEMENT
SURVEYING ◆ UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL. (713) 271-2900
HOUSTON, TEXAS 77074 FAX (713) 271-2999

HRGreen
FIRM NO. F-16690
11011 RICHMOND
AVENUE, SUITE 200
HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL
SWINGTIES
SHEET 4 OF 5

WBS NUMBER
M-430296-0017
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
RAJESH DANAYAK, P.E.
SHEET NO. 89 OF 345

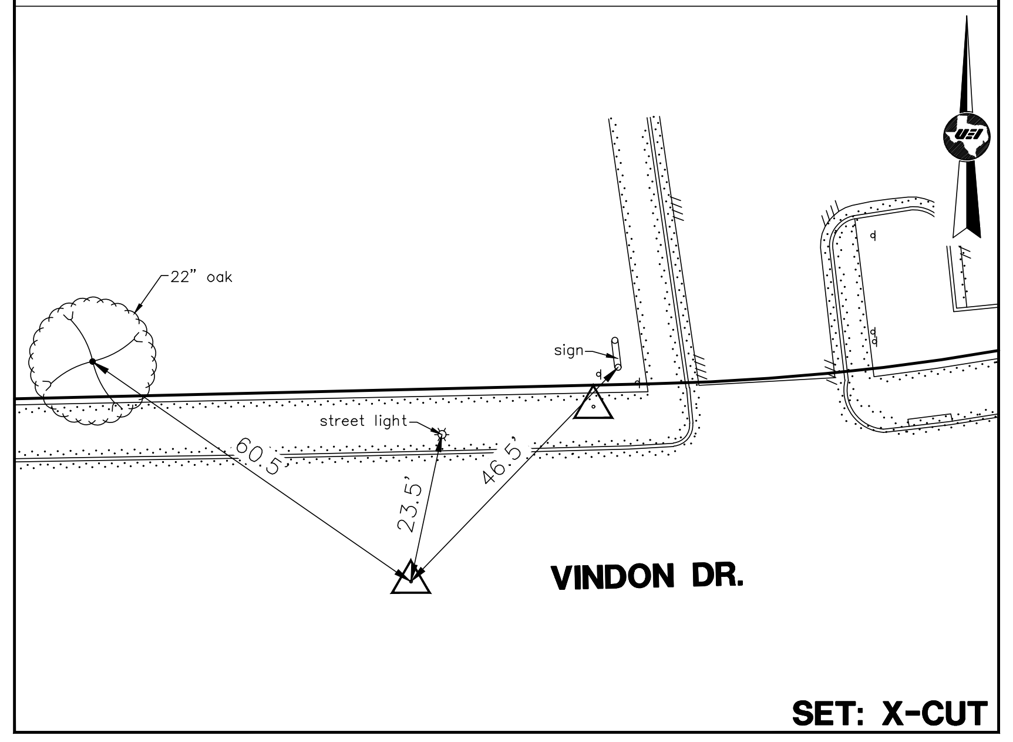
FOR CITY OF HOUSTON USE ONLY

100% SUBMITTAL

PLOTTED: 4/15/2026 8:17 AM

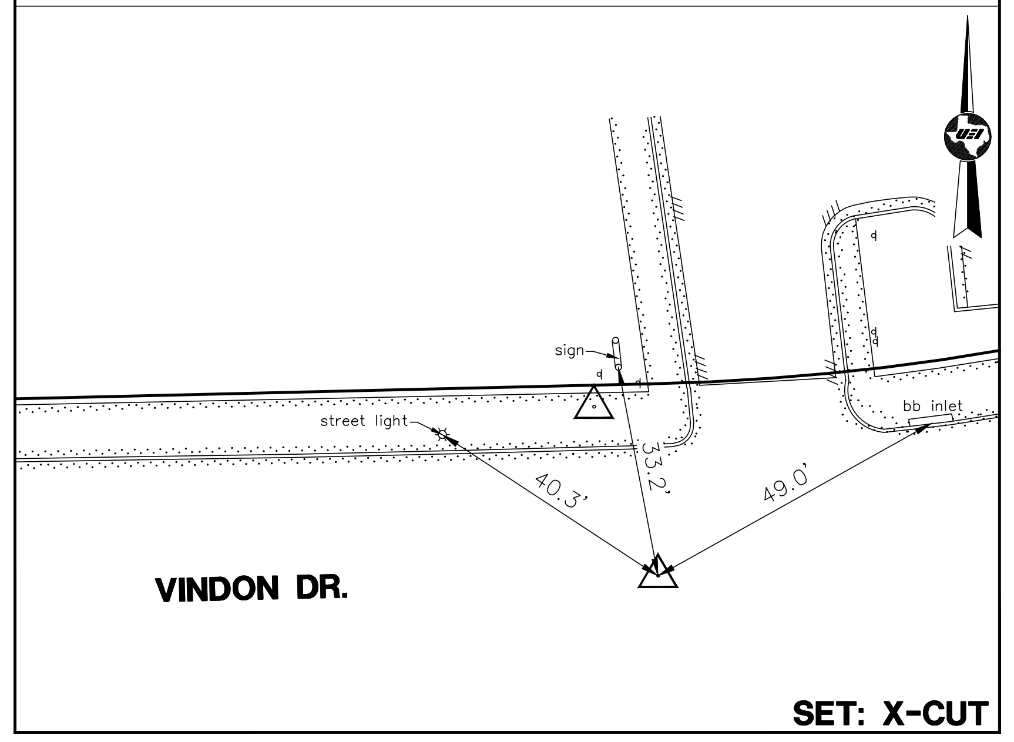
FILE PATH: K:\CIV\222-101 - TIRZ #17 Barryknoll Survey\Survey\Dwg\SURVEY CONTROL MAP\SURVEY CONTROL SWINGTIE 5.dwg

STA: 10+00.00 BL "G" **BASELINE PT. #540**



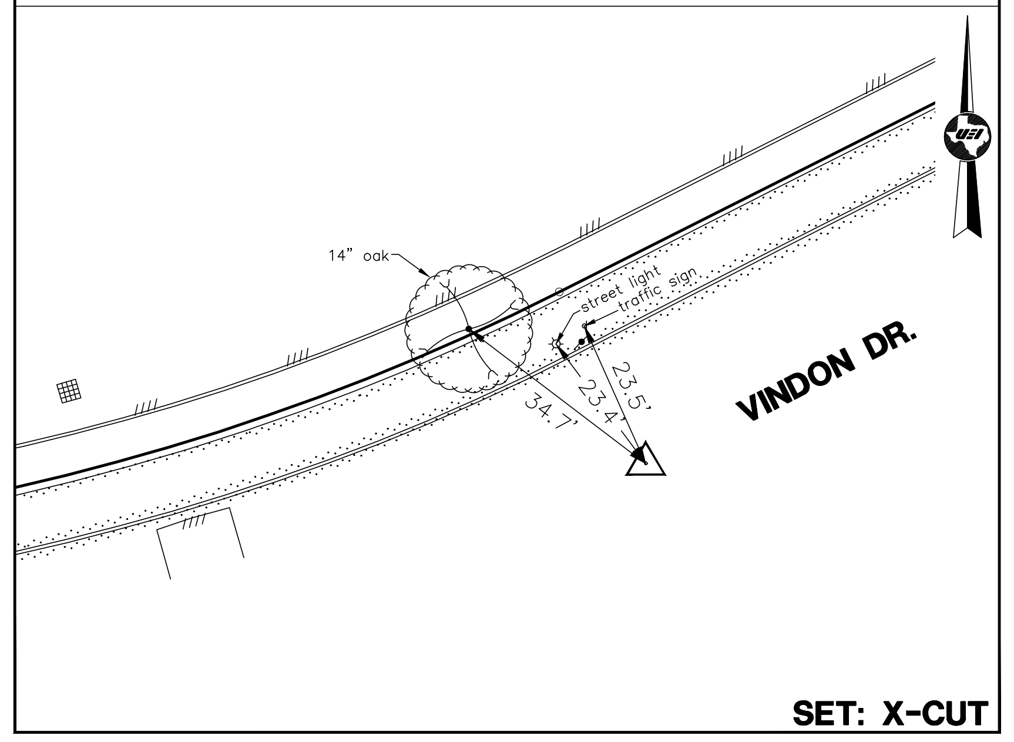
SET: X-CUT

STA: 10+38.51 BL "G" **BASELINE PT. #541**



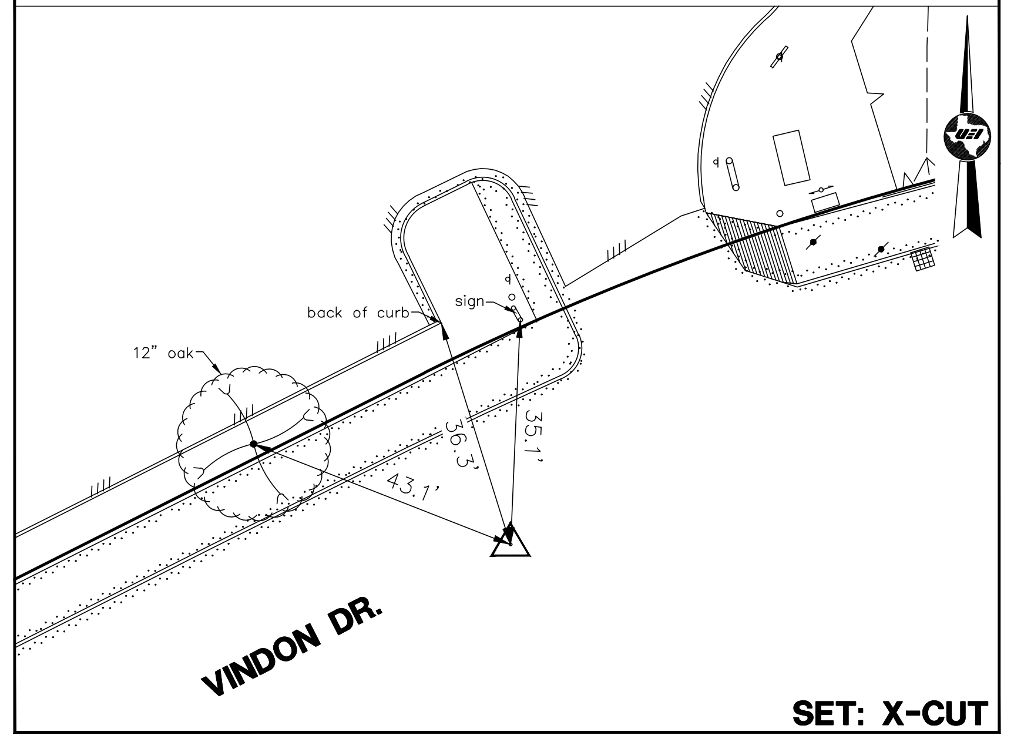
SET: X-CUT

STA: 12+16.20 BL "G" **BASELINE PT. #542**



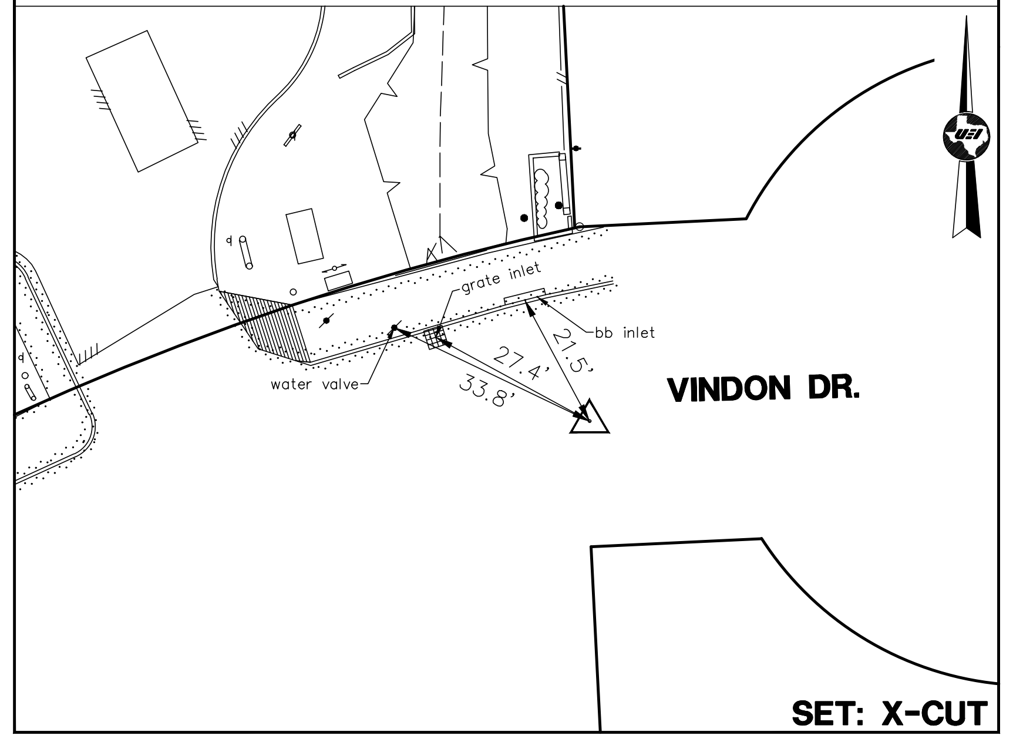
SET: X-CUT

STA: 13+24.04 BL "G" **BASELINE PT. #543**



SET: X-CUT

STA: 14+18.10 BL "G" **BASELINE PT. #544**



SET: X-CUT

GENERAL NOTES:
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BP# indicates Baseline Point
(TRV.) indicates Traverse Line
(BL) indicates Baseline Line
CM indicates Control Monument
Fnd. indicates Found
RT indicates Right
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I.R. indicates Iron Rod
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NOTES:

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4. THIS PROJECT IS ON TSARP DATUM HOLDING MONUMENT 210155, TO CONVERT ELEVATIONS TO NAVD '88 (GD 12B), SUBTRACT 0.22 FEET.

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TYPE OF PROFESSIONAL SERVICE: TOPOGRAPHIC AND R.O.W. SURVEY

4-14-26
CHRISTIN M. NORRIS, R.P.L.S. 6207 DATE

CHRISTIN MICHAEL NORRIS
6207

United Engineers, Inc.
CIVIL ENGINEERING ◆ LAND DEVELOPMENT
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SURVEYING ◆ UTILITY ENGINEERING
ENGINEERING FIRM # F-000142 SURVEY FIRM # 101178-00
9301 SOUTHWEST FREEWAY, SUITE 500 TEL. (713) 271-2900
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11011 RICHMOND
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HOUSTON, TX 77042
PH: 713.965.9996
FAX: 713.965.0044

SURVEYED BY: UEI
FB NO. P-6422

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TIRZ #17 BARRYKNOLL

GENERAL
SWINGTIES
SHEET 5 OF 5

WBS NUMBER
M-430296-0017
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
RAJESH DANAYAK, P.E.

FOR CITY OF HOUSTON USE ONLY

SHEET NO. 90 OF 345

100% SUBMITTAL

KINGSRIDE LN. ALIGNMENT

```
BEGIN KINGSRIDE LN
   N 13,848,581.0493   E 3,062,502.9202                        0+00.00

LINE (1)
   N88° 47' 08"E     100.00'
   N 13,848,583.1688   E 3,062,602.8977                        1+00.00
LINE (1)

LINE (2)
   N88° 47' 08"E     778.74'
   N 13,848,599.6744   E 3,063,381.4643                        8+78.74
LINE (2)

CURVE (3)
   BC    N 13,848,599.6744   E 3,063,381.4643                  8+78.74
   CTR   N 13,848,199.7642   E 3,063,389.9424
   PI    N 13,848,601.9784   E 3,063,490.1467

     DIRECTION BACK   N88° 47' 08"E
        RADIUS       400.00'
        DELTA        30°24'28"(RT)
        LENGTH       212.29'
        TANGENT      108.71'
        CHORD DIRECTION      S76° 00' 38"E   DISTANCE   209.80'
     DIRECTION AHEAD S60° 48' 24"E

   EC    N 13,848,548.9559   E 3,063,585.0454                 10+91.03
CURVE (3)

LINE (4)
   S60° 48' 24"E     54.67'
   N 13,848,522.2902   E 3,063,632.7712                       11+45.70
LINE (4)

CURVE (5)
   BC    N 13,848,522.2902   E 3,063,632.7712                 11+45.70
   CTR   N 13,848,784.1839   E 3,063,779.0984
   PI    N 13,848,494.6601   E 3,063,682.2230

     DIRECTION BACK   S60° 48' 24"E
        RADIUS       300.00'
        DELTA        21°23'09"(LT)
        LENGTH       111.98'
        TANGENT      56.65'
        CHORD DIRECTION      S71° 29' 59"E   DISTANCE   111.33'
     DIRECTION AHEAD S82° 11' 33"E

   EC    N 13,848,486.9648   E 3,063,738.3451                 12+57.67
CURVE (5)

LINE (6)
   **NON-TANGENT** RADIAL BEARING S7° 48' 27"W
   S82° 09' 31"E     130.34'
   N 13,848,469.1828   E 3,063,867.4626                       13+88.01
LINE (6)

CURVE (7)
   BC    N 13,848,469.1828   E 3,063,867.4626                 13+88.01
   CTR   N 13,849,063.5725   E 3,063,949.3218
   PI    N 13,848,462.6591   E 3,063,914.8320

     DIRECTION BACK   S82° 09' 31"E
        RADIUS       600.00'
        DELTA        9°06'47"(LT)
        LENGTH       95.43'
        TANGENT      47.82'
        CHORD DIRECTION      S86° 42' 54"E   DISTANCE   95.33'
     DIRECTION AHEAD N88° 43' 42"E

   EC    N 13,848,463.7202   E 3,063,962.6366                 14+83.44
CURVE (7)

LINE (8)
   N88° 43' 42"E     930.27'
   N 13,848,484.3642   E 3,064,892.6819                       24+13.72
LINE (8)

   N 13,848,484.3642   E 3,064,892.6819                       24+13.72
END KINGSRIDE LN

**********************************************************************
ALIGNMENT LENGTH: 2,413.72'
**********************************************************************
```

BARRYKNOLL LN. ALIGNMENT

```
BEGIN BARRYKNOLL LN
   N 13,848,159.7639   E 3,064,688.2351                        1+00.00

LINE (1)
   N88° 43' 42"E     216.07'
   N 13,848,164.5587   E 3,064,904.2506                        3+16.07
LINE (1)

CURVE (2)
   BC    N 13,848,164.5587   E 3,064,904.2506                  3+16.07
   CTR   N 13,847,187.7393   E 3,064,925.9329
   PI    N 13,848,166.1924   E 3,064,977.8507

     DIRECTION BACK   N88° 43' 42"E
        RADIUS       977.06'
        DELTA        8°37'04"(RT)
        LENGTH       146.96'
        TANGENT      73.62'
        CHORD DIRECTION      S86° 57' 46"E   DISTANCE   146.82'
     DIRECTION AHEAD S82° 39' 14"E

   EC    N 13,848,156.7792   E 3,065,050.8647                  4+63.03
CURVE (2)

LINE (3)
   S82° 39' 14"E     103.72'
   N 13,848,143.5167   E 3,065,153.7359                        5+66.75
LINE (3)

   **NON-TANGENT** RADIAL BEARING S5° 11' 57"W
CURVE (4)
   BC    N 13,848,143.5167   E 3,065,153.7359                  5+66.75
   CTR   N 13,849,105.5023   E 3,065,241.2714
   PI    N 13,848,137.7335   E 3,065,217.2919

     DIRECTION BACK   S84° 48' 03"E
        RADIUS       965.96'
        DELTA        7°33'35"(LT)
        LENGTH       127.45'
        TANGENT      63.82'
        CHORD DIRECTION      S88° 34' 50"E   DISTANCE   127.36'
     DIRECTION AHEAD N87° 38' 22"E

   EC    N 13,848,140.3620   E 3,065,281.0562                  6+94.20
CURVE (4)

   COMPOUND CURVE

   **NON-TANGENT** RADIAL BEARING S2° 21' 39"E
CURVE (5)
   BC    N 13,848,140.3620   E 3,065,281.0562                  6+94.20
   CTR   N 13,848,470.0815   E 3,065,267.4626
   PI    N 13,848,143.3284   E 3,065,353.0096

     DIRECTION BACK   N87° 38' 21"E
        RADIUS       330.00'
        DELTA        24°37'15"(LT)
        LENGTH       141.81'
        TANGENT      72.01'
        CHORD DIRECTION      N75° 19' 43"E   DISTANCE   140.72'
     DIRECTION AHEAD N63° 01' 06"E

   EC    N 13,848,176.0019   E 3,065,417.1855                  8+36.01
CURVE (5)

   REVERSING CURVE

   **NON-TANGENT** RADIAL BEARING N26° 59' 05"W
CURVE (6)
   BC    N 13,848,176.0019   E 3,065,417.1855                  8+36.01
   CTR   N 13,847,882.0488   E 3,065,566.8641
   PI    N 13,848,208.6825   E 3,065,481.3669

     DIRECTION BACK   N63° 00' 55"E
        RADIUS       329.87'
        DELTA        24°38'00"(RT)
        LENGTH       141.82'
        TANGENT      72.02'
        CHORD DIRECTION      N75° 19' 54"E   DISTANCE   140.73'
     DIRECTION AHEAD N87° 38' 54"E

   EC    N 13,848,211.6378   E 3,065,553.3290                  9+77.83
CURVE (6)
```

BARRYKNOLL LN. ALIGNMENT

```
LINE (7)
   **NON-TANGENT** RADIAL BEARING N2° 21' 06"W
   N87° 38' 26"E     373.31'
   N 13,848,227.0071   E 3,065,926.3267                       13+51.14
LINE (7)

CURVE (8)
   BC    N 13,848,227.0071   E 3,065,926.3267                 13+51.14
   CTR   N 13,848,556.7273   E 3,065,912.7406
   PI    N 13,848,230.7361   E 3,066,016.8261

     DIRECTION BACK   N87° 38' 26"E
        RADIUS       330.00'
        DELTA        30°41'47"(LT)
        LENGTH       176.80'
        TANGENT      90.58'
        CHORD DIRECTION      N72° 17' 32"E   DISTANCE   174.69'
     DIRECTION AHEAD N56° 56' 39"E

   EC    N 13,848,280.1415   E 3,066,092.7415                 15+27.94
CURVE (8)

   REVERSING CURVE

CURVE (9)
   BC    N 13,848,280.1415   E 3,066,092.7415                 15+27.94
   CTR   N 13,848,003.5557   E 3,066,272.7424
   PI    N 13,848,330.1927   E 3,066,169.6492

     DIRECTION BACK   N56° 56' 39"E
        RADIUS       330.00'
        DELTA        31°04'42"(RT)
        LENGTH       179.00'
        TANGENT      91.76'
        CHORD DIRECTION      N72° 29' 00"E   DISTANCE   176.81'
     DIRECTION AHEAD N88° 01' 21"E

   EC    N 13,848,333.3592   E 3,066,261.3546                 17+06.94
CURVE (9)

LINE (10)
   **NON-TANGENT** RADIAL BEARING N1° 58' 39"W
   N88° 03' 26"E     193.06'
   N 13,848,339.9045   E 3,066,454.3048                       19+00.00
LINE (10)

   N 13,848,339.9045   E 3,066,454.3048                       19+00.00
END BARRYKNOLL LN

**********************************************************************
ALIGNMENT LENGTH: 1,800.00'
**********************************************************************
```

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL CURVE DATA

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 91 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\horizontal curve data 01.dwg Plotted April 15, 2026 at 5:22 PM by Gawali, Ajinkya Ashok

GESSNER RD. ALIGNMENT

```
BEGIN GESNNER RD
  N 13,848,040.9080  E 3,064,844.4532                   1+00.00

LINE (1)
  N2° 14' 20"W    589.17'
  N 13,848,629.6314  E 3,064,821.4366                   6+89.17
LINE (1)

  N 13,848,629.6314  E 3,064,821.4366                   6+89.17
END GESNNER RD

************************************************************************
ALIGNMENT LENGTH: 589.17'
************************************************************************
```

VINDON DR. ALIGNMENT

```
BEGIN VINDON DR
  N 13,847,412.7534  E 3,061,375.6469                   1+00.00

LINE (1)
  N87° 42' 10"E    414.60'
  N 13,847,429.3725  E 3,061,789.9143                   5+14.60
LINE (1)

CURVE (2)
  BC   N 13,847,429.3725  E 3,061,789.9143              5+14.60
  CTR  N 13,847,086.6681  E 3,061,803.6625
  PI   N 13,847,432.1412  E 3,061,858.9294

    DIRECTION BACK  N87° 42' 10"E
      RADIUS     342.98'
      DELTA      22°46'20"(RT)
      LENGTH      136.32'
      TANGENT    69.07'
      CHORD DIRECTION     S80° 54' 40"E  DISTANCE  135.42'
    DIRECTION AHEAD S69° 31' 30"E

  EC   N 13,847,407.9804  E 3,061,923.6364              6+50.92
CURVE (2)

LINE (3)
  S69° 31' 30"E    133.01'
  N 13,847,361.4536  E 3,062,048.2437                   7+83.93
LINE (3)

  **NON-TANGENT** RADIAL BEARING S20° 26' 33"W
CURVE (4)
  BC   N 13,847,361.4536  E 3,062,048.2437              7+83.93
  CTR  N 13,847,736.2060  E 3,062,187.9292
  PI   N 13,847,334.5745  E 3,062,120.3558

    DIRECTION BACK  S69° 33' 27"E
      RADIUS     399.94'
      DELTA      21°47'03"(LT)
      LENGTH      152.06'
      TANGENT    76.96'
      CHORD DIRECTION     S80° 26' 58"E  DISTANCE  151.14'
    DIRECTION AHEAD N88° 39' 30"E

  EC   N 13,847,336.3764  E 3,062,197.2934              9+35.99
CURVE (4)

LINE (5)
  **NON-TANGENT** RADIAL BEARING S1° 20' 30"E
  N88° 39' 57"E    102.52'
  N 13,847,338.7634  E 3,062,299.7854                   10+38.51
LINE (5)

  **NON-TANGENT** RADIAL BEARING S1° 18' 30"E
CURVE (6)
  BC   N 13,847,338.7634  E 3,062,299.7854              10+38.51
  CTR  N 13,847,738.5862  E 3,062,290.6534
  PI   N 13,847,340.8262  E 3,062,390.1011

    DIRECTION BACK  N88° 41' 30"E
      RADIUS     399.93'
      DELTA      25°27'28"(LT)
      LENGTH      177.70'
      TANGENT    90.34'
      CHORD DIRECTION     N75° 57' 46"E  DISTANCE  176.24'
    DIRECTION AHEAD N63° 14' 02"E
```

VINDON DR. ALIGNMENT

```
  EC   N 13,847,381.5106  E 3,062,470.7607              12+16.20
CURVE (6)

LINE (7)
  **NON-TANGENT** RADIAL BEARING S26° 45' 58"E
  N63° 16' 28"E    107.84'
  N 13,847,430.0065  E 3,062,567.0771                   13+24.04
LINE (7)

  **NON-TANGENT** RADIAL BEARING N26° 21' 18"W
CURVE (8)
  BC   N 13,847,430.0065  E 3,062,567.0771              13+24.04
  CTR  N 13,847,071.5818  E 3,062,744.6489
  PI   N 13,847,450.9810  E 3,062,609.4137

    DIRECTION BACK  N63° 38' 42"E
      RADIUS     400.00'
      DELTA      13°28'23"(RT)
      LENGTH      94.06'
      TANGENT    47.25'
      CHORD DIRECTION     N70° 22' 54"E  DISTANCE  93.84'
    DIRECTION AHEAD N77° 07' 05"E

  EC   N 13,847,461.5145  E 3,062,655.4720              14+18.10
CURVE (8)

  N 13,847,461.5145  E 3,062,655.4720                   14+18.10
END VINDON DR

************************************************************************
ALIGNMENT LENGTH: 1,318.10'
************************************************************************
```

No.	Date	Revisions	App.

HRGreen
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL CURVE DATA

SHEET 2 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 92 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\horizontal curve data 02.dwg Plotted April 15, 2026 at 5:26 PM by Gawali, Ajinkya Ashok

BASIN OUTFALL ALIGNMENT

```
BEGIN BASIN OUTFALL CENTERLINE
   N 13,847,480.1016   E 3,062,553.0233                   1+00.00

LINE (1)
   N63° 26' 34"E    2.33'
   N 13,847,481.1448   E 3,062,555.1104                   1+02.33
LINE (1)

LINE (2)
   N36° 38' 08"E    2.33'
   N 13,847,483.0172   E 3,062,556.5028                   1+04.67
LINE (2)

LINE (3)
   N36° 38' 08"E    120.92'
   N 13,847,580.0512   E 3,062,628.6598                   2+25.59
LINE (3)

LINE (4)
   N2° 53' 55"W    482.52'
   N 13,848,061.9520   E 3,062,604.2592                   7+08.11
LINE (4)

LINE (5)
   N2° 53' 55"W    475.83'
   N 13,848,537.1685   E 3,062,580.1970                   11+83.93
LINE (5)

LINE (6)
   N45° 55' 30"W    55.79'
   N 13,848,575.9744   E 3,062,540.1175                   12+39.72
LINE (6)

LINE (7)
   N1° 08' 12"W    48.03'
   N 13,848,623.9980   E 3,062,539.1647                   12+87.75
LINE (7)

   N 13,848,623.9980   E 3,062,539.1647                   12+87.75
END BASIN OUTFALL CENTERLINE

************************************************************************
ALIGNMENT LENGTH: 1,187.75'
************************************************************************
```

No.	Date	Revisions	App.

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\horizontal curve data 03.dwg Plotted April 15, 2026 at 5:28 PM by Gawali, Ajinkya Ashok

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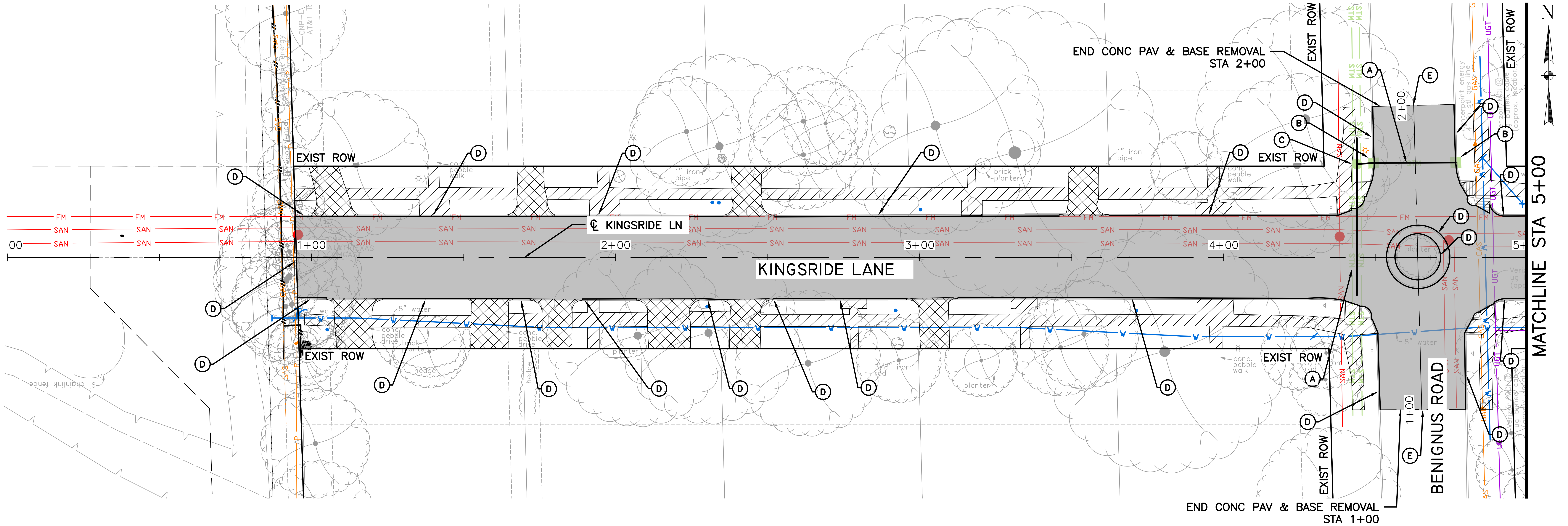
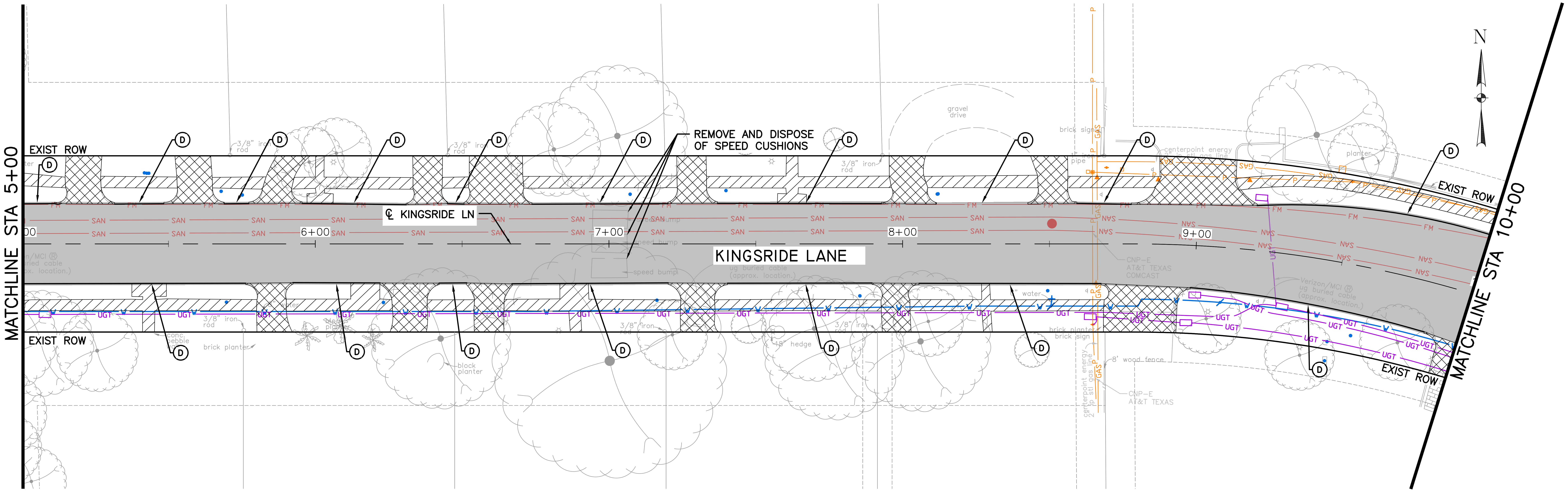
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL CURVE DATA

SHEET 3 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.


END CONC PAV & BASE REMOVAL
STA 2+00
EXIST ROW
KINGSRIDE LANE
℄ KINGSRIDE LN
1+00
2+00
3+00
4+00
5+
FM
SAN
BENIGNUS ROAD
2+00
1+00
END CONC PAV & BASE REMOVAL
STA 1+00
MATCHLINE STA 5+00
N
A
B
C
D
E
UGT
GAS


MATCHLINE STA 5+00
EXIST ROW
REMOVE AND DISPOSE
OF SPEED CUSHIONS
℄ KINGSRIDE LN
KINGSRIDE LANE
6+00
7+00
8+00
9+00
SAN
FM
UGT
D
EXIST ROW
MATCHLINE STA 10+00
N

LEGEND

▒	REMOVE CONC PAV & BASE
▩	REMOVE CONC DRWY
▨	REMOVE CONC SIDEWALK
Ⓐ	REMOVE AND DISPOSE OF PIPE
Ⓑ	REMOVE AND DISPOSE OF INLET
Ⓒ	REMOVE AND DISPOSE OF MH
Ⓓ	REMOVE AND DISPOSE OF CURB
Ⓔ	SAWCUT
Ⓕ	TO REMAIN

No.	Date	Revisions	App.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
KINGSRIDE LANE
BEGIN PROJECT TO STA 10+00

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

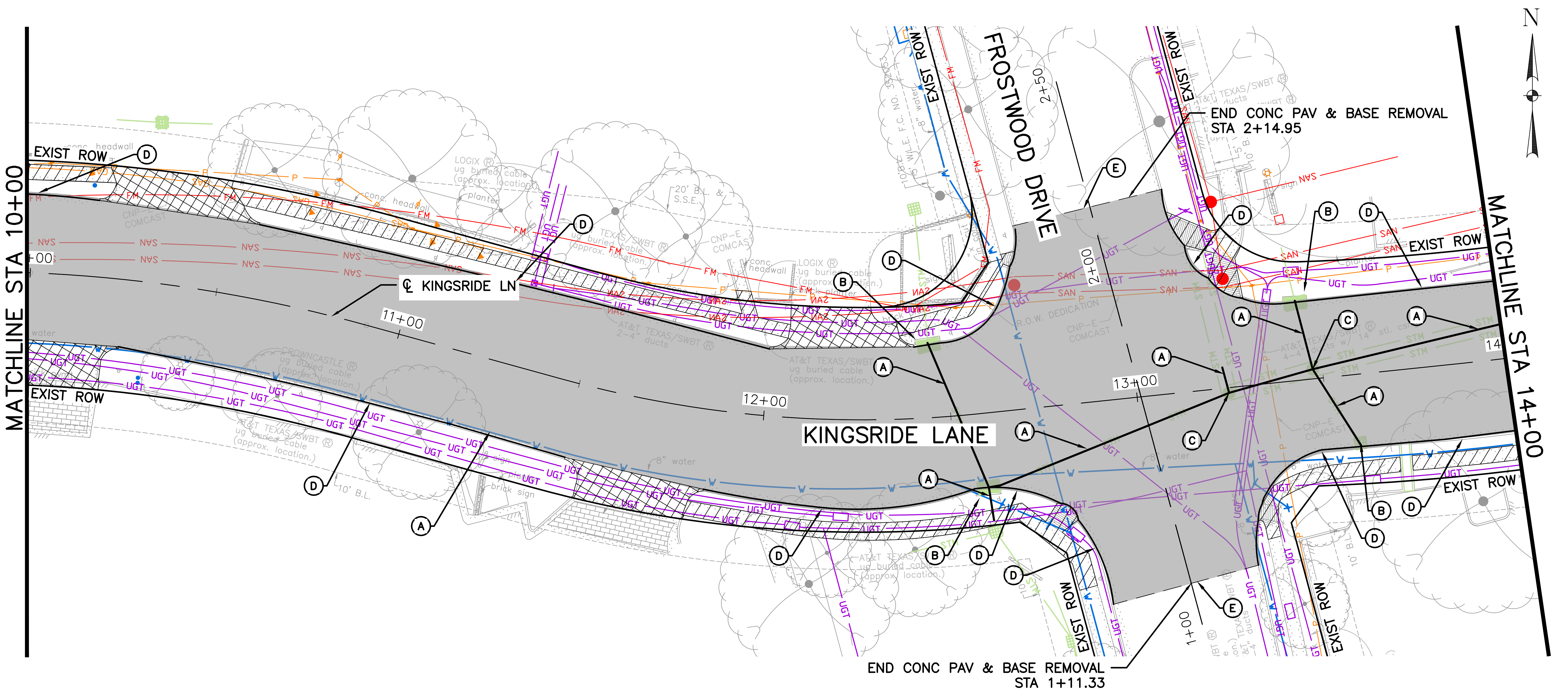
H: 1"=20' (22"X34")
H: 1"=40' (11"X17")

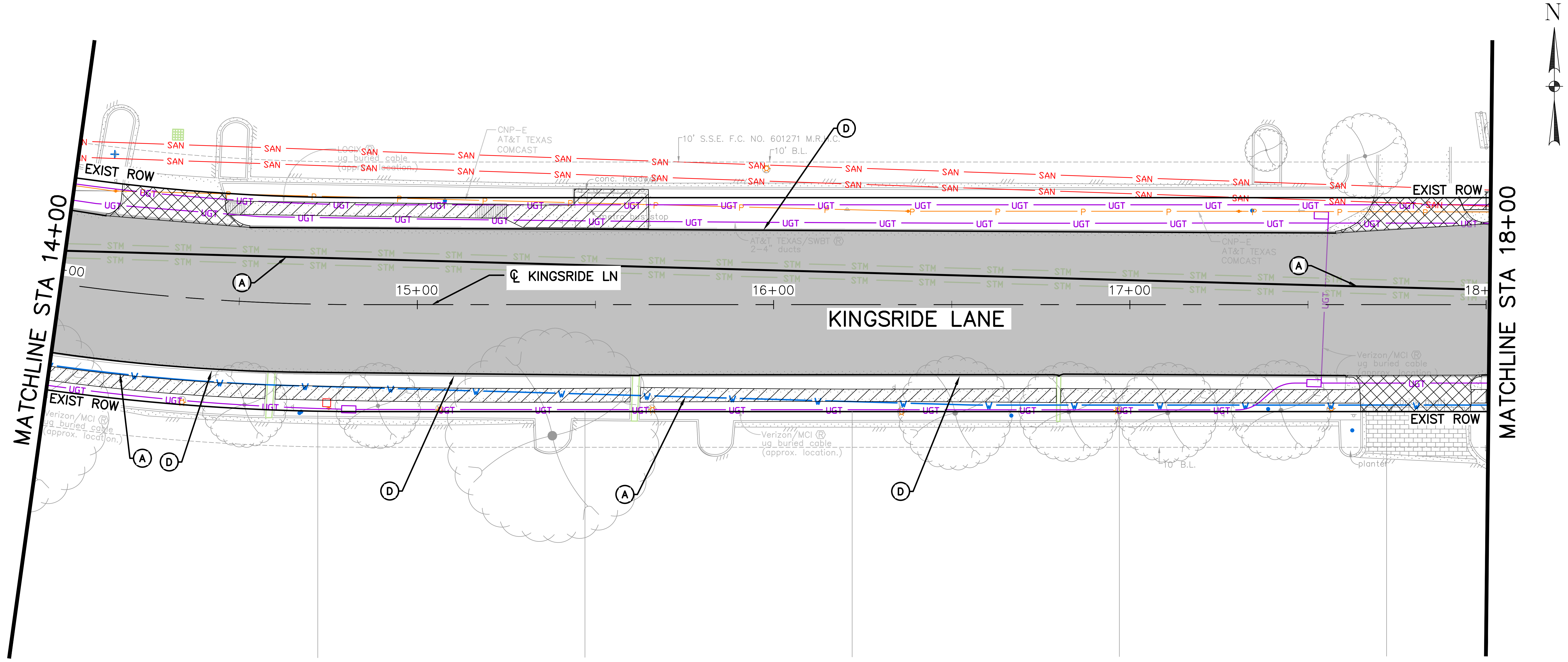
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 94 OF 345

j:\2021\210601.01\cad\dwgs\d\rd_kingsride_demo_01.dwg Plotted July 10, 2026 at 4:47 PM by McCourt, Jeff


N
MATCHLINE STA 10+00
MATCHLINE STA 14+00
EXIST ROW
FROSTWOOD DRIVE
KINGSRIDE LANE
℄ KINGSRIDE LN
11+00
12+00
13+00
2+00
2+50
1+00
END CONC PAV & BASE REMOVAL STA 2+14.95
END CONC PAV & BASE REMOVAL STA 1+11.33
A
B
C
D
E
SAN
UGT
FM
STM
R.O.W. DEDICATION
CNP-E COMCAST
AT&T TEXAS/SWBT 2-4" ducts
LOGIX ug buried cable (approx. location)
conc. headwall
8" water
10' B.L.
20' B.L. & S.S.E.


N
MATCHLINE STA 14+00
MATCHLINE STA 18+00
EXIST ROW
KINGSRIDE LANE
℄ KINGSRIDE LN
15+00
16+00
17+00
A
D
SAN
UGT
STM
10' S.S.E. F.C. NO. 601271 M.R.
10' B.L.
CNP-E AT&T TEXAS COMCAST
LOGIX ug buried cable (approx. location)
AT&T TEXAS/SWBT 2-4" ducts
Verizon/MCI ug buried cable (approx. location)
planter

LEGEND

▩	REMOVE CONC PAV & BASE
▦	REMOVE CONC DRWY
▨	REMOVE CONC SIDEWALK
Ⓐ	REMOVE AND DISPOSE OF PIPE
Ⓑ	REMOVE AND DISPOSE OF INLET
Ⓒ	REMOVE AND DISPOSE OF MH
Ⓓ	REMOVE AND DISPOSE OF CURB
Ⓔ	SAWCUT
Ⓕ	TO REMAIN

No.	Date	Revisions	App.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
KINGSRIDE LANE
STA 10+00 TO STA 18+00

SHEET 2 OF 3

WBS NO. M-430296-0017-3

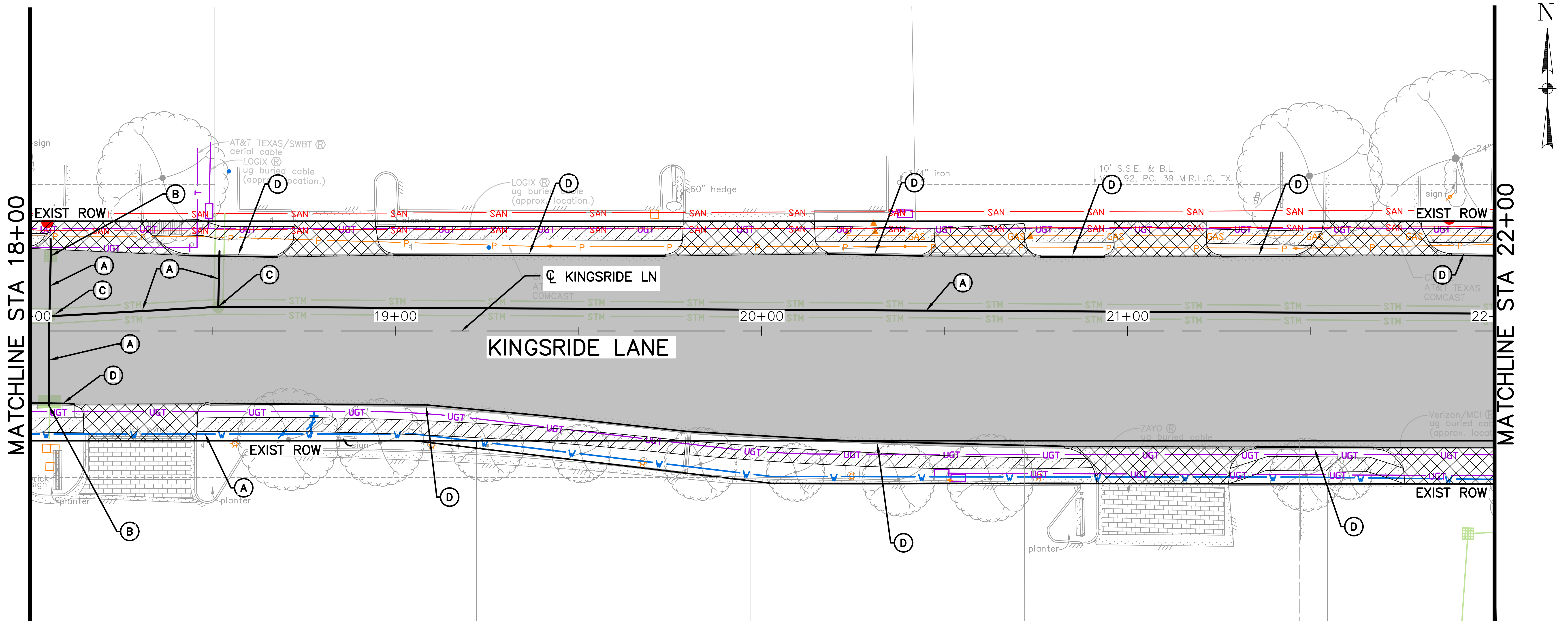
DRAWING SCALE

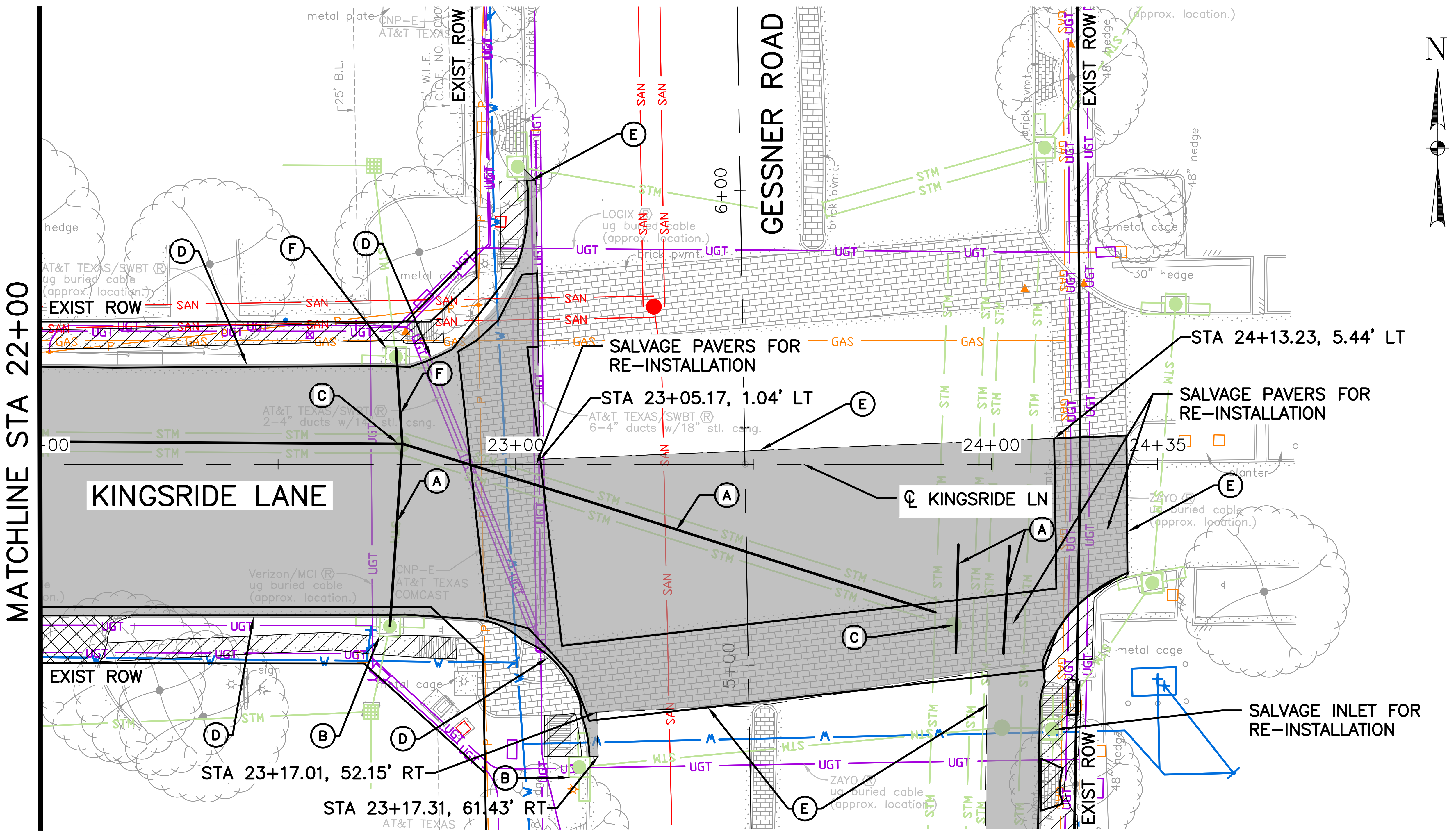
H: 1"=20' (22"X34")
H: 1"=40' (11"X17")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

j:\2021\210601.01\cad\dwgs\d\rd_kingsride_demo_02.dwg Plotted July 10, 2026 at 4:53 PM by McCourt, Jeff


MATCHLINE STA 18+00
MATCHLINE STA 22+00
EXIST ROW
KINGSRIDE LANE
℄ KINGSRIDE LN
19+00
20+00
21+00
SAN
UGT
STM
AT&T TEXAS/SWBT ® aerial cable
LOGIX ® ug buried cable (approx. location.)
60" hedge
10' S.S.E. & B.L. 92, PG. 39 M.R.H.C. TX.
Verizon/MCI ® ug buried cable (approx. location.)
ZAYO ® ug buried cable
planter
sign
N
A
B
C
D


MATCHLINE STA 22+00
EXIST ROW
KINGSRIDE LANE
℄ KINGSRIDE LN
GESSNER ROAD
6+00
5+00
23+00
24+00
24+35
SALVAGE PAVERS FOR RE-INSTALLATION
STA 23+05.17, 1.04' LT
STA 24+13.23, 5.44' LT
SALVAGE PAVERS FOR RE-INSTALLATION
SALVAGE INLET FOR RE-INSTALLATION
STA 23+17.01, 52.15' RT
STA 23+17.31, 61.43' RT
metal plate
hedge
30" hedge
metal cage
SAN
UGT
STM
GAS
N
A
B
C
D
E
F

LEGEND

▒	REMOVE CONC PAV & BASE
▩	REMOVE CONC DRWY
▨	REMOVE CONC SIDEWALK
Ⓐ	REMOVE AND DISPOSE OF PIPE
Ⓑ	REMOVE AND DISPOSE OF INLET
Ⓒ	REMOVE AND DISPOSE OF MH
Ⓓ	REMOVE AND DISPOSE OF CURB
Ⓔ	SAWCUT
Ⓕ	TO REMAIN

No.	Date	Revisions	App.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
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SUITE 400
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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
KINGSRIDE LANE
STA 18+00 TO END PROJECT

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22"X34")
H: 1"=40' (11"X17")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

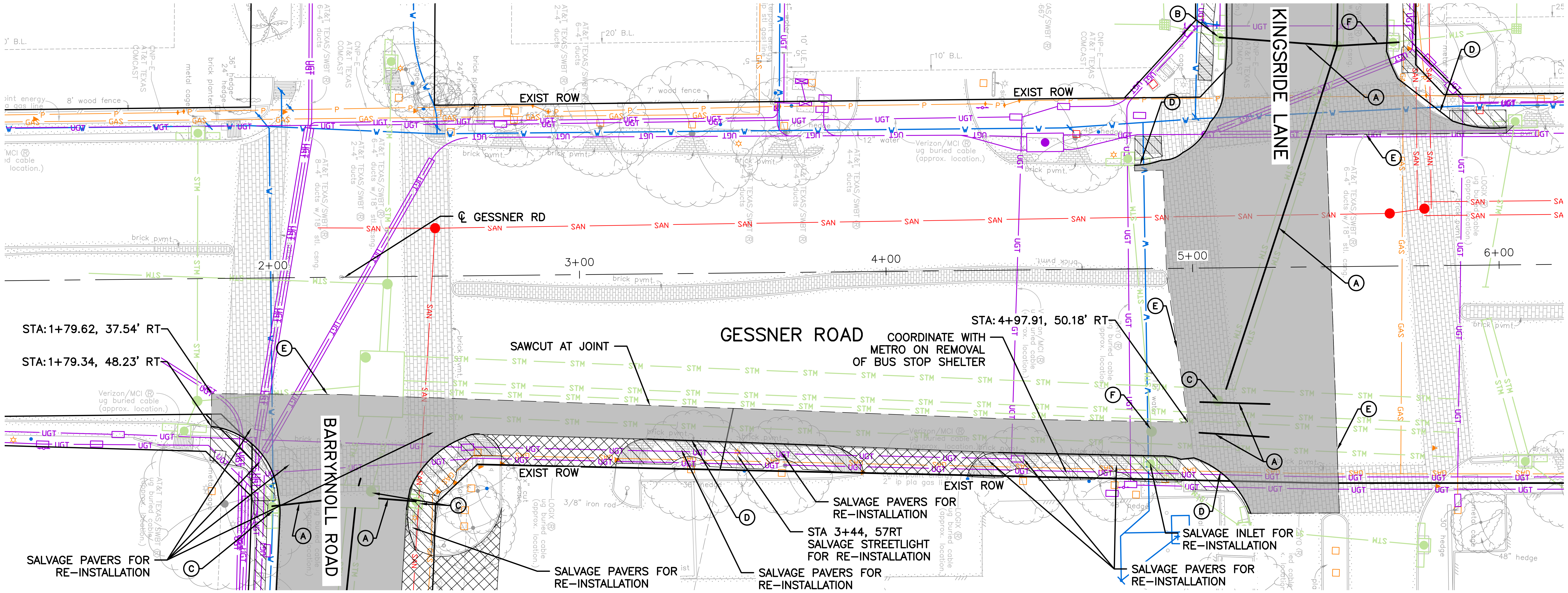
SHEET NO. 96 OF 345

j:\2021\210601.01\cad\dwgs\d\rd_kingsride_demo_03.dwg Plotted July 10, 2026 at 4:52 PM by McCourt, Jeff

LEGEND

▒	REMOVE CONC PAV & BASE
▩	REMOVE CONC DRWY
▨	REMOVE CONC SIDEWALK
Ⓐ	REMOVE AND DISPOSE OF PIPE
Ⓑ	REMOVE AND DISPOSE OF INLET
Ⓒ	REMOVE AND DISPOSE OF MH
Ⓓ	REMOVE AND DISPOSE OF CURB
Ⓔ	SAWCUT
Ⓕ	TO REMAIN

No.	Date	Revisions	App.


EXIST ROW
KINGSRIDE LANE
℄ GESSNER RD
2+00
3+00
4+00
5+00
6+00
GESSNER ROAD
BARRYKNOLL ROAD
STA:1+79.62, 37.54' RT
STA:1+79.34, 48.23' RT
SAWCUT AT JOINT
COORDINATE WITH METRO ON REMOVAL OF BUS STOP SHELTER
STA:4+97.91, 50.18' RT
SALVAGE PAVERS FOR RE-INSTALLATION
STA 3+44, 57RT SALVAGE STREETLIGHT FOR RE-INSTALLATION
SALVAGE INLET FOR RE-INSTALLATION
A
B
C
D
E
F
SAN
STM
UGT
GAS
brick pvmt
48" hedge
3/8" iron rod

10 0 10 20

(IN FEET)
1 INCH = 20 FEET

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
GESSNER ROAD
BEGIN PROJECT TO END PROJECT

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE

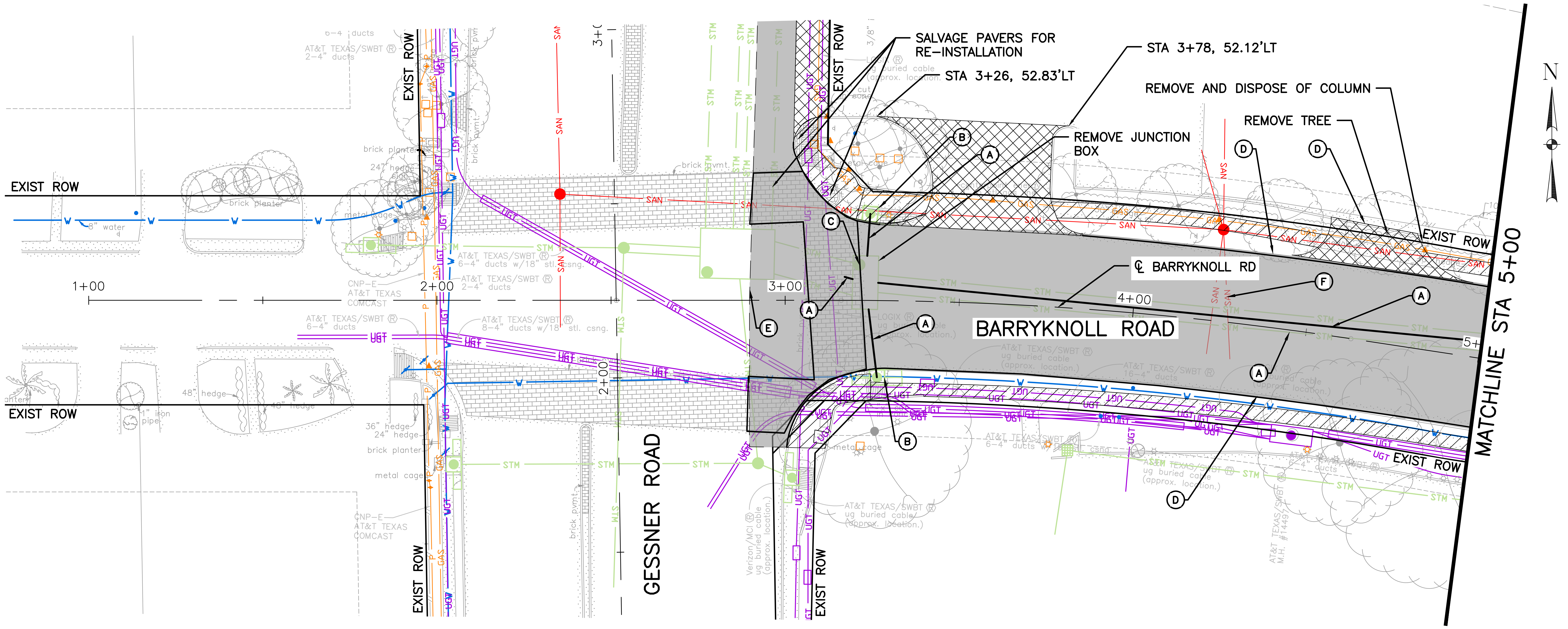
H: 1"=20' (22"X34")
H: 1"=40' (11"X17")

CITY OF HOUSTON PM

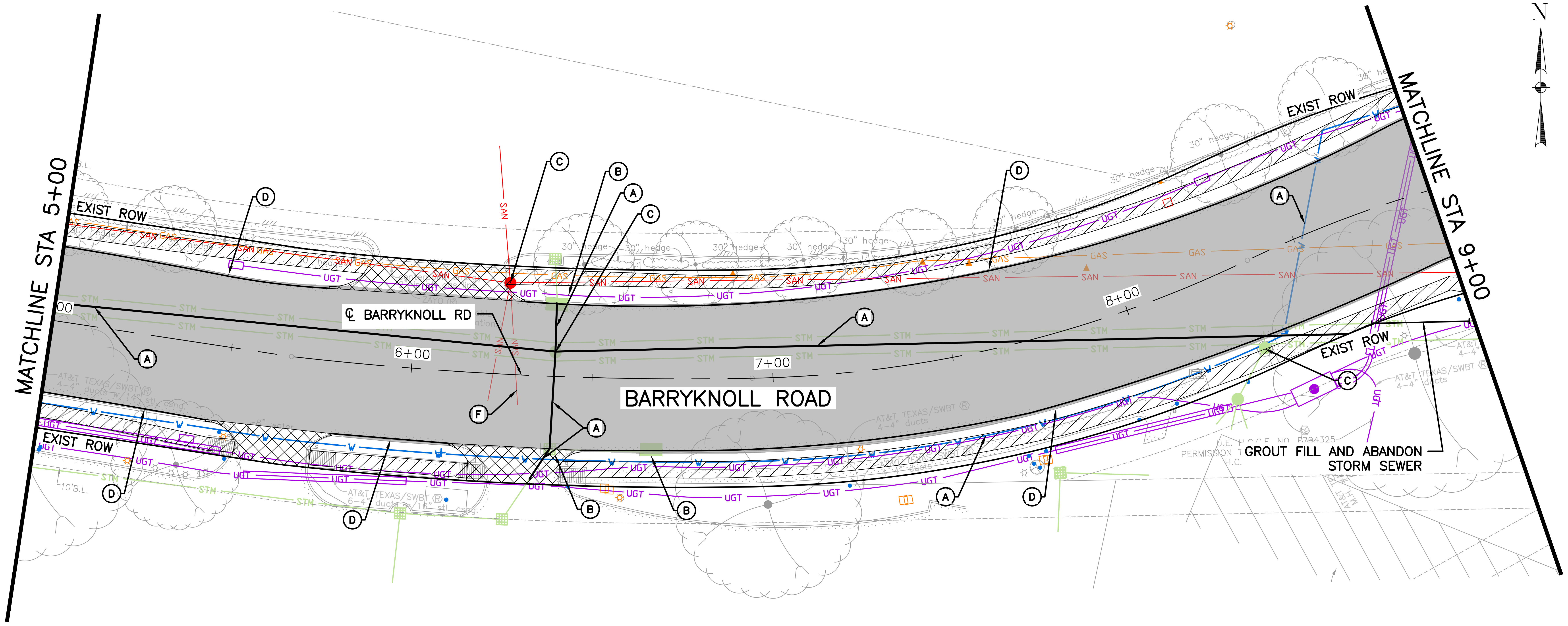
KEVIN HAMMOND, P.E.

SHEET NO. 97 OF 345

j:\2021\210601.01\cad\dwgs\d\rd_gessner_demo_01.dwg Plotted July 10, 2026 at 4:51 PM by McCourt, Jeff



EXIST ROW
SALVAGE PAVERS FOR
RE-INSTALLATION
STA 3+26, 52.83'LT
STA 3+78, 52.12'LT
REMOVE AND DISPOSE OF COLUMN
REMOVE TREE
REMOVE JUNCTION
BOX
N
1+00
2+00
3+00
4+00
5+
2+00
℄ BARRYKNOLL RD
BARRYKNOLL ROAD
GESSNER ROAD
MATCHLINE STA 5+00
A
B
C
D
E
F
SAN
STM
UGT
GAS
8" water
brick planter
48" hedge
36" hedge
24" hedge
metal cage
AT&T TEXAS/SWBT
CNP-E
AT&T TEXAS
COMCAST

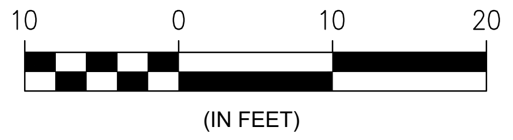


N
MATCHLINE STA 5+00
MATCHLINE STA 9+00
EXIST ROW
℄ BARRYKNOLL RD
BARRYKNOLL ROAD
6+00
7+00
8+00
A
B
C
D
F
GROUT FILL AND ABANDON
STORM SEWER
SAN
STM
UGT
GAS
30" hedge
10'B.L.
AT&T TEXAS/SWBT

LEGEND

▒	REMOVE CONC PAV & BASE
▩	REMOVE CONC DRWY
▨	REMOVE CONC SIDEWALK
Ⓐ	REMOVE AND DISPOSE OF PIPE
Ⓑ	REMOVE AND DISPOSE OF INLET
Ⓒ	REMOVE AND DISPOSE OF MH
Ⓓ	REMOVE AND DISPOSE OF CURB
Ⓔ	SAWCUT
Ⓕ	TO REMAIN

No.	Revisions	Date	App.



(IN FEET)
1 INCH = 20 FEET

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
BARRYKNOLL ROAD
BEGIN PROJECT TO STA 9+00

SHEET 1 OF 2

WBS NO. M-430296-0017-3

DRAWING SCALE

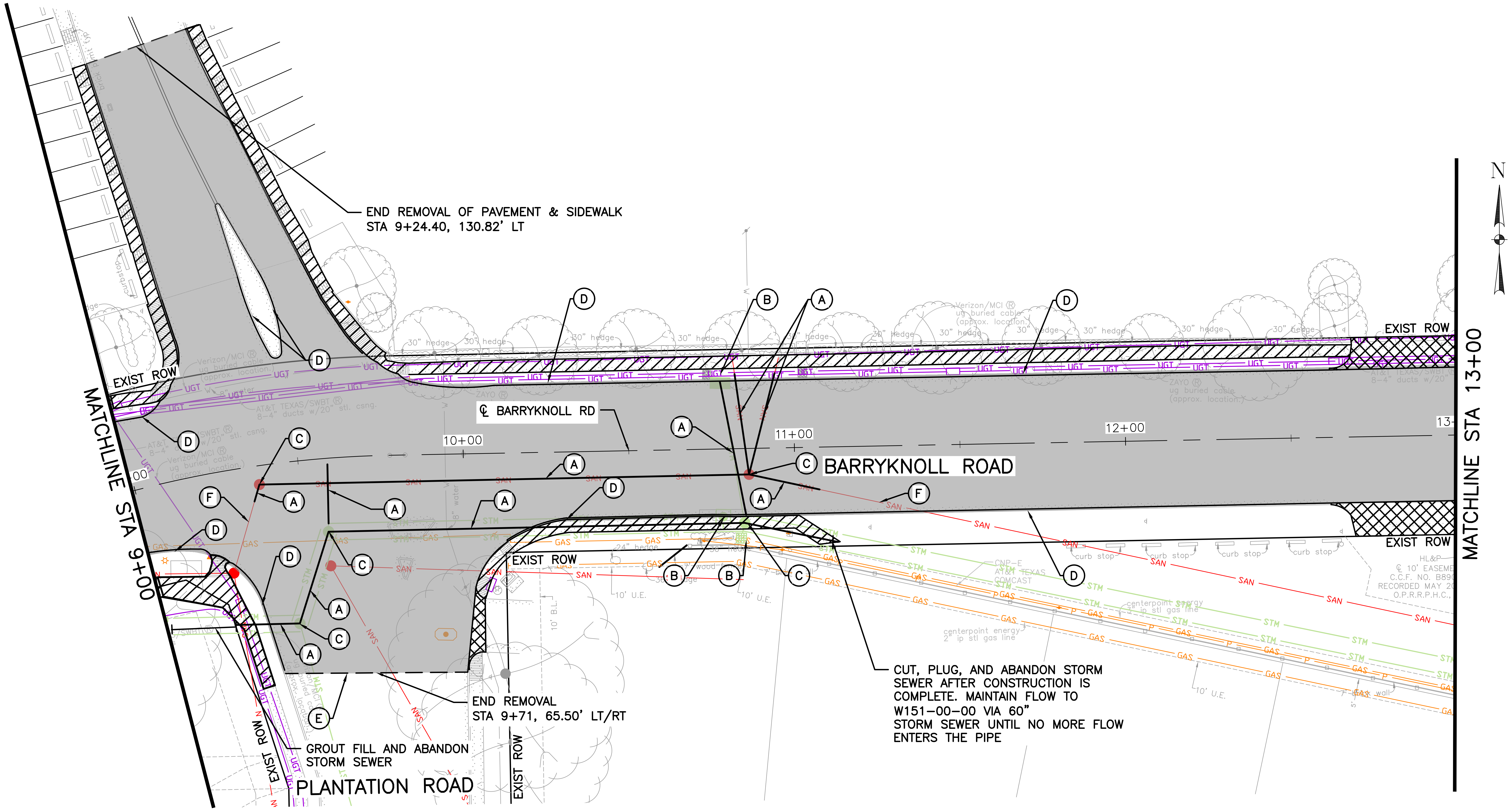
H: 1"=20' (22"X34")
H: 1"=40' (11"X17")

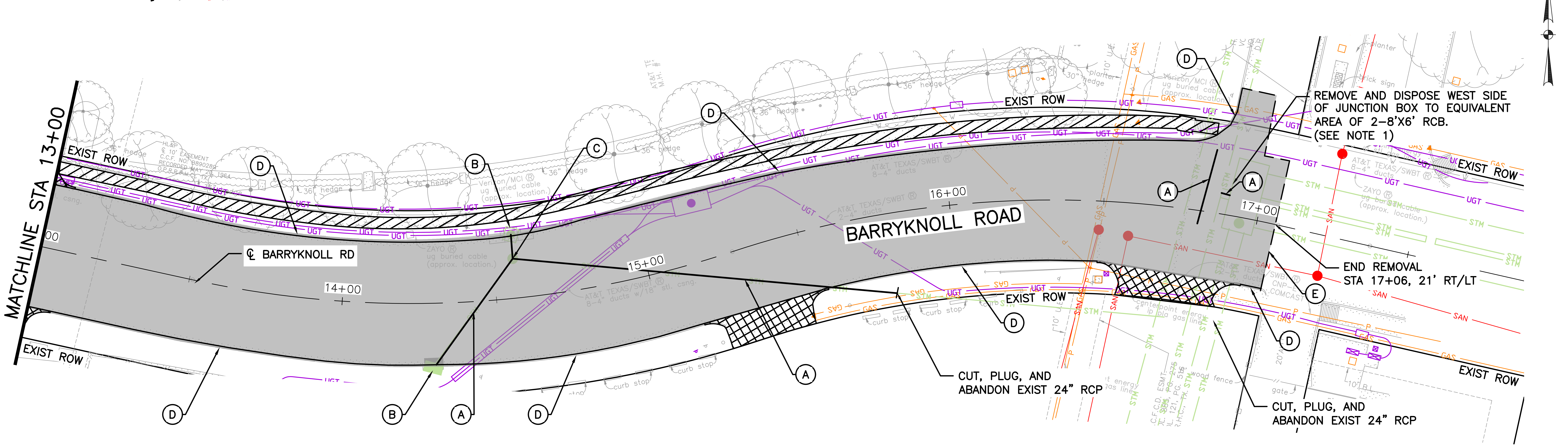
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 98 OF 345

j:\2021\210601.01\cad\dwgs\d\rd_barryknoll_demo_01.dwg Plotted July 10, 2026 at 4:48 PM by McCourt, Jeff j:\2021\210601.01\cad\dwgs\d\rd_barryknoll_demo_02.dwg Plotted July 31, 2026 at 9:13 AM by Gawali, Ajinkya Ashok


END REMOVAL OF PAVEMENT & SIDEWALK
STA 9+24.40, 130.82' LT
EXIST ROW
MATCHLINE STA 9+00
℄ BARRYKNOLL RD
10+00
11+00
12+00
BARRYKNOLL ROAD
MATCHLINE STA 13+00
N
A
B
C
D
E
F
SAN
GAS
STM
UGT
30" hedge
curb stop
10' U.E.
centerpoint energy 2" ip stl gas line
END REMOVAL
STA 9+71, 65.50' LT/RT
CUT, PLUG, AND ABANDON STORM SEWER AFTER CONSTRUCTION IS COMPLETE. MAINTAIN FLOW TO W151-00-00 VIA 60" STORM SEWER UNTIL NO MORE FLOW ENTERS THE PIPE
GROUT FILL AND ABANDON STORM SEWER
PLANTATION ROAD
EXIST ROW


N
MATCHLINE STA 13+00
EXIST ROW
℄ BARRYKNOLL RD
14+00
15+00
16+00
17+00
BARRYKNOLL ROAD
A
B
C
D
E
REMOVE AND DISPOSE WEST SIDE OF JUNCTION BOX TO EQUIVALENT AREA OF 2-8'X6' RCB. (SEE NOTE 1)
END REMOVAL
STA 17+06, 21' RT/LT
CUT, PLUG, AND ABANDON EXIST 24" RCP
CUT, PLUG, AND ABANDON EXIST 24" RCP
SAN
GAS
STM
UGT
36" hedge
curb stop

LEGEND

▒	REMOVE CONC PAV & BASE
▩	REMOVE CONC DRWY
▨	REMOVE CONC SIDEWALK
Ⓐ	REMOVE AND DISPOSE OF PIPE
Ⓑ	REMOVE AND DISPOSE OF INLET
Ⓒ	REMOVE AND DISPOSE OF MH
Ⓓ	REMOVE AND DISPOSE OF CURB
Ⓔ	SAWCUT
Ⓕ	TO REMAIN

No.	Date	Revisions	App.

NOTES:
1. CONTRACTOR TO SEND ENGINEER STRUCTURAL ANALYSIS FOR REVIEW AND APPROVAL.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

DAVID G. GREANEY
125563
David G. Greaney
7/31/2026
HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DEMOLITION PLAN
BARRYKNOLL ROAD
STA 9+00 TO END PROJECT

SHEET 2 OF 2

WBS NO. M-430296-0017-3

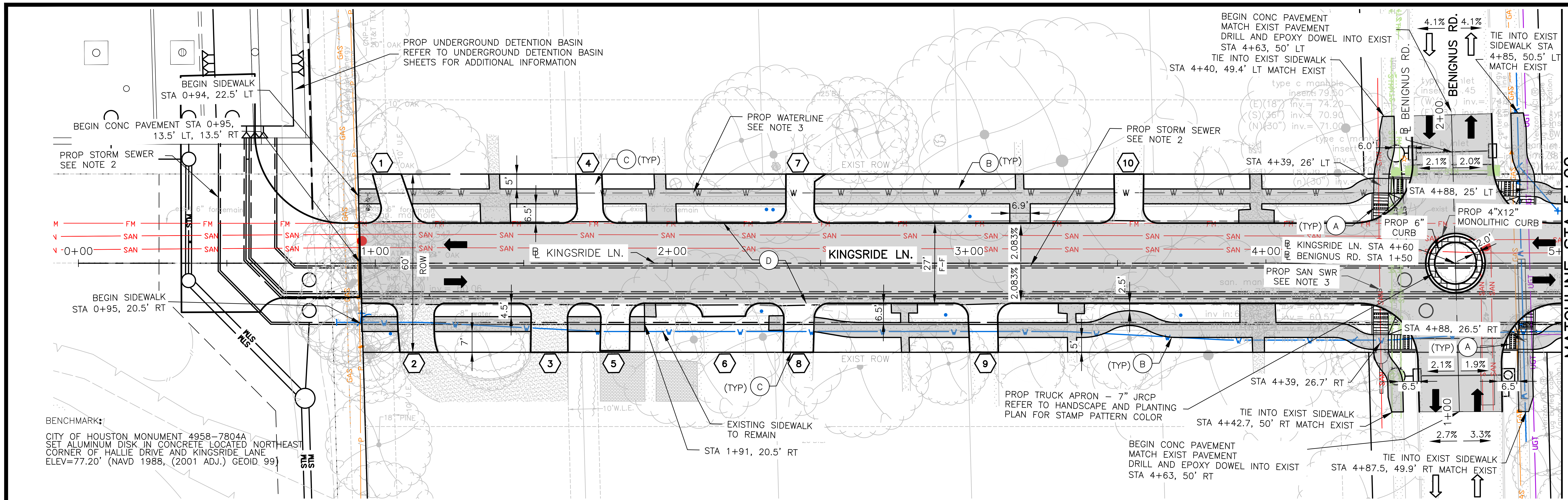
DRAWING SCALE

H: 1"=20' (22"X34")
H: 1"=40' (11"X17")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 99 OF 345


PROP UNDERGROUND DETENTION BASIN
REFER TO UNDERGROUND DETENTION BASIN
SHEETS FOR ADDITIONAL INFORMATION
BEGIN SIDEWALK
STA 0+94, 22.5' LT
BEGIN CONC PAVEMENT STA 0+95,
13.5' LT, 13.5' RT
PROP STORM SEWER
SEE NOTE 2
BEGIN SIDEWALK
STA 0+95, 20.5' RT
BENCHMARK:
CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)
PROP WATERLINE
SEE NOTE 3
PROP STORM SEWER
SEE NOTE 2
℄ KINGSRIDE LN.
KINGSRIDE LN.
0+00
1+00
2+00
3+00
4+00
60' ROW
27'
F-F
2.083%
2.083%
6.9'
5'
6.5'
4.5'
7'
2.5'
6.5'
5'
EXIST ROW
EXISTING SIDEWALK
TO REMAIN
STA 1+91, 20.5' RT
PROP TRUCK APRON – 7" JRCP
REFER TO HANDSCAPE AND PLANTING
PLAN FOR STAMP PATTERN COLOR
BEGIN CONC PAVEMENT
MATCH EXIST PAVEMENT
DRILL AND EPOXY DOWEL INTO EXIST
STA 4+63, 50' RT
BEGIN CONC PAVEMENT
MATCH EXIST PAVEMENT
DRILL AND EPOXY DOWEL INTO EXIST
STA 4+63, 50' LT
TIE INTO EXIST SIDEWALK
STA 4+40, 49.4' LT MATCH EXIST
STA 4+39, 26' LT
STA 4+88, 25' LT
PROP 6"
CURB
PROP 4"X12"
MONOLITHIC CURB
℄ KINGSRIDE LN. STA 4+60
℄ BENIGNUS RD. STA 1+50
PROP SAN SWR
SEE NOTE 3
STA 4+88, 26.5' RT
STA 4+39, 26.7' RT
TIE INTO EXIST SIDEWALK
STA 4+42.7, 50' RT MATCH EXIST
TIE INTO EXIST SIDEWALK
STA 4+87.5, 49.9' RT MATCH EXIST
TIE INTO EXIST
SIDEWALK STA
4+85, 50.5' LT
MATCH EXIST
℄ BENIGNUS RD.
BENIGNUS RD.
2+00
1+00
4.1%
4.1%
2.1%
2.0%
2.1%
1.9%
2.7%
3.3%
6.0'
6.5'
6.5'
2.0'
(TYP) A
(TYP) B
(TYP) C
B (TYP)
C (TYP)
1
2
3
4
5
6
7
8
9
10
D
FM
SAN
W
MATCHLINE STA 5+00

LEGEND

- ➡ PROP LANE
- ⇨ EXIST LANE
- — PROP 6" CURB
- — EXIST ROW
- ⬡X PROP DRIVEWAY NUMBER
- Ⓐ PROP WHEEL CHAIR RAMP
- Ⓑ PROP 5' CONC SIDEWALK
- Ⓒ PROP CONC DRIVEWAY
- Ⓓ PROP 7" JRCP
- Ⓔ PROP 9" JRCP
- Ⓕ ADJUST TO GRADE
- Ⓖ POWER POLE TO BE RELOCATED (BY OTHERS)
- Ⓗ ADJUST TO GRADE/RELOCATE (BY OTHERS)

0 20 40
SCALE IN FEET

N

No.	Date	Revisions	App.

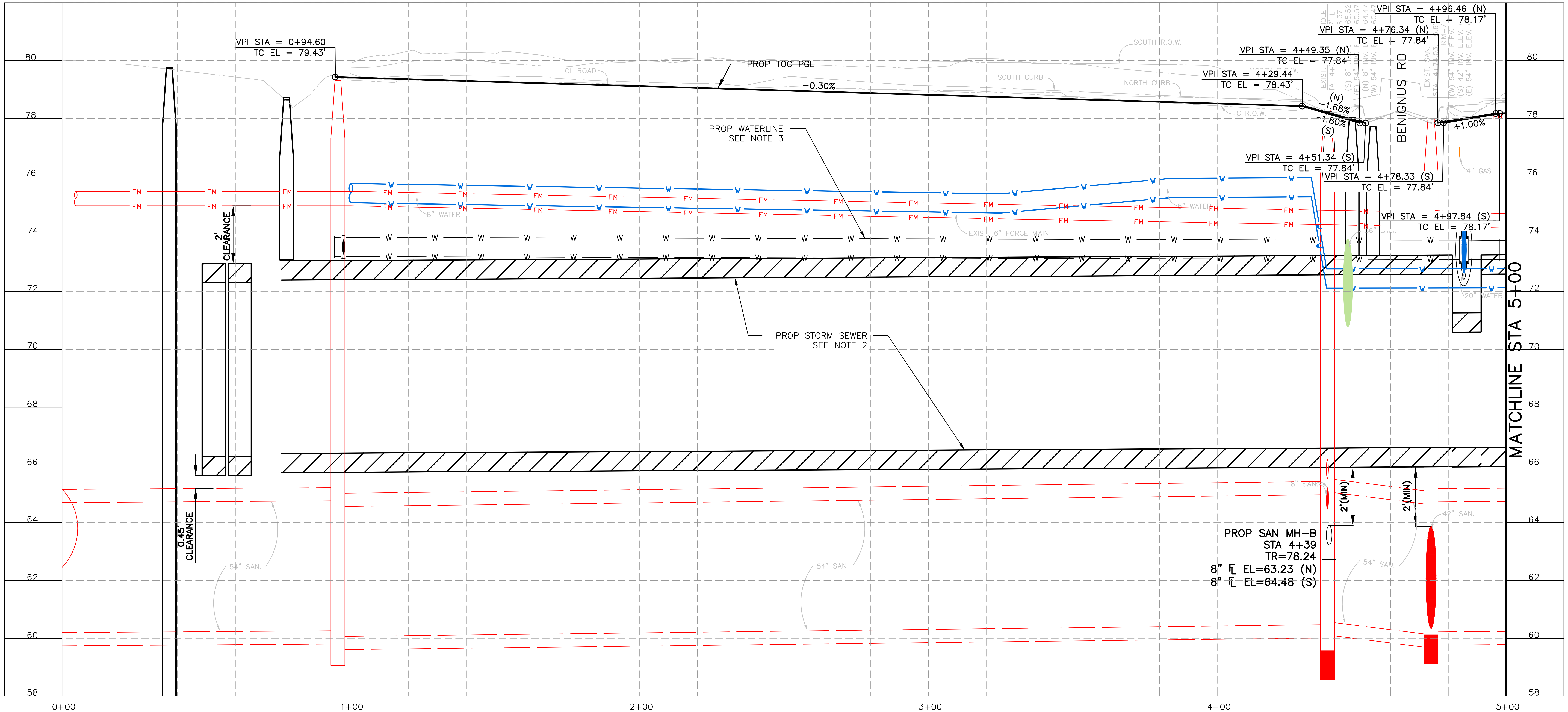
NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION. INCIDENTAL TO WORK. NO SEPARATE PAY.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207–2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.


VPI STA = 0+94.60
TC EL = 79.43'
PROP TOC PGL
-0.30%
PROP WATERLINE
SEE NOTE 3
2' CLEARANCE
PROP STORM SEWER
SEE NOTE 2
0.45' CLEARANCE
VPI STA = 4+29.44
TC EL = 78.43'
VPI STA = 4+49.35 (N)
TC EL = 77.84'
VPI STA = 4+76.34 (N)
TC EL = 77.84'
VPI STA = 4+96.46 (N)
TC EL = 78.17'
(N) -1.68%
-1.80% (S)
+1.00%
VPI STA = 4+51.34 (S)
TC EL = 77.84'
VPI STA = 4+78.33 (S)
TC EL = 77.84'
VPI STA = 4+97.84 (S)
TC EL = 78.17'
BENIGNUS RD
PROP SAN MH-B
STA 4+39
TR=78.24
8" ℄ EL=63.23 (N)
8" ℄ EL=64.48 (S)
2'(MIN)
2'(MIN)
SOUTH R.O.W.
SOUTH CURB
NORTH CURB
CL ROAD
FM
W
8" WATER
EXIST 6" FORCE MAIN
4" GAS
20" WATER
8" SAN
42" SAN
54" SAN
54" SAN
54" SAN
80
78
76
74
72
70
68
66
64
62
60
58
0+00
1+00
2+00
3+00
4+00
5+00
MATCHLINE STA 5+00

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

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CABLE COMPANY — DATE

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HRGreen
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7/31/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY PLAN & PROFILE
KINGSRIDE LANE
BEGIN PROJECT TO STA 5+00

SHEET 1 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

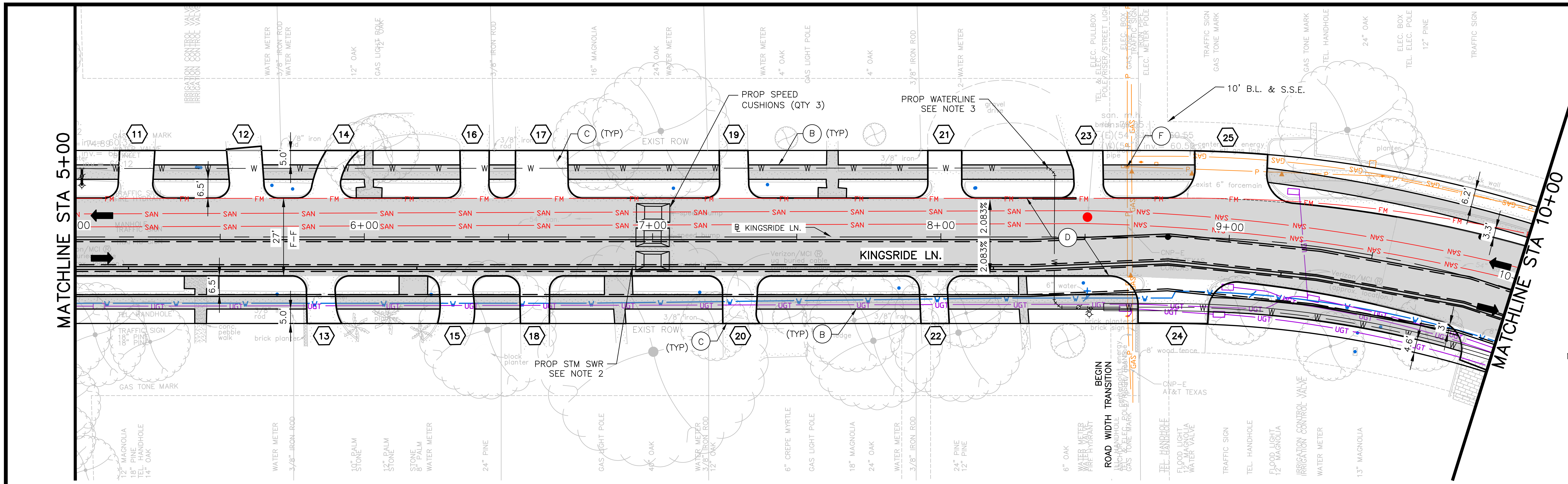
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

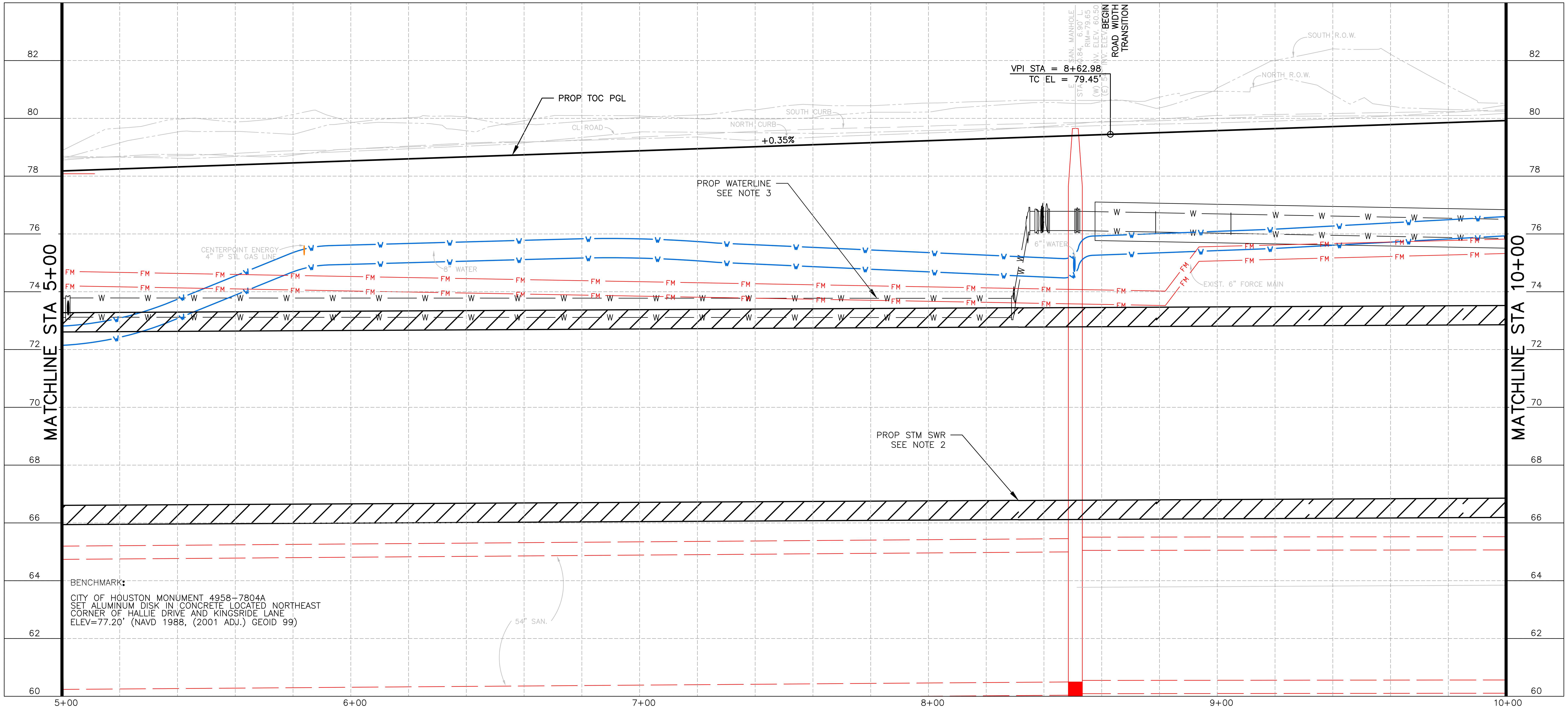
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 100 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 – roadway plans\pp_kingsride_01.dwg Plotted July 30, 2026 at 9:57 AM by Wallace, Shawn


MATCHLINE STA 5+00
MATCHLINE STA 10+00
KINGSRIDE LN.
℄ KINGSRIDE LN.
6+00
7+00
8+00
9+00
PROP SPEED CUSHIONS (QTY 3)
PROP WATERLINE SEE NOTE 3
PROP STM SWR SEE NOTE 2
10' B.L. & S.S.E.
EXIST ROW
BEGIN ROAD WIDTH TRANSITION
27' F-F
6.5'
5.0'
2.083%
6.2'
3.3'
4.6'
11
12
14
16
17
19
21
23
25
13
15
18
20
22
24
C (TYP)
B (TYP)
F
D
SAN
FM
W
UGT
NVS


MATCHLINE STA 5+00
MATCHLINE STA 10+00
VPI STA = 8+62.98
TC EL = 79.45'
PROP TOC PGL
+0.35%
PROP WATERLINE SEE NOTE 3
PROP STM SWR SEE NOTE 2
CENTERPOINT ENERGY 4" IP STL GAS LINE
EXIST. 6" FORCE MAIN
BEGIN ROAD WIDTH TRANSITION
SOUTH R.O.W.
NORTH R.O.W.
SOUTH CURB
NORTH CURB
CL ROAD
54" SAN.
82
80
78
76
74
72
70
68
66
64
62
60
5+00
6+00
7+00
8+00
9+00
10+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

0 20 40
SCALE IN FEET

N

LEGEND

➡	PROP LANE
⇨	EXIST LANE
―	PROP 6" CURB
━	EXIST ROW
X	PROP DRIVEWAY NUMBER
A	PROP WHEEL CHAIR RAMP
B	PROP 5' CONC SIDEWALK
C	PROP CONC DRIVEWAY
D	PROP 7" JRCP
E	PROP 9" JRCP
F	ADJUST TO GRADE
G	POWER POLE TO BE RELOCATED (BY OTHERS)
H	ADJUST TO GRADE/RELOCATE (BY OTHERS)

No.	Date	Revisions	App.

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK, UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
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TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

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CABLE COMPANY — DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
David G. Greaney
07/14/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
KINGSRIDE LANE
STA 5+00 TO STA 10+00

SHEET 2 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

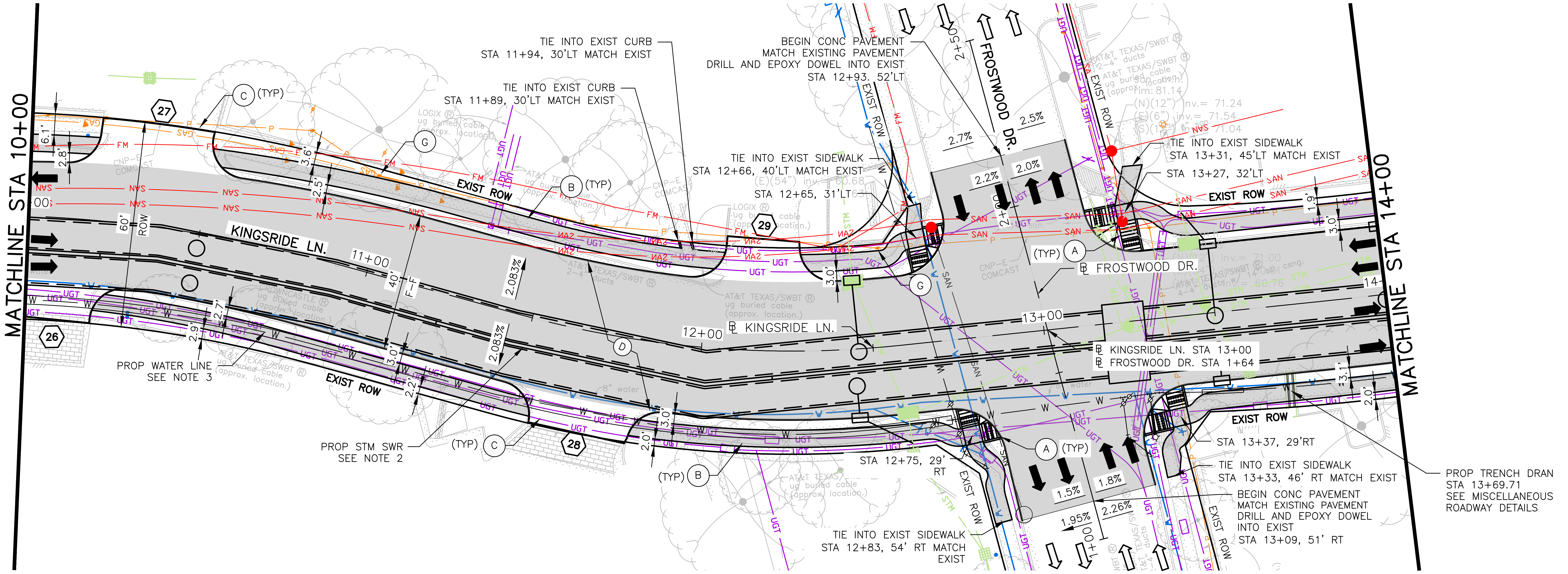
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 101 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\pp_kingsride_02.dwg Plotted July 14, 2026 at 5:09 PM by McCourt, Jeff


MATCHLINE STA 10+00
MATCHLINE STA 14+00
TIE INTO EXIST CURB
STA 11+94, 30'LT MATCH EXIST
TIE INTO EXIST CURB
STA 11+89, 30'LT MATCH EXIST
BEGIN CONC PAVEMENT
MATCH EXISTING PAVEMENT
DRILL AND EPOXY DOWEL INTO EXIST
STA 12+93. 52'LT
TIE INTO EXIST SIDEWALK
STA 12+66, 40'LT MATCH EXIST
STA 12+65, 31'LT
FROSTWOOD DR.
2+50
2+00
1+00
2.7%
2.5%
2.2%
2.0%
TIE INTO EXIST SIDEWALK
STA 13+31, 45'LT MATCH EXIST
STA 13+27, 32'LT
EXIST ROW
1.9'
3.0'
14+
KINGSRIDE LN.
11+00
12+00
13+00
℄ KINGSRIDE LN.
℄ FROSTWOOD DR.
℄ KINGSRIDE LN. STA 13+00
℄ FROSTWOOD DR. STA 1+64
(TYP) A
A (TYP)
B (TYP)
(TYP) B
C (TYP)
(TYP) C
D
G
27
28
29
26
2.083%
40'
F–F
60'
ROW
6.1'
2.8'
3.6'
2.5'
2.7'
2.9'
3.0'
2.2'
2.0'
3.1'
PROP WATER LINE
SEE NOTE 3
PROP STM SWR
SEE NOTE 2
STA 12+75, 29' RT
TIE INTO EXIST SIDEWALK
STA 12+83, 54' RT MATCH EXIST
1.5%
1.8%
1.95%
2.26%
STA 13+37, 29'RT
TIE INTO EXIST SIDEWALK
STA 13+33, 46' RT MATCH EXIST
BEGIN CONC PAVEMENT
MATCH EXISTING PAVEMENT
DRILL AND EPOXY DOWEL
INTO EXIST
STA 13+09, 51' RT
PROP TRENCH DRAN
STA 13+69.71
SEE MISCELLANEOUS
ROADWAY DETAILS
FM
SAN
UGT
W
STM
P
AT&T TEXAS/SWBT ®
ug buried cable
(approx. location.)
LOGIX ®
CNP–E
COMCAST

0 20 40
SCALE IN FEET

LEGEND

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
X	PROP DRIVEWAY NUMBER
A	PROP WHEEL CHAIR RAMP
B	PROP 5' CONC SIDEWALK
C	PROP CONC DRIVEWAY
D	PROP 7" JRCP
E	PROP 9" JRCP
F	ADJUST TO GRADE
G	POWER POLE TO BE RELOCATED (BY OTHERS)
H	ADJUST TO GRADE/RELOCATE (BY OTHERS)

N

No.	Date	Revisions	App.

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK, UNLESS OTHERWISE NOTED.
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3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.

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NOTICE:

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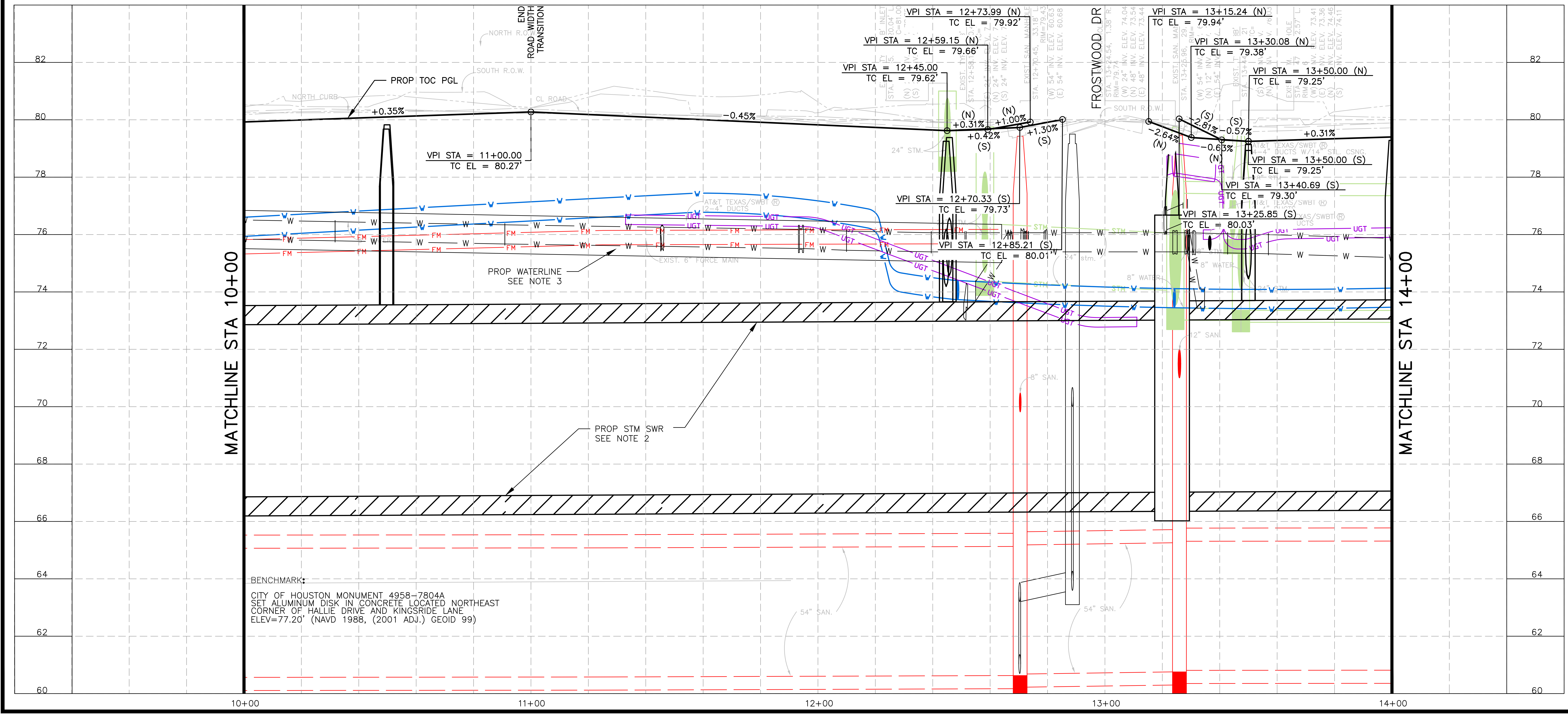
MATCHLINE STA 10+00
MATCHLINE STA 14+00
82
80
78
76
74
72
70
68
66
64
62
60
10+00
11+00
12+00
13+00
14+00
END ROAD WIDTH TRANSITION
PROP TOC PGL
+0.35%
-0.45%
VPI STA = 11+00.00
TC EL = 80.27'
VPI STA = 12+73.99 (N)
TC EL = 79.92'
VPI STA = 12+59.15 (N)
TC EL = 79.66'
VPI STA = 12+45.00
TC EL = 79.62'
(N) +0.31%
(N) +1.00%
+0.42% (S)
+1.30% (S)
VPI STA = 12+70.33 (S)
TC EL = 79.73'
VPI STA = 12+85.21 (S)
TC EL = 80.01'
FROSTWOOD DR
SOUTH R.O.W.
VPI STA = 13+15.24 (N)
TC EL = 79.94'
VPI STA = 13+30.08 (N)
TC EL = 79.38'
VPI STA = 13+50.00 (N)
TC EL = 79.25'
-2.64% (N)
(S) -2.81%
(S) -0.57%
-0.63% (N)
+0.31%
VPI STA = 13+50.00 (S)
TC EL = 79.25'
VPI STA = 13+40.69 (S)
TC EL = 79.30'
VPI STA = 13+25.85 (S)
TC EL = 80.03'
PROP WATERLINE
SEE NOTE 3
PROP STM SWR
SEE NOTE 2
NORTH CURB
SOUTH R.O.W.
CL ROAD
NORTH R.O.W.
24" STM.
24" stm.
8" WATER
8" STM.
24" STM.
EXIST. 8" FORCE MAIN
AT&T TEXAS/SWBT ®
4–4" DUCTS W/14" STL. CSNG.
12" SAN.
8" SAN.
54" SAN.
W
FM
UGT
STM

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
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CABLE COMPANY DATE

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE

KINGSRIDE LANE
STA 10+00 TO STA 14+00

SHEET 3 OF 6

WBS NO. M–430296–0017–3

DRAWING SCALE

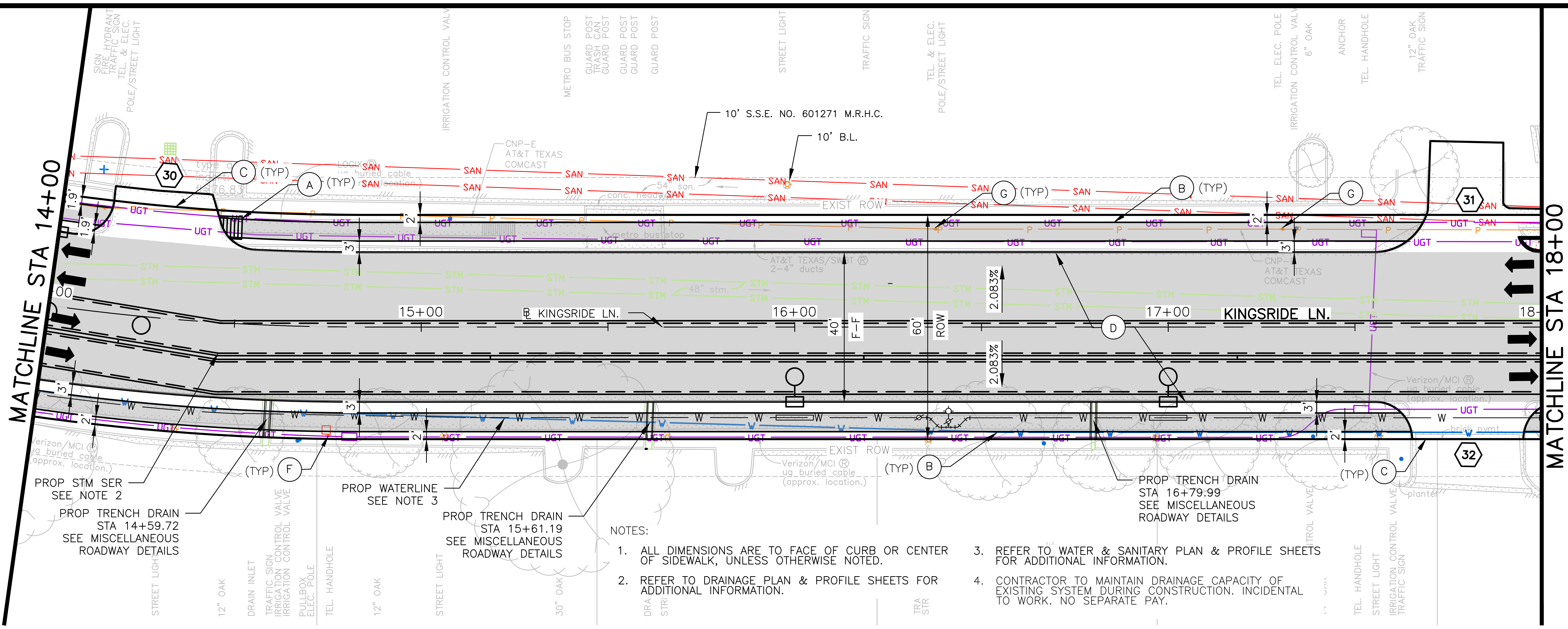
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

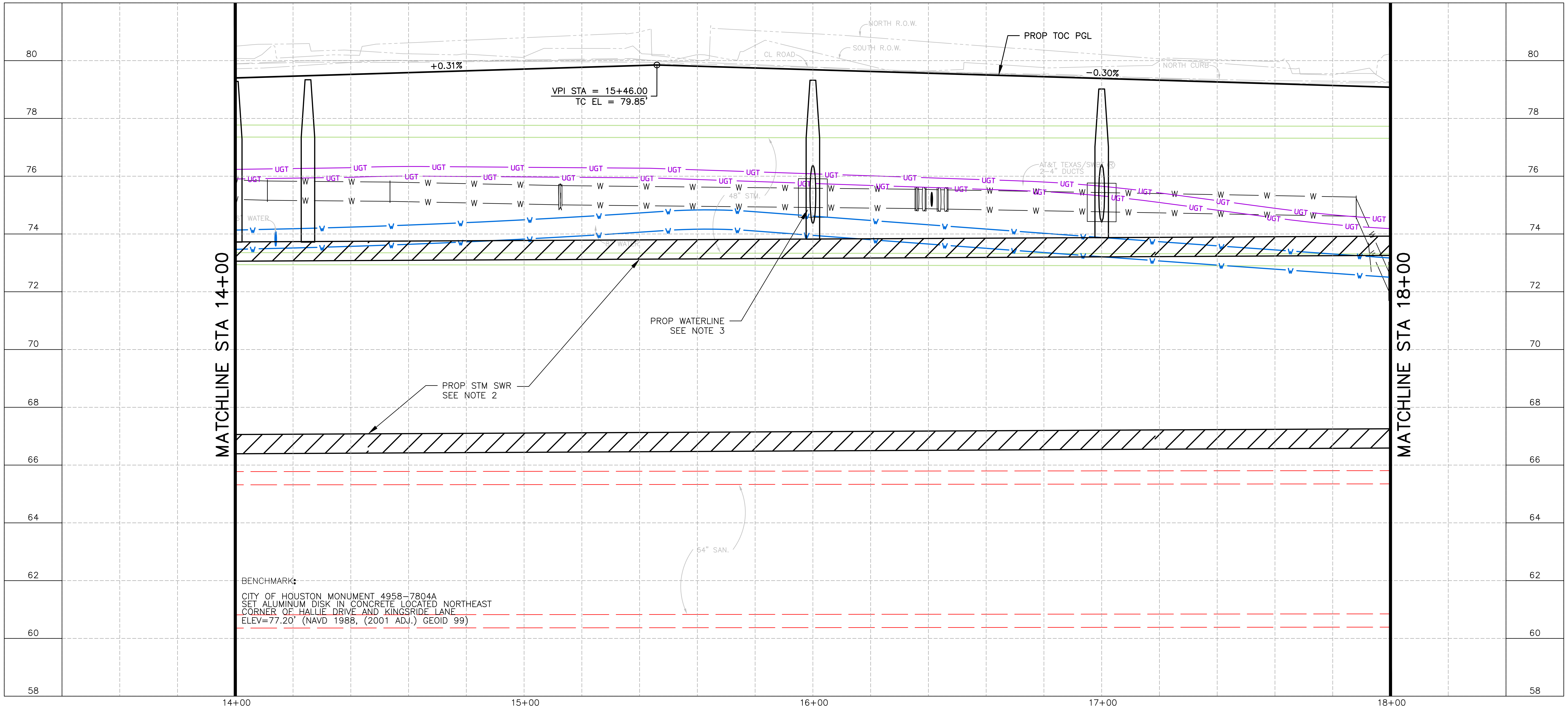
SHEET NO. 102 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 – roadway plans\pp_kingsride_03.dwg Plotted July 14, 2026 at 5:09 PM by McCourt, Jeff


MATCHLINE STA 14+00
MATCHLINE STA 18+00
10' S.S.E. NO. 601271 M.R.H.C.
10' B.L.
EXIST ROW
KINGSRIDE LN.
15+00
16+00
17+00
18
40' F-F
60' ROW
2.083%
2.083%
30
31
32
C (TYP)
A (TYP)
G (TYP)
B (TYP)
G
D
(TYP) F
(TYP) B
(TYP) C
SAN
UGT
STM
W
PROP STM SER
SEE NOTE 2
PROP TRENCH DRAIN
STA 14+59.72
SEE MISCELLANEOUS
ROADWAY DETAILS
PROP WATERLINE
SEE NOTE 3
PROP TRENCH DRAIN
STA 15+61.19
SEE MISCELLANEOUS
ROADWAY DETAILS
PROP TRENCH DRAIN
STA 16+79.99
SEE MISCELLANEOUS
ROADWAY DETAILS
Verizon/MCI ug buried cable (approx. location.)
AT&T TEXAS/SWBT 2-4" ducts
CNP-E AT&T TEXAS COMCAST
48" stm.
54" san.
STREET LIGHT
TRAFFIC SIGN
TEL. HANDHOLE
12" OAK
30" OAK
IRRIGATION CONTROL VALVE
METRO BUS STOP
GUARD POST
DRAIN INLET

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK, UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION. INCIDENTAL TO WORK. NO SEPARATE PAY.


80
78
76
74
72
70
68
66
64
62
60
58
MATCHLINE STA 14+00
MATCHLINE STA 18+00
PROP TOC PGL
+0.31%
-0.30%
VPI STA = 15+46.00
TC EL = 79.85'
NORTH R.O.W.
SOUTH R.O.W.
CL ROAD
NORTH CURB
UGT
W
WATER
AT&T TEXAS/SWBT 2-4" DUCTS
48" STM.
54" SAN.
PROP WATERLINE
SEE NOTE 3
PROP STM SWR
SEE NOTE 2
14+00
15+00
16+00
17+00
18+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

0 20 40
SCALE IN FEET

N

LEGEND

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
Ⓧ	PROP DRIVEWAY NUMBER
Ⓐ	PROP WHEEL CHAIR RAMP
Ⓑ	PROP 5' CONC SIDEWALK
Ⓒ	PROP CONC DRIVEWAY
Ⓓ	PROP 7" JRCP
Ⓔ	PROP 9" JRCP
Ⓕ	ADJUST TO GRADE
Ⓖ	POWER POLE TO BE RELOCATED (BY OTHERS)
Ⓗ	ADJUST TO GRADE/RELOCATE (BY OTHERS)

No.	Revisions	Date	App.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

CABLE COMPANY — DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
07/14/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
KINGSRIDE LANE
STA 14+00 TO STA 18+00

SHEET 4 OF 6

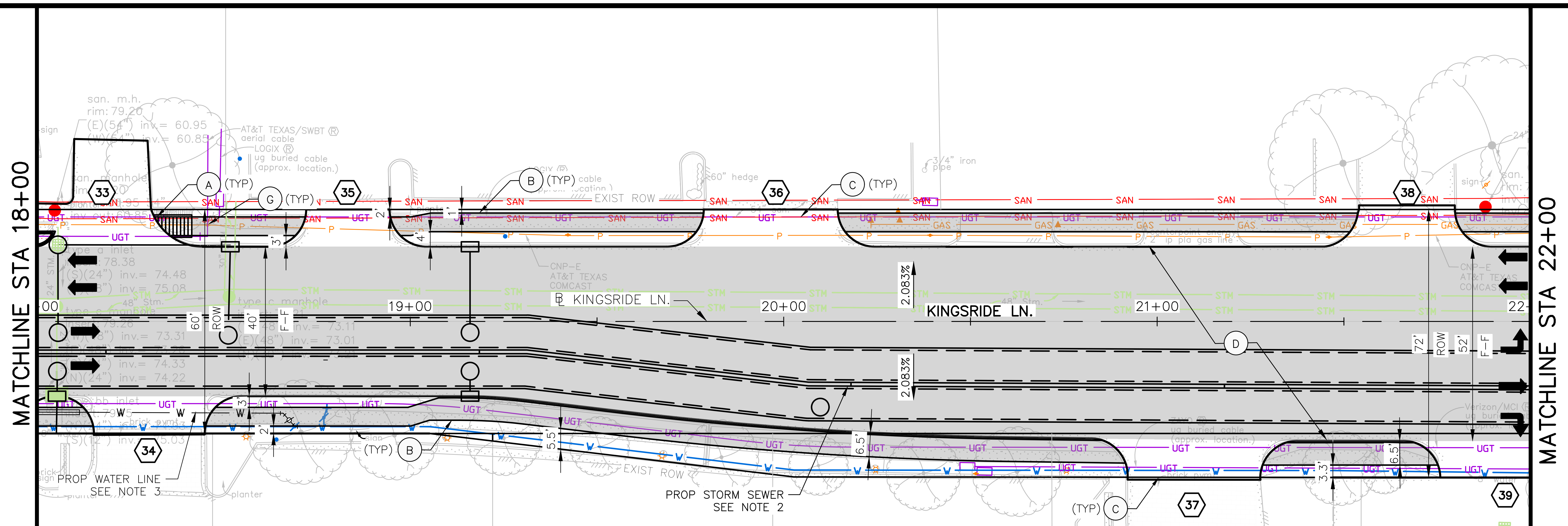
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 103 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\pp_kingsride_04.dwg Plotted July 14, 2026 at 5:10 PM by McCourt, Jeff


MATCHLINE STA 18+00
MATCHLINE STA 22+00
19+00
20+00
21+00
KINGSRIDE LN.
℄ KINGSRIDE LN.
33
34
35
36
37
38
39
A (TYP)
B (TYP)
C (TYP)
G (TYP)
D
2.083%
ROW
F-F
60'
40'
72'
52'
EXIST ROW
PROP WATER LINE SEE NOTE 3
PROP STORM SEWER SEE NOTE 2

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK, UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION. INCIDENTAL TO WORK. NO SEPARATE PAY.

0 20 40
SCALE IN FEET

N

LEGEND

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
X	PROP DRIVEWAY NUMBER
A	PROP WHEEL CHAIR RAMP
B	PROP 5' CONC SIDEWALK
C	PROP CONC DRIVEWAY
D	PROP 7" JRCP
E	PROP 9" JRCP
F	ADJUST TO GRADE
G	POWER POLE TO BE RELOCATED (BY OTHERS)
H	ADJUST TO GRADE/RELOCATE (BY OTHERS)

No.	Revisions	Date	App

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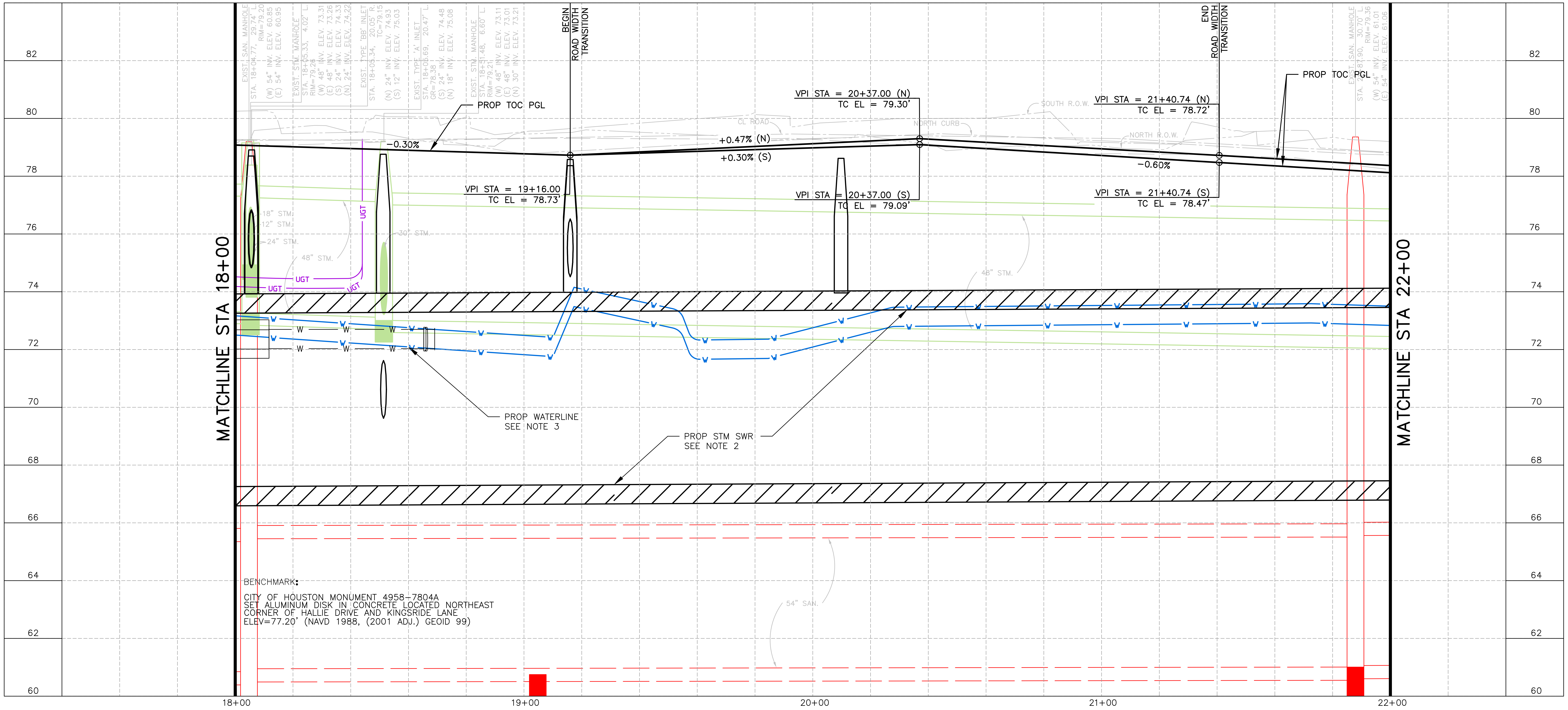
MATCHLINE STA 18+00
MATCHLINE STA 22+00
BEGIN ROAD WIDTH TRANSITION
END ROAD WIDTH TRANSITION
PROP TOC PGL
-0.30%
+0.47% (N)
+0.30% (S)
-0.60%
VPI STA = 19+16.00
TC EL = 78.73'
VPI STA = 20+37.00 (N)
TC EL = 79.30'
VPI STA = 20+37.00 (S)
TC EL = 79.09'
VPI STA = 21+40.74 (N)
TC EL = 78.72'
VPI STA = 21+40.74 (S)
TC EL = 78.47'
PROP WATERLINE SEE NOTE 3
PROP STM SWR SEE NOTE 2
82
80
78
76
74
72
70
68
66
64
62
60
18+00
19+00
20+00
21+00
22+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS DATE

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CABLE COMPANY DATE

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HRGreen
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DAVID G. GREANEY
125563
07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
KINGSRIDE LANE
STA 18+00 TO STA 22+00

SHEET 5 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

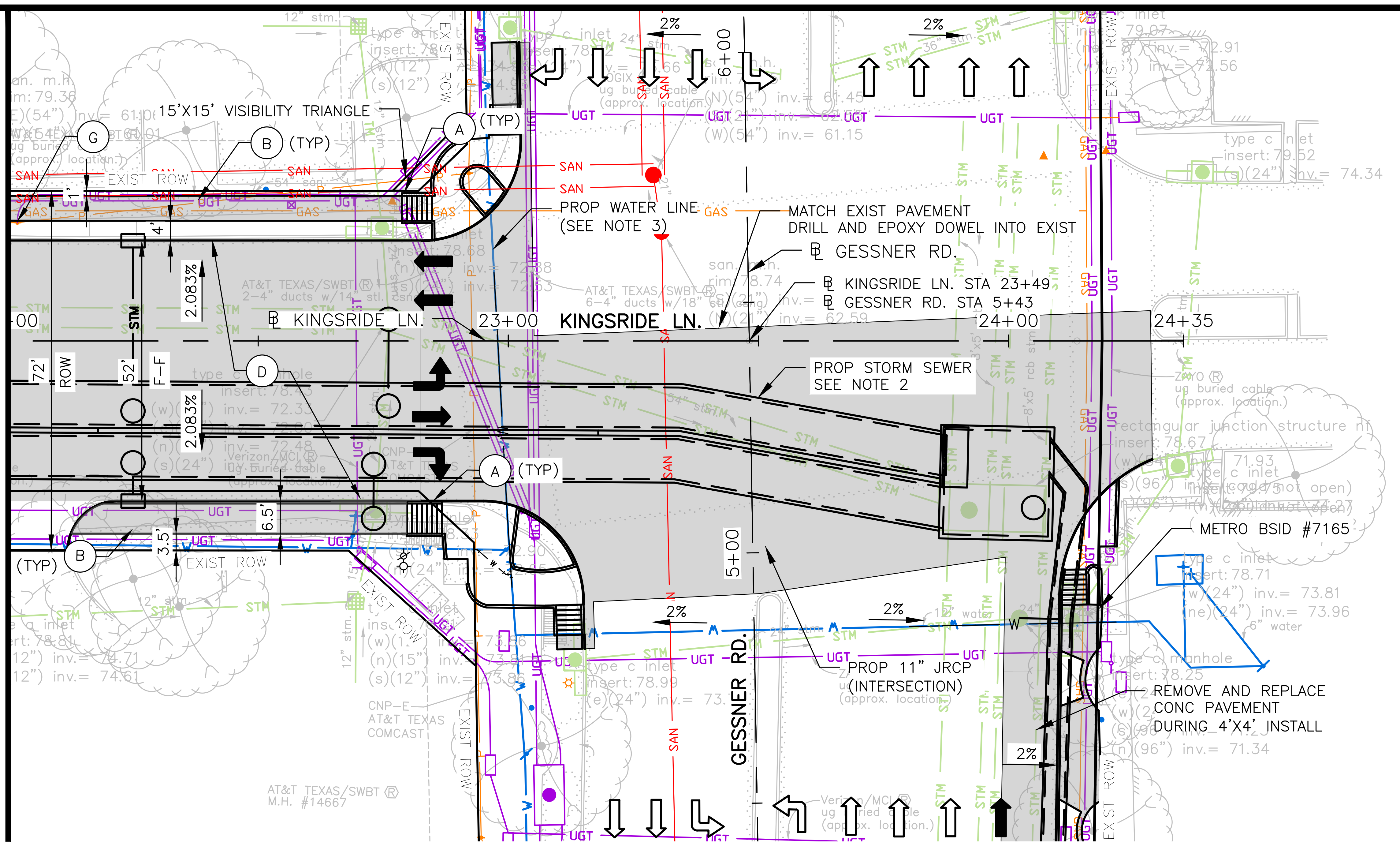
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 104 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\pp_kingsride_05.dwg Plotted July 14, 2026 at 5:08 PM by McCourt, Jeff


MATCHLINE STA 22+00
15'X15' VISIBILITY TRIANGLE
PROP WATER LINE (SEE NOTE 3)
MATCH EXIST PAVEMENT DRILL AND EPOXY DOWEL INTO EXIST
℄ GESSNER RD.
℄ KINGSRIDE LN. STA 23+49
℄ GESSNER RD. STA 5+43
℄ KINGSRIDE LN.
23+00 KINGSRIDE LN.
24+00
24+35
PROP STORM SEWER SEE NOTE 2
METRO BSID #7165
PROP 11" JRCP (INTERSECTION)
REMOVE AND REPLACE CONC PAVEMENT DURING 4'X4' INSTALL
GESSNER RD.
5+00
6+00
EXIST ROW
72' ROW
52' F-F
2.083%
2%
(TYP)

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK, UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION. INCIDENTAL TO WORK. NO SEPARATE PAY.

0 20 40
SCALE IN FEET

N

LEGEND

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
X	PROP DRIVEWAY NUMBER
A	PROP WHEEL CHAIR RAMP
B	PROP 5' CONC SIDEWALK
C	PROP CONC DRIVEWAY
D	PROP 7" JRCP
E	PROP 9" JRCP
F	ADJUST TO GRADE
G	POWER POLE TO BE RELOCATED (BY OTHERS)
H	ADJUST TO GRADE/RELOCATE (BY OTHERS)

No.	Date	Revisions	App.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

NOTICE:

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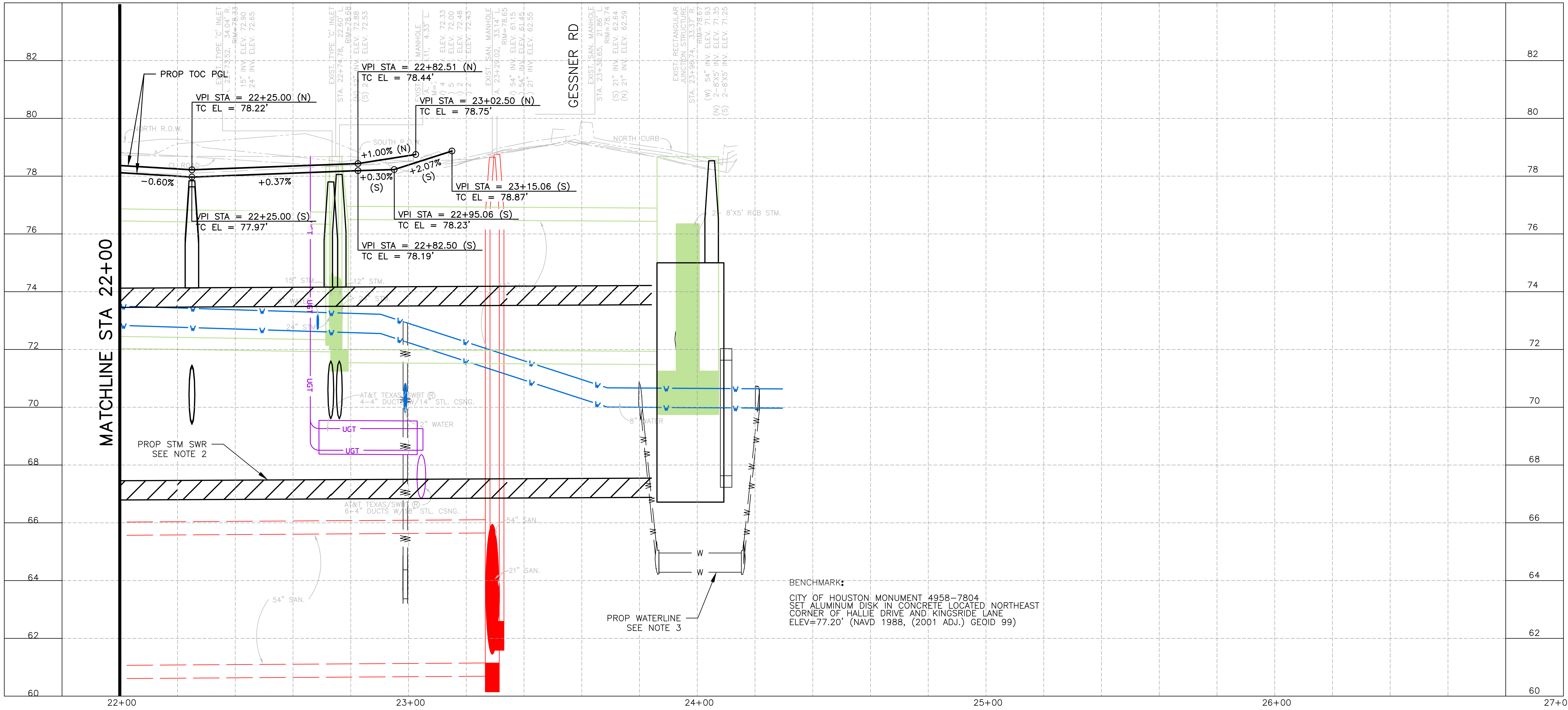
MATCHLINE STA 22+00
PROP TOC PGL
VPI STA = 22+25.00 (N)
TC EL = 78.22'
VPI STA = 22+82.51 (N)
TC EL = 78.44'
VPI STA = 23+02.50 (N)
TC EL = 78.75'
-0.60%
+0.37%
+1.00% (N)
+0.30% (S)
+2.07% (S)
VPI STA = 23+15.06 (S)
TC EL = 78.87'
VPI STA = 22+25.00 (S)
TC EL = 77.97'
VPI STA = 22+95.06 (S)
TC EL = 78.23'
VPI STA = 22+82.50 (S)
TC EL = 78.19'
GESSNER RD
PROP STM SWR SEE NOTE 2
PROP WATERLINE SEE NOTE 3
8'X5' RCB STM.
54" SAN.
21" SAN.
AT&T TEXAS/SWBT 4-4" DUCTS W/14" STL. CSNG.
AT&T TEXAS/SWBT 6-4" DUCTS W/16" STL. CSNG.
82
80
78
76
74
72
70
68
66
64
62
60
22+00
23+00
24+00
25+00
26+00
27+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
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SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
SIGNATURE VALID FOR ONE YEAR.

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
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SIGNATURE VALID FOR SIX MONTHS.

CABLE COMPANY DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
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PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
David G. Greaney
07/14/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
KINGSRIDE LANE
STA 22+00 TO END PROJECT

SHEET 6 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22"X36")
V: 1"=2' (22"X36")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 105 OF 345

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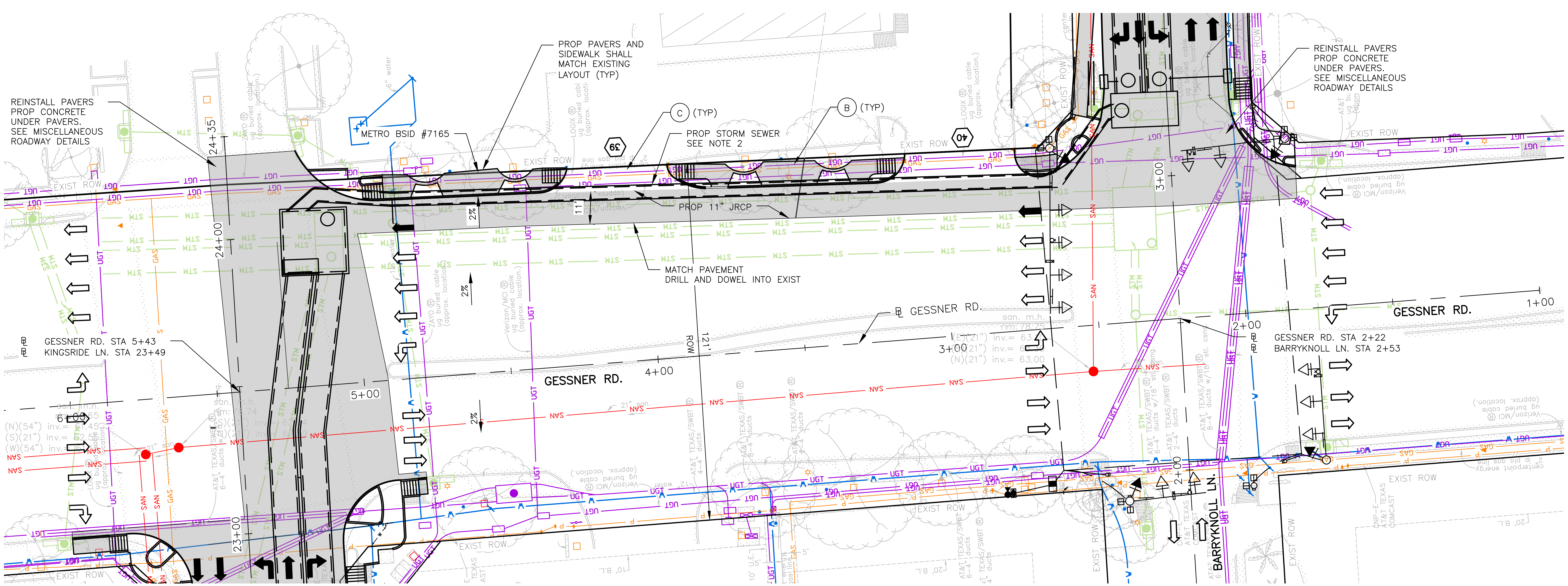
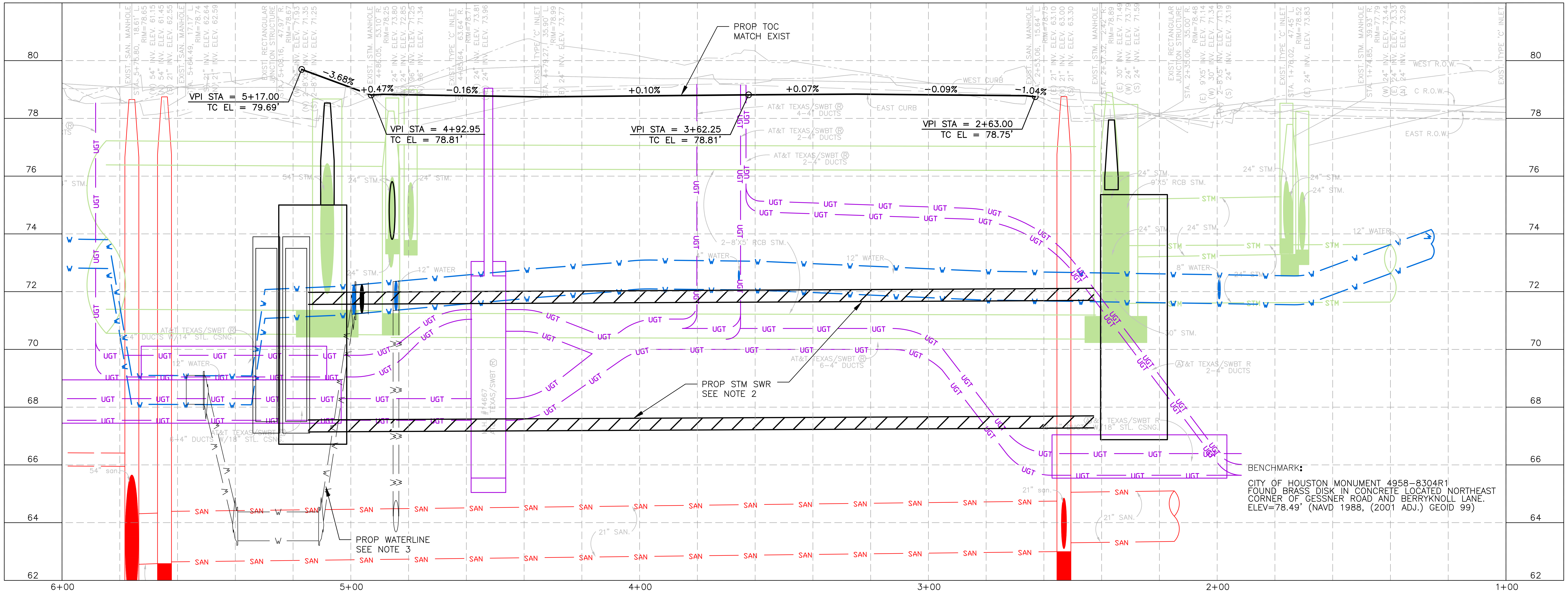


REINSTALL PAVERS
PROP CONCRETE
UNDER PAVERS.
SEE MISCELLANEOUS
ROADWAY DETAILS
PROP PAVERS AND
SIDEWALK SHALL
MATCH EXISTING
LAYOUT (TYP)
METRO BSID #7165
C (TYP)
B (TYP)
39
40
PROP STORM SEWER
SEE NOTE 2
PROP 11" JRCP
MATCH PAVEMENT
DRILL AND DOWEL INTO EXIST
EXIST ROW
24+35
24+00
23+00
GESSNER RD. STA 5+43
KINGSRIDE LN. STA 23+49
GESSNER RD.
6+00
5+00
4+00
3+00
2+00
1+00
ROW
121'
℄ GESSNER RD.
GESSNER RD. STA 2+22
BARRYKNOLL LN. STA 2+53
BARRYKNOLL LN.
REINSTALL PAVERS
PROP CONCRETE
UNDER PAVERS.
SEE MISCELLANEOUS
ROADWAY DETAILS
2%



80
78
76
74
72
70
68
66
64
62
PROP TOC
MATCH EXIST
VPI STA = 5+17.00
TC EL = 79.69'
-3.68%
+0.47%
-0.16%
VPI STA = 4+92.95
TC EL = 78.81'
+0.10%
VPI STA = 3+62.25
TC EL = 78.81'
+0.07%
-0.09%
VPI STA = 2+63.00
TC EL = 78.75'
-1.04%
PROP STM SWR
SEE NOTE 2
PROP WATERLINE
SEE NOTE 3
6+00
5+00
4+00
3+00
2+00
1+00

BENCHMARK:
CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

0 20 40
SCALE IN FEET

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
X	PROP DRIVEWAY NUMBER
A	PROP WHEEL CHAIR RAMP
B	PROP 5' CONC SIDEWALK
C	PROP CONC DRIVEWAY
D	PROP 7" JRCP
E	PROP 9" JRCP
F	ADJUST TO GRADE
G	POWER POLE TO BE RELOCATED (BY OTHERS)
H	ADJUST TO GRADE/RELOCATE (BY OTHERS)

N

No.	Date	Revisions	App.

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION. INCIDENTAL TO WORK. NO SEPARATE PAY.

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NOTICE:

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VERIFICATION OF PRIVATE UTILITY LINES

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CABLE COMPANY DATE

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
GESSNER ROAD
STA 1+00 TO STA 6+00

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 106 OF 345

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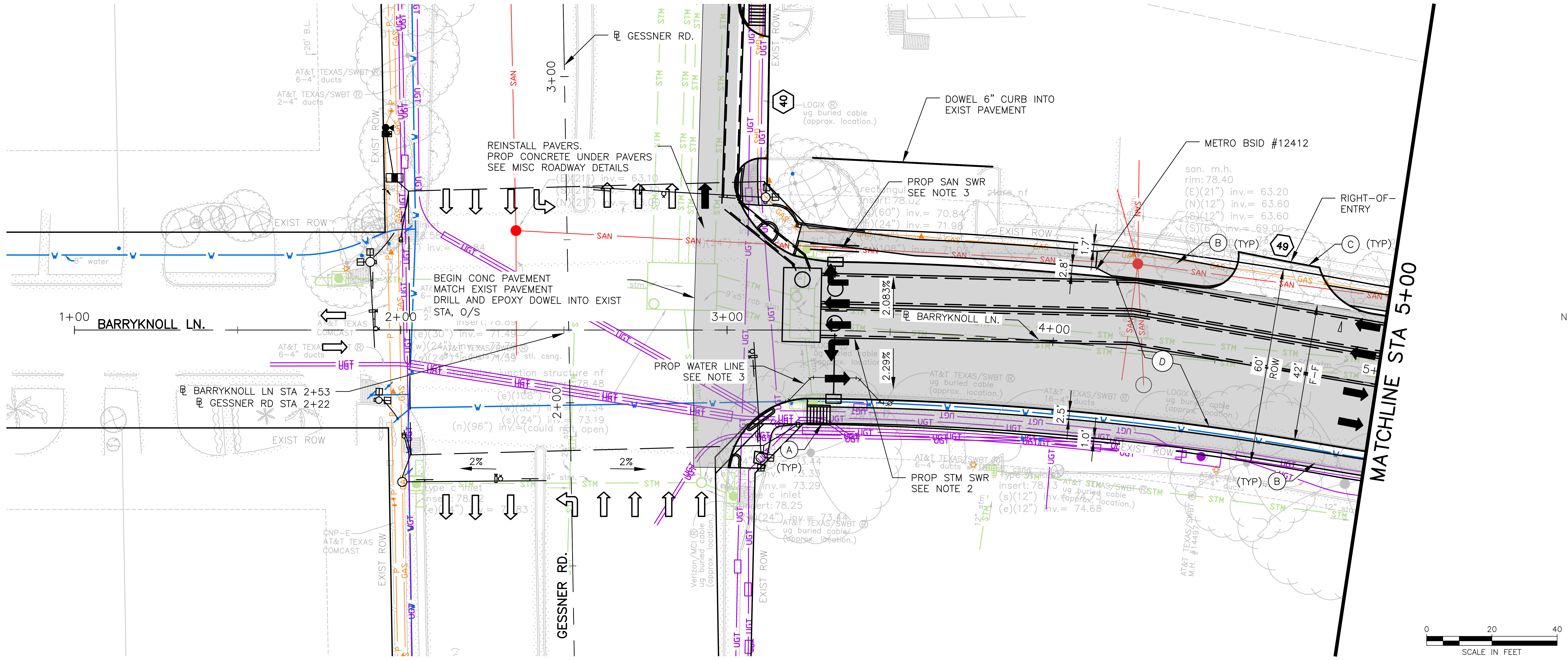
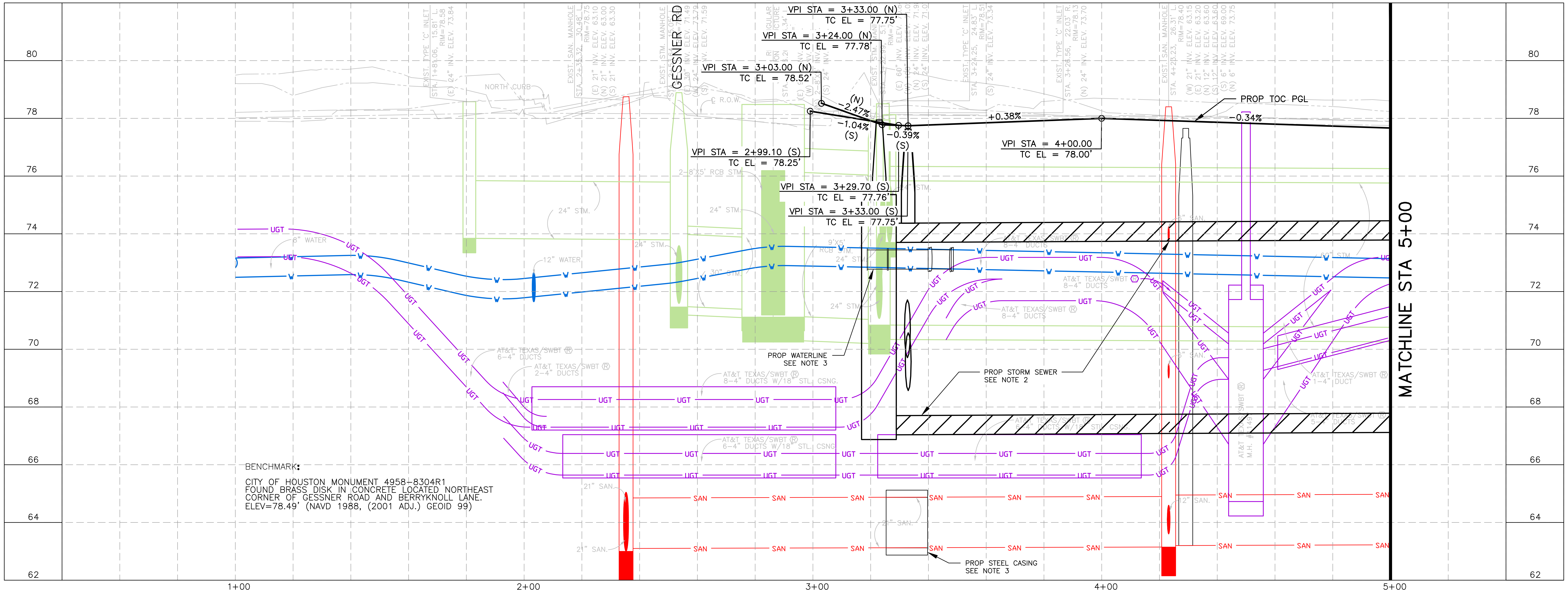


℄ GESSNER RD.
3+00
LOGIX ® ug buried cable (approx. location.)
DOWEL 6" CURB INTO EXIST PAVEMENT
40
METRO BSID #12412
REINSTALL PAVERS. PROP CONCRETE UNDER PAVERS SEE MISC ROADWAY DETAILS
PROP SAN SWR SEE NOTE 3
RIGHT-OF-ENTRY
B (TYP)
49
C (TYP)
EXIST ROW
BEGIN CONC PAVEMENT MATCH EXIST PAVEMENT DRILL AND EPOXY DOWEL INTO EXIST STA. O/S
1+00
BARRYKNOLL LN.
2+00
3+00
℄ BARRYKNOLL LN.
4+00
2.083%
2.29%
60' ROW
42' F-F
PROP WATER LINE SEE NOTE 3
℄ BARRYKNOLL LN STA 2+53
℄ GESSNER RD STA 2+22
EXIST ROW
2%
2%
A (TYP)
D
PROP STM SWR SEE NOTE 2
(TYP) B
GESSNER RD.
MATCHLINE STA 5+00
0 20 40
SCALE IN FEET



80
78
76
74
72
70
68
66
64
62
GESSNER RD
VPI STA = 3+33.00 (N)
TC EL = 77.75'
VPI STA = 3+24.00 (N)
TC EL = 77.78'
VPI STA = 3+03.00 (N)
TC EL = 78.52'
(N) -2.47%
-1.04% (S)
-0.39% (S)
+0.38%
PROP TOC PGL
-0.34%
VPI STA = 2+99.10 (S)
TC EL = 78.25'
VPI STA = 4+00.00
TC EL = 78.00'
VPI STA = 3+29.70 (S)
TC EL = 77.76'
VPI STA = 3+33.00 (S)
TC EL = 77.75'
PROP WATERLINE SEE NOTE 3
PROP STORM SEWER SEE NOTE 2
PROP STEEL CASING SEE NOTE 3
MATCHLINE STA 5+00
1+00
2+00
3+00
4+00
5+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
⬡X	PROP DRIVEWAY NUMBER
Ⓐ	PROP WHEEL CHAIR RAMP
Ⓑ	PROP 5' CONC SIDEWALK
Ⓒ	PROP CONC DRIVEWAY
Ⓓ	PROP 7" JRCP
Ⓔ	PROP 9" JRCP
Ⓕ	ADJUST TO GRADE
Ⓖ	POWER POLE TO BE RELOCATED (BY OTHERS)
Ⓗ	ADJUST TO GRADE/RELOCATE (BY OTHERS)

N

No.	Date	Revisions	App.

NOTES:

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2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION. INCIDENTAL TO WORK. NO SEPARATE PAY.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

NOTICE:

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VERIFICATION OF PRIVATE UTILITY LINES

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CABLE COMPANY — DATE

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125563
David G. Greaney
07/14/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
BARRYKNOLL LANE
STA 1+00 TO STA 5+00

SHEET 1 OF 4

WBS NO. M-430296-0017-3

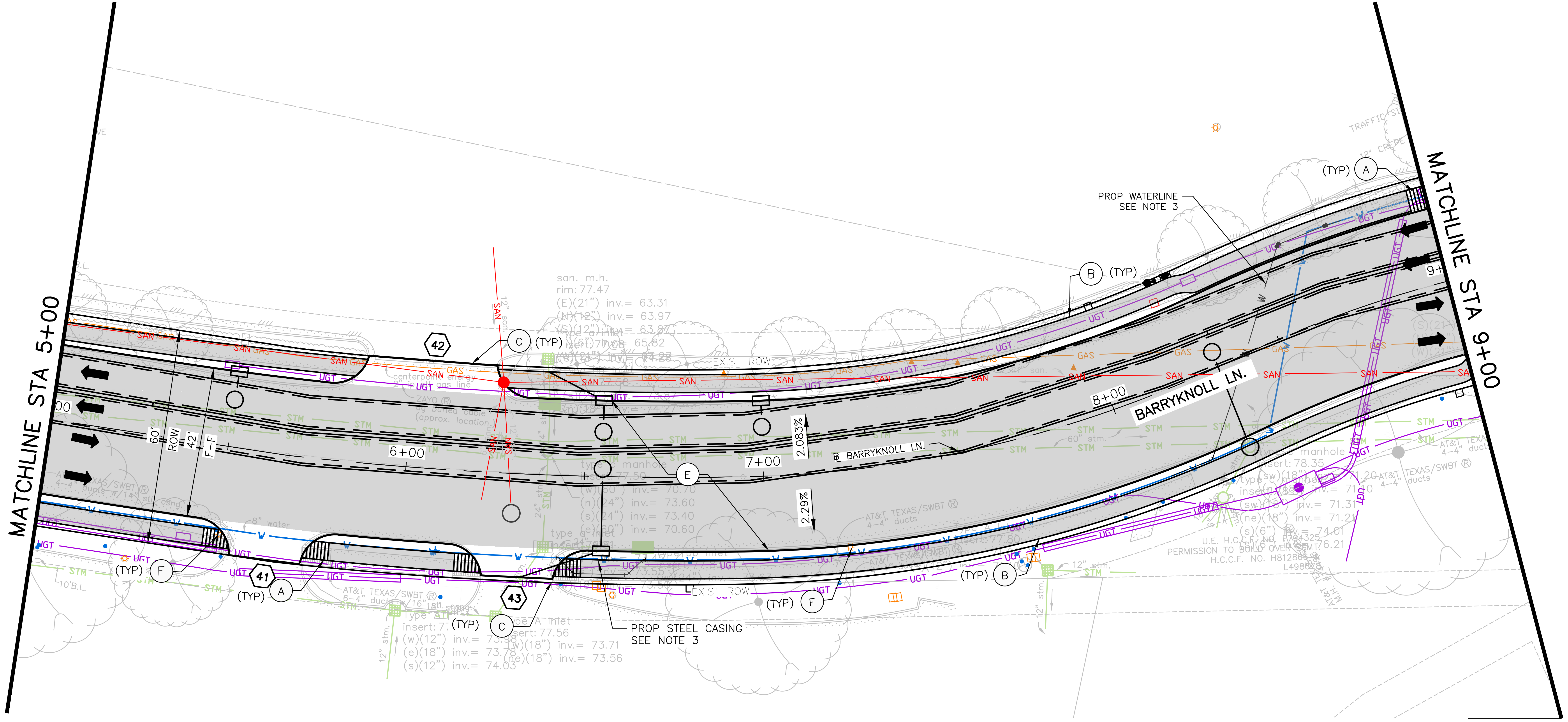
DRAWING SCALE

H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 107 OF 345


MATCHLINE STA 5+00
MATCHLINE STA 9+00
BARRYKNOLL LN.
℄ BARRYKNOLL LN.
6+00
7+00
8+00
9+
60'
ROW
42'
F-F
2.083%
2.29%
42
41
43
(TYP) A
(TYP) B
(TYP) C
(TYP) E
(TYP) F
PROP WATERLINE
SEE NOTE 3
PROP STEEL CASING
SEE NOTE 3
EXIST ROW
SAN
UGT
STM
GAS
san. m.h.
rim: 77.47
(E)(21") inv.= 63.31
(N)(12") inv.= 63.97
(S)(12") inv.= 63.87
(W)(21") inv.= 63.23
(n)(24") inv.= 73.60
(s)(24") inv.= 73.40
(e)(60") inv.= 70.60
(w)(12") inv.=
(e)(18") inv.= 73.71
(s)(12") inv.= 74.03
(e)(18") inv.= 73.56
AT&T TEXAS/SWBT ®
4-4" ducts
U.E. H.C.C.F. NO. L784325
PERMISSION TO BOND OVER
H.C.C.F. NO. H812886
TRAFFIC SIGN

LEGEND

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
X	PROP DRIVEWAY NUMBER
A	PROP WHEEL CHAIR RAMP
B	PROP 5' CONC SIDEWALK
C	PROP CONC DRIVEWAY
D	PROP 7" JRCP
E	PROP 9" JRCP
F	ADJUST TO GRADE
G	POWER POLE TO BE RELOCATED (BY OTHERS)
H	ADJUST TO GRADE/RELOCATE (BY OTHERS)

0 20 40
SCALE IN FEET

N

No.	Date	Revisions	App.

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CABLE COMPANY — DATE

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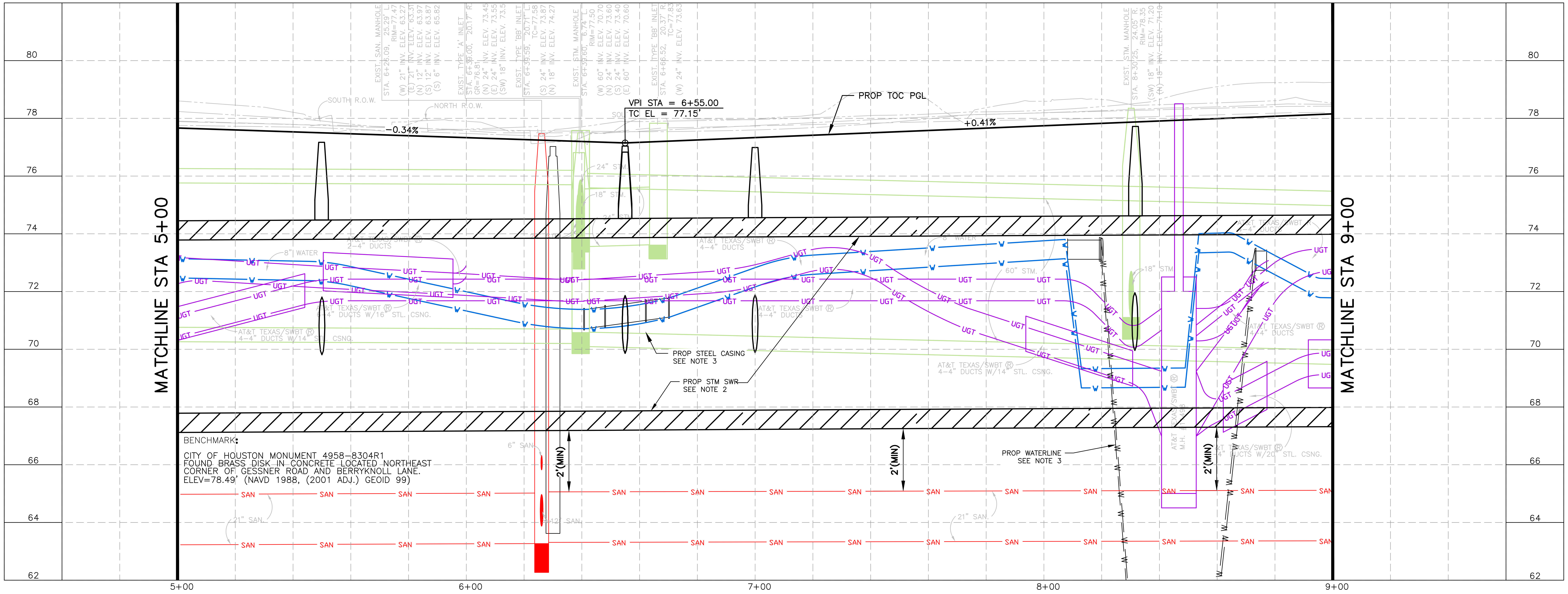
MATCHLINE STA 5+00
MATCHLINE STA 9+00
80
78
76
74
72
70
68
66
64
62
5+00
6+00
7+00
8+00
9+00
VPI STA = 6+55.00
TC EL = 77.15'
PROP TOC PGL
-0.34%
+0.41%
SOUTH R.O.W.
NORTH R.O.W.
PROP STEEL CASING
SEE NOTE 3
PROP STM SWR
SEE NOTE 2
PROP WATERLINE
SEE NOTE 3
2'(MIN)
2'(MIN)
2'(MIN)
8" WATER
AT&T TEXAS/SWBT ®
4-4" DUCTS W/14" STL. CSNG.
UGT
SAN
6" SAN
21" SAN
60" STM
18" STM
24" STM

BENCHMARK:
CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
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STATE OF TEXAS
DAVID G. GREANEY
125563
LICENSED PROFESSIONAL ENGINEER
David G. Greaney
07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

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CITY OF HOUSTON

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
BARRKNOLL LANE
STA 5+00 TO STA 9+00

SHEET 2 OF 4

WBS NO. M-430296-0017-3	
DRAWING SCALE	
H: 1"=20' (22"X34") V: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 108 OF 345	

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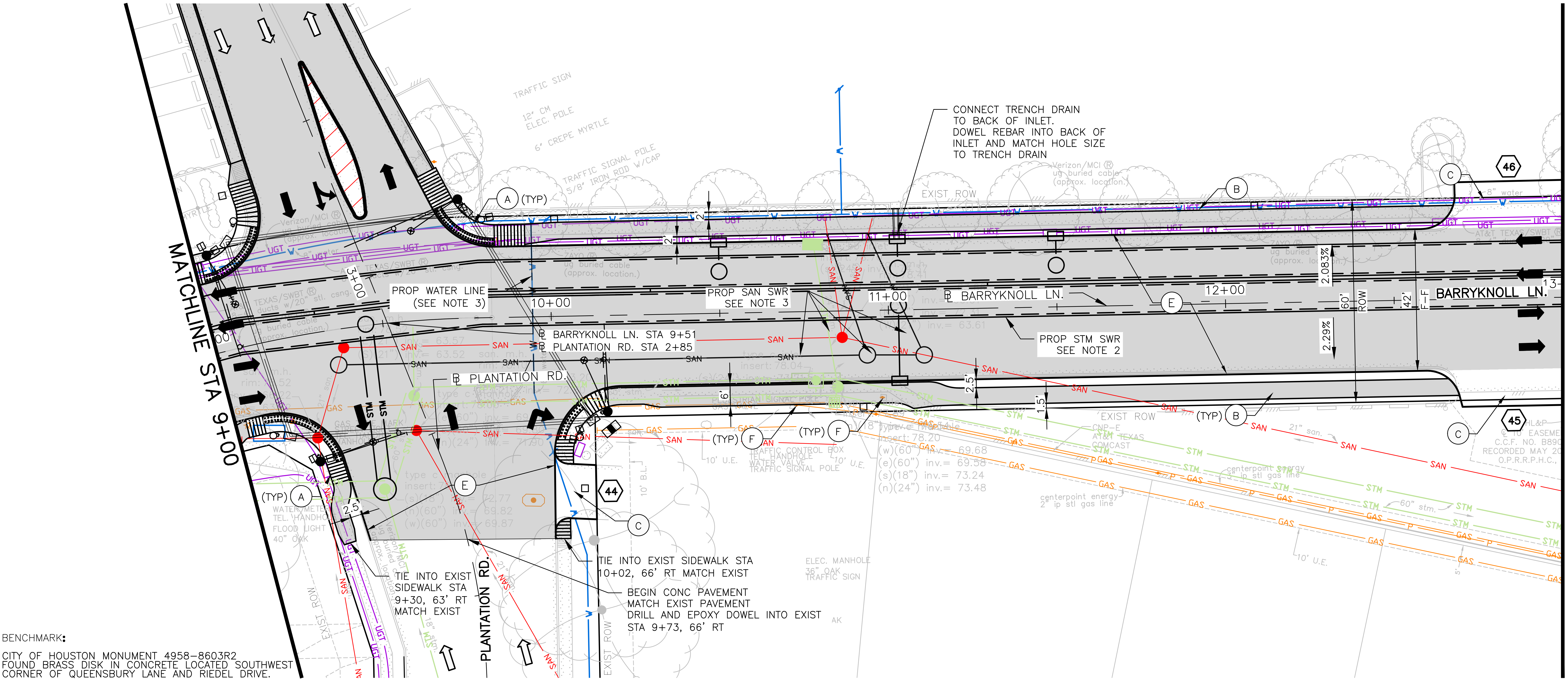
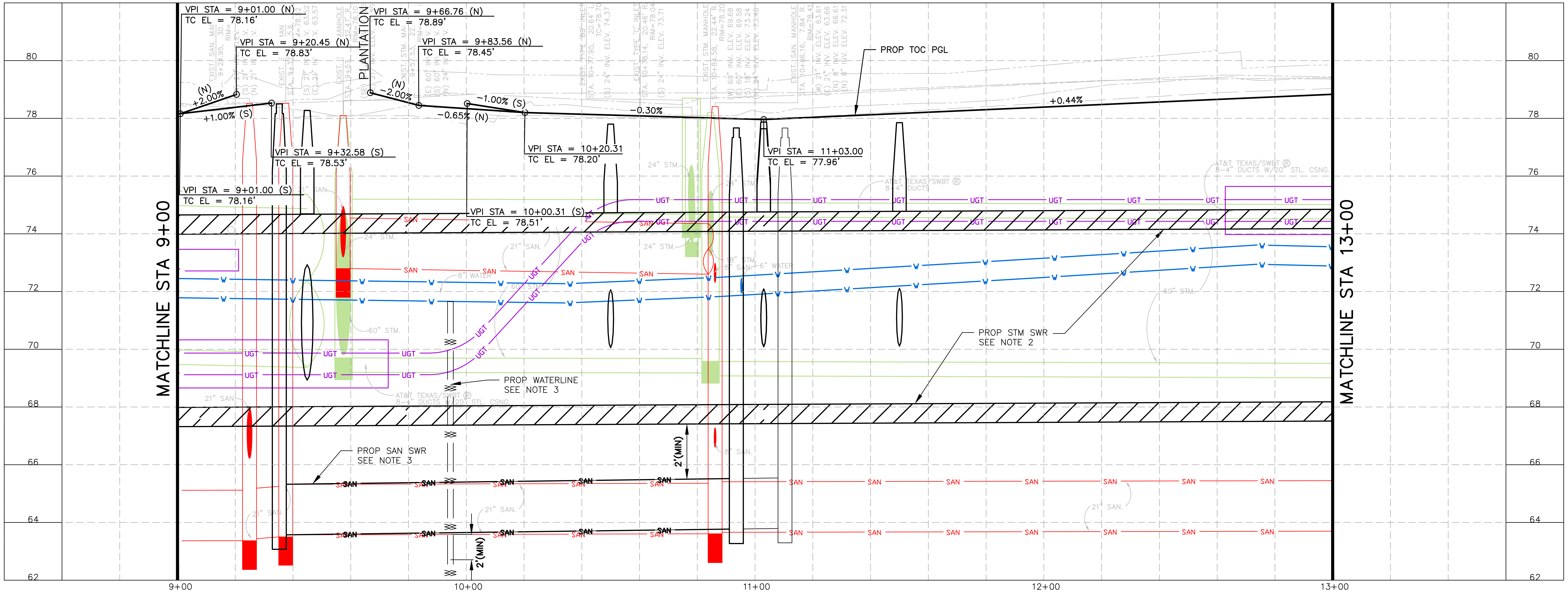

MATCHLINE STA 9+00
MATCHLINE STA 13+00
CONNECT TRENCH DRAIN TO BACK OF INLET. DOWEL REBAR INTO BACK OF INLET AND MATCH HOLE SIZE TO TRENCH DRAIN
EXIST ROW
A (TYP)
B
C
46
45
44
PROP WATER LINE (SEE NOTE 3)
PROP SAN SWR SEE NOTE 3
PROP STM SWR SEE NOTE 2
10+00
11+00
12+00
BARRYKNOLL LN.
BARRYKNOLL LN. STA 9+51
PLANTATION RD. STA 2+85
PLANTATION RD.
2.083%
2.29%
60' ROW
42' F-F
2.5'
6'
1.5'
(TYP) F
(TYP) A
TIE INTO EXIST SIDEWALK STA 9+30, 63' RT MATCH EXIST
TIE INTO EXIST SIDEWALK STA 10+02, 66' RT MATCH EXIST
BEGIN CONC PAVEMENT MATCH EXIST PAVEMENT DRILL AND EPOXY DOWEL INTO EXIST STA 9+73, 66' RT
EXIST ROW
SAN
GAS
STM
UGT

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED SOUTHWEST
CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)


VPI STA = 9+01.00 (N)
TC EL = 78.16'
VPI STA = 9+20.45 (N)
TC EL = 78.83'
VPI STA = 9+66.76 (N)
TC EL = 78.89'
VPI STA = 9+83.56 (N)
TC EL = 78.45'
PLANTATION
(N) +2.00%
+1.00% (S)
(N) -2.00%
-1.00% (S)
-0.65% (N)
-0.30%
+0.44%
PROP TOC PGL
VPI STA = 9+32.58 (S)
TC EL = 78.53'
VPI STA = 10+20.31
TC EL = 78.20'
VPI STA = 11+03.00
TC EL = 77.96'
VPI STA = 9+01.00 (S)
TC EL = 78.16'
VPI STA = 10+00.31 (S)
TC EL = 78.51'
MATCHLINE STA 9+00
MATCHLINE STA 13+00
PROP STM SWR SEE NOTE 2
PROP WATERLINE SEE NOTE 3
PROP SAN SWR SEE NOTE 3
2'(MIN)
2'(MIN)
UGT
SAN
80
78
76
74
72
70
68
66
64
62
9+00
10+00
11+00
12+00
13+00

LEGEND

SCALE IN FEET 0 20 40

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
X	PROP DRIVEWAY NUMBER
A	PROP WHEEL CHAIR RAMP
B	PROP 5' CONC SIDEWALK
C	PROP CONC DRIVEWAY
D	PROP 7" JRCP
E	PROP 9" JRCP
F	ADJUST TO GRADE
G	POWER POLE TO BE RELOCATED (BY OTHERS)
H	ADJUST TO GRADE/RELOCATE (BY OTHERS)

N

No.	Revisions	Date	App.

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125563
07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
BARRYKNOLL LANE
STA 9+00 TO STA 13+00

SHEET 3 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 109 OF 345

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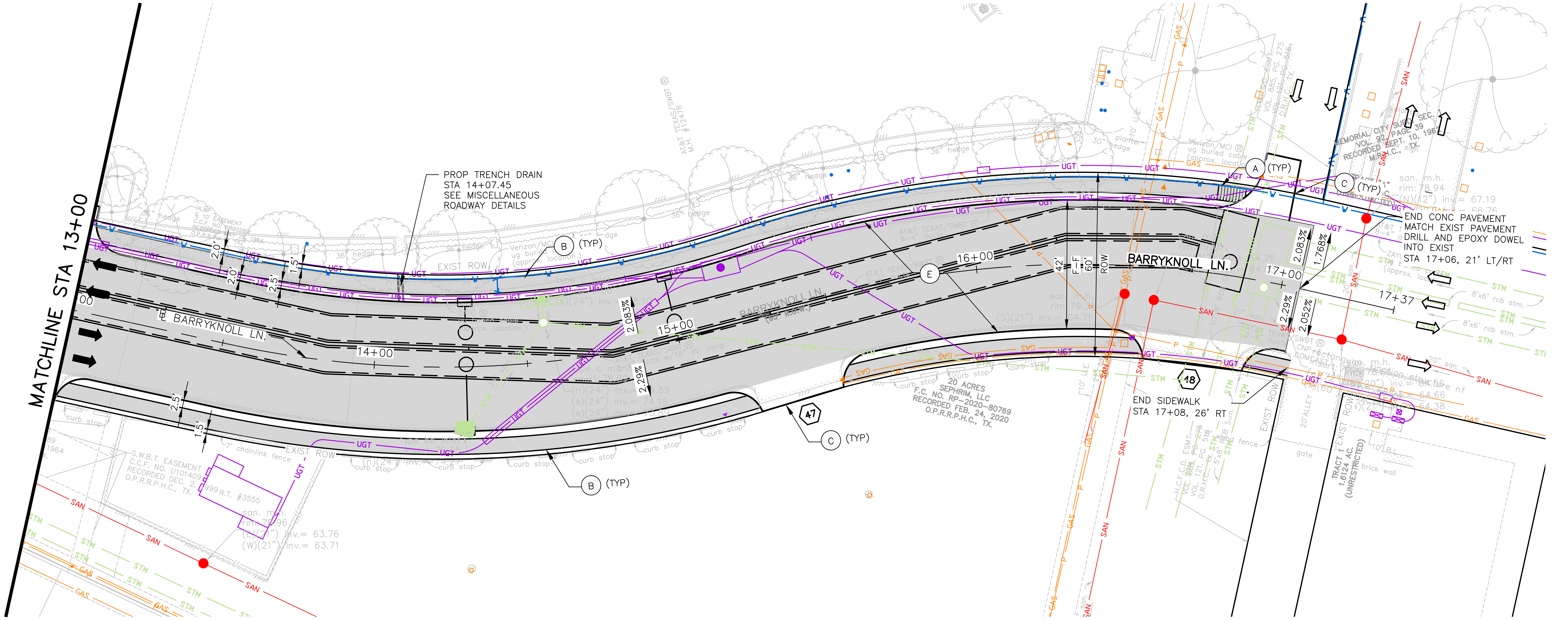
MATCHLINE STA 13+00
PROP TRENCH DRAIN
STA 14+07.45
SEE MISCELLANEOUS
ROADWAY DETAILS
BARRYKNOLL LN.
14+00
15+00
16+00
17+00
17+37
B (TYP)
C (TYP)
A (TYP)
EXIST ROW
2.083%
2.29%
2.052%
1.768%
END CONC PAVEMENT
MATCH EXIST PAVEMENT
DRILL AND EPOXY DOWEL
INTO EXIST
STA 17+06, 21' LT/RT
END SIDEWALK
STA 17+08, 26' RT
47
18
20 ACRES
SEPHRIM, LLC
F.C. NO. RP-2020-80769
RECORDED FEB. 24, 2020
O.P.R.R.P.H.C., TX.
S.W.B.T. EASEMENT
RECORDED DEC. 2, 1964
UGT
GAS
SAN
STM

LEGEND

0 20 40
SCALE IN FEET

N

- ➡ PROP LANE
- ⇨ EXIST LANE
- PROP 6" CURB
- EXIST ROW
- Ⓧ PROP DRIVEWAY NUMBER
- Ⓐ PROP WHEEL CHAIR RAMP
- Ⓑ PROP 5' CONC SIDEWALK
- Ⓒ PROP CONC DRIVEWAY
- Ⓓ PROP 7" JRCP
- Ⓔ PROP 9" JRCP
- Ⓕ ADJUST TO GRADE
- Ⓖ POWER POLE TO BE RELOCATED (BY OTHERS)
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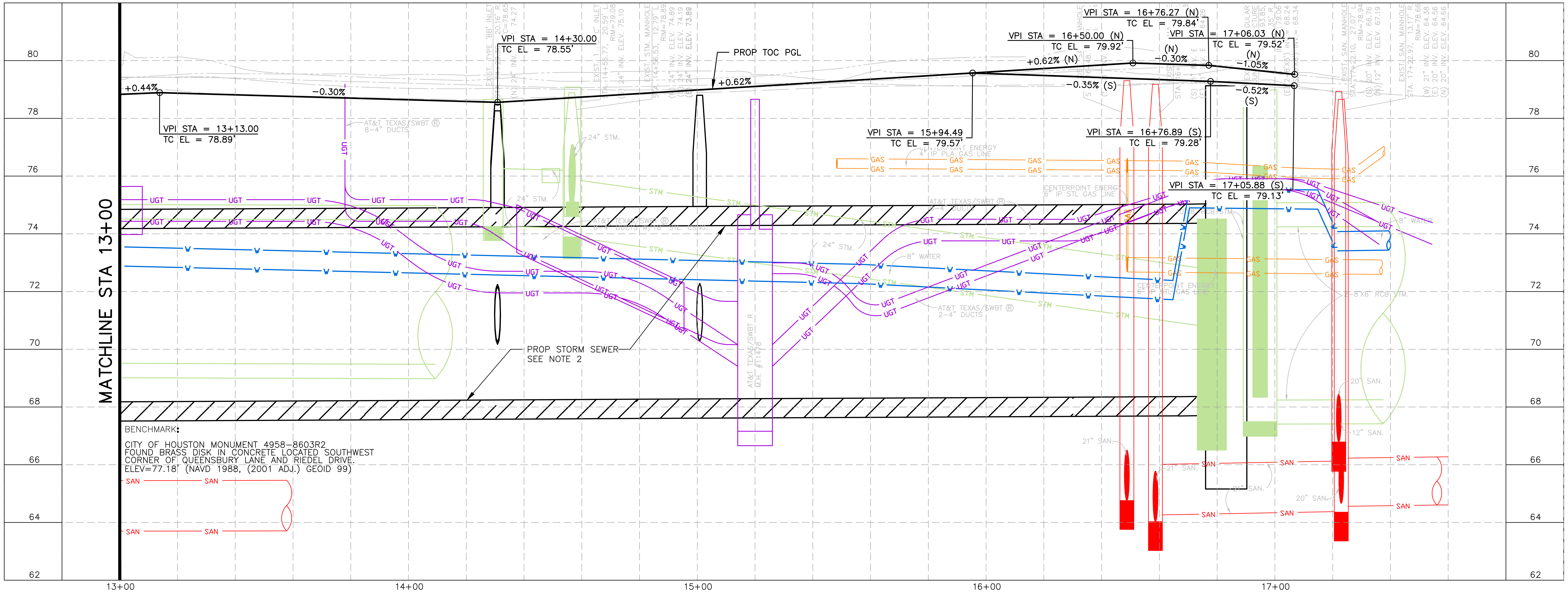
MATCHLINE STA 13+00
80
78
76
74
72
70
68
66
64
62
13+00
14+00
15+00
16+00
17+00
+0.44%
-0.30%
VPI STA = 13+13.00
TC EL = 78.89'
VPI STA = 14+30.00
TC EL = 78.55'
PROP TOC PGL
+0.62%
VPI STA = 15+94.49
TC EL = 79.57
VPI STA = 16+50.00 (N)
TC EL = 79.92'
+0.62% (N)
VPI STA = 16+76.27 (N)
TC EL = 79.84'
(N)
-0.30%
VPI STA = 17+06.03 (N)
TC EL = 79.52'
(N)
-1.05%
-0.35% (S)
-0.52%
(S)
VPI STA = 16+76.89 (S)
TC EL = 79.28'
VPI STA = 17+05.88 (S)
TC EL = 79.13'
PROP STORM SEWER
SEE NOTE 2
UGT
GAS
STM
SAN
24" STM.
8" WATER
AT&T TEXAS/SWBT
8-4" DUCTS
2-4" DUCTS
8'x6" RCB STM.
20" SAN.
12" SAN.
21" SAN.

BENCHMARK:
CITY OF HOUSTON MONUMENT 4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED SOUTHWEST
CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLAN & PROFILE
BARRYKNOLL LANE
STA 13+00 TO END PROJECT

SHEET 4 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 110 OF 345

No. | Revisions | Date | App.

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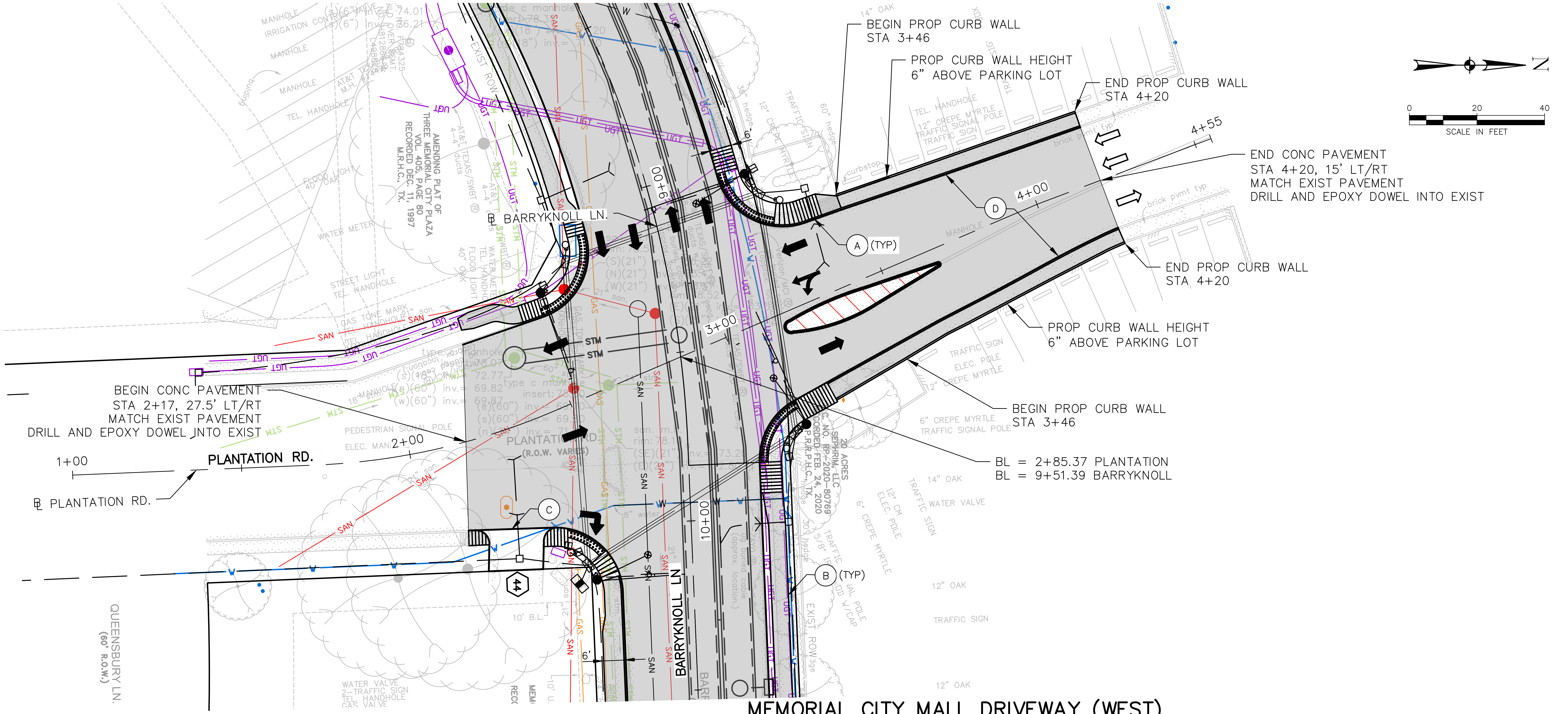
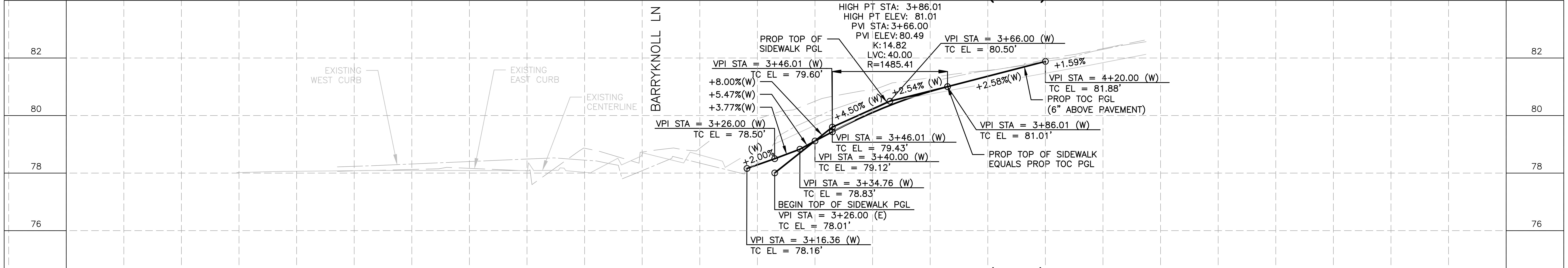


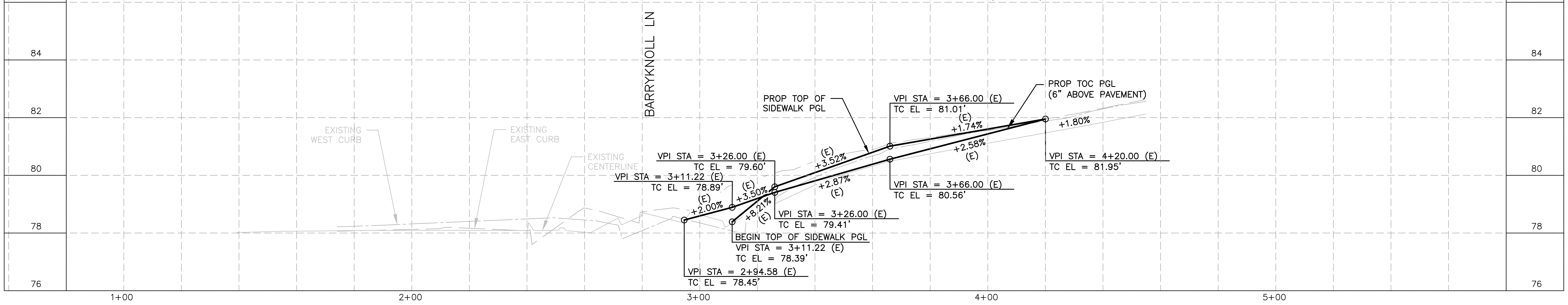
BEGIN PROP CURB WALL
STA 3+46
PROP CURB WALL HEIGHT
6" ABOVE PARKING LOT
END PROP CURB WALL
STA 4+20
4+55
END CONC PAVEMENT
STA 4+20, 15' LT/RT
MATCH EXIST PAVEMENT
DRILL AND EPOXY DOWEL INTO EXIST
4+00
D
A (TYP)
END PROP CURB WALL
STA 4+20
PROP CURB WALL HEIGHT
6" ABOVE PARKING LOT
BEGIN PROP CURB WALL
STA 3+46
BL = 2+85.37 PLANTATION
BL = 9+51.39 BARRYKNOLL
℄ BARRYKNOLL LN.
3+00
BEGIN CONC PAVEMENT
STA 2+17, 27.5' LT/RT
MATCH EXIST PAVEMENT
DRILL AND EPOXY DOWEL INTO EXIST
1+00
PLANTATION RD.
2+00
℄ PLANTATION RD.
C
B (TYP)
4
9+00
10+00
BARRYKNOLL LN
QUEENSBURY LN.
(60' R.O.W.)
0 20 40
SCALE IN FEET
N

MEMORIAL CITY MALL DRIVEWAY (WEST)



HIGH PT STA: 3+86.01
HIGH PT ELEV: 81.01
PVI STA: 3+66.00
PVI ELEV: 80.49
K: 14.82
LVC: 40.00
R=1485.41
PROP TOP OF SIDEWALK PGL
VPI STA = 3+46.01 (W)
TC EL = 79.60'
+8.00%(W)
+5.47%(W)
+3.77%(W)
VPI STA = 3+26.00 (W)
TC EL = 78.50'
(W) +2.00%
+4.50% (W)
+2.54% (W)
VPI STA = 3+66.00 (W)
TC EL = 80.50'
+2.58%(W)
+1.59%
VPI STA = 4+20.00 (W)
TC EL = 81.88'
PROP TOC PGL
(6" ABOVE PAVEMENT)
VPI STA = 3+86.01 (W)
TC EL = 81.01'
PROP TOP OF SIDEWALK
EQUALS PROP TOC PGL
VPI STA = 3+46.01 (W)
TC EL = 79.43'
VPI STA = 3+40.00 (W)
TC EL = 79.12'
VPI STA = 3+34.76 (W)
TC EL = 78.83'
BEGIN TOP OF SIDEWALK PGL
VPI STA = 3+26.00 (E)
TC EL = 78.01'
VPI STA = 3+16.36 (W)
TC EL = 78.16'
BARRYKNOLL LN
EXISTING WEST CURB
EXISTING EAST CURB
EXISTING CENTERLINE
82
80
78
76

MEMORIAL CITY MALL DRIVEWAY (EAST)



BARRYKNOLL LN
EXISTING WEST CURB
EXISTING EAST CURB
EXISTING CENTERLINE
PROP TOP OF SIDEWALK PGL
VPI STA = 3+26.00 (E)
TC EL = 79.60'
VPI STA = 3+11.22 (E)
TC EL = 78.89'
(E) +2.00%
(E) +3.50%
+8.21% (E)
(E) +3.52%
+2.87% (E)
VPI STA = 3+66.00 (E)
TC EL = 81.01'
(E) +1.74%
+2.58% (E)
PROP TOC PGL
(6" ABOVE PAVEMENT)
+1.80%
VPI STA = 4+20.00 (E)
TC EL = 81.95'
VPI STA = 3+66.00 (E)
TC EL = 80.56'
VPI STA = 3+26.00 (E)
TC EL = 79.41'
BEGIN TOP OF SIDEWALK PGL
VPI STA = 3+11.22 (E)
TC EL = 78.39'
VPI STA = 2+94.58 (E)
TC EL = 78.45'
84
82
80
78
76
1+00
2+00
3+00
4+00
5+00

LEGEND

➡	PROP LANE
⇨	EXIST LANE
—	PROP 6" CURB
—	EXIST ROW
⬡ X	PROP DRIVEWAY NUMBER
Ⓐ	PROP WHEEL CHAIR RAMP
Ⓑ	PROP 5' CONC SIDEWALK
Ⓒ	PROP CONC DRIVEWAY
Ⓓ	PROP 7" JRCP
Ⓔ	PROP 9" JRCP
Ⓕ	ADJUST TO GRADE
Ⓖ	POWER POLE TO BE RELOCATED (BY OTHERS)
Ⓗ	ADJUST TO GRADE/RELOCATE (BY OTHERS)

NOTES:

1. ALL DIMENSIONS ARE TO FACE OF CURB OR CENTER OF SIDEWALK UNLESS OTHERWISE NOTED.
2. REFER TO DRAINAGE PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
3. REFER TO WATER & SANITARY PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207–2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

No.	Date	Revisions	App.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

CABLE COMPANY — DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
David G. Greaney
07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY PLANS
PLANTATION RD
STA 1+00 TO STA 4+20

SHEET 1 OF 1

WBS NO. M–430296–0017–3

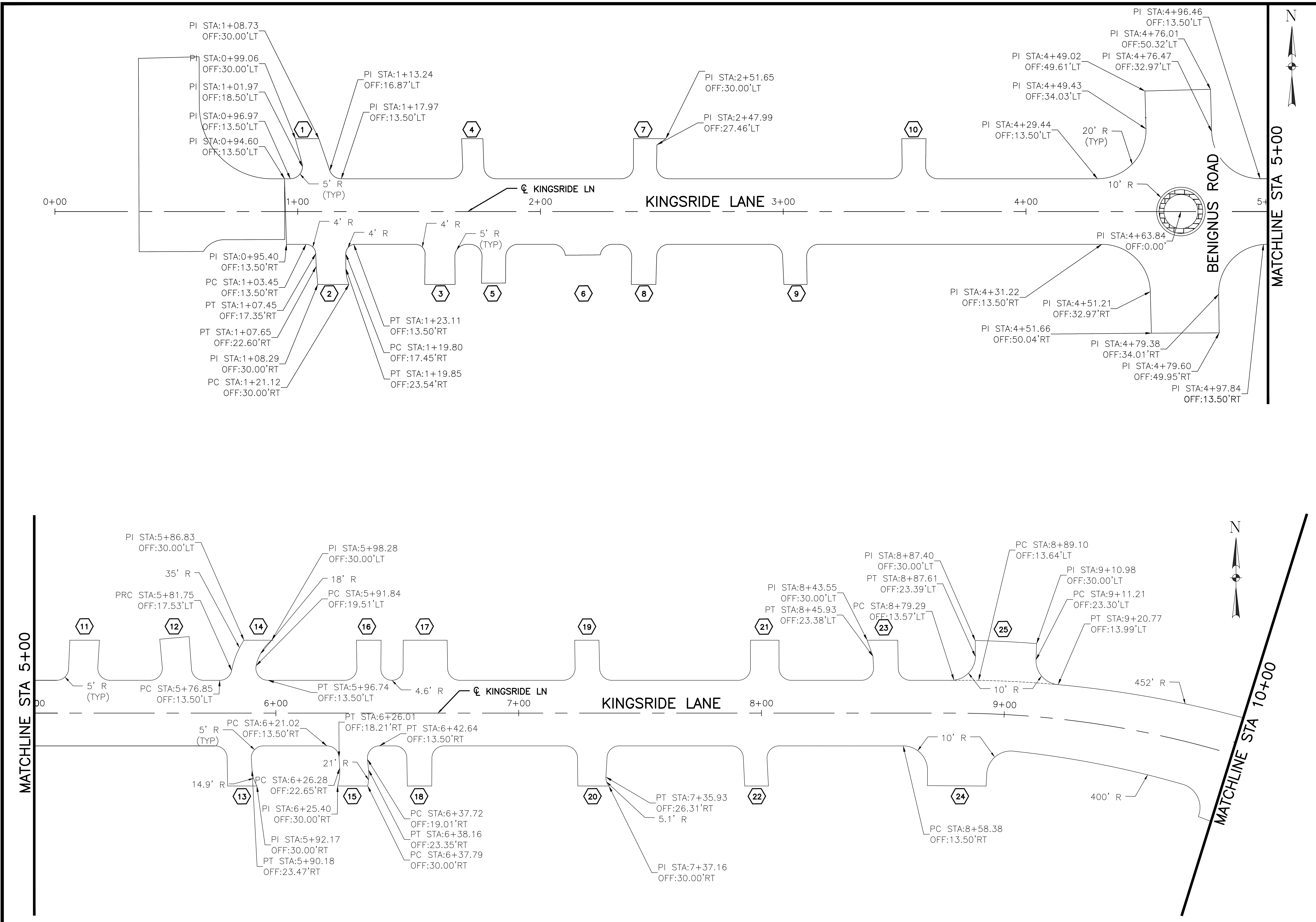
DRAWING SCALE

H: 1"=20' (FULL)
V: 1"=2' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

j:\2021\210601.01\cad\dwgs\rd\rd_plantation_01.dwg Plotted July 14, 2026 at 5:10 PM by McCourt, Jeff


PI STA:1+08.73 OFF:30.00'LT
PI STA:0+99.06 OFF:30.00'LT
PI STA:1+01.97 OFF:18.50'LT
PI STA:0+96.97 OFF:13.50'LT
PI STA:0+94.60 OFF:13.50'LT
PI STA:1+13.24 OFF:16.87'LT
PI STA:1+17.97 OFF:13.50'LT
5' R (TYP)
PI STA:2+51.65 OFF:30.00'LT
PI STA:2+47.99 OFF:27.46'LT
PI STA:4+96.46 OFF:13.50'LT
PI STA:4+76.01 OFF:50.32'LT
PI STA:4+49.02 OFF:49.61'LT
PI STA:4+76.47 OFF:32.97'LT
PI STA:4+49.43 OFF:34.03'LT
PI STA:4+29.44 OFF:13.50'LT
20' R (TYP)
10' R
1
4
7
10
0+00
1+00
2+00
3+00
4+00
5+
℄ KINGSRIDE LN
KINGSRIDE LANE
BENIGNUS ROAD
MATCHLINE STA 5+00
N
4' R
4' R
4' R
5' R (TYP)
PI STA:0+95.40 OFF:13.50'RT
PC STA:1+03.45 OFF:13.50'RT
PT STA:1+07.45 OFF:17.35'RT
PT STA:1+07.65 OFF:22.60'RT
PI STA:1+08.29 OFF:30.00'RT
PC STA:1+21.12 OFF:30.00'RT
PT STA:1+23.11 OFF:13.50'RT
PC STA:1+19.80 OFF:17.45'RT
PT STA:1+19.85 OFF:23.54'RT
2
3
5
6
8
9
PI STA:4+63.84 OFF:0.00'
PI STA:4+31.22 OFF:13.50'RT
PI STA:4+51.21 OFF:32.97'RT
PI STA:4+51.66 OFF:50.04'RT
PI STA:4+79.38 OFF:34.01'RT
PI STA:4+79.60 OFF:49.95'RT
PI STA:4+97.84 OFF:13.50'RT
PI STA:5+86.83 OFF:30.00'LT
35' R
PRC STA:5+81.75 OFF:17.53'LT
PI STA:5+98.28 OFF:30.00'LT
18' R
PC STA:5+91.84 OFF:19.51'LT
11
12
14
16
17
19
21
23
25
5' R (TYP)
PC STA:5+76.85 OFF:13.50'LT
PT STA:5+96.74 OFF:13.50'LT
4.6' R
℄ KINGSRIDE LN
KINGSRIDE LANE
MATCHLINE STA 5+00
6+00
7+00
8+00
9+00
PI STA:8+43.55 OFF:30.00'LT
PT STA:8+45.93 OFF:23.38'LT
PI STA:8+87.40 OFF:30.00'LT
PT STA:8+87.61 OFF:23.39'LT
PC STA:8+79.29 OFF:13.57'LT
PC STA:8+89.10 OFF:13.64'LT
PI STA:9+10.98 OFF:30.00'LT
PC STA:9+11.21 OFF:23.30'LT
PT STA:9+20.77 OFF:13.99'LT
10' R
452' R
N
MATCHLINE STA 10+00
PT STA:6+26.01 OFF:18.21'RT
PT STA:6+42.64 OFF:13.50'RT
5' R (TYP)
PC STA:6+21.02 OFF:13.50'RT
21' R
14.9' R
PC STA:6+26.28 OFF:22.65'RT
PI STA:6+25.40 OFF:30.00'RT
PI STA:5+92.17 OFF:30.00'RT
PT STA:5+90.18 OFF:23.47'RT
13
15
18
20
22
24
PC STA:6+37.72 OFF:19.01'RT
PT STA:6+38.16 OFF:23.35'RT
PC STA:6+37.79 OFF:30.00'RT
PT STA:7+35.93 OFF:26.31'RT
5.1' R
PI STA:7+37.16 OFF:30.00'RT
10' R
400' R
PC STA:8+58.38 OFF:13.50'RT

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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FAX: 713.965.0044

STATE OF TEXAS
DAVID G. GREANEY
125563
LICENSED PROFESSIONAL ENGINEER
David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
KINGSRIDE LANE
BEGIN PROJECT TO STA 10+00

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22"X34")

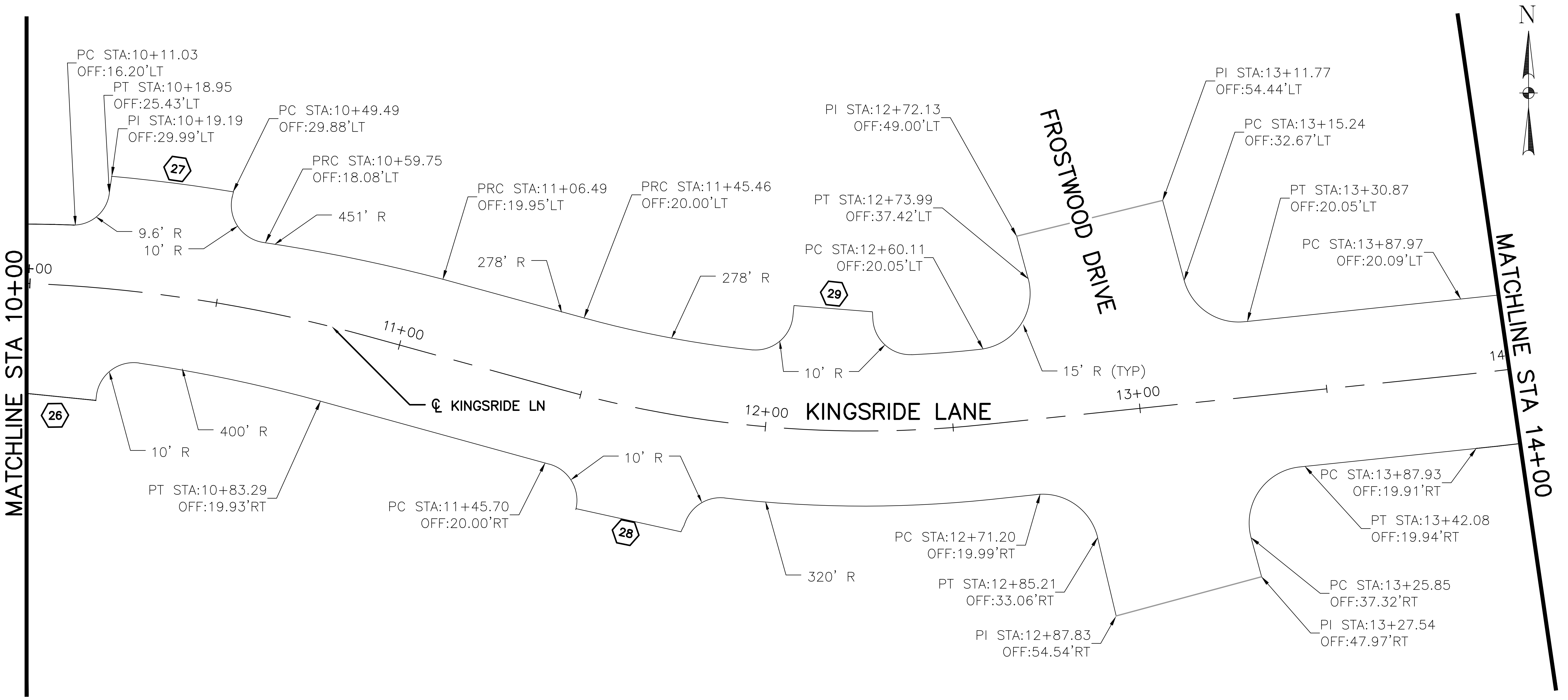
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 112 OF 345

No. Date Revisions App.

j:\2021\210601.01\cad\dwgs\d\rd_kingsride_horizontal_geometry_01.dwg Plotted April 15, 2026 at 5:33 PM by Gawali, Ajinkya Ashok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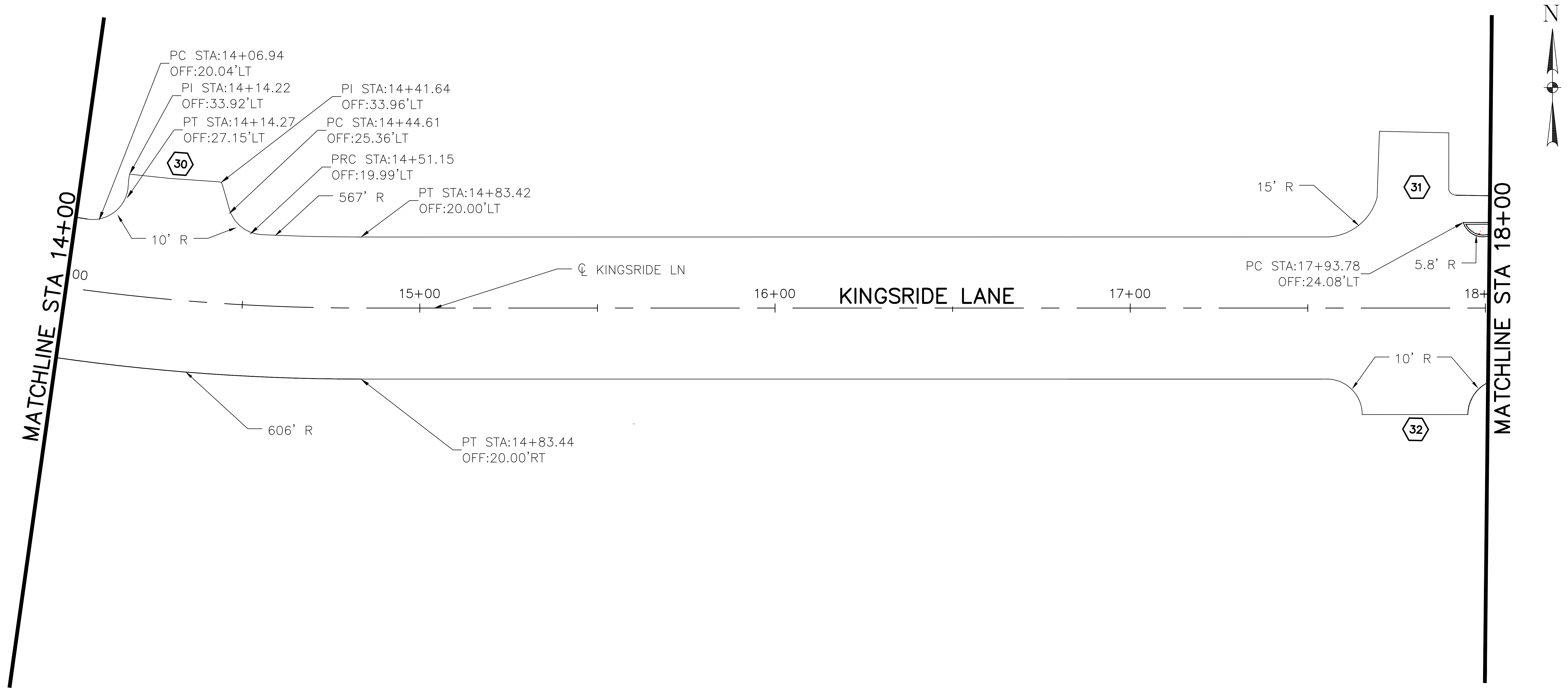
PC STA:10+11.03
OFF:16.20'LT
PT STA:10+18.95
OFF:25.43'LT
PI STA:10+19.19
OFF:29.99'LT
27
PC STA:10+49.49
OFF:29.88'LT
PRC STA:10+59.75
OFF:18.08'LT
9.6' R
10' R
451' R
PRC STA:11+06.49
OFF:19.95'LT
PRC STA:11+45.46
OFF:20.00'LT
278' R
278' R
PI STA:12+72.13
OFF:49.00'LT
PT STA:12+73.99
OFF:37.42'LT
PC STA:12+60.11
OFF:20.05'LT
29
10' R
15' R (TYP)
FROSTWOOD DRIVE
PI STA:13+11.77
OFF:54.44'LT
PC STA:13+15.24
OFF:32.67'LT
PT STA:13+30.87
OFF:20.05'LT
PC STA:13+87.97
OFF:20.09'LT
N
MATCHLINE STA 14+00
+00
11+00
℄ KINGSRIDE LN
12+00
KINGSRIDE LANE
13+00
14
26
400' R
10' R
PT STA:10+83.29
OFF:19.93'RT
10' R
PC STA:11+45.70
OFF:20.00'RT
28
320' R
PC STA:12+71.20
OFF:19.99'RT
PT STA:12+85.21
OFF:33.06'RT
PI STA:12+87.83
OFF:54.54'RT
PC STA:13+87.93
OFF:19.91'RT
PT STA:13+42.08
OFF:19.94'RT
PC STA:13+25.85
OFF:37.32'RT
PI STA:13+27.54
OFF:47.97'RT


MATCHLINE STA 14+00
PC STA:14+06.94
OFF:20.04'LT
PI STA:14+14.22
OFF:33.92'LT
PT STA:14+14.27
OFF:27.15'LT
30
PI STA:14+41.64
OFF:33.96'LT
PC STA:14+44.61
OFF:25.36'LT
PRC STA:14+51.15
OFF:19.99'LT
567' R
PT STA:14+83.42
OFF:20.00'LT
10' R
00
15+00
℄ KINGSRIDE LN
16+00
KINGSRIDE LANE
17+00
18+
15' R
31
PC STA:17+93.78
OFF:24.08'LT
5.8' R
N
MATCHLINE STA 18+00
606' R
PT STA:14+83.44
OFF:20.00'RT
10' R
32

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

STATE OF TEXAS
DAVID G. GREANEY
125563
LICENSED PROFESSIONAL ENGINEER
David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL GEOMETRY LAYOUT
KINGSRIDE LANE
STA 10+00 TO STA 18+00

SHEET 2 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1" =20' (22"X34")

CITY OF HOUSTON PM

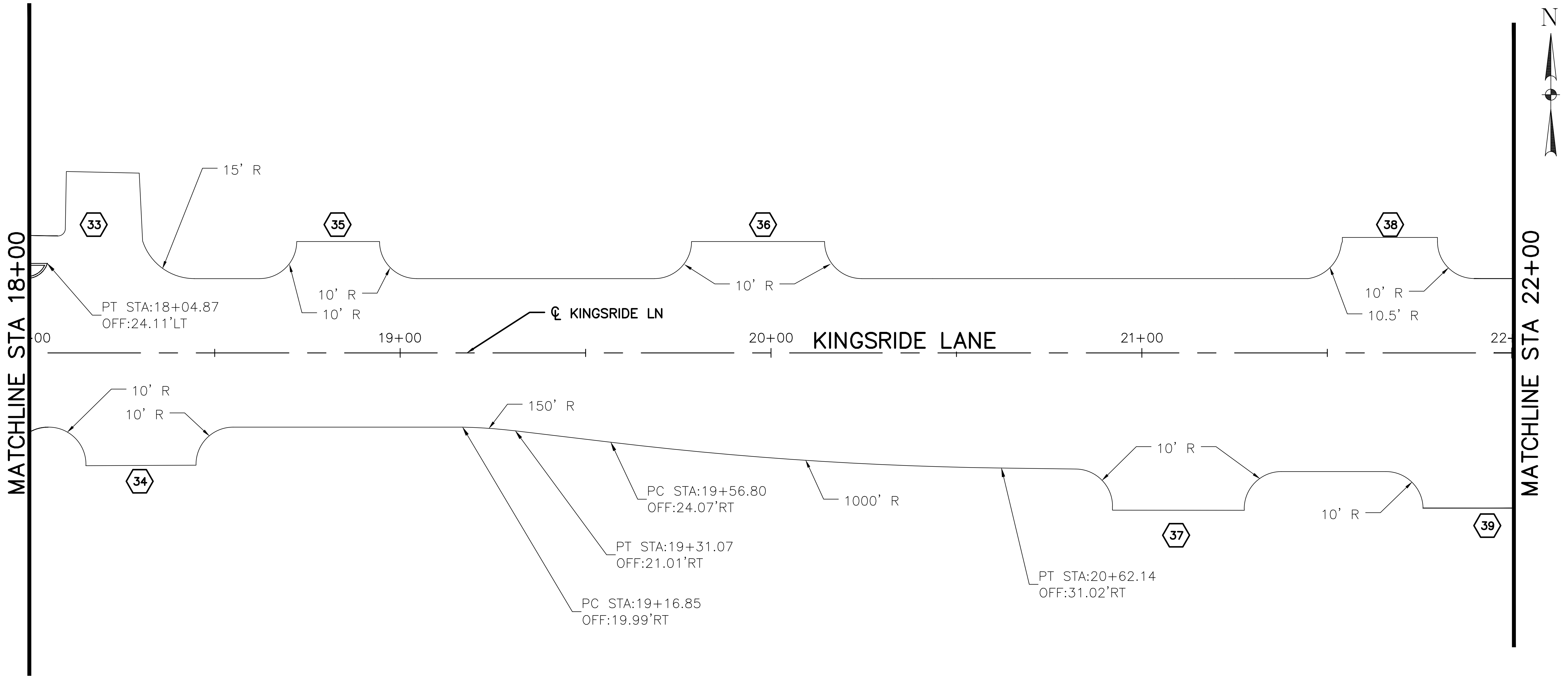
KEVIN HAMMOND, P.E.

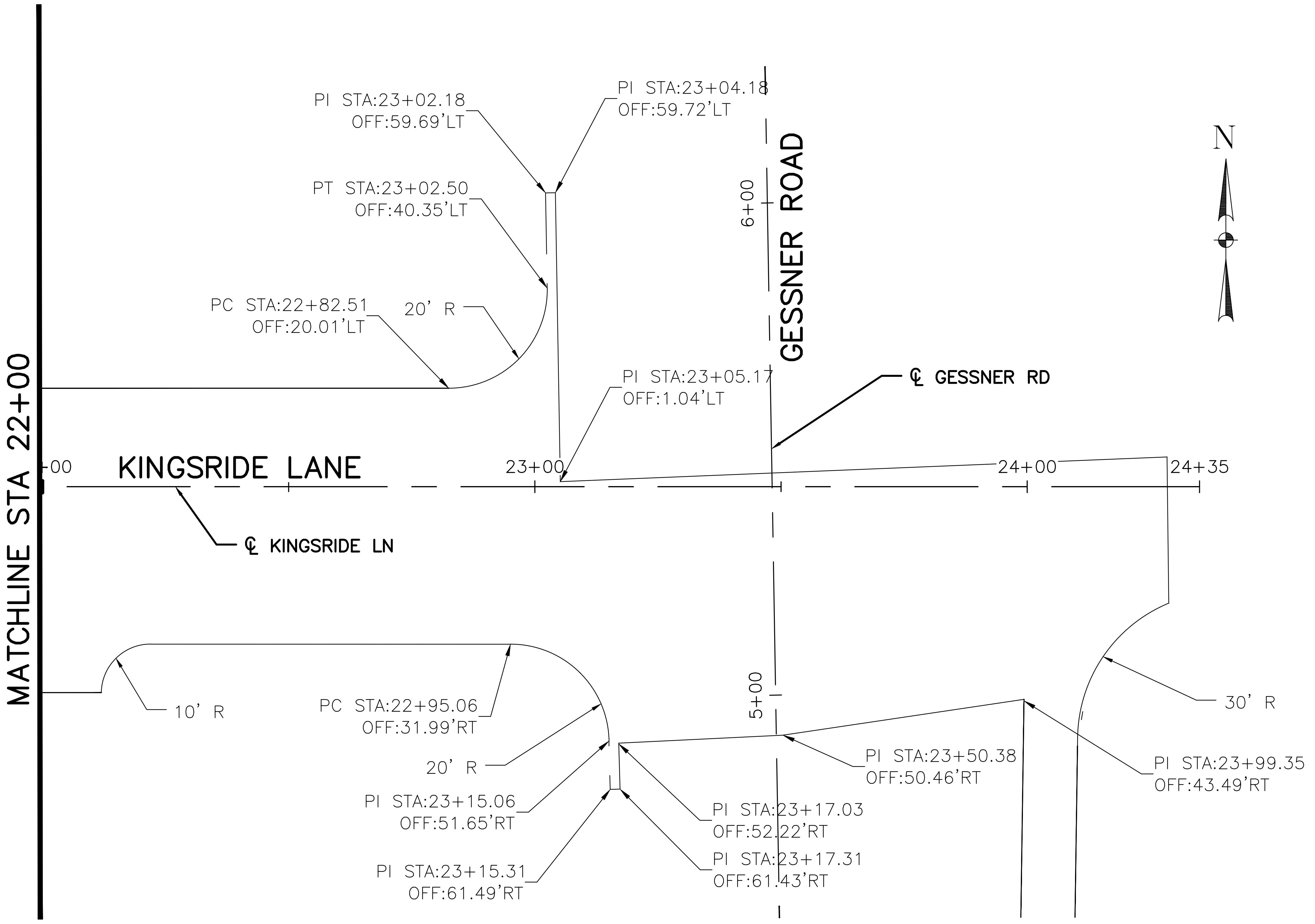
SHEET NO. 113 OF 345

No.	Date	Revisions	App.

j:\2021\210601.01\cad\dwgs\d\cd_kingsride_horizontal geometry_02.dwg Plotted April 15, 2026 at 5:25 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.


MATCHLINE STA 18+00
MATCHLINE STA 22+00
N
33
34
35
36
37
38
39
15' R
PT STA:18+04.87
OFF:24.11'LT
10' R
10' R
10' R
10' R
10' R
10' R
10.5' R
℄ KINGSRIDE LN
KINGSRIDE LANE
00
19+00
20+00
21+00
22
150' R
PC STA:19+56.80
OFF:24.07'RT
1000' R
PT STA:19+31.07
OFF:21.01'RT
PC STA:19+16.85
OFF:19.99'RT
PT STA:20+62.14
OFF:31.02'RT
10' R
10' R
10' R


MATCHLINE STA 22+00
N
PI STA:23+02.18
OFF:59.69'LT
PI STA:23+04.18
OFF:59.72'LT
PT STA:23+02.50
OFF:40.35'LT
6+00
GESSNER ROAD
PC STA:22+82.51
OFF:20.01'LT
20' R
PI STA:23+05.17
OFF:1.04'LT
℄ GESSNER RD
00
KINGSRIDE LANE
23+00
24+00
24+35
℄ KINGSRIDE LN
10' R
PC STA:22+95.06
OFF:31.99'RT
20' R
PI STA:23+15.06
OFF:51.65'RT
PI STA:23+15.31
OFF:61.49'RT
5+00
PI STA:23+17.03
OFF:52.22'RT
PI STA:23+17.31
OFF:61.43'RT
PI STA:23+50.38
OFF:50.46'RT
30' R
PI STA:23+99.35
OFF:43.49'RT

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL GEOMETRY LAYOUT
KINGSRIDE LANE
STA 18+00 TO END PROJECT

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1" =20' (22"X34")

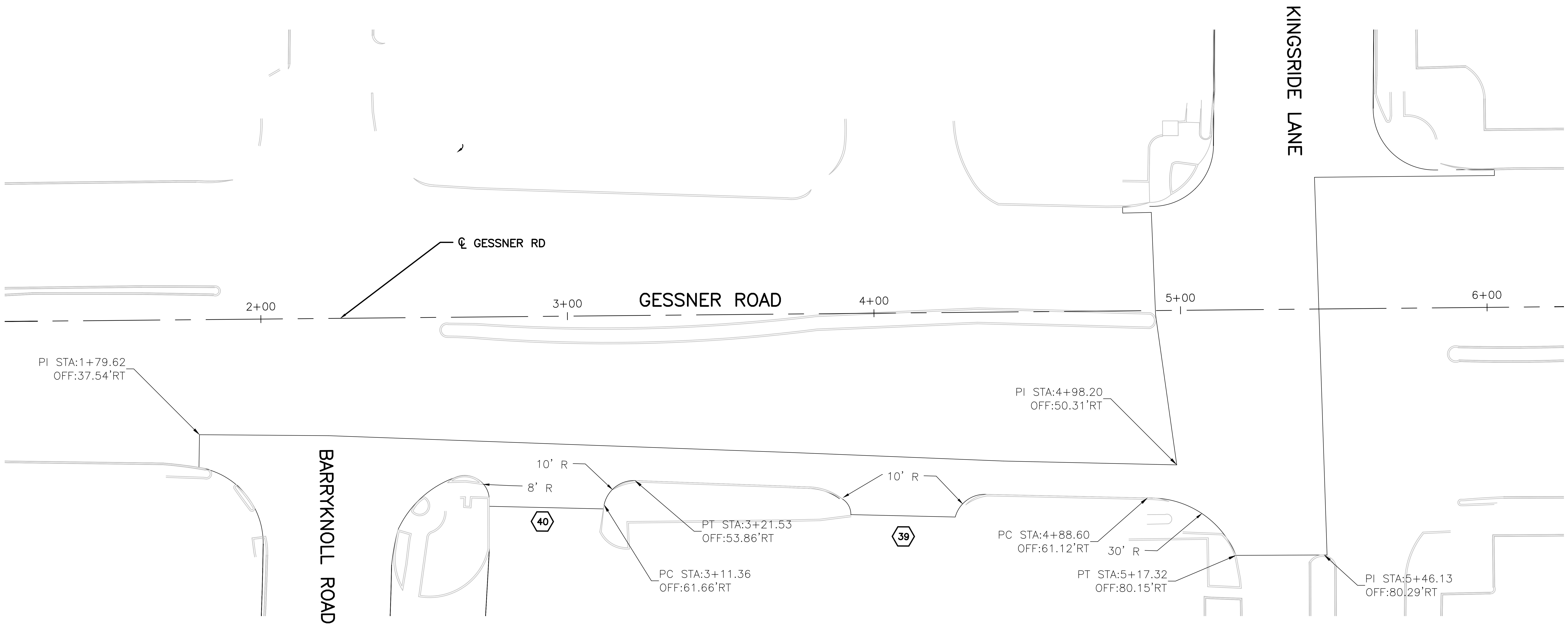
CITY OF HOUSTON PM

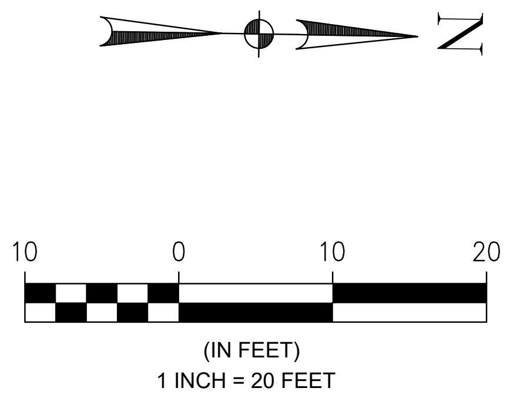
KEVIN HAMMOND, P.E.

SHEET NO. 114 OF 345

j:\2021\210601.01\cad\dwgs\d\rd_kingsride_horizontal geometry_03.dwg Plotted April 15, 2026 at 5:25 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.


KINGSRIDE LANE
℄ GESSNER RD
GESSNER ROAD
2+00
3+00
4+00
5+00
6+00
PI STA:1+79.62
OFF:37.54'RT
PI STA:4+98.20
OFF:50.31'RT
BARRYKNOLL ROAD
10' R
8' R
40
PT STA:3+21.53
OFF:53.86'RT
PC STA:3+11.36
OFF:61.66'RT
10' R
39
PC STA:4+88.60
OFF:61.12'RT
30' R
PT STA:5+17.32
OFF:80.15'RT
PI STA:5+46.13
OFF:80.29'RT


N
10
0
10
20
(IN FEET)
1 INCH = 20 FEET

HRGreen
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HOUSTON, TX 77079
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
GESSNER ROAD

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1" =20' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 115 OF 345

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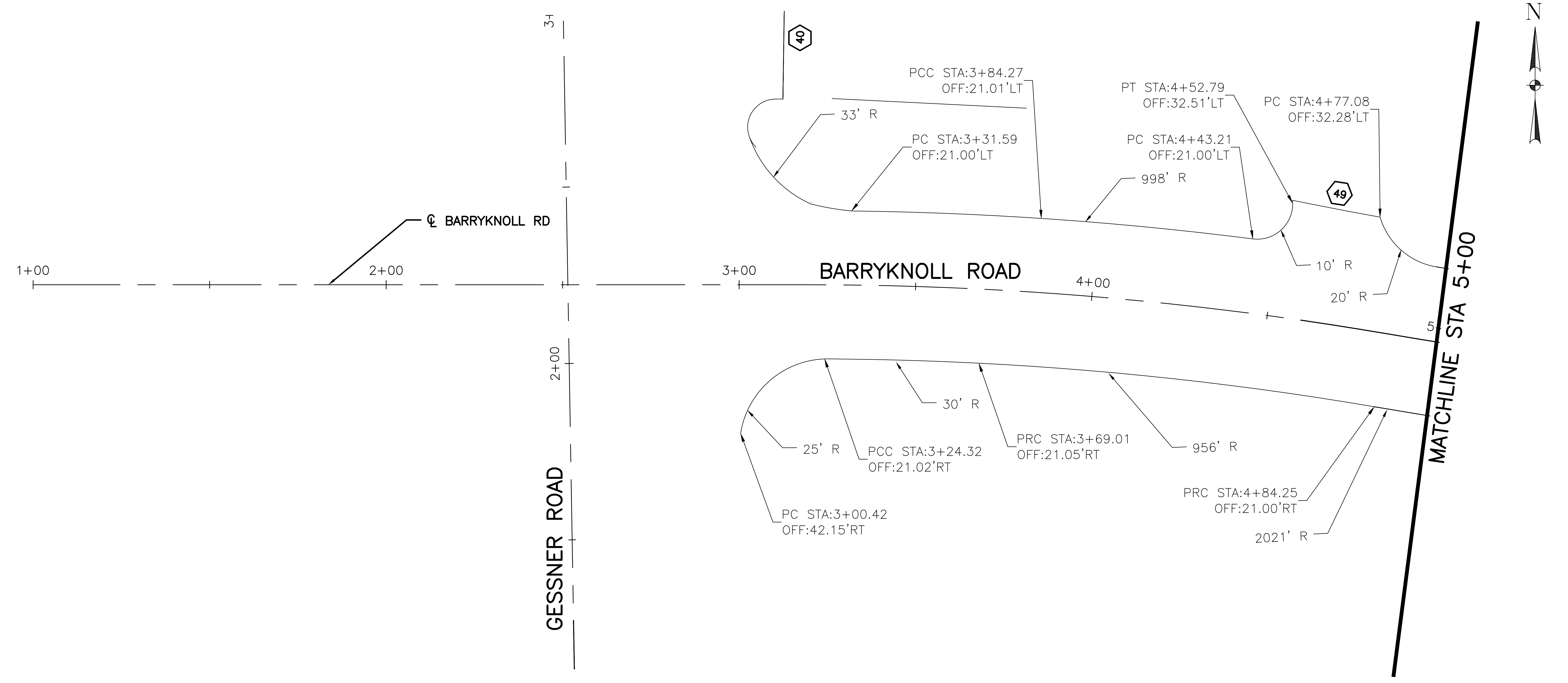
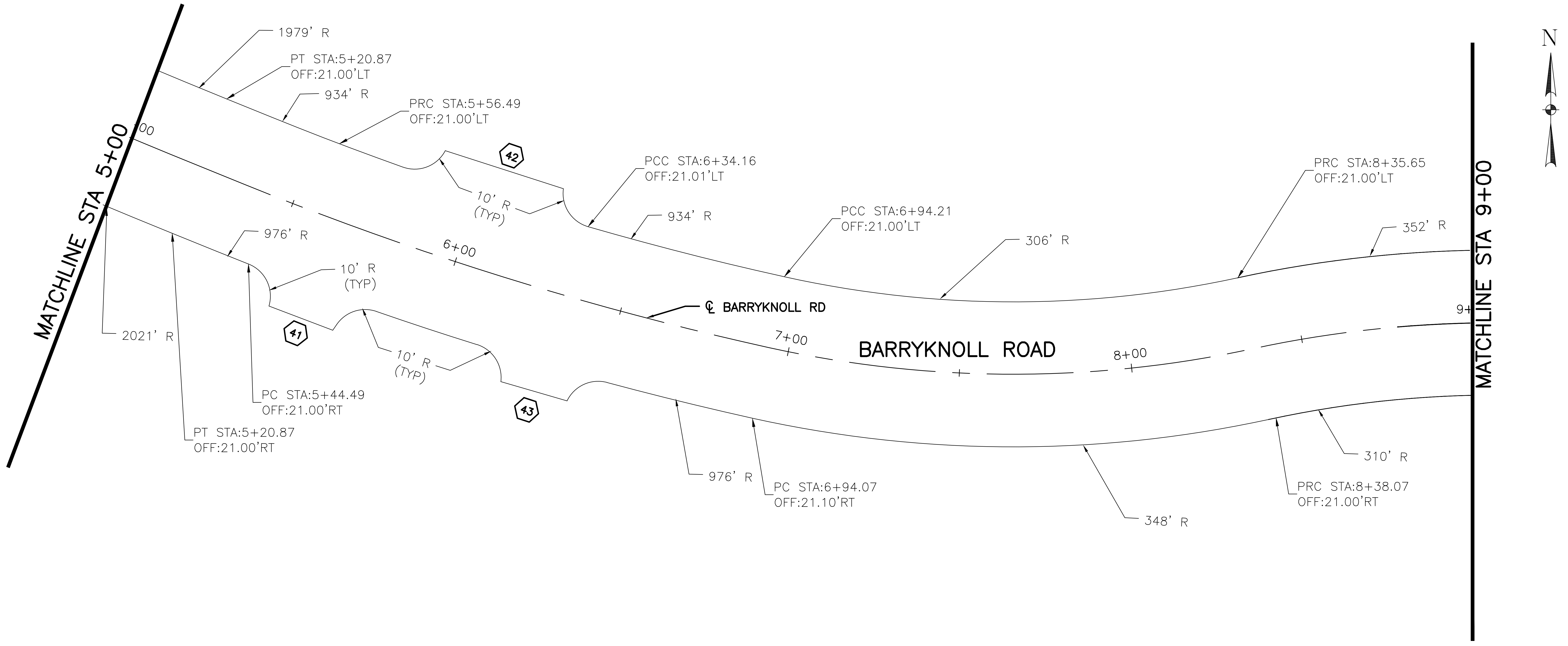
No.	Date	Revisions	App.



N
3+
40
PCC STA:3+84.27
OFF:21.01'LT
33' R
PC STA:3+31.59
OFF:21.00'LT
PT STA:4+52.79
OFF:32.51'LT
PC STA:4+43.21
OFF:21.00'LT
998' R
PC STA:4+77.08
OFF:32.28'LT
49
10' R
20' R
℄ BARRYKNOLL RD
1+00
2+00
3+00
BARRYKNOLL ROAD
4+00
5
MATCHLINE STA 5+00
2+00
GESSNER ROAD
30' R
25' R
PCC STA:3+24.32
OFF:21.02'RT
PRC STA:3+69.01
OFF:21.05'RT
956' R
PC STA:3+00.42
OFF:42.15'RT
PRC STA:4+84.25
OFF:21.00'RT
2021' R



N
1979' R
PT STA:5+20.87
OFF:21.00'LT
934' R
PRC STA:5+56.49
OFF:21.00'LT
42
10' R
(TYP)
PCC STA:6+34.16
OFF:21.01'LT
934' R
PCC STA:6+94.21
OFF:21.00'LT
306' R
PRC STA:8+35.65
OFF:21.00'LT
352' R
MATCHLINE STA 5+00
00
976' R
10' R
(TYP)
6+00
℄ BARRYKNOLL RD
41
10' R
(TYP)
7+00
BARRYKNOLL ROAD
8+00
9+
MATCHLINE STA 9+00
2021' R
PC STA:5+44.49
OFF:21.00'RT
PT STA:5+20.87
OFF:21.00'RT
43
976' R
PC STA:6+94.07
OFF:21.10'RT
348' R
310' R
PC STA:8+38.07
OFF:21.00'RT

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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4/15/2026
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Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
HORIZONTAL GEOMETRY LAYOUT
BARRYKNOLL ROAD
PROJECT BEGIN TO STA 9+00

SHEET 1 OF 2

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1" =20' (22"X34")

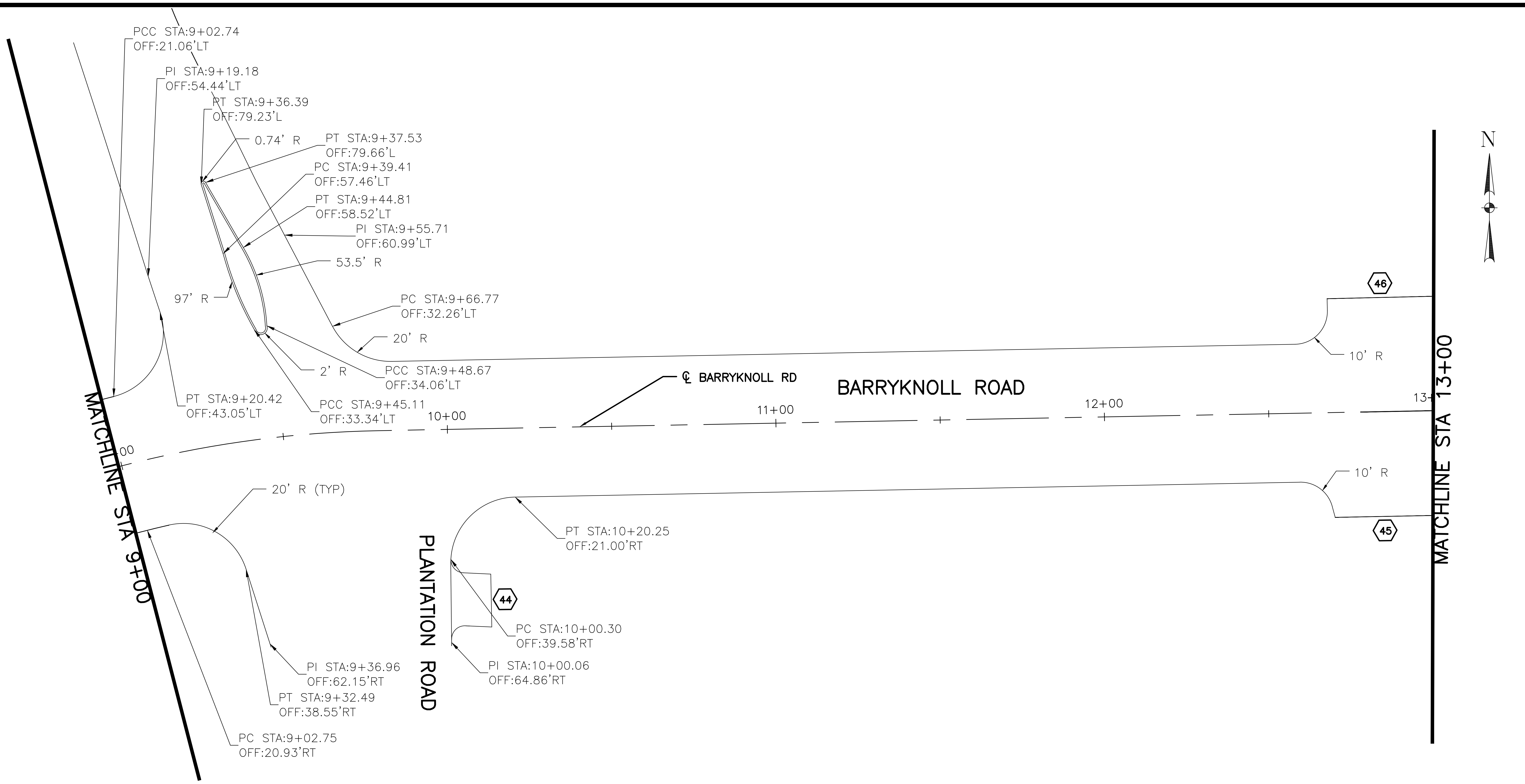
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

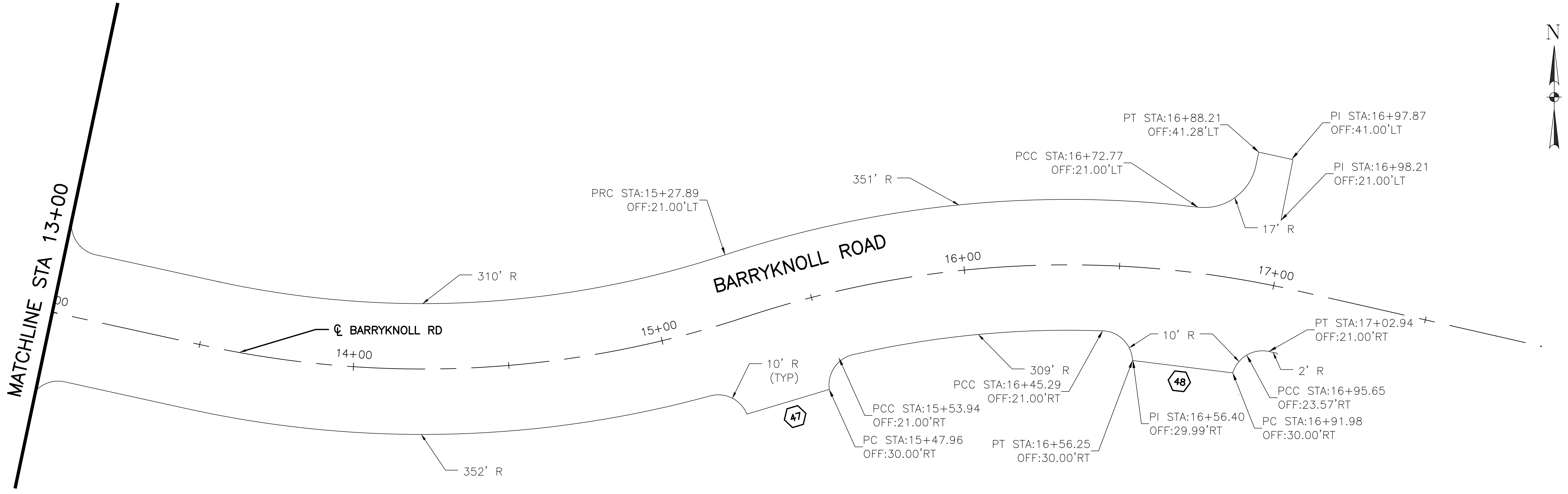
SHEET NO. 116 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\rd_barryknoll_horizontal geometry_01new.dwg Plotted April 15, 2026 at 5:29 PM by Gawali, Ajinkya Ashok j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\rd_barryknoll_horizontal geometry_02.dwg Plotted April 15, 2026 at 5:35 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.



PCC STA:9+02.74
OFF:21.06'LT
PI STA:9+19.18
OFF:54.44'LT
PT STA:9+36.39
OFF:79.23'L
0.74' R
PT STA:9+37.53
OFF:79.66'L
PC STA:9+39.41
OFF:57.46'LT
PT STA:9+44.81
OFF:58.52'LT
PI STA:9+55.71
OFF:60.99'LT
53.5' R
97' R
PC STA:9+66.77
OFF:32.26'LT
20' R
2' R
PCC STA:9+48.67
OFF:34.06'LT
PT STA:9+20.42
OFF:43.05'LT
PCC STA:9+45.11
OFF:33.34'LT
℄ BARRYKNOLL RD
BARRYKNOLL ROAD
10+00
11+00
12+00
13+
00
10' R
10' R
MATCHLINE STA 9+00
MATCHLINE STA 13+00
20' R (TYP)
PT STA:10+20.25
OFF:21.00'RT
PLANTATION ROAD
44
45
46
PC STA:10+00.30
OFF:39.58'RT
PI STA:10+00.06
OFF:64.86'RT
PI STA:9+36.96
OFF:62.15'RT
PT STA:9+32.49
OFF:38.55'RT
PC STA:9+02.75
OFF:20.93'RT
N



N
PT STA:16+88.21
OFF:41.28'LT
PI STA:16+97.87
OFF:41.00'LT
PCC STA:16+72.77
OFF:21.00'LT
PI STA:16+98.21
OFF:21.00'LT
351' R
PRC STA:15+27.89
OFF:21.00'LT
17' R
MATCHLINE STA 13+00
BARRYKNOLL ROAD
16+00
17+00
310' R
00
15+00
℄ BARRYKNOLL RD
14+00
10' R
PT STA:17+02.94
OFF:21.00'RT
10' R
(TYP)
309' R
2' R
48
PCC STA:16+45.29
OFF:21.00'RT
PCC STA:16+95.65
OFF:23.57'RT
PCC STA:15+53.94
OFF:21.00'RT
PI STA:16+56.40
OFF:29.99'RT
PC STA:16+91.98
OFF:30.00'RT
47
PC STA:15+47.96
OFF:30.00'RT
PT STA:16+56.25
OFF:30.00'RT
352' R

10 0 10 20

(IN FEET)
1 INCH = 20 FEET

HRGreen
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HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HORIZONTAL GEOMETRY LAYOUT
BARRYKNOLL ROAD
STA 9+00 TO END PROJECT

SHEET 2 OF 2

WBS NO. M-430296-0017-3

DRAWING SCALE

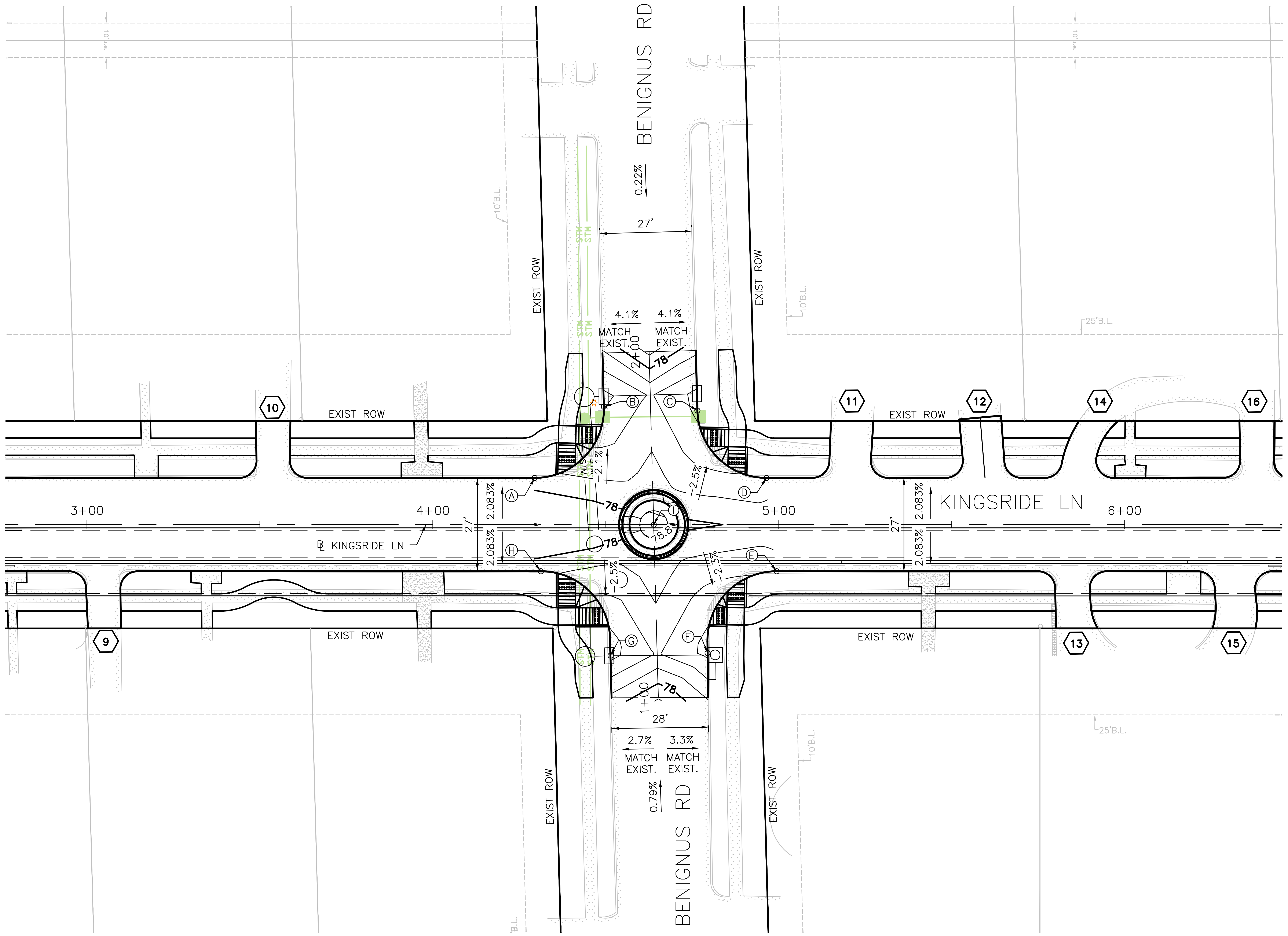
H: 1" =20' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 117 OF 345

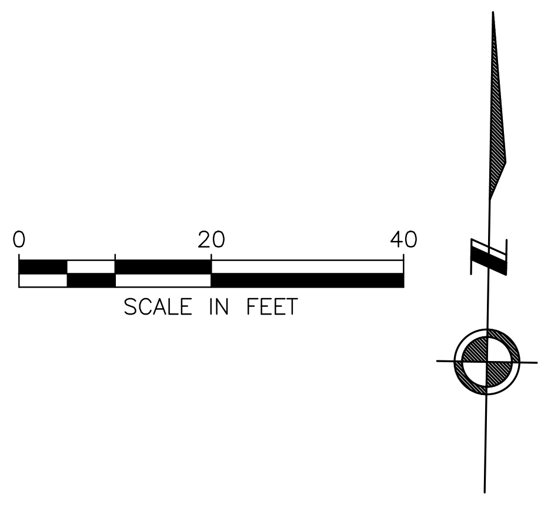
No.	Date	Revisions	App.


BENIGNUS RD
0.22%
27'
EXIST ROW
10'B.L.
25'B.L.
STM
4.1%
MATCH EXIST.
4.1%
MATCH EXIST.
2+00
78
A
B
C
D
E
F
G
H
I
10
11
12
14
16
9
13
15
EXIST ROW
3+00
4+00
5+00
6+00
KINGSRIDE LN
℄ KINGSRIDE LN
2.083%
27'
2.1%
2.5%
2.3%
WL
1+00
28'
2.7%
MATCH EXIST.
3.3%
MATCH EXIST.
0.79%
B.L.

NOTE:

1. PROP 0.2' CONTOURS ARE SHOWN ON LAYOUT.

VERTICAL GEOMETRY DATA		
NO.	ELEVATION	DESCRIPTION
A	77.93	BOTTOM OF CURB
B	77.39	BOTTOM OF CURB
C	77.36	BOTTOM OF CURB
D	77.67	BOTTOM OF CURB
E	77.67	BOTTOM OF CURB
F	77.34	BOTTOM OF CURB
G	77.34	BOTTOM OF CURB
H	77.89	BOTTOM OF CURB
I	78.94	CENTER OF INT


0
20
40
SCALE IN FEET
N

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

INTERSECTION LAYOUT
KINGSRIDE @ BENIGNUS

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

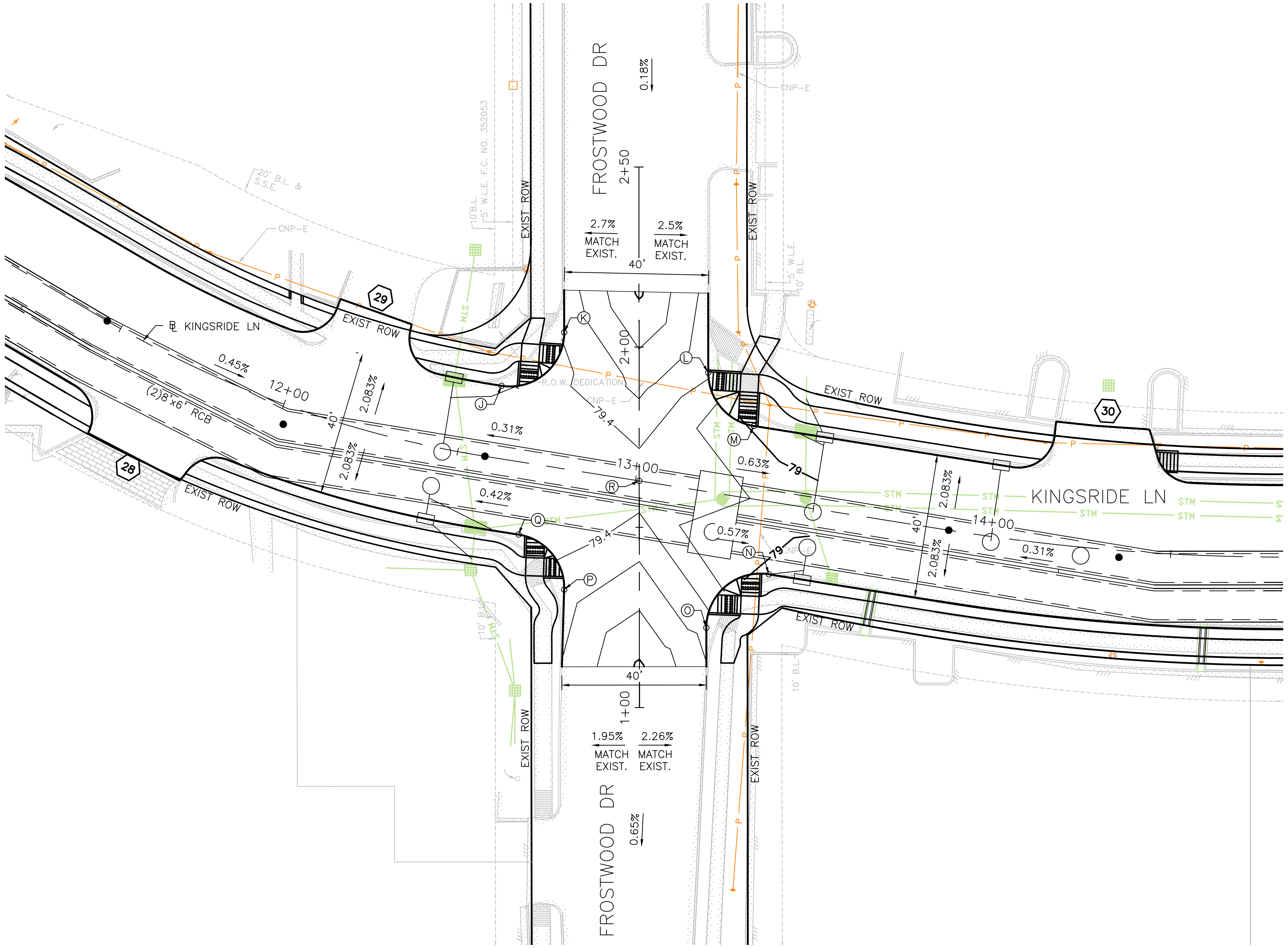
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 118 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\tirz - intersection layout.dwg Plotted April 15, 2026 at 5:26 PM by Gawali, Ajinkya Ashok j:\2021\210601.01\cad\dwgs\sheets\04 – roadway plans\tirz – intersection layout.dwg Plotted April 15, 2026 at 5:32 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.



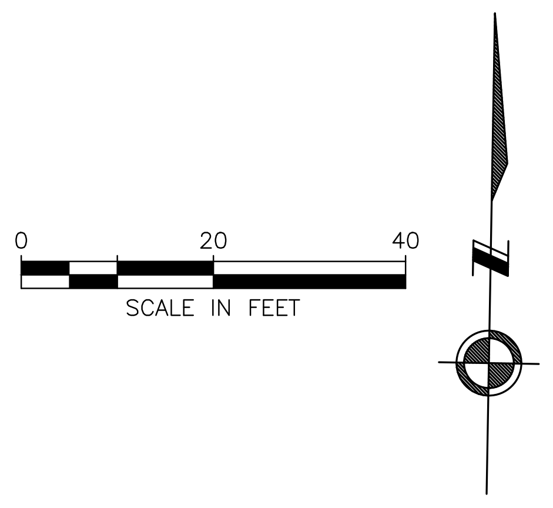
FROSTWOOD DR
0.18%
2+50
2.7%
MATCH EXIST.
2.5%
MATCH EXIST.
40'
10'B.L.
5' W.L.E. F.C. NO. 352053
EXIST ROW
20' B.L. & S.S.E.
CNP–E
29
EXIST ROW
℄ KINGSRIDE LN
0.45%
12+00
(2)8'x6' RCB
2.083%
40'
2.083%
28
EXIST ROW
K
L
J
2+00
R.O.W. DEDICATION
CNP–E
79.4
0.31%
13+00
R
0.42%
Q
79.4
P
O
STM
M
0.63%
79
0.57%
N
79
CNP–E
5' W.L.E.
10' B.L.
EXIST ROW
30
KINGSRIDE LN
STM
2.083%
40'
2.083%
14+00
0.31%
EXIST ROW
10' B.L.
10' B.L.
40'
1+00
1.95%
MATCH EXIST.
2.26%
MATCH EXIST.
EXIST ROW
EXIST ROW
FROSTWOOD DR
0.65%
P

NOTE:

1. PROP 0.2' CONTOURS ARE SHOWN ON LAYOUT.

VERTICAL GEOMETRY DATA

NO.	ELEVATION	DESCRIPTION
J	79.16	BOTTOM OF CURB
K	79.42	BOTTOM OF CURB
L	79.44	BOTTOM OF CURB
M	78.88	BOTTOM OF CURB
N	78.80	BOTTOM OF CURB
O	79.53	BOTTOM OF CURB
P	79.51	BOTTOM OF CURB
Q	79.23	BOTTOM OF CURB
R	79.27	CENTER OF INT



0
20
40
SCALE IN FEET

HRGreen

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HOUSTON, TX 77079
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FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

INTERSECTION LAYOUT
KINGSRIDE @ FROSTWOOD

SHEET 2 OF 3

WBS NO. M–430296–0017–3

DRAWING SCALE

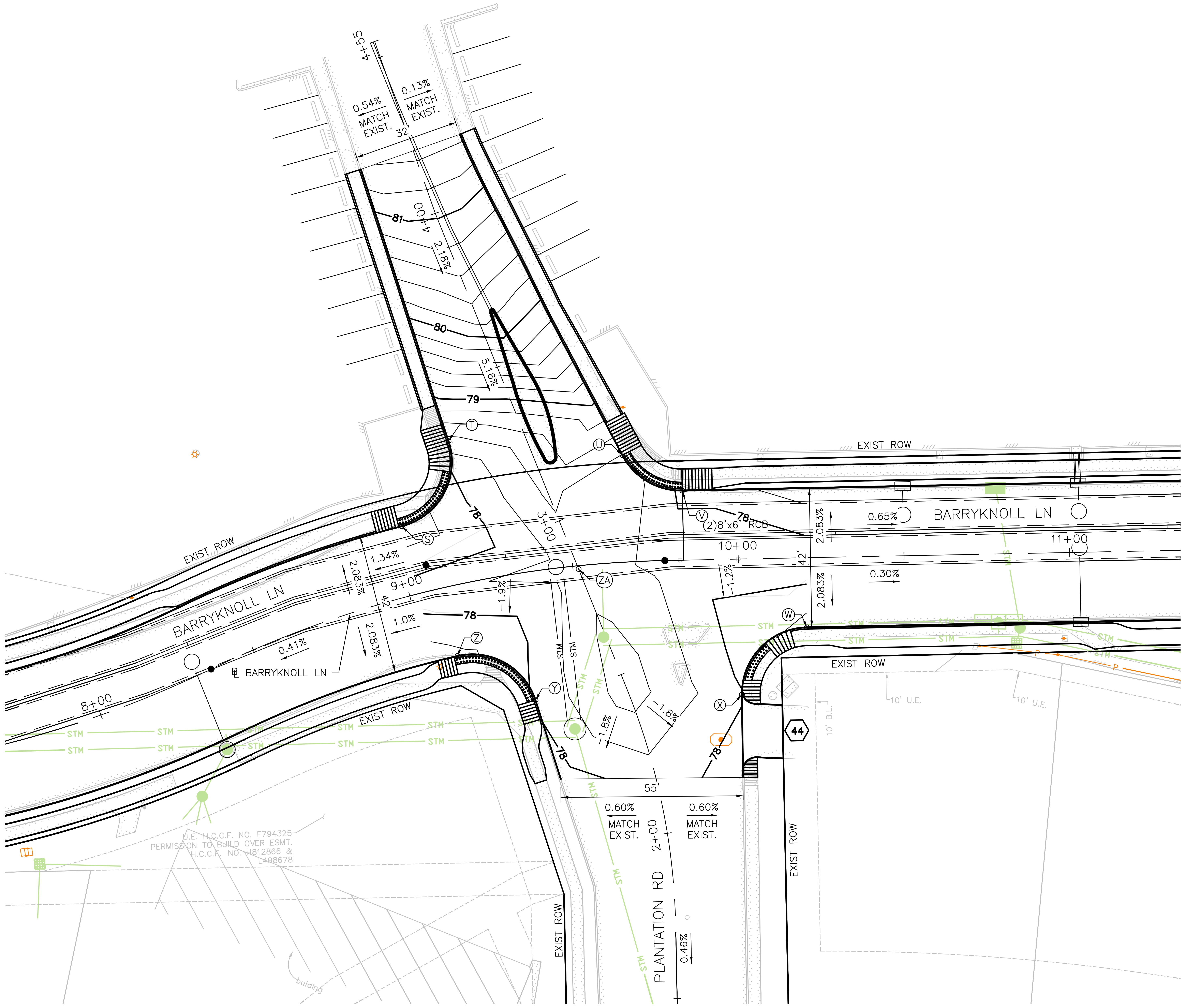
AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 119 OF 345

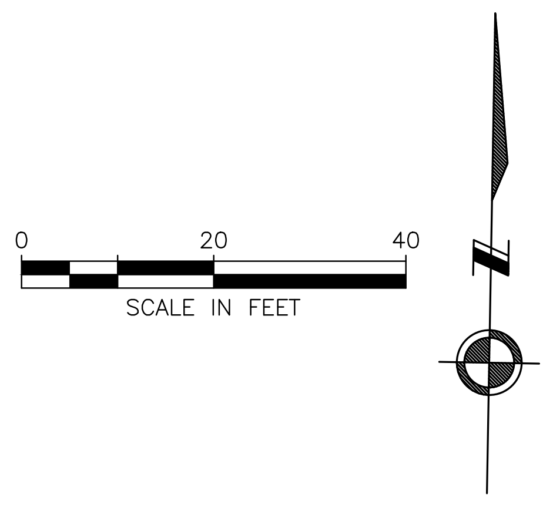
No.	Date	Revisions	App.


4+55
0.54%
MATCH EXIST.
0.13%
MATCH EXIST.
32'
81
4+00
2.18%
80
5.16%
79
T
U
EXIST ROW
78
3+00
V
(2)8'x6' RCB
0.65%
BARRYKNOLL LN
2.083%
11+00
10+00
42'
-1.2%
0.30%
EXIST ROW
S
1.34%
2.083%
9+00
ZA
-1.9%
42'
1.0%
2.083%
BARRYKNOLL LN
0.41%
℄ BARRYKNOLL LN
8+00
W
Z
STM
EXIST ROW
Y
X
-1.8%
-1.8%
44
10' U.E.
10' U.E.
10' B.L.
55'
0.60%
MATCH EXIST.
0.60%
MATCH EXIST.
2+00
U.E. H.C.C.F. NO. F794325
PERMISSION TO BUILD OVER ESMT.
H.C.C.F. NO. H812866 &
L498678
EXIST ROW
PLANTATION RD
0.46%
EXIST ROW
building

NOTE:

1. PROP 0.2' CONTOURS ARE SHOWN ON LAYOUT.

VERTICAL GEOMETRY DATA		
NO.	ELEVATION	DESCRIPTION
S	77.66	BOTTOM OF CURB
T	78.33	BOTTOM OF CURB
U	78.39	BOTTOM OF CURB
V	77.95	BOTTOM OF CURB
W	77.70	BOTTOM OF CURB
X	78.01	BOTTOM OF CURB
Y	78.03	BOTTOM OF CURB
Z	77.73	BOTTOM OF CURB
ZA	78.30	CENTER OF INT


0
20
40
SCALE IN FEET

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4/15/2026
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

INTERSECTION LAYOUT
BARRYKNOLL @ PLANTATION

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

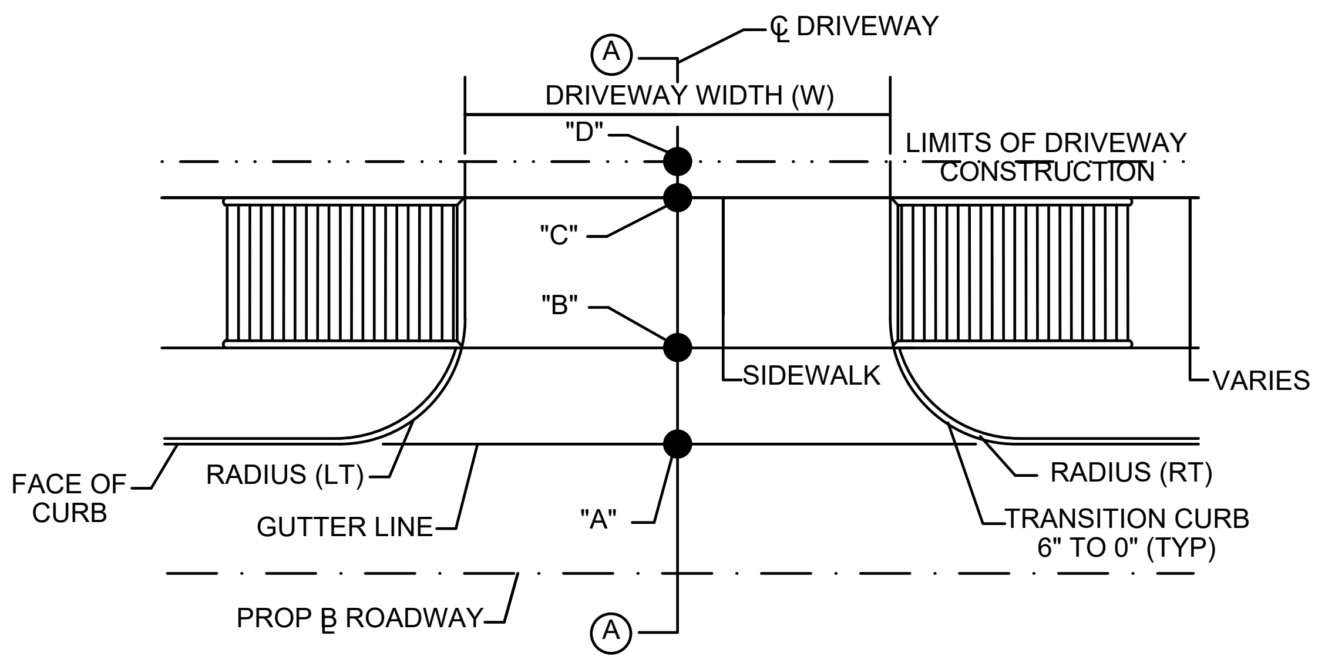
SHEET NO. 120 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\tirz - intersection layout.dwg Plotted April 15, 2026 at 5:28 PM by Gawali, Ajinkya Ashok

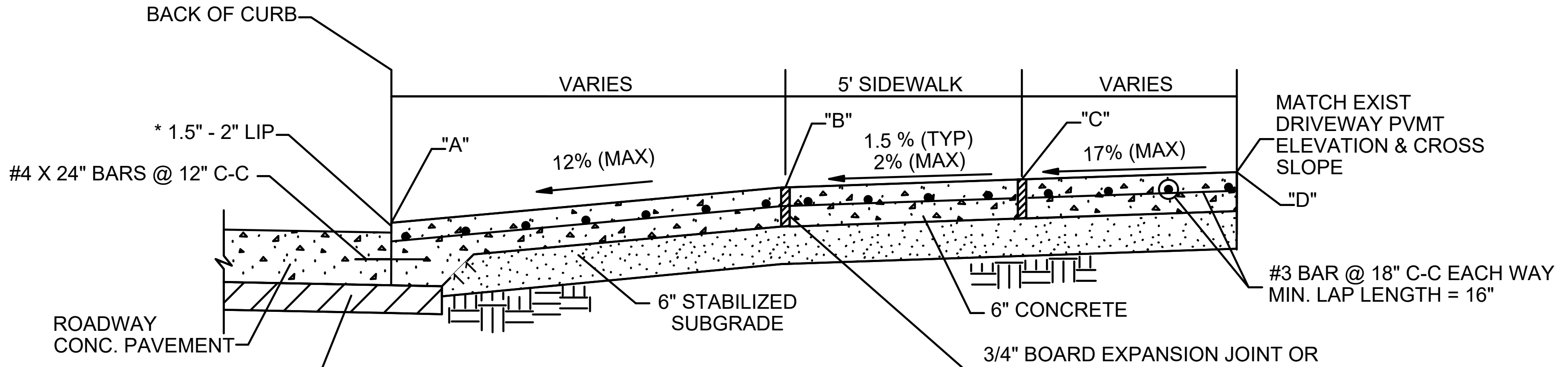
No.	Date	Revisions	App.

KINGSRIDE

DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				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	1+08.94	9.50	CONCRETE	9.50	CONCRETE	5	13.50	20	25	30	*79.01	79.61	79.69	79.76	8.8%	1.5%	1.3%	6" CONCRETE	5.0 FT	RESIDENTIAL
2	1+13.53	12.17	CONCRETE	12.17	CONCRETE	5	13.50	18	23	30	*79.04	79.58	79.68	80.21	12.0%	2.0%	7.5%	6" CONCRETE	5.0 FT	RESIDENTIAL
3	1+58.65	12.29	CONCRETE	12.29	CONCRETE	5	13.50	18	23	30	*78.90	79.44	79.54	80.27	12.0%	2.0%	10.5%	6" CONCRETE	5.0 FT	RESIDENTIAL
4	1+72.54	8.73	CONCRETE	8.73	CONCRETE	5	13.50	20	25	30	*78.86	79.61	79.69	79.81	12.0%	1.5%	2.5%	6" CONCRETE	5.0 FT	RESIDENTIAL
5	1+80.91	9.81	CONCRETE	9.81	CONCRETE	5	13.50	18	23	30	*78.84	79.38	79.48	79.99	12.0%	2.0%	7.3%	6" CONCRETE	5.0 FT	RESIDENTIAL
6	2+17.30	14.41	CONCRETE	14.41	CONCRETE	5	13.50	18	23	30	*78.72	79.27	79.37	79.99	12.0%	2.0%	8.9%	6" CONCRETE	5.0 FT	RESIDENTIAL
7	2+43.01	9.53	CONCRETE	9.53	CONCRETE	5	13.50	20	25	30	*78.65	79.43	79.53	80.02	12.0%	2.0%	9.8%	6" CONCRETE	5.0 FT	RESIDENTIAL
8	2+42.85	10.29	CONCRETE	10.29	CONCRETE	5	13.50	18	23	30	*78.66	79.22	79.32	79.89	12.0%	2.0%	8.2%	6" CONCRETE	5.0 FT	RESIDENTIAL
9	3+04.54	9.87	CONCRETE	9.87	CONCRETE	5	13.50	18	23	30	*78.47	79.25	79.35	79.80	12.0%	2.0%	9.0%	6" CONCRETE	5.0 FT	RESIDENTIAL
10	3+53.85	9.85	CONCRETE	9.85	CONCRETE	5	13.50	20	25	30	*78.33	79.11	79.21	79.86	12.0%	2.0%	13.1%	6" CONCRETE	5.0 FT	RESIDENTIAL
11	5+20.36	12.12	CONCRETE	12.12	CONCRETE	5	13.50	20	25	30	*77.92	78.70	78.80	79.65	12.0%	2.0%	17.0%	6" CONCRETE	5.0 FT	RESIDENTIAL
12	5+59.61	11.96	CONCRETE	11.96	CONCRETE	5	13.50	20	25	31	*78.06	78.84	78.94	79.94	12.0%	2.0%	17.0%	6" CONCRETE	5.0 FT	RESIDENTIAL
13	5+84.67	10.33	CONCRETE	10.33	CONCRETE	5	13.50	20	25	30	*78.14	78.92	79.02	79.59	12.0%	2.0%	11.4%	6" CONCRETE	5.0 FT	RESIDENTIAL
14	5+86.79	9.00	CONCRETE	9.00	CONCRETE	5	13.50	20	25	30	*78.15	78.93	79.04	80.06	12.0%	2.0%	17.0%	6" CONCRETE	5.0 FT	RESIDENTIAL
15	6+31.86	11.83	CONCRETE	11.83	CONCRETE	5	13.50	20	25	30	*78.31	79.09	79.19	80.05	12.0%	2.0%	17.0%	6" CONCRETE	5.0 FT	RESIDENTIAL
16	6+38.31	9.90	CONCRETE	9.90	CONCRETE	5	13.50	20	25	30	*78.33	79.11	79.21	79.59	12.0%	2.0%	7.7%	6" CONCRETE	5.0 FT	RESIDENTIAL
17	6+61.62	18.30	CONCRETE	18.30	CONCRETE	5	13.50	20	25	30	*78.41	79.19	79.29	79.94	12.0%	2.0%	13.1%	6" CONCRETE	5.0 FT	RESIDENTIAL
18	6+59.05	10.29	CONCRETE	10.29	CONCRETE	5	13.50	20	25	30	*78.40	79.18	79.28	79.81	12.0%	2.0%	10.6%	6" CONCRETE	5.0 FT	RESIDENTIAL
19	7+28.38	10.10	CONCRETE	10.10	CONCRETE	5	13.50	20	25	30	*78.65	79.43	79.53	80.01	12.0%	2.0%	9.6%	6" CONCRETE	5.0 FT	RESIDENTIAL
20	7+30.42	12.05	CONCRETE	12.05	CONCRETE	5	13.50	20	25	30	*78.65	79.43	79.53	80.21	12.0%	2.0%	13.6%	6" CONCRETE	5.0 FT	RESIDENTIAL


A
℄ DRIVEWAY
DRIVEWAY WIDTH (W)
"D"
LIMITS OF DRIVEWAY CONSTRUCTION
"C"
"B"
SIDEWALK
VARIES
FACE OF CURB
RADIUS (LT)
GUTTER LINE
"A"
RADIUS (RT)
TRANSITION CURB 6" TO 0" (TYP)
PROP ℄ ROADWAY
A

TYPICAL DRIVEWAY LAYOUT
N. T. S


BACK OF CURB
VARIES
5' SIDEWALK
VARIES
* 1.5" - 2" LIP
#4 X 24" BARS @ 12" C-C
"A"
12% (MAX)
"B"
1.5 % (TYP)
2% (MAX)
"C"
17% (MAX)
MATCH EXIST DRIVEWAY PVMT ELEVATION & CROSS SLOPE
"D"
#3 BAR @ 18" C-C EACH WAY MIN. LAP LENGTH = 16"
6" CONCRETE
6" STABILIZED SUBGRADE
ROADWAY CONC. PAVEMENT
ROADWAY SUBGRADE
3/4" BOARD EXPANSION JOINT OR 1/2" SAW CUT PREFORMED JOINT

SECTION A
SINGLE FAMILY RESIDENTIAL
TYPICAL DRIVEWAY SECTION
N. T. S

NOTES:

1. REFER TO CONCRETE SIDEWALK & DRIVEWAY DETAILS FOR ADDITIONAL INFORMATION.
2. ELEVATION AT POINT "D" IS (+/-) AS SHOWN IN DRIVEWAY TABLE. MATCH EXISTING ELEVATION AT ROW.
3. REFER TO PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. * DENOTES LIP USED AT DRIVEWAYS.

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4/15/2026
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Texas Registered Engineering Firm F-11278

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

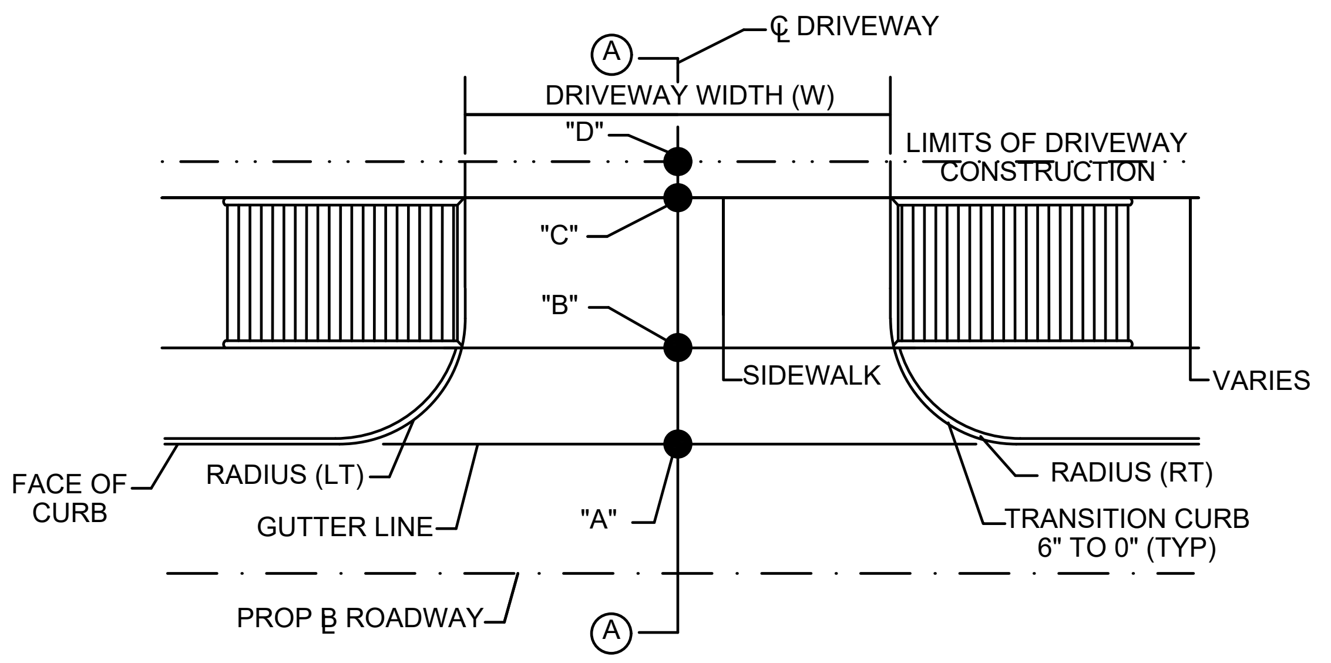
DRIVEWAY
TABULATION DETAILS

SHEET 1 OF 3

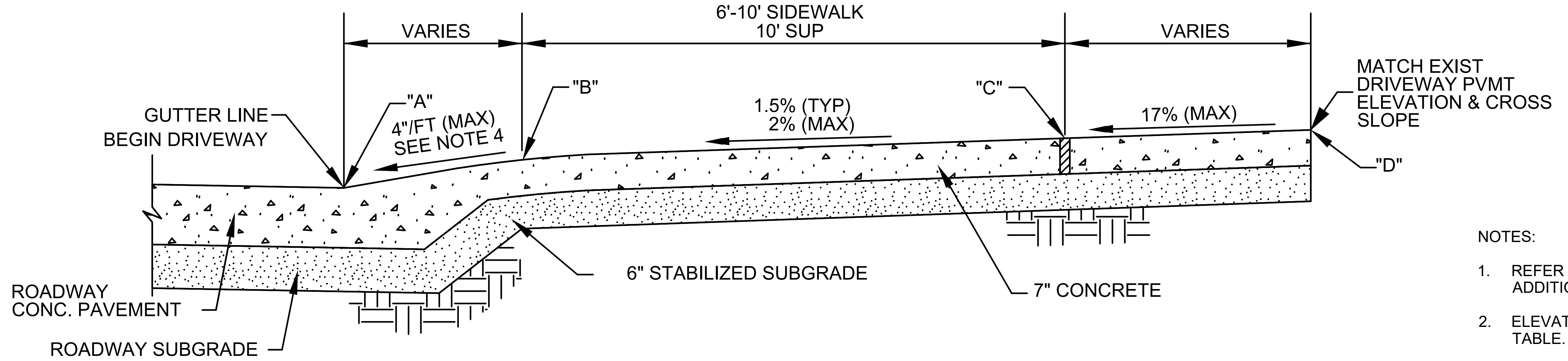
WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 121 OF 345

j:\2021\210601.01\cad\dwgs\sheets\04 - roadway plans\tirz - driveway tabulation.dwg Plotted April 15, 2026 at 5:32 PM by Gawali, Ajinkya Ashok

KINGSRIDE																			
DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				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			
21	8+01.35	11.77	CONCRETE	11.77	CONCRETE	5	13.50	20	25	30	*78.90	79.68	79.78	80.23	12.0%	2.0%	9.1%	6" CONCRETE	5.0 FT	RESIDENTIAL
22	7+97.59	9.78	CONCRETE	9.78	CONCRETE	5	13.50	20	25	30	*78.89	79.67	79.77	80.53	12.0%	2.0%	15.1%	6" CONCRETE	5.0 FT	RESIDENTIAL
23	8+51.31	10.21	CONCRETE	10.21	CONCRETE	5	13.50	20	25	30	*79.08	79.86	79.96	80.51	12.0%	2.0%	11.1%	6" CONCRETE	5.0 FT	RESIDENTIAL
24	8+80.93	24.39	CONCRETE	24.39	CONCRETE	10	13.94	20.47	25.47	30	79.18	79.96	80.06	80.37	12.0%	2.0%	6.8%	7" CONCRETE	5.0 FT	COMMERCIAL
25	8+99.62	25.07	CONCRETE	25.07	CONCRETE	10	13.74	20.04	25.04	29.77	79.24	80.00	80.09	80.90	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
26	10+05.00	29.22	CONCRETE	29.82	CONCRETE	10	18.13	21.18	26.18	30	79.61	79.98	80.07	80.51	12.0%	2.0%	11.4%	7" CONCRETE	5.0 FT	COMMERCIAL
27	10+34.47	32.94	CONCRETE	32.94	CONCRETE	10	17.03	19.16	24.16	29.67	79.67	79.93	80.03	80.74	12.0%	2.0%	13.2%	7" CONCRETE	5.0 FT	COMMERCIAL
28	11+69.62	29.14	CONCRETE	29.31	CONCRETE	10	20	22.64	27.64	29.79	79.63	79.95	80.05	80.17	12.0%	2.0%	5.5%	7" CONCRETE	5.0 FT	COMMERCIAL
29	12+17.20	20.95	CONCRETE	20.95	CONCRETE	10	20.15	23.37	28.37	32.45	79.42	79.81	79.90	80.34	12.0%	2.0%	10.4%	7" CONCRETE	5.0 FT	COMMERCIAL
30	14+29.06	28.26	CONCRETE	28.70	CONCRETE	10	20	23.23	28.23	33.98	79.16	79.55	79.64	80.24	12.0%	2.0%	10.3%	7" CONCRETE	5.0 FT	COMMERCIAL
31	17+79.93	20.08	CONCRETE	20.08	CONCRETE	15	20	23.58	28.58	49.54	78.80	79.23	79.33	79.58	12.0%	2.0%	1.2%	7" CONCRETE	5.0 FT	COMMERCIAL
32	17+80.20	29.80	CONCRETE	30.17	CONCRETE	10	20	23	28	30	78.81	79.17	79.27	79.55	12.0%	2.0%	14.2%	7" CONCRETE	5.0 FT	COMMERCIAL
33	18+19.81	20.39	CONCRETE	20.39	CONCRETE	15	20	23.58	28.58	48.65	78.69	79.13	79.22	79.46	12.0%	2.0%	1.2%	7" CONCRETE	5.0 FT	COMMERCIAL
34	18+30.11	29.65	CONCRETE	30.11	CONCRETE	10	20	23	28	3.31	78.66	79.02	79.12	79.51	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
35	18+83.61	22.23	CONCRETE	22.76	CONCRETE	10	20	23	28	30	78.49	78.85	78.95	79.06	12.0%	2.0%	2.5%	7" CONCRETE	5.0 FT	COMMERCIAL
36	19+96.36	35.91	CONCRETE	35.91	CONCRETE	10	20	24	29	30	78.74	79.20	79.28	79.29	11.5%	1.5%	1.5%	7" CONCRETE	5.0 FT	COMMERCIAL
37	21+09.96	35.34	CONCRETE	35.34	CONCRETE	10	31.60	32.16	38.16	42.39	78.33	78.34	78.46	79.17	2.0%	2.0%	17.0%	7" CONCRETE	6.0 FT	COMMERCIAL
38	21+66.88	25.64	CONCRETE	25.64	CONCRETE	10	20	24	29	31.10	78.23	78.71	78.81	79.16	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
39	21+93.88	36.16	CONCRETE	36.16	CONCRETE	10	31.97	32.51	38.48	41.81	78.01	78.02	78.24	79.11	18.50%	3.7%	26.1%	7" CONCRETE	6.0 FT	COMMERCIAL


A
℄ DRIVEWAY
DRIVEWAY WIDTH (W)
"D"
LIMITS OF DRIVEWAY CONSTRUCTION
"C"
"B"
SIDEWALK
VARIES
FACE OF CURB
RADIUS (LT)
GUTTER LINE
"A"
RADIUS (RT)
TRANSITION CURB 6" TO 0" (TYP)
PROP ℄ ROADWAY
A

TYPICAL DRIVEWAY LAYOUT
N. T. S


VARIES
6'-10' SIDEWALK
10' SUP
VARIES
GUTTER LINE
BEGIN DRIVEWAY
"A"
4"/FT (MAX)
SEE NOTE 4
"B"
1.5% (TYP)
2% (MAX)
"C"
17% (MAX)
MATCH EXIST DRIVEWAY PVMT ELEVATION & CROSS SLOPE
"D"
ROADWAY CONC. PAVEMENT
ROADWAY SUBGRADE
6" STABILIZED SUBGRADE
7" CONCRETE

SECTION A
COMMERCIAL DRIVEWAY
TYPICAL DRIVEWAY SECTION
N. T. S

NOTES:

1. REFER TO CONCRETE SIDEWALK & DRIVEWAY DETAILS FOR ADDITIONAL INFORMATION.
2. ELEVATION AT POINT "D" IS (+/-) AS SHOWN IN DRIVEWAY TABLE. MATCH EXISTING ELEVATION AT ROW.
3. REFER TO PLAN & PROFILE SHEETS FOR ADDITIONAL INFORMATION.
4. 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%.

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRIVEWAY
TABULATION DETAILS

SHEET 2 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 122 OF 345

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No.	Date	Revisions	App.

GESSNER

DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				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			
39	4+09.26	34.06	CONCRETE	34.06	CONCRETE	10	58.09	61.43	66.20	–	78.70	78.91	79.00	–	6.20	2	–	7" CONCRETE	5.0 FT	COMMERCIAL
40	2+92.91	37.23	CONCRETE	37.23	CONCRETE	10	52.75	55.73	62.41	–	78.46	78.77	78.90	–	10.30	2	–	7" CONCRETE	5.0 FT	COMMERCIAL

BARRYKNOLL

DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				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			
41	5+64.33	21.04	CONCRETE	21.04	CONCRETE	10	20.56	23	28	30	77.13	77.42	77.52	77.81	12.0%	2.0%	14.7%	7" CONCRETE	5.0 FT	COMMERCIAL
42	6+06.24	36.44	CONCRETE	36.44	CONCRETE	10	21.40	22.20	27.20	30	76.98	77.08	77.44	77.54	12.0%	2.0%	12.4%	7" CONCRETE	5.0 FT	COMMERCIAL
43	6+29.50	18.86	CONCRETE	18.86	CONCRETE	10	20.71	23.13	28.13	30	76.91	77.19	77.29	77.39	12.0%	2.0%	5.2%	7" CONCRETE	5.0 FT	COMMERCIAL
45	12+84.89	32.77	CONCRETE	33.62	CONCRETE	10	21	21.50	26.50	34.74	78.44	78.50	78.85	80.00	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
46	12+84.76	31.74	CONCRETE	31.74	CONCRETE	10	21	23.50	28.50	31.90	78.43	78.73	78.83	79.42	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
47	15+32.84	27.94	CONCRETE	28.23	CONCRETE	10	21	23.70	28.70	30	78.79	79.11	79.21	79.44	12.0%	2.0%	17.0%	7" CONCRETE	5.0 FT	COMMERCIAL
48	16+73.15	30.34	CONCRETE	33.21	CONCRETE	10	20.97	23.92	28.92	30	78.94	79.29	79.39	79.53	12.0%	2.0%	12.5%	7" CONCRETE	5.0 FT	COMMERCIAL
49	4+65.83	–	–	24.00	CONCRETE	10	21.50	23.08	28.08	33	77.27	77.46	77.56	78.21	12.0%	2.0%	12.6%	7" CONCRETE	5.0 FT	COMMERCIAL

PLANTATION

DRIVEWAY NO.	DRIVEWAY CL STATION	EXISTING DRIVEWAY WIDTH	EXISTING DRIVEWAY MATERIAL	PROPOSED DRIVEWAY WIDTH (FT)	PROPOSED DRIVEWAY MATERIAL	PROPOSED RADIUS	OFFSET				ELEVAITON				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			
44	2+33.48	16.00	CONCRETE	16.00	CONCRETE	4	30.77	36.26	42.98	–	*77.96	78.07	78.73	–	2.0%	9.83%	–	6" CONCRETE	5.0 FT	RESIDENTIAL

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRIVEWAY
TABULATION DETAILS

SHEET 3 OF 3

WBS NO. M–430296–0017–3

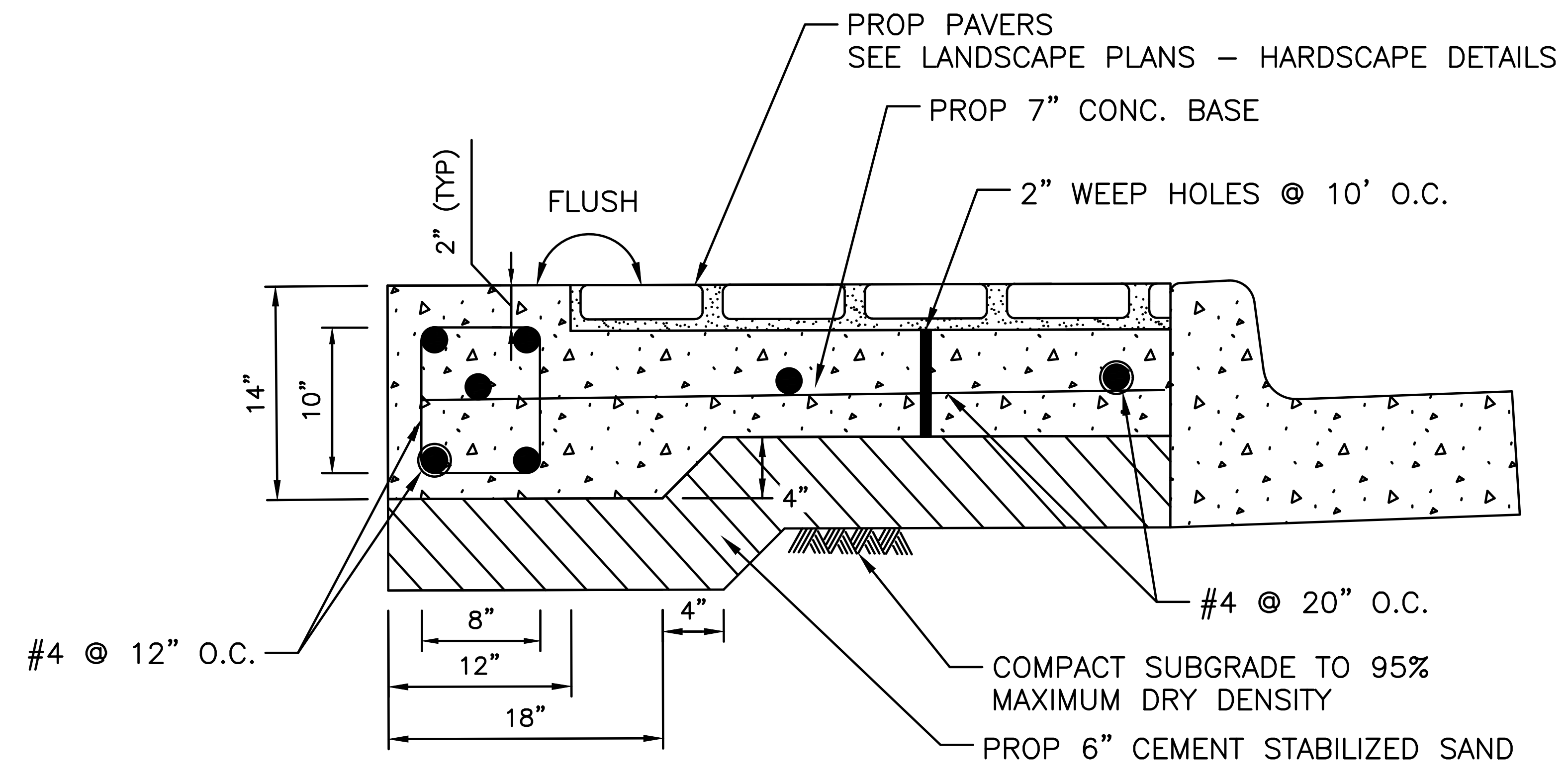
DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

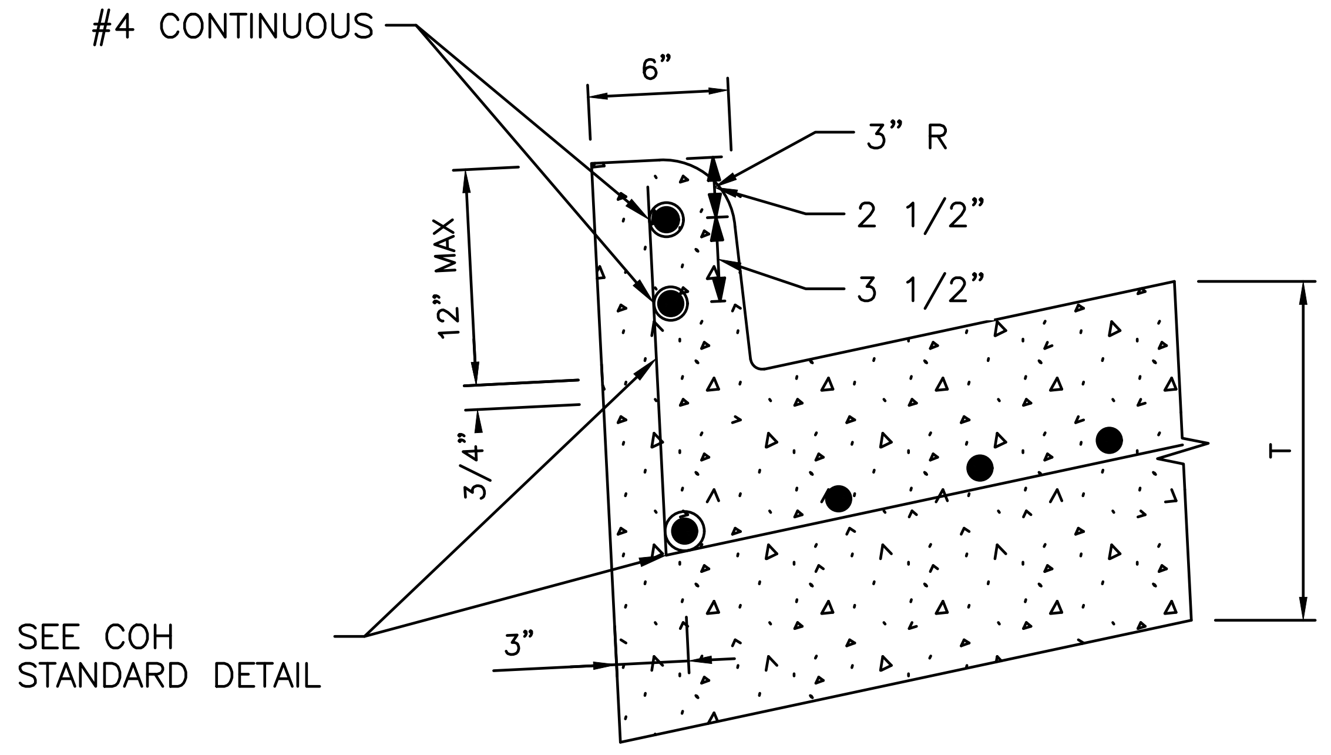
SHEET NO. 123 OF 345



PROP PAVERS
SEE LANDSCAPE PLANS – HARDSCAPE DETAILS
PROP 7" CONC. BASE
2" WEEP HOLES @ 10' O.C.
FLUSH
2" (TYP)
14"
10"
4"
#4 @ 12" O.C.
#4 @ 20" O.C.
8"
12"
18"
4"
COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY
PROP 6" CEMENT STABILIZED SAND

CONCRETE BAND DETAIL FOR PAVERS

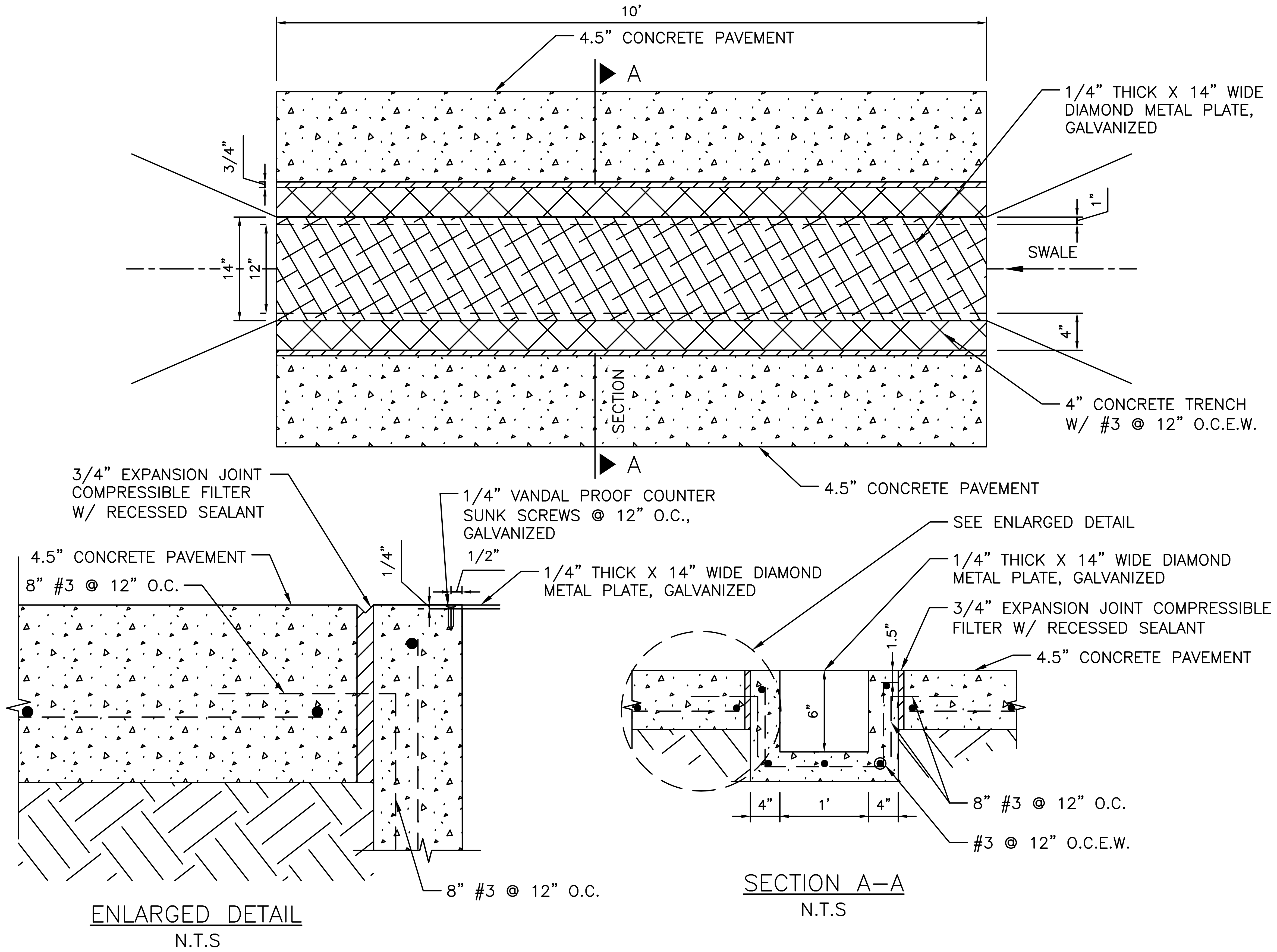
N.T.S



#4 CONTINUOUS
6"
3" R
2 1/2"
3 1/2"
12" MAX
3/4"
T
SEE COH STANDARD DETAIL
3"

12" MAX CURB DETAIL

N.T.S



10'
4.5" CONCRETE PAVEMENT
A
1/4" THICK X 14" WIDE DIAMOND METAL PLATE, GALVANIZED
3/4"
1"
14"
12"
SWALE
4"
4" CONCRETE TRENCH W/ #3 @ 12" O.C.E.W.
SECTION
A
4.5" CONCRETE PAVEMENT
3/4" EXPANSION JOINT COMPRESSIBLE FILTER W/ RECESSED SEALANT
1/4" VANDAL PROOF COUNTER SUNK SCREWS @ 12" O.C., GALVANIZED
4.5" CONCRETE PAVEMENT
8" #3 @ 12" O.C.
1/4"
1/2"
1/4" THICK X 14" WIDE DIAMOND METAL PLATE, GALVANIZED
8" #3 @ 12" O.C.
SEE ENLARGED DETAIL
1/4" THICK X 14" WIDE DIAMOND METAL PLATE, GALVANIZED
3/4" EXPANSION JOINT COMPRESSIBLE FILTER W/ RECESSED SEALANT
1.5"
4.5" CONCRETE PAVEMENT
6"
4"
1'
4"
8" #3 @ 12" O.C.
#3 @ 12" O.C.E.W.

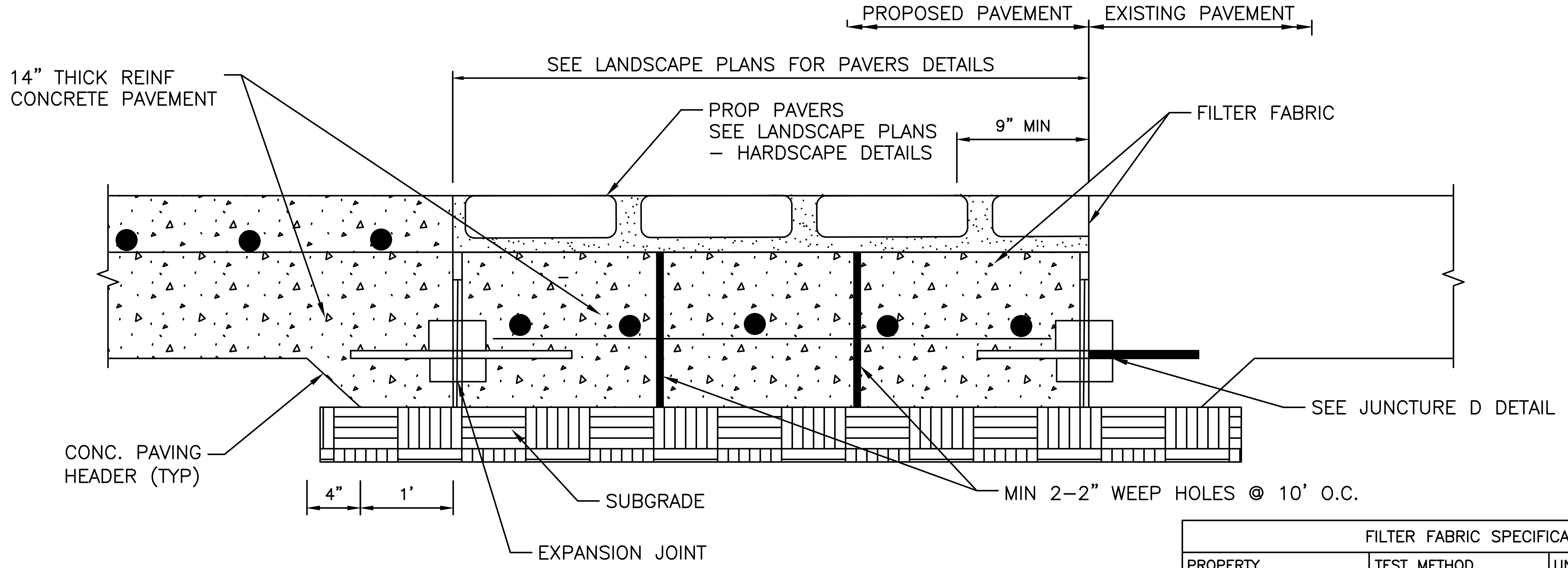
ENLARGED DETAIL

N.T.S

SECTION A–A

N.T.S

TRENCH DRAIN DETAIL

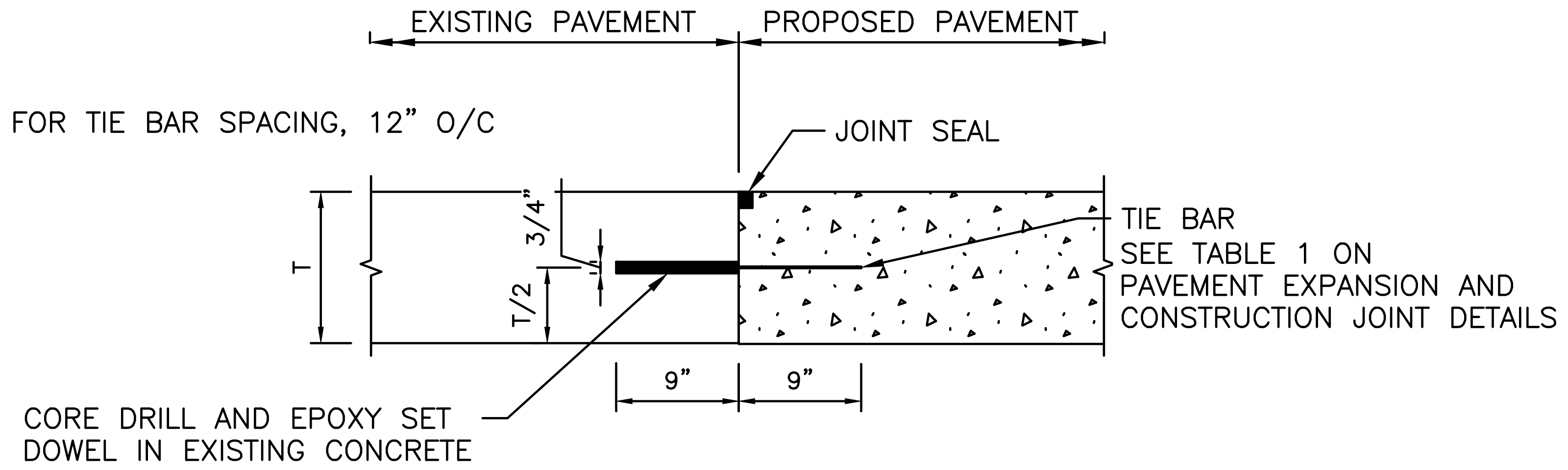


PROPOSED PAVEMENT
EXISTING PAVEMENT
SEE LANDSCAPE PLANS FOR PAVERS DETAILS
14" THICK REINF CONCRETE PAVEMENT
PROP PAVERS
SEE LANDSCAPE PLANS – HARDSCAPE DETAILS
9" MIN
FILTER FABRIC
SEE JUNCTURE D DETAIL
CONC. PAVING HEADER (TYP)
4"
1'
SUBGRADE
MIN 2-2" WEEP HOLES @ 10' O.C.
EXPANSION JOINT

ROADWAY CONCRETE UNDER PAVERS DETAIL

N.T.S

FILTER FABRIC SPECIFICATIONS			
PROPERTY	TEST METHOD	UNIT	SPECIFICATIONS
MATERIAL			NONWOVEN GEOTEXTILE
UNIT WEIGHT		Oz/Sq. Yd.	8 (min.)
FILTRATION RATE		In/Sec	0.08 (min.)
GRAB STRENGTH	ASTM D- 1682	Lb.	400 (min.)
PUNCTURE STRENGTH	ASTM D- 751 (MODIFIED)	Lb.	125 (min.)
MULLEN BURST STRENGTH	ASTM D- 751	PSI	400 (min.)
TENSTILE STRENGTH	ASTM D- 1682	Lb.	300 (min.)
EQUIV. OPENING SIZE	US STANDARD SIEVE	No.	80 (min.)



EXISTING PAVEMENT
PROPOSED PAVEMENT
FOR TIE BAR SPACING, 12" O/C
JOINT SEAL
3/4"
T
T/2
TIE BAR
SEE TABLE 1 ON PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS
9"
9"
CORE DRILL AND EPOXY SET DOWEL IN EXISTING CONCRETE

JUNCTURE D – TYPICAL CONNECTION TO EXISTING CONCRETE

N.T.S

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

MISCELLANEOUS
ROADWAY DETAILS

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 124 OF 345

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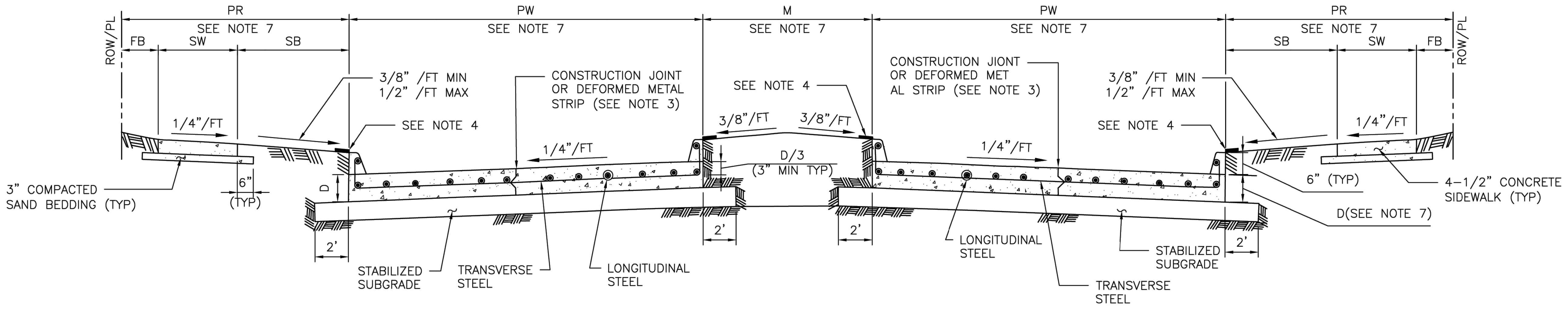
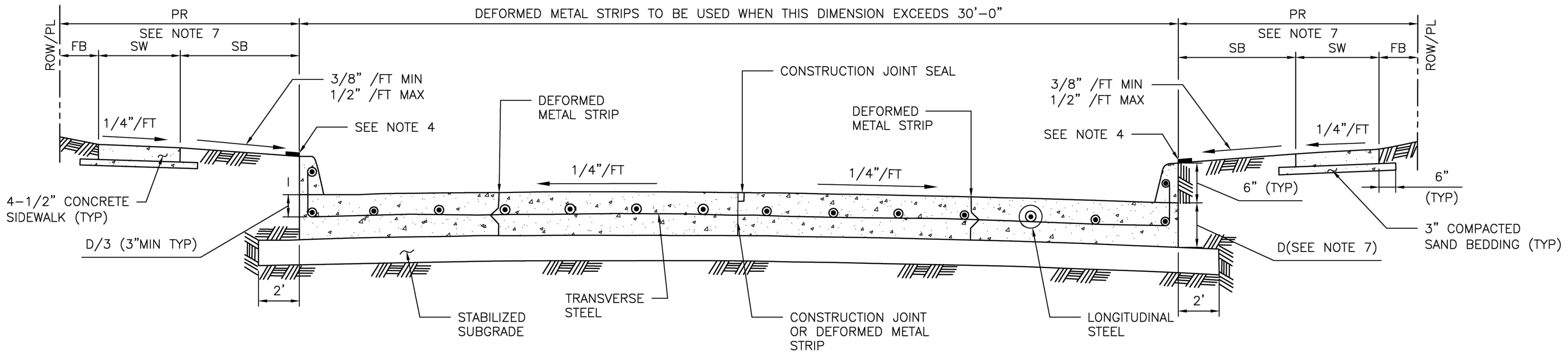

PR
SEE NOTE 7
PW
SEE NOTE 7
M
SEE NOTE 7
PW
SEE NOTE 7
PR
SEE NOTE 7
ROW/PL
FB
SW
SB
SB
SW
FB
ROW/PL
3/8" /FT MIN
1/2" /FT MAX
CONSTRUCTION JOINT
OR DEFORMED METAL
STRIP (SEE NOTE 3)
SEE NOTE 4
CONSTRUCTION JIONT
OR DEFORMED MET
AL STRIP (SEE NOTE 3)
3/8" /FT MIN
1/2" /FT MAX
SEE NOTE 4
3/8"/FT
3/8"/FT
SEE NOTE 4
1/4"/FT
1/4"/FT
D/3
(3" MIN TYP)
1/4"/FT
1/4"/FT
1/4"/FT
3" COMPACTED
SAND BEDDING (TYP)
6"
(TYP)
D
6" (TYP)
4-1/2" CONCRETE
SIDEWALK (TYP)
D(SEE NOTE 7)
2'
2'
2'
2'
STABILIZED
SUBGRADE
TRANSVERSE
STEEL
LONGITUDINAL
STEEL
LONGITUDINAL
STEEL
STABILIZED
SUBGRADE
TRANSVERSE
STEEL

TYPICAL DOUBLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS


PR
SEE NOTE 7
DEFORMED METAL STRIPS TO BE USED WHEN THIS DIMENSION EXCEEDS 30'-0"
PR
SEE NOTE 7
ROW/PL
FB
SW
SB
SB
SW
FB
ROW/PL
3/8" /FT MIN
1/2" /FT MAX
SEE NOTE 4
DEFORMED
METAL STRIP
CONSTRUCTION JOINT SEAL
DEFORMED
METAL STRIP
3/8" /FT MIN
1/2" /FT MAX
SEE NOTE 4
1/4"/FT
1/4"/FT
1/4"/FT
1/4"/FT
1/4"/FT
4-1/2" CONCRETE
SIDEWALK (TYP)
6" (TYP)
6"
(TYP)
3" COMPACTED
SAND BEDDING (TYP)
D/3 (3"MIN TYP)
D(SEE NOTE 7)
2'
2'
STABILIZED
SUBGRADE
TRANSVERSE
STEEL
CONSTRUCTION JOINT
OR DEFORMED METAL
STRIP
LONGITUDINAL
STEEL

TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS

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.

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"
fc' = 4,000 PSI/28 DAYS AND FY = 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	11.125	2.50	30	18.00	3.0	21	26.00	4	24	36	36
11	45	49	11.125	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

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 02751–01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONCRETE PAVEMENT DETAILS

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DRAWING SCALE
NOT TO SCALE

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STATE OF TEXAS
DAVID G. GREANEY
125563
LICENSED PROFESSIONAL ENGINEER
David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 1 OF 14

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 125 OF 345

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No.	Date	Revisions	App.

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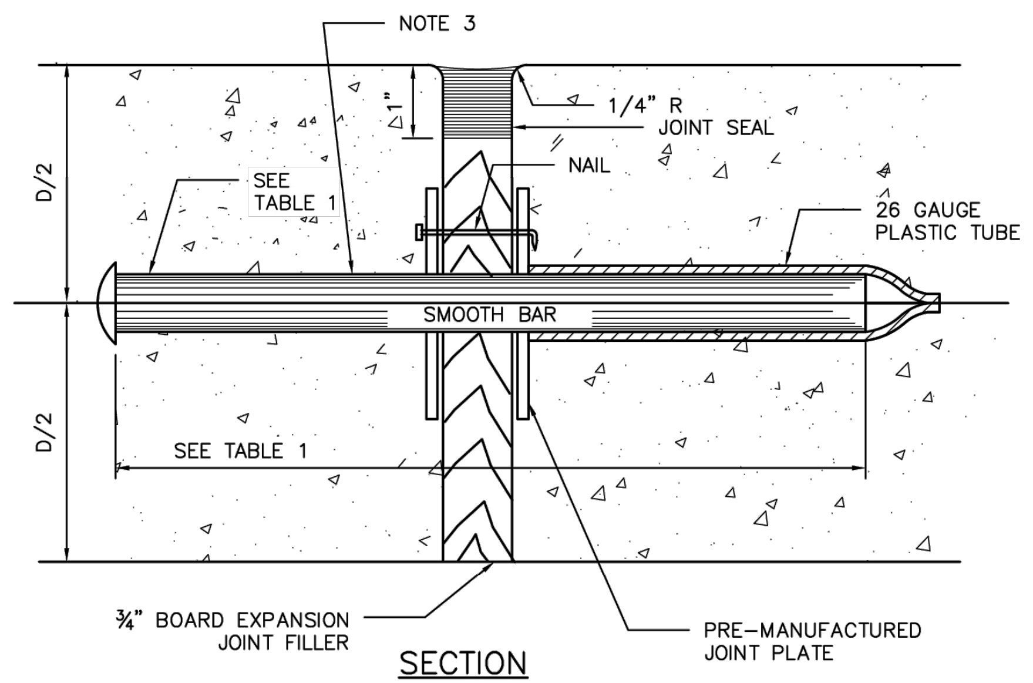
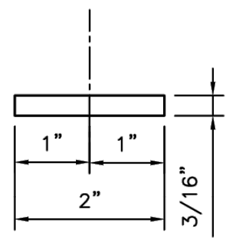

NOTE 3
1/4" R
JOINT SEAL
1"
NAIL
SEE TABLE 1
26 GAUGE PLASTIC TUBE
D/2
D/2
SMOOTH BAR
SEE TABLE 1
¾" BOARD EXPANSION JOINT FILLER
PRE–MANUFACTURED JOINT PLATE

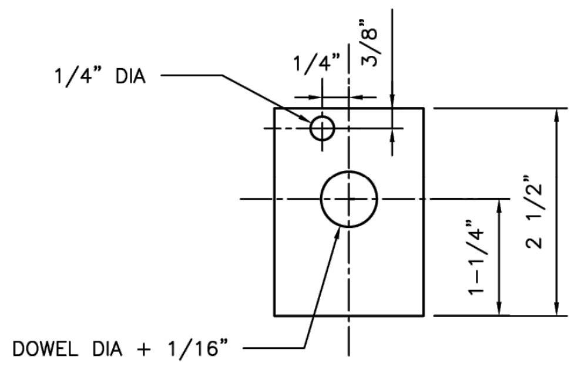
SECTION

DOWEL TYPE EXPANSION JOINT



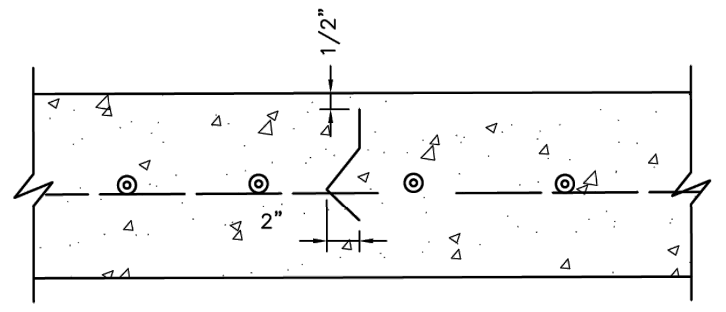
PLAN VIEW

JOINT PLATE


1/4" DIA
1/4"
3/8"
2 1/2"
1–1/4"
DOWEL DIA + 1/16"

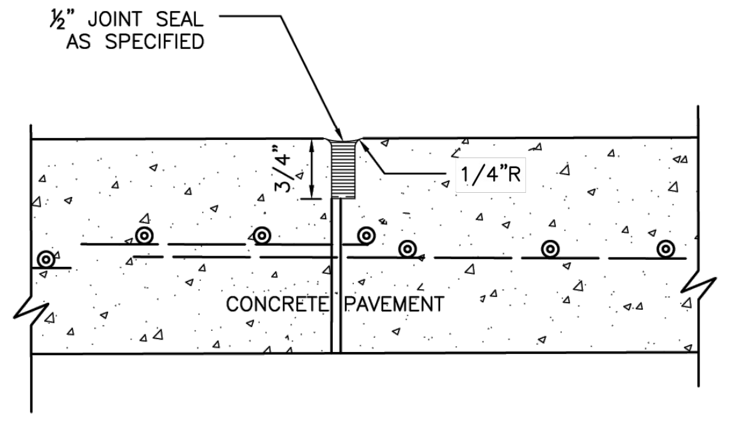
ELEVATION VIEW

JOINT PLATE



SECTION

DEFORMED METAL STRIP


½" JOINT SEAL AS SPECIFIED
3/4"
1/4"R
CONCRETE PAVEMENT

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:

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CITY TRAFFIC ENGINEER

DocuSigned by:
Carol Haddock
A93C410B72B3453...
DIRECTOR OF HPW

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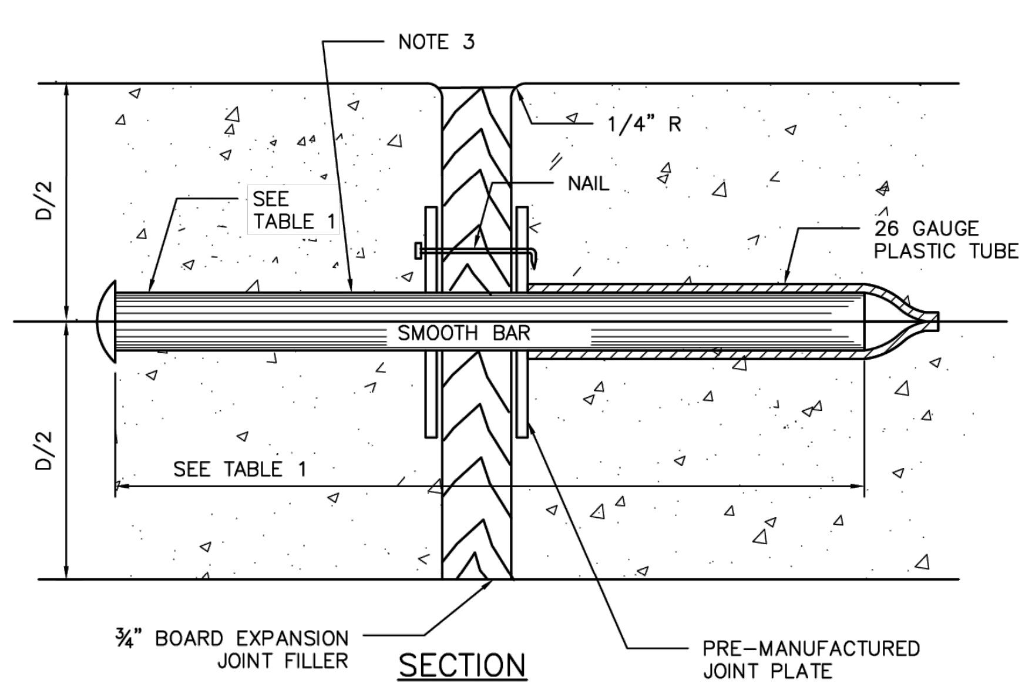
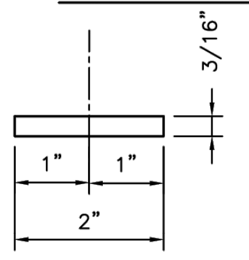

NOTE 3
1/4" R
NAIL
SEE TABLE 1
26 GAUGE PLASTIC TUBE
D/2
D/2
SMOOTH BAR
SEE TABLE 1
¾" BOARD EXPANSION JOINT FILLER
PRE–MANUFACTURED JOINT PLATE

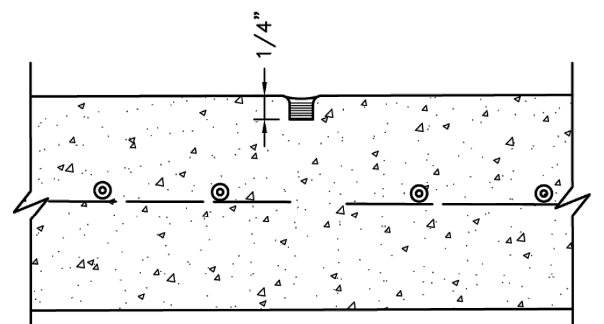
SECTION

DOWEL TYPE EXPANSION JOINT



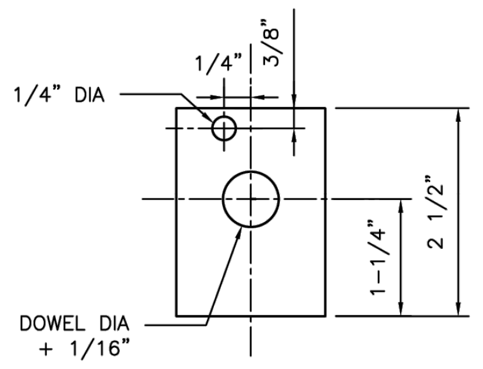
PLAN VIEW

JOINT PLATE



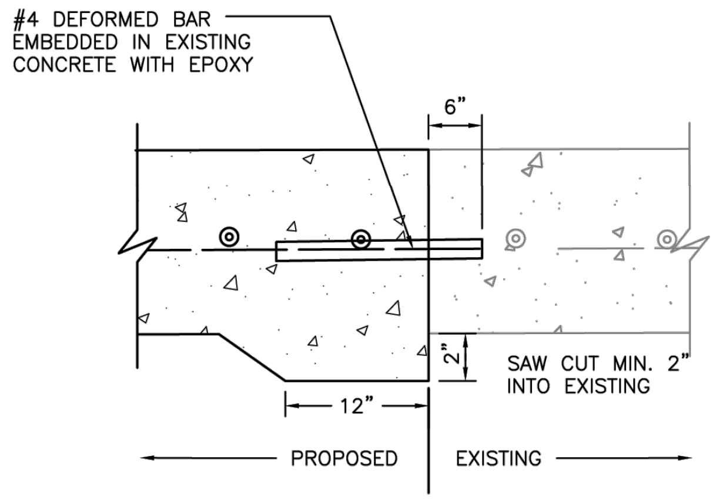
SECTION

CONTROL JOINT


1/4" DIA
1/4"
3/8
2 1/2"
1–1/4"
DOWEL DIA + 1/16"

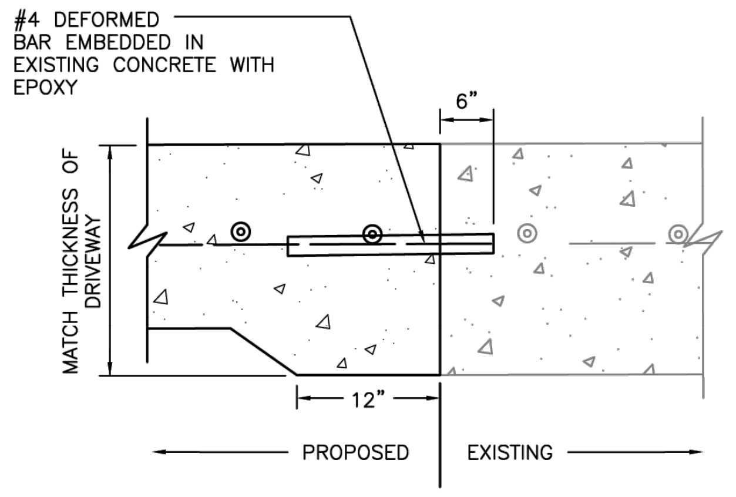
ELEVATION VIEW

JOINT PLATE


#4 DEFORMED BAR EMBEDDED IN EXISTING CONCRETE WITH EPOXY
6"
2"
SAW CUT MIN. 2" INTO EXISTING
12"
PROPOSED
EXISTING

SECTION

SIDEWALK TO EXISTING SIDEWALK


#4 DEFORMED BAR EMBEDDED IN EXISTING CONCRETE WITH EPOXY
6"
MATCH THICKNESS OF DRIVEWAY
12"
PROPOSED
EXISTING

SECTION

SIDEWALK TO EXISTING DRIVEWAY

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

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:

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CITY ENGINEER

DocuSigned by:
KHANG NGUYEN
95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by:
Carol Haddock
A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV–27–2023 | DWG NO: 02752–02

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SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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DAVID G. GREANEY
125563
David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 2 OF 14

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 126 OF 345

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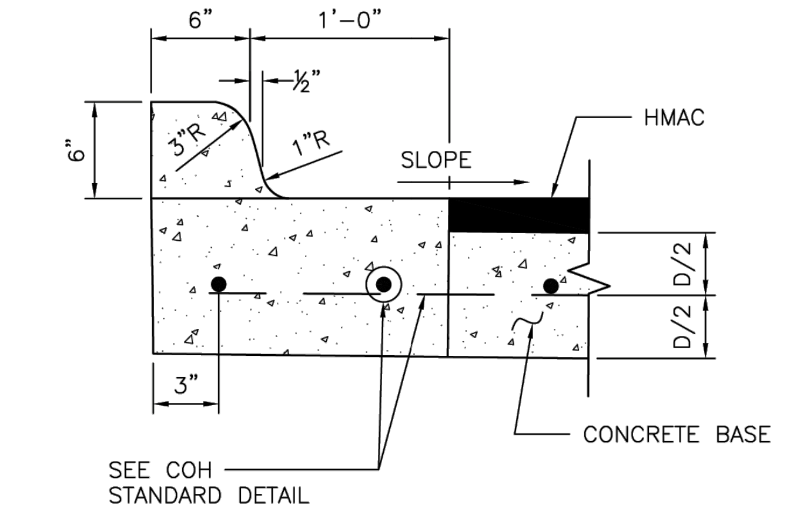
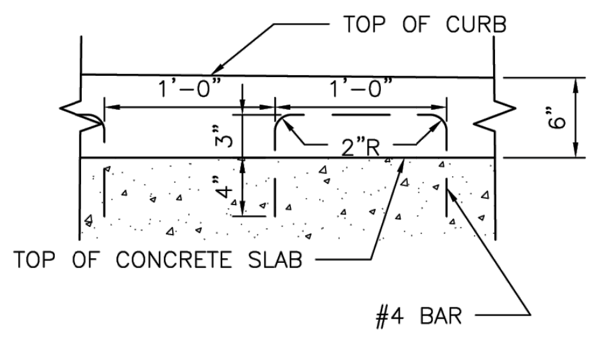
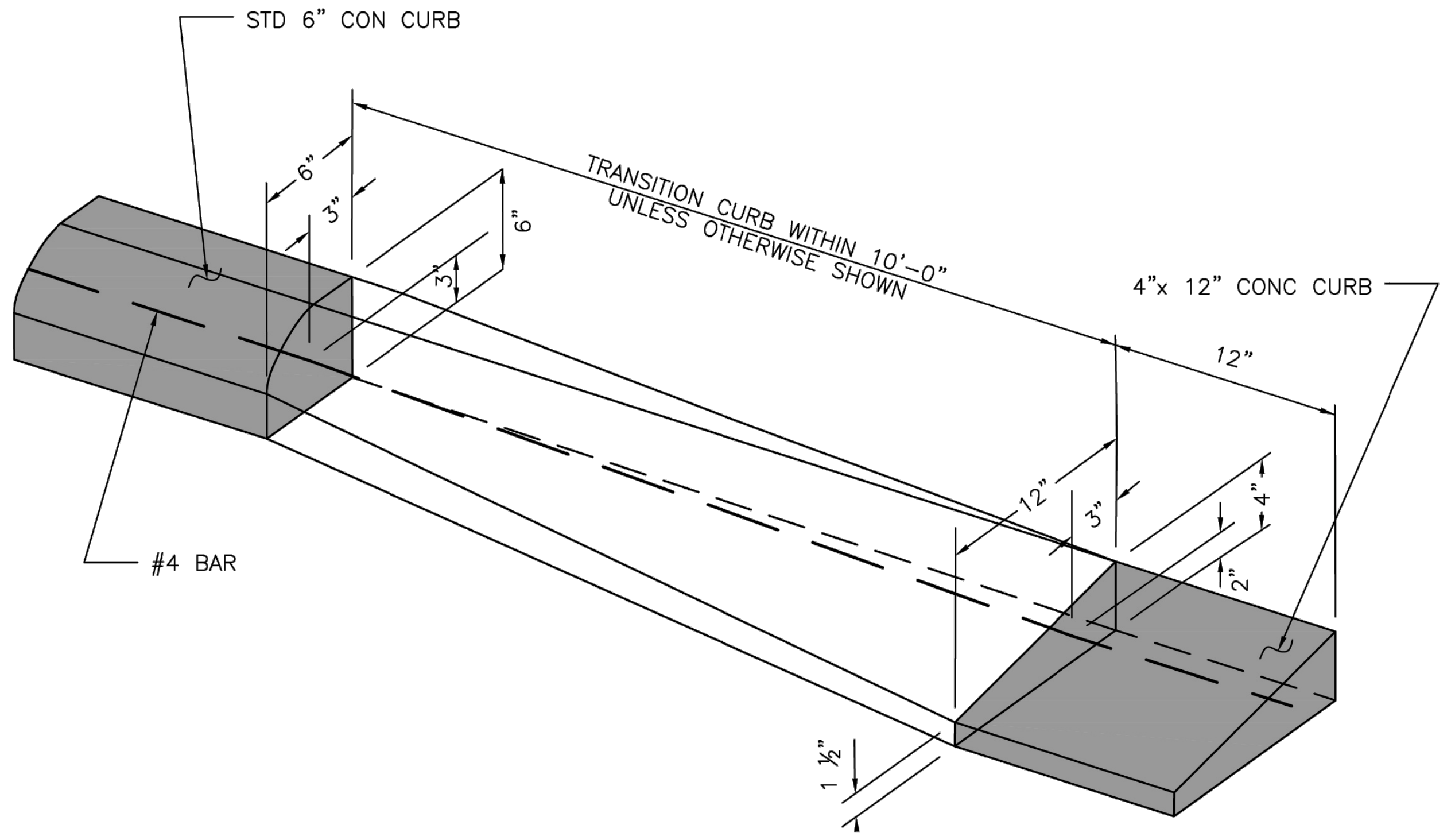

6"
1'–0"
½"
3"R
1"R
6"
SLOPE
HMAC
D/2
D/2
3"
CONCRETE BASE
SEE COH STANDARD DETAIL

ESPLANADE CURB CONNECTED TO CONCRETE BASE

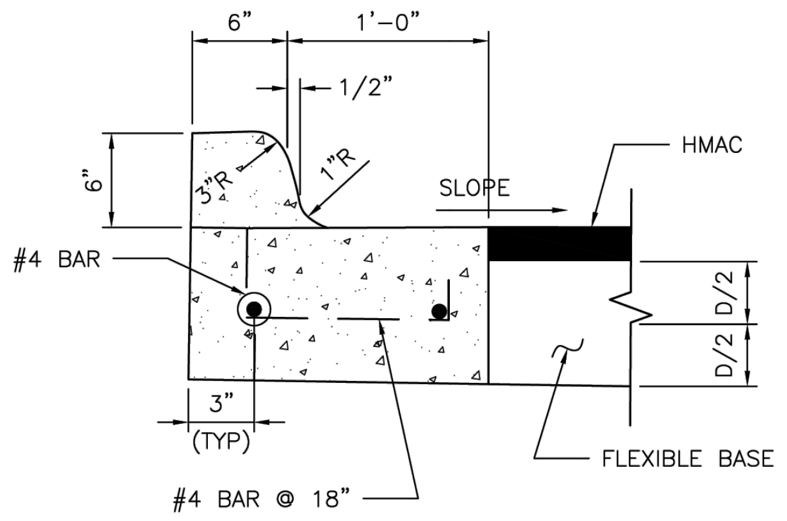

TOP OF CURB
1'–0"
1'–0"
3"
2"R
6"
4"
TOP OF CONCRETE SLAB
#4 BAR

ALTERNATE CONCRETE CURB REINFORCEMENT

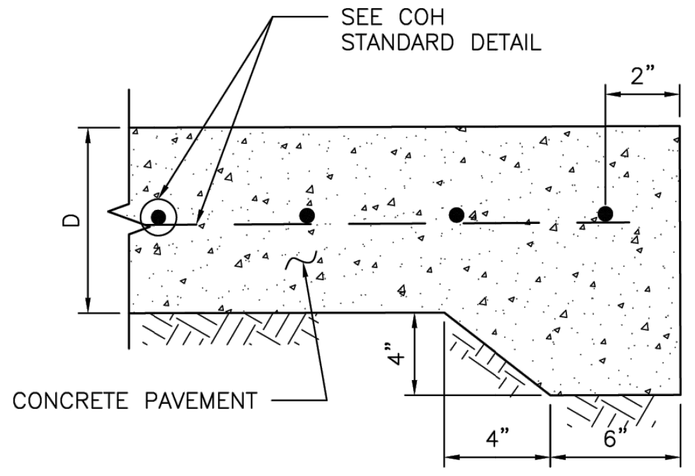

STD 6" CON CURB
6"
6"
3"
TRANSITION CURB WITHIN 10'–0" UNLESS OTHERWISE SHOWN
4"x 12" CONC CURB
12"
12"
3"
4"
2"
#4 BAR
1 ½"

CURB TRANSITION

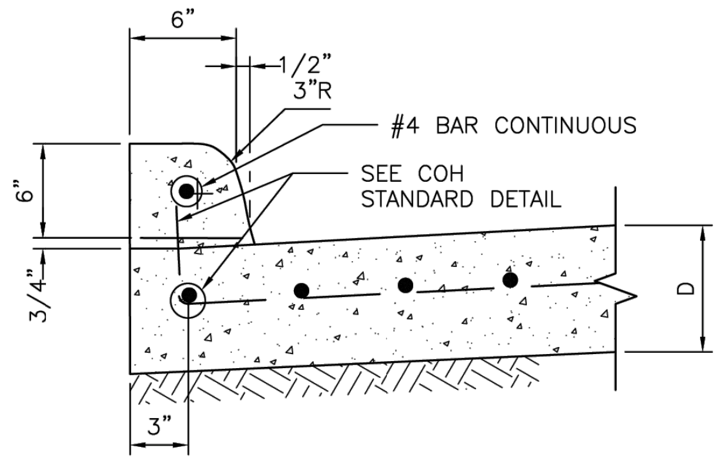
(SEE NOTES)


6"
1'–0"
1/2"
3"R
1"R
6"
SLOPE
HMAC
#4 BAR
D/2
D/2
3"
(TYP)
FLEXIBLE BASE
#4 BAR @ 18"

ESPLANADE CURB CONNECTED TO FLEXIBLE BASE

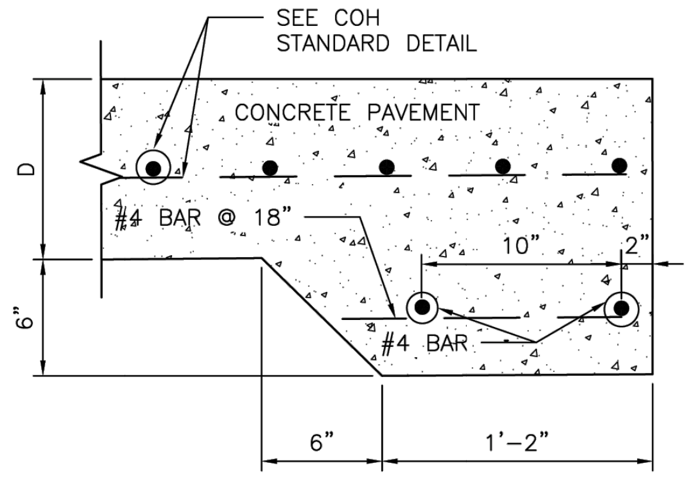

SEE COH STANDARD DETAIL
2"
D
4"
CONCRETE PAVEMENT
4"
6"

STANDARD CONCRETE PAVING HEADER

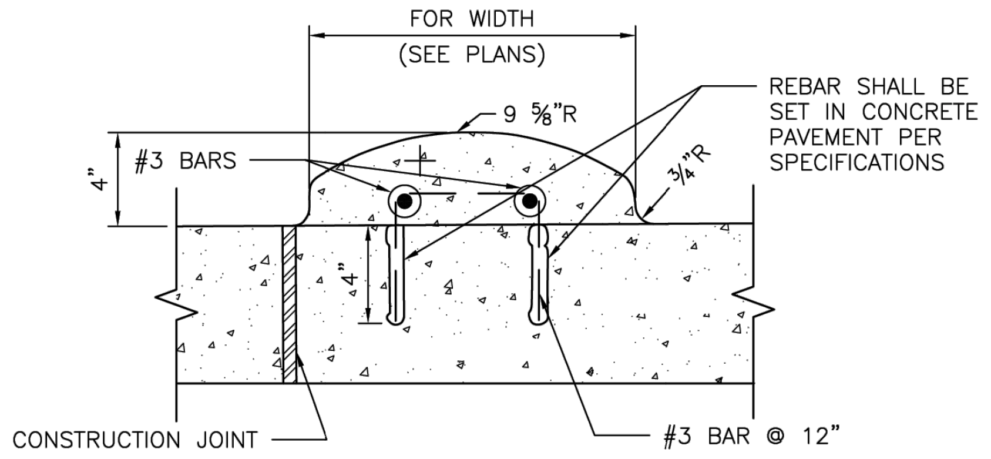

6"
1/2"
3"R
#4 BAR CONTINUOUS
SEE COH STANDARD DETAIL
6"
3/4"
D
3"

CONCRETE CURB

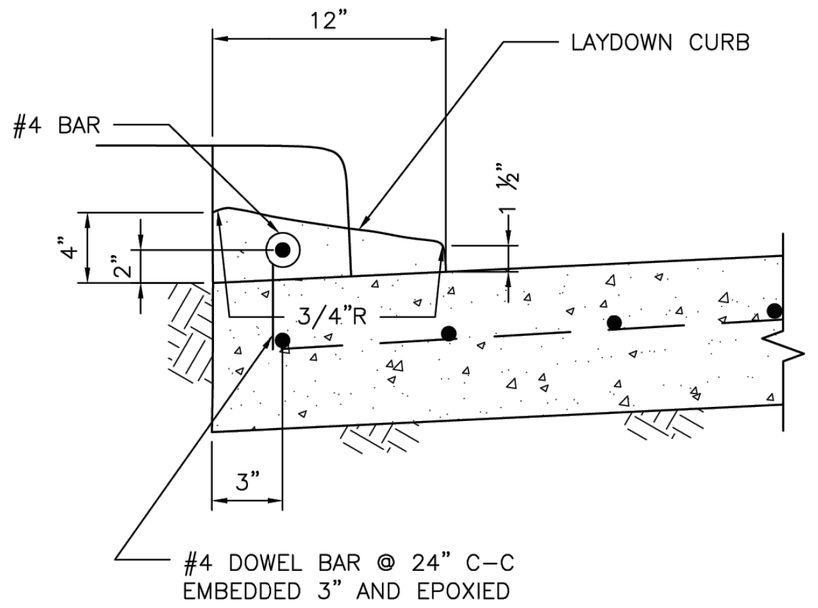
WHEN CONCRETE CURB IS TO BE PLACED EXISTING CONCRETE USE BASE
#4 BAR @ 18x10" LONG, DOWELED AND SET IN EPOXY GROUT.
SET #4 DOWEL BARS, 25" LONG AT 12" C-C WHEN PAVEMENT SECTION POURED.


SEE COH STANDARD DETAIL
CONCRETE PAVEMENT
D
#4 BAR @ 18"
10"
2"
6"
#4 BAR
6"
1'–2"

STANDARD RAILROAD HEADER

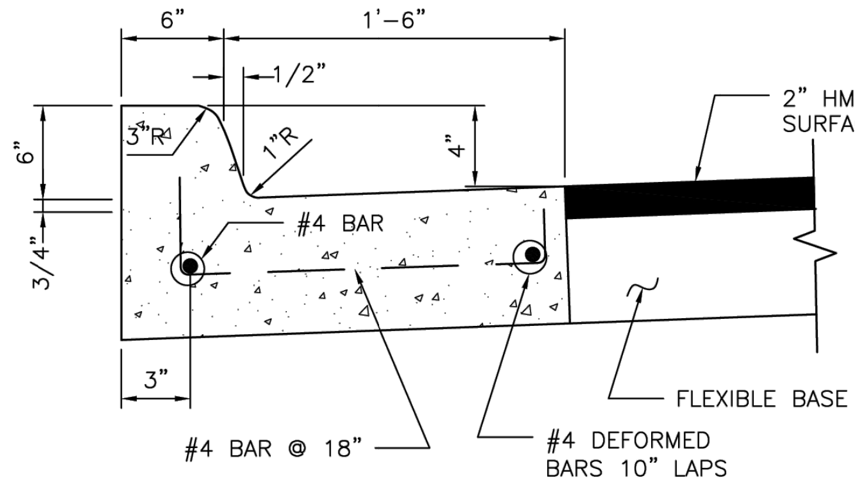

FOR WIDTH
(SEE PLANS)
9 ⅝"R
#3 BARS
4"
¾"R
REBAR SHALL BE SET IN CONCRETE PAVEMENT PER SPECIFICATIONS
4"
CONSTRUCTION JOINT
#3 BAR @ 12"

MOUNTABLE CURB

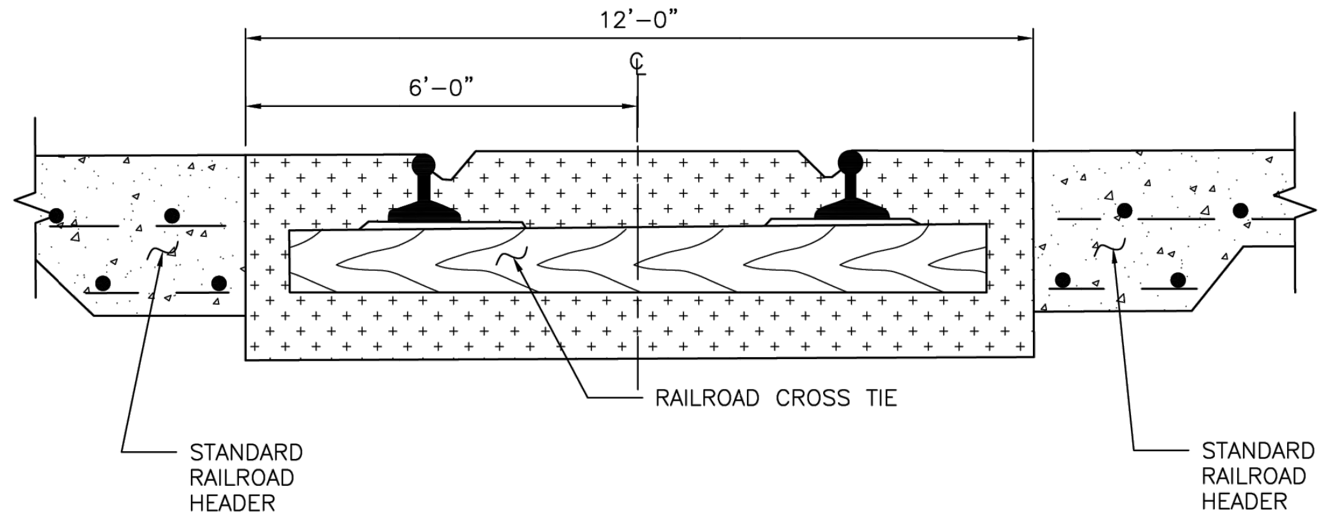

12"
LAYDOWN CURB
#4 BAR
1 ½"
4"
2"
3/4"R
3"
#4 DOWEL BAR @ 24" C–C EMBEDDED 3" AND EPOXIED

4–INCH x 12–INCH TRANSITION CURB

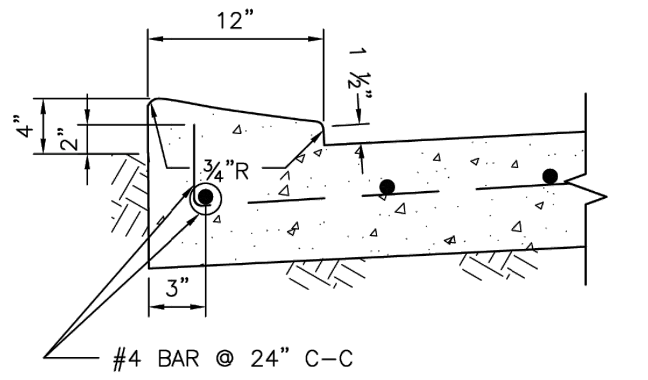
(SEE NOTES)


6"
1'–6"
1/2"
3"R
1"R
6"
4"
2" HMAC SURFACING
#4 BAR
3/4"
3"
FLEXIBLE BASE
#4 BAR @ 18"
#4 DEFORMED BARS 10" LAPS

MONOLITHIC CURB AND GUTTER


12'–0"
6'–0"
℄
RAILROAD CROSS TIE
STANDARD RAILROAD HEADER
STANDARD RAILROAD HEADER

STANDARD RAILROAD CROSSING – SINGLE TRACK


12"
1 ½"
4"
2"
¾"R
3"
#4 BAR @ 24" C–C

4–INCH x 12–INCH MONOLITHIC CURB

(SEE NOTES)

4"x12" MONOLITHIC AND TRANSITION CURB NOTES:

1. 6–INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS, NON–RESIDENTIAL STREETS, AND RESIDENTIAL STREETS.
2. 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–FEET 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.

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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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No.	Date	Revisions	App.

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DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 3 OF 14

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 127 OF 345

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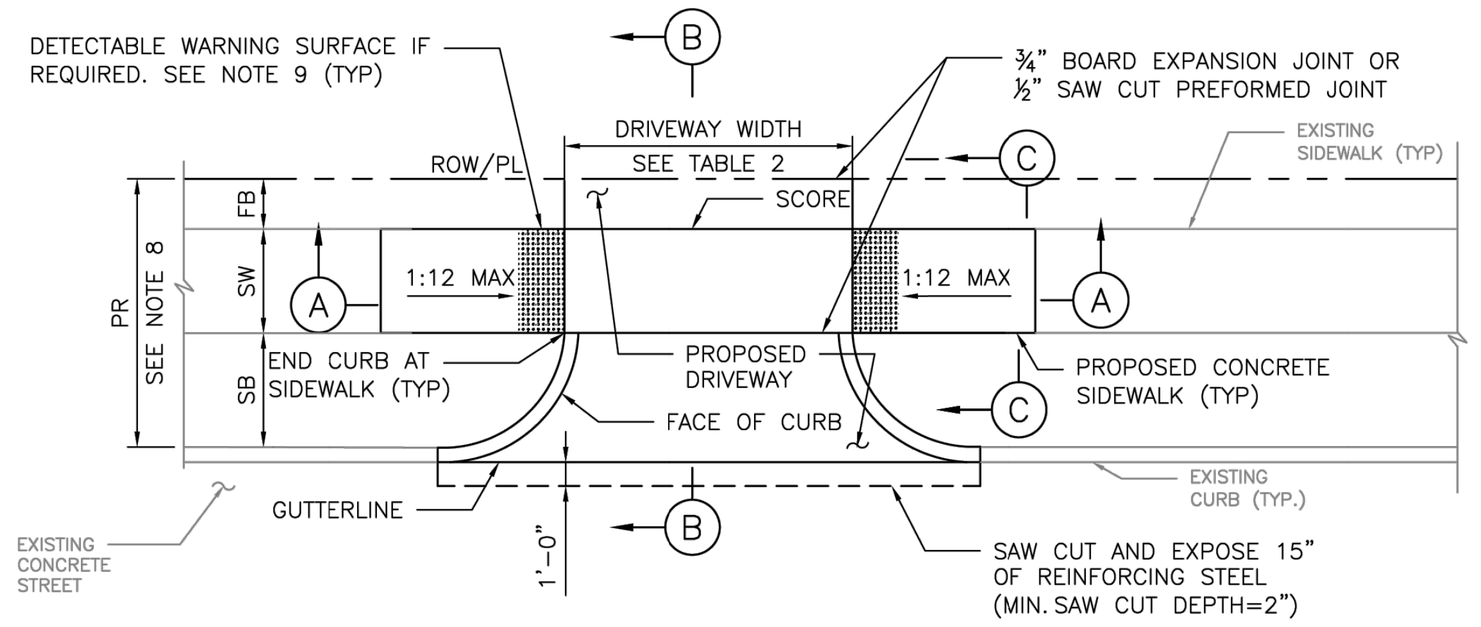
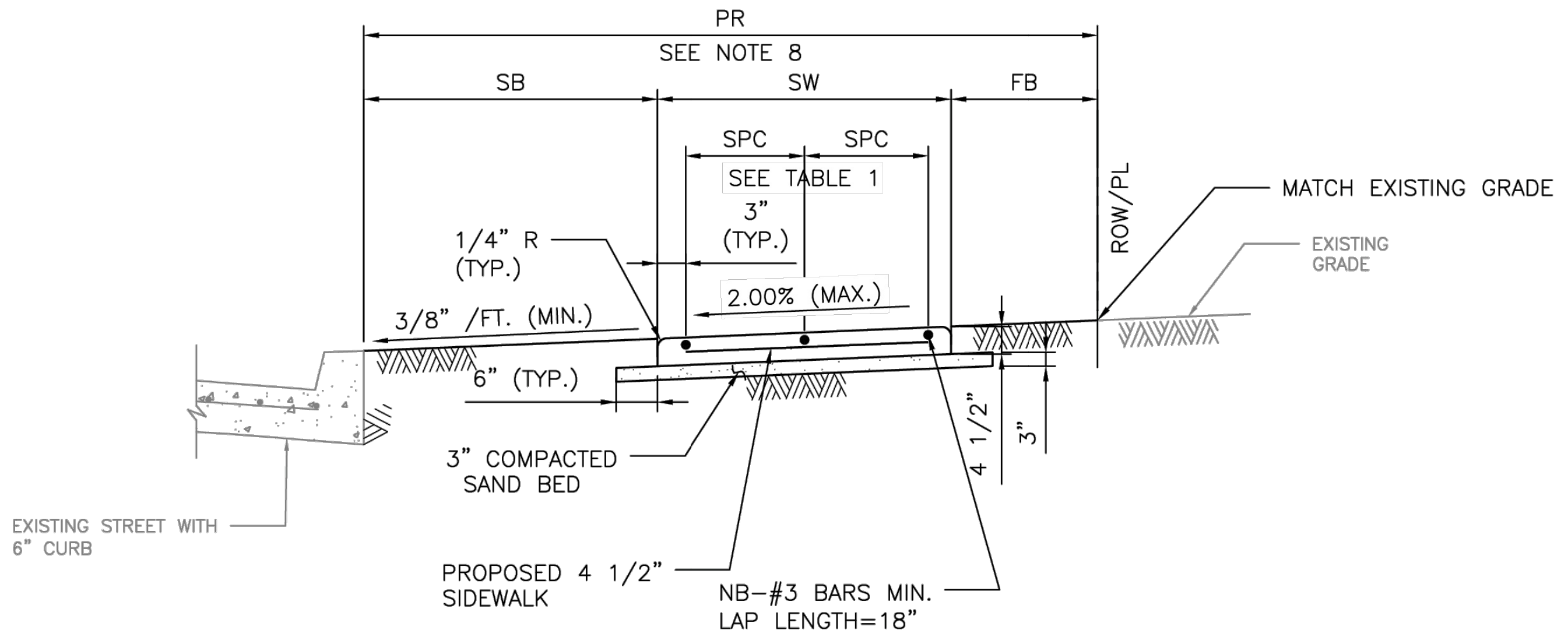

DETECTABLE WARNING SURFACE IF REQUIRED. SEE NOTE 9 (TYP)
B
¾" BOARD EXPANSION JOINT OR ½" SAW CUT PREFORMED JOINT
DRIVEWAY WIDTH
SEE TABLE 2
ROW/PL
C
EXISTING SIDEWALK (TYP)
SCORE
FB
SW
SB
PR
SEE NOTE 8
1:12 MAX
1:12 MAX
A
A
END CURB AT SIDEWALK (TYP)
PROPOSED DRIVEWAY
PROPOSED CONCRETE SIDEWALK (TYP)
C
FACE OF CURB
EXISTING CURB (TYP.)
GUTTERLINE
EXISTING CONCRETE STREET
1'-0"
B
SAW CUT AND EXPOSE 15" OF REINFORCING STEEL (MIN. SAW CUT DEPTH=2")

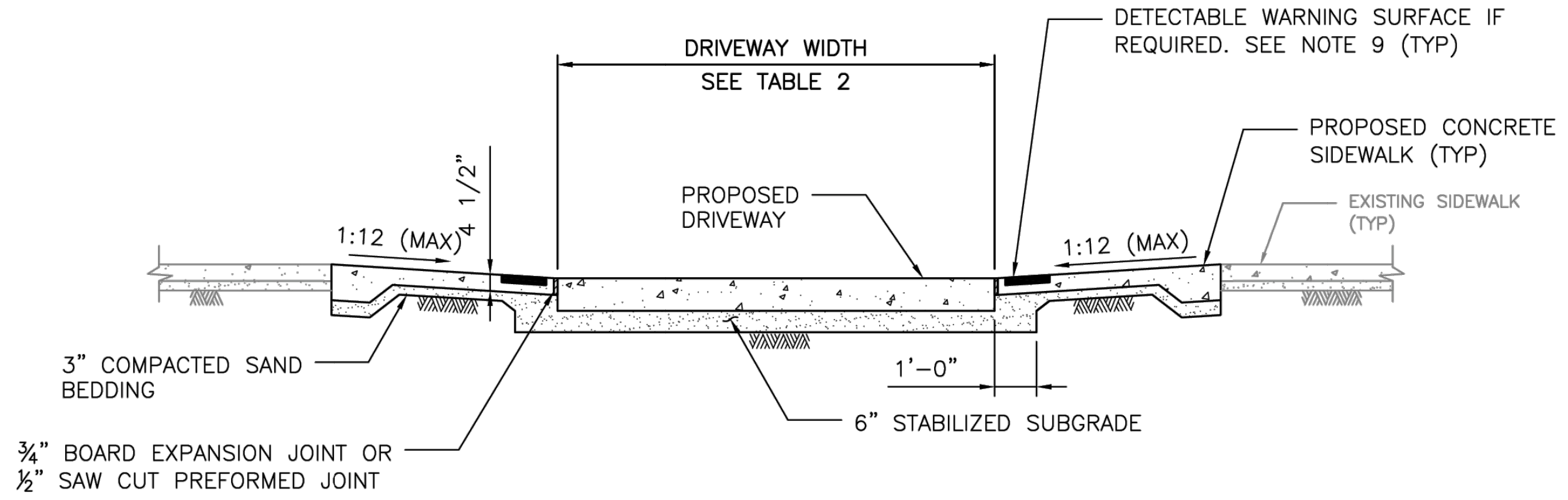
PLAN VIEW
DRIVEWAY


PR
SEE NOTE 8
SB
SW
FB
SPC
SPC
SEE TABLE 1
3" (TYP.)
ROW/PL
MATCH EXISTING GRADE
EXISTING GRADE
1/4" R (TYP.)
2.00% (MAX.)
3/8" /FT. (MIN.)
6" (TYP.)
4 1/2"
3"
3" COMPACTED SAND BED
EXISTING STREET WITH 6" CURB
PROPOSED 4 1/2" SIDEWALK
NB–#3 BARS MIN. LAP LENGTH=18"

SECTION C–C
TYPICAL SIDEWALK SECTION

NOTES:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40–552.
2. FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
   - 2.1. EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
     - 2.1.1. THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
   - 2.2. EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
     - 2.2.1. THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
   - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
     - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
     - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. ALL JOINTS ALONG THE SIDEWALK SHALL BE CONSTRUCTED ACCORDING TO DRAWING 02752–02 AND SPECIFICATION 02752.
4. 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.)
5. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
6. 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.
7. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
8. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
9. DETECTABLE WARNING SURFACES:
   - 9.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
     - 9.1.1. SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED; OR
     - 9.1.2. SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
   - 9.2. 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).
   - 9.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

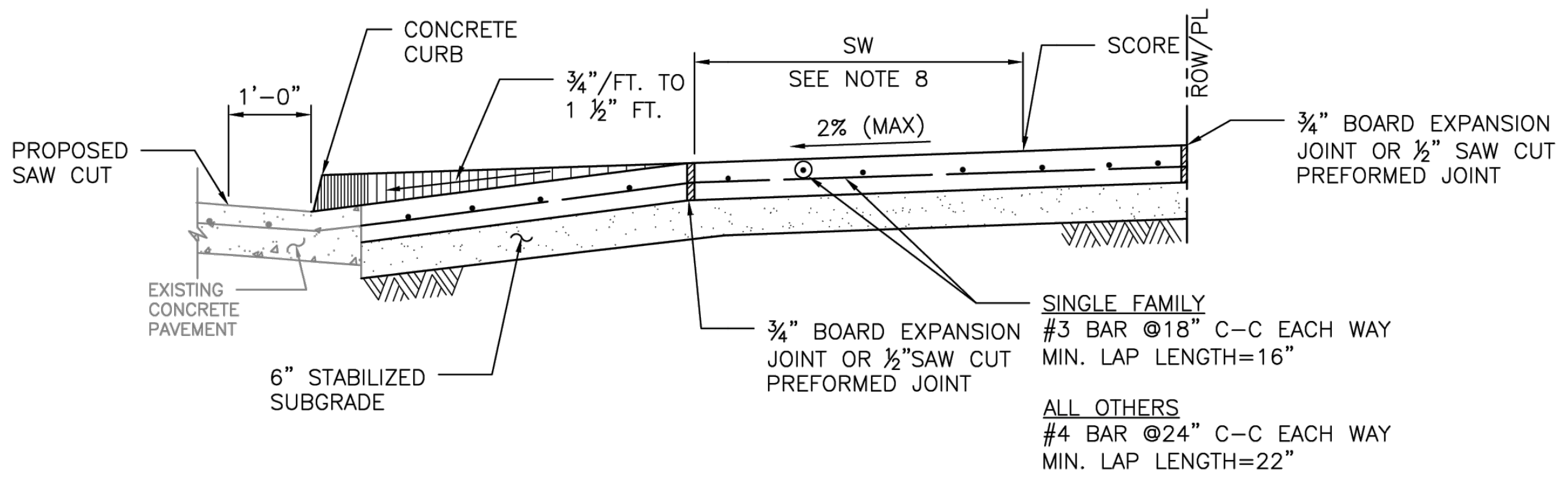

DRIVEWAY WIDTH
SEE TABLE 2
DETECTABLE WARNING SURFACE IF REQUIRED. SEE NOTE 9 (TYP)
PROPOSED CONCRETE SIDEWALK (TYP)
EXISTING SIDEWALK (TYP)
PROPOSED DRIVEWAY
1:12 (MAX)
4 1/2"
1:12 (MAX)
3" COMPACTED SAND BEDDING
1'-0"
6" STABILIZED SUBGRADE
¾" BOARD EXPANSION JOINT OR ½" SAW CUT PREFORMED JOINT

SECTION A–A
PROPOSED SIDEWALK THROUGH DRIVEWAY
WITH EXCESSIVE ELEVATION DIFFERENCE
WITH EXISTING SIDEWALK

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 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 "NB"	SPACING "SPC" (IN)	END BAR SPACING (IN)	
4.5	5	3	27	3	48
4.5	6	4	22	3	48


CONCRETE CURB
1'-0"
¾"/FT. TO 1 ½" FT.
SW
SEE NOTE 8
SCORE
ROW/PL
2% (MAX)
PROPOSED SAW CUT
¾" BOARD EXPANSION JOINT OR ½" SAW CUT PREFORMED JOINT
EXISTING CONCRETE PAVEMENT
6" STABILIZED SUBGRADE
¾" BOARD EXPANSION JOINT OR ½"SAW CUT PREFORMED JOINT
SINGLE FAMILY
#3 BAR @18" C–C EACH WAY
MIN. LAP LENGTH=16"
ALL OTHERS
#4 BAR @24" C–C EACH WAY
MIN. LAP LENGTH=22"

SECTION B–B
TYPICAL DRIVEWAY SECTION

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(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 SWEPT PATH ANALYSIS.
(2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTCILES 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:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock A93C410B72B3453...
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

HRGreen
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 4 OF 14

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 128 OF 345

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) 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.

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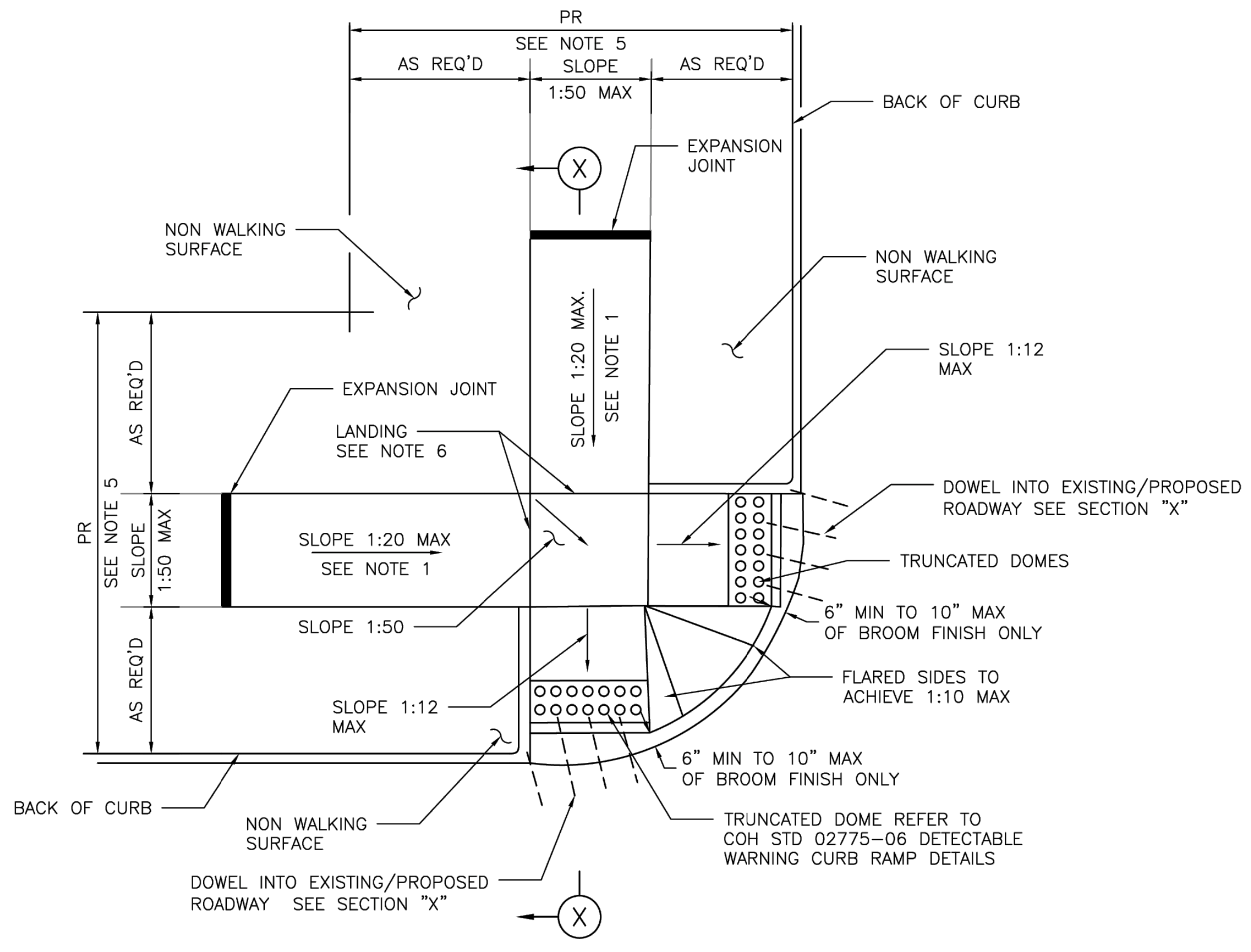
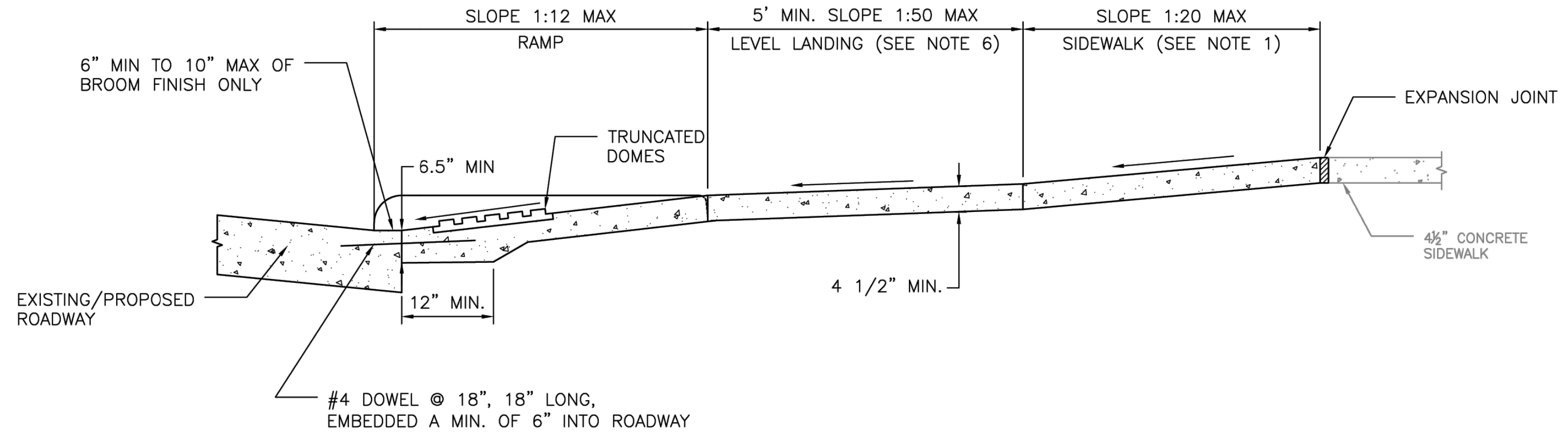

PR
SEE NOTE 5
AS REQ'D
SLOPE
1:50 MAX
AS REQ'D
BACK OF CURB
EXPANSION JOINT
X
NON WALKING SURFACE
NON WALKING SURFACE
SLOPE 1:20 MAX.
SEE NOTE 1
SLOPE 1:12 MAX
EXPANSION JOINT
LANDING SEE NOTE 6
AS REQ'D
PR
SEE NOTE 5
SLOPE 1:50 MAX
SLOPE 1:20 MAX
SEE NOTE 1
SLOPE 1:50
DOWEL INTO EXISTING/PROPOSED ROADWAY SEE SECTION "X"
TRUNCATED DOMES
6" MIN TO 10" MAX OF BROOM FINISH ONLY
FLARED SIDES TO ACHIEVE 1:10 MAX
AS REQ'D
SLOPE 1:12 MAX
6" MIN TO 10" MAX OF BROOM FINISH ONLY
BACK OF CURB
NON WALKING SURFACE
TRUNCATED DOME REFER TO COH STD 02775-06 DETECTABLE WARNING CURB RAMP DETAILS
DOWEL INTO EXISTING/PROPOSED ROADWAY SEE SECTION "X"
X

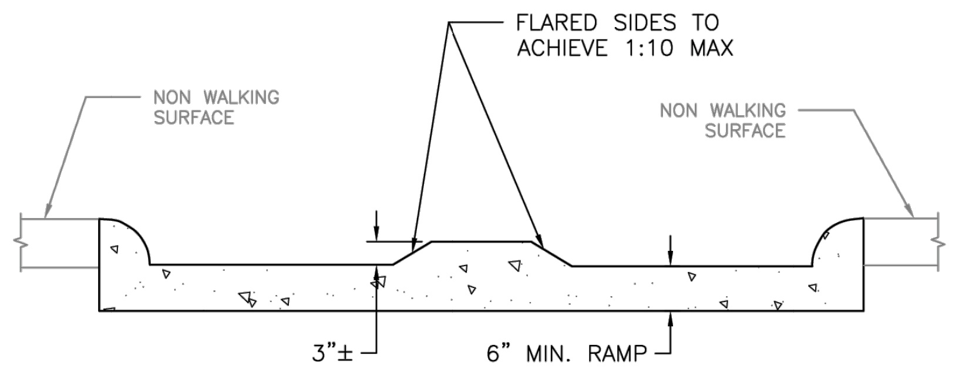
STREETS WITH NON- WALKING SURFACE BEHIND CURB
SEE NOTE-7


SLOPE 1:12 MAX
RAMP
5' MIN. SLOPE 1:50 MAX
LEVEL LANDING (SEE NOTE 6)
SLOPE 1:20 MAX
SIDEWALK (SEE NOTE 1)
6" MIN TO 10" MAX OF BROOM FINISH ONLY
TRUNCATED DOMES
EXPANSION JOINT
6.5" MIN
4½" CONCRETE SIDEWALK
EXISTING/PROPOSED ROADWAY
12" MIN.
4 1/2" MIN.
#4 DOWEL @ 18", 18" LONG, EMBEDDED A MIN. OF 6" INTO ROADWAY

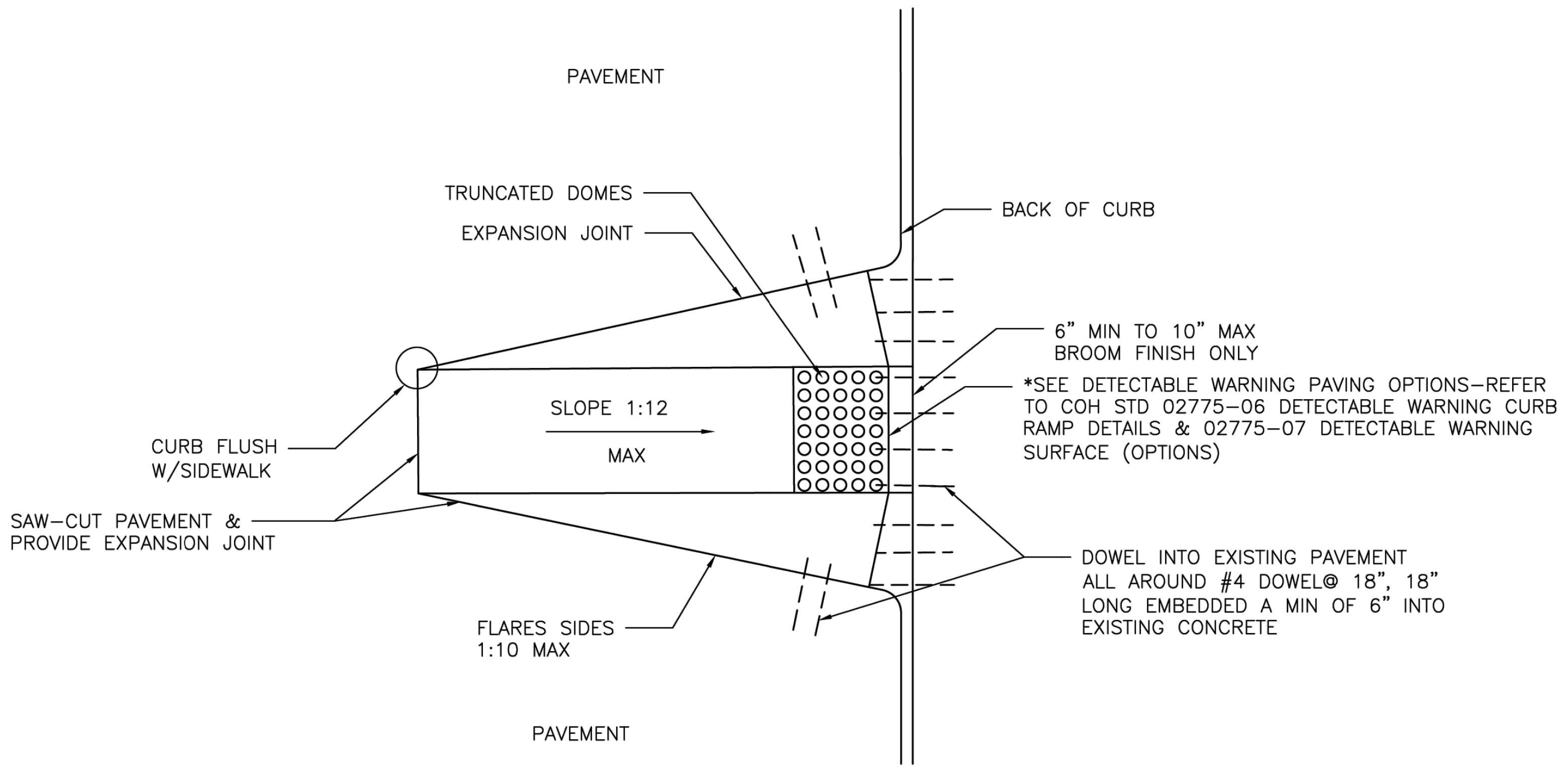
SECTION X-X

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 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.
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.


FLARED SIDES TO ACHIEVE 1:10 MAX
NON WALKING SURFACE
NON WALKING SURFACE
3"±
6" MIN. RAMP

ELEVATION
LOOKING UP RAMP


PAVEMENT
TRUNCATED DOMES
EXPANSION JOINT
BACK OF CURB
6" MIN TO 10" MAX BROOM FINISH ONLY
*SEE DETECTABLE WARNING PAVING OPTIONS–REFER TO COH STD 02775-06 DETECTABLE WARNING CURB RAMP DETAILS & 02775-07 DETECTABLE WARNING SURFACE (OPTIONS)
CURB FLUSH W/SIDEWALK
SLOPE 1:12
MAX
SAW-CUT PAVEMENT & PROVIDE EXPANSION JOINT
DOWEL INTO EXISTING PAVEMENT ALL AROUND #4 DOWEL@ 18", 18" LONG EMBEDDED A MIN OF 6" INTO EXISTING CONCRETE
FLARES SIDES 1:10 MAX
PAVEMENT

CURB RAMP CONSTRUCTION FOR EXISTING PAVEMENT

DISCLAMER:
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APPROVED BY: DocuSigned by: Suhail Kanwar	APPROVED BY: DocuSigned by: Khang Nguyen
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock	
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

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

No.	Date	Revisions	App.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 5 OF 14

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 129 OF 345

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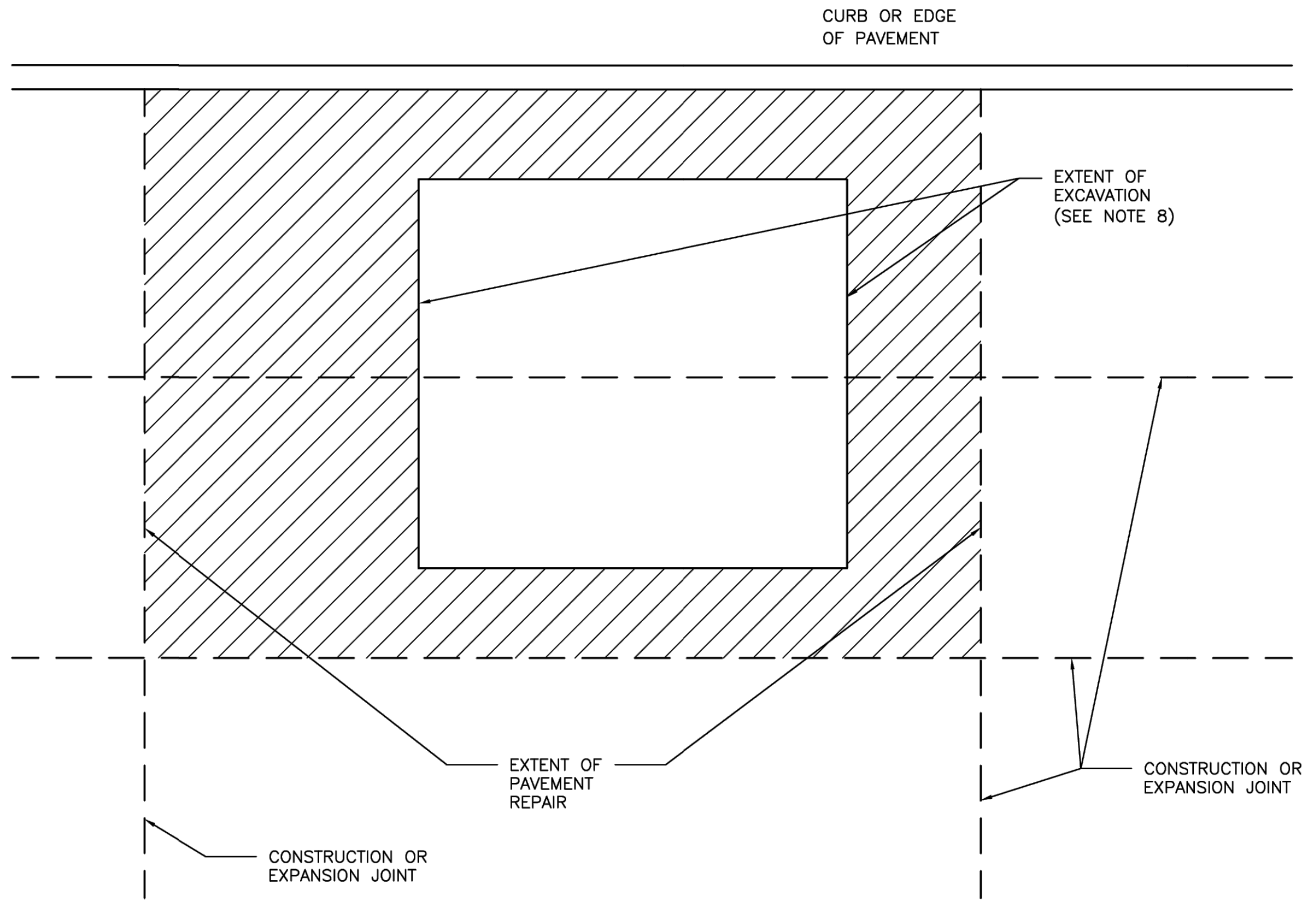

CURB OR EDGE OF PAVEMENT
EXTENT OF EXCAVATION (SEE NOTE 8)
EXTENT OF PAVEMENT REPAIR
CONSTRUCTION OR EXPANSION JOINT
CONSTRUCTION OR EXPANSION JOINT

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).

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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:
Suhail Kanwar
9EF8B0C641F5478...
CITY ENGINEER
DocuSigned by:
KHANG NGUYEN
95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER
DocuSigned by:
Carol Haddock
A93C410B72B3453...
DIRECTOR OF HPW
EFF DATE: NOV–27–2023
DWG NO: 02951–01

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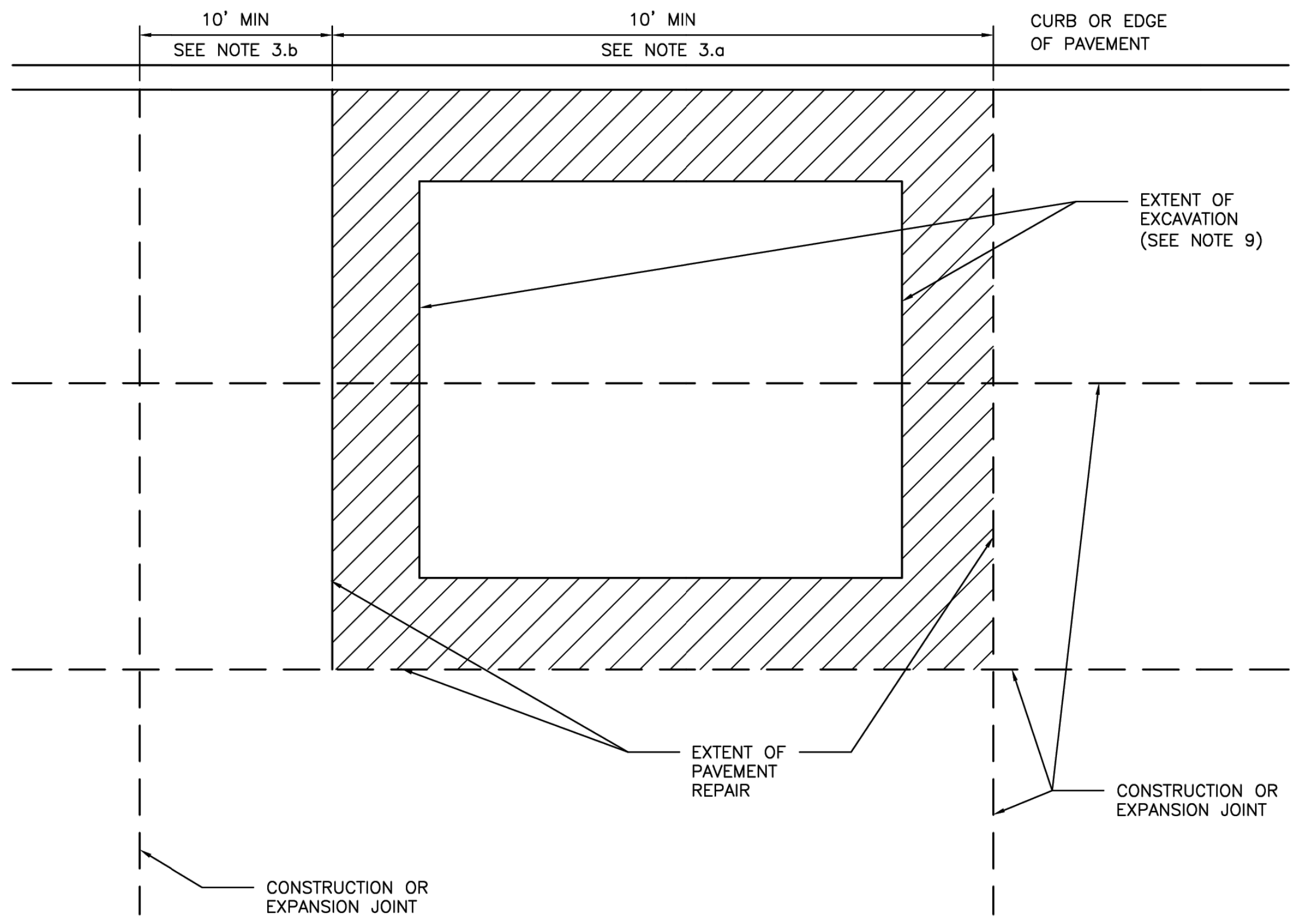

10' MIN
SEE NOTE 3.b
10' MIN
SEE NOTE 3.a
CURB OR EDGE OF PAVEMENT
EXTENT OF EXCAVATION (SEE NOTE 9)
EXTENT OF PAVEMENT REPAIR
CONSTRUCTION OR EXPANSION JOINT
CONSTRUCTION OR EXPANSION JOINT

NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. WIDTH:
   REPLACE PANEL WIDTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.
3. LENGTH:
   a. MINIMUM LENGTH OF PAVEMENT REPAIR ALONG TRAVEL WAY IS 10' FROM THE NEAREST JOINT.
   b. IF EXTENT OF PAVEMENT REPAIR IS LESS THAN 10' FROM EXISTING CONSTRUCTION OR EXPANSION JOINT, EXTEND PAVEMENT REPAIR TO EXISTING JOINT.
4. 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.
5. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
6. MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
7. SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.
8. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY OF HOUSTON STANDARD SPECIFICATIONS 02764–RAISED PAVEMENT MARKERS AND 02767–THERMOPLASTIC PAVEMENT MARKINGS.
9. EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02951–04 PAVEMENT REPAIR DETAIL FOR STREET CUTS (FLEX–BASE PAVEMENT & CONCRETE PAVEMENT).

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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:
Suhail Kanwar
9EF8B0C641F5478...
CITY ENGINEER
DocuSigned by:
KHANG NGUYEN
95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER
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Carol Haddock
A93C410B72B3453...
DIRECTOR OF HPW
EFF DATE: NOV–27–2023
DWG NO: 02951–02

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 6 OF 14

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 130 OF 345

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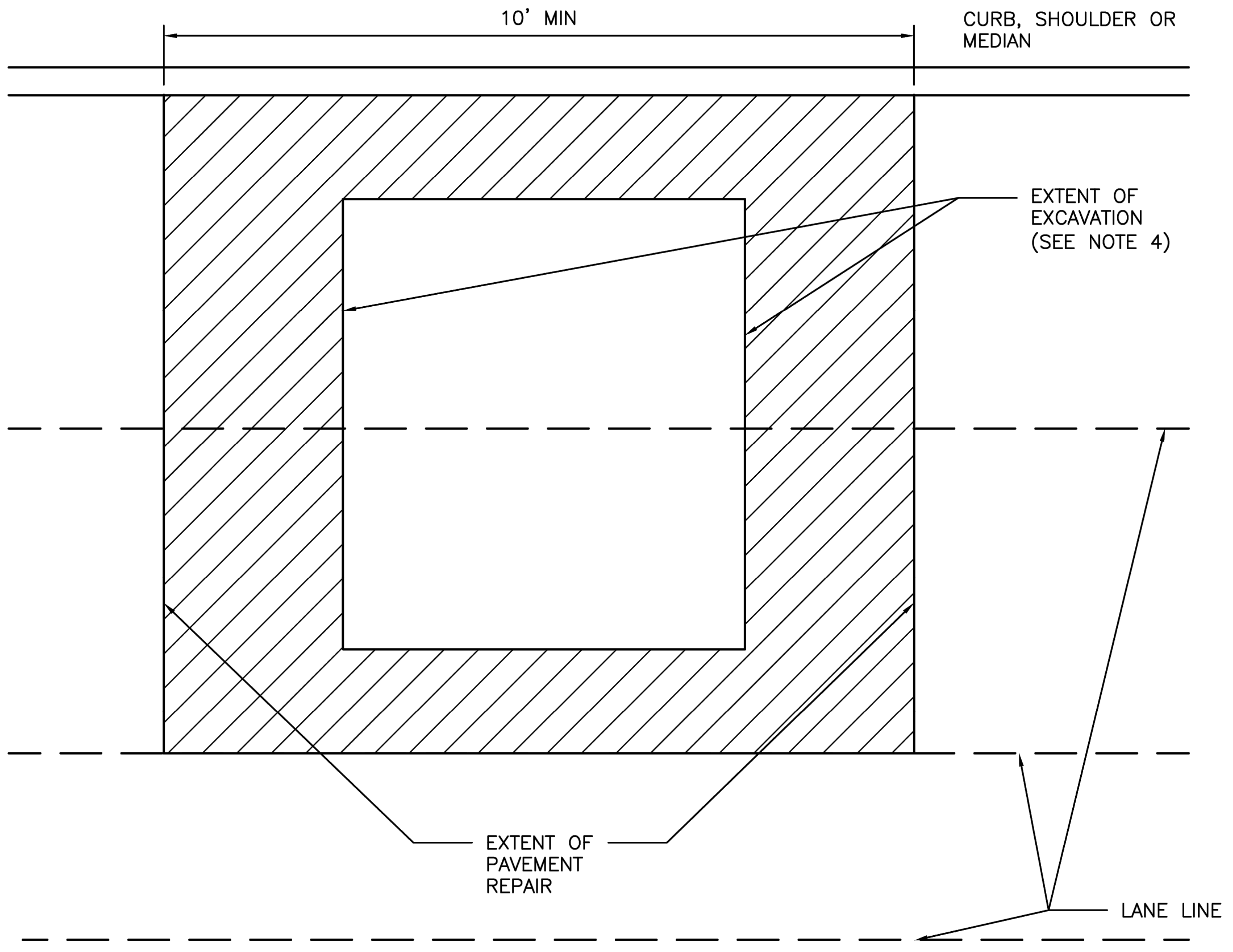

NOTES:

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.

DISCLAIMER:
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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:

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 7 OF 14

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 131 OF 345

No.	Date	Revisions	App.

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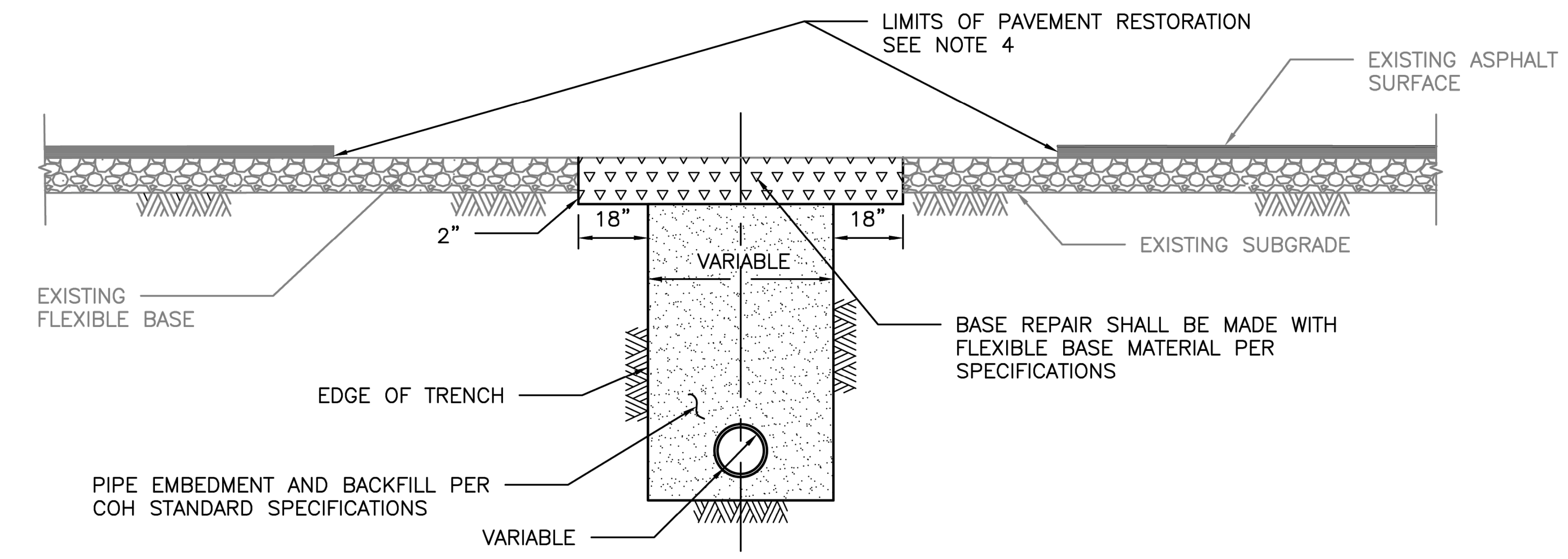
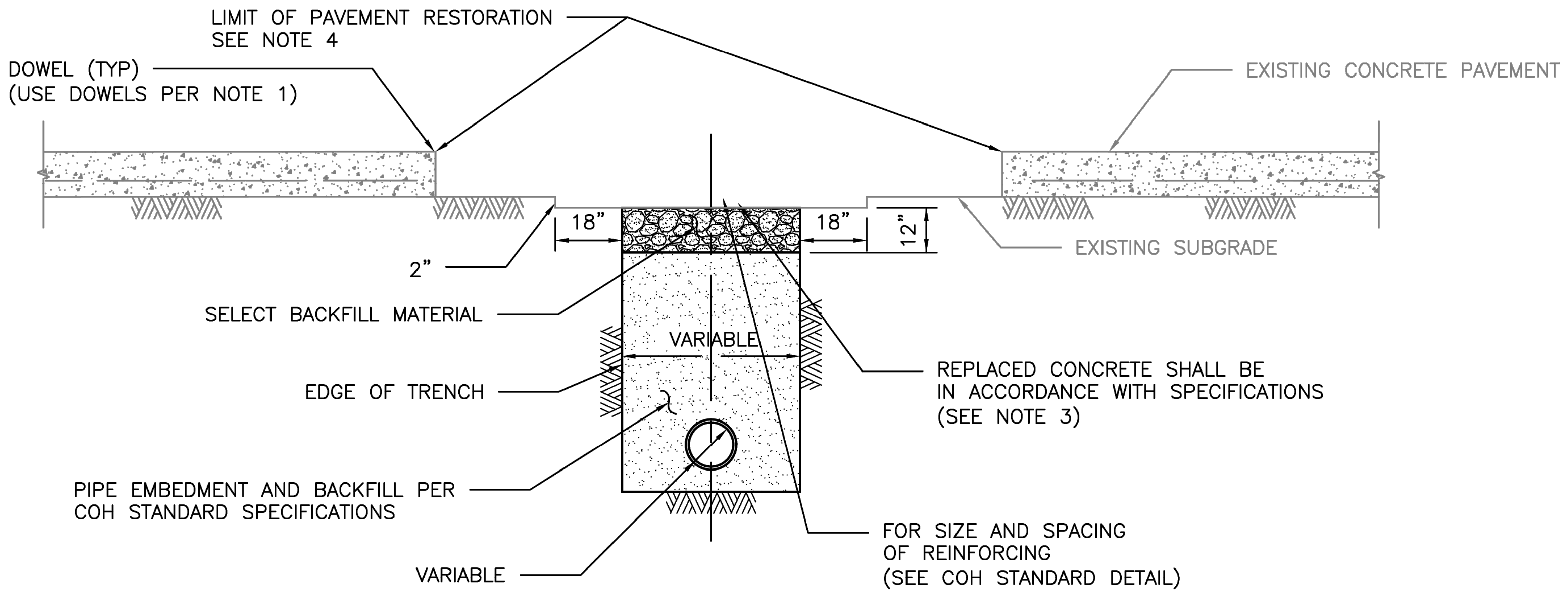

LIMITS OF PAVEMENT RESTORATION
SEE NOTE 4
EXISTING ASPHALT
SURFACE
18"
18"
2"
VARIABLE
EXISTING SUBGRADE
EXISTING
FLEXIBLE BASE
BASE REPAIR SHALL BE MADE WITH
FLEXIBLE BASE MATERIAL PER
SPECIFICATIONS
EDGE OF TRENCH
PIPE EMBEDMENT AND BACKFILL PER
COH STANDARD SPECIFICATIONS
VARIABLE

ELEVATION A
REPAIR OF FLEXIBLE BASE PAVEMENT


LIMIT OF PAVEMENT RESTORATION
SEE NOTE 4
DOWEL (TYP)
(USE DOWELS PER NOTE 1)
EXISTING CONCRETE PAVEMENT
18"
18"
12"
2"
EXISTING SUBGRADE
SELECT BACKFILL MATERIAL
VARIABLE
EDGE OF TRENCH
REPLACED CONCRETE SHALL BE
IN ACCORDANCE WITH SPECIFICATIONS
(SEE NOTE 3)
PIPE EMBEDMENT AND BACKFILL PER
COH STANDARD SPECIFICATIONS
FOR SIZE AND SPACING
OF REINFORCING
(SEE COH STANDARD DETAIL)
VARIABLE

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:

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EFF DATE: NOV–27–2023
DWG NO: 02951–04

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 8 OF 14

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 132 OF 345

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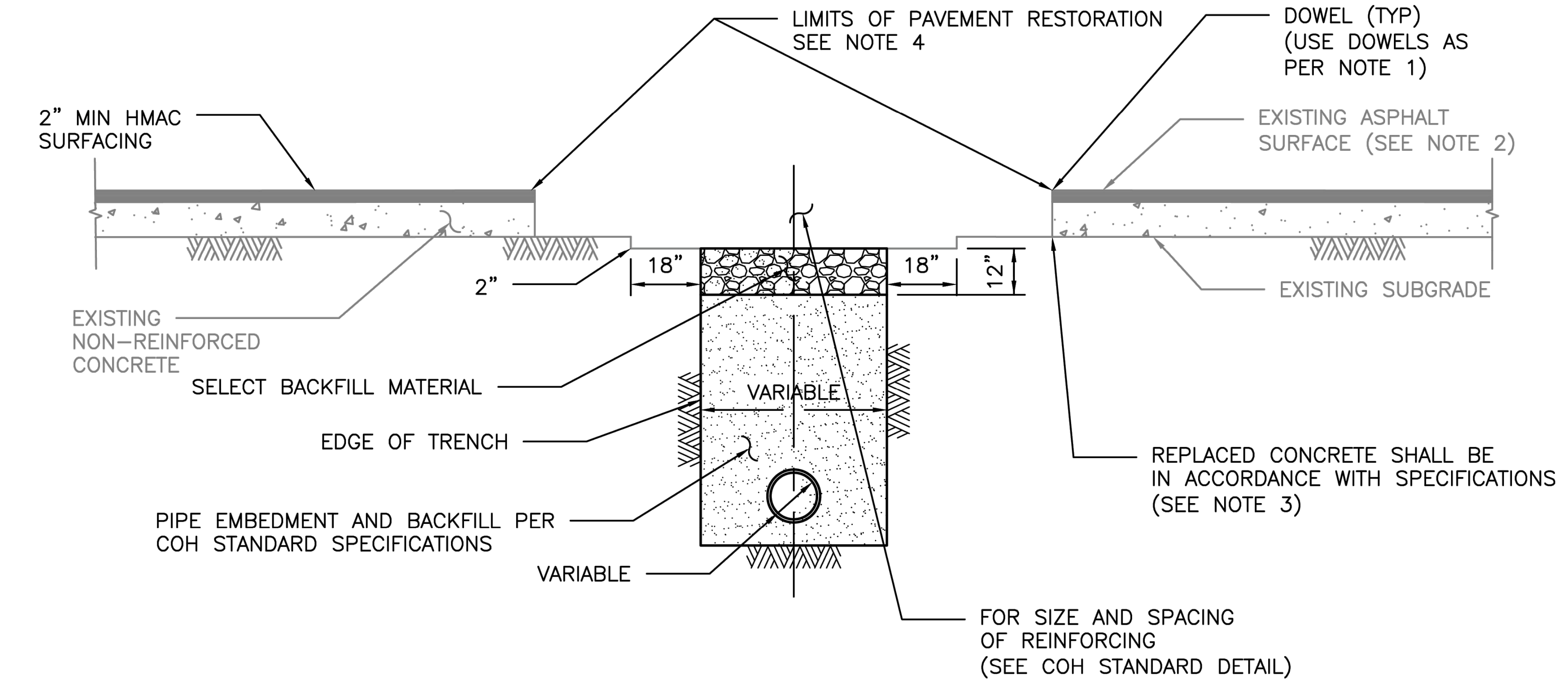
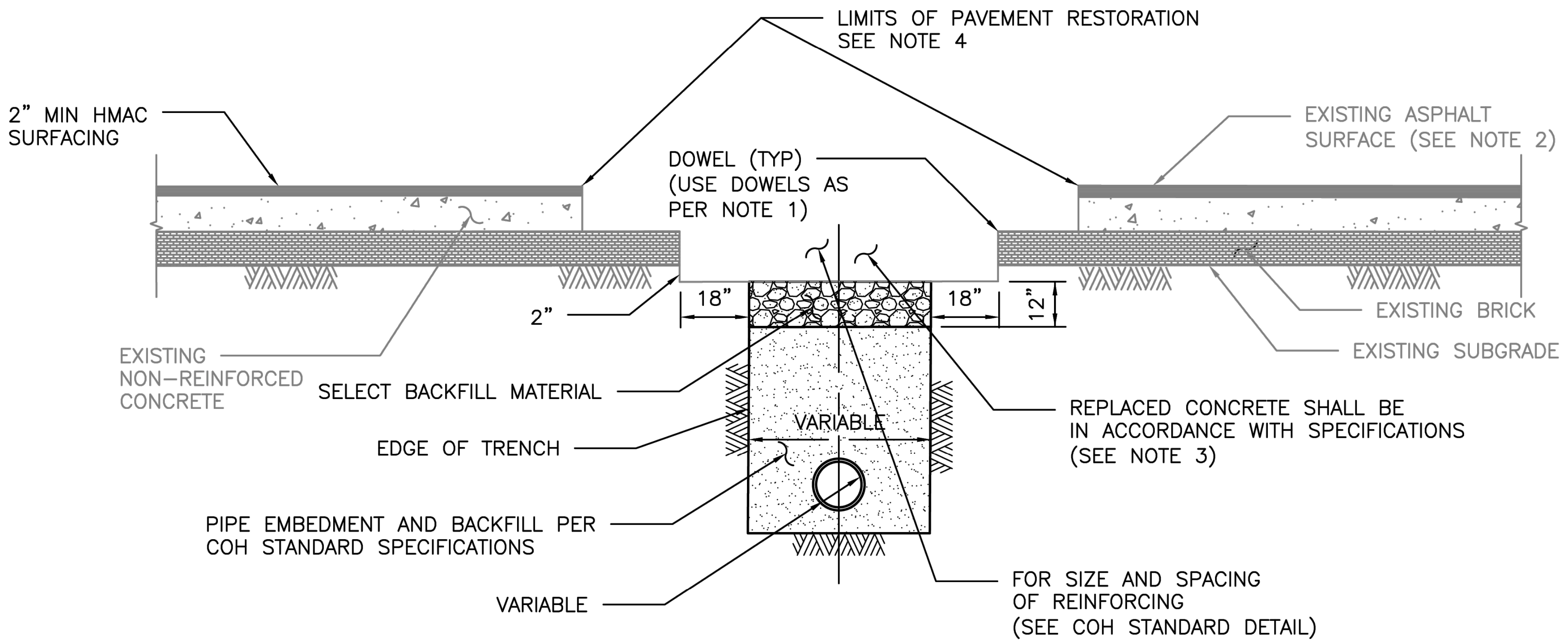

LIMITS OF PAVEMENT RESTORATION
SEE NOTE 4
DOWEL (TYP)
(USE DOWELS AS
PER NOTE 1)
2" MIN HMAC
SURFACING
EXISTING ASPHALT
SURFACE (SEE NOTE 2)
18"
18"
12"
2"
EXISTING SUBGRADE
EXISTING
NON-REINFORCED
CONCRETE
SELECT BACKFILL MATERIAL
VARIABLE
EDGE OF TRENCH
REPLACED CONCRETE SHALL BE
IN ACCORDANCE WITH SPECIFICATIONS
(SEE NOTE 3)
PIPE EMBEDMENT AND BACKFILL PER
COH STANDARD SPECIFICATIONS
VARIABLE
FOR SIZE AND SPACING
OF REINFORCING
(SEE COH STANDARD DETAIL)

ELEVATION C
REPAIR OF NON-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 REPLACE WITH SAME THICKNESS OF HMAC SURFACING.
3. REFER TO STANDARD DETAIL 02751-01 FOR REINFORCING STEEL REQUIREMENT
4. REFER TO STANDARD DETAILS 02951-01 THROUGH 03 FOR PAVEMENT RESTORATION LIMITS.


LIMITS OF PAVEMENT RESTORATION
SEE NOTE 4
2" MIN HMAC
SURFACING
EXISTING ASPHALT
SURFACE (SEE NOTE 2)
DOWEL (TYP)
(USE DOWELS AS
PER NOTE 1)
18"
18"
12"
2"
EXISTING BRICK
EXISTING SUBGRADE
EXISTING
NON-REINFORCED
CONCRETE
SELECT BACKFILL MATERIAL
VARIABLE
EDGE OF TRENCH
REPLACED CONCRETE SHALL BE
IN ACCORDANCE WITH SPECIFICATIONS
(SEE NOTE 3)
PIPE EMBEDMENT AND BACKFILL PER
COH STANDARD SPECIFICATIONS
VARIABLE
FOR SIZE AND SPACING
OF REINFORCING
(SEE COH STANDARD DETAIL)

ELEVATION D
REPAIR OF NON-REINFORCED CONCRETE PAVEMENT WITH BRICK

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PAVEMENT REPAIR DETAIL
FOR STREET CUTS
(NON-REINFORCED CONCRETE & BRICK PAVEMENT)
(SCALE: NOT TO SCALE)

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 9 OF 14

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 133 OF 345

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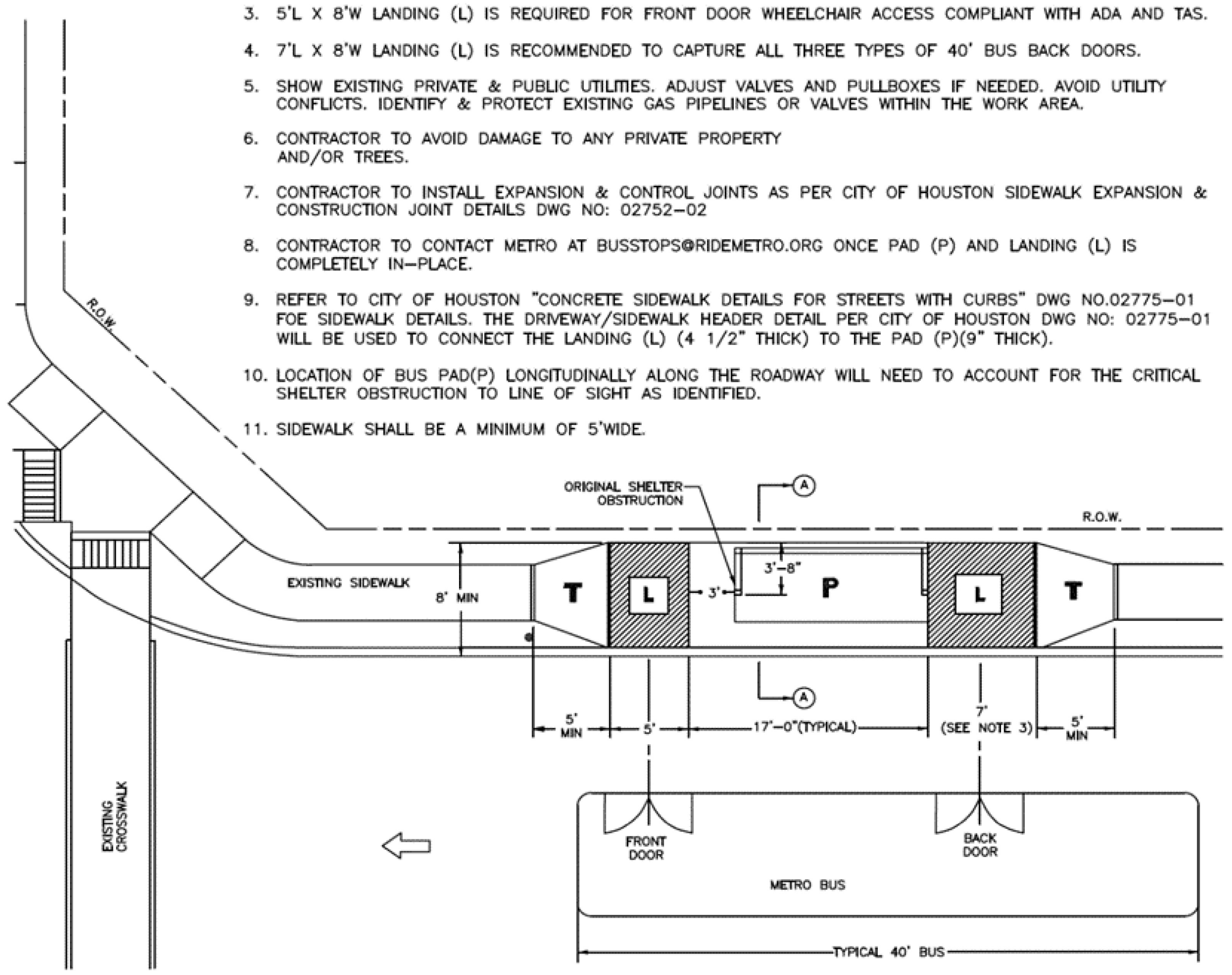
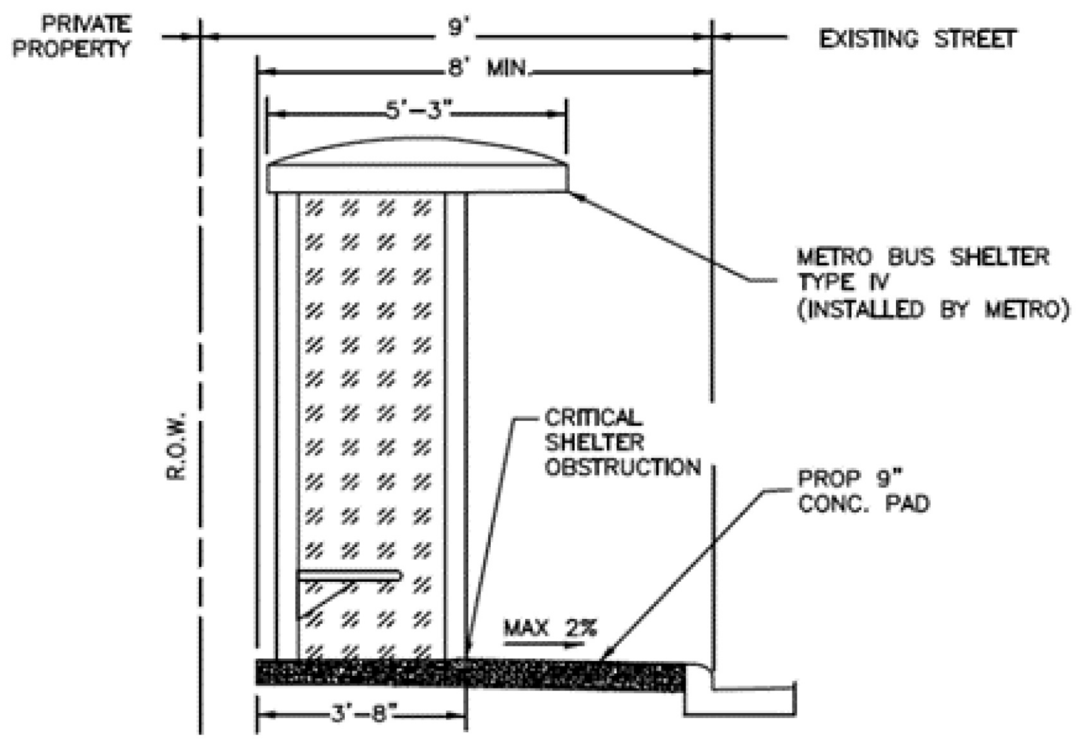
NOTES:

1. CONTACT METRO AT BUSSTOPS@RIDEMETRO.ORG TO CONFIRM PROPER APPLICATION OF BUS STOP STANDARD.
2. THE SIDEWALK TRANSITION (T) FROM THE LANDING (L) TO EXISTING SIDEWALK SHOULD NOT HAVE A LONGITUDINAL SLOPE GREATER THAN 5% AND CROSS SLOPE GREATER THAN 2% EXCEPT TO MATCH EXISTING CROSS SLOPE. THE TRANSITION (T) SHOULD BE MINIMUM 5' LONG,OR WILL BE LENGTHENED TO MITIGATE EXCESSIVE SLOPE. FOLLOW GUIDELINES COMPLIANT WITH AMERICANS WITH DISABILITIES ACT – ADA AND TEXAS ACCESSIBILITY STANDARDS–TAS.
3. 5'L X 8'W LANDING (L) IS REQUIRED FOR FRONT DOOR WHEELCHAIR ACCESS COMPLIANT WITH ADA AND TAS.
4. 7'L X 8'W LANDING (L) IS RECOMMENDED TO CAPTURE ALL THREE TYPES OF 40' BUS BACK DOORS.
5. SHOW EXISTING PRIVATE & PUBLIC UTILITIES. ADJUST VALVES AND PULLBOXES IF NEEDED. AVOID UTILITY CONFLICTS. IDENTIFY & PROTECT EXISTING GAS PIPELINES OR VALVES WITHIN THE WORK AREA.
6. CONTRACTOR TO AVOID DAMAGE TO ANY PRIVATE PROPERTY AND/OR TREES.
7. CONTRACTOR TO INSTALL EXPANSION & CONTROL JOINTS AS PER CITY OF HOUSTON SIDEWALK EXPANSION & CONSTRUCTION JOINT DETAILS DWG NO: 02752–02
8. CONTRACTOR TO CONTACT METRO AT BUSSTOPS@RIDEMETRO.ORG ONCE PAD (P) AND LANDING (L) IS COMPLETELY IN–PLACE.
9. REFER TO CITY OF HOUSTON "CONCRETE SIDEWALK DETAILS FOR STREETS WITH CURBS" DWG NO.02775–01 FOE SIDEWALK DETAILS. THE DRIVEWAY/SIDEWALK HEADER DETAIL PER CITY OF HOUSTON DWG NO: 02775–01 WILL BE USED TO CONNECT THE LANDING (L) (4 1/2" THICK) TO THE PAD (P)(9" THICK).
10. LOCATION OF BUS PAD(P) LONGITUDINALLY ALONG THE ROADWAY WILL NEED TO ACCOUNT FOR THE CRITICAL SHELTER OBSTRUCTION TO LINE OF SIGHT AS IDENTIFIED.
11. SIDEWALK SHALL BE A MINIMUM OF 5'WIDE.


R.O.W.
ORIGINAL SHELTER OBSTRUCTION
A
A
R.O.W.
EXISTING SIDEWALK
8' MIN
T
L
3'
3'–8"
P
L
T
5' MIN
5'
17'–0"(TYPICAL)
7' (SEE NOTE 3)
5' MIN
EXISTING CROSSWALK
FRONT DOOR
BACK DOOR
METRO BUS
TYPICAL 40' BUS


PRIVATE PROPERTY
9'
8' MIN.
5'–3"
EXISTING STREET
METRO BUS SHELTER TYPE IV (INSTALLED BY METRO)
R.O.W.
CRITICAL SHELTER OBSTRUCTION
PROP 9" CONC. PAD
MAX 2%
3'–8"

LEGEND:

P	9" THICK BUS PAD (ALL SLOPES MAX 2%)
▨	4 1/2" THICK BUS LANDING AREAS (ALL SLOPES MAX 2%)
T	4 1/2" THICK TRANSITION TO EXISTING SIDEWALK
◖	BUS STOP SIGN
⇦	DIRECTION OF TRAFFIC
▭	EXPANSION JOINT

Figure 10.14 - STANDARD BUS PAD AND LANDINGS

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SHEET 10 OF 14

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SHEET NO. 134 OF 345

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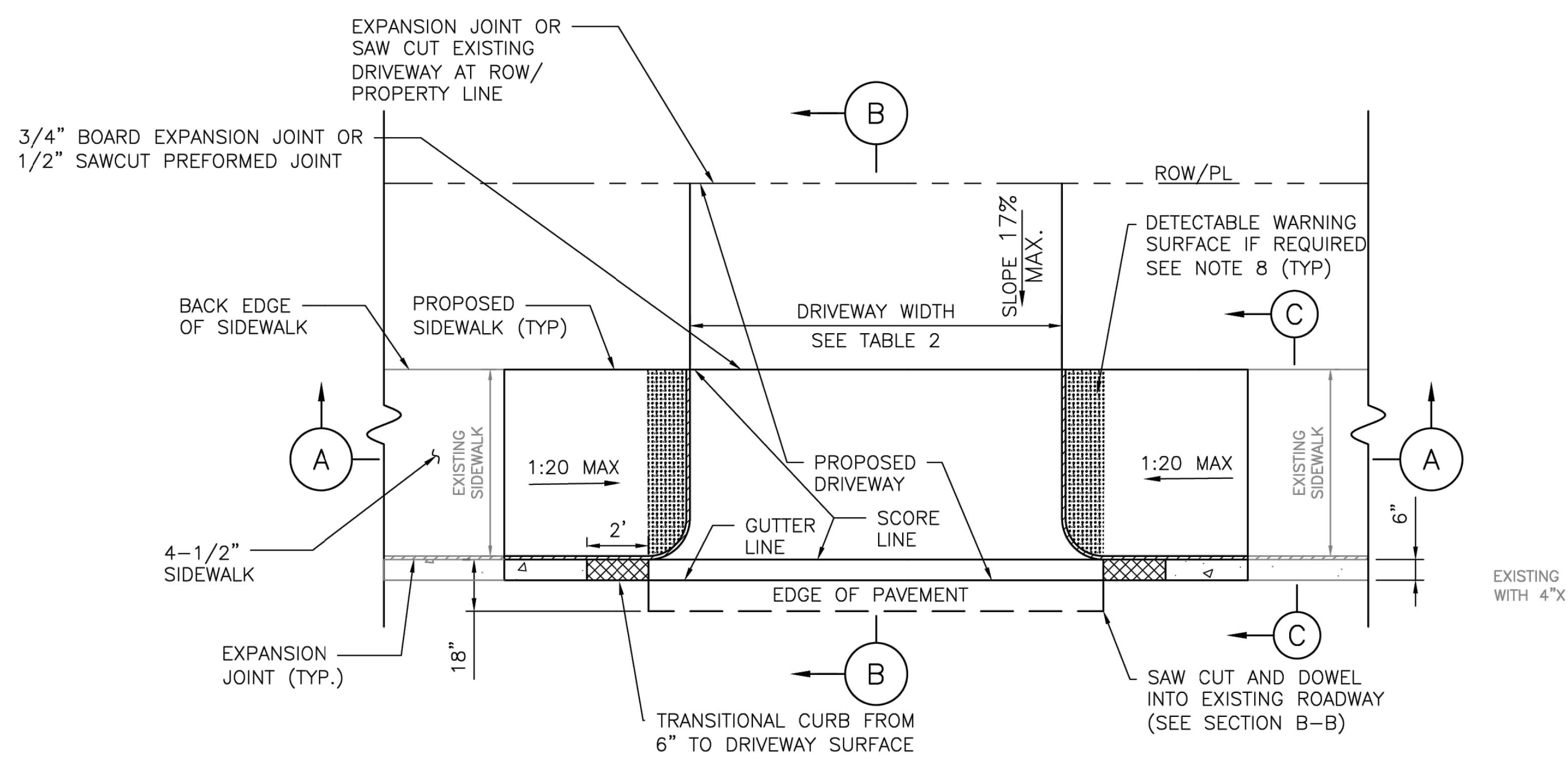
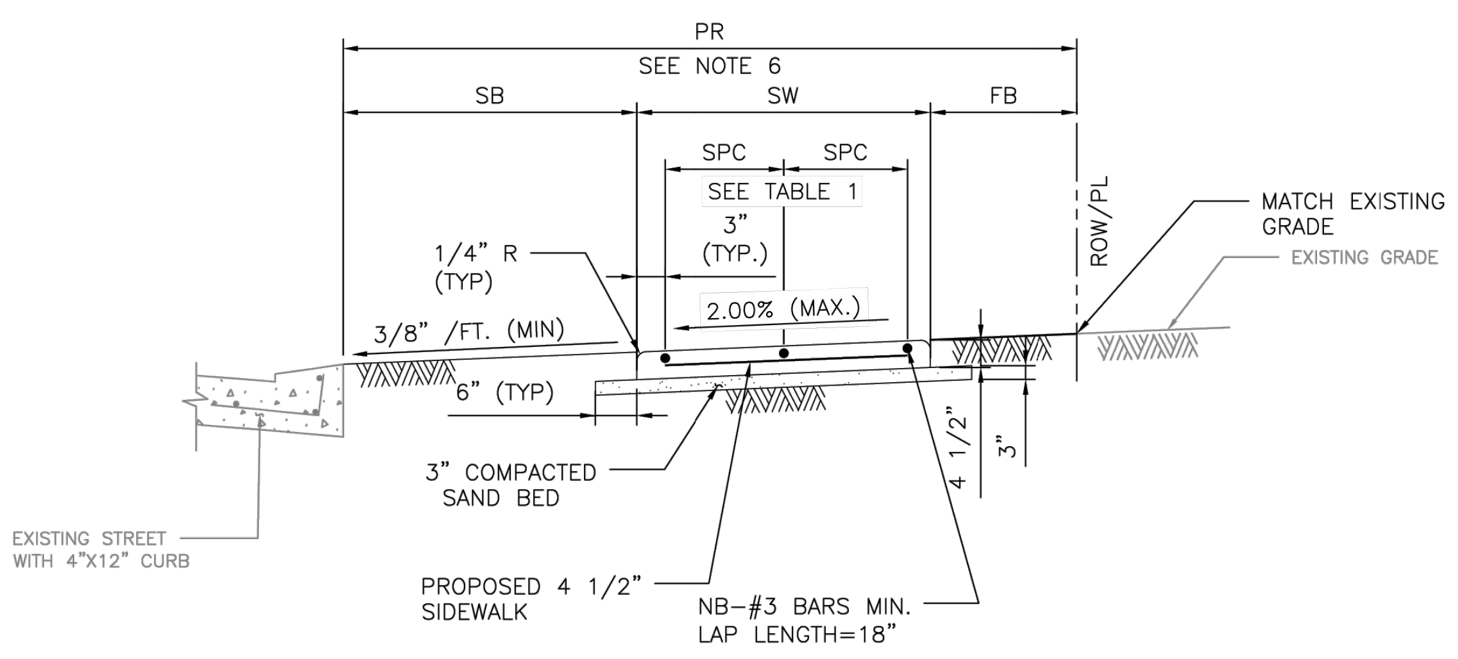
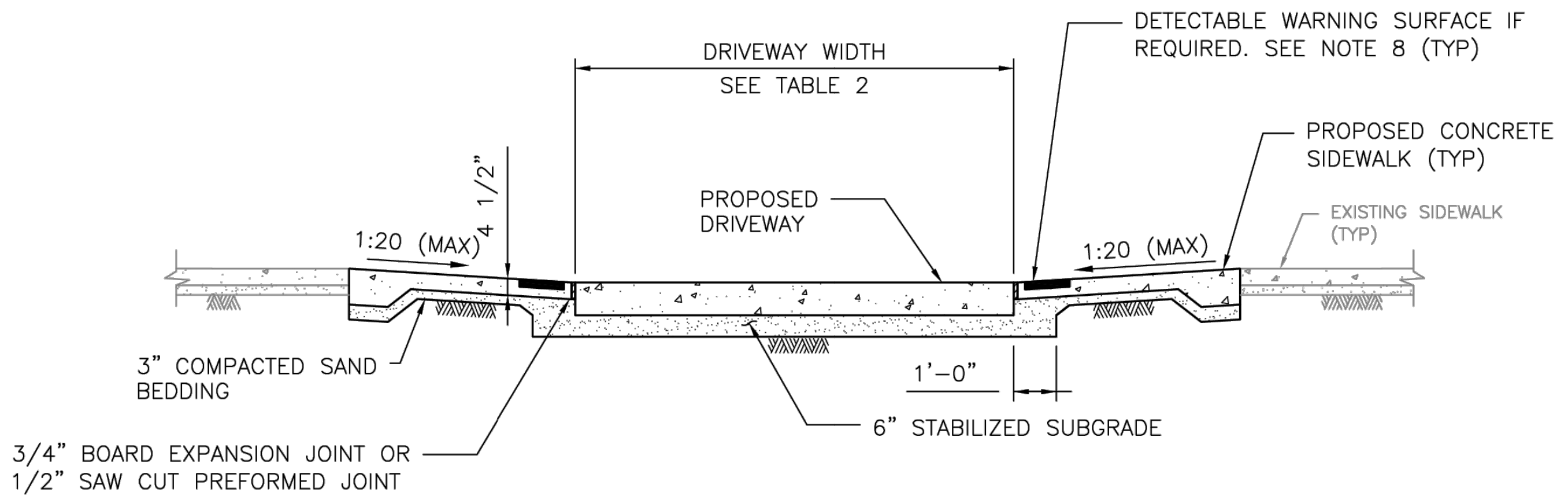

EXPANSION JOINT OR SAW CUT EXISTING DRIVEWAY AT ROW/ PROPERTY LINE
3/4" BOARD EXPANSION JOINT OR 1/2" SAWCUT PREFORMED JOINT
B
ROW/PL
SLOPE 17% MAX.
DETECTABLE WARNING SURFACE IF REQUIRED SEE NOTE 8 (TYP)
BACK EDGE OF SIDEWALK
PROPOSED SIDEWALK (TYP)
DRIVEWAY WIDTH
SEE TABLE 2
C
A
EXISTING SIDEWALK
1:20 MAX
PROPOSED DRIVEWAY
GUTTER LINE
SCORE LINE
2'
6"
4-1/2" SIDEWALK
EDGE OF PAVEMENT
EXPANSION JOINT (TYP.)
18"
TRANSITIONAL CURB FROM 6" TO DRIVEWAY SURFACE
SAW CUT AND DOWEL INTO EXISTING ROADWAY (SEE SECTION B–B)

PLAN VIEW – DRIVEWAY


PR
SEE NOTE 6
SB
SW
FB
SPC
SPC
SEE TABLE 1
3" (TYP.)
1/4" R (TYP)
2.00% (MAX.)
3/8" /FT. (MIN)
6" (TYP)
ROW/PL
MATCH EXISTING GRADE
EXISTING GRADE
4 1/2"
3"
3" COMPACTED SAND BED
EXISTING STREET WITH 4"X12" CURB
PROPOSED 4 1/2" SIDEWALK
NB–#3 BARS MIN. LAP LENGTH=18"

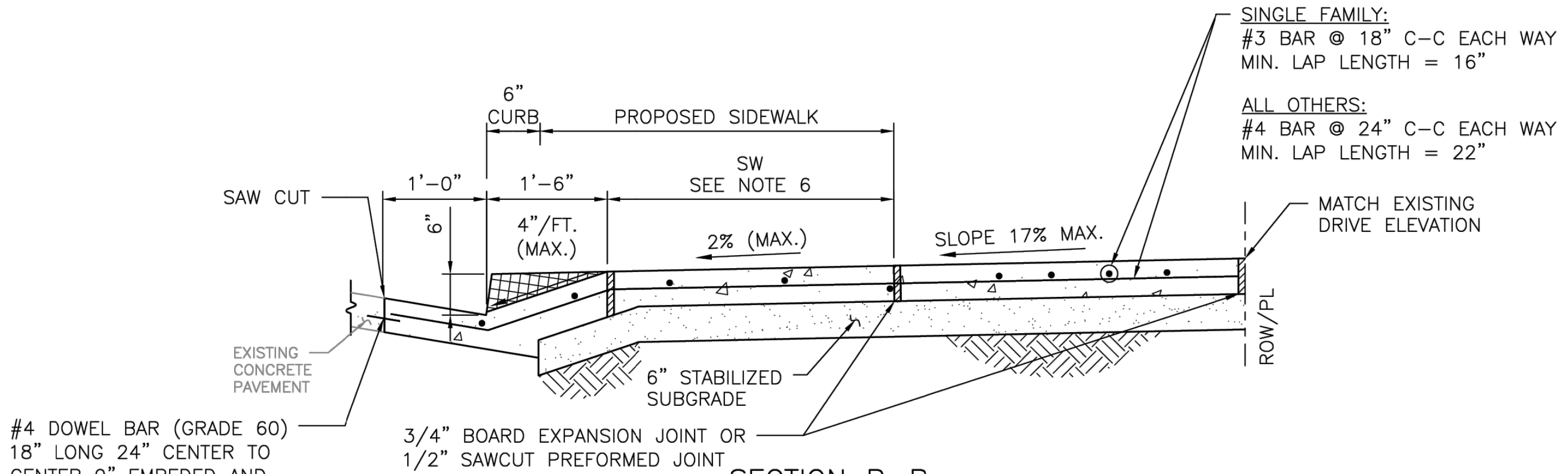
SECTION C–C

TYPICAL SIDEWALK SECTION


DRIVEWAY WIDTH
SEE TABLE 2
DETECTABLE WARNING SURFACE IF REQUIRED. SEE NOTE 8 (TYP)
PROPOSED CONCRETE SIDEWALK (TYP)
EXISTING SIDEWALK (TYP)
PROPOSED DRIVEWAY
4 1/2"
1:20 (MAX)
1:20 (MAX)
3" COMPACTED SAND BEDDING
1'-0"
6" STABILIZED SUBGRADE
3/4" BOARD EXPANSION JOINT OR 1/2" SAW CUT PREFORMED JOINT

SECTION A–A

PROPOSED SIDEWALK THROUGH DRIVEWAY


SINGLE FAMILY:
#3 BAR @ 18" C–C EACH WAY
MIN. LAP LENGTH = 16"
ALL OTHERS:
#4 BAR @ 24" C–C EACH WAY
MIN. LAP LENGTH = 22"
6" CURB
PROPOSED SIDEWALK
SAW CUT
1'-0"
1'-6"
SW
SEE NOTE 6
6"
4"/FT. (MAX.)
2% (MAX.)
SLOPE 17% MAX.
MATCH EXISTING DRIVE ELEVATION
ROW/PL
EXISTING CONCRETE PAVEMENT
6" STABILIZED SUBGRADE
#4 DOWEL BAR (GRADE 60) 18" LONG 24" CENTER TO CENTER 9" EMBEDED AND EPOXIED
SAW CUT
3/4" BOARD EXPANSION JOINT OR 1/2" SAWCUT PREFORMED JOINT

SECTION B–B

TYPICAL DRIVEWAY SECTION

NOTES:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40–552.
2. FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
    - 2.1. EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
        - 2.1.1. THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
    - 2.2. EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
        - 2.2.1. THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
    - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
        - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
        - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. 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.
4. 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.
5. CURB RAMPS THAT ARE STEEPER THAN A 1:20 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
6. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
7. 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.)
8. DETECTABLE WARNING SURFACES:
    - 8.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD, OR TRAFFIC SIGNAL CONTROLLED.
    - 8.2. 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).
    - 8.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 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 "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(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 SWEPT PATH ANALYSIS.
(2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTCILES 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: DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	APPROVED BY: DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

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.

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No.	Date	Revisions	App.

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DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 11 OF 14

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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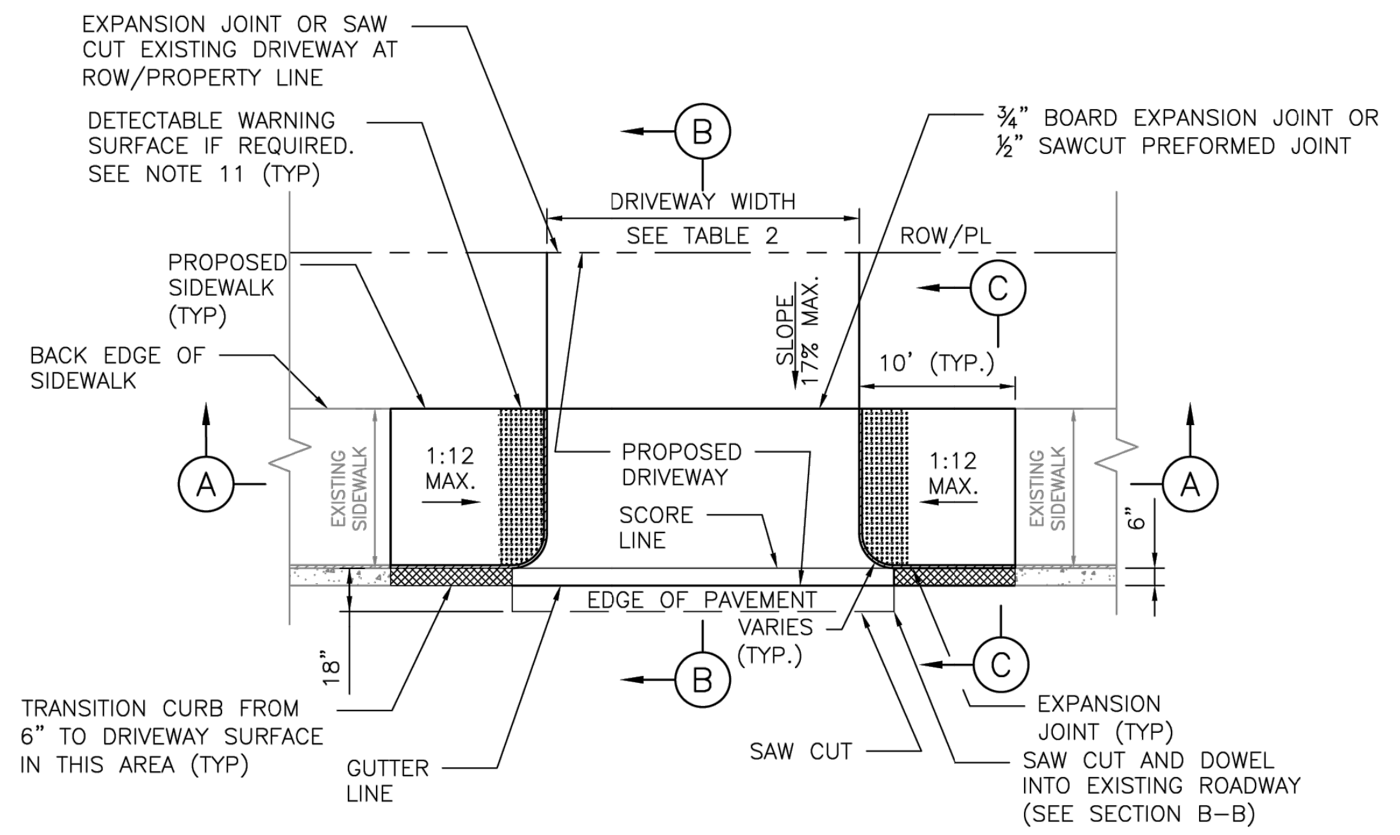
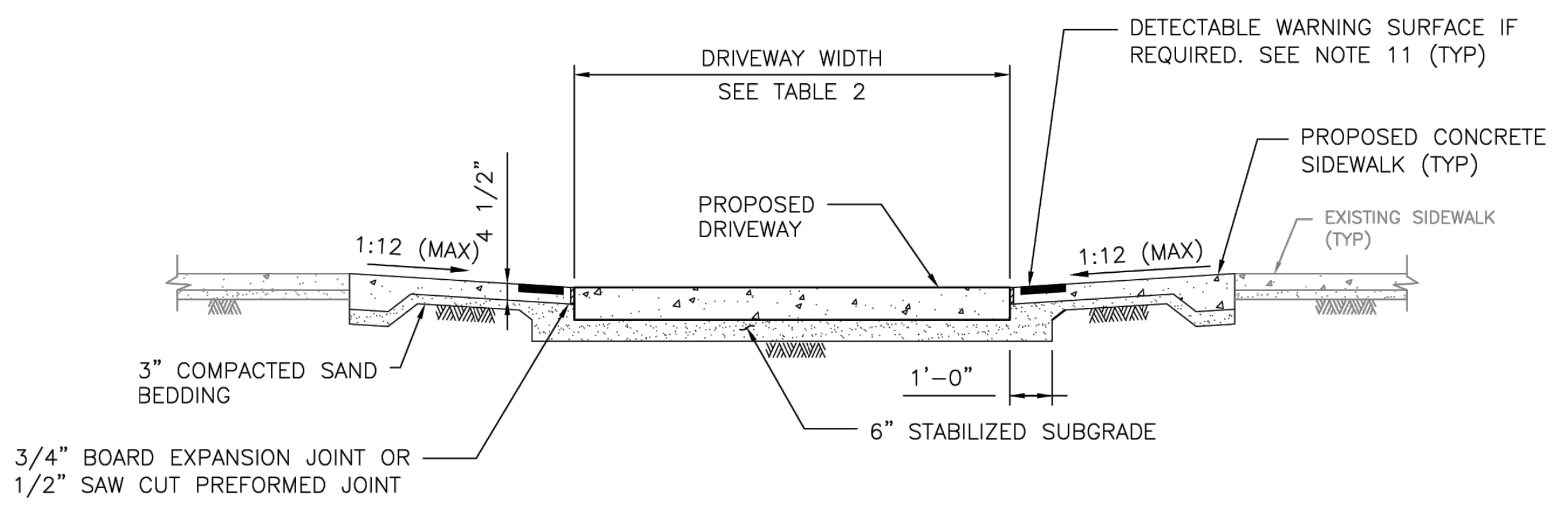


EXPANSION JOINT OR SAW CUT EXISTING DRIVEWAY AT ROW/PROPERTY LINE
DETECTABLE WARNING SURFACE IF REQUIRED. SEE NOTE 11 (TYP)
¾" BOARD EXPANSION JOINT OR ½" SAWCUT PREFORMED JOINT
DRIVEWAY WIDTH SEE TABLE 2
ROW/PL
PROPOSED SIDEWALK (TYP)
BACK EDGE OF SIDEWALK
SLOPE 17% MAX.
10' (TYP.)
1:12 MAX.
EXISTING SIDEWALK
PROPOSED DRIVEWAY
SCORE LINE
EDGE OF PAVEMENT
VARIES (TYP.)
6"
18"
TRANSITION CURB FROM 6" TO DRIVEWAY SURFACE IN THIS AREA (TYP)
GUTTER LINE
SAW CUT
EXPANSION JOINT (TYP)
SAW CUT AND DOWEL INTO EXISTING ROADWAY (SEE SECTION B-B)
A
B
C

OPTION 1 – CURB LEVEL SIDEWALK

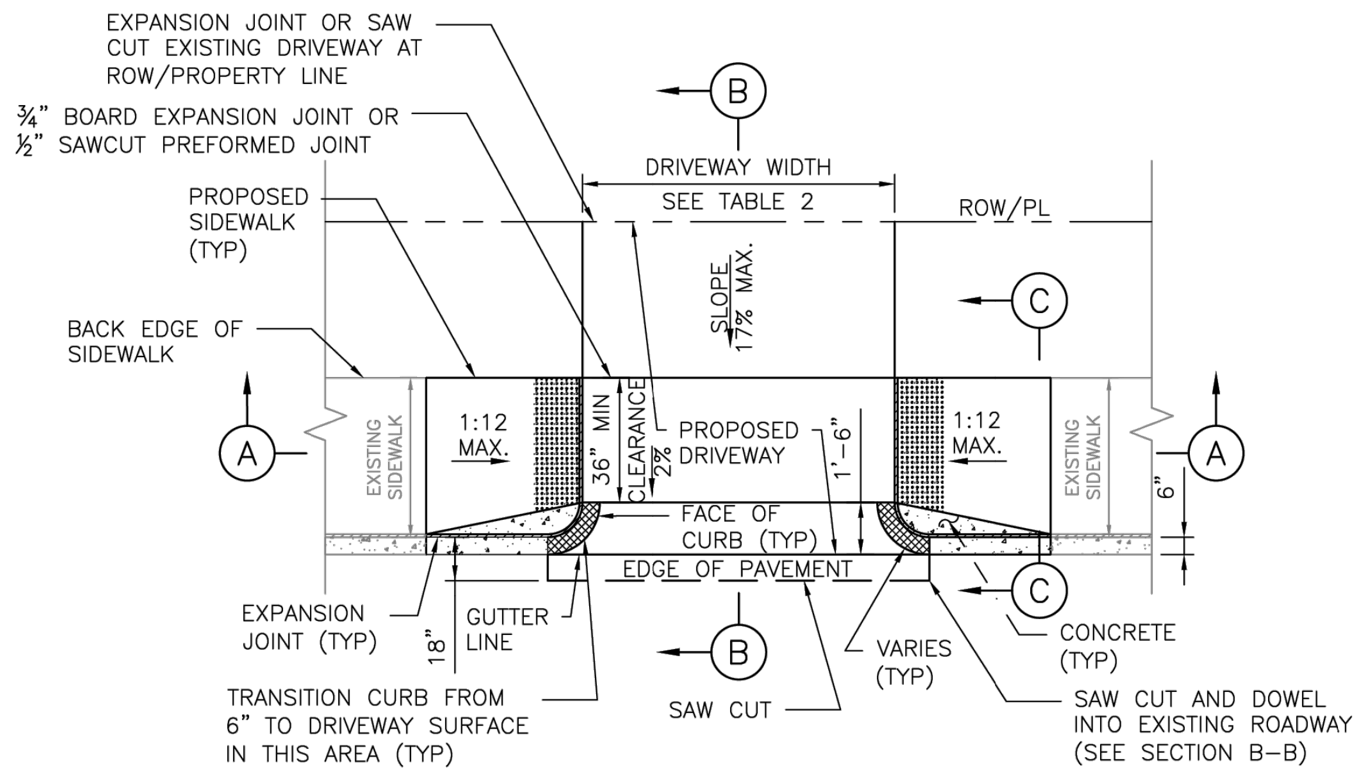
PLAN VIEW – DRIVEWAY WITHOUT CURB AT CURB RETURN



DRIVEWAY WIDTH SEE TABLE 2
DETECTABLE WARNING SURFACE IF REQUIRED. SEE NOTE 11 (TYP)
PROPOSED CONCRETE SIDEWALK (TYP)
EXISTING SIDEWALK (TYP)
PROPOSED DRIVEWAY
1:12 (MAX)
4 1/2"
3" COMPACTED SAND BEDDING
3/4" BOARD EXPANSION JOINT OR 1/2" SAW CUT PREFORMED JOINT
1'-0"
6" STABILIZED SUBGRADE

SECTION A–A

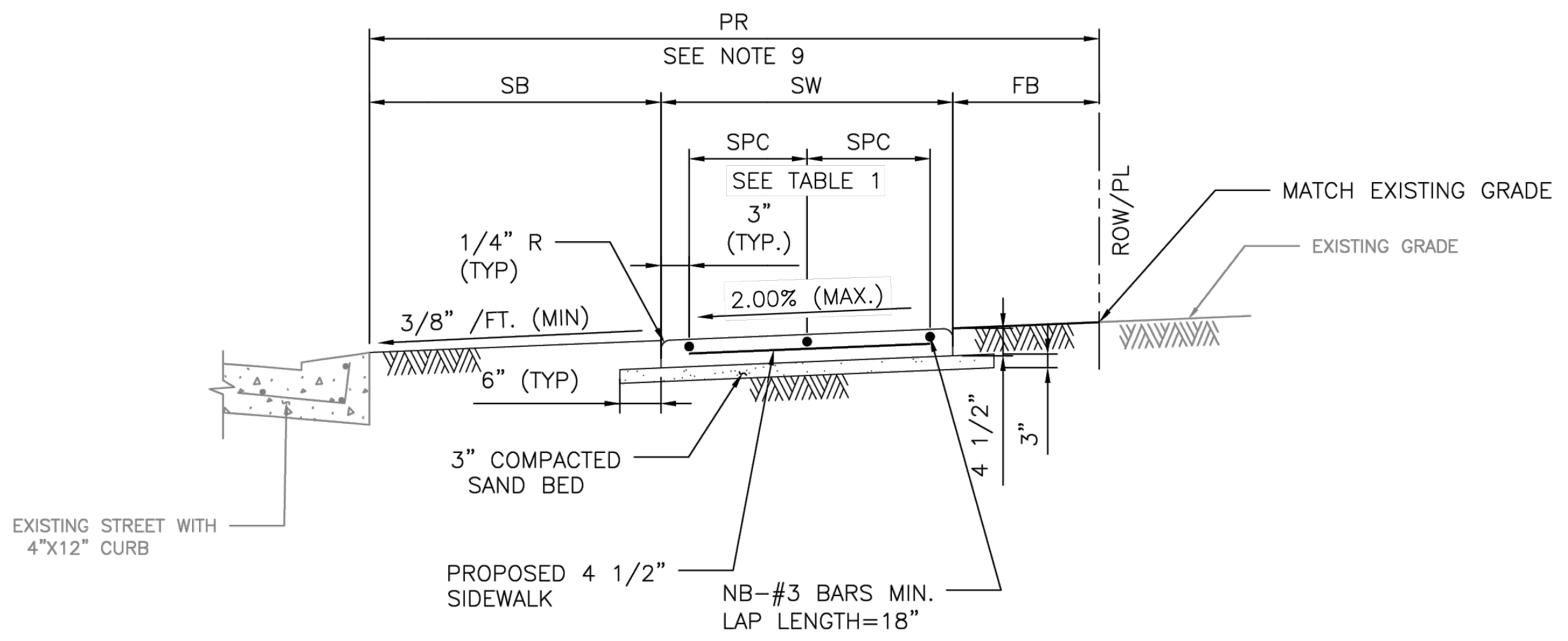
PROPOSED SIDEWALK THROUGH DRIVEWAY



EXPANSION JOINT OR SAW CUT EXISTING DRIVEWAY AT ROW/PROPERTY LINE
¾" BOARD EXPANSION JOINT OR ½" SAWCUT PREFORMED JOINT
PROPOSED SIDEWALK (TYP)
DRIVEWAY WIDTH SEE TABLE 2
ROW/PL
BACK EDGE OF SIDEWALK
SLOPE 17% MAX.
1:12 MAX.
EXISTING SIDEWALK
35" MIN CLEARANCE
2%
PROPOSED DRIVEWAY
1'-6"
FACE OF CURB (TYP)
EDGE OF PAVEMENT
6"
18"
EXPANSION JOINT (TYP)
GUTTER LINE
TRANSITION CURB FROM 6" TO DRIVEWAY SURFACE IN THIS AREA (TYP)
SAW CUT
VARIES (TYP)
CONCRETE (TYP)
SAW CUT AND DOWEL INTO EXISTING ROADWAY (SEE SECTION B-B)
A
B
C

OPTION 2 – CURB LEVEL SIDEWALK

PLAN VIEW – DRIVEWAY WITH CURB AT CURB RETURN



PR SEE NOTE 9
SB
SW
FB
SPC
SPC
SEE TABLE 1
3" (TYP.)
2.00% (MAX.)
1/4" R (TYP)
3/8" /FT. (MIN)
6" (TYP)
ROW/PL
MATCH EXISTING GRADE
EXISTING GRADE
4 1/2"
3"
EXISTING STREET WITH 4"X12" CURB
3" COMPACTED SAND BED
PROPOSED 4 1/2" SIDEWALK
NB-#3 BARS MIN. LAP LENGTH=18"

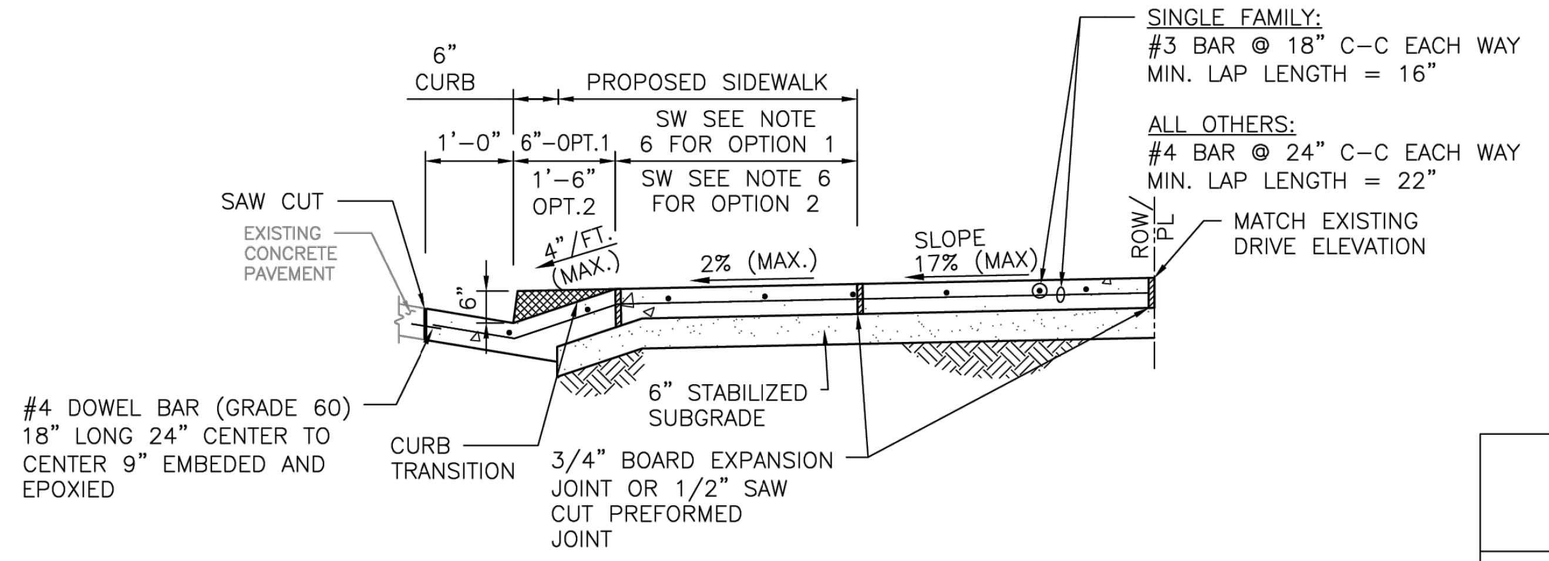
SECTION C–C

TYPICAL SIDEWALK SECTION

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½ " THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 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 NO. OF BARS "NB"	LONGITUDINAL STEEL #3 BARS SPACING "SPC" (IN)	LONGITUDINAL STEEL #3 BARS END BAR SPACING (IN)	TRANSVERSE STEEL #3 BARS SPACING (IN)
4.5	5	3	27	3	48
4.5	6	4	22	3	48



6" CURB
PROPOSED SIDEWALK
1'-0"
6"-OPT.1
SW SEE NOTE 6 FOR OPTION 1
1'-6" OPT.2
SW SEE NOTE 6 FOR OPTION 2
SINGLE FAMILY:
#3 BAR @ 18" C-C EACH WAY MIN. LAP LENGTH = 16"
ALL OTHERS:
#4 BAR @ 24" C-C EACH WAY MIN. LAP LENGTH = 22"
SAW CUT
EXISTING CONCRETE PAVEMENT
4"/FT. (MAX.)
2% (MAX.)
SLOPE 17% (MAX)
ROW/PL
MATCH EXISTING DRIVE ELEVATION
6"
#4 DOWEL BAR (GRADE 60) 18" LONG 24" CENTER TO CENTER 9" EMBEDED AND EPOXIED
CURB TRANSITION
6" STABILIZED SUBGRADE
3/4" BOARD EXPANSION JOINT OR 1/2" SAW CUT PREFORMED JOINT

SECTION B–B

TYPICAL DRIVEWAY SECTION THROUGH DRIVEWAY

TABLE 2

TRAFFIC TYPE	TYPE A DRIVEWAY (FOR SINGLE FAMILY RESIDENTIAL HOUSES OR DUPLEXES) WIDTH (FT) MIN	WIDTH (FT) MAX	RADIUS (FT) MIN	RADIUS (FT) MAX	TYPE B DRIVEWAY (SHARED ACCESS/SHARED DRIVEWAY) WIDTH (FT) MIN	WIDTH (FT) MAX	RADIUS (FT) MIN	RADIUS (FT) MAX	TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY) WIDTH (FT) MIN	WIDTH (FT) MAX	RADIUS (FT) MIN	RADIUS (FT) 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

DRIVEWAY DESIGN CRITERIA (1)(2)

(1) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTICLE 15.2.07.C.1.F FOR DRIVEWAYS THAT REQUIRE A VEHICLE SWEPT PATH ANALYSIS.
(2) REFER TO INFRASTRUCTURE DESIGN MANUAL ARTCILES 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:

1. REPAIR, RECONSTRUCTION OR REPLACEMENT OF SIDEWALKS SHALL MEET PERMITTING REQUIREMENTS OF CODE OF ORDINANCES SECTION 40–552.
2. FOR REPAIR, RECONSTRUCTION, OR REPLACEMENT OF EXISTING SIDEWALKS:
    - 2.1. EXISTING SIDEWALKS LESS THAN OR EQUAL TO 20 FEET IN TOTAL LENGTH:
        - 2.1.1. THE PROPOSED SIDEWALK WIDTH WILL BE ALLOWED TO MATCH THE EXISTING SIDEWALK.
    - 2.2. EXISTING SIDEWALKS GREATER THAN 20 FEET IN TOTAL LENGTH:
        - 2.2.1. THE SIDEWALK WIDTH FOR THE ENTIRE PROPERTY WIDTH SHALL BE IMPROVED TO MEET WIDTH REQUIREMENTS ACCORDING TO THE LATEST INFRASTRUCTURE DESIGN MANUAL.
    - 2.3. 20 FOOT TOTAL LENGTH IS DEFINED AS:
        - 2.3.1. UP TO 10 FEET ON BOTH SIDES OF THE DRIVEWAY; OR
        - 2.3.2. UP TO 20 FEET WHEN SIDEWALK AFFECTED IS LOCATED ONLY ON ONE SIDE OF THE DRIVEWAY.
3. 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.
4. DRIVEWAY WIDTH VARIES TO MATCH EXISTING DRIVE.
5. DRIVEWAY DETAIL TO PROVIDE FOR SIDEWALK TRANSITION FROM EXISTING BACK OF CURB TO PROPOSED DRIVEWAY EDGE.
6. DRIVEWAY WITH WIDTH >5' @ 2% CROSS SLOPE QUALIFIES AS PASSING SPACE. (SEE OPTION 1 AND OPTION 2 PLANS)
7. 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.
8. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON.
9. REFER TO CONTRACT DRAWINGS FOR PEDESTRIAN REALM (PR), SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.
10. 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.)
11. DETECTABLE WARNING SURFACES:
    - 11.1. SIDEWALK SHALL HAVE A DETECTABLE WARNING SURFACE WHERE:
        - 11.1.1. SIDEWALK INTERSECTS TYPE C DRIVEWAYS (COMMERCIAL DRIVEWAYS) THAT ARE STOP, YIELD OR TRAFFIC SIGNAL CONTROLLED; OR
        - 11.1.2. SIDEWALK SLOPE IS GREATER THAN 1:20 AND INTERSECTS A TYPE C DRIVEWAY (COMMERCIAL DRIVEWAY)
    - 11.2. 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).
    - 11.3. REFER TO STANDARD DETAILS 02775–06 TO 02775–07 FOR DETECTABLE WARNING SURFACE STANDARDS.

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock
A83C4108F2B5450...
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

DRAWING SCALE
NOT TO SCALE

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.

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No.	Date	Revisions	App.

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DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 12 OF 14

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 136 OF 345

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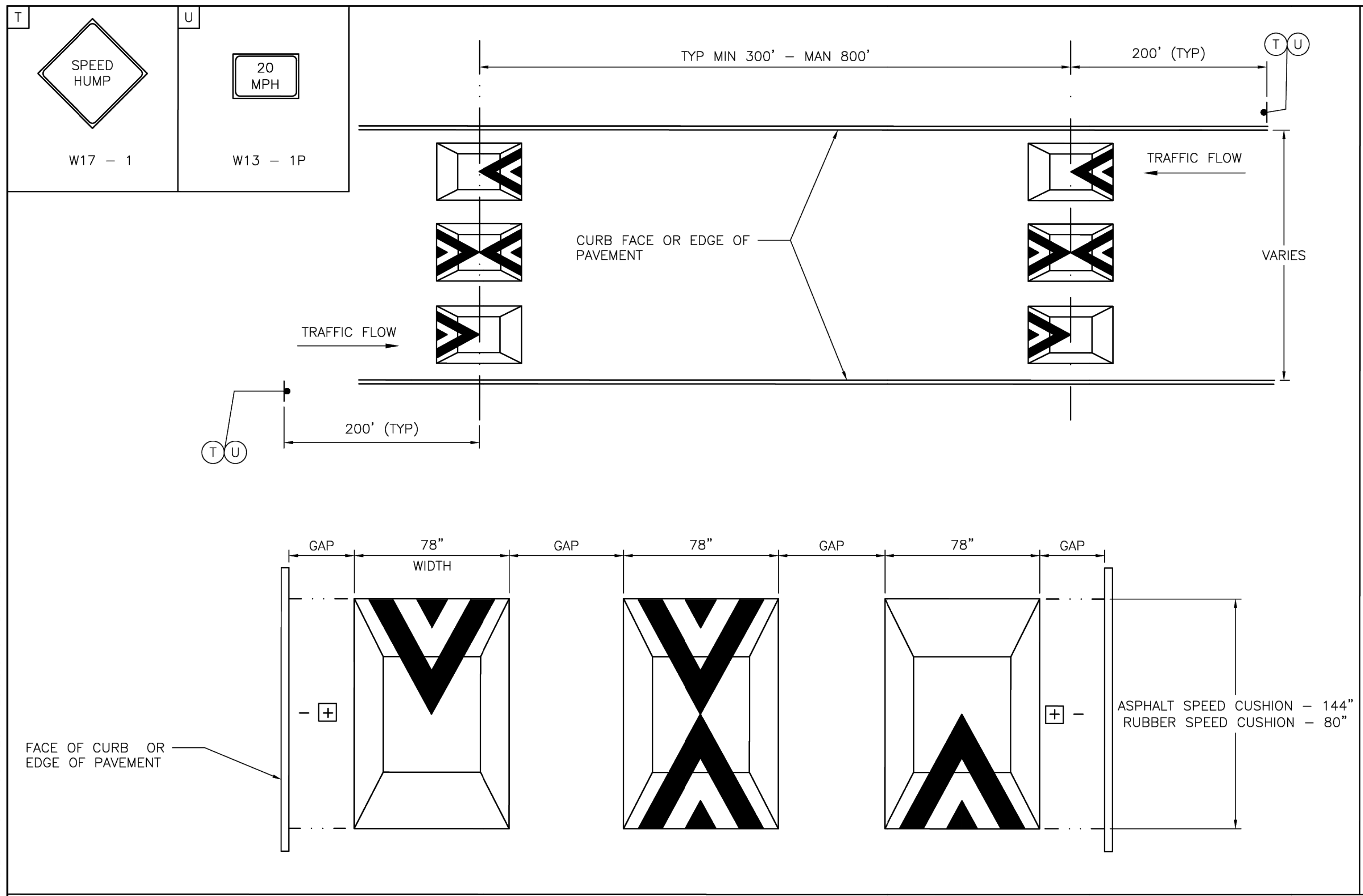
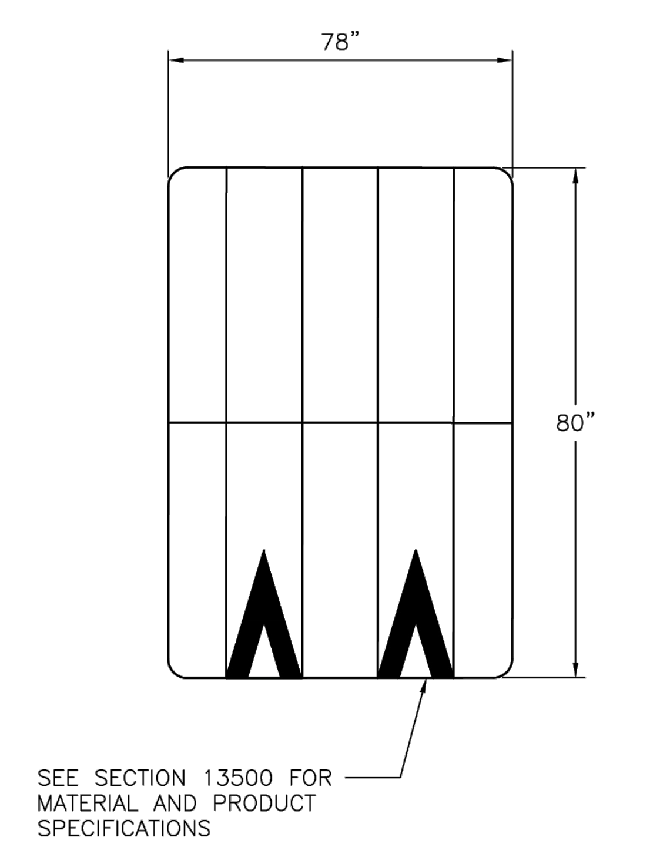

T
SPEED HUMP
W17 – 1
U
20 MPH
W13 – 1P
TYP MIN 300' – MAN 800'
200' (TYP)
T U
TRAFFIC FLOW
CURB FACE OR EDGE OF PAVEMENT
VARIES
TRAFFIC FLOW
200' (TYP)
T U
GAP
78"
WIDTH
GAP
78"
GAP
78"
GAP
FACE OF CURB OR EDGE OF PAVEMENT
ASPHALT SPEED CUSHION – 144"
RUBBER SPEED CUSHION – 80"

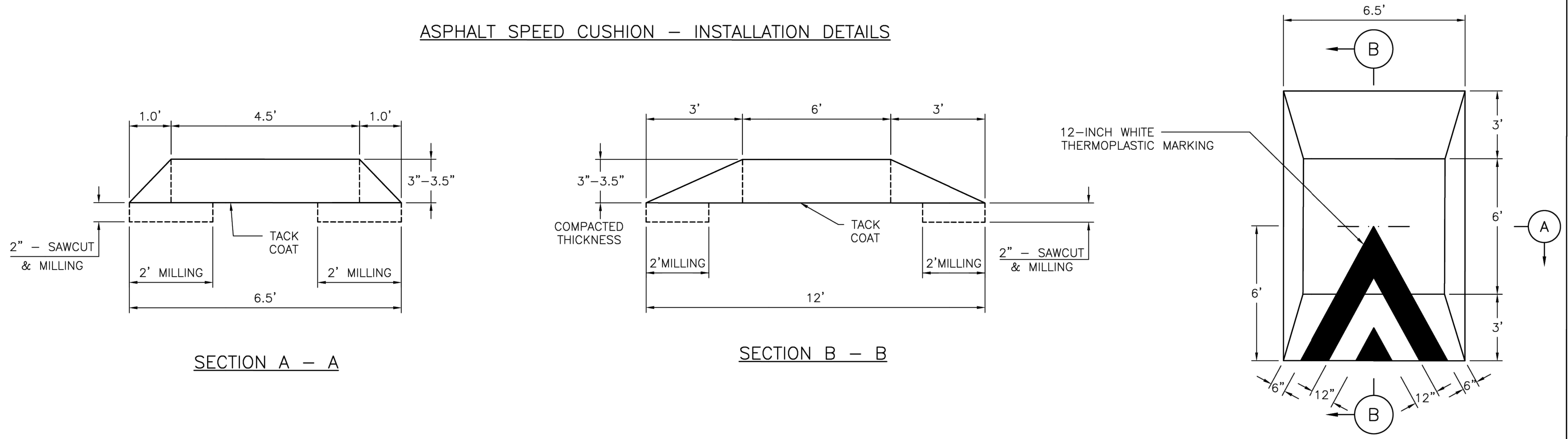
RUBBER SPEED CUSHION



SEE SECTION 13500 FOR MATERIAL AND PRODUCT SPECIFICATIONS

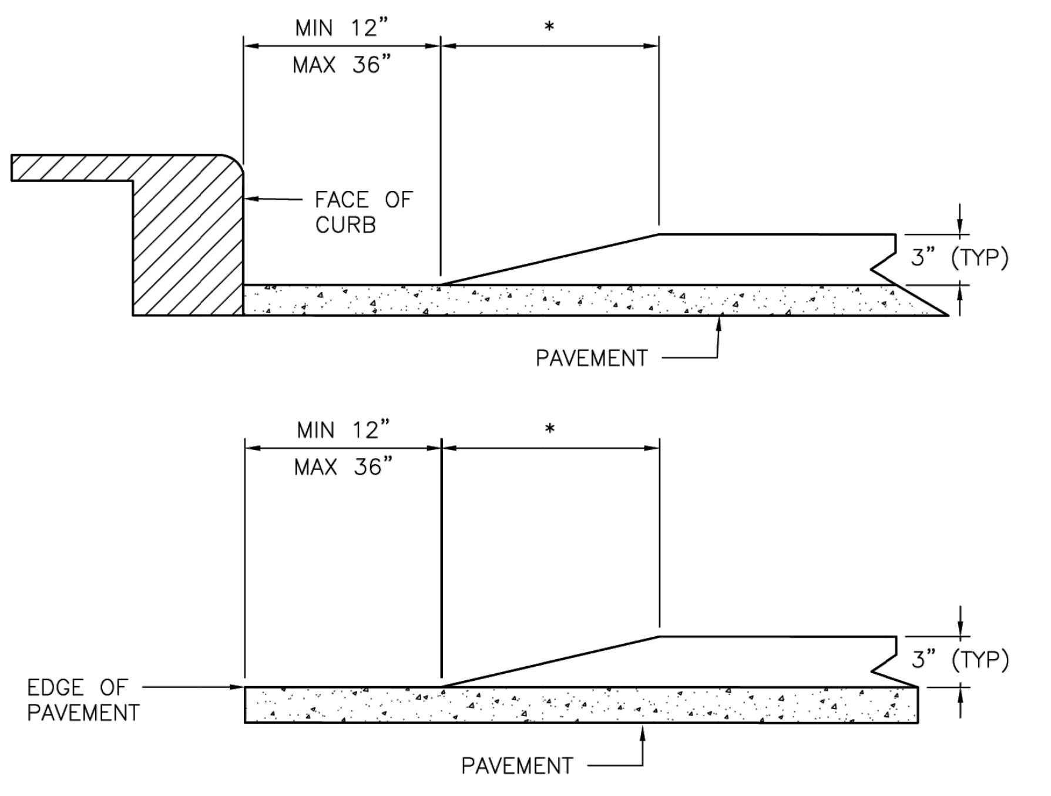
INSTALL PER MANUFACTURER'S SPECIFICATIONS

ASPHALT SPEED CUSHION – INSTALLATION DETAILS


1.0'
4.5'
1.0'
3"–3.5"
2" – SAWCUT & MILLING
TACK COAT
2' MILLING
2' MILLING
6.5'
SECTION A – A
3'
6'
3'
3"–3.5"
COMPACTED THICKNESS
TACK COAT
2'MILLING
2'MILLING
2" – SAWCUT & MILLING
12'
SECTION B – B
6.5'
B
12-INCH WHITE THERMOPLASTIC MARKING
3'
6'
A
6'
3'
6"
12"
12"
6"
B

NOTES:

1. SPEED CUSHIONS AND ASSOCIATED SIGNS AND PAVEMENT MARKINGS WILL BE CONSTRUCTED AT LOCATIONS DESIGNED BY TRANSPORTATION AND DRAINAGE OPERATIONS (TDO) OR PER PLANS APPROVED BY TDO.
2. CONTRACTOR SHALL CONTACT THE CONSTRUCTION COORDINATOR BEFORE ANY STREET IS TEMPORARILY CLOSED FOR CONSTRUCTION.
3. THE TYPE OF SPEED CUSHION AND DISTANCE BETWEEN EACH CUSHION WILL BE DETERMINED BY TDO.
4. NO PART OF A SPEED CUSHION SHALL BE LOCATED IN FRONT OF DRIVEWAY APPROACH; RATHER THERE SHOULD BE A MINIMUM OF 6 FEET FROM THE EDGE OF A DRIVEWAY, WHEN PRACTICAL.
5. SPEED CUSHIONS SHOULD BE PLACED AS CLOSE AS POSSIBLE TO THE PROPERTY LINES INSTEAD OF MID – LOT LOCATION, WHERE PRACTICAL.
6. SPEED CUSHIONS SHOULD BE INSTALLED AT A RIGHT ANGLE TO THE CENTERLINE TANGENT OF THE ROADWAY.
7. TRAFFIC CONTROL CONSISTING OF SIGNS SHALL BE PROVIDED TO ADVISE ROADWAY USER OF SPEED CUSHIONS PRESENT. TRAFFIC SIGNS, AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
8. ALL SIGNS AND PAVEMENT MARKINGS WILL BE PROVIDED AND INSTALLED BY THE CONTRACTOR.
9. CONTRACTOR SHALL NOT OPEN SPEED CUSHIONS TO TRAFFIC UNTIL ALL REQUIRED WARNING SIGNS AND PAVEMENT MARKINGS ARE COMPLETED.
10. CONTRACTOR WILL MAINTAIN TEMPORARY MARKINGS UNTIL PERMANENT MARKINGS ARE INSTALLED.
11. CONTRACTOR SHALL COMPLETE THE CUSHION INSTALLATION TO FORM ONE COMPLETE HUMP BEFORE LEAVING THE JOB SITE.
12. CONTRACTOR SHALL WORK ONE HALF OF THE STREET AT A TIME AND MAINTAIN TWO – WAY TRAFFIC WITH CERTIFIED FLAGGER.
13. ASPHALT SPEED CUSHION SHALL BE CONSTRUCTED WITH TYPE D ASPHALT MIX PER CITY OF HOUSTON SPECIFICATIONS; A TACK COAT SHALL BE APPLIED PRIOR TO APPLICATION OF PAVEMENT MATERIAL.
14. ASPHALT SPEED CUSHIONS SHALL BE COMPACTED PER CITY OF HOUSTON SPECIFICATIONS AND SHAPE ACCORDING TO INSTALLATION DETAILS. COMPACTION SHALL REQUIRE UTILIZATION OF ALL NECESSARY SIZES AND TYPES OF ROLLERS TO ACCOMPLISH PROPER COMPACTION AND SHAPE.
15. ASPHALT SPEED CUSHIONS ARE TO BE CONSTRUCTED BETWEEN 3" – 3 ½" IN HEIGHT.
16. CONTRACTOR SHALL NOTIFY GARY DRABEK (832–395–2997) A MINIMUM OF TWO BUSINESS DAYS IN ADVANCE OF THE INSTALLATION OF SPEED CUSHIONS.


MIN 12"
MAX 36"
*
FACE OF CURB
3" (TYP)
PAVEMENT
MIN 12"
MAX 36"
*
EDGE OF PAVEMENT
3" (TYP)
PAVEMENT

* RUBBER CUSHION – 12" TAPER, ASPHALT CUSHION – 12" TAPER.

TYPICAL SPEED CUSHIONS ARRANGEMENT FOR A GIVEN PAVEMENT WIDTH

PAVEMENT WIDTH (FT)	No OF CUSHIONS	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)	CUSHION (IN)	GAP (IN)
16	2	12	78	12	78	12						
18	2	20	78	20	78	20						
20	2	30	78	24	78	30						
22	2	36	78	36	78	36						
24	3	15	78	12	78	12	78	15				
26	3	20	78	19	78	19	78	20				
28	3	27	78	24	78	24	78	27				
30	3	31	78	32	78	32	78	31				
32	4	18	78	12	78	12	78	12	78	18		
34	4	21	78	18	78	18	78	18	78	21		
36	4	24	78	24	78	24	78	24	78	24		
38	4	30	78	28	78	28	78	28	78	30		
40	4	33	78	34	78	34	78	34	78	33		
42	5	19	78	19	78	19	78	19	78	19	78	19
44	5	23	78	23	78	23	78	23	78	23	78	23

DISCLAIMER:
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APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by:
Carol Haddock
A93C410B72B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023
DWG NO: 13501–01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SPEED CUSHIONS ARRANGEMENT AND INSTALLATION

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

No.
Revisions
Date
App.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 13 OF 14

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 137 OF 345

j:\2021\210601.01\cad\dwgs\sheets\05 – roadway standards\roadway standard 13.dwg Plotted April 15, 2026 at 5:23 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.

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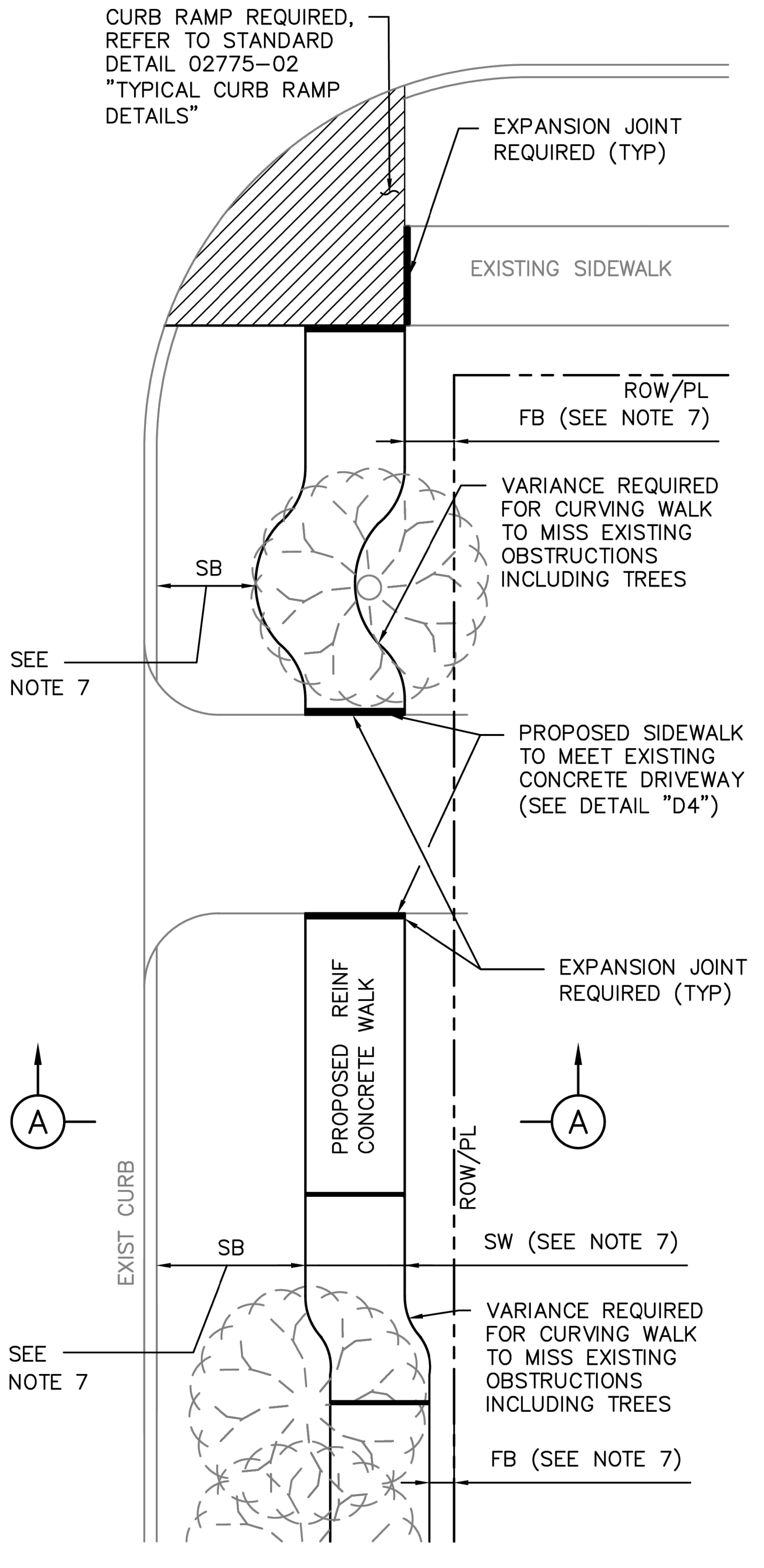
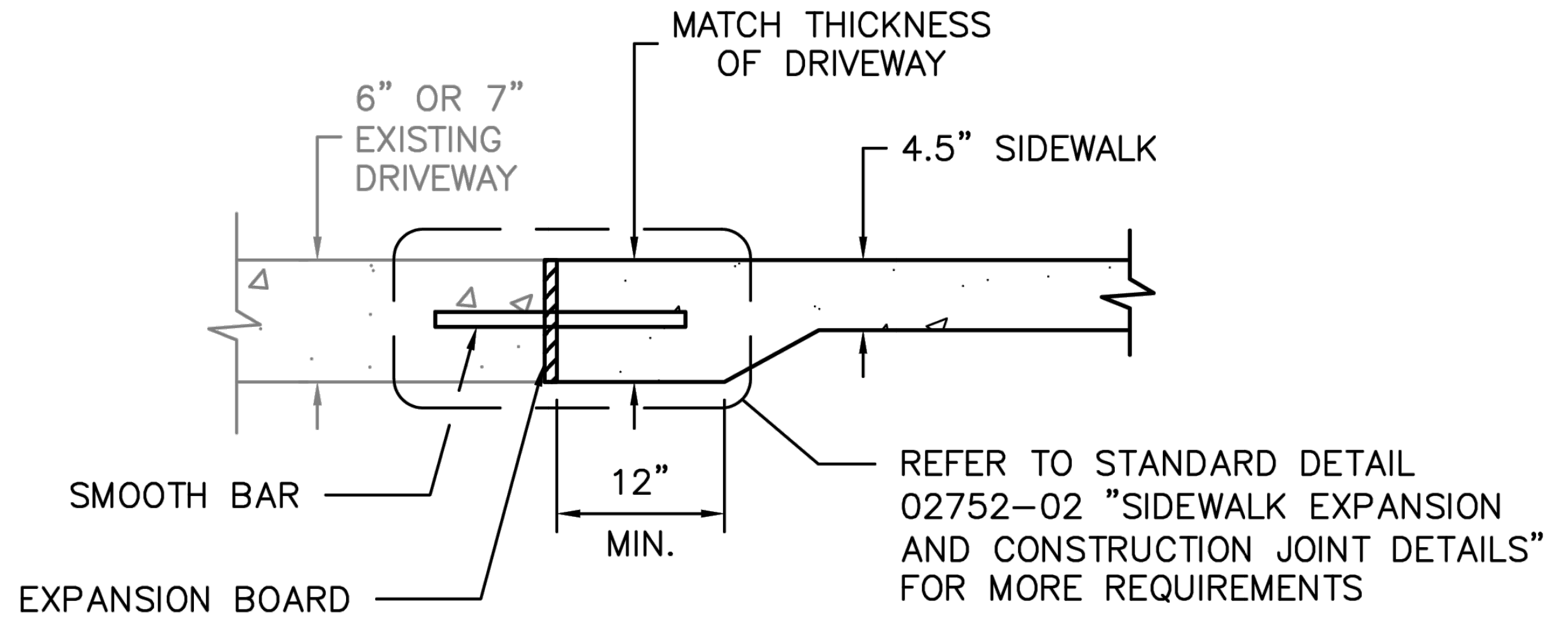


CURB RAMP REQUIRED, REFER TO STANDARD DETAIL 02775-02 "TYPICAL CURB RAMP DETAILS"
EXPANSION JOINT REQUIRED (TYP)
EXISTING SIDEWALK
ROW/PL
FB (SEE NOTE 7)
VARIANCE REQUIRED FOR CURVING WALK TO MISS EXISTING OBSTRUCTIONS INCLUDING TREES
SB
SEE NOTE 7
PROPOSED SIDEWALK TO MEET EXISTING CONCRETE DRIVEWAY (SEE DETAIL "D4")
EXPANSION JOINT REQUIRED (TYP)
PROPOSED REINF CONCRETE WALK
A
A
ROW/PL
EXIST CURB
SB
SW (SEE NOTE 7)
SEE NOTE 7
VARIANCE REQUIRED FOR CURVING WALK TO MISS EXISTING OBSTRUCTIONS INCLUDING TREES
FB (SEE NOTE 7)

PLAN VIEW



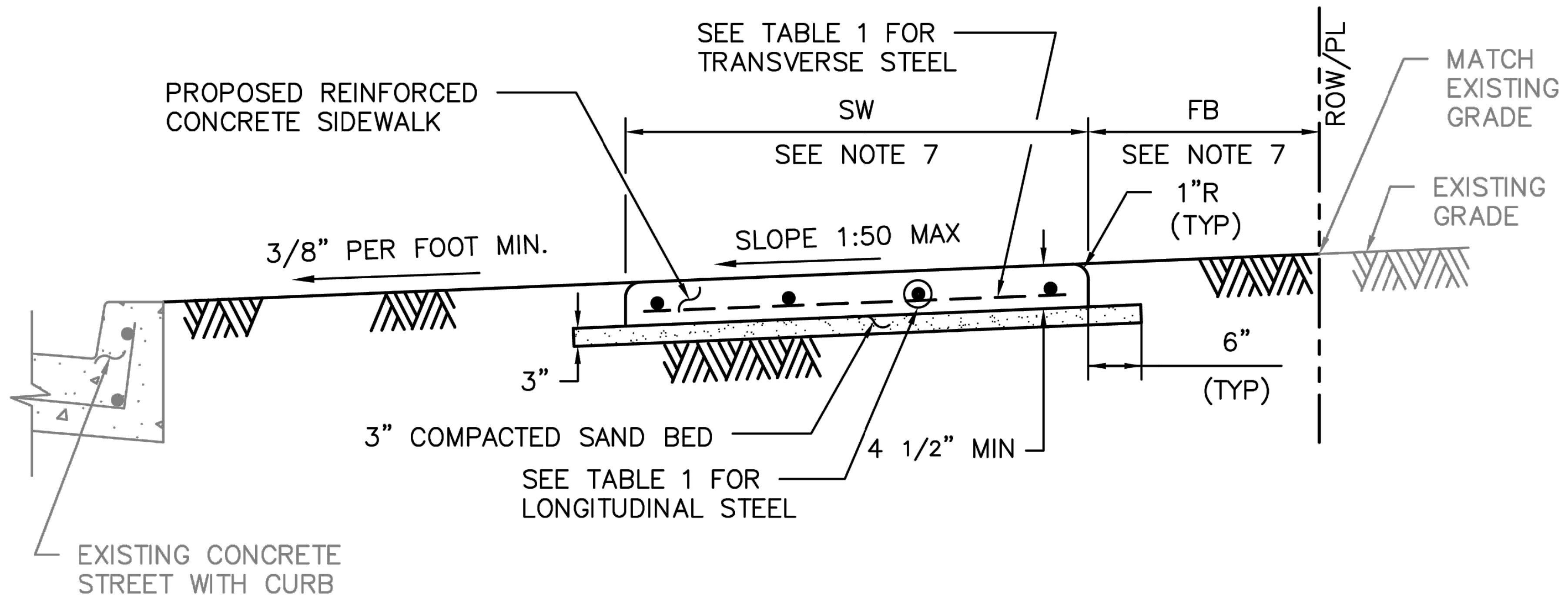
MATCH THICKNESS OF DRIVEWAY
6" OR 7" EXISTING DRIVEWAY
4.5" SIDEWALK
SMOOTH BAR
12" MIN.
REFER TO STANDARD DETAIL 02752-02 "SIDEWALK EXPANSION AND CONSTRUCTION JOINT DETAILS" FOR MORE REQUIREMENTS
EXPANSION BOARD

DETAIL D4
DRIVEWAY/SIDEWALK HEADER

TABLE 1

REINFORCING STEEL INFORMATION
FOR 4 ½" THICK SIDEWALKS
EXPANSION JOINT SPACING = 40 FT
fc' = 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



SEE TABLE 1 FOR TRANSVERSE STEEL
PROPOSED REINFORCED CONCRETE SIDEWALK
SW
SEE NOTE 7
FB
SEE NOTE 7
ROW/PL
MATCH EXISTING GRADE
EXISTING GRADE
1"R (TYP)
3/8" PER FOOT MIN.
SLOPE 1:50 MAX
6" (TYP)
3"
3" COMPACTED SAND BED
4 1/2" MIN
SEE TABLE 1 FOR LONGITUDINAL STEEL
EXISTING CONCRETE STREET WITH CURB

SECTION A–A

NOTES:

1. 6X6 – W2.9XW2.9 WELDED WIRE FABRIC MAY BE USED IN LIEU OF THE REINFORCING STEEL GIVEN IN TABLE 1.
2. 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.
3. MAXIMUM SPACING FOR EXPANSION JOINTS SHALL BE 40 FEET.
4. CONTRACTOR SHALL CONSTRUCT SIDEWALK IN A MANNER NOT TO BLOCK THE NATURAL DRAINAGE FROM ADJACENT PROPERTY.
5. 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.
6. CURB RAMPS THAT ARE STEEPER THAN A 1:12 MAX SLOPE WILL NOT BE ACCEPTED BY THE CITY OF HOUSTON UNLESS NOTED OTHERWISE.
7. REFER TO CONTRACT DRAWINGS FOR SIDEWALK (SW), FRONTAGE BUFFER (FB), AND SAFETY BUFFER (SB) WIDTHS.

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

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

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Carol Haddock
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DIRECTOR OF HPW

EFF DATE: NOV-27-2023 | DWG NO: 02775-01

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY STANDARD DETAILS

SHEET 14 OF 14

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 138 OF 345

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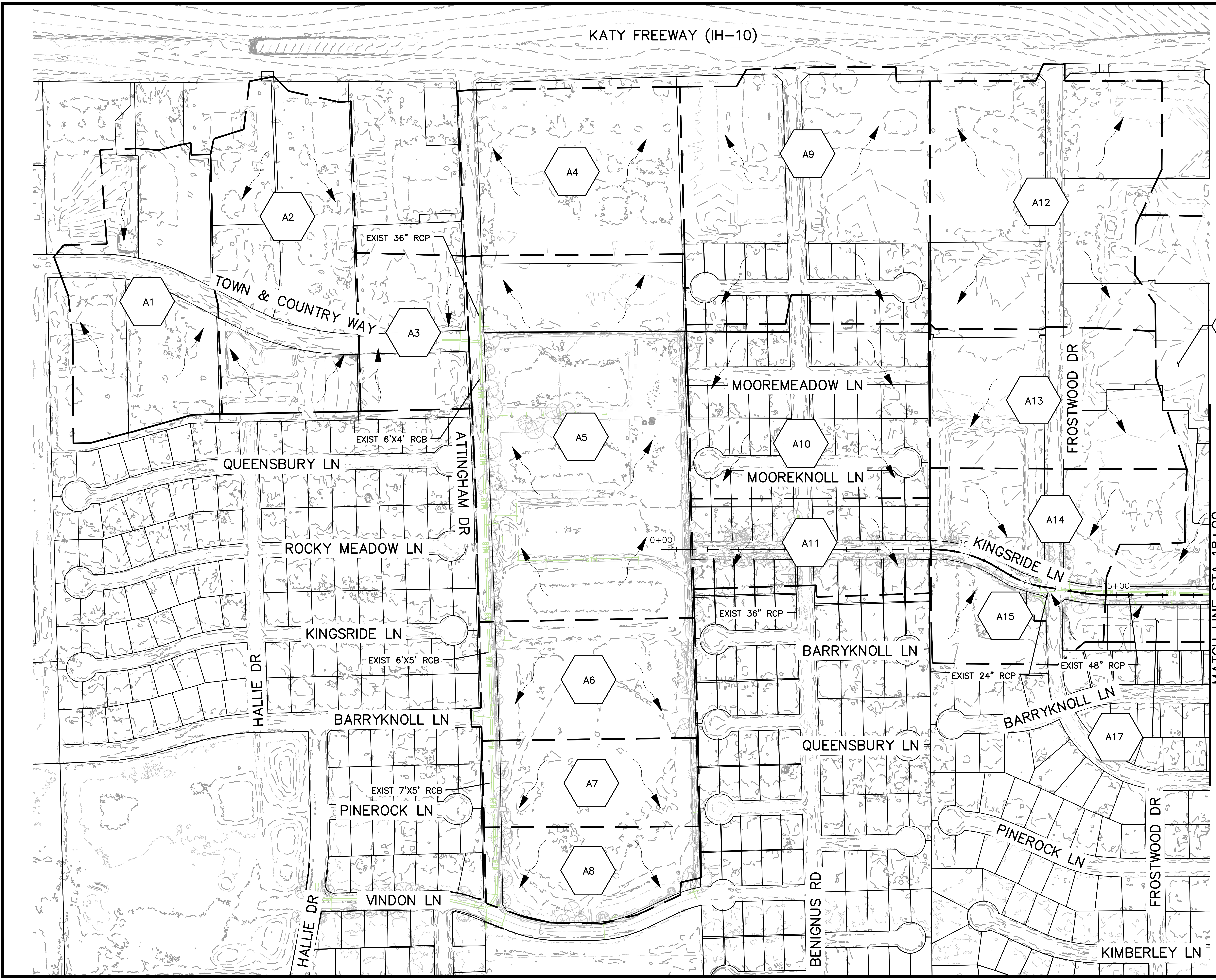
KATY FREEWAY (IH-10)
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
TOWN & COUNTRY WAY
EXIST 36" RCP
EXIST 6'X4' RCB
ATTINGHAM DR
QUEENSBURY LN
ROCKY MEADOW LN
KINGSRIDE LN
EXIST 6'X5' RCB
HALLIE DR
BARRYKNOLL LN
EXIST 7'X5' RCB
PINEROCK LN
VINDON LN
MOOREMEADOW LN
MOOREKNOLL LN
0+00
EXIST 36" RCP
BARRYKNOLL LN
QUEENSBURY LN
BENIGNUS RD
FROSTWOOD DR
KINGSRIDE LN
5+00
EXIST 24" RCP
EXIST 48" RCP
BARRYKNOLL LN
PINEROCK LN
FROSTWOOD DR
KIMBERLEY LN
MATCH LINE STA 18+00

LEGEND

— — —	EXIST DRAINAGE AREA BOUNDARY
⬡ ID	DRAINAGE AREA ID
→	DIRECTION OF FLOW
—	EXIST STORM SEWER

No. Date Revisions App.

N

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING OVERALL
DRAINAGE AREA MAP

SHEET 1 OF 2

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=150' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 139 OF 345

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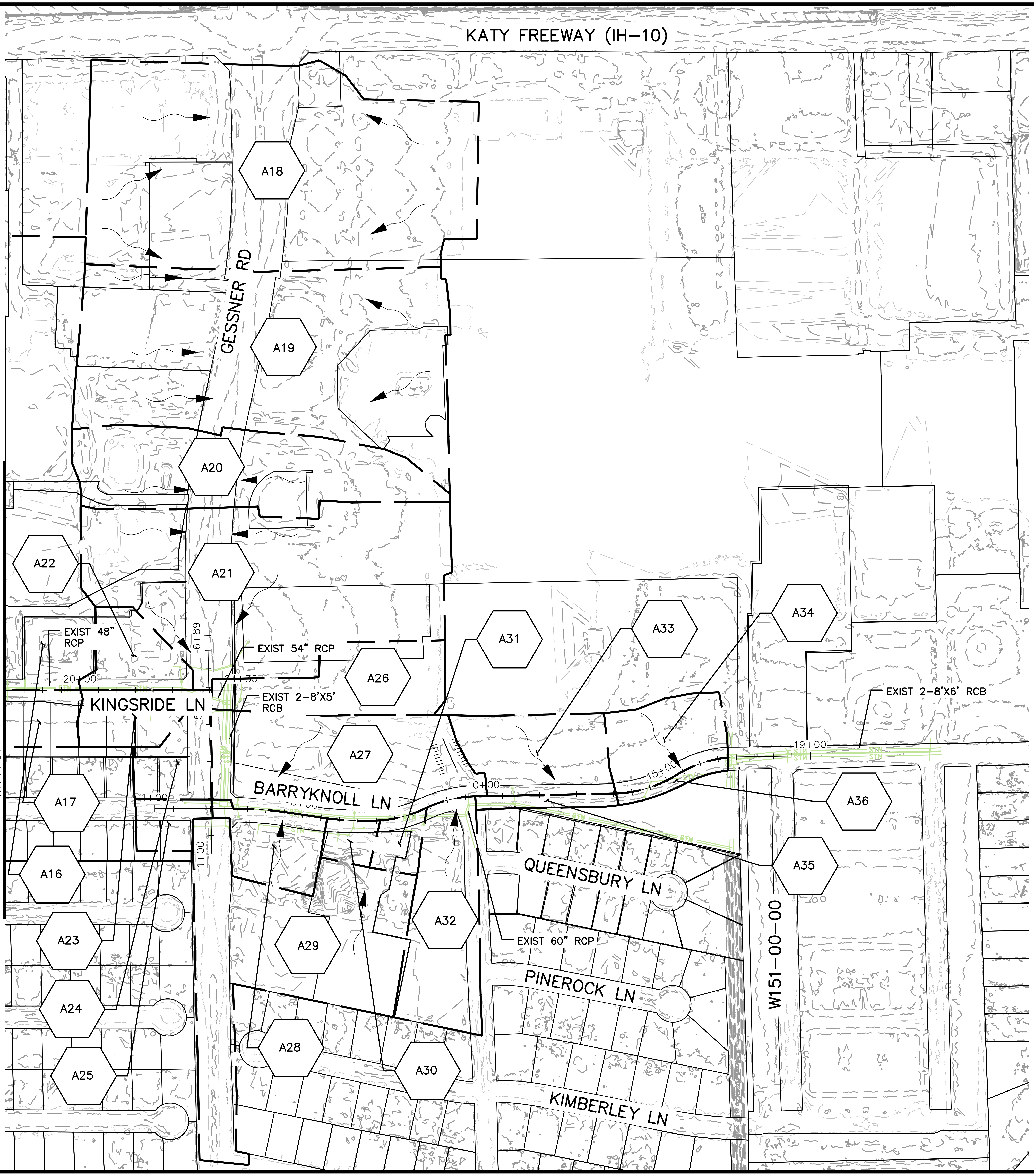
KATY FREEWAY (IH-10)
GESSNER RD
A18
A19
A20
A21
A22
A16
A17
A23
A24
A25
A26
A27
A28
A29
A30
A31
A32
A33
A34
A35
A36
MATCH LINE STA 18+00
EXIST 48" RCP
EXIST 54" RCP
EXIST 2-8'X5' RCB
EXIST 2-8'X6' RCB
EXIST 60" RCP
KINGSRIDE LN
BARRYKNOLL LN
QUEENSBURY LN
PINEROCK LN
KIMBERLEY LN
W151-00-00
6+89
20+00
1+00
10+00
15+00
19+00

LEGEND

— —	EXIST DRAINAGE AREA BOUNDARY
⬡ ID	DRAINAGE AREA ID
→	DIRECTION OF FLOW
—	EXIST STORM SEWER

N

0 75 150

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING OVERALL
DRAINAGE AREA MAP

SHEET 2 OF 2

WBS NO. M-430296-0017-3

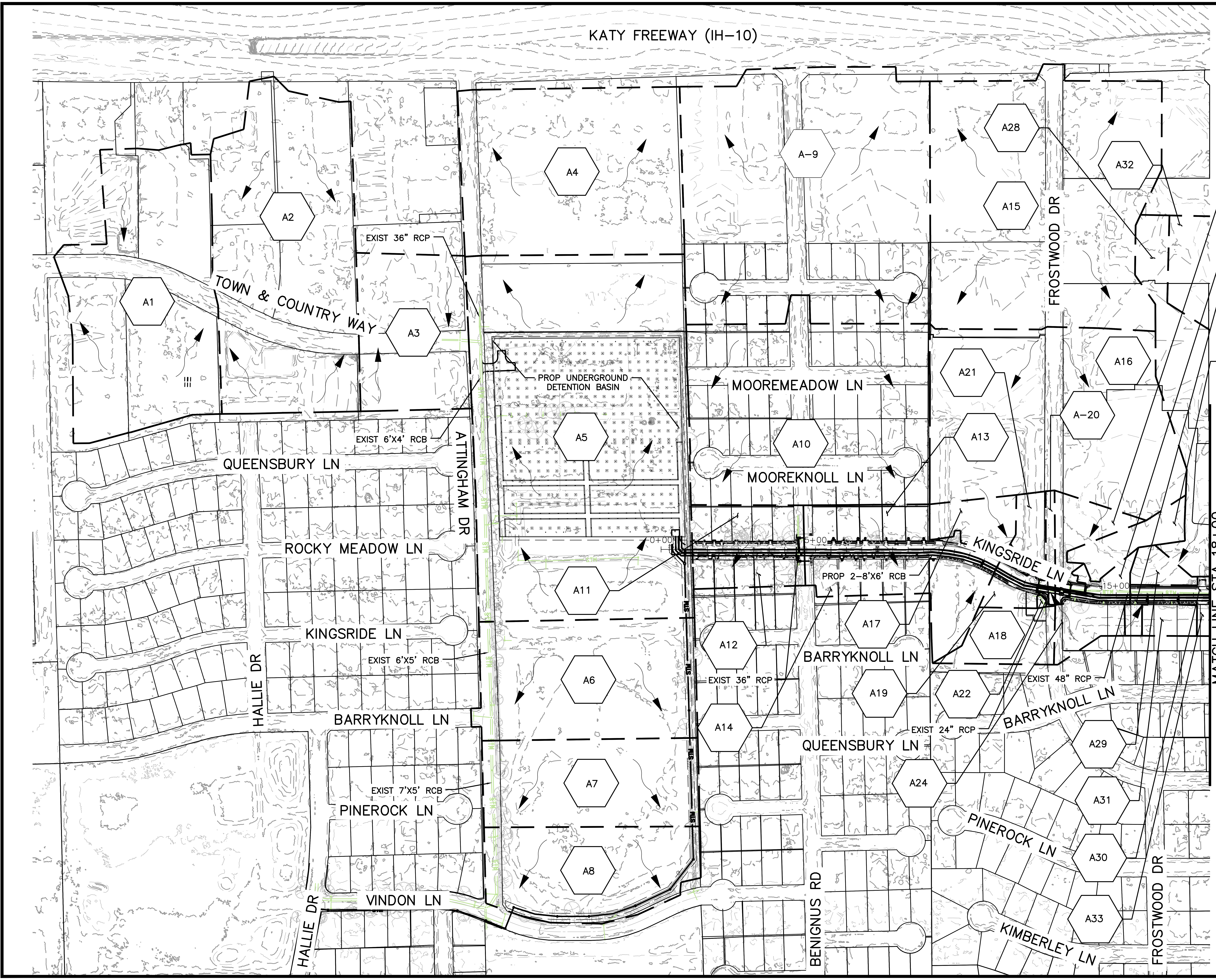
DRAWING SCALE

H: 1"=150' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 140 OF 345


KATY FREEWAY (IH–10)
TOWN & COUNTRY WAY
QUEENSBURY LN
ROCKY MEADOW LN
KINGSRIDE LN
BARRYKNOLL LN
PINEROCK LN
VINDON LN
HALLIE DR
ATTINGHAM DR
MOOREMEADOW LN
MOOREKNOLL LN
BENIGNUS RD
FROSTWOOD DR
KIMBERLEY LN
MATCH LINE STA 18+00
PROP UNDERGROUND DETENTION BASIN
PROP 2–8'X6' RCB
EXIST 36" RCP
EXIST 6'X4' RCB
EXIST 6'X5' RCB
EXIST 7'X5' RCB
EXIST 48" RCP
EXIST 24" RCP
0+00
5+00
15+00
A1
A2
A3
A4
A5
A6
A7
A8
A–9
A10
A11
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A19
A–20
A21
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A23
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A25
A26
A27
A28
A29
A30
A31
A32
A33
N

LEGEND

— —	PROP DRAINAGE AREA BOUNDARY
ID	DRAINAGE AREA ID
→	DIRECTION OF FLOW
🟩	EXIST STORM SEWER
—	PROP STORM SEWER

No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED OVERALL
DRAINAGE AREA MAP

SHEET 1 OF 2

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=150' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 141 OF 345

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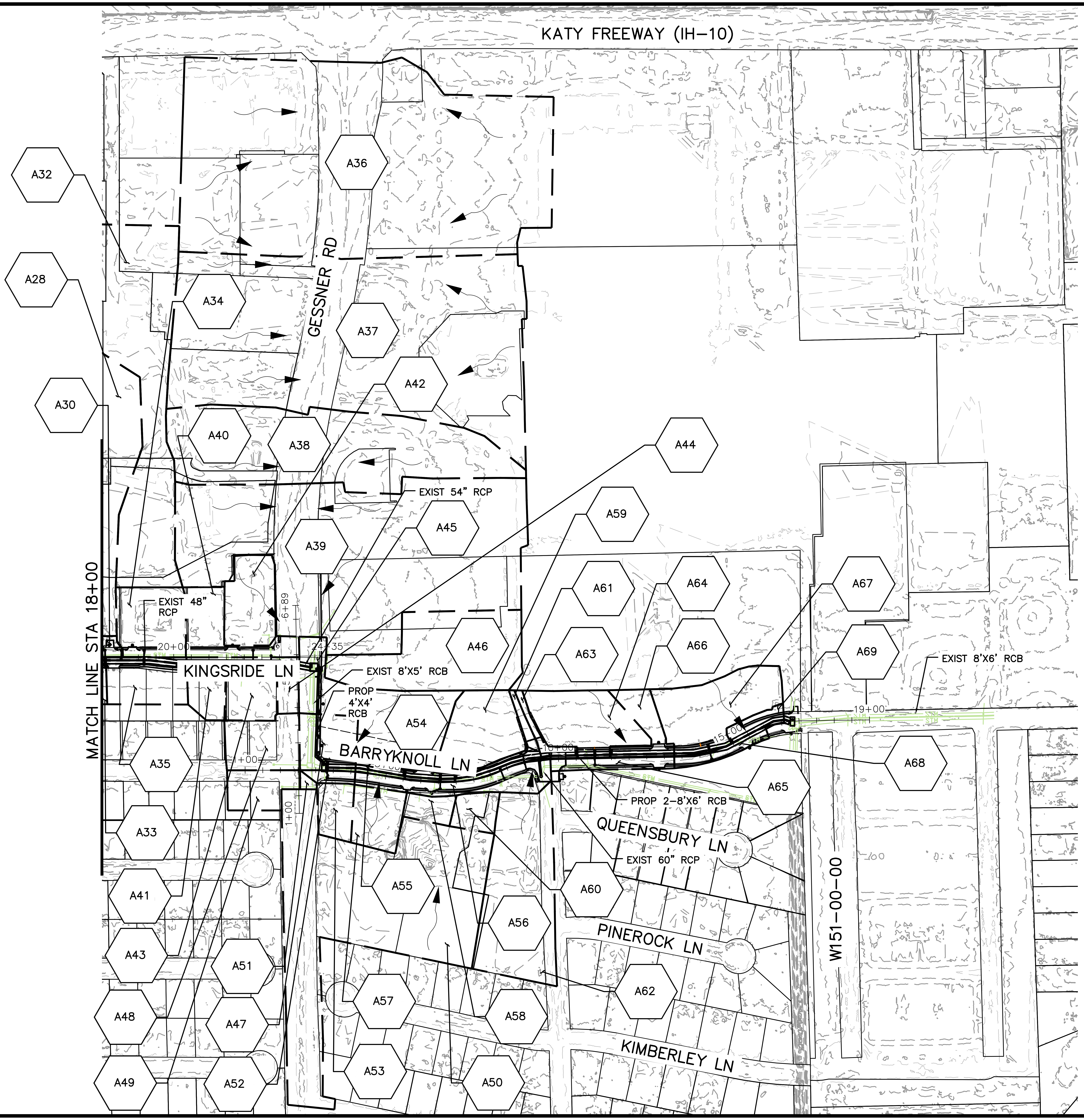
KATY FREEWAY (IH-10)
A32
A36
A28
A34
GESSNER RD
A37
A42
A30
A40
A38
A44
EXIST 54" RCP
A59
A45
A39
A61
A64
A67
EXIST 48" RCP
6+89
MATCH LINE STA 18+00
20+00
14+35
A46
A63
A66
A69
KINGSRIDE LN
EXIST 8'X5' RCB
EXIST 8'X6' RCB
PROP 4'X4' RCB
A54
19+00
15+00
16+00
BARRYKNOLL LN
A68
A35
+00
A65
1+00
PROP 2-8'X6' RCB
A33
QUEENSBURY LN
EXIST 60" RCP
A41
A55
A60
A56
W151-00-00
PINEROCK LN
A43
A51
A62
A57
A48
A47
A58
KIMBERLEY LN
A53
A49
A52
A50

LEGEND

- PROP DRAINAGE AREA BOUNDARY
- ID DRAINAGE AREA ID
- DIRECTION OF FLOW
- EXIST STORM SEWER
- PROP STORM SEWER

No.	Date	Revisions	App.

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED OVERALL DRAINAGE AREA MAP

SHEET 2 OF 2

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=150' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 142 OF 345

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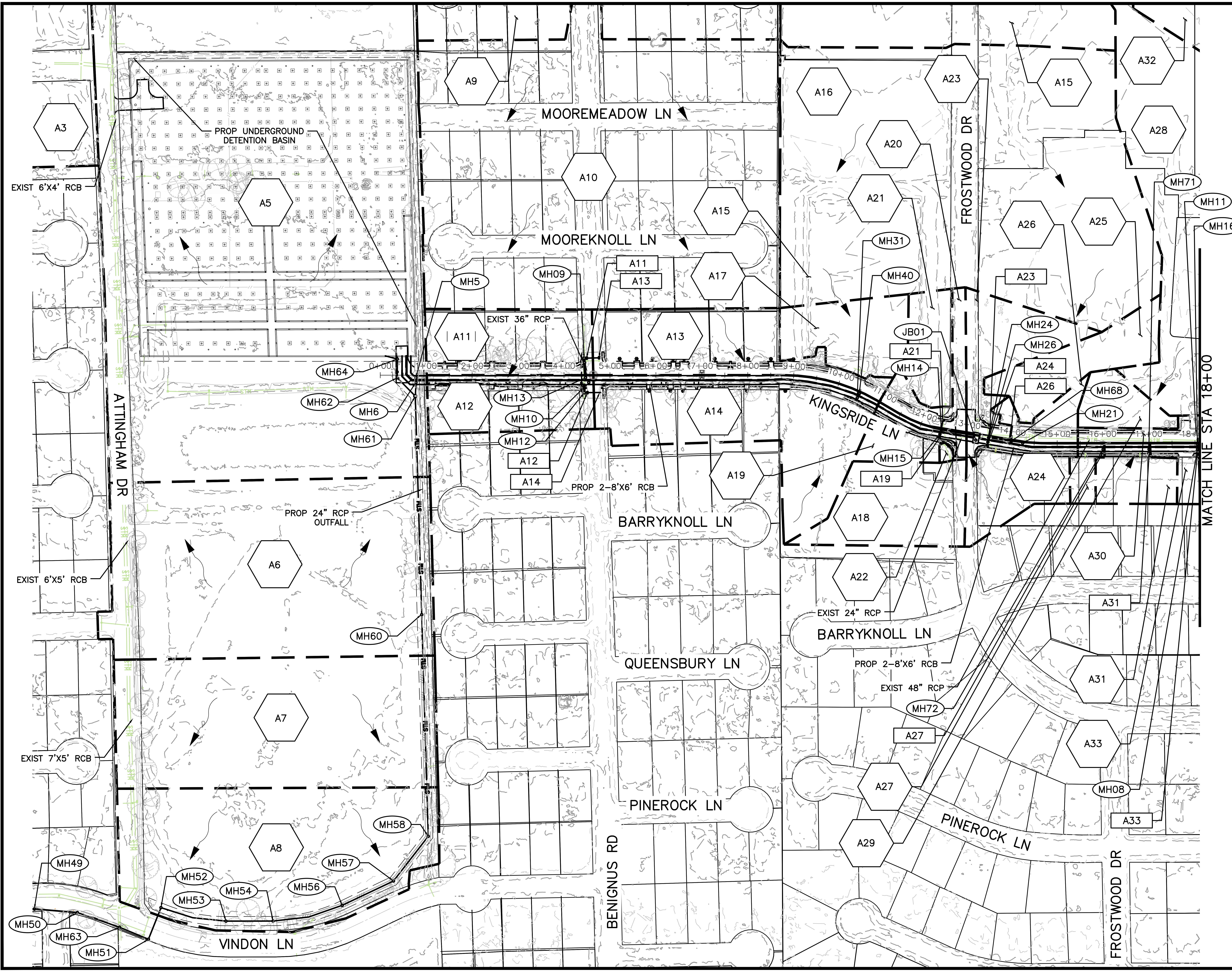
A3
EXIST 6'X4' RCB
PROP UNDERGROUND DETENTION BASIN
A5
A9
MOOREMEADOW LN
A10
MOOREKNOLL LN
A15
A17
A11
A13
MH5
MH09
EXIST 36" RCP
A11
A13
MH64
MH62
MH6
MH61
A12
MH13
MH10
MH12
A12
A14
PROP 2–8'X6' RCB
A14
A19
ATTINGHAM DR
PROP 24" RCP OUTFALL
A6
EXIST 6'X5' RCB
BARRYKNOLL LN
MH60
QUEENSBURY LN
A7
EXIST 7'X5' RCB
PINEROCK LN
A8
MH58
MH57
MH56
MH54
MH52
MH53
MH49
MH50
MH63
MH51
VINDON LN
BENIGNUS RD
A16
A23
A20
A21
MH31
MH40
FROSTWOOD DR
JB01
A21
MH14
KINGSRIDE LN
MH15
A19
A18
A22
EXIST 24" RCP
BARRYKNOLL LN
PROP 2–8'X6' RCB
EXIST 48" RCP
MH72
A27
A27
A29
PINEROCK LN
A15
A32
A28
A26
A25
A23
MH24
MH26
A24
A26
MH68
MH21
MH71
MH11
MH16
A24
A30
A31
A31
A33
MH08
A33
FROSTWOOD DR
MATCH LINE STA 18+00
0+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
N

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

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE AREA MAP
BEGIN TO STA 18+00

SHEET 1 OF 2

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=100' (22"X34")

CITY OF HOUSTON PM

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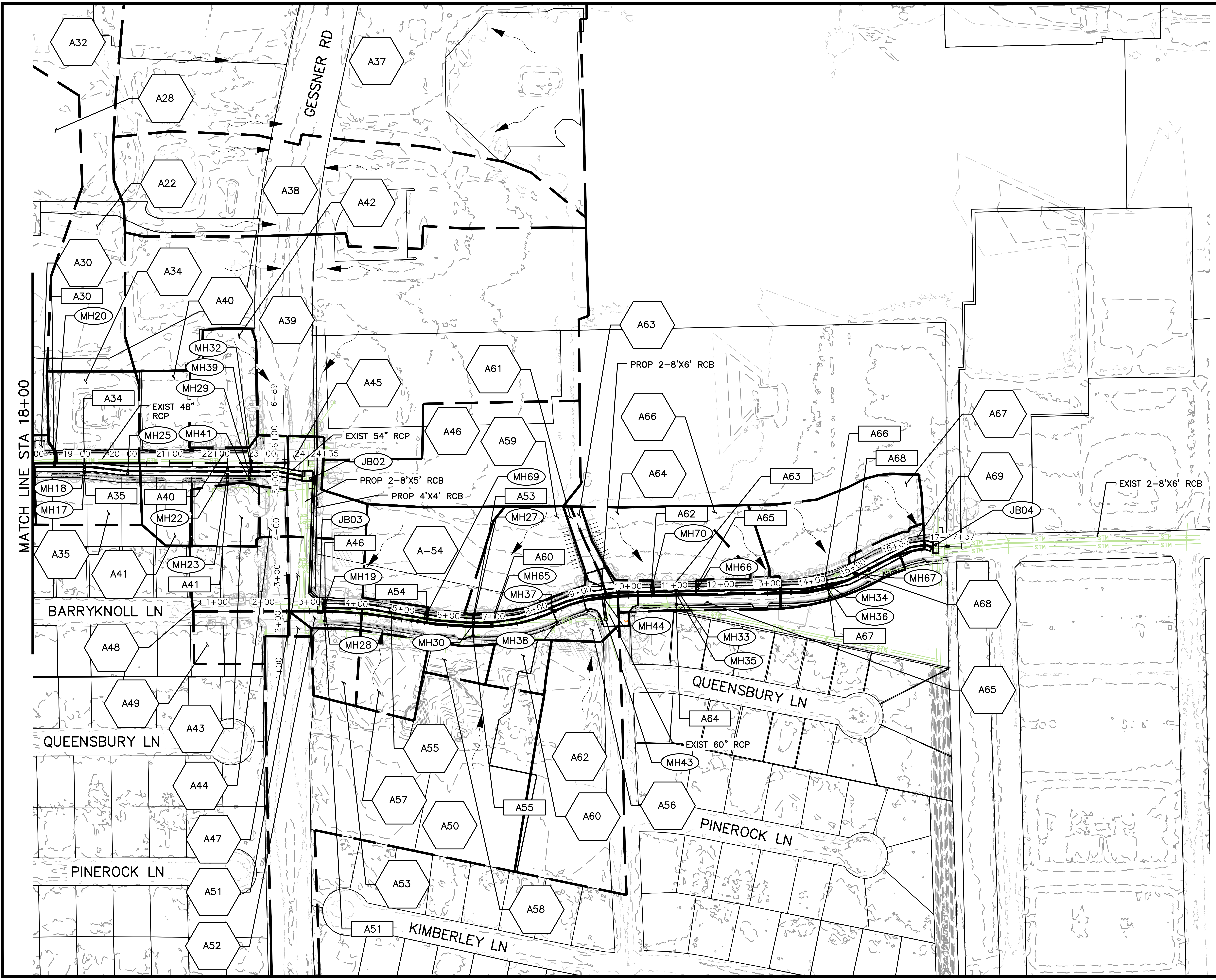
A32
A37
GESSNER RD
A28
A22
A38
A42
A30
A34
A40
A39
MH20
MH32
MH39
MH29
A45
A61
A63
PROP 2-8'X6' RCB
A34
EXIST 48" RCP
A66
A67
A46
A59
MATCH LINE STA 18+00
MH25
MH41
EXIST 54" RCP
A66
A68
JB02
A64
A69
PROP 2-8'X5' RCB
MH69
A63
EXIST 2-8'X6' RCB
MH18
A35
A40
PROP 4'X4' RCB
A53
JB04
MH17
MH22
JB03
MH27
A62
A65
MH70
A46
A-54
A60
A35
A41
MH23
MH65
MH66
MH67
A41
MH19
A54
MH37
MH34
A68
BARRYKNOLL LN
MH36
MH44
A67
MH33
A48
MH28
MH30
MH38
MH35
QUEENSBURY LN
A65
A49
A43
A64
QUEENSBURY LN
A55
A62
EXIST 60" RCP
MH43
A44
A57
A55
A56
A50
A60
A47
PINEROCK LN
PINEROCK LN
A53
A51
A58
A51
KIMBERLEY LN
A52
19+00
20+00
21+00
22+00
23+00
24+00
24+35
6+89
6+00
5+00
4+00
3+00
2+00
1+00
1+00
2+00
3+00
4+00
5+00
6+00
7+00
8+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
17+37
STM

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

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SURVEYED BY: UNITED ENGINEERS, INC.

JOHN R. HUML
140416

4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE AREA MAP
STA 18+00 TO END

SHEET 2 OF 2

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=100' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 144 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\d_drianage_area_06.dwg Plotted April 15, 2026 at 6:14 PM by Gawali, Ajinkya Ashok

2-YEAR DRAINAGE AREA COMPUTATIONS					
ID	C	AREA (AC)	Tc (MIN)	I (IN/HR)	Q (CFS)
A01	0.81	9.06	29.7	3.42	25.07
A02	0.73	10.57	30.1	3.39	26.30
A03	0.81	4.11	27.8	3.54	11.85
A04	0.81	8.86	29.7	3.42	24.47
A05	0.36	19.01	31.8	3.29	22.43
A06	0.62	6.25	28.8	3.48	13.57
A07	0.80	4.55	28.1	3.53	12.89
A08	0.52	4.42	28.0	3.53	8.07
A09	0.76	14.70	31.1	3.33	37.09
A10	0.81	10.66	30.2	3.39	29.19
A11	0.59	1.20	25.3	3.73	2.64
A12	0.59	1.02	25.0	3.75	2.26
A13	0.62	1.57	25.8	3.69	3.58
A14	0.68	2.52	26.8	3.62	6.21
A15	0.81	13.27	30.8	3.35	35.94
A16	0.81	9.99	30.0	3.40	27.34
A17	0.80	0.91	24.8	3.77	2.75
A18	0.81	1.25	25.4	3.72	3.73
A19	0.80	0.44	23.7	3.86	1.37
A20	0.79	0.42	23.6	3.87	1.27
A21	0.80	0.55	24.0	3.84	1.68
A22	0.78	0.02	20.2	4.19	0.08
A23	0.77	0.92	24.9	3.77	2.65
A24	0.77	0.90	24.8	3.77	2.60
A25	0.80	0.87	24.8	3.77	2.64
A26	0.80	0.32	23.2	3.91	1.00
A27	0.80	0.17	22.3	3.98	0.54
A28	0.80	4.22	27.9	3.54	11.93
A29	0.80	0.43	23.6	3.87	1.33
A30	0.81	0.28	23.0	3.92	0.90
A31	0.80	0.48	23.8	3.85	1.48
A32	0.80	4.57	28.1	3.53	12.88
A33	0.81	0.19	22.5	3.97	0.61
A34	0.80	0.88	24.8	3.77	2.65
A35	0.81	0.70	24.4	3.80	2.16
A36	0.82	12.40	30.6	3.36	34.05
A37	0.81	10.50	30.1	3.39	28.90
A38	0.73	4.30	27.9	3.54	11.12
A39	0.82	8.34	29.5	3.43	23.30
A40	0.50	0.71	24.4	3.80	1.33
A41	0.80	0.65	24.3	3.81	1.98
A42	0.80	0.80	24.6	3.78	2.42
A43	0.80	0.44	23.7	3.86	1.37
A44	0.90	0.15	22.1	4.00	0.53
A45	0.85	0.56	24.0	3.83	1.81
A46	0.80	2.19	26.5	3.64	6.38
A47	0.83	0.59	24.1	3.83	1.87
A48	0.72	0.71	24.4	3.80	1.94
A49	0.69	0.47	23.7	3.86	1.24
A50	0.83	5.75	28.6	3.49	16.64
A51	0.90	0.04	20.6	4.14	0.15
A52	0.85	0.11	21.8	4.03	0.37
A53	0.80	0.36	23.3	3.89	1.11
A54	0.80	1.35	25.5	3.71	4.01
A55	0.80	0.11	21.8	4.03	0.35
A56	0.81	0.65	24.3	3.81	2.02
A57	0.80	0.54	24.0	3.84	1.67
A58	0.80	0.24	22.8	3.94	0.75
A59	0.80	0.99	25.0	3.75	2.96
A60	0.80	0.30	23.1	3.91	0.94
A61	0.84	0.26	22.9	3.93	0.86
A62	0.82	2.36	26.6	3.63	7.00
A63	0.83	0.15	22.2	4.00	0.51
A64	0.80	1.08	25.1	3.74	3.25
A65	0.75	0.28	23.0	3.92	0.83
A66	0.81	0.41	23.6	3.87	1.28
A67	0.80	1.32	25.5	3.71	3.92
A68	0.82	0.20	22.5	3.97	0.63
A69	0.80	0.18	22.4	3.98	0.56

ID	INLET TYPE	LONGITUDINAL SLOPE (FT/FT)	TRANVERSE SLOPE (FT/FT)	GUTTER N	CURB LENGTH (FT)	GUTTER DEPR. (FT)
A26	Curb	0.0031	0.0208	0.015	5.00	0.25
A27	Curb	0.0030	0.0208	0.015	5.00	0.25
A30	Curb	0.0030	0.0208	0.015	5.00	0.25
A31	Curb	0.0030	0.0208	0.015	5.00	0.25
A33	Curb	0.0030	0.0208	0.015	5.00	0.25
A55	Curb	0.0034	0.0208	0.015	5.00	0.25
A61	Curb	0.0041	0.0208	0.015	5.00	0.25
A63	Curb	0.0030	0.0208	0.015	5.00	0.25
A66	Curb	0.0044	0.0208	0.015	5.00	0.25
A69	Curb	0.0062	0.0208	0.015	5.00	0.25

RAINFALL INTENSITY COEFFICIENTS			
Rainfall	**b**	**d (min)**	**e**
2-year	48.35	9.0700	0.7244

2-YR ON-GRADE CURB INLET COMPUTATION DATA									
ID	TYPE	TOTAL Q (CFS)	BYPASS FLOW (CFS)	TO INLET ID	CAPACITY (CFS)	PONDED WIDTH (FT)	PONDED WIDTH ALLOWED (FT)	PONDED DEPTH (FT)	PONDED DEPTH ALLOWED (FT)
A26	Curb	1.00	0.05	A23	0.96	8.58	10.00	0.18	0.50
A27	Curb	0.54	0.00	A31	0.54	6.84	10.00	0.14	0.50
A30	Curb	0.90	0.02	A34	0.88	8.28	10.00	0.17	0.50
A31	Curb	1.48	0.20	A33	1.28	9.99	10.00	0.21	0.50
A33	Curb	0.81	0.01	A35	0.80	7.97	10.00	0.17	0.50
A55	Curb	0.35	0.00	A54	0.35	5.70	11.00	0.12	0.50
A61	Curb	0.86	0.04	A54	0.82	7.68	11.00	0.16	0.50
A63	Curb	0.51	0.00	A64	0.51	6.68	11.00	0.14	0.50
A66	Curb	1.28	0.19	A64	1.10	8.81	11.00	0.18	0.50
A69	Curb	0.56	0.00	A67	0.56	6.06	11.00	0.13	0.50

SAG CURB INLET CONFIGURATION							
ID	INLET TYPE	LONGITUDINAL SLOPE (FT/FT)		TRANSVERSE SLOPE (FT/FT)	GUTTER N	CURB LENGTH	GUTTER DEPR. (FT)
		LEFT	RIGHT				
A11	Curb	0.0350	0.0168	0.0410	0.015	5.00	0.25
A12	Curb	0.0180	0.0420	0.0410	0.015	5.00	0.25
A13	Curb	0.0410	0.0100	0.0270	0.015	5.00	0.25
A14	Curb	0.0100	0.0340	0.0330	0.015	10.00	0.25
A19	Curb	0.0045	0.0042	0.0208	0.015	5.00	0.25
A21	Curb	0.0045	0.0031	0.0208	0.015	5.00	0.25
A23	Curb	0.0063	0.0031	0.0208	0.015	5.00	0.25
A24	Curb	0.0057	0.0031	0.0208	0.015	5.00	0.25
A34	Curb	0.0030	0.0047	0.0208	0.015	5.00	0.25
A35	Curb	0.0030	0.0030	0.0208	0.015	5.00	0.25
A40	Curb	0.0060	0.0030	0.0208	0.015	5.00	0.25
A41	Curb	0.0060	0.0030	0.0208	0.015	5.00	0.25
A45	Curb	0.0060	0.0035	0.0200	0.015	5.00	0.25
A47	Curb	0.0033	0.0038	0.0208	0.015	5.00	0.25
A52	Curb	0.0039	0.0038	0.0208	0.015	5.00	0.25
A54	Curb	0.0034	0.0041	0.0229	0.015	5.00	0.25
A56	Curb	0.0034	0.0041	0.0229	0.015	5.00	0.25
A64	Curb	0.0030	0.0044	0.0208	0.015	5.00	0.25
A65	Curb	0.0030	0.0044	0.0208	0.015	5.00	0.25
A67	Curb	0.0030	0.0062	0.0229	0.015	5.00	0.25
A68	Curb	0.0030	0.0062	0.0229	0.015	5.00	0.25

NOTES:

1. SEE PROPOSED DRAINAGE AREA MAP, PLAN AND PROFILE SHEETS, AND STORM SEWER LATERALS FOR ADDITIONAL INFORMATION.
2. THE STORM SEWER SYSTEM IS DESIGNED FOR REGIONAL FLOOD MITIGATION. IT HAS STORM SEWER SYSTEM INTERCONNECTIVITY. A FLAP GATE, WEIRS IN JUNCTION BOXES, A MAJOR UNDERGROUND DETENTION SYSTEM, ETC. THESE MAKE IT TOO COMPLEX TO MODEL EXCEPT IN INFOWORKS.
3. SEE DRAINAGE IMPACT ANALYSIS AMENDMENT BY HR GREEN, AUGUST 2026, FOR ICM ANALYSIS, DETENTION VOLUME CALCULATIONS, AND ADDITIONAL INFORMATION.
4. PROP 2–YEAR AND 100–YEAR HGLS ARE SHOWN ON THE DRAINAGE PLAN AND PROFILE SHEETS.

2-YEAR SAG INLET COMPUTATION DATA										
ID	TYPE	TOTAL Q (CFS)	TOTAL Q (CFS)		CAPACITY (CFS)	PONDED WIDTH (FT)		PONDED WIDTH ALLOWED (FT)	PONDED DEPTH (FT)	PONDED DEPTH ALLOWED (FT)
			LEFT	RIGHT		LEFT	RIGHT			
A11	Curb	2.64	1.76	0.88	8.46	4.40	3.89	13.50	0.23	0.50
A12	Curb	2.26	0.68	1.58	8.46	4.53	5.31	14.00	0.21	0.50
A13	Curb	3.58	2.86	0.72	8.46	5.13	3.97	13.50	0.28	0.50
A14	Curb	6.21	1.55	4.66	12.52	6.08	7.30	14.00	0.31	0.50
A19	Curb	1.37	0.69	0.69	8.46	6.94	7.03	10.00	0.15	0.50
A21	Curb	1.68	1.01	0.67	8.46	8.02	7.39	10.00	0.17	0.50
A23	Curb	2.69	1.80	0.90	8.46	9.34	8.23	10.00	0.23	0.50
A24	Curb	2.60	1.69	0.91	8.46	9.31	8.27	10.00	0.23	0.50
A34	Curb	2.68	1.07	1.61	8.46	8.85	9.47	10.00	0.23	0.50
A35	Curb	2.17	1.08	1.08	8.46	8.89	8.89	10.00	0.20	0.50
A40	Curb	1.33	0.89	0.44	8.46	7.24	6.36	10.00	0.15	0.50
A41	Curb	1.98	1.32	0.66	8.46	8.40	7.37	12.00	0.19	0.50
A45	Curb	1.81	1.20	0.60	8.46	8.32	7.10	11.00	0.18	0.50
A47	Curb	1.87	0.79	1.07	8.46	7.77	8.47	11.00	0.18	0.50
A52	Curb	0.37	0.19	0.19	8.46	4.13	4.15	10.00	0.06	0.50
A54	Curb	4.04	1.82	2.22	8.46	10.54	10.97	11.00	0.31	0.50
A56	Curb	2.02	0.91	1.11	8.46	7.65	7.96	10.00	0.19	0.50
A64	Curb	3.43	1.37	2.06	8.46	9.71	10.52	11.00	0.27	0.50
A65	Curb	0.83	0.33	0.50	8.46	5.38	5.82	10.00	0.11	0.50
A67	Curb	3.92	1.31	2.61	8.46	9.53	10.79	11.00	0.30	0.50
A68	Curb	0.63	0.21	0.42	8.46	4.53	5.13	10.00	0.09	0.50

No.	Date	Revisions	App.

HRGreen

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE COMPUTATIONS

SHEET 1 OF 2

WBS NO. M–430296–0017–3
DRAWING SCALE
AS NOTED
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 145 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\d_drianage_computations_01.dwg Plotted August 4, 2026 at 3:13 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.

PROPOSED 2-YEAR
STORM SEWER COMPUTATIONS
2-YEAR LINK COMPUTATIONS

ICM ID	PLAN US ID	PLAN DS ID	LENGTH (FT)	SHAPE	#	RISE (FT)	SPAN (FT)	n	US INVERT (FT)	DS INVERT (FT)	SLOPE %	US HGL	DS HGL	DISCHARGE (CFS)	CAPACITY (CFS)	VELOCITY (FT/S)	DEPTH (FT)	NOTES
3156921.3	JB01	MH10	830	Box	1.00	6.00	8.00	0.015	67.02	66.59	0.05	72.62	71.87	199.64	190.60	4.85	5.21	model skips MH15 and MH31
3156921.2	JB01	MH13	830	Box	1.00	6.00	8.00	0.015	67.02	66.59	0.05	72.62	71.87	199.66	190.60	4.86	5.20	model skips MH14 and MH40
HWV_043.3	JB02	MH29	112	Box	1.00	6.00	8.00	0.015	67.56	67.49	0.05	73.02	72.98	118.92	190.60	2.48	6.10	
HWV_043.2	JB02	MH39	112	Box	1.00	6.00	8.00	0.015	67.56	67.49	0.05	73.02	72.98	119.05	190.60	2.48	6.11	
Y101.2	JB03	JB02	257	Box	1.00	4.00	4.00	0.015	67.70	67.56	0.05	74.16	73.44	92.69	42.94	5.65	6.35	
PR_W151.2	JB04	MH34	245	Box	1.00	6.00	8.00	0.015	68.36	68.24	0.05	74.05	74.03	36.48	190.60	0.99	5.99	model skips MH67
PR_W151.3	JB04	MH36	245	Box	1.00	6.00	8.00	0.015	68.36	68.24	0.05	74.05	74.03	36.48	190.60	0.99	5.99	
Y11.2	M33	M44	124	Box	1.00	6.00	8.00	0.015	68.09	68.01	0.05	74.02	74.01	42.59	190.60	1.06	6.39	
Y106.2	M34	M33	280	Box	1.00	6.00	8.00	0.015	68.24	68.09	0.05	74.03	74.02	40.36	190.60	1.04	6.29	
Y11.3	M35	M44	124	Box	1.00	6.00	8.00	0.015	68.09	68.01	0.05	74.02	74.01	42.59	190.60	1.06	6.39	
Y106.3	M36	M35	280	Box	1.00	6.00	8.00	0.015	68.24	68.09	0.05	74.03	74.02	40.36	190.60	1.04	6.29	
3156924.3	MH08	MH26	450	Box	1.00	6.00	8.00	0.015	67.26	67.03	0.05	72.82	72.59	151.77	190.60	3.43	5.70	model skips MH71 and MH72
1.2	MH10	MH75/MH76	463	Box	1.00	6.00	8.00	0.015	66.59	66.29	0.05	71.88	71.20	252.46	190.60	7.35	4.29	model skips MH6
1.3	MH13	MH75/MH76	463	Box	1.00	6.00	8.00	0.015	66.59	66.29	0.05	71.88	71.20	252.46	190.60	7.35	4.29	model skips MH5
3156924.2	MH16	MH24	450	Box	1.00	6.00	8.00	0.015	67.26	67.03	0.05	72.82	72.59	151.77	190.60	3.43	5.70	model skips MH21 and MH68
3156925.3	MH17	MH08	106	Box	1.00	6.00	8.00	0.015	67.32	67.26	0.05	72.84	72.82	140.86	190.60	3.06	5.94	
3156925.2	MH18	MH16	106	Box	1.00	6.00	8.00	0.015	67.32	67.26	0.05	72.84	72.82	140.86	190.60	3.06	5.94	model skips MH20
3156923.3	MH24	JB1	20	Box	1.00	6.00	8.00	0.015	67.03	67.02	0.05	72.61	72.58	172.91	190.60	3.91	5.63	
3156923.2	MH26	JB01	20	Box	1.00	6.00	8.00	0.015	67.03	67.02	0.05	72.61	72.58	172.91	190.60	3.91	5.63	
Y101-B.2	MH27	MH19/JB03	326	Box	1.00	6.00	8.00	0.015	67.86	67.70	0.05	73.98	73.96	51.23	190.60	1.06	6.88	model skips MH69
3156922.3	MH29	MH17	342	Box	1.00	6.00	8.00	0.015	67.49	67.32	0.05	72.97	72.83	122.91	190.60	2.63	5.98	model skips MH23 and MH25
Y101-B.3	MH30	MH28/JB3	326	Box	1.00	6.00	8.00	0.015	67.86	67.70	0.05	73.98	73.96	51.23	190.60	1.06	6.88	
Y102-B.2	MH37	MH27	164	Box	1.00	6.00	8.00	0.015	67.96	67.86	0.05	73.99	73.98	47.53	190.60	1.10	6.63	model skips MH65
Y102-B.3	MH37	MH30	164	Box	1.00	6.00	8.00	0.015	67.96	67.86	0.05	73.99	73.98	47.53	190.60	1.10	6.63	
3156922.2	MH39	MH18	342	Box	1.00	6.00	8.00	0.015	67.49	67.32	0.05	72.97	72.83	122.91	190.60	2.63	5.98	model skips MH22
3158644.2	MH44	MH37	93	Box	1.00	6.00	8.00	0.015	68.01	67.96	0.05	74.00	74.00	46.49	190.60	1.10	6.52	
3158644.3	MH44	MH37	93	Box	1.00	6.00	8.00	0.015	68.01	67.96	0.05	74.00	74.00	46.49	190.60	1.10	6.52	
Pr_Att1.1	MH62	MH63	1740	Circular	1.00	2.50	n/a	0.013	63.00	62.11	0.05	70.35	75.20	-21.86	9.17	-3.91	12.85	model skips MH61, MH60, MH58, MH57, MH56, MH54, MH53 and MH52
3156946.2	MH63	JB05	560	Circular	1.00	2.00	n/a	0.013	62.11	61.82	0.05	75.03	74.58	12.08	5.06	3.68	12.71	model skips MH50, MH49 and MH45
HWV_051.1	MH64	MH63	41	Circular	1.00	2.00	n/a	0.013	54.92	54.90	0.05	70.12	70.31	-18.66	5.06	-4.96	15.15	
HWV_051.2	MH64	MH63	41	Circular	1.00	2.00	n/a	0.013	69.02	69.00	0.05	70.25	70.29	-6.29	5.06	-3.62	1.08	
HWV_050.1	MH73	MH64	26	Circular	1.00	2.00	n/a	0.013	63.01	62.99	0.05	71.90	73.42	-56.84	5.06	-16.67	6.36	
Pr_orf1.2	MH74	MH73	7	Circular	1.00	2.00	n/a	0.013	63.02	63.01	0.05	70.63	71.23	-56.83	5.06	-17.21	6.37	MH75 and MH74 are divided by sedimentation wall in model
SportsComplex.2	MH75/MH76	MH64	7	Circular	1.00	2.00	n/a	0.013	63.02	63.01	0.05	71.67	71.44	46.29	5.06	13.81	6.88	MH75 and MH74 are divided by sedimentation wall in model

Source note: Plan naming, lengths, sizes, inverts, and notes are based on plan-comparable fields. Discharge, velocity, depth and HGL are from 2-year proposed ICM results. Capacity is calculated using Manning's full flow equation.

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8/5/2026
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE COMPUTATIONS

SHEET 2 OF 2

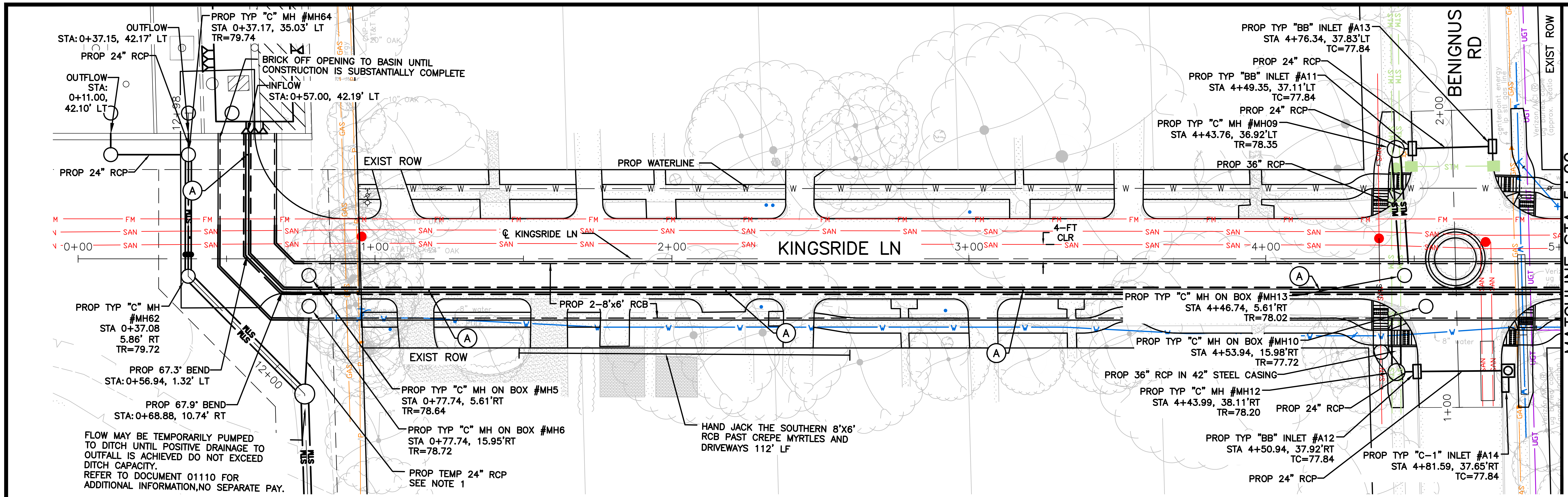
WBS NO. M-430296-0017-3

DRAWING SCALE

AS NOTED

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.


OUTFLOW
STA: 0+37.15, 42.17' LT
PROP 24" RCP
OUTFLOW
STA: 0+11.00, 42.10' LT
PROP 24" RCP
PROP TYP "C" MH #MH64
STA 0+37.17, 35.03' LT
TR=79.74
BRICK OFF OPENING TO BASIN UNTIL CONSTRUCTION IS SUBSTANTIALLY COMPLETE
INFLOW
STA: 0+57.00, 42.19' LT
12+98
EXIST ROW
PROP WATERLINE
℄ KINGSRIDE LN
KINGSRIDE LN
4-FT CLR
0+00
1+00
2+00
3+00
4+00
PROP TYP "C" MH
#MH62
STA 0+37.08
5.86' RT
TR=79.72
PROP 67.3° BEND
STA: 0+56.94, 1.32' LT
PROP 67.9° BEND
STA: 0+68.88, 10.74' RT
12+00
FLOW MAY BE TEMPORARILY PUMPED TO DITCH UNTIL POSITIVE DRAINAGE TO OUTFALL IS ACHIEVED DO NOT EXCEED DITCH CAPACITY.
REFER TO DOCUMENT 01110 FOR ADDITIONAL INFORMATION,NO SEPARATE PAY.
PROP 2-8'x6' RCB
EXIST ROW
PROP TYP "C" MH ON BOX #MH5
STA 0+77.74, 5.61'RT
TR=78.64
PROP TYP "C" MH ON BOX #MH6
STA 0+77.74, 15.95'RT
TR=78.72
PROP TEMP 24" RCP
SEE NOTE 1
HAND JACK THE SOUTHERN 8'X6' RCB PAST CREPE MYRTLES AND DRIVEWAYS 112' LF
PROP TYP "BB" INLET #A13
STA 4+76.34, 37.83'LT
TC=77.84
PROP 24" RCP
PROP TYP "BB" INLET #A11
STA 4+49.35, 37.11'LT
TC=77.84
PROP 24" RCP
PROP TYP "C" MH #MH09
STA 4+43.76, 36.92'LT
TR=78.35
PROP 36" RCP
PROP TYP "C" MH ON BOX #MH13
STA 4+46.74, 5.61'RT
TR=78.02
PROP TYP "C" MH ON BOX #MH10
STA 4+53.94, 15.98'RT
TR=77.72
PROP 36" RCP IN 42" STEEL CASING
PROP TYP "C" MH #MH12
STA 4+43.99, 38.11'RT
TR=78.20
PROP 24" RCP
PROP TYP "BB" INLET #A12
STA 4+50.94, 37.92'RT
TC=77.84
PROP 24" RCP
PROP TYP "C-1" INLET #A14
STA 4+81.59, 37.65'RT
TC=77.84
BENIGNUS RD
EXIST ROW
2+00
1+00
MATCHLINE STA 5+00
A
FM
SAN
W
STM
GAS
UGT

0 20 40
SCALE IN FEET

LEGEND

―	PROP STORM SEWER
━	PROP 6" CURB
―	EXIST STORM SEWER
▭/□/	PROP INLET
○	PROP MANHOLE
🟩	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

NOTES:

1. GROUT FILL AND ABANDON PIPE AFTER CONSTRUCTION IS SUBSTANTIALLY COMPLETE.

BENCHMARK:

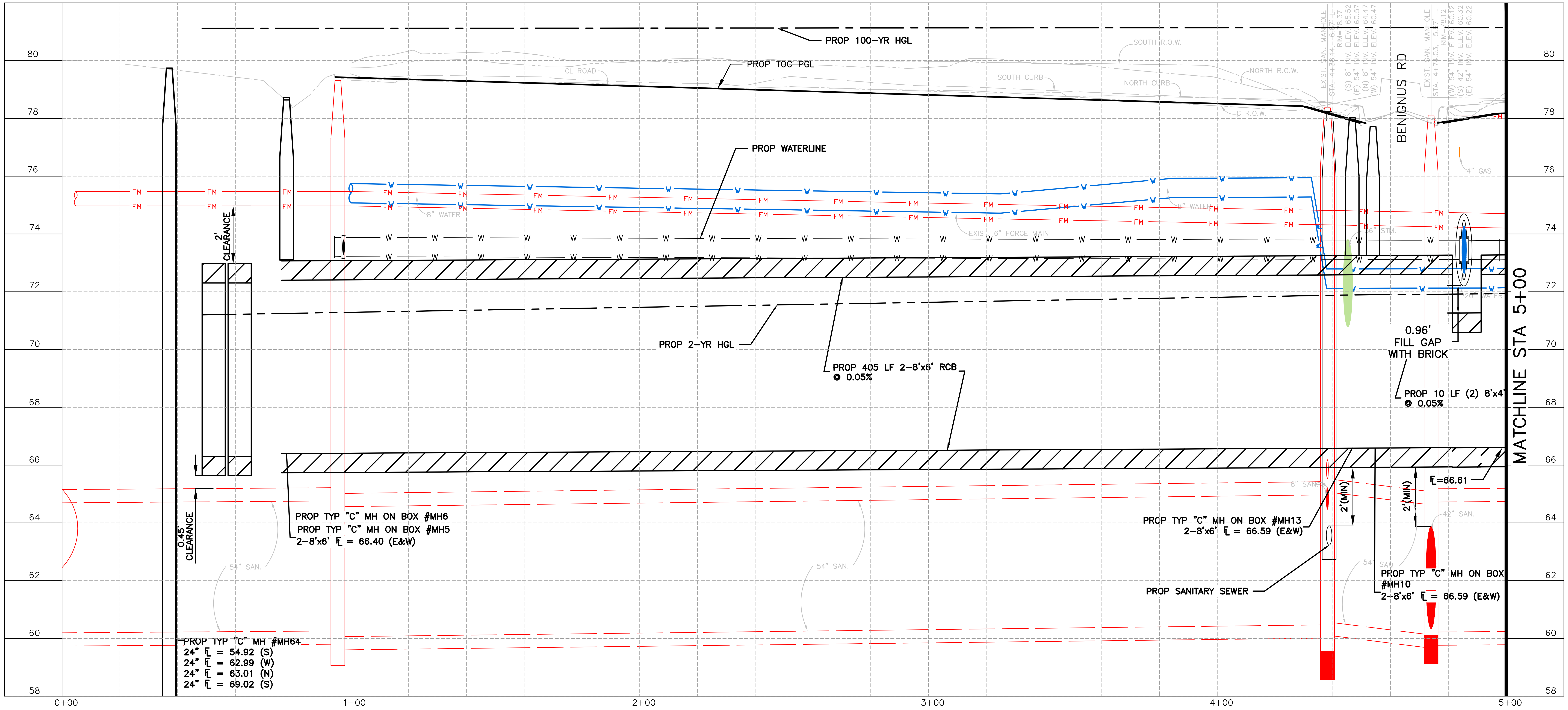
CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

App.	
Revisions	
Date	
No.	


PROP 100-YR HGL
PROP TOC PGL
PROP WATERLINE
2' CLEARANCE
PROP 2-YR HGL
PROP 405 LF 2-8'x6' RCB
@ 0.05%
0.45' CLEARANCE
PROP TYP "C" MH ON BOX #MH6
PROP TYP "C" MH ON BOX #MH5
2-8'x6' FL = 66.40 (E&W)
PROP TYP "C" MH #MH64
24" FL = 54.92 (S)
24" FL = 62.99 (W)
24" FL = 63.01 (N)
24" FL = 69.02 (S)
54" SAN.
BENIGNUS RD
0.96'
FILL GAP WITH BRICK
PROP 10 LF (2) 8'x4'
@ 0.05%
FL=66.61
2'(MIN)
2'(MIN)
PROP TYP "C" MH ON BOX #MH13
2-8'x6' FL = 66.59 (E&W)
PROP SANITARY SEWER
PROP TYP "C" MH ON BOX
#MH10
2-8'x6' FL = 66.59 (E&W)
42" SAN.
8" SAN.
MATCHLINE STA 5+00
FM
W
80
78
76
74
72
70
68
66
64
62
60
58
0+00
1+00
2+00
3+00
4+00
5+00

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

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CABLE COMPANY — DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
08/05/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
BEGIN PROJECT TO STA 5+00

SHEET 1 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

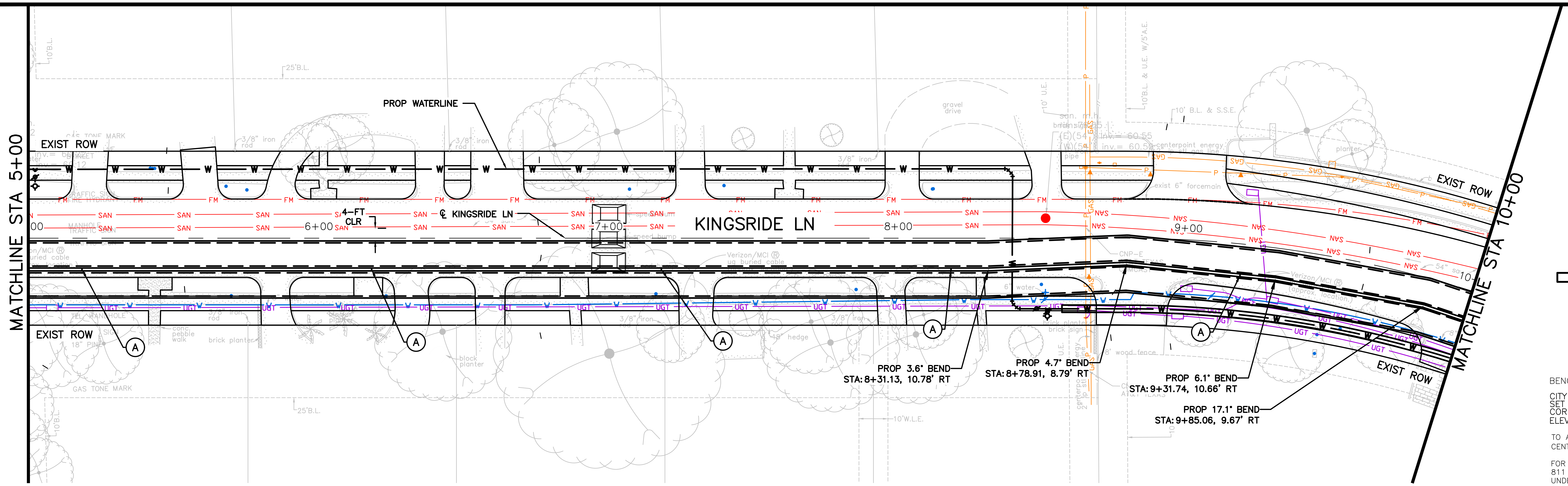
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

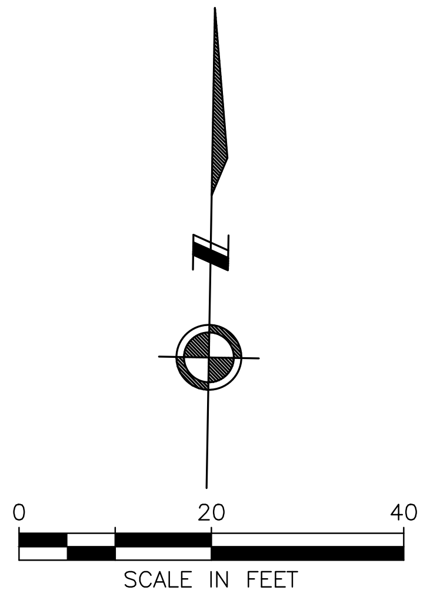
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 147 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\pp_drn_kingsride_01.dwg Plotted August 5, 2026 at 3:11 PM by Gawali, Ajinkya Ashok


MATCHLINE STA 5+00
MATCHLINE STA 10+00
EXIST ROW
PROP WATERLINE
KINGSRIDE LN
℄ KINGSRIDE LN
4-FT CLR
6+00
7+00
8+00
9+00
A
PROP 3.6° BEND
STA: 8+31.13, 10.78' RT
PROP 4.7° BEND
STA: 8+78.91, 8.79' RT
PROP 6.1° BEND
STA: 9+31.74, 10.66' RT
PROP 17.1° BEND
STA: 9+85.06, 9.67' RT
W
FM
SAN
UGT
GAS
25'B.L.
10'B.L.
10' U.E.
10' B.L. & S.S.E.
3/8" iron rod
brick planter
conc. pebble walk
gravel drive
hedge
wood fence
exist 6" forcemain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SCALE IN FEET

LEGEND

- PROP STORM SEWER
- PROP 6" CURB
- EXIST STORM SEWER
- ▭ PROP INLET
- ○ PROP MANHOLE
- EXIST INLET
- ● EXIST MANHOLE
- Ⓐ PROP 24" RCP EQUALIZER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
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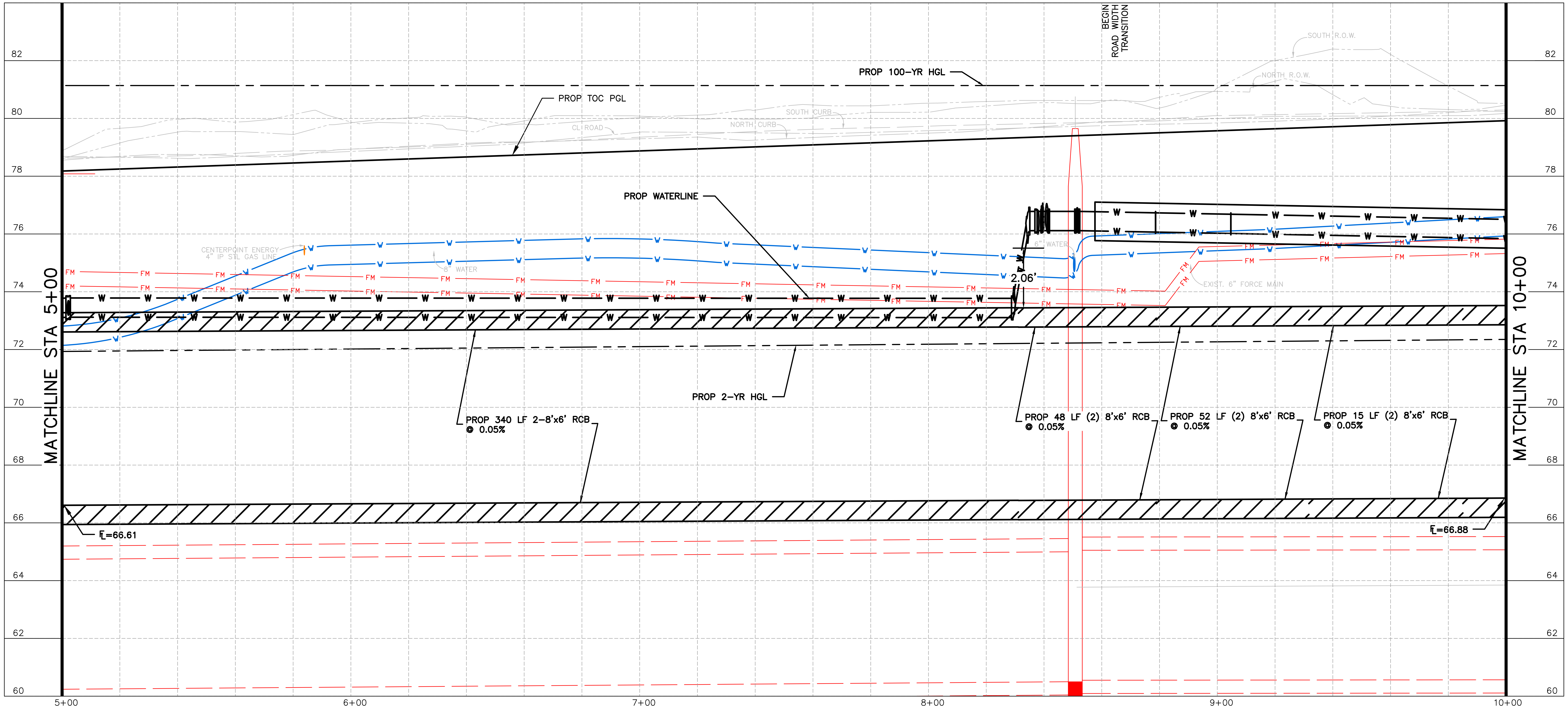
MATCHLINE STA 5+00
MATCHLINE STA 10+00
82
80
78
76
74
72
70
68
66
64
62
60
5+00
6+00
7+00
8+00
9+00
10+00
BEGIN ROAD WIDTH TRANSITION
PROP 100-YR HGL
PROP TOC PGL
PROP WATERLINE
PROP 2-YR HGL
SOUTH R.O.W.
NORTH R.O.W.
SOUTH CURB
NORTH CURB
CL ROAD
CENTERPOINT ENERGY 4" IP STL GAS LINE
WATER
EXIST. 6" FORCE MAIN
2.06'
PROP 340 LF 2-8'x6' RCB @ 0.05%
PROP 48 LF (2) 8'x6' RCB @ 0.05%
PROP 52 LF (2) 8'x6' RCB @ 0.05%
PROP 15 LF (2) 8'x6' RCB @ 0.05%
FL=66.61
FL=66.88
W
FM

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JOHN R. HUML
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07/30/2026
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 5+00 TO STA 10+00

SHEET 2 OF 6

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22"X34") H: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 148 OF 345	

No.	Date	Revisions	App.

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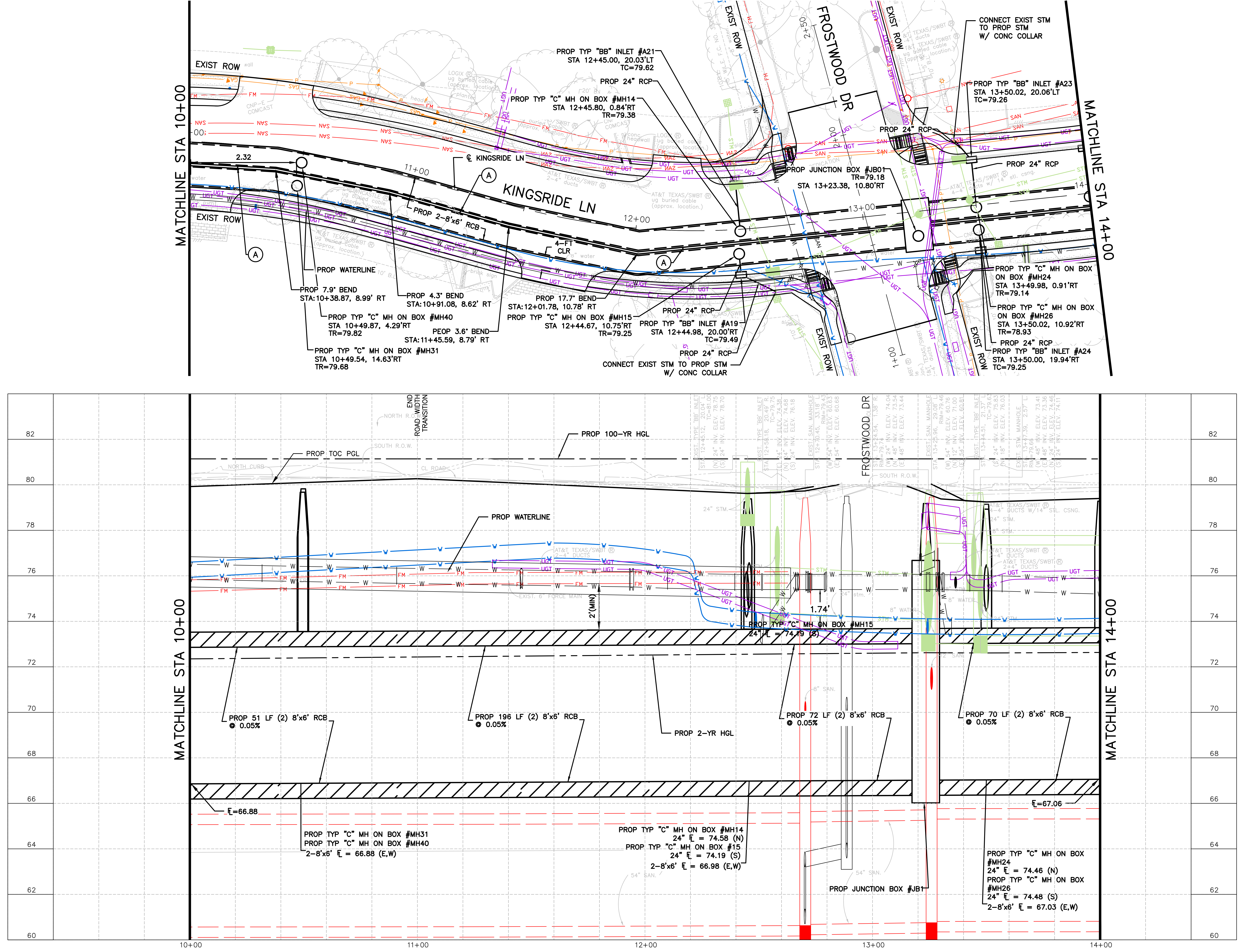
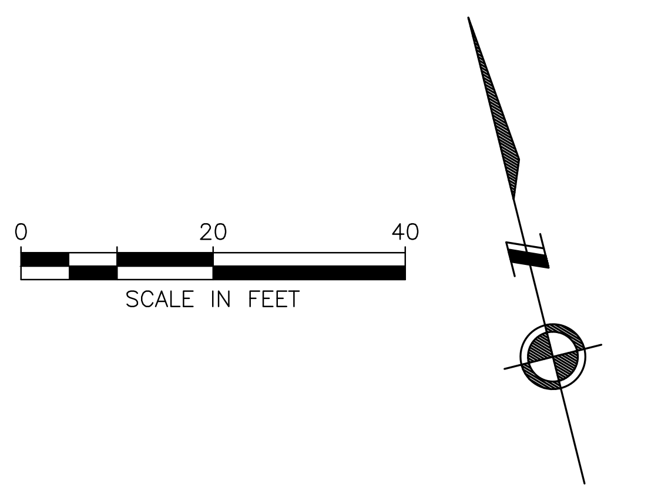

EXIST ROW
MATCHLINE STA 10+00
MATCHLINE STA 14+00
KINGSRIDE LN
℄ KINGSRIDE LN
FROSTWOOD DR
11+00
12+00
13+00
2.32
PROP TYP "BB" INLET #A21
STA 12+45.00, 20.03'LT
TC=79.62
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH14
STA 12+45.80, 0.84'RT
TR=79.38
PROP TYP "BB" INLET #A23
STA 13+50.02, 20.06'LT
TC=79.26
CONNECT EXIST STM TO PROP STM W/ CONC COLLAR
PROP JUNCTION BOX #JB01
TR=79.18
STA 13+23.38, 10.80'RT
PROP 2–8'x6' RCB
4–FT CLR
PROP WATERLINE
PROP 7.9° BEND
STA:10+38.87, 8.99' RT
PROP 4.3° BEND
STA:10+91.08, 8.62' RT
PROP TYP "C" MH ON BOX #MH40
STA 10+49.87, 4.29'RT
TR=79.82
PEOP 3.6° BEND
STA:11+45.59, 8.79' RT
PROP TYP "C" MH ON BOX #MH31
STA 10+49.54, 14.63'RT
TR=79.68
PROP 17.7° BEND
STA:12+01.78, 10.78' RT
PROP TYP "C" MH ON BOX #MH15
STA 12+44.67, 10.75'RT
TR=79.25
PROP TYP "BB" INLET #A19
STA 12+44.98, 20.00'RT
TC=79.49
PROP 24" RCP
CONNECT EXIST STM TO PROP STM W/ CONC COLLAR
PROP TYP "C" MH ON BOX ON BOX #MH24
STA 13+49.98, 0.91'RT
TR=79.14
PROP TYP "C" MH ON BOX ON BOX #MH26
STA 13+50.02, 10.92'RT
TR=78.93
PROP 24" RCP
PROP TYP "BB" INLET #A24
STA 13+50.00, 19.94'RT
TC=79.25
AT&T TEXAS/SWBT ug buried cable (approx. location)
FM
SAN
UGT
W
STM
82
80
78
76
74
72
70
68
66
64
62
60
10+00
11+00
12+00
13+00
14+00
END ROAD WIDTH TRANSITION
PROP 100–YR HGL
PROP TOC PGL
NORTH R.O.W.
SOUTH R.O.W.
NORTH CURB
CL ROAD
FROSTWOOD DR
SOUTH R.O.W.
PROP WATERLINE
EXIST. 6" FORCE MAIN
24" STM.
2'(MIN)
1.74'
PROP TYP "C" MH ON BOX #MH15
24" ℄ = 74.19 (S)
PROP 51 LF (2) 8'x6' RCB @ 0.05%
PROP 196 LF (2) 8'x6' RCB @ 0.05%
PROP 2–YR HGL
PROP 72 LF (2) 8'x6' RCB @ 0.05%
PROP 70 LF (2) 8'x6' RCB @ 0.05%
℄=66.88
℄=67.06
PROP TYP "C" MH ON BOX #MH31
PROP TYP "C" MH ON BOX #MH40
2–8'x6' ℄ = 66.88 (E,W)
PROP TYP "C" MH ON BOX #MH14
24" ℄ = 74.58 (N)
PROP TYP "C" MH ON BOX #15
24" ℄ = 74.19 (S)
2–8'x6' ℄ = 66.98 (E,W)
PROP JUNCTION BOX #JB1
PROP TYP "C" MH ON BOX #MH24
24" ℄ = 74.46 (N)
PROP TYP "C" MH ON BOX #MH26
24" ℄ = 74.48 (S)
2–8'x6' ℄ = 67.03 (E,W)
8" SAN.
54" SAN.
8" WATER
CSNG.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SCALE IN FEET

LEGEND

━━	PROP STORM SEWER
━━	PROP 6" CURB
──	EXIST STORM SEWER
☐	PROP INLET
○	PROP MANHOLE
🟩	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

BENCHMARK:

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
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KINGSRIDE LANE
STA 10+00 TO STA 14+00

SHEET 3 OF 6

WBS NO. M–430296–0017–3

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H: 1"=20' (22"X34")
H: 1"=2' (22"X34")

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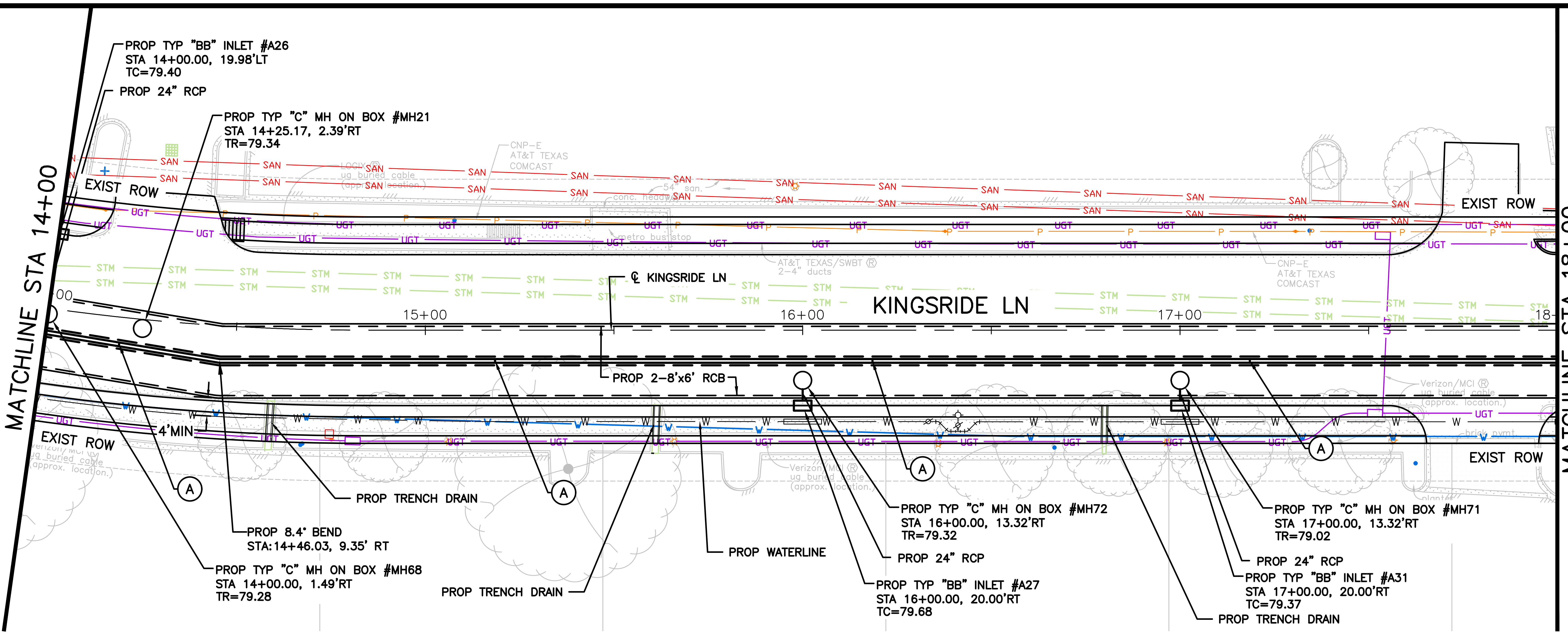
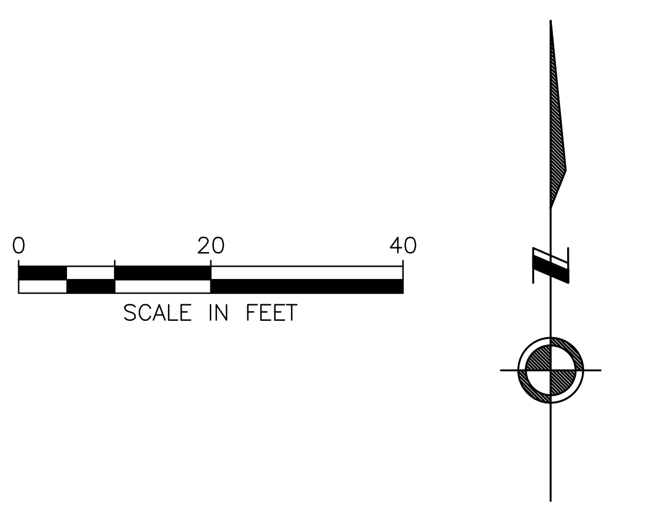

PROP TYP "BB" INLET #A26
STA 14+00.00, 19.98'LT
TC=79.40
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH21
STA 14+25.17, 2.39'RT
TR=79.34
EXIST ROW
MATCHLINE STA 14+00
℄ KINGSRIDE LN
KINGSRIDE LN
15+00
16+00
17+00
SAN
UGT
STM
W
P
CNP-E
AT&T TEXAS
COMCAST
AT&T TEXAS/SWBT
2-4" ducts
Verizon/MCI
PROP 2-8'x6' RCB
4'MIN
EXIST ROW
PROP TRENCH DRAIN
PROP 8.4° BEND
STA:14+46.03, 9.35' RT
PROP TYP "C" MH ON BOX #MH68
STA 14+00.00, 1.49'RT
TR=79.28
PROP TRENCH DRAIN
PROP WATERLINE
PROP TYP "C" MH ON BOX #MH72
STA 16+00.00, 13.32'RT
TR=79.32
PROP 24" RCP
PROP TYP "BB" INLET #A27
STA 16+00.00, 20.00'RT
TC=79.68
PROP TYP "C" MH ON BOX #MH71
STA 17+00.00, 13.32'RT
TR=79.02
PROP 24" RCP
PROP TYP "BB" INLET #A31
STA 17+00.00, 20.00'RT
TC=79.37
PROP TRENCH DRAIN
A
EXIST ROW
MATCHLINE STA 18+00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SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
▭ ▭ ▬	PROP INLET
○	PROP MANHOLE
▣ ▬	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
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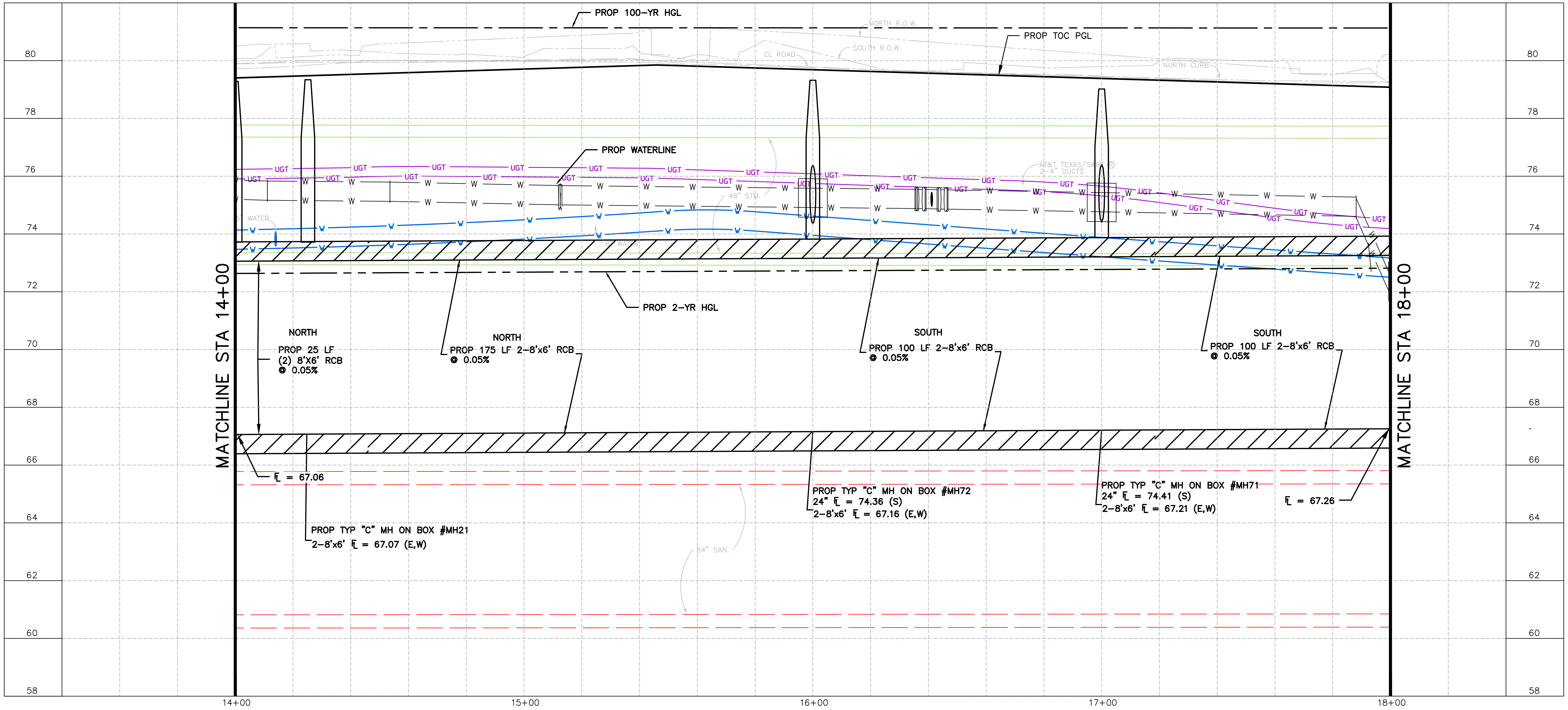
PROP 100–YR HGL
PROP TOC PGL
NORTH R.O.W.
SOUTH R.O.W.
CL ROAD
NORTH CURB
PROP WATERLINE
UGT
W
AT&T TEXAS/SWBT
2-4" DUCTS
48" STM.
WATER
PROP 2–YR HGL
MATCHLINE STA 14+00
MATCHLINE STA 18+00
NORTH
PROP 25 LF
(2) 8'X6' RCB
@ 0.05%
NORTH
PROP 175 LF 2–8'x6' RCB
@ 0.05%
SOUTH
PROP 100 LF 2–8'x6' RCB
@ 0.05%
SOUTH
PROP 100 LF 2–8'x6' RCB
@ 0.05%
℄ = 67.06
PROP TYP "C" MH ON BOX #MH21
2–8'x6' ℄ = 67.07 (E,W)
PROP TYP "C" MH ON BOX #MH72
24" ℄ = 74.36 (S)
2–8'x6' ℄ = 67.16 (E,W)
PROP TYP "C" MH ON BOX #MH71
24" ℄ = 74.41 (S)
2–8'x6' ℄ = 67.21 (E,W)
℄ = 67.26
54" SAN.
80
78
76
74
72
70
68
66
64
62
60
58
14+00
15+00
16+00
17+00
18+00

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

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CABLE COMPANY — DATE

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HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
07/30/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 14+00 TO STA 18+00

SHEET 4 OF 6

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22"X34")
H: 1"=2' (22"X34")

CITY OF HOUSTON PM

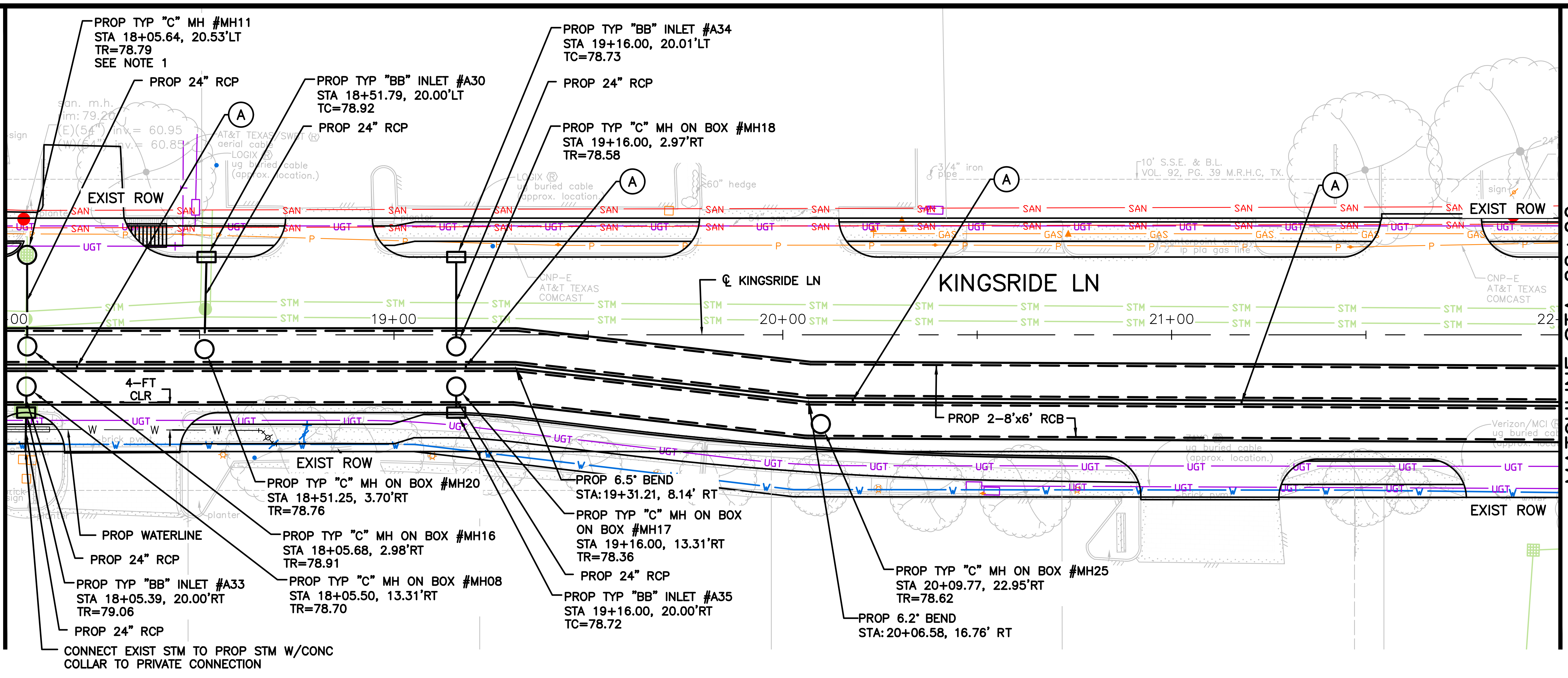
KEVIN HAMMOND, P.E.

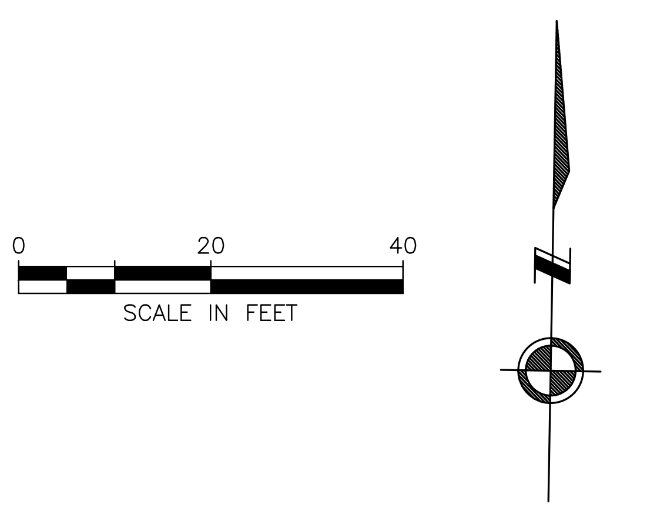
SHEET NO. 150 OF 345

App.	Revisions	Date	No.

NOTES:

1. OFFSITE PIPE CONNECTION DISALLOWS RELOCATING THE MANHOLE AWAY FROM THE DRIVEWAY.


PROP TYP "C" MH #MH11
STA 18+05.64, 20.53'LT
TR=78.79
SEE NOTE 1
PROP 24" RCP
PROP TYP "BB" INLET #A30
STA 18+51.79, 20.00'LT
TC=78.92
PROP 24" RCP
PROP TYP "BB" INLET #A34
STA 19+16.00, 20.01'LT
TC=78.73
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH18
STA 19+16.00, 2.97'RT
TR=78.58
A
EXIST ROW
℄ KINGSRIDE LN
KINGSRIDE LN
19+00
20+00
21+00
MATCHLINE STA 18+00
MATCHLINE STA 22+00
4-FT CLR
PROP 2-8'x6' RCB
EXIST ROW
PROP TYP "C" MH ON BOX #MH20
STA 18+51.25, 3.70'RT
TR=78.76
PROP 6.5' BEND
STA:19+31.21, 8.14' RT
PROP TYP "C" MH ON BOX ON BOX #MH17
STA 19+16.00, 13.31'RT
TR=78.36
PROP WATERLINE
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH16
STA 18+05.68, 2.98'RT
TR=78.91
PROP TYP "BB" INLET #A33
STA 18+05.39, 20.00'RT
TR=79.06
PROP TYP "C" MH ON BOX #MH08
STA 18+05.50, 13.31'RT
TR=78.70
PROP 24" RCP
PROP TYP "BB" INLET #A35
STA 19+16.00, 20.00'RT
TC=78.72
PROP TYP "C" MH ON BOX #MH25
STA 20+09.77, 22.95'RT
TR=78.62
PROP 6.2' BEND
STA:20+06.58, 16.76' RT
PROP 24" RCP
CONNECT EXIST STM TO PROP STM W/CONC COLLAR TO PRIVATE CONNECTION
SAN
UGT
STM
W
P
GAS
sign
planter
60" hedge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20
40
SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
▭	PROP INLET
○	PROP MANHOLE
🟩	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

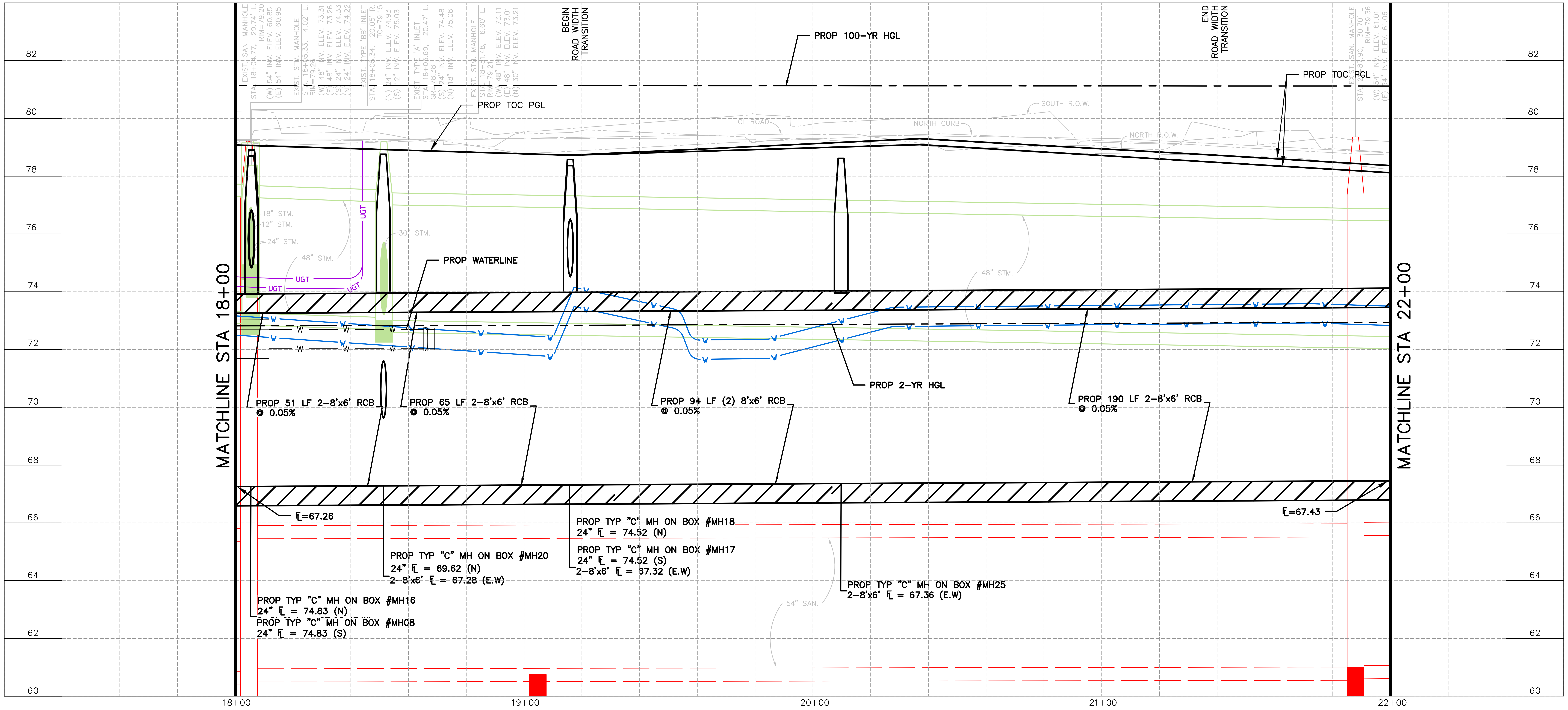
BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.


PROP 100-YR HGL
PROP TOC PGL
BEGIN ROAD WIDTH TRANSITION
END ROAD WIDTH TRANSITION
PROP TOC PGL
PROP WATERLINE
PROP 2-YR HGL
PROP 51 LF 2-8'x6' RCB @ 0.05%
PROP 65 LF 2-8'x6' RCB @ 0.05%
PROP 94 LF (2) 8'x6' RCB @ 0.05%
PROP 190 LF 2-8'x6' RCB @ 0.05%
FL=67.26
FL=67.43
PROP TYP "C" MH ON BOX #MH18
24" FL = 74.52 (N)
PROP TYP "C" MH ON BOX #MH17
24" FL = 74.52 (S)
2-8'x6' FL = 67.32 (E.W)
PROP TYP "C" MH ON BOX #MH20
24" FL = 69.62 (N)
2-8'x6' FL = 67.28 (E.W)
PROP TYP "C" MH ON BOX #MH25
2-8'x6' FL = 67.36 (E.W)
PROP TYP "C" MH ON BOX #MH16
24" FL = 74.83 (N)
PROP TYP "C" MH ON BOX #MH08
24" FL = 74.83 (S)
MATCHLINE STA 18+00
MATCHLINE STA 22+00
UGT
W
54" SAN.
48" STM.
82
80
78
76
74
72
70
68
66
64
62
60
18+00
19+00
20+00
21+00
22+00

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY - NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 18+00 TO STA 22+00

SHEET 5 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

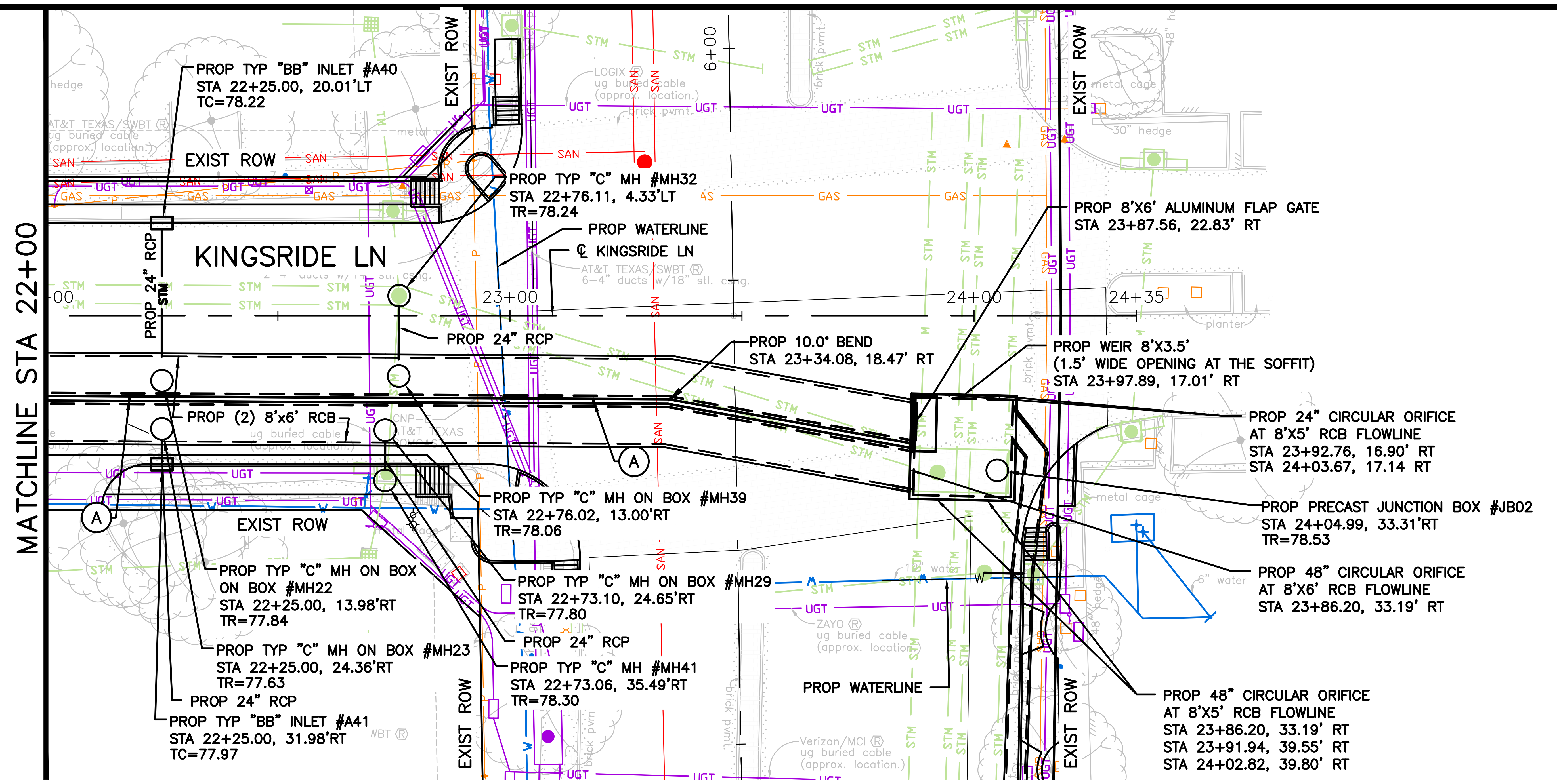
H: 1"=20' (22"X34")
H: 1"=2' (22"X34")

CITY OF HOUSTON PM

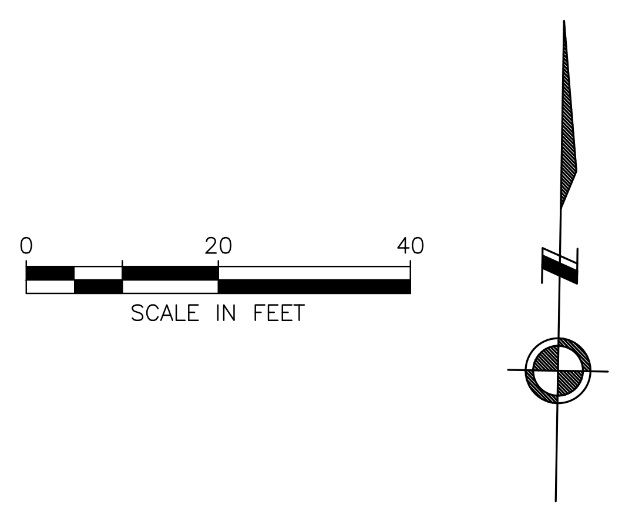
KEVIN HAMMOND, P.E.

SHEET NO. 151 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\pp_drn_kingsride_05.dwg Plotted July 27, 2026 at 12:42 PM by Wallace, Shawn


MATCHLINE STA 22+00
KINGSRIDE LN
PROP TYP "BB" INLET #A40
STA 22+25.00, 20.01'LT
TC=78.22
EXIST ROW
PROP 24" RCP
STM
PROP TYP "C" MH #MH32
STA 22+76.11, 4.33'LT
TR=78.24
PROP WATERLINE
℄ KINGSRIDE LN
AT&T TEXAS/SWBT Ⓡ
6–4" ducts w/18" stl. csng.
23+00
24+00
24+35
6+00
PROP 24" RCP
PROP 10.0° BEND
STA 23+34.08, 18.47' RT
PROP 8'X6' ALUMINUM FLAP GATE
STA 23+87.56, 22.83' RT
PROP WEIR 8'X3.5'
(1.5' WIDE OPENING AT THE SOFFIT)
STA 23+97.89, 17.01' RT
PROP (2) 8'x6' RCB
A
PROP 24" CIRCULAR ORIFICE
AT 8'X5' RCB FLOWLINE
STA 23+92.76, 16.90' RT
STA 24+03.67, 17.14 RT
PROP TYP "C" MH ON BOX #MH39
STA 22+76.02, 13.00'RT
TR=78.06
PROP PRECAST JUNCTION BOX #JB02
STA 24+04.99, 33.31'RT
TR=78.53
PROP TYP "C" MH ON BOX
ON BOX #MH22
STA 22+25.00, 13.98'RT
TR=77.84
PROP TYP "C" MH ON BOX #MH29
STA 22+73.10, 24.65'RT
TR=77.80
PROP 48" CIRCULAR ORIFICE
AT 8'X6' RCB FLOWLINE
STA 23+86.20, 33.19' RT
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH23
STA 22+25.00, 24.36'RT
TR=77.63
PROP TYP "C" MH #MH41
STA 22+73.06, 35.49'RT
TR=78.30
PROP WATERLINE
PROP 24" RCP
PROP TYP "BB" INLET #A41
STA 22+25.00, 31.98'RT
TC=77.97
PROP 48" CIRCULAR ORIFICE
AT 8'X5' RCB FLOWLINE
STA 23+86.20, 33.19' RT
STA 23+91.94, 39.55' RT
STA 24+02.82, 39.80' RT
hedge
30" hedge
metal cage
planter
ZAYO Ⓡ
ug buried cable
(approx. location)
Verizon/MCI Ⓡ
LOGIX Ⓡ
12" water
6" water
UGT
SAN
GAS
STM
W

NOTES:
1. CONTRACTOR TO MAINTAIN DRAINAGE CAPACITY OF EXISTING SYSTEM DURING CONSTRUCTION INCIDENTAL TO WORK. NO SEPARATE PAY.


0
20
40
SCALE IN FEET

LEGEND

―	PROP STORM SEWER
―	PROP 6" CURB
―	EXIST STORM SEWER
☐ ☐ ▬	PROP INLET
○	PROP MANHOLE
▨	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

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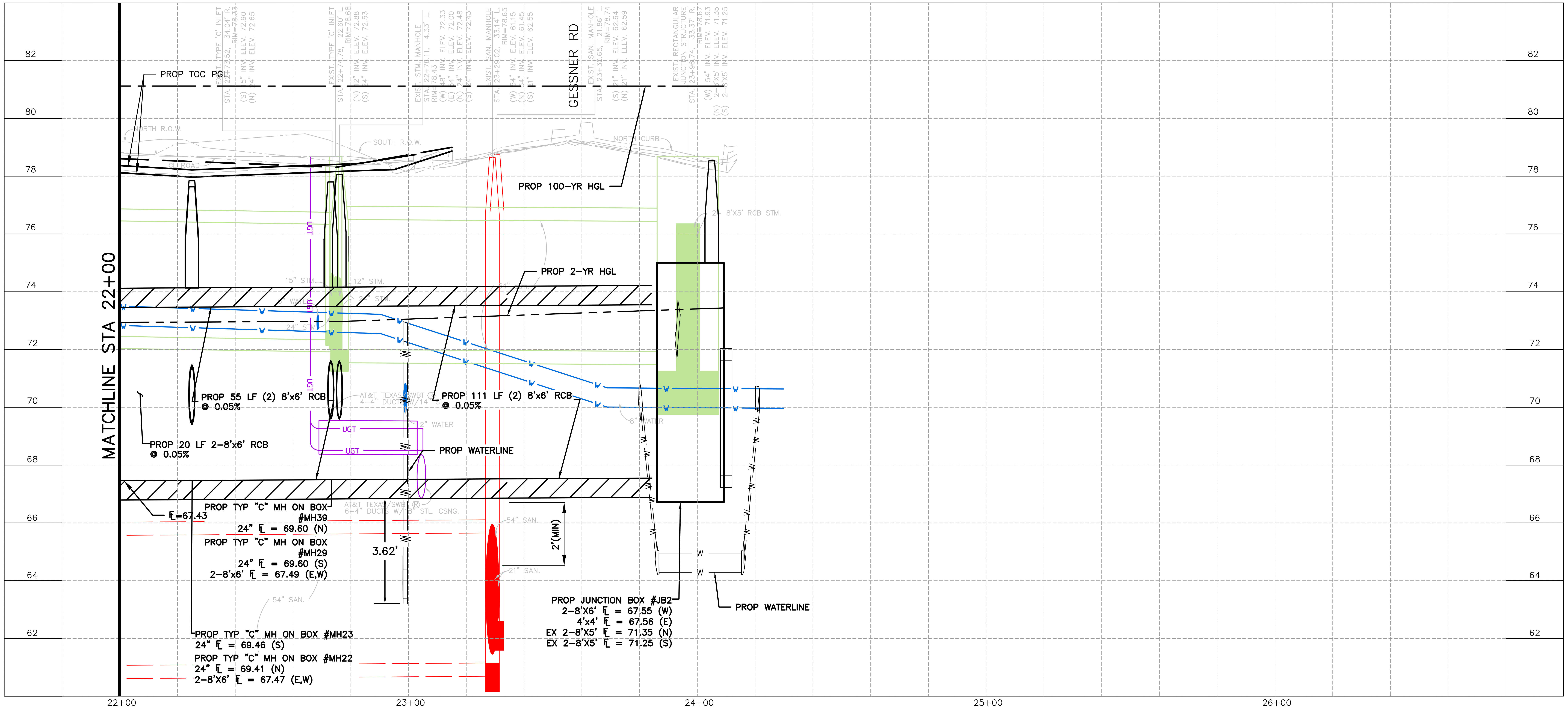
82
80
78
76
74
72
70
68
66
64
62
MATCHLINE STA 22+00
PROP TOC PGL
NORTH R.O.W.
SOUTH R.O.W.
NORTH CURB
GESSNER RD
PROP 100–YR HGL
PROP 2–YR HGL
8'X5' RCB STM.
15" STM
12" STM
24" STM
UGT
PROP 55 LF (2) 8'x6' RCB
@ 0.05%
PROP 111 LF (2) 8'x6' RCB
@ 0.05%
PROP 20 LF 2–8'x6' RCB
@ 0.05%
AT&T TEXAS/SWBT Ⓡ
4–4" DUCTS W/14" S
12" WATER
8" WATER
PROP WATERLINE
℄=67.43
PROP TYP "C" MH ON BOX
#MH39
24" ℄ = 69.60 (N)
PROP TYP "C" MH ON BOX
#MH29
24" ℄ = 69.60 (S)
2–8'x6' ℄ = 67.49 (E,W)
AT&T TEXAS/SWBT Ⓡ
6–4" DUCTS W/18" STL. CSNG.
3.62'
54" SAN.
21" SAN.
2'(MIN)
PROP JUNCTION BOX #JB2
2–8'X6' ℄ = 67.55 (W)
4'x4' ℄ = 67.56 (E)
EX 2–8'X5' ℄ = 71.35 (N)
EX 2–8'X5' ℄ = 71.25 (S)
PROP WATERLINE
PROP TYP "C" MH ON BOX #MH23
24" ℄ = 69.46 (S)
PROP TYP "C" MH ON BOX #MH22
24" ℄ = 69.41 (N)
2–8'X6' ℄ = 67.47 (E,W)
22+00
23+00
24+00
25+00
26+00
W

VERIFICATION OF PRIVATE UTILITY LINES

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
KINGSRIDE LANE
STA 22+00 TO END PROJECT

SHEET 6 OF 6

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22"X34")
H: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

No.	Revisions	Date	App

NOTES:
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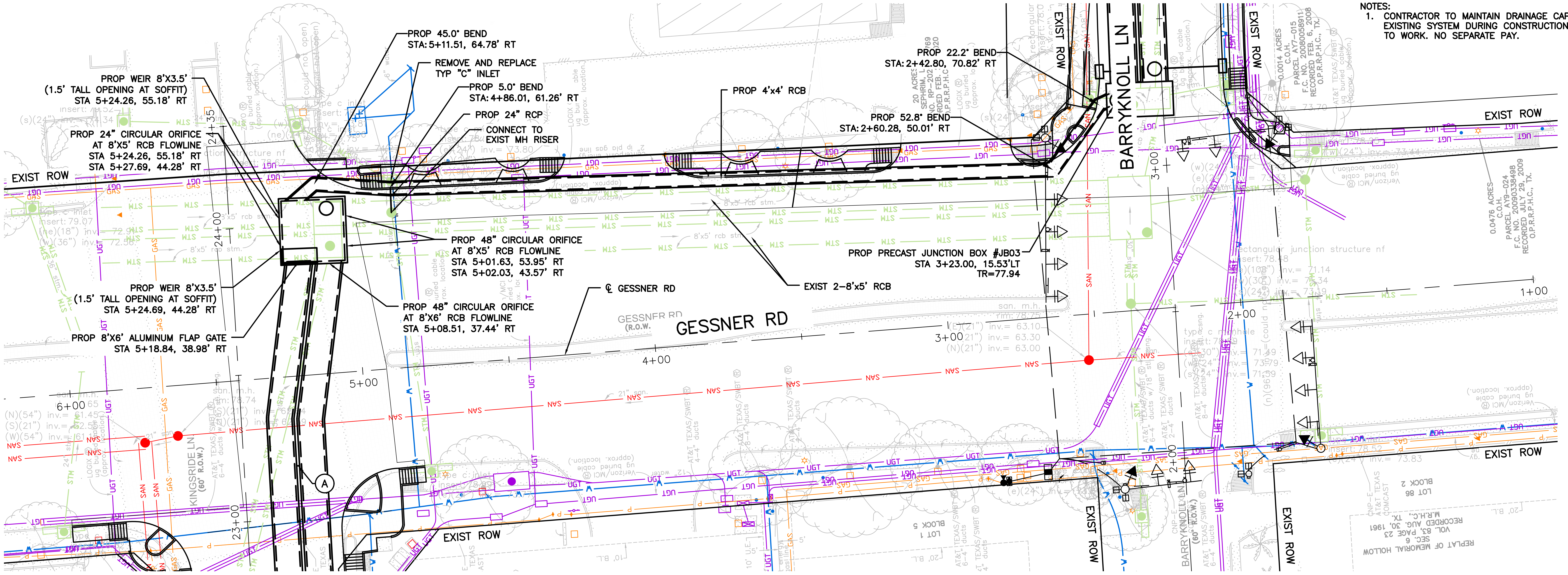
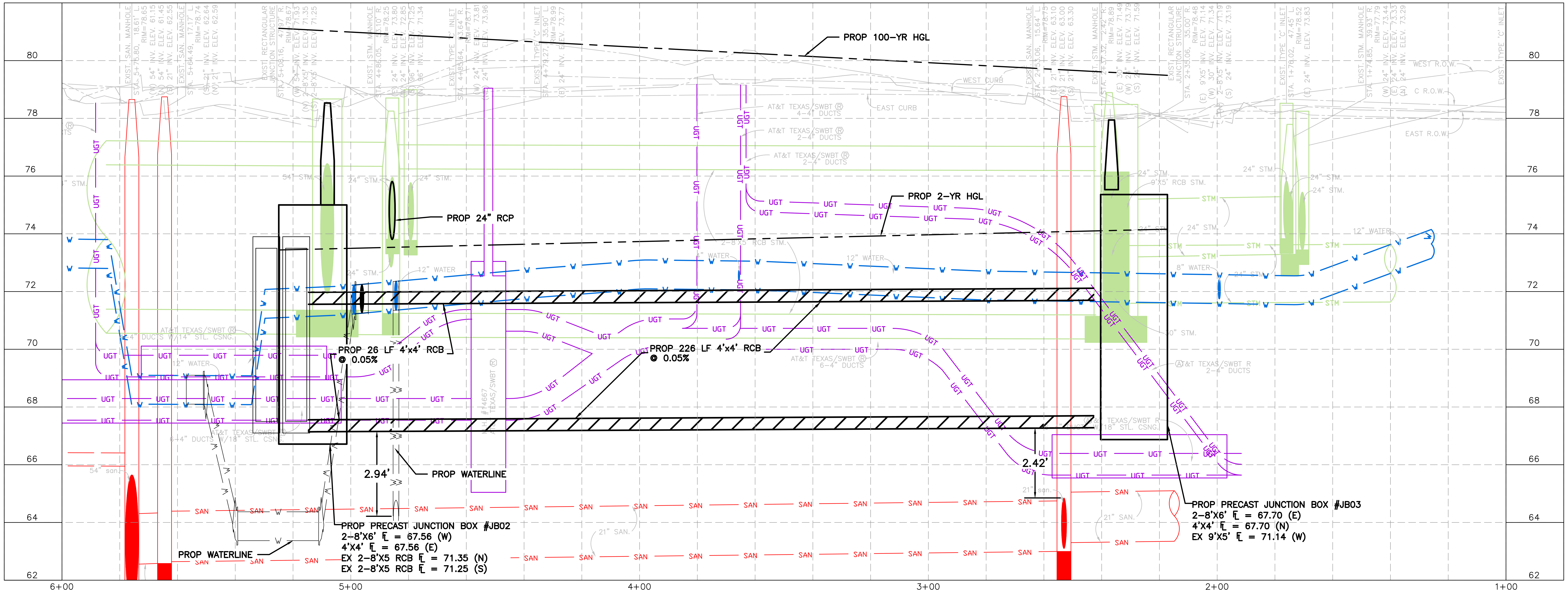

PROP WEIR 8'X3.5'
(1.5' TALL OPENING AT SOFFIT)
STA 5+24.26, 55.18' RT
PROP 24" CIRCULAR ORIFICE
AT 8'X5' RCB FLOWLINE
STA 5+24.26, 55.18' RT
STA 5+27.69, 44.28' RT
EXIST ROW
PROP WEIR 8'X3.5'
(1.5' TALL OPENING AT SOFFIT)
STA 5+24.69, 44.28' RT
PROP 8'X6' ALUMINUM FLAP GATE
STA 5+18.84, 38.98' RT
PROP 45.0° BEND
STA: 5+11.51, 64.78' RT
REMOVE AND REPLACE
TYP "C" INLET
PROP 5.0° BEND
STA: 4+86.01, 61.26' RT
PROP 24" RCP
CONNECT TO
EXIST MH RISER
PROP 48" CIRCULAR ORIFICE
AT 8'X5' RCB FLOWLINE
STA 5+01.63, 53.95' RT
STA 5+02.03, 43.57' RT
PROP 48" CIRCULAR ORIFICE
AT 8'X6' RCB FLOWLINE
STA 5+08.51, 37.44' RT
℄ GESSNER RD
GESSNER RD
PROP 4'x4' RCB
EXIST 2-8'x5' RCB
PROP 22.2° BEND
STA: 2+42.80, 70.82' RT
PROP 52.8° BEND
STA: 2+60.28, 50.01' RT
PROP PRECAST JUNCTION BOX #JB03
STA 3+23.00, 15.53'LT
TR=77.94
BARRYKNOLL LN
EXIST ROW
KINGSRIDE LN
6+00
5+00
4+00
3+00
2+00
1+00
24+00
24+35
23+00
A
0.0476 ACRES
C.O.H.
PARCEL AY9-024
F.C. NO. 20090338498
RECORDED JULY 29, 2009
O.P.R.R.P.H.C., TX.

SCALE IN FEET
0 20 40

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
▭ / ▫ / ▬	PROP INLET
○	PROP MANHOLE
🟩	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER


PROP 100-YR HGL
PROP 2-YR HGL
PROP 24" RCP
PROP 26 LF 4'x4' RCB
@ 0.05%
PROP 226 LF 4'x4' RCB
@ 0.05%
2.94'
PROP WATERLINE
PROP WATERLINE
PROP PRECAST JUNCTION BOX #JB02
2-8'X6' ℄ = 67.56 (W)
4'X4' ℄ = 67.56 (E)
EX 2-8'X5 RCB ℄ = 71.35 (N)
EX 2-8'X5 RCB ℄ = 71.25 (S)
2.42'
PROP PRECAST JUNCTION BOX #JB03
2-8'X6' ℄ = 67.70 (E)
4'X4' ℄ = 67.70 (N)
EX 9'X5' ℄ = 71.14 (W)
80
78
76
74
72
70
68
66
64
62
6+00
5+00
4+00
3+00
2+00
1+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
GESSNER ROAD
BEGIN PROJECT TO STA 6+00

SHEET 1 OF 1

WBS NO. M-430296-0017-3

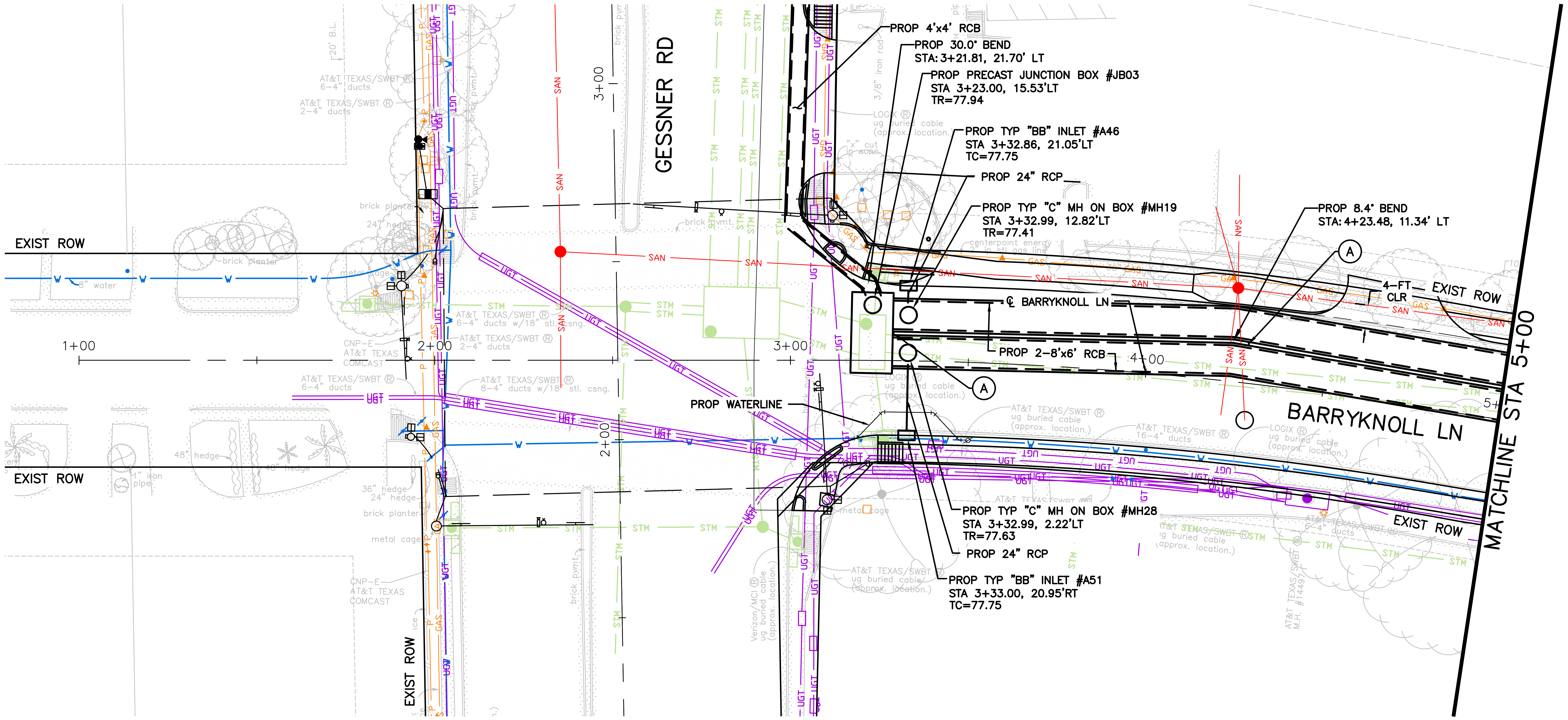
DRAWING SCALE
H: 1"=20' (22"X34")
H: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

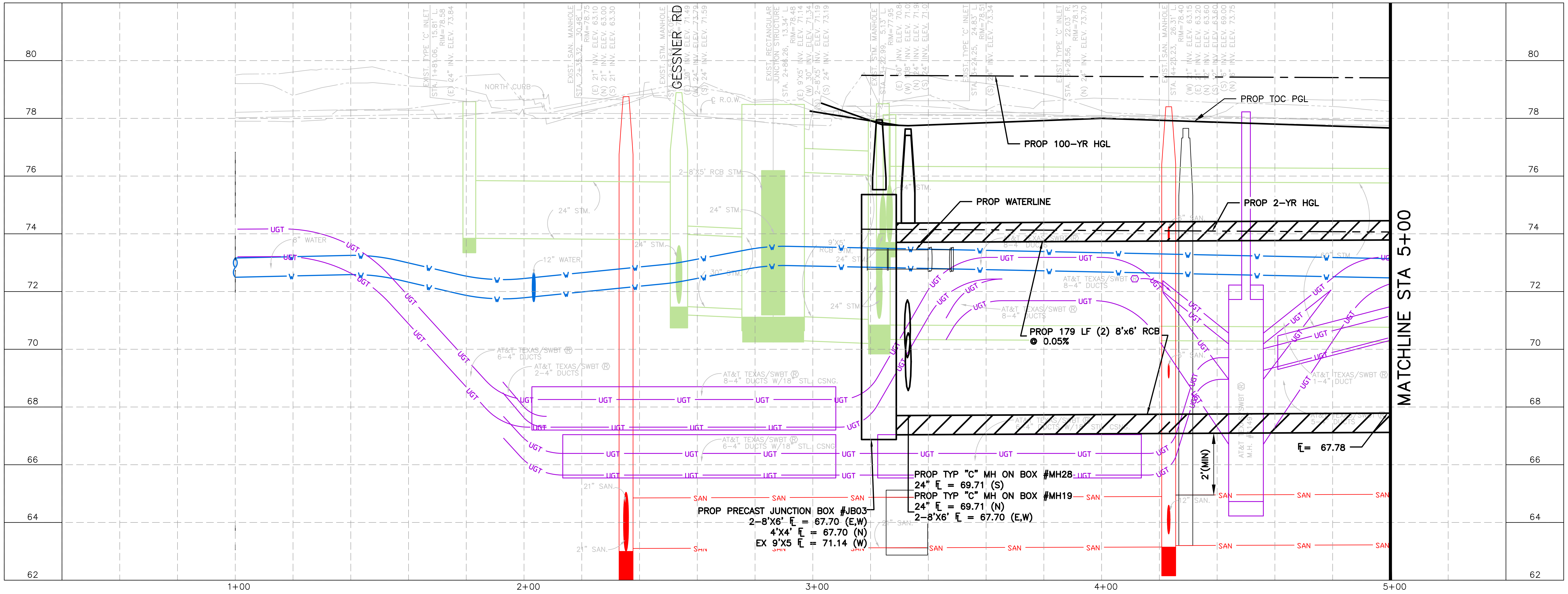
No.	Revisions	Date	App.

SHEET NO. 153 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\pp_drn_gessner_01.dwg Plotted August 4, 2026 at 3:21 PM by Gawali, Ajinkya Ashok



EXIST ROW
EXIST ROW
EXIST ROW
EXIST ROW
GESSNER RD
BARRYKNOLL LN
℄ BARRYKNOLL LN
MATCHLINE STA 5+00
1+00
2+00
3+00
4+00
5+00
PROP 4'x4' RCB
PROP 30.0° BEND
STA: 3+21.81, 21.70' LT
PROP PRECAST JUNCTION BOX #JB03
STA 3+23.00, 15.53'LT
TR=77.94
PROP TYP "BB" INLET #A46
STA 3+32.86, 21.05'LT
TC=77.75
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH19
STA 3+32.99, 12.82'LT
TR=77.41
PROP 8.4° BEND
STA: 4+23.48, 11.34' LT
4-FT CLR
PROP 2-8'x6' RCB
PROP WATERLINE
PROP TYP "C" MH ON BOX #MH28
STA 3+32.99, 2.22'LT
TR=77.63
PROP 24" RCP
PROP TYP "BB" INLET #A51
STA 3+33.00, 20.95'RT
TC=77.75
A
UGT
SAN
STM
GAS



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78
76
74
72
70
68
66
64
62
1+00
2+00
3+00
4+00
5+00
GESSNER RD
MATCHLINE STA 5+00
PROP TOC PGL
PROP 100-YR HGL
PROP WATERLINE
PROP 2-YR HGL
PROP 179 LF (2) 8'x6' RCB
@ 0.05%
℄= 67.78
2'(MIN)
PROP TYP "C" MH ON BOX #MH28
24" ℄ = 69.71 (S)
PROP TYP "C" MH ON BOX #MH19
24" ℄ = 69.71 (N)
2-8'X6' ℄ = 67.70 (E,W)
PROP PRECAST JUNCTION BOX #JB03
2-8'X6' ℄ = 67.70 (E,W)
4'X4' ℄ = 67.70 (N)
EX 9'X5 ℄ = 71.14 (W)
NORTH CURB
UGT
SAN

0 20 40
SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
☐	PROP INLET
○	PROP MANHOLE
▨	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. DATE

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CABLE COMPANY DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
07/30/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
BARRYKNOLL LANE
BEGIN PROJECT TO STA 5+00

SHEET 1 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

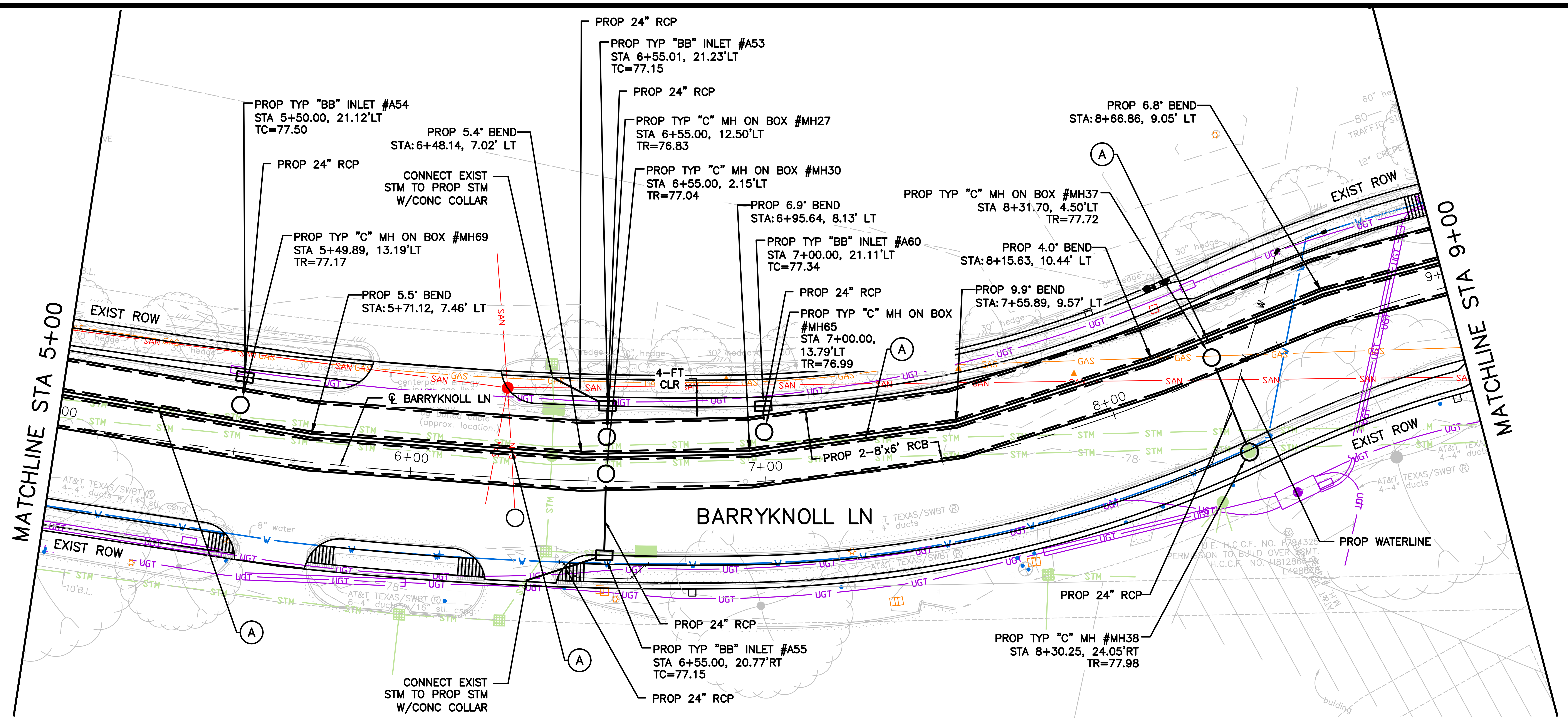
CITY OF HOUSTON PM

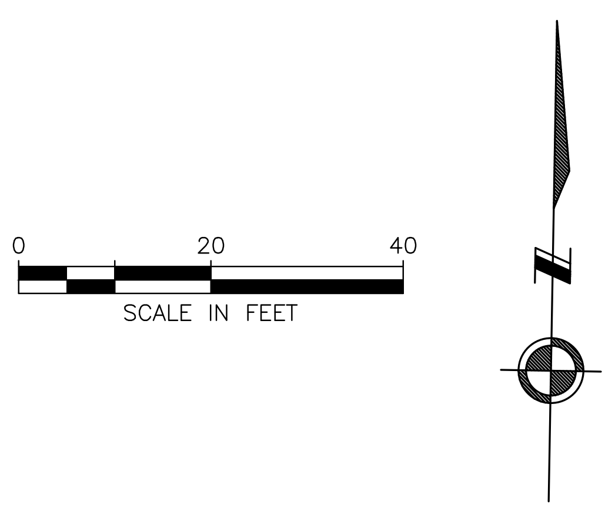
KEVIN HAMMOND, P.E.

SHEET NO. 154 OF 345

No. Date Revisions App.

j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\pp_drn_barryknoll_01.dwg Plotted July 27, 2026 at 12:43 PM by Wallace, Shawn


PROP 24" RCP
PROP TYP "BB" INLET #A53
STA 6+55.01, 21.23'LT
TC=77.15
PROP 24" RCP
PROP TYP "BB" INLET #A54
STA 5+50.00, 21.12'LT
TC=77.50
PROP 5.4° BEND
STA: 6+48.14, 7.02' LT
PROP TYP "C" MH ON BOX #MH27
STA 6+55.00, 12.50'LT
TR=76.83
PROP 24" RCP
CONNECT EXIST
STM TO PROP STM
W/CONC COLLAR
PROP TYP "C" MH ON BOX #MH30
STA 6+55.00, 2.15'LT
TR=77.04
PROP 6.9° BEND
STA: 6+95.64, 8.13' LT
PROP 6.8° BEND
STA: 8+66.86, 9.05' LT
PROP TYP "C" MH ON BOX #MH37
STA 8+31.70, 4.50'LT
TR=77.72
PROP TYP "C" MH ON BOX #MH69
STA 5+49.89, 13.19'LT
TR=77.17
PROP TYP "BB" INLET #A60
STA 7+00.00, 21.11'LT
TC=77.34
PROP 4.0° BEND
STA: 8+15.63, 10.44' LT
PROP 5.5° BEND
STA: 5+71.12, 7.46' LT
PROP 24" RCP
PROP 9.9° BEND
STA: 7+55.89, 9.57' LT
PROP TYP "C" MH ON BOX
#MH65
STA 7+00.00,
13.79'LT
TR=76.99
EXIST ROW
MATCHLINE STA 5+00
MATCHLINE STA 9+00
4-FT
CLR
℄ BARRYKNOLL LN
PROP 2-8'x6' RCB
6+00
7+00
8+00
9+
BARRYKNOLL LN
EXIST ROW
A
PROP WATERLINE
PROP 24" RCP
CONNECT EXIST
STM TO PROP STM
W/CONC COLLAR
PROP 24" RCP
PROP TYP "BB" INLET #A55
STA 6+55.00, 20.77'RT
TC=77.15
PROP 24" RCP
PROP TYP "C" MH #MH38
STA 8+30.25, 24.05'RT
TR=77.98
SAN
GAS
UGT
STM
W
30" hedge
AT&T TEXAS/SWBT ® 4-4" ducts w/14" stl. csng.
AT&T TEXAS/SWBT ® 6-4" ducts w/16" stl. csng.
8" water
10'B.L.
U.E. H.C.C.F. NO. F794325
PERMISSION TO BUILD OVER ESMT.
H.C.C.F. NO. H812866 &
L498678
building


0
20
40
SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
▭ ▭ ▬	PROP INLET
○	PROP MANHOLE
▨	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–8304R1
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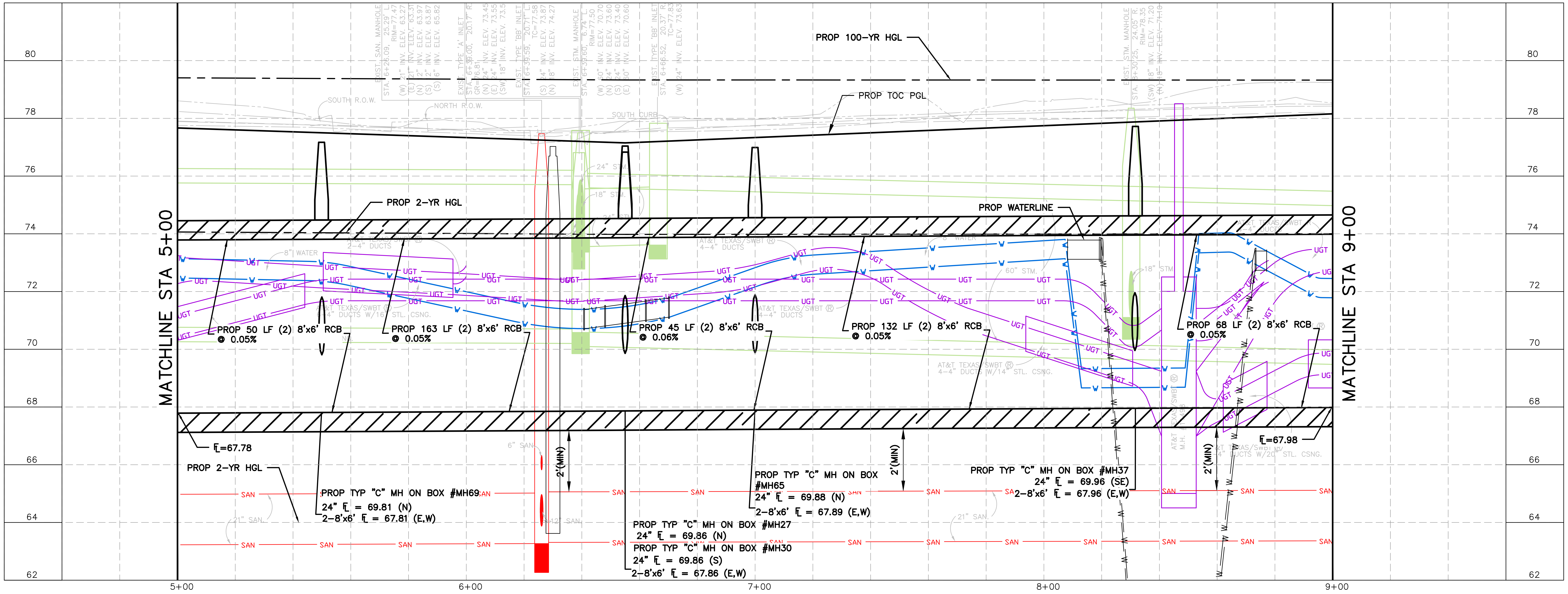
PROP 100-YR HGL
PROP TOC PGL
SOUTH R.O.W.
NORTH R.O.W.
SOUTH CURB
PROP 2-YR HGL
PROP WATERLINE
8" WATER
2-4" DUCTS
AT&T TEXAS/SWBT ® 6-4" DUCTS W/16" STL. CSNG.
AT&T TEXAS/SWBT ® 4-4" DUCTS
AT&T TEXAS/SWBT ® 4-4" DUCTS W/14" STL. CSNG.
AT&T TEXAS/SWBT ® 4-4" DUCTS W/20" STL. CSNG.
AT&T M.H.
60" STM.
18" STM
24"
18"
UGT
W
SAN
6" SAN
12" SAN
21" SAN
PROP 50 LF (2) 8'x6' RCB
@ 0.05%
PROP 163 LF (2) 8'x6' RCB
@ 0.05%
PROP 45 LF (2) 8'x6' RCB
@ 0.06%
PROP 132 LF (2) 8'x6' RCB
@ 0.05%
PROP 68 LF (2) 8'x6' RCB
@ 0.05%
℄=67.78
℄=67.98
2'(MIN)
PROP TYP "C" MH ON BOX #MH69
24" ℄ = 69.81 (N)
2-8'x6' ℄ = 67.81 (E,W)
PROP TYP "C" MH ON BOX
#MH65
24" ℄ = 69.88 (N)
2-8'x6' ℄ = 67.89 (E,W)
PROP TYP "C" MH ON BOX #MH27
24" ℄ = 69.86 (N)
PROP TYP "C" MH ON BOX #MH30
24" ℄ = 69.86 (S)
2-8'x6' ℄ = 67.86 (E,W)
PROP TYP "C" MH ON BOX #MH37
24" ℄ = 69.96 (SE)
2-8'x6' ℄ = 67.96 (E,W)
MATCHLINE STA 5+00
MATCHLINE STA 9+00
80
78
76
74
72
70
68
66
64
62
5+00
6+00
7+00
8+00
9+00

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. DATE
(THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.)
SIGNATURE VALID FOR SIX MONTHS

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. DATE
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CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. DATE
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CABLE COMPANY DATE

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JOHN R. HUML
140416
07/30/2026
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

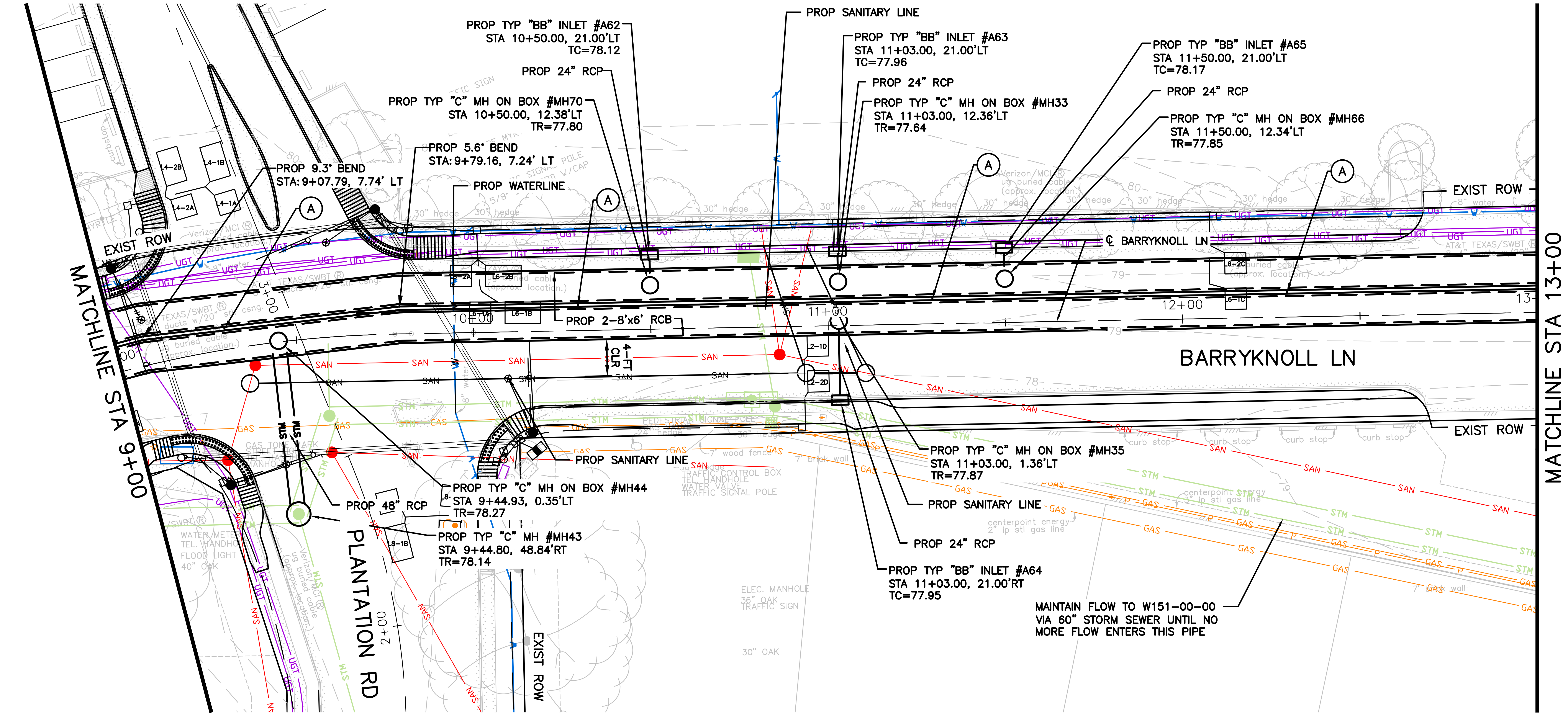
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

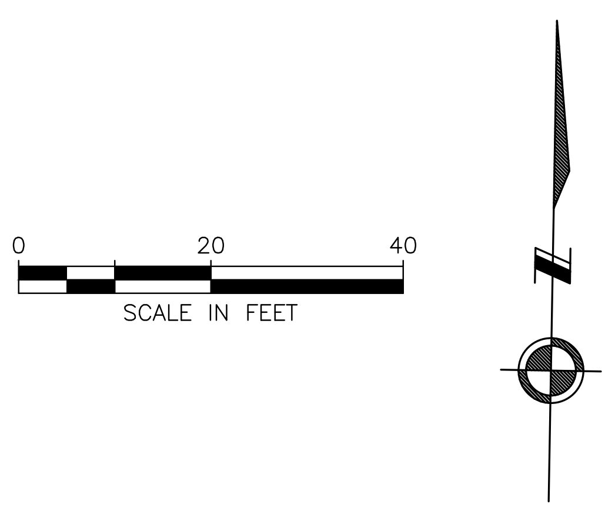
DRAINAGE PLAN & PROFILE
BARRYKNOLL LANE
STA 5+00 TO STA 9+00

SHEET 2 OF 4

WBS NO. M–430296–0017–3	
DRAWING SCALE	
H: 1"=20' (22"X34") V: 1"=2' (22"X34")	
CITY OF HOUSTON PM	
KEVIN HAMMOND, P.E.	
SHEET NO. 155 OF 345	

No.	Date	Revisions	App.


PROP TYP "BB" INLET #A62
STA 10+50.00, 21.00'LT
TC=78.12
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH70
STA 10+50.00, 12.38'LT
TR=77.80
PROP SANITARY LINE
PROP TYP "BB" INLET #A63
STA 11+03.00, 21.00'LT
TC=77.96
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH33
STA 11+03.00, 12.36'LT
TR=77.64
PROP TYP "BB" INLET #A65
STA 11+50.00, 21.00'LT
TC=78.17
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH66
STA 11+50.00, 12.34'LT
TR=77.85
PROP 5.6° BEND
STA: 9+79.16, 7.24' LT
PROP 9.3° BEND
STA: 9+07.79, 7.74' LT
PROP WATERLINE
EXIST ROW
℄ BARRYKNOLL LN
BARRYKNOLL LN
PROP 2-8'x6' RCB
4-FT CLR
10+00
11+00
12+00
13+
EXIST ROW
MATCHLINE STA 9+00
MATCHLINE STA 13+00
PROP SANITARY LINE
PROP TYP "C" MH ON BOX #MH44
STA 9+44.93, 0.35'LT
TR=78.27
PROP 48" RCP
PROP TYP "C" MH #MH43
STA 9+44.80, 48.84'RT
TR=78.14
PLANTATION RD
EXIST ROW
PROP TYP "C" MH ON BOX #MH35
STA 11+03.00, 1.36'LT
TR=77.87
PROP SANITARY LINE
PROP 24" RCP
PROP TYP "BB" INLET #A64
STA 11+03.00, 21.00'RT
TC=77.95
MAINTAIN FLOW TO W151-00-00
VIA 60" STORM SEWER UNTIL NO
MORE FLOW ENTERS THIS PIPE
A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SCALE IN FEET

LEGEND

―	PROP STORM SEWER
―	PROP 6" CURB
―	EXIST STORM SEWER
☐	PROP INLET
○	PROP MANHOLE
🟩	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED SOUTHWEST CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)

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NOTICE:

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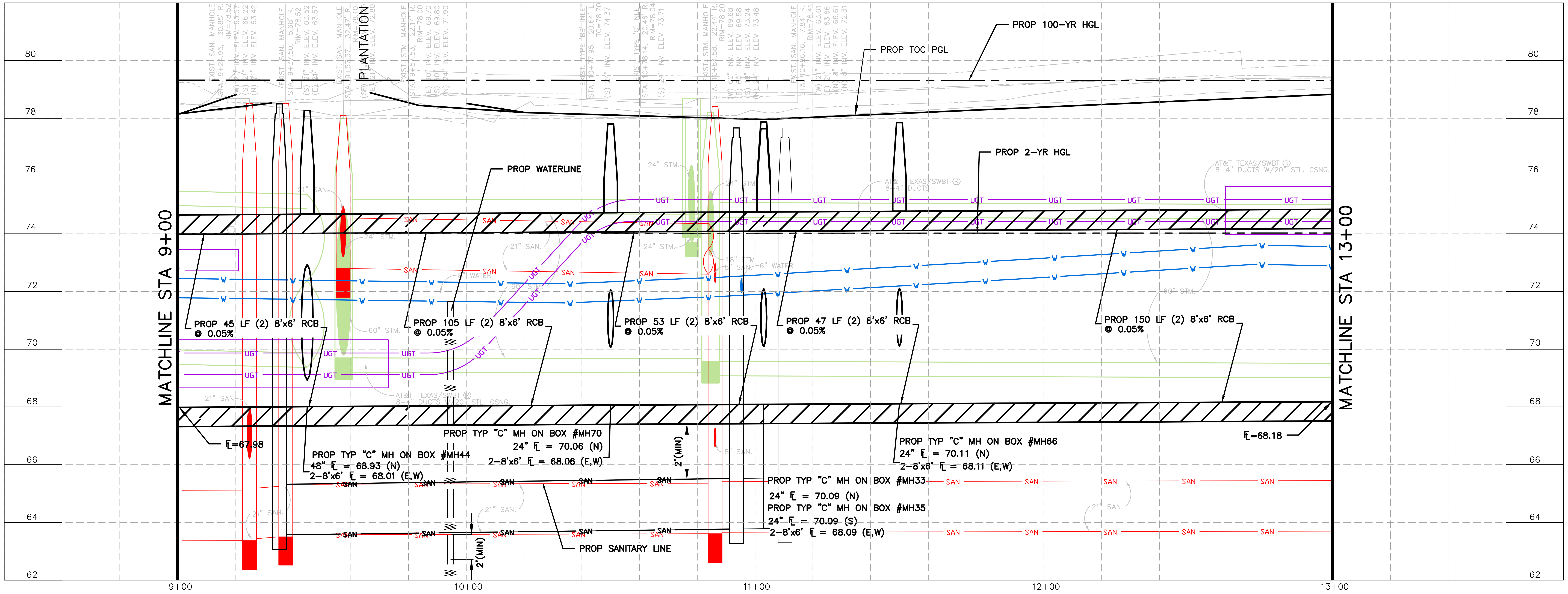
PROP 100-YR HGL
PROP TOC PGL
PROP 2-YR HGL
PROP WATERLINE
PLANTATION
MATCHLINE STA 9+00
MATCHLINE STA 13+00
PROP 45 LF (2) 8'x6' RCB @ 0.05%
PROP 105 LF (2) 8'x6' RCB @ 0.05%
PROP 53 LF (2) 8'x6' RCB @ 0.05%
PROP 47 LF (2) 8'x6' RCB @ 0.05%
PROP 150 LF (2) 8'x6' RCB @ 0.05%
℄=67.98
℄=68.18
PROP TYP "C" MH ON BOX #MH44
48" ℄ = 68.93 (N)
2-8'x6' ℄ = 68.01 (E,W)
PROP TYP "C" MH ON BOX #MH70
24" ℄ = 70.06 (N)
2-8'x6' ℄ = 68.06 (E,W)
2'(MIN)
PROP TYP "C" MH ON BOX #MH66
24" ℄ = 70.11 (N)
2-8'x6' ℄ = 68.11 (E,W)
PROP TYP "C" MH ON BOX #MH33
24" ℄ = 70.09 (N)
PROP TYP "C" MH ON BOX #MH35
24" ℄ = 70.09 (S)
2-8'x6' ℄ = 68.09 (E,W)
PROP SANITARY LINE
2'(MIN)
80
78
76
74
72
70
68
66
64
62
9+00
10+00
11+00
12+00
13+00

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No.	Revisions	Date	App

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
BARRYKNOLL LANE
STA 9+00 TO STA 13+00

SHEET 3 OF 4

WBS NO. M-430296-0017-3

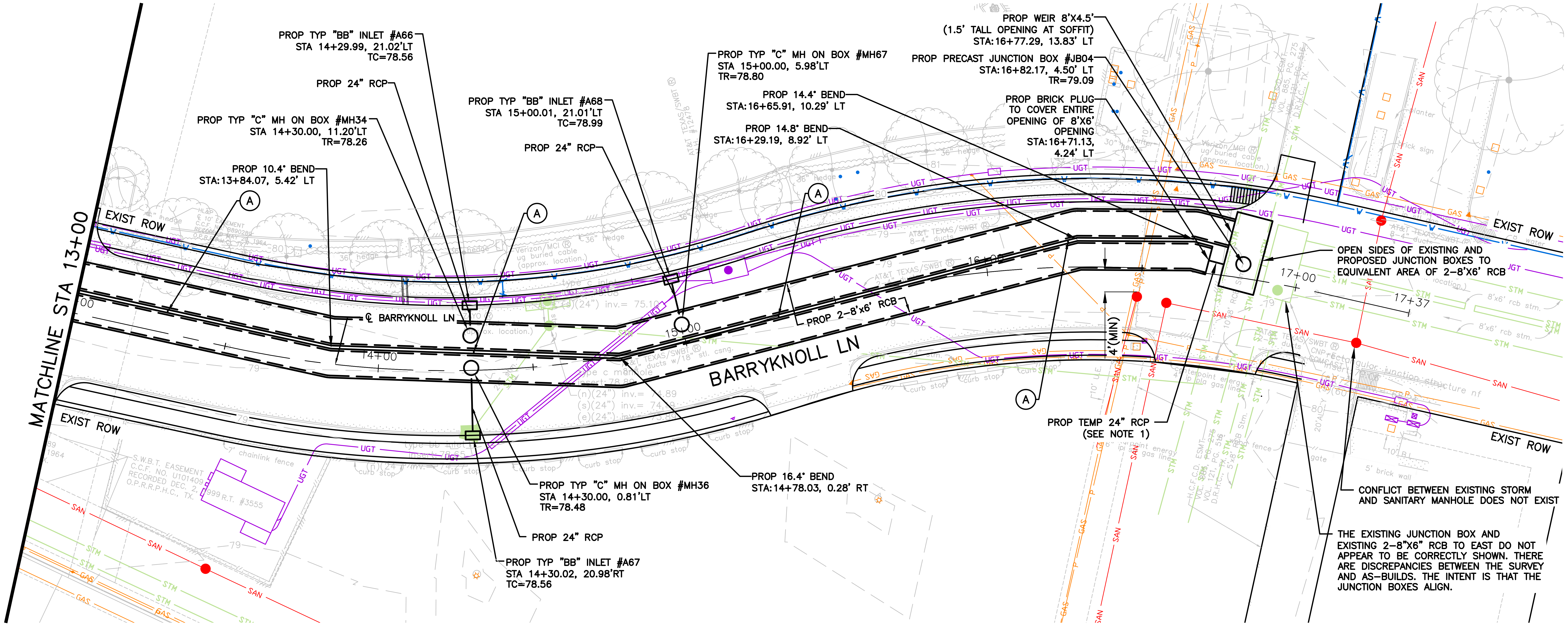
DRAWING SCALE

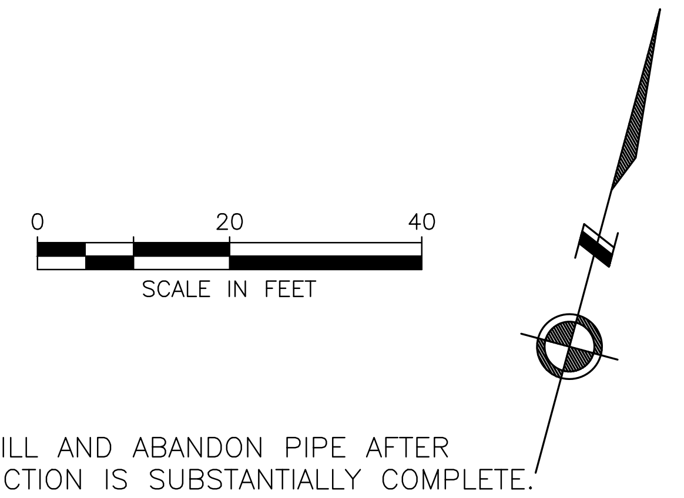
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 156 OF 345


PROP TYP "BB" INLET #A66
STA 14+29.99, 21.02'LT
TC=78.56
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH34
STA 14+30.00, 11.20'LT
TR=78.26
PROP 10.4° BEND
STA:13+84.07, 5.42' LT
PROP TYP "BB" INLET #A68
STA 15+00.01, 21.01'LT
TC=78.99
PROP 24" RCP
PROP TYP "C" MH ON BOX #MH67
STA 15+00.00, 5.98'LT
TR=78.80
PROP 14.4° BEND
STA:16+65.91, 10.29' LT
PROP 14.8° BEND
STA:16+29.19, 8.92' LT
PROP WEIR 8'X4.5'
(1.5' TALL OPENING AT SOFFIT)
STA:16+77.29, 13.83' LT
PROP PRECAST JUNCTION BOX #JB04
STA:16+82.17, 4.50' LT
TR=79.09
PROP BRICK PLUG
TO COVER ENTIRE
OPENING OF 8'X6'
OPENING
STA:16+71.13,
4.24' LT
OPEN SIDES OF EXISTING AND
PROPOSED JUNCTION BOXES TO
EQUIVALENT AREA OF 2-8'X6' RCB
EXIST ROW
MATCHLINE STA 13+00
℄ BARRYKNOLL LN
BARRYKNOLL LN
PROP 2-8'x6' RCB
14+00
15+00
16+00
17+00
17+37
4'(MIN)
PROP TEMP 24" RCP
(SEE NOTE 1)
PROP TYP "C" MH ON BOX #MH36
STA 14+30.00, 0.81'LT
TR=78.48
PROP 16.4° BEND
STA:14+78.03, 0.28' RT
PROP 24" RCP
PROP TYP "BB" INLET #A67
STA 14+30.02, 20.98'RT
TC=78.56
CONFLICT BETWEEN EXISTING STORM
AND SANITARY MANHOLE DOES NOT EXIST
THE EXISTING JUNCTION BOX AND
EXISTING 2-8"X6" RCB TO EAST DO NOT
APPEAR TO BE CORRECTLY SHOWN. THERE
ARE DISCREPANCIES BETWEEN THE SURVEY
AND AS-BUILDS. THE INTENT IS THAT THE
JUNCTION BOXES ALIGN.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SCALE IN FEET

NOTES:
1. GROUT FILL AND ABANDON PIPE AFTER CONSTRUCTION IS SUBSTANTIALLY COMPLETE.

LEGEND

▬	PROP STORM SEWER
▬	PROP 6" CURB
▬	EXIST STORM SEWER
☐ / ☐ / ▬	PROP INLET
○	PROP MANHOLE
▦ / ▦ / ▬	EXIST INLET
●	EXIST MANHOLE
Ⓐ	PROP 24" RCP EQUALIZER

BENCHMARK:

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Revisions	Date	No.

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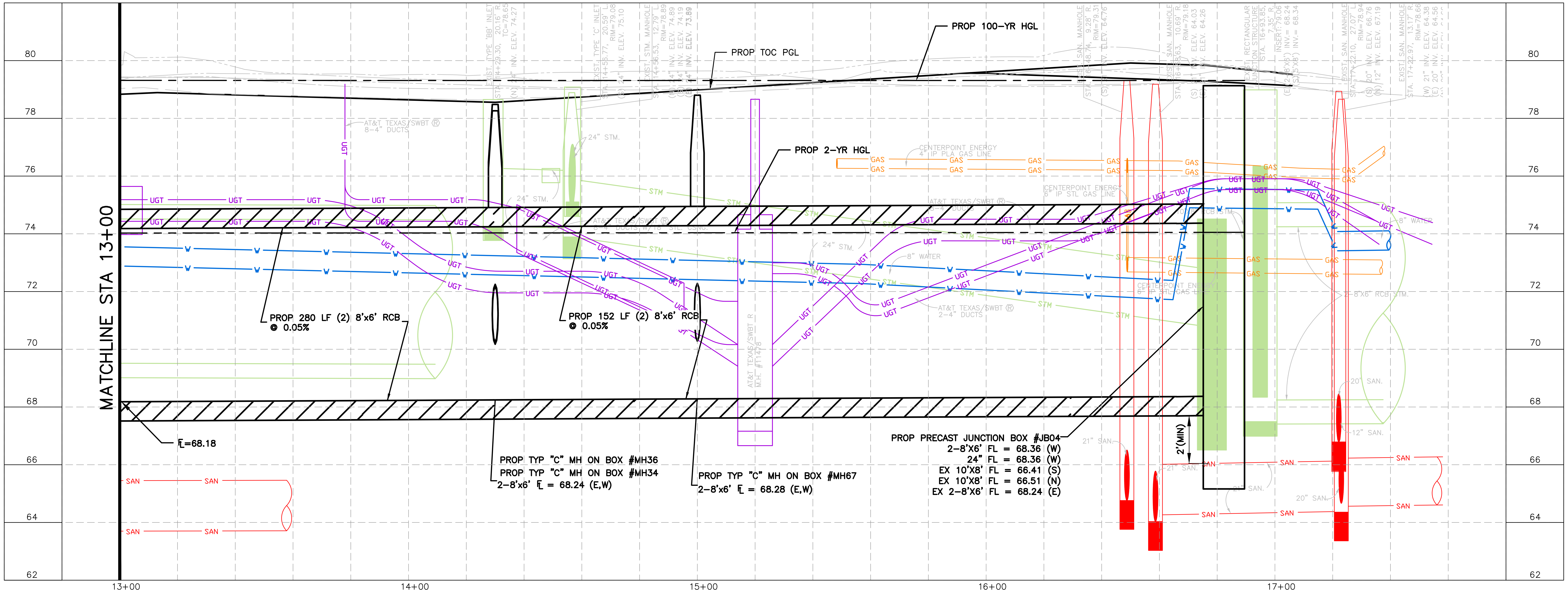

80
78
76
74
72
70
68
66
64
62
PROP 100-YR HGL
PROP TOC PGL
PROP 2-YR HGL
MATCHLINE STA 13+00
PROP 280 LF (2) 8'x6' RCB
@ 0.05%
PROP 152 LF (2) 8'x6' RCB
@ 0.05%
℄=68.18
PROP TYP "C" MH ON BOX #MH36
PROP TYP "C" MH ON BOX #MH34
2-8'x6' ℄ = 68.24 (E,W)
PROP TYP "C" MH ON BOX #MH67
2-8'x6' ℄ = 68.28 (E,W)
PROP PRECAST JUNCTION BOX #JB04
2-8'X6' FL = 68.36 (W)
24" FL = 68.36 (W)
EX 10'X8' FL = 66.41 (S)
EX 10'X8' FL = 66.51 (N)
EX 2-8'X6' FL = 68.24 (E)
2'(MIN)
13+00
14+00
15+00
16+00
17+00

FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
08/05/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
BARRYKNOLL LANE
STA 13+00 TO END PROJECT

SHEET 4 OF 4

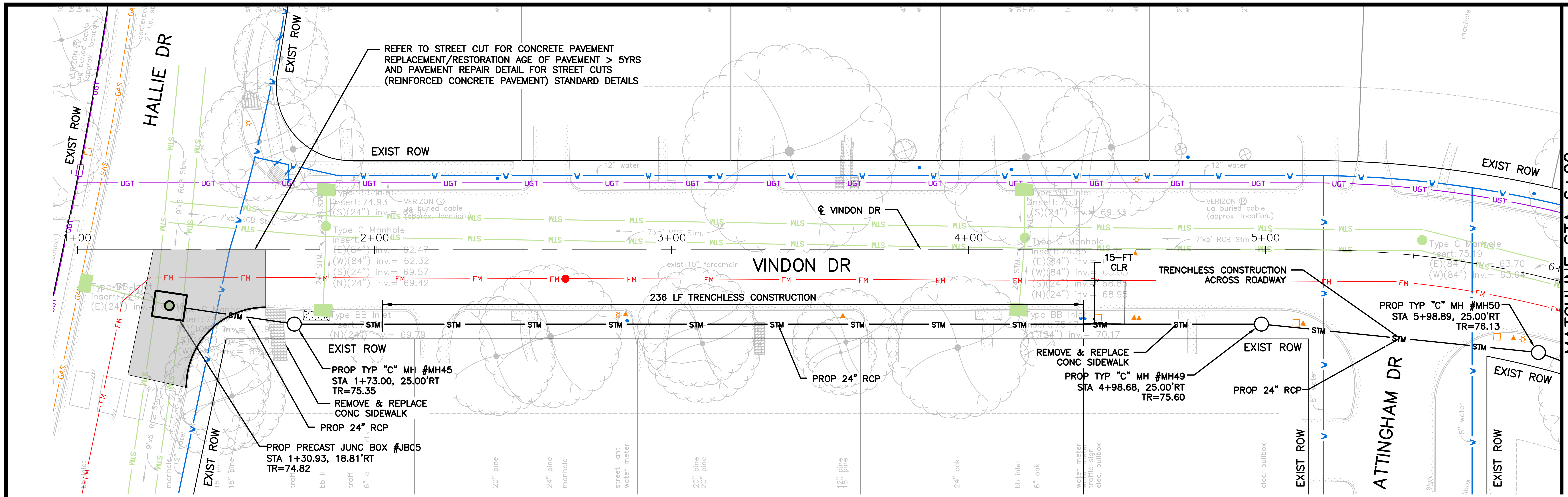
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 157 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\pp_drn_barryknoll_04.dwg Plotted August 5, 2026 at 4:12 PM by Gowali, Ajinkya Ashok


HALLIE DR
EXIST ROW
REFER TO STREET CUT FOR CONCRETE PAVEMENT REPLACEMENT/RESTORATION AGE OF PAVEMENT > 5YRS AND PAVEMENT REPAIR DETAIL FOR STREET CUTS (REINFORCED CONCRETE PAVEMENT) STANDARD DETAILS
EXIST ROW
℄ VINDON DR
VINDON DR
1+00
2+00
3+00
4+00
5+00
236 LF TRENCHLESS CONSTRUCTION
15-FT CLR
TRENCHLESS CONSTRUCTION ACROSS ROADWAY
PROP TYP "C" MH #MH50 STA 5+98.89, 25.00'RT TR=76.13
EXIST ROW
PROP TYP "C" MH #MH45 STA 1+73.00, 25.00'RT TR=75.35
REMOVE & REPLACE CONC SIDEWALK
PROP 24" RCP
PROP PRECAST JUNC BOX #JB05 STA 1+30.93, 18.81'RT TR=74.82
PROP 24" RCP
REMOVE & REPLACE CONC SIDEWALK
PROP TYP "C" MH #MH49 STA 4+98.68, 25.00'RT TR=75.60
PROP 24" RCP
EXIST ROW
ATTINGHAM DR
EXIST ROW
EXIST ROW
MATCHLINE STA 6+00
UGT
FM
STM
GAS

0 20 40
SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
▭	PROP INLET
○	PROP MANHOLE
▦	EXIST INLET
●	EXIST MANHOLE
▨	PROP PAVEMENT REPAIR

NOTES:

1. UNLESS OTHERWISE CALLED OUT SEPARATELY, ALL UTILITY CONSTRUCTION SHALL BE COMPLETED USING OPEN CUT METHODS.

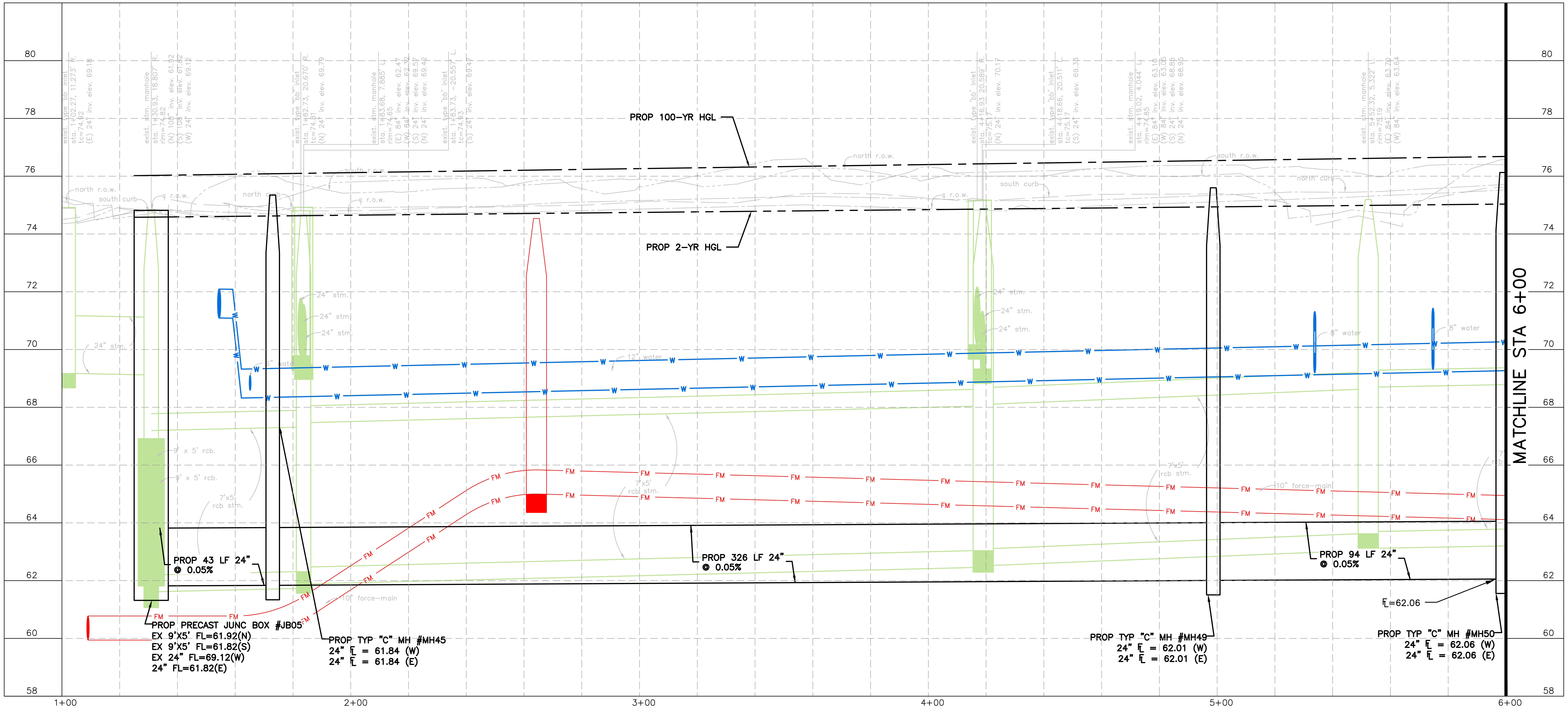
BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.


80
78
76
74
72
70
68
66
64
62
60
58
PROP 100-YR HGL
PROP 2-YR HGL
PROP 43 LF 24" @ 0.05%
PROP 326 LF 24" @ 0.05%
PROP 94 LF 24" @ 0.05%
℄=62.06
PROP PRECAST JUNC BOX #JB05
EX 9'X5' FL=61.92(N)
EX 9'X5' FL=61.82(S)
EX 24" FL=69.12(W)
24" FL=61.82(E)
PROP TYP "C" MH #MH45
24" ℄ = 61.84 (W)
24" ℄ = 61.84 (E)
PROP TYP "C" MH #MH49
24" ℄ = 62.01 (W)
24" ℄ = 62.01 (E)
PROP TYP "C" MH #MH50
24" ℄ = 62.06 (W)
24" ℄ = 62.06 (E)
MATCHLINE STA 6+00
1+00
2+00
3+00
4+00
5+00
6+00
FM
W

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS DATE

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CABLE COMPANY DATE

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
VINDON DRIVE
BEGIN PROJECT TO STA 6+00

SHEET 1 OF 3

WBS NO. M-430296-0017-3

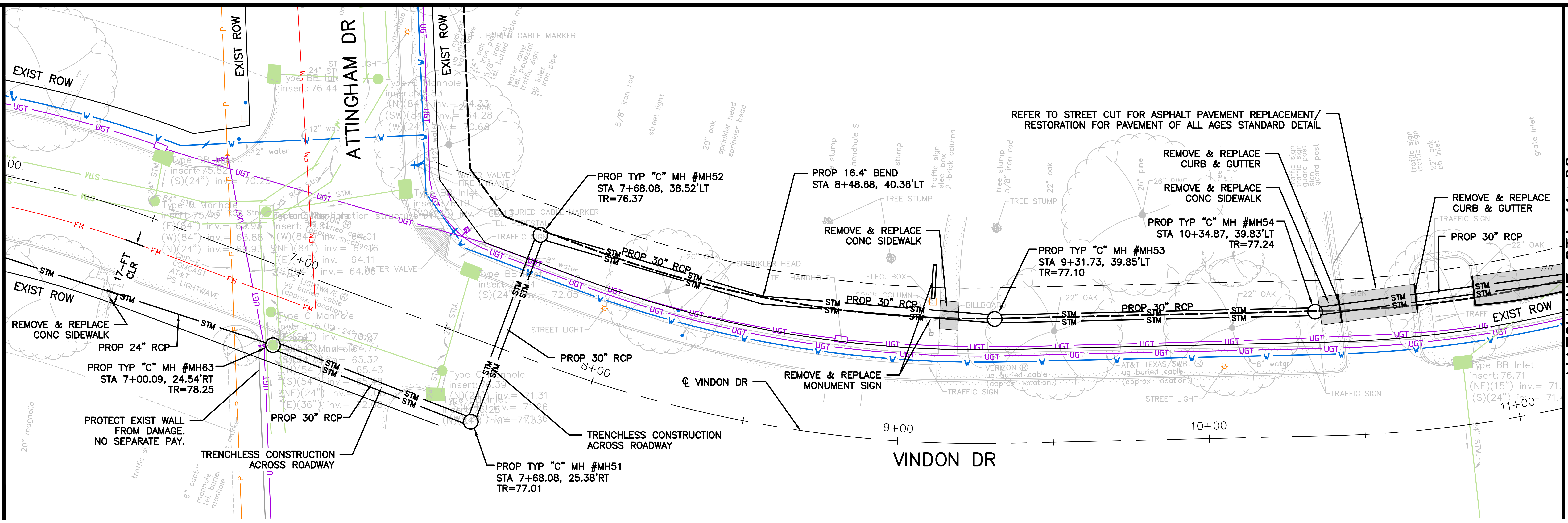
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

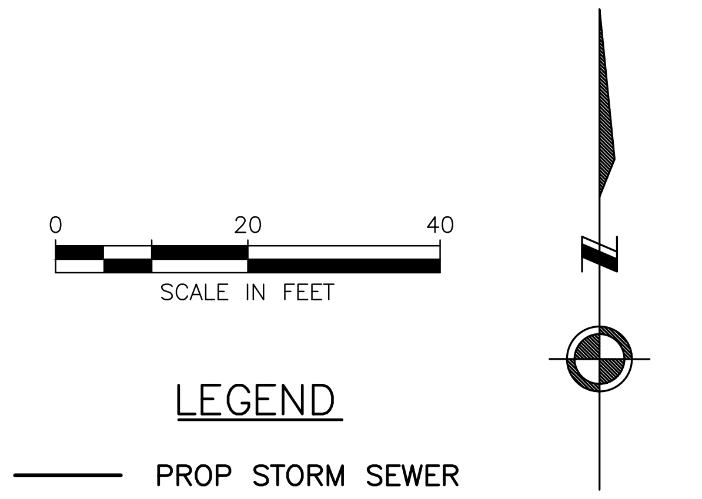
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 158 OF 345

No. Date Revisions App.

j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\pp_drn_vindon_01.dwg Plotted July 27, 2026 at 12:44 PM by Wallace, Shawn


MATCHLINE STA 6+00
MATCHLINE STA 11+00
EXIST ROW
ATTINGHAM DR
VINDON DR
℄ VINDON DR
7+00
8+00
9+00
10+00
11+00
17-FT CLR
REMOVE & REPLACE CONC SIDEWALK
PROP 24" RCP
PROP TYP "C" MH #MH63 STA 7+00.09, 24.54'RT TR=78.25
PROTECT EXIST WALL FROM DAMAGE. NO SEPARATE PAY.
TRENCHLESS CONSTRUCTION ACROSS ROADWAY
PROP 30" RCP
PROP TYP "C" MH #MH52 STA 7+68.08, 38.52'LT TR=76.37
PROP TYP "C" MH #MH51 STA 7+68.08, 25.38'RT TR=77.01
TRENCHLESS CONSTRUCTION ACROSS ROADWAY
PROP 16.4° BEND STA 8+48.68, 40.36'LT
REMOVE & REPLACE CONC SIDEWALK
REMOVE & REPLACE MONUMENT SIGN
PROP TYP "C" MH #MH53 STA 9+31.73, 39.85'LT TR=77.10
REFER TO STREET CUT FOR ASPHALT PAVEMENT REPLACEMENT/ RESTORATION FOR PAVEMENT OF ALL AGES STANDARD DETAIL
REMOVE & REPLACE CURB & GUTTER
REMOVE & REPLACE CONC SIDEWALK
PROP TYP "C" MH #MH54 STA 10+34.87, 39.83'LT TR=77.24
REMOVE & REPLACE CURB & GUTTER
PROP 30" RCP
STM
UGT
W
FM
STREET LIGHT
TRAFFIC SIGN
22" OAK
TREE STUMP
WATER VALVE
FIRE HYDRANT
TEL. BURIED CABLE MARKER
Type BB Inlet insert: 76.71 (NE)(15") inv.= 71. (S)(24") inv.= 71.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40
SCALE IN FEET

LEGEND

— PROP STORM SEWER
— PROP 6" CURB
— EXIST STORM SEWER
▭ PROP INLET
○ PROP MANHOLE
🟩 EXIST INLET
● EXIST MANHOLE
▨ PROP PAVEMENT REPAIR

NOTES:

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BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
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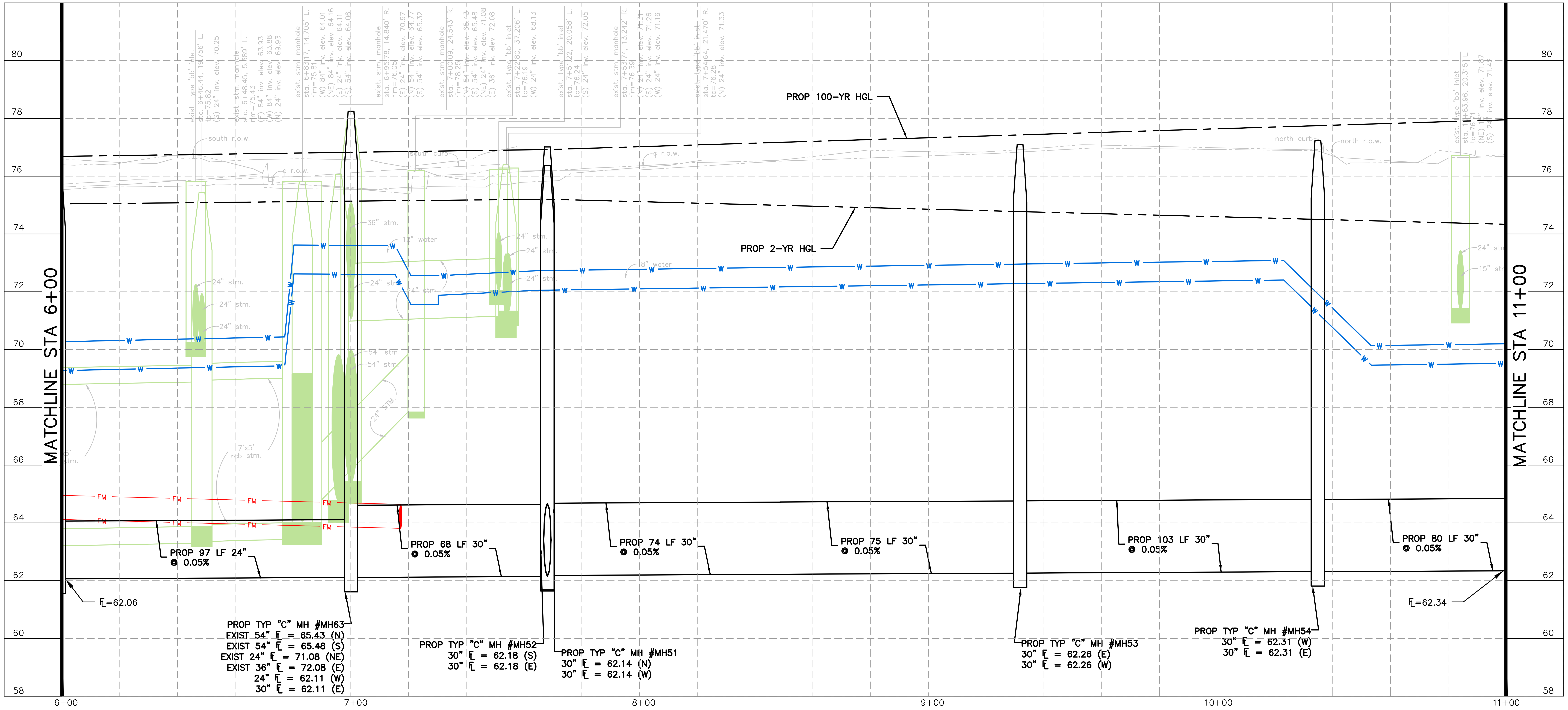
MATCHLINE STA 6+00
MATCHLINE STA 11+00
80
78
76
74
72
70
68
66
64
62
60
58
6+00
7+00
8+00
9+00
10+00
11+00
PROP 100-YR HGL
PROP 2-YR HGL
PROP 97 LF 24" @ 0.05%
PROP 68 LF 30" @ 0.05%
PROP 74 LF 30" @ 0.05%
PROP 75 LF 30" @ 0.05%
PROP 103 LF 30" @ 0.05%
PROP 80 LF 30" @ 0.05%
℄=62.06
℄=62.34
W
FM
south r.o.w.
north r.o.w.
south curb
north curb

PROP TYP "C" MH #MH63
EXIST 54" ℄ = 65.43 (N)
EXIST 54" ℄ = 65.48 (S)
EXIST 24" ℄ = 71.08 (NE)
EXIST 36" ℄ = 72.08 (E)
24" ℄ = 62.11 (W)
30" ℄ = 62.11 (E)

PROP TYP "C" MH #MH52
30" ℄ = 62.18 (S)
30" ℄ = 62.18 (E)

PROP TYP "C" MH #MH51
30" ℄ = 62.14 (N)
30" ℄ = 62.14 (W)

PROP TYP "C" MH #MH53
30" ℄ = 62.26 (E)
30" ℄ = 62.26 (W)

PROP TYP "C" MH #MH54
30" ℄ = 62.31 (W)
30" ℄ = 62.31 (E)

VERIFICATION OF PRIVATE UTILITY LINES

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CABLE COMPANY — DATE

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HRGreen
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11750 KATY FREEWAY
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HOUSTON, TX 77079
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JOHN R. HUML
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
VINDON DRIVE
STA 6+00 TO STA 11+00

SHEET 2 OF 3

WBS NO. M–430296–0017–3

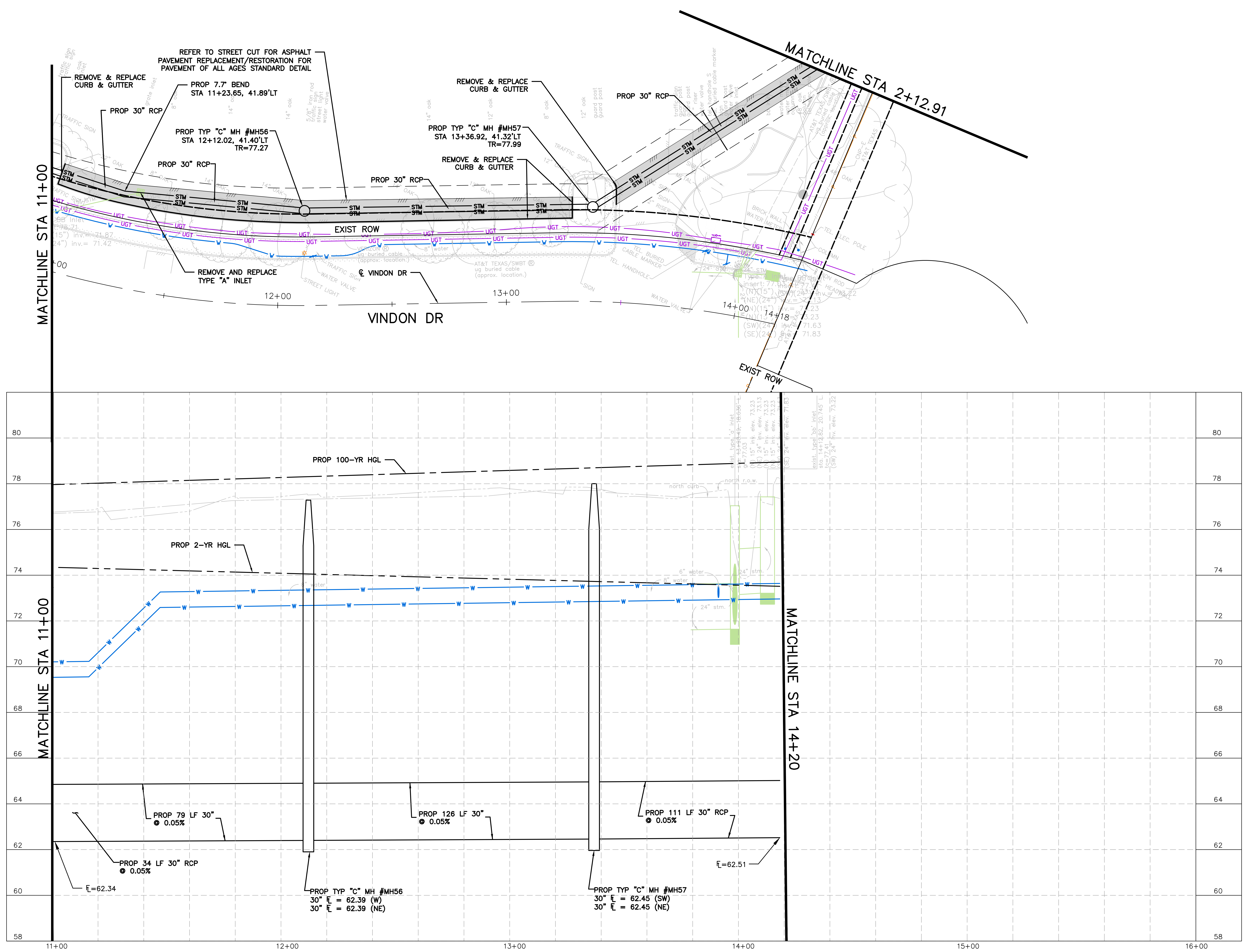
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 159 OF 345

No.	Date	Revisions	App

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\pp_drn_vindon_02.dwg Plotted August 5, 2026 at 2:37 PM by Huml, John


REFER TO STREET CUT FOR ASPHALT PAVEMENT REPLACEMENT/RESTORATION FOR PAVEMENT OF ALL AGES STANDARD DETAIL
REMOVE & REPLACE CURB & GUTTER
PROP 7.7' BEND STA 11+23.65, 41.89'LT
PROP 30" RCP
PROP TYP "C" MH #MH56 STA 12+12.02, 41.40'LT TR=77.27
PROP TYP "C" MH #MH57 STA 13+36.92, 41.32'LT TR=77.99
REMOVE AND REPLACE TYPE "A" INLET
EXIST ROW
℄ VINDON DR
VINDON DR
12+00
13+00
14+00
14+18
MATCHLINE STA 11+00
MATCHLINE STA 2+12.91
MATCHLINE STA 14+20
EXIST ROW
STM
UGT
PROP 100-YR HGL
PROP 2-YR HGL
PROP 79 LF 30" @ 0.05%
PROP 126 LF 30" @ 0.05%
PROP 111 LF 30" RCP @ 0.05%
PROP 34 LF 30" RCP @ 0.05%
℄=62.34
℄=62.51
PROP TYP "C" MH #MH56 30" ℄ = 62.39 (W) 30" ℄ = 62.39 (NE)
PROP TYP "C" MH #MH57 30" ℄ = 62.45 (SW) 30" ℄ = 62.45 (NE)
80
78
76
74
72
70
68
66
64
62
60
58
11+00
12+00
13+00
14+00
15+00
16+00
0 20 40
SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
☐	PROP INLET
○	PROP MANHOLE
🟩	EXIST INLET
●	EXIST MANHOLE
▨	PROP PAVEMENT REPLACEMENT

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
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VERIFICATION OF PRIVATE UTILITY LINES

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE PLAN & PROFILE
VINDON DRIVE
STA 11+00 TO END PROJECT

SHEET 3 OF 3

WBS NO. M–430296–0017–3

DRAWING SCALE

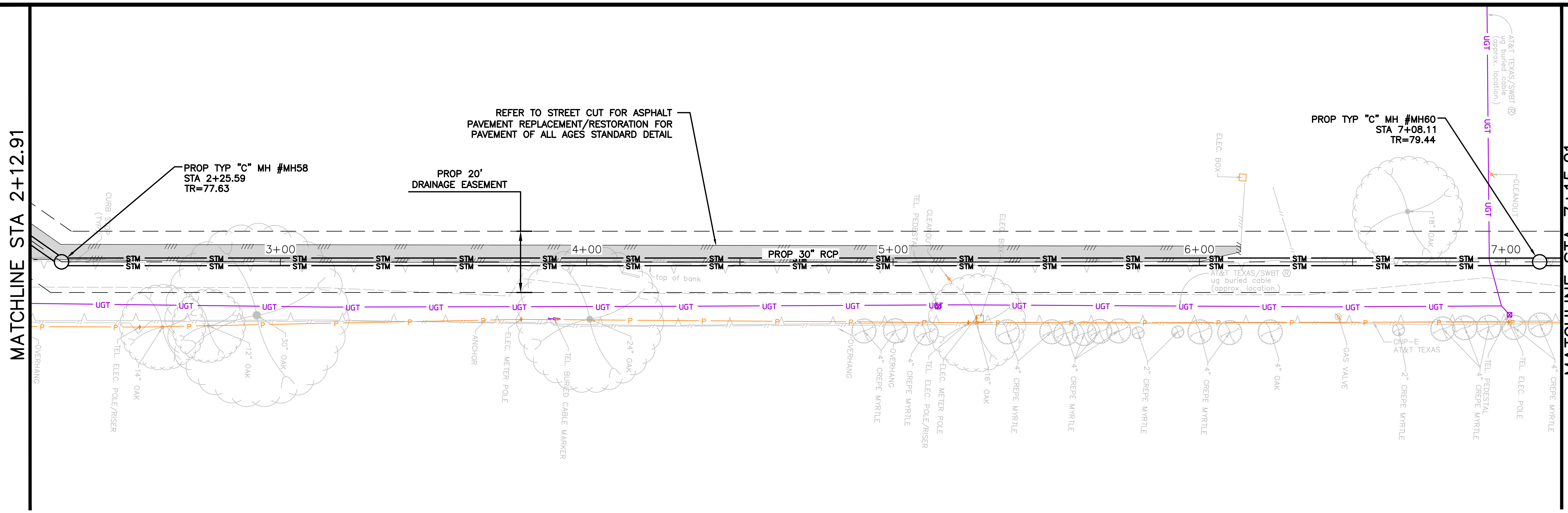
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

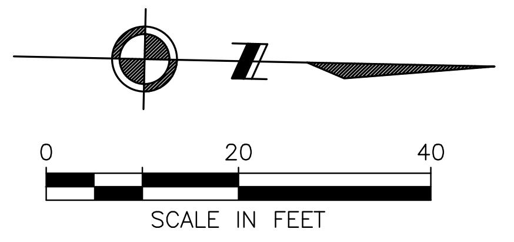
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 160 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\pp_drn_vindon_03.dwg Plotted August 5, 2026 at 2:37 PM by Huml, John j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\pp_drn_basin outfall_01.dwg Plotted July 27, 2026 at 12:40 PM by Wallace, Shawn


MATCHLINE STA 2+12.91
PROP TYP "C" MH #MH58
STA 2+25.59
TR=77.63
PROP 20' DRAINAGE EASEMENT
REFER TO STREET CUT FOR ASPHALT PAVEMENT REPLACEMENT/RESTORATION FOR PAVEMENT OF ALL AGES STANDARD DETAIL
PROP 30" RCP
PROP TYP "C" MH #MH60
STA 7+08.11
TR=79.44
MATCHLINE STA 7+15.21
3+00
4+00
5+00
6+00
7+00
STM
UGT
P
top of bank
AT&T TEXAS/SWBT ug buried cable (approx. location)
ELEC. BOX
CLEANOUT
TEL. PEDESTAL
TEL. ELEC. POLE/RISER
ELEC. METER POLE
TEL. BURIED CABLE MARKER
ANCHOR
OVERHANG
GAS VALVE
CMP-E AT&T TEXAS
TEL. ELEC. POLE
12" OAK
10" OAK
24" OAK
14" OAK
16" OAK
18" OAK
4" OAK
4" CREPE MYRTLE
2" CREPE MYRTLE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20
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SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
☐☐	PROP INLET
○	PROP MANHOLE
▨	EXIST INLET
●	EXIST MANHOLE
▨	PROP PAVEMENT REPLACEMENT

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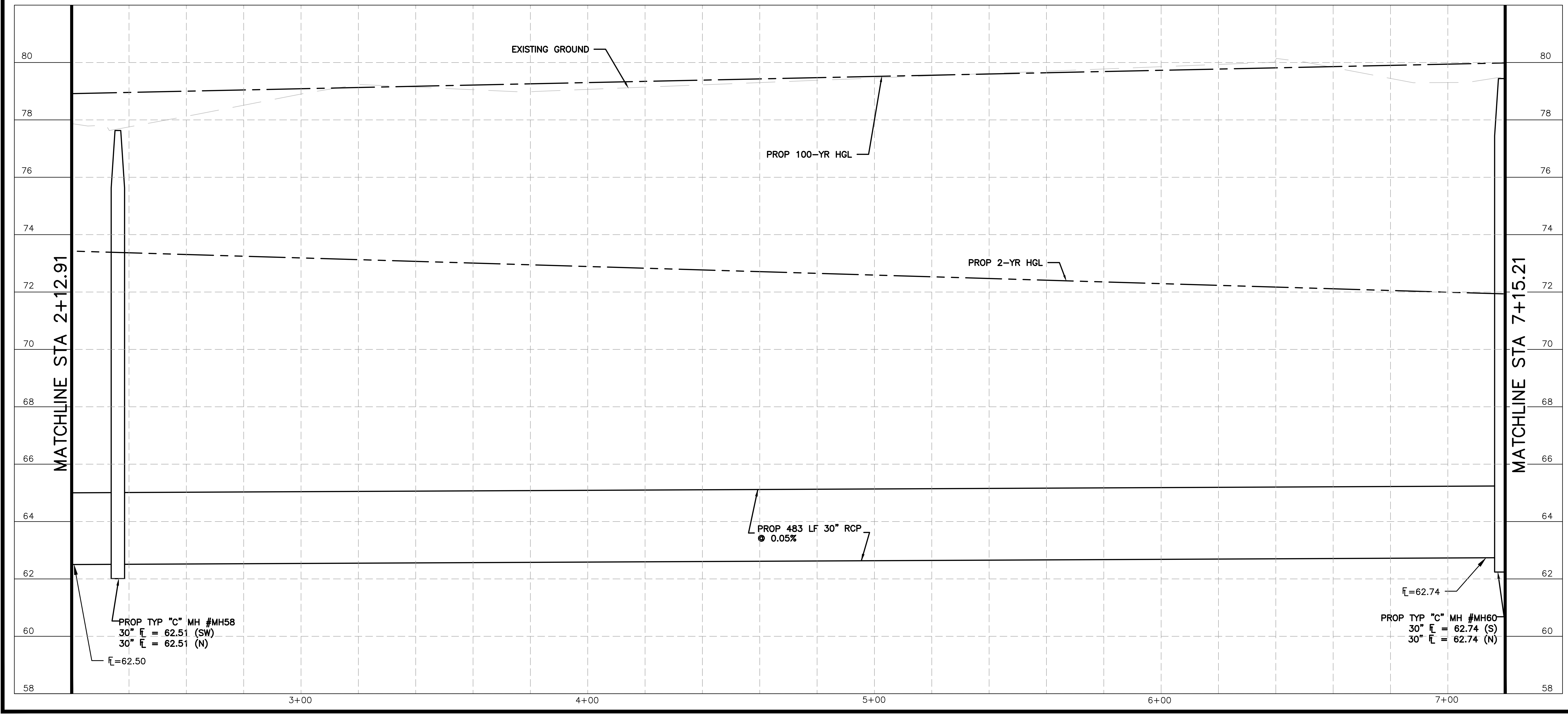
80
78
76
74
72
70
68
66
64
62
60
58
MATCHLINE STA 2+12.91
MATCHLINE STA 7+15.21
EXISTING GROUND
PROP 100-YR HGL
PROP 2-YR HGL
PROP 483 LF 30" RCP
@ 0.05%
PROP TYP "C" MH #MH58
30" FL = 62.51 (SW)
30" FL = 62.51 (N)
FL=62.50
FL=62.74
PROP TYP "C" MH #MH60
30" FL = 62.74 (S)
30" FL = 62.74 (N)
3+00
4+00
5+00
6+00
7+00

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
BASIN OUTFALL

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

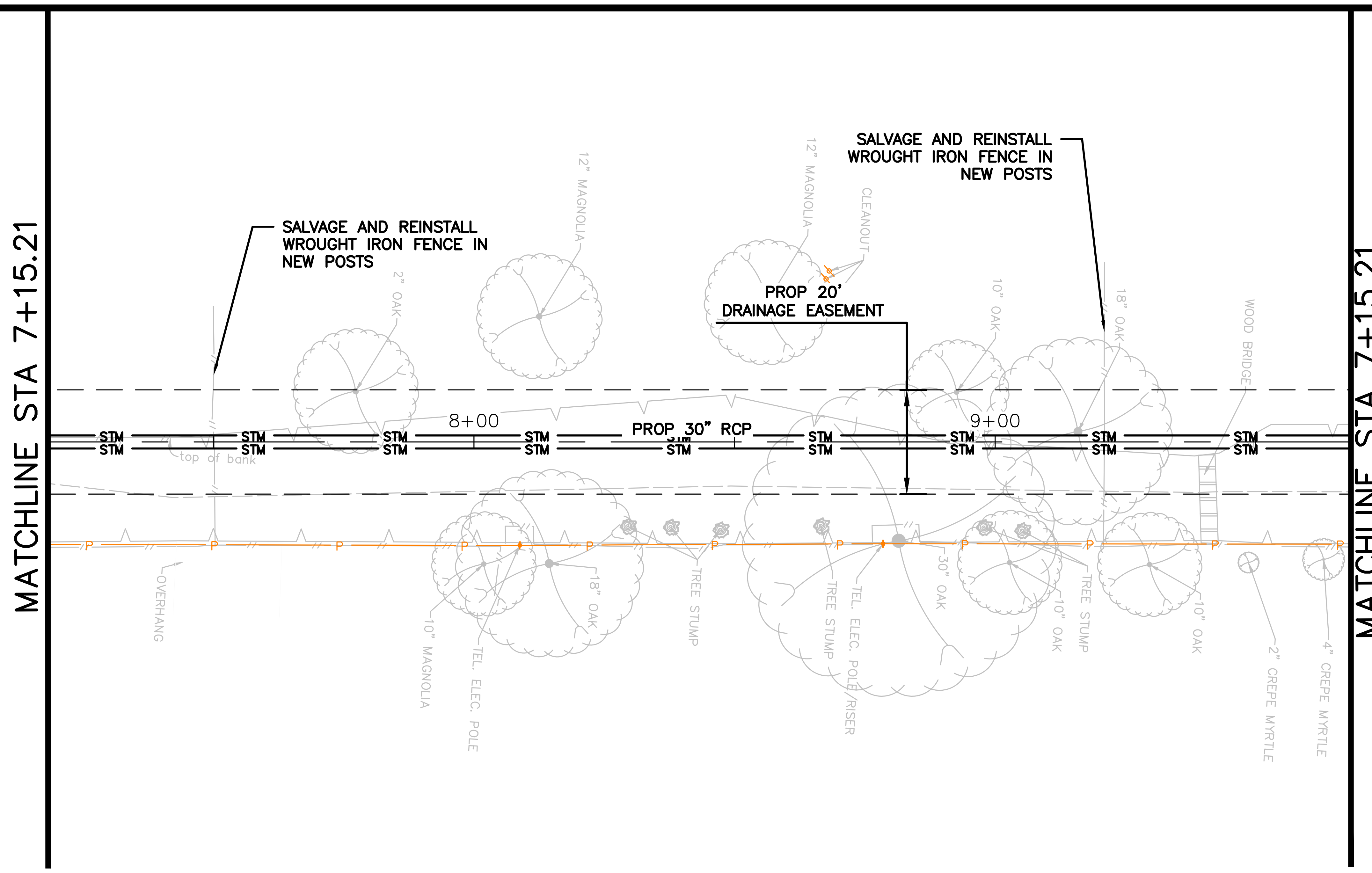
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

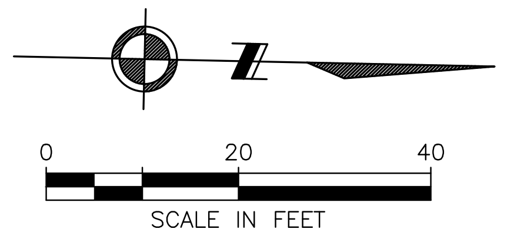
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 161 OF 345

No.	Date	Revisions	App.


SALVAGE AND REINSTALL WROUGHT IRON FENCE IN NEW POSTS
12" MAGNOLIA
2" OAK
12" MAGNOLIA
CLEANOUT
PROP 20' DRAINAGE EASEMENT
SALVAGE AND REINSTALL WROUGHT IRON FENCE IN NEW POSTS
10" OAK
18" OAK
WOOD BRIDGE
MATCHLINE STA 7+15.21
8+00
9+00
PROP 30" RCP
STM
top of bank
OVERHANG
10" MAGNOLIA
TEL. ELEC. POLE
18" OAK
TREE STUMP
TREE STUMP
TEL. ELEC. POLE/RISER
30" OAK
10" OAK
TREE STUMP
10" OAK
2" CREPE MYRTLE
4" CREPE MYRTLE
MATCHLINE STA 7+15.21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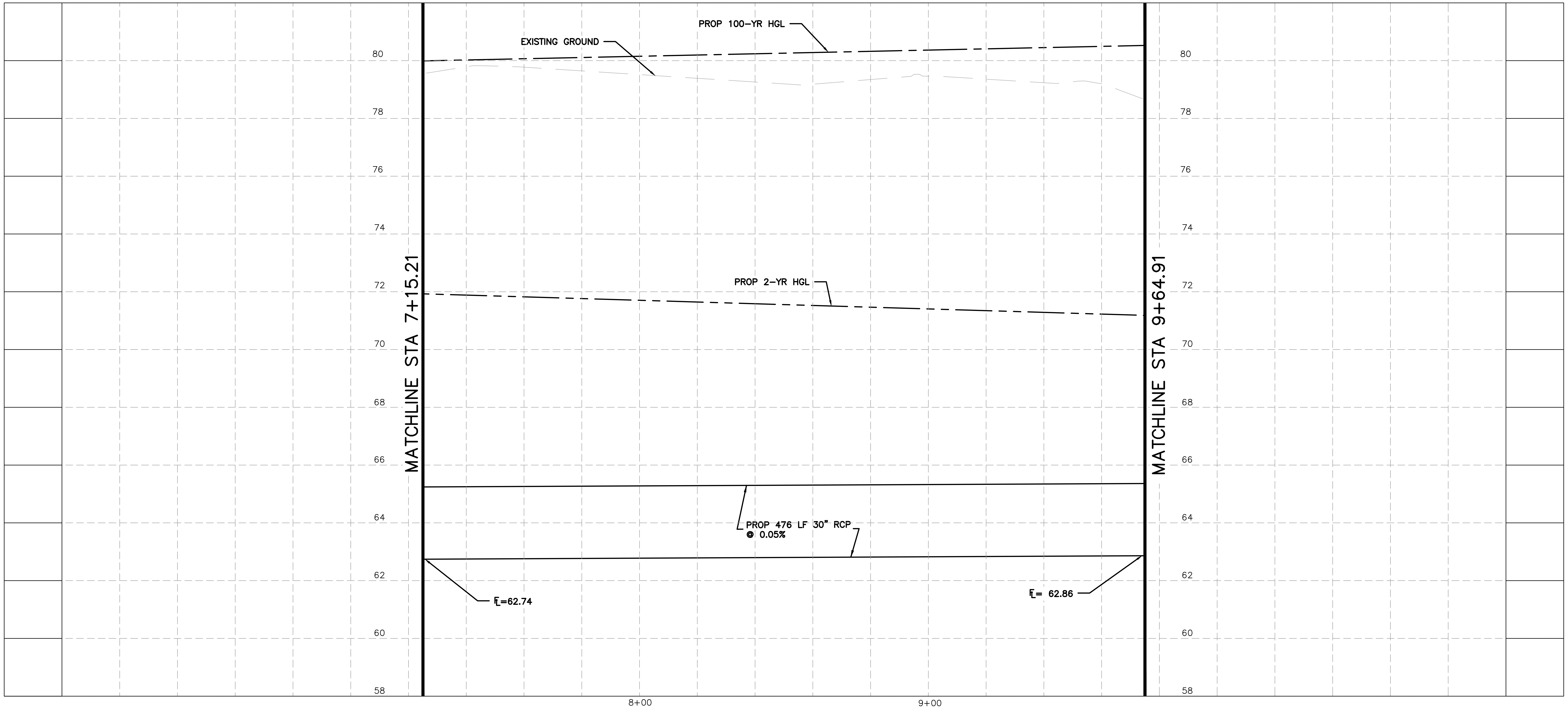
SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
☐ ☐	PROP INLET
○	PROP MANHOLE
🟩	EXIST INLET
●	EXIST MANHOLE

No.	Date	Revisions	App.


PROP 100-YR HGL
EXISTING GROUND
PROP 2-YR HGL
PROP 476 LF 30" RCP
@ 0.05%
FL=62.74
FL= 62.86
MATCHLINE STA 7+15.21
MATCHLINE STA 9+64.91
80
78
76
74
72
70
68
66
64
62
60
58
8+00
9+00

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

CABLE COMPANY — DATE

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
07/30/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
BASIN OUTFALL

SHEET 2 OF 3

WBS NO. M-430296-0017-3

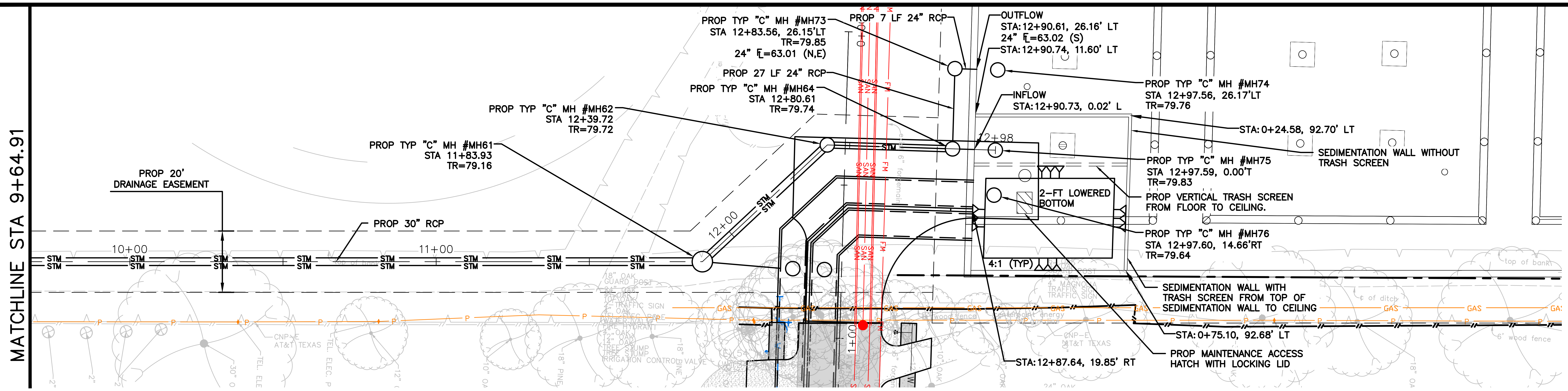
DRAWING SCALE

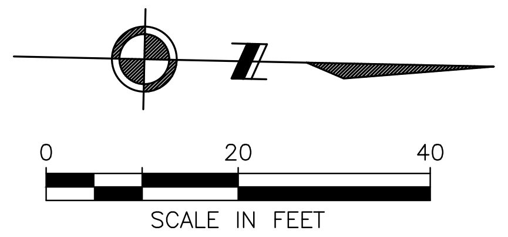
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\pp_drn_basin outfall_02.dwg Plotted July 27, 2026 at 12:38 PM by Wallace, Shawn

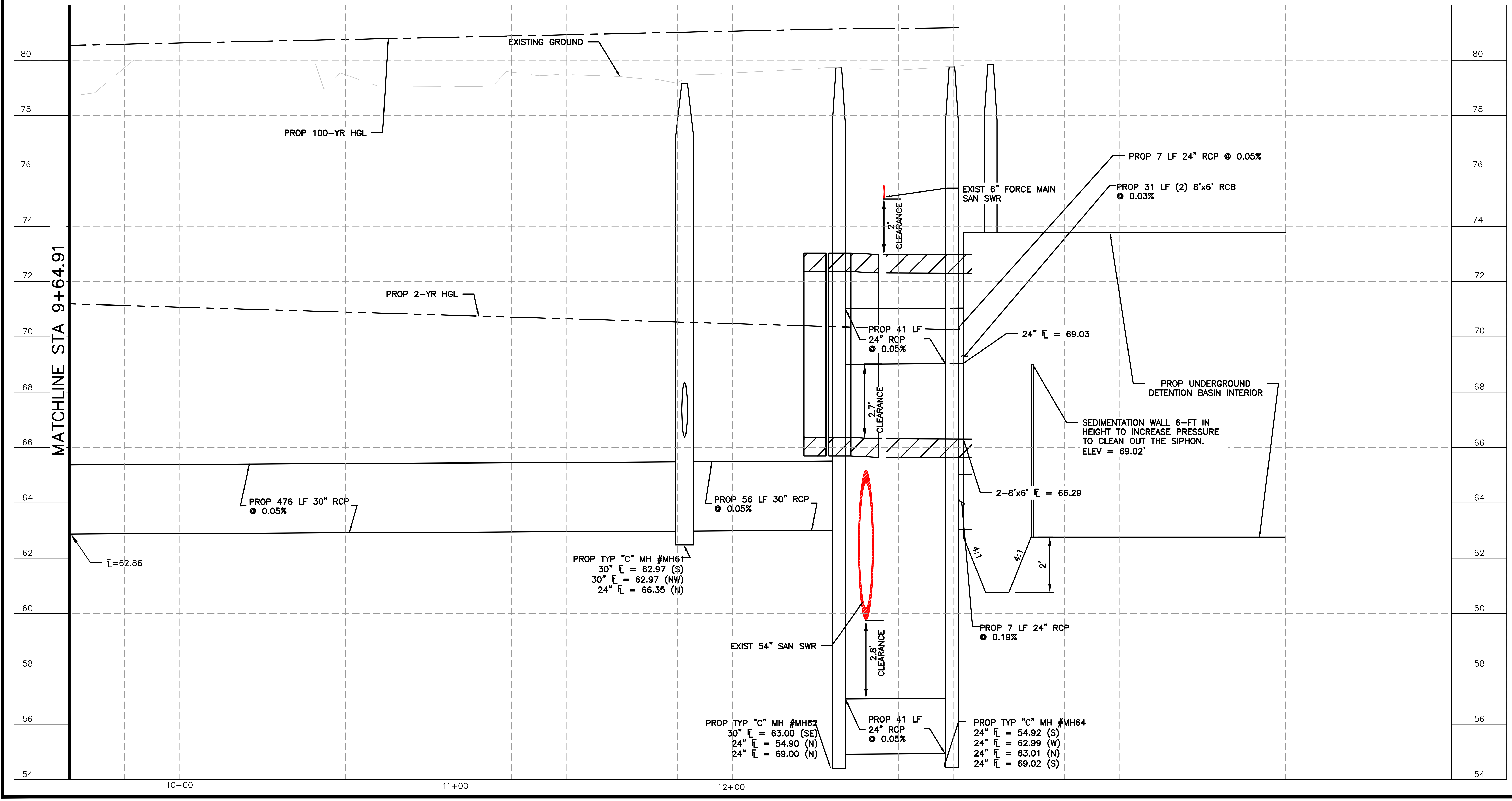

MATCHLINE STA 9+64.91
PROP 20' DRAINAGE EASEMENT
PROP 30" RCP
10+00
11+00
12+00
STM
PROP TYP "C" MH #MH61
STA 11+83.93
TR=79.16
PROP TYP "C" MH #MH62
STA 12+39.72
TR=79.72
PROP TYP "C" MH #MH73
STA 12+83.56, 26.15'LT
TR=79.85
24" FL=63.01 (N,E)
PROP 7 LF 24" RCP
PROP 27 LF 24" RCP
PROP TYP "C" MH #MH64
STA 12+80.61
TR=79.74
OUTFLOW
STA:12+90.61, 26.16' LT
24" FL=63.02 (S)
STA:12+90.74, 11.60' LT
INFLOW
STA:12+90.73, 0.02' L
12+98
PROP TYP "C" MH #MH74
STA 12+97.56, 26.17'LT
TR=79.76
STA:0+24.58, 92.70' LT
SEDIMENTATION WALL WITHOUT TRASH SCREEN
PROP TYP "C" MH #MH75
STA 12+97.59, 0.00'T
TR=79.83
2-FT LOWERED BOTTOM
PROP VERTICAL TRASH SCREEN FROM FLOOR TO CEILING.
PROP TYP "C" MH #MH76
STA 12+97.60, 14.66'RT
TR=79.64
4:1 (TYP)
SEDIMENTATION WALL WITH TRASH SCREEN FROM TOP OF SEDIMENTATION WALL TO CEILING
STA:0+75.10, 92.68' LT
PROP MAINTENANCE ACCESS HATCH WITH LOCKING LID
STA:12+87.64, 19.85' RT
SAN
FM
GAS
P
exist 6" forcemain
top of bank
¢ of ditch
6' wood fence
CNP-E
AT&T TEXAS
TRAFFIC SIGN


0
20
40
SCALE IN FEET

LEGEND

—	PROP STORM SEWER
—	PROP 6" CURB
—	EXIST STORM SEWER
☐ ☐ ▬	PROP INLET
○	PROP MANHOLE
▨	EXIST INLET
●	EXIST MANHOLE

No. | Date | Revisions | App.


MATCHLINE STA 9+64.91
80
78
76
74
72
70
68
66
64
62
60
58
56
54
EXISTING GROUND
PROP 100-YR HGL
PROP 2-YR HGL
PROP 7 LF 24" RCP @ 0.05%
EXIST 6" FORCE MAIN SAN SWR
PROP 31 LF (2) 8'x6' RCB @ 0.03%
2' CLEARANCE
PROP 41 LF 24" RCP @ 0.05%
24" FL = 69.03
PROP UNDERGROUND DETENTION BASIN INTERIOR
2.7' CLEARANCE
SEDIMENTATION WALL 6-FT IN HEIGHT TO INCREASE PRESSURE TO CLEAN OUT THE SIPHON.
ELEV = 69.02'
PROP 476 LF 30" RCP @ 0.05%
PROP 56 LF 30" RCP @ 0.05%
2-8'x6' FL = 66.29
FL=62.86
PROP TYP "C" MH #MH61
30" FL = 62.97 (S)
30" FL = 62.97 (NW)
24" FL = 66.35 (N)
4:1
4:1
2'
EXIST 54" SAN SWR
2.8' CLEARANCE
PROP 7 LF 24" RCP @ 0.19%
PROP TYP "C" MH #MH62
30" FL = 63.00 (SE)
24" FL = 54.90 (N)
24" FL = 69.00 (N)
PROP 41 LF 24" RCP @ 0.05%
PROP TYP "C" MH #MH64
24" FL = 54.92 (S)
24" FL = 62.99 (W)
24" FL = 63.01 (N)
24" FL = 69.02 (S)
10+00
11+00
12+00

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HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

JOHN R. HUML
140416
08/05/2026
HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
DRAINAGE PLAN & PROFILE
BASIN OUTFALL

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

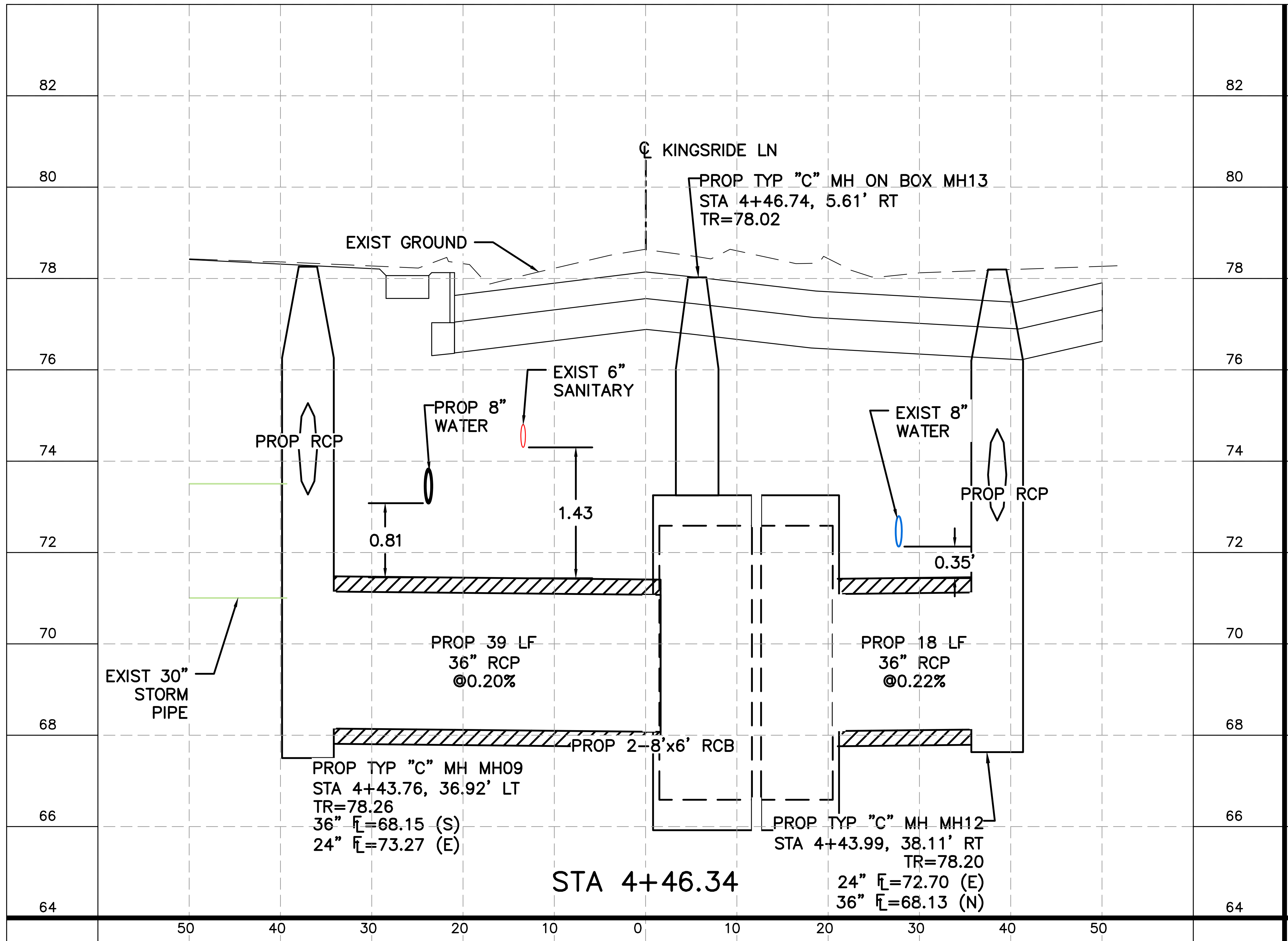
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

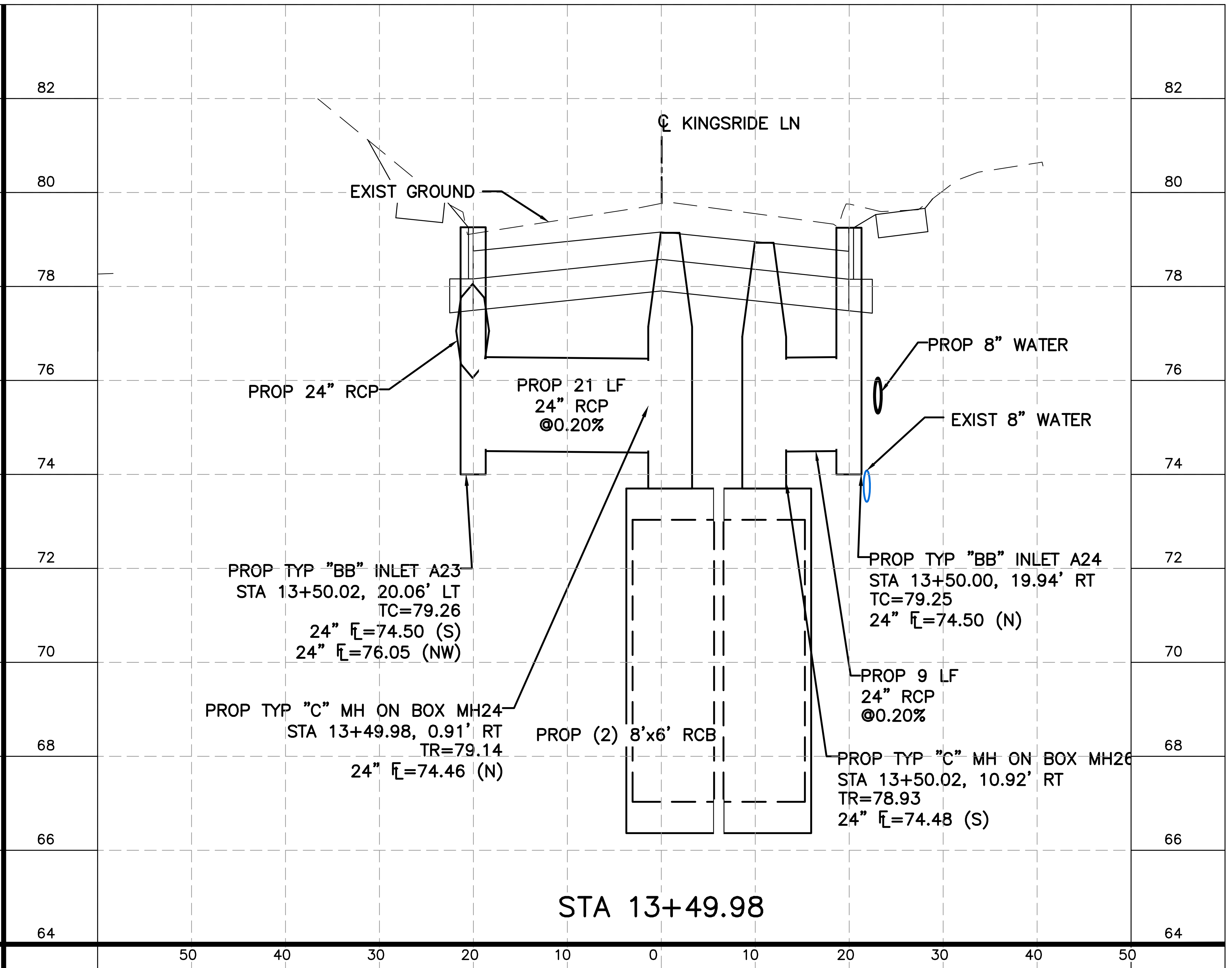
SHEET NO. 163 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\pp_dtn_basin outfall_03.dwg Plotted August 5, 2026 at 3:14 PM by Huml, John



℄ KINGSRIDE LN
PROP TYP "C" MH ON BOX MH13
STA 4+46.74, 5.61' RT
TR=78.02
EXIST GROUND
EXIST 6" SANITARY
PROP 8" WATER
PROP RCP
EXIST 8" WATER
PROP RCP
1.43
0.81
0.35'
PROP 39 LF
36" RCP
@0.20%
PROP 18 LF
36" RCP
@0.22%
EXIST 30" STORM PIPE
PROP 2-8'x6' RCB
PROP TYP "C" MH MH09
STA 4+43.76, 36.92' LT
TR=78.26
36" FL=68.15 (S)
24" FL=73.27 (E)
PROP TYP "C" MH MH12
STA 4+43.99, 38.11' RT
TR=78.20
24" FL=72.70 (E)
36" FL=68.13 (N)
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 4+46.34

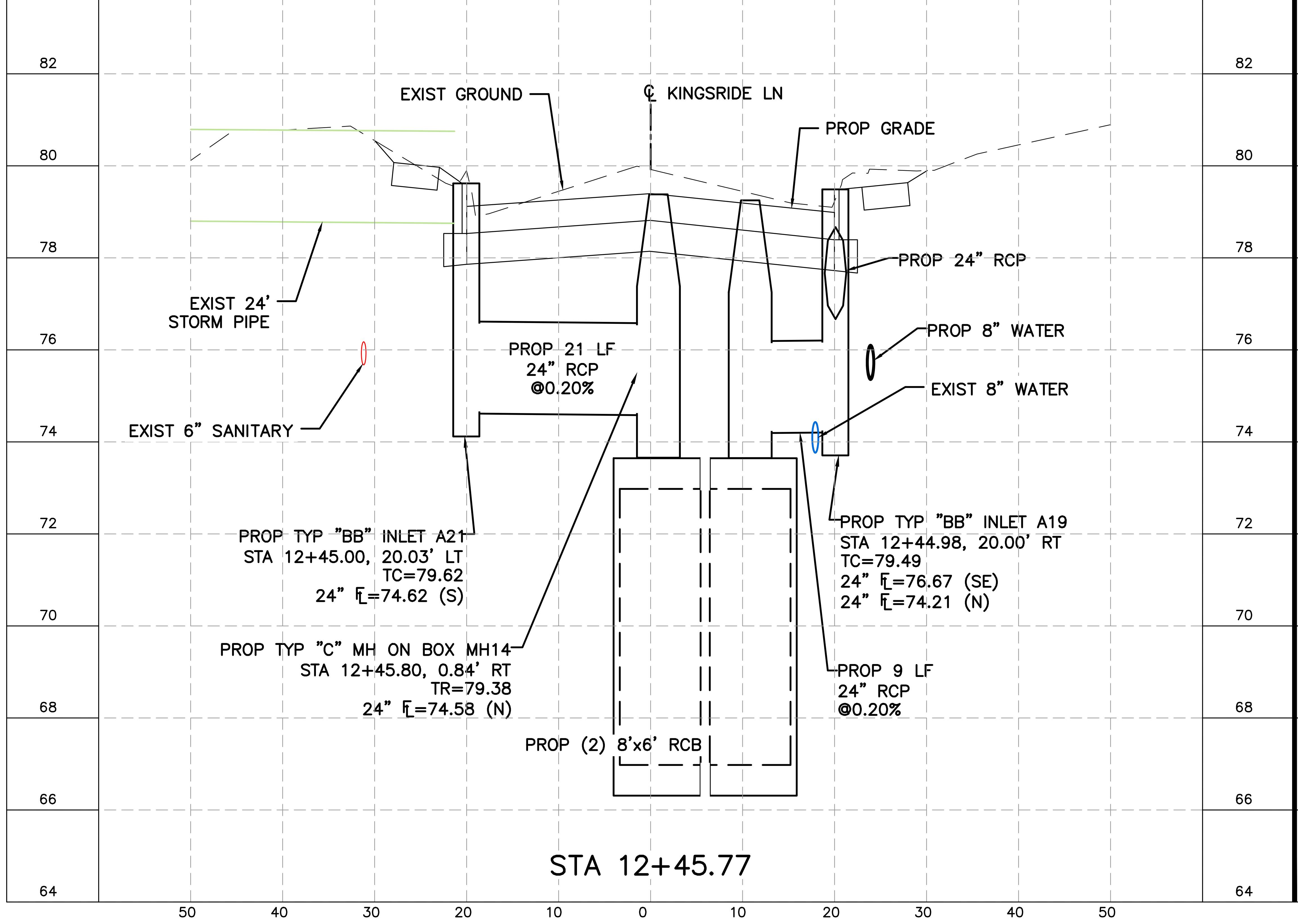


℄ KINGSRIDE LN
EXIST GROUND
PROP 24" RCP
PROP 21 LF
24" RCP
@0.20%
PROP 8" WATER
EXIST 8" WATER
PROP TYP "BB" INLET A23
STA 13+50.02, 20.06' LT
TC=79.26
24" FL=74.50 (S)
24" FL=76.05 (NW)
PROP TYP "BB" INLET A24
STA 13+50.00, 19.94' RT
TC=79.25
24" FL=74.50 (N)
PROP 9 LF
24" RCP
@0.20%
PROP TYP "C" MH ON BOX MH24
STA 13+49.98, 0.91' RT
TR=79.14
24" FL=74.46 (N)
PROP (2) 8'x6' RCB
PROP TYP "C" MH ON BOX MH26
STA 13+50.02, 10.92' RT
TR=78.93
24" FL=74.48 (S)
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 13+49.98

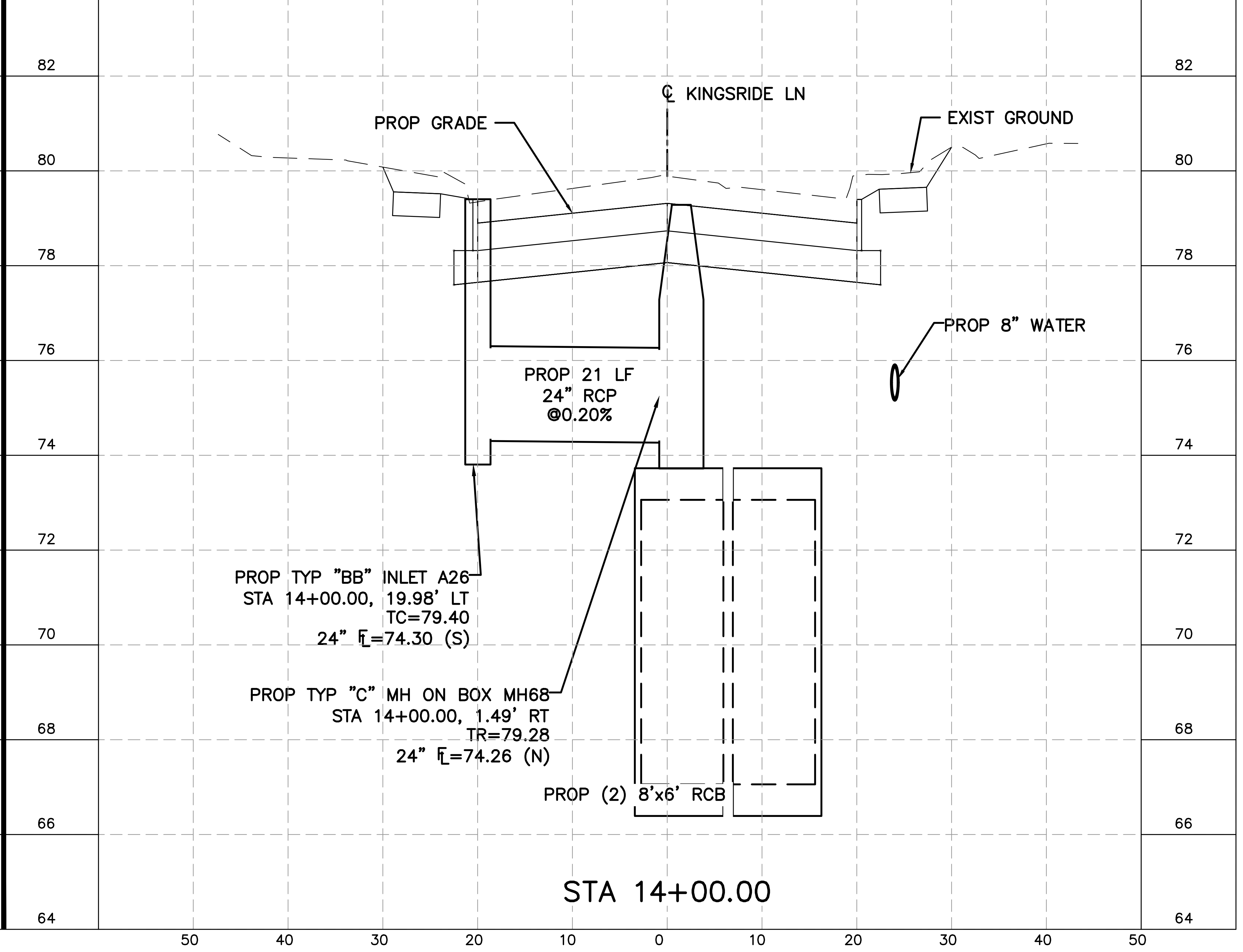
NOTES:

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.



EXIST GROUND
℄ KINGSRIDE LN
PROP GRADE
PROP 24" RCP
EXIST 24' STORM PIPE
PROP 21 LF
24" RCP
@0.20%
PROP 8" WATER
EXIST 8" WATER
EXIST 6" SANITARY
PROP TYP "BB" INLET A21
STA 12+45.00, 20.03' LT
TC=79.62
24" FL=74.62 (S)
PROP TYP "BB" INLET A19
STA 12+44.98, 20.00' RT
TC=79.49
24" FL=76.67 (SE)
24" FL=74.21 (N)
PROP TYP "C" MH ON BOX MH14
STA 12+45.80, 0.84' RT
TR=79.38
24" FL=74.58 (N)
PROP 9 LF
24" RCP
@0.20%
PROP (2) 8'x6' RCB
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 12+45.77



℄ KINGSRIDE LN
PROP GRADE
EXIST GROUND
PROP 8" WATER
PROP 21 LF
24" RCP
@0.20%
PROP TYP "BB" INLET A26
STA 14+00.00, 19.98' LT
TC=79.40
24" FL=74.30 (S)
PROP TYP "C" MH ON BOX MH68
STA 14+00.00, 1.49' RT
TR=79.28
24" FL=74.26 (N)
PROP (2) 8'x6' RCB
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 14+00.00

HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
STORM SEWER LATERALS

SHEET 1 OF 4

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=2' (FULL)

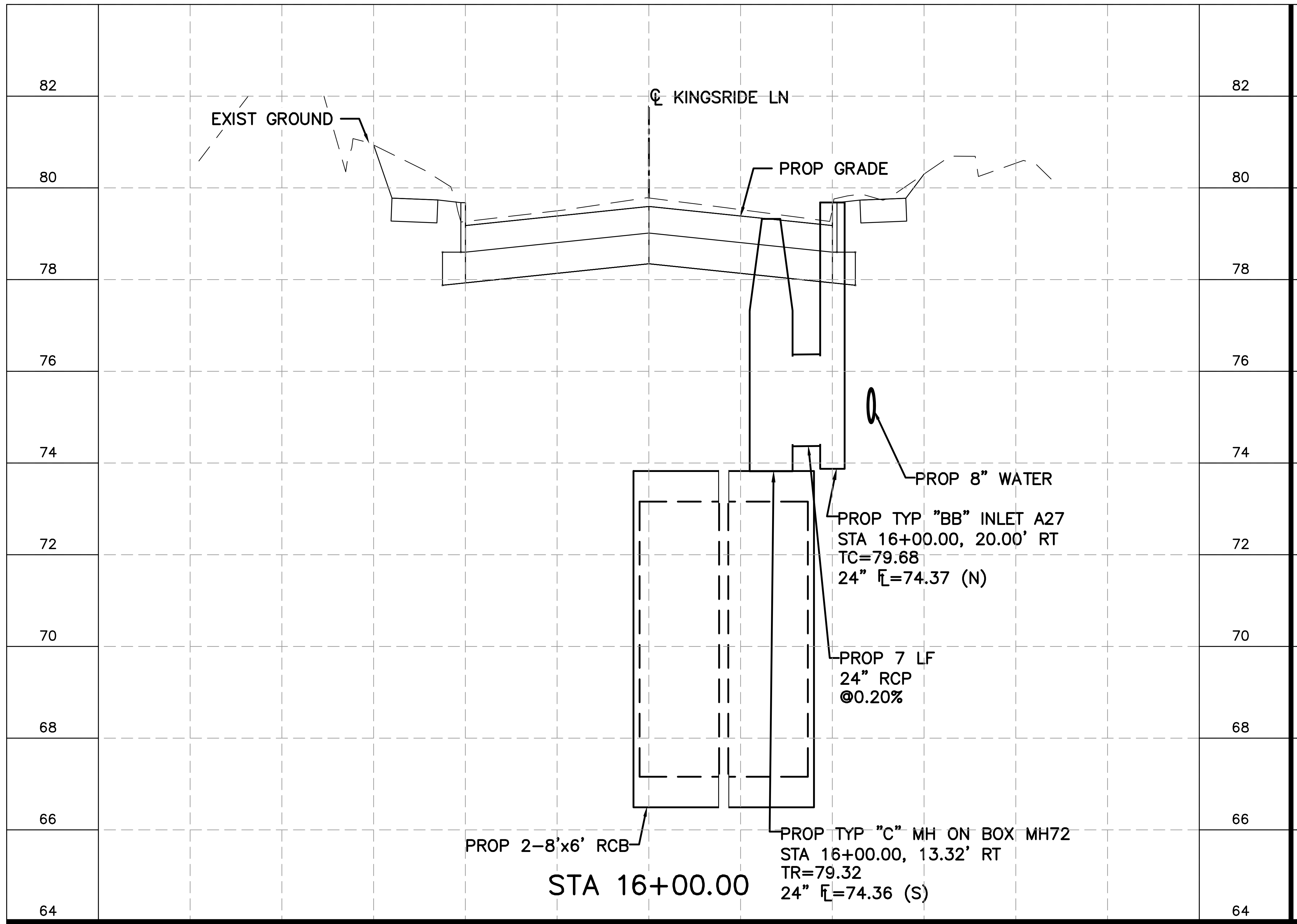
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 164 OF 345

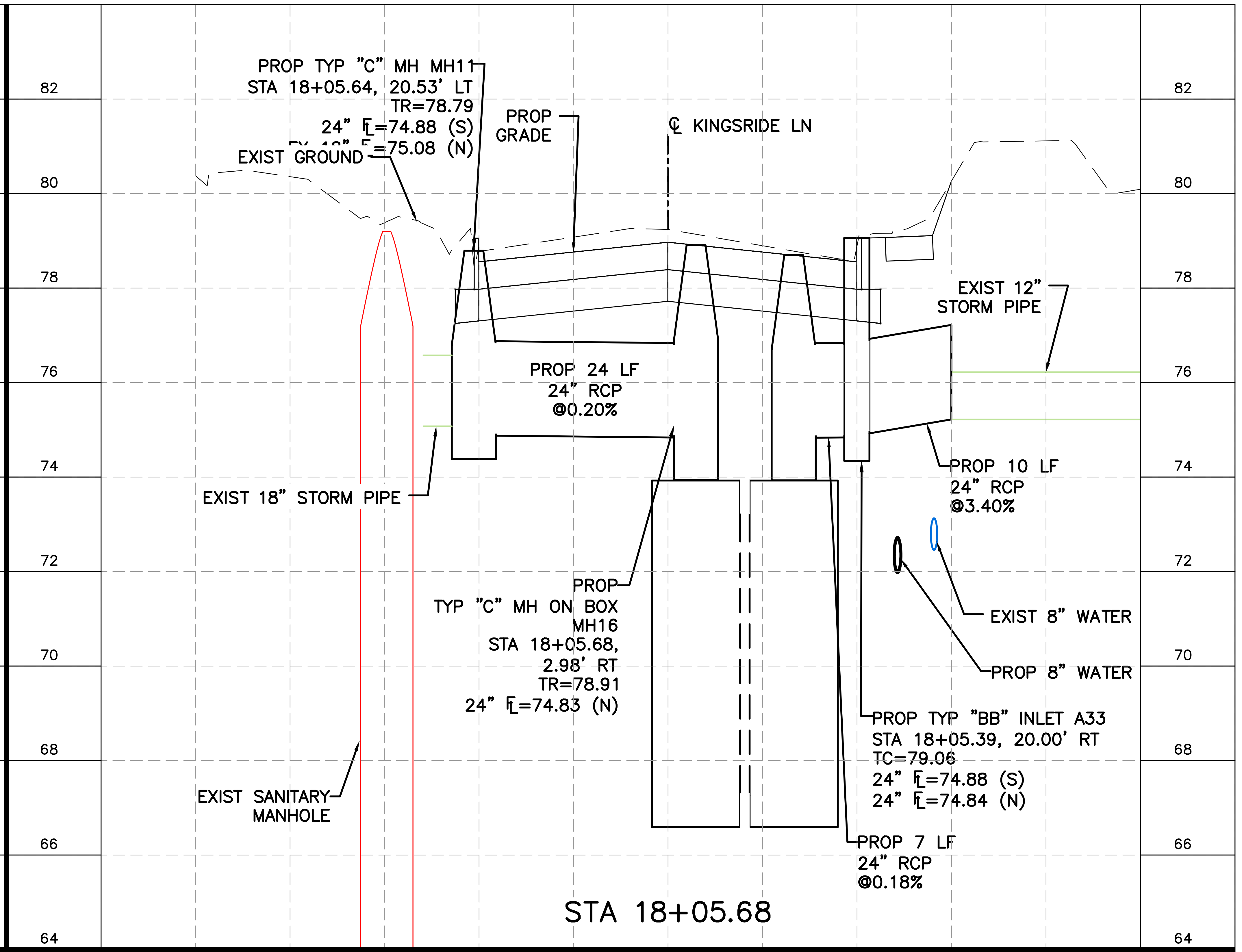
No. Date Revisions App.

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\d_drainage_storm_laterals_kingsride_01.dwg Plotted April 15, 2026 at 6:19 PM by Gowali, Ajinkya Ashok



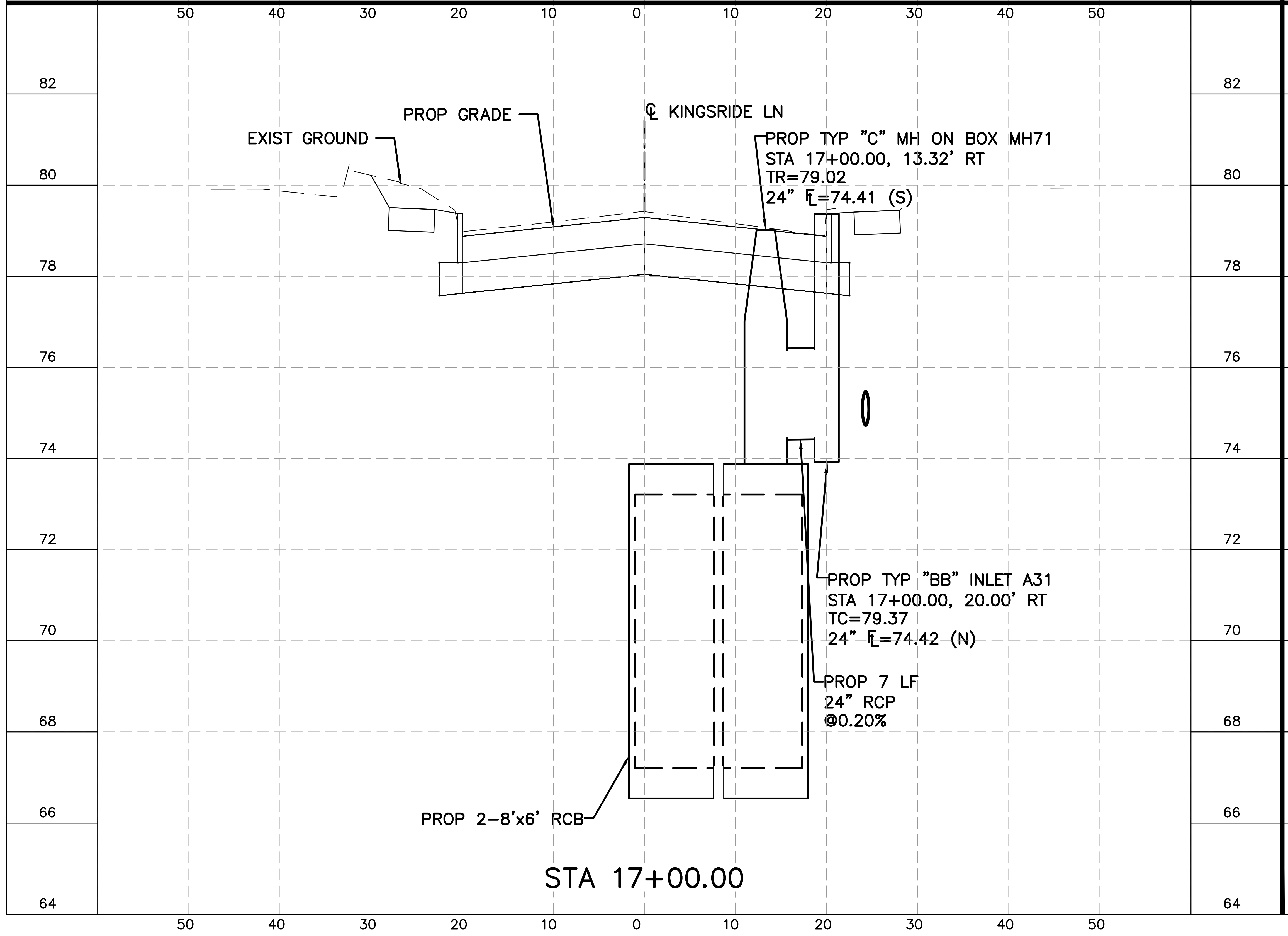
EXIST GROUND
℄ KINGSRIDE LN
PROP GRADE
PROP 8" WATER
PROP TYP "BB" INLET A27
STA 16+00.00, 20.00' RT
TC=79.68
24" FL=74.37 (N)
PROP 7 LF
24" RCP
@0.20%
PROP 2-8'x6' RCB
PROP TYP "C" MH ON BOX MH72
STA 16+00.00, 13.32' RT
TR=79.32
24" FL=74.36 (S)
82
80
78
76
74
72
70
68
66
64

STA 16+00.00



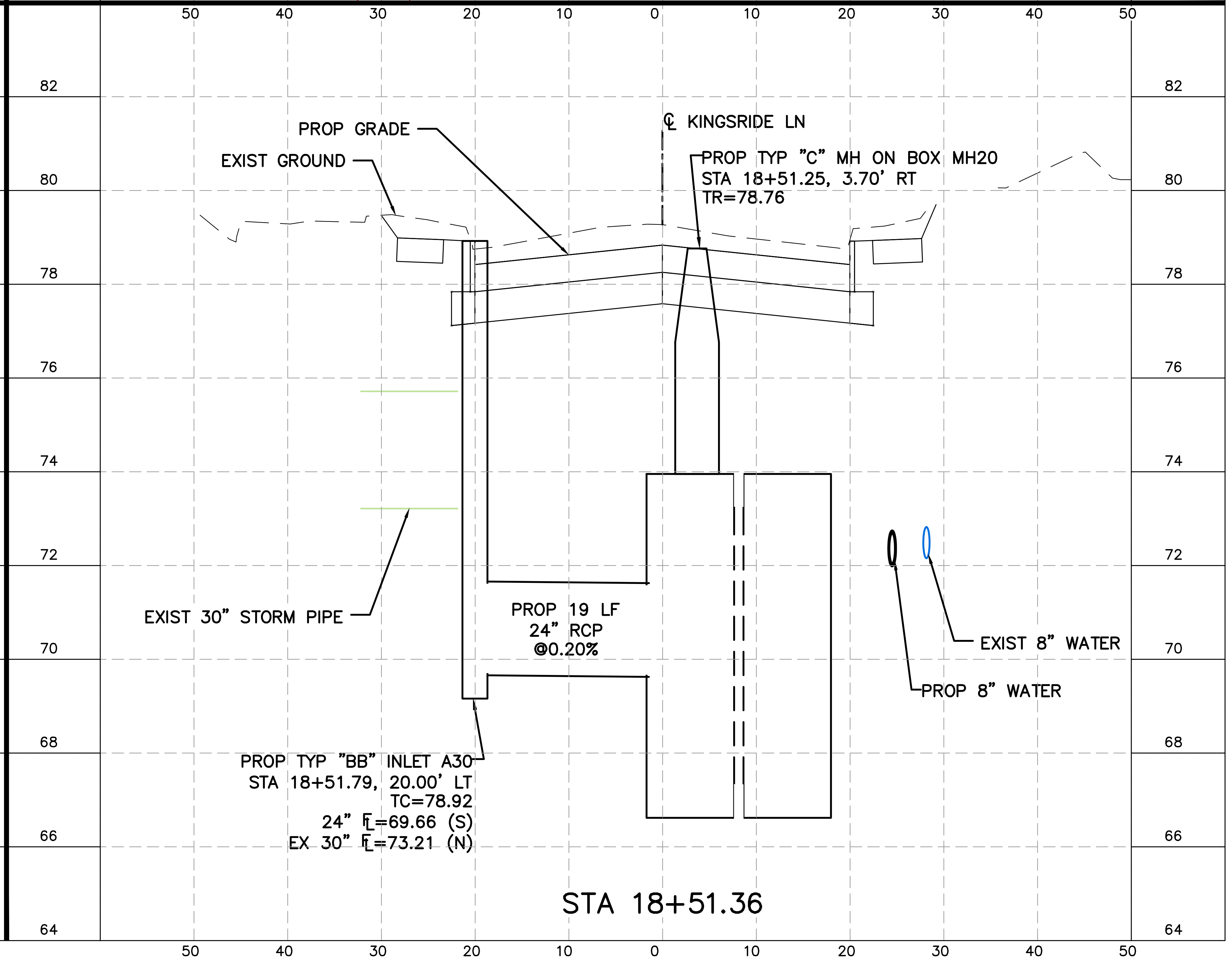
PROP TYP "C" MH MH11
STA 18+05.64, 20.53' LT
TR=78.79
24" FL=74.88 (S)
EX 18" FL=75.08 (N)
EXIST GROUND
PROP GRADE
℄ KINGSRIDE LN
EXIST 12" STORM PIPE
PROP 24 LF
24" RCP
@0.20%
PROP 10 LF
24" RCP
@3.40%
EXIST 18" STORM PIPE
PROP TYP "C" MH ON BOX MH16
STA 18+05.68, 2.98' RT
TR=78.91
24" FL=74.83 (N)
EXIST 8" WATER
PROP 8" WATER
PROP TYP "BB" INLET A33
STA 18+05.39, 20.00' RT
TC=79.06
24" FL=74.88 (S)
24" FL=74.84 (N)
EXIST SANITARY MANHOLE
PROP 7 LF
24" RCP
@0.18%
82
80
78
76
74
72
70
68
66
64

STA 18+05.68



50 40 30 20 10 0 10 20 30 40 50
PROP GRADE
EXIST GROUND
℄ KINGSRIDE LN
PROP TYP "C" MH ON BOX MH71
STA 17+00.00, 13.32' RT
TR=79.02
24" FL=74.41 (S)
PROP TYP "BB" INLET A31
STA 17+00.00, 20.00' RT
TC=79.37
24" FL=74.42 (N)
PROP 7 LF
24" RCP
@0.20%
PROP 2-8'x6' RCB
82
80
78
76
74
72
70
68
66
64
50 40 30 20 10 0 10 20 30 40 50

STA 17+00.00



50 40 30 20 10 0 10 20 30 40 50
PROP GRADE
EXIST GROUND
℄ KINGSRIDE LN
PROP TYP "C" MH ON BOX MH20
STA 18+51.25, 3.70' RT
TR=78.76
EXIST 30" STORM PIPE
PROP 19 LF
24" RCP
@0.20%
EXIST 8" WATER
PROP 8" WATER
PROP TYP "BB" INLET A30
STA 18+51.79, 20.00' LT
TC=78.92
24" FL=69.66 (S)
EX 30" FL=73.21 (N)
82
80
78
76
74
72
70
68
66
64
50 40 30 20 10 0 10 20 30 40 50

STA 18+51.36

NOTES:

1. SEE STORM SEWER COMPUTATIONS FOR MORE INFORMATION.
2. SEE DRAINAGE MISC SEWER DETAILS FOR PIPE COLLAR, PIPE JUNCTION AND BENDING DETAILS.
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HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
STORM SEWER LATERALS

SHEET 2 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=2' (FULL)

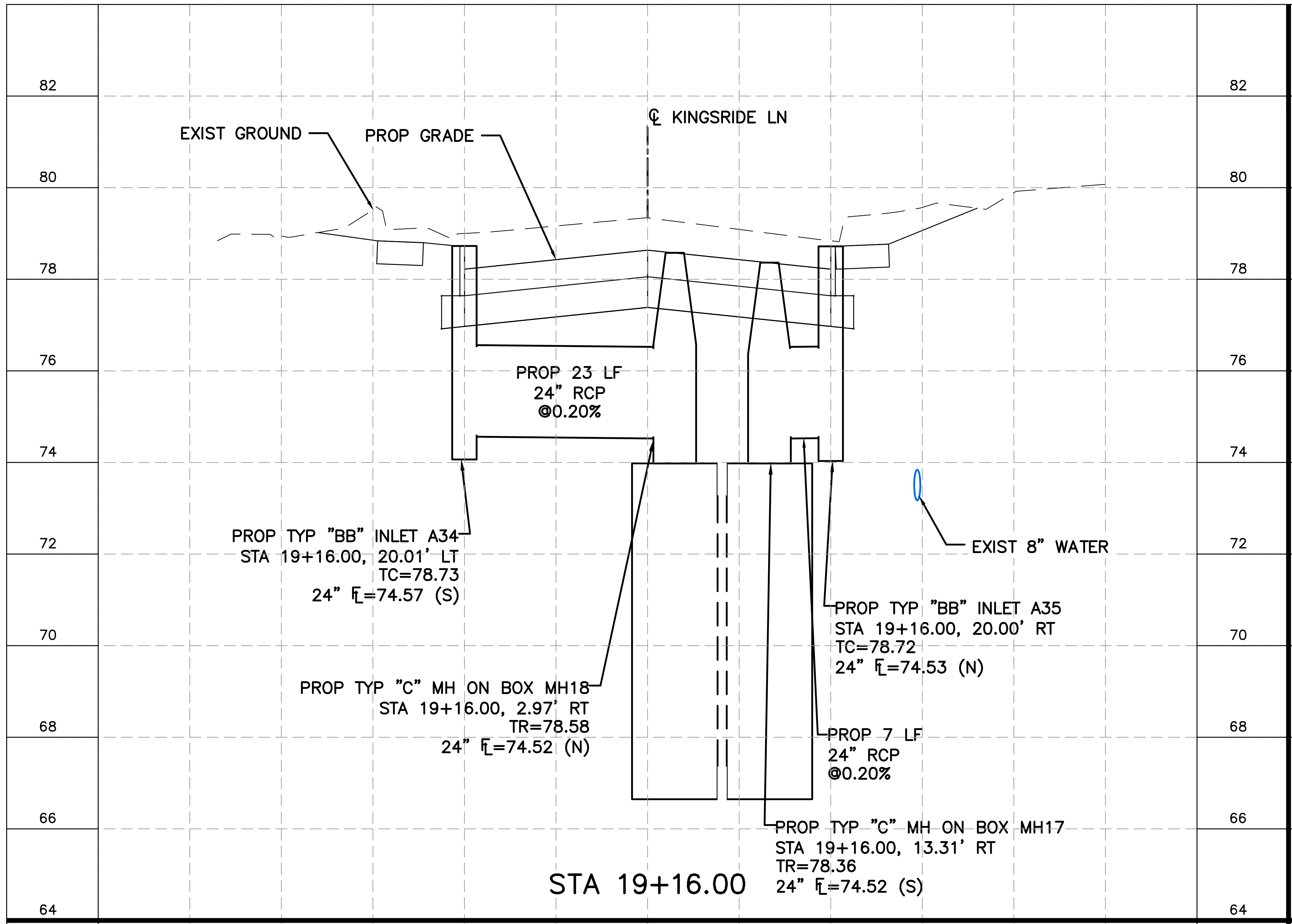
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

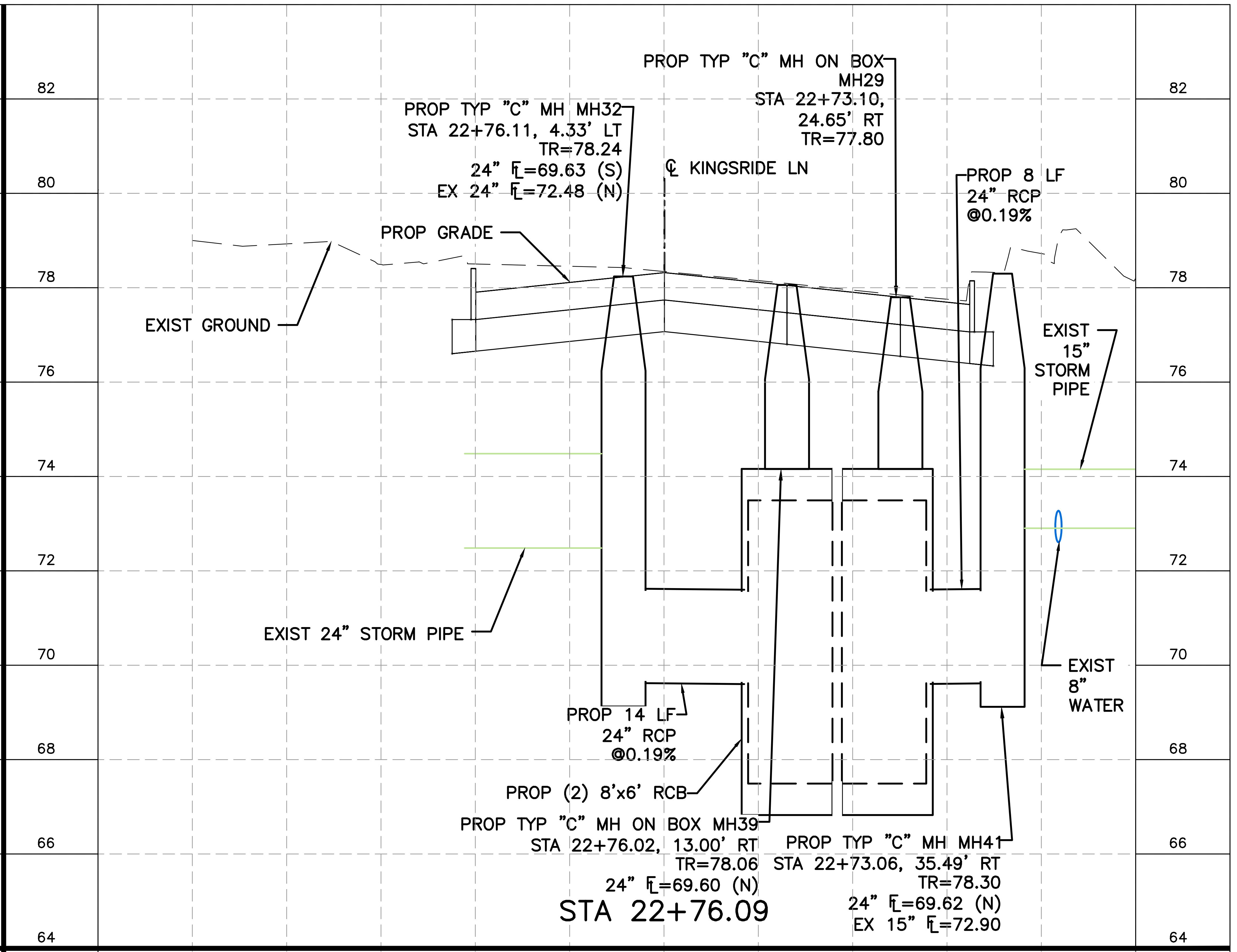
SHEET NO. 165 OF 345

No.	Date	Revisions	App.

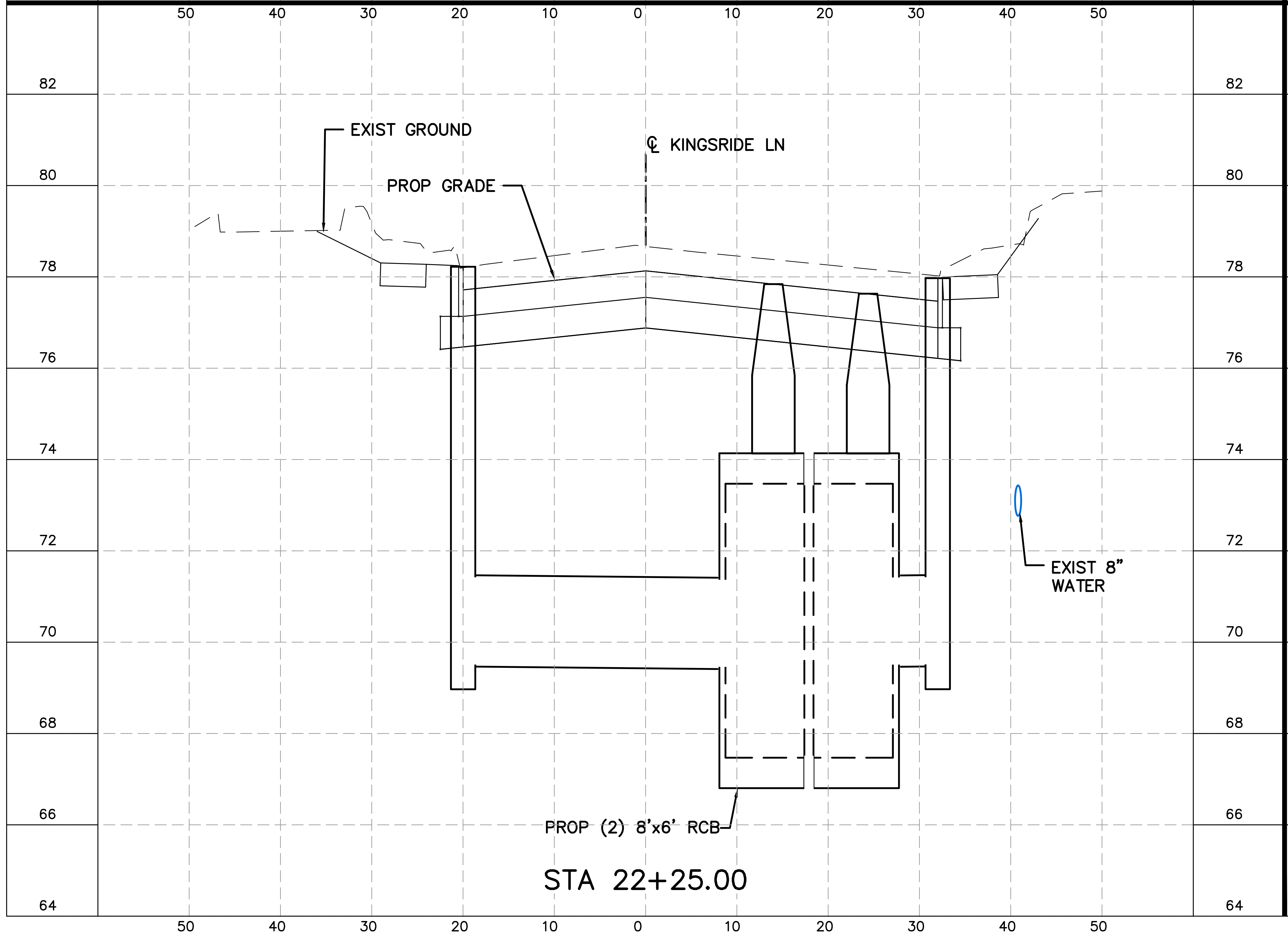
j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\d_drainage_storm_laterals_kingsride_02.dwg Plotted April 15, 2026 at 6:15 PM by Gawali, Ajinkya Ashok


EXIST GROUND
PROP GRADE
℄ KINGSRIDE LN
PROP 23 LF
24" RCP
@0.20%
EXIST 8" WATER
PROP TYP "BB" INLET A34
STA 19+16.00, 20.01' LT
TC=78.73
24" FL=74.57 (S)
PROP TYP "BB" INLET A35
STA 19+16.00, 20.00' RT
TC=78.72
24" FL=74.53 (N)
PROP TYP "C" MH ON BOX MH18
STA 19+16.00, 2.97' RT
TR=78.58
24" FL=74.52 (N)
PROP 7 LF
24" RCP
@0.20%
PROP TYP "C" MH ON BOX MH17
STA 19+16.00, 13.31' RT
TR=78.36
24" FL=74.52 (S)
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 19+16.00


PROP TYP "C" MH ON BOX
MH29
STA 22+73.10,
24.65' RT
TR=77.80
PROP TYP "C" MH MH32
STA 22+76.11, 4.33' LT
TR=78.24
24" FL=69.63 (S)
EX 24" FL=72.48 (N)
℄ KINGSRIDE LN
PROP 8 LF
24" RCP
@0.19%
PROP GRADE
EXIST GROUND
EXIST
15"
STORM
PIPE
EXIST 24" STORM PIPE
EXIST
8"
WATER
PROP 14 LF
24" RCP
@0.19%
PROP (2) 8'x6' RCB
PROP TYP "C" MH ON BOX MH39
STA 22+76.02, 13.00' RT
TR=78.06
24" FL=69.60 (N)
PROP TYP "C" MH MH41
STA 22+73.06, 35.49' RT
TR=78.30
24" FL=69.62 (N)
EX 15" FL=72.90
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 22+76.09


EXIST GROUND
PROP GRADE
℄ KINGSRIDE LN
EXIST 8"
WATER
PROP (2) 8'x6' RCB
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 22+25.00

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.

HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
STORM SEWER LATERALS

SHEET 3 OF 4

WBS NO. M-430296-0017-3

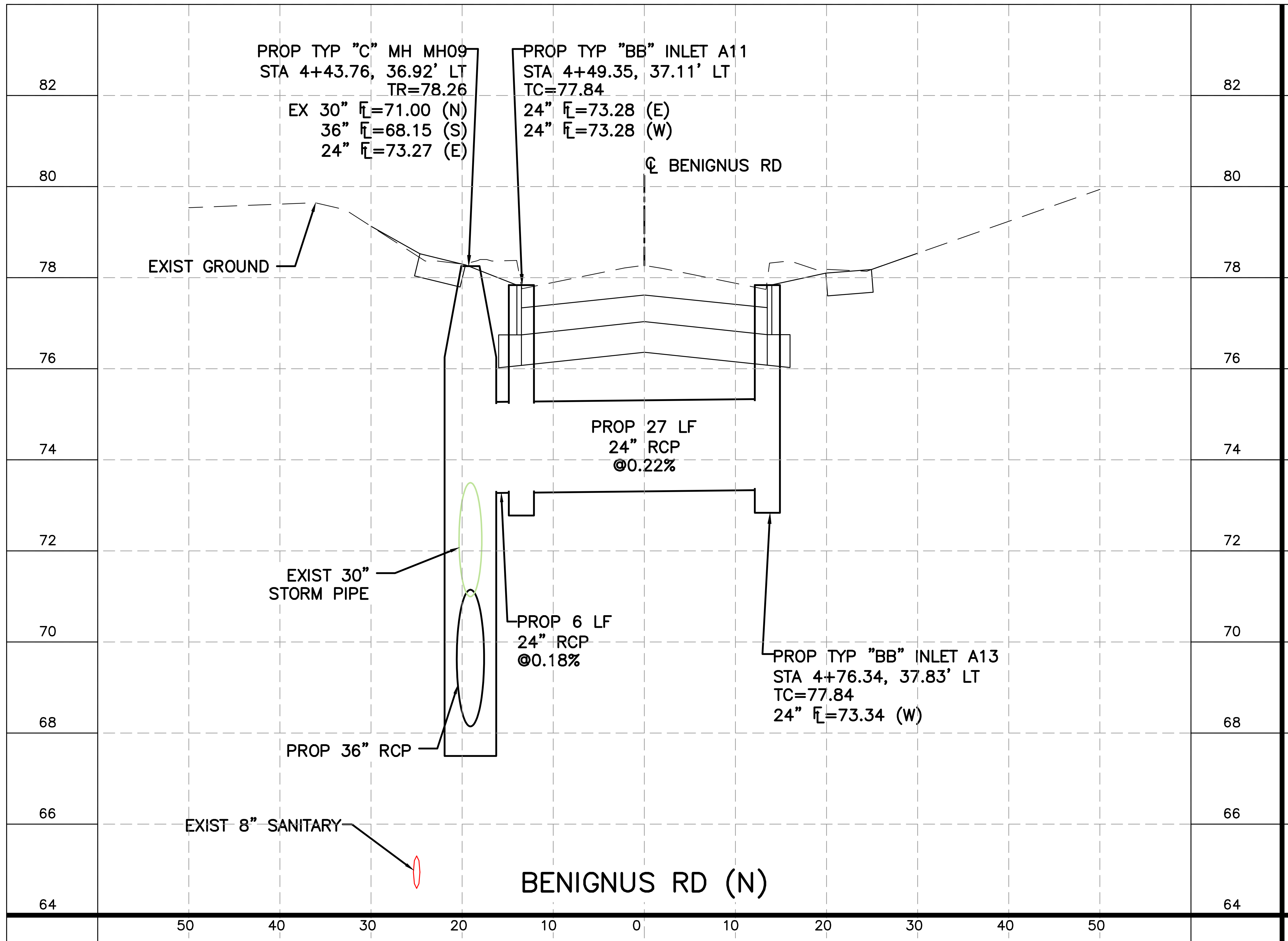
DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=2' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

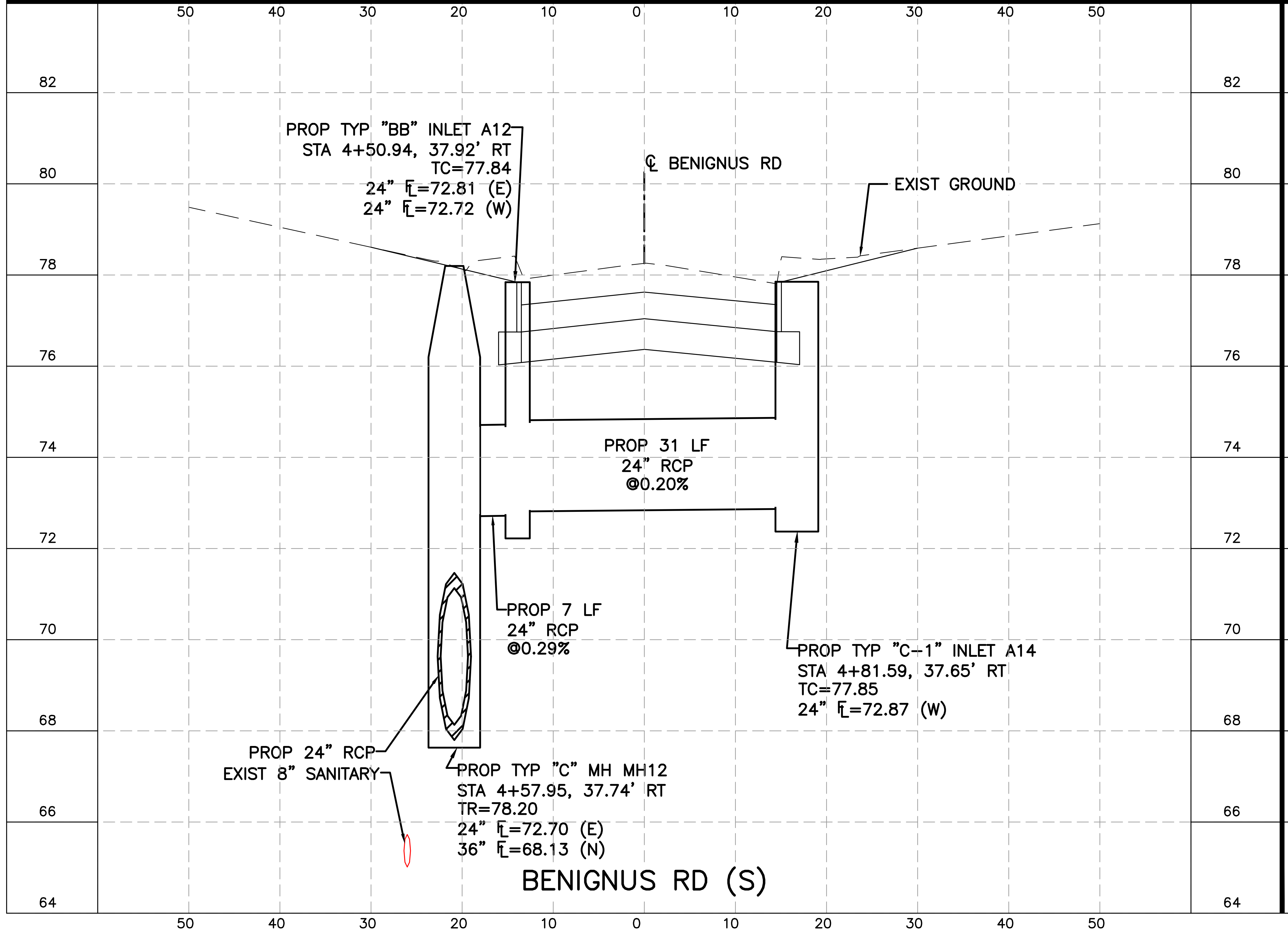
SHEET NO. 166 OF 345

Revisions
Date
No.
App.

j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\d_drainage_storm_laterals_kingsride_03.dwg Plotted April 15, 2026 at 6:09 PM by Gowali, Ajinkya Ashok


82
80
78
76
74
72
70
68
66
64
PROP TYP "C" MH MH09
STA 4+43.76, 36.92' LT
TR=78.26
EX 30" FL=71.00 (N)
36" FL=68.15 (S)
24" FL=73.27 (E)
PROP TYP "BB" INLET A11
STA 4+49.35, 37.11' LT
TC=77.84
24" FL=73.28 (E)
24" FL=73.28 (W)
℄ BENIGNUS RD
EXIST GROUND
PROP 27 LF
24" RCP
@0.22%
EXIST 30"
STORM PIPE
PROP 6 LF
24" RCP
@0.18%
PROP TYP "BB" INLET A13
STA 4+76.34, 37.83' LT
TC=77.84
24" FL=73.34 (W)
PROP 36" RCP
EXIST 8" SANITARY
50 40 30 20 10 0 10 20 30 40 50

BENIGNUS RD (N)


82
80
78
76
74
72
70
68
66
64
PROP TYP "BB" INLET A12
STA 4+50.94, 37.92' RT
TC=77.84
24" FL=72.81 (E)
24" FL=72.72 (W)
℄ BENIGNUS RD
EXIST GROUND
PROP 31 LF
24" RCP
@0.20%
PROP 7 LF
24" RCP
@0.29%
PROP TYP "C-1" INLET A14
STA 4+81.59, 37.65' RT
TC=77.85
24" FL=72.87 (W)
PROP 24" RCP
EXIST 8" SANITARY
PROP TYP "C" MH MH12
STA 4+57.95, 37.74' RT
TR=78.20
24" FL=72.70 (E)
36" FL=68.13 (N)
50 40 30 20 10 0 10 20 30 40 50

BENIGNUS RD (S)

NOTES:

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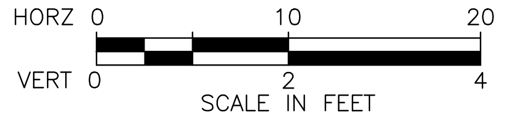
No.	Date	Revisions	App.


HORZ 0
10
20
VERT 0
2
4
SCALE IN FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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HOUSTON, TX 77079
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4/15/2026
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
STORM SEWER LATERALS

SHEET 4 OF 4

WBS NO. M-430296-0017-3

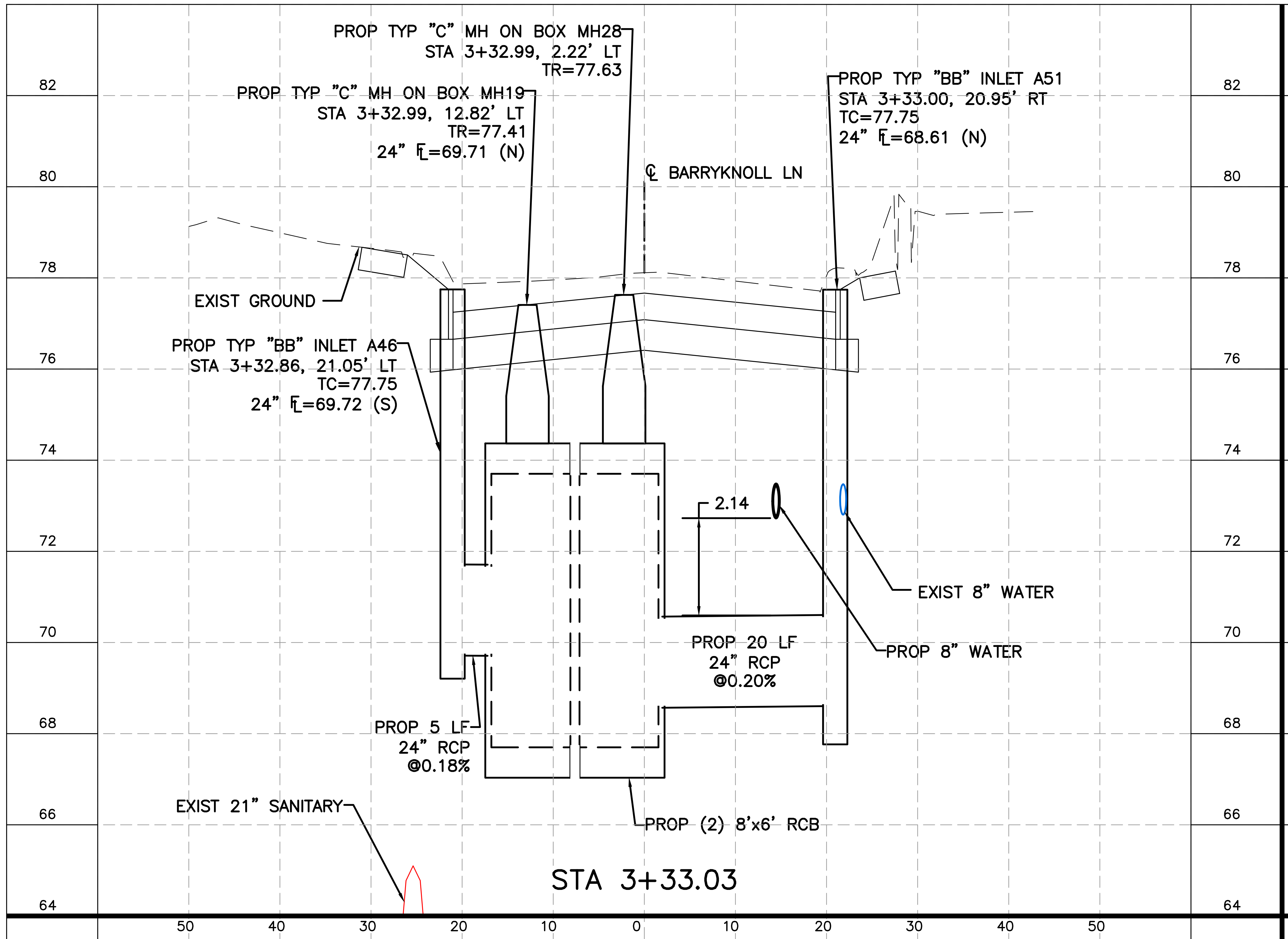
DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=2' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

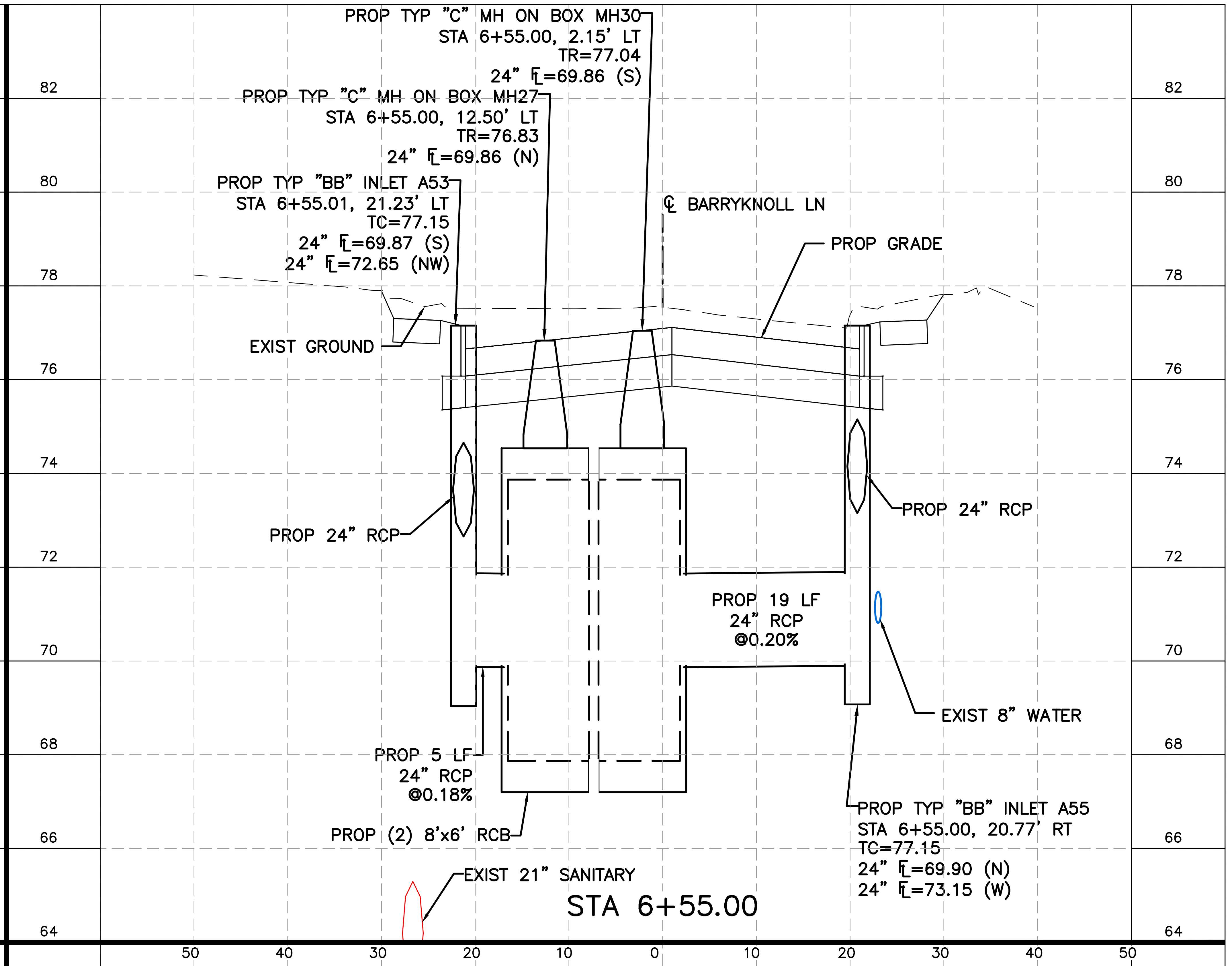
SHEET NO. 167 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\d_drainage_storm_laterals_kingsride_04.dwg Plotted April 15, 2026 at 6:12 PM by Gowali, Ajinkya Ashok

No.	Date	Revisions	App.


PROP TYP "C" MH ON BOX MH28
STA 3+32.99, 2.22' LT
TR=77.63
PROP TYP "C" MH ON BOX MH19
STA 3+32.99, 12.82' LT
TR=77.41
24" FL=69.71 (N)
PROP TYP "BB" INLET A51
STA 3+33.00, 20.95' RT
TC=77.75
24" FL=68.61 (N)
℄ BARRYKNOLL LN
EXIST GROUND
PROP TYP "BB" INLET A46
STA 3+32.86, 21.05' LT
TC=77.75
24" FL=69.72 (S)
2.14
EXIST 8" WATER
PROP 8" WATER
PROP 20 LF
24" RCP
@0.20%
PROP 5 LF
24" RCP
@0.18%
EXIST 21" SANITARY
PROP (2) 8'x6' RCB
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 3+33.03


PROP TYP "C" MH ON BOX MH30
STA 6+55.00, 2.15' LT
TR=77.04
24" FL=69.86 (S)
PROP TYP "C" MH ON BOX MH27
STA 6+55.00, 12.50' LT
TR=76.83
24" FL=69.86 (N)
PROP TYP "BB" INLET A53
STA 6+55.01, 21.23' LT
TC=77.15
24" FL=69.87 (S)
24" FL=72.65 (NW)
℄ BARRYKNOLL LN
PROP GRADE
EXIST GROUND
PROP 24" RCP
PROP 24" RCP
PROP 19 LF
24" RCP
@0.20%
EXIST 8" WATER
PROP 5 LF
24" RCP
@0.18%
PROP (2) 8'x6' RCB
PROP TYP "BB" INLET A55
STA 6+55.00, 20.77' RT
TC=77.15
24" FL=69.90 (N)
24" FL=73.15 (W)
EXIST 21" SANITARY
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 6+55.00

NOTES:

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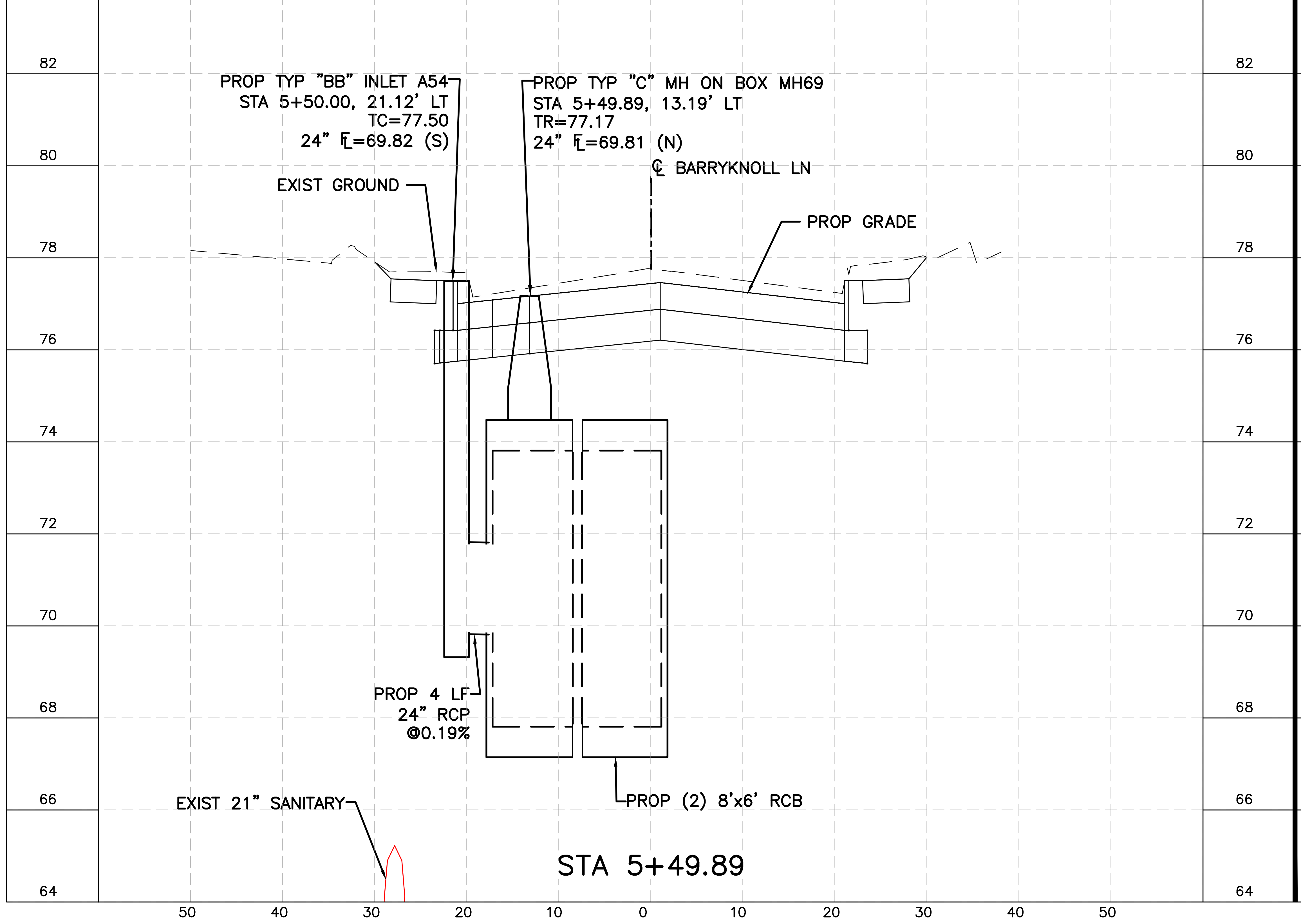
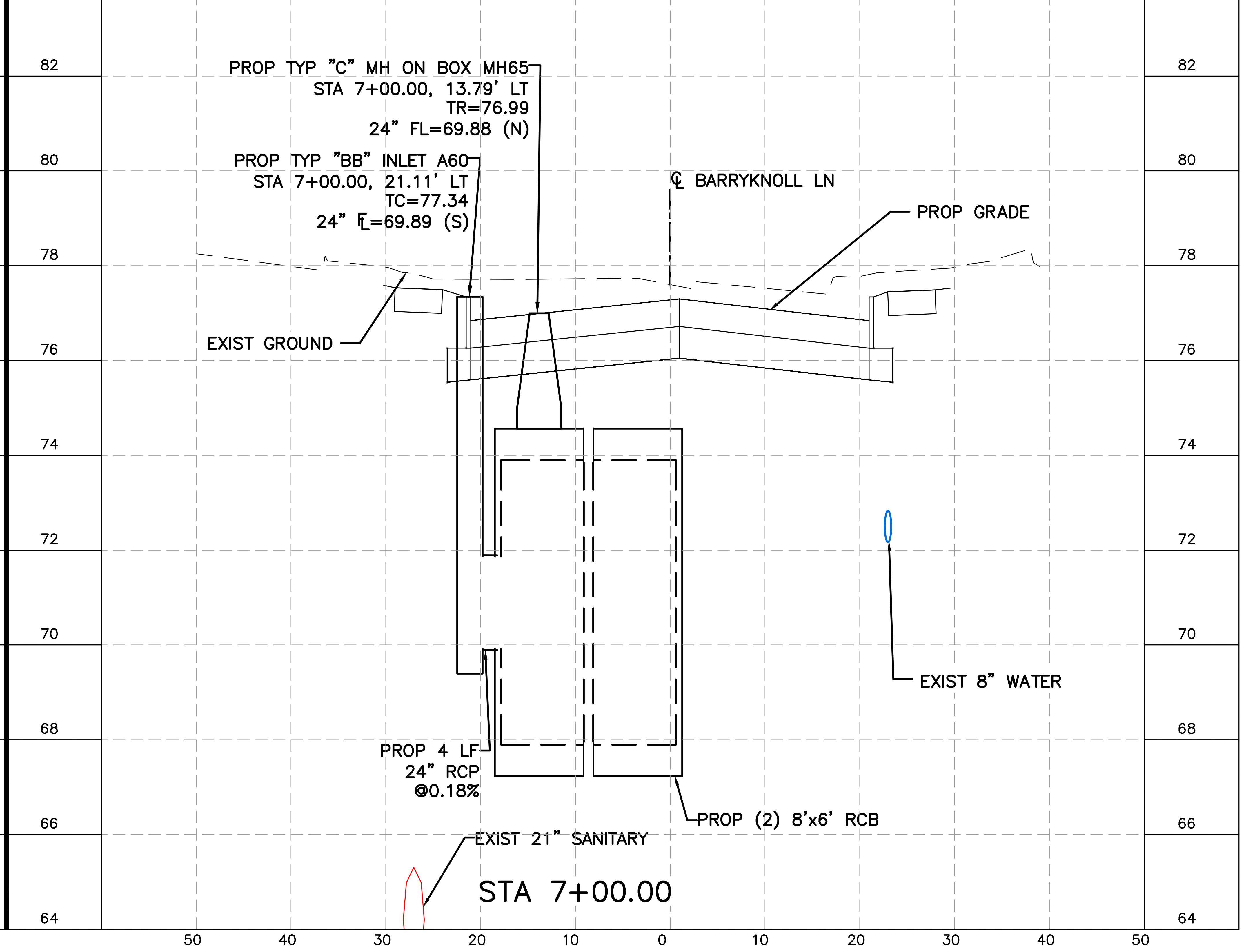

PROP TYP "BB" INLET A54
STA 5+50.00, 21.12' LT
TC=77.50
24" FL=69.82 (S)
PROP TYP "C" MH ON BOX MH69
STA 5+49.89, 13.19' LT
TR=77.17
24" FL=69.81 (N)
℄ BARRYKNOLL LN
EXIST GROUND
PROP GRADE
PROP 4 LF
24" RCP
@0.19%
EXIST 21" SANITARY
PROP (2) 8'x6' RCB
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 5+49.89


PROP TYP "C" MH ON BOX MH65
STA 7+00.00, 13.79' LT
TR=76.99
24" FL=69.88 (N)
PROP TYP "BB" INLET A60
STA 7+00.00, 21.11' LT
TC=77.34
24" FL=69.89 (S)
℄ BARRYKNOLL LN
PROP GRADE
EXIST GROUND
EXIST 8" WATER
PROP 4 LF
24" RCP
@0.18%
PROP (2) 8'x6' RCB
EXIST 21" SANITARY
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 7+00.00

HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

HRGreen
FIRM NO. F-11278
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HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL LN
STORM SEWER LATERALS

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=2' (FULL)

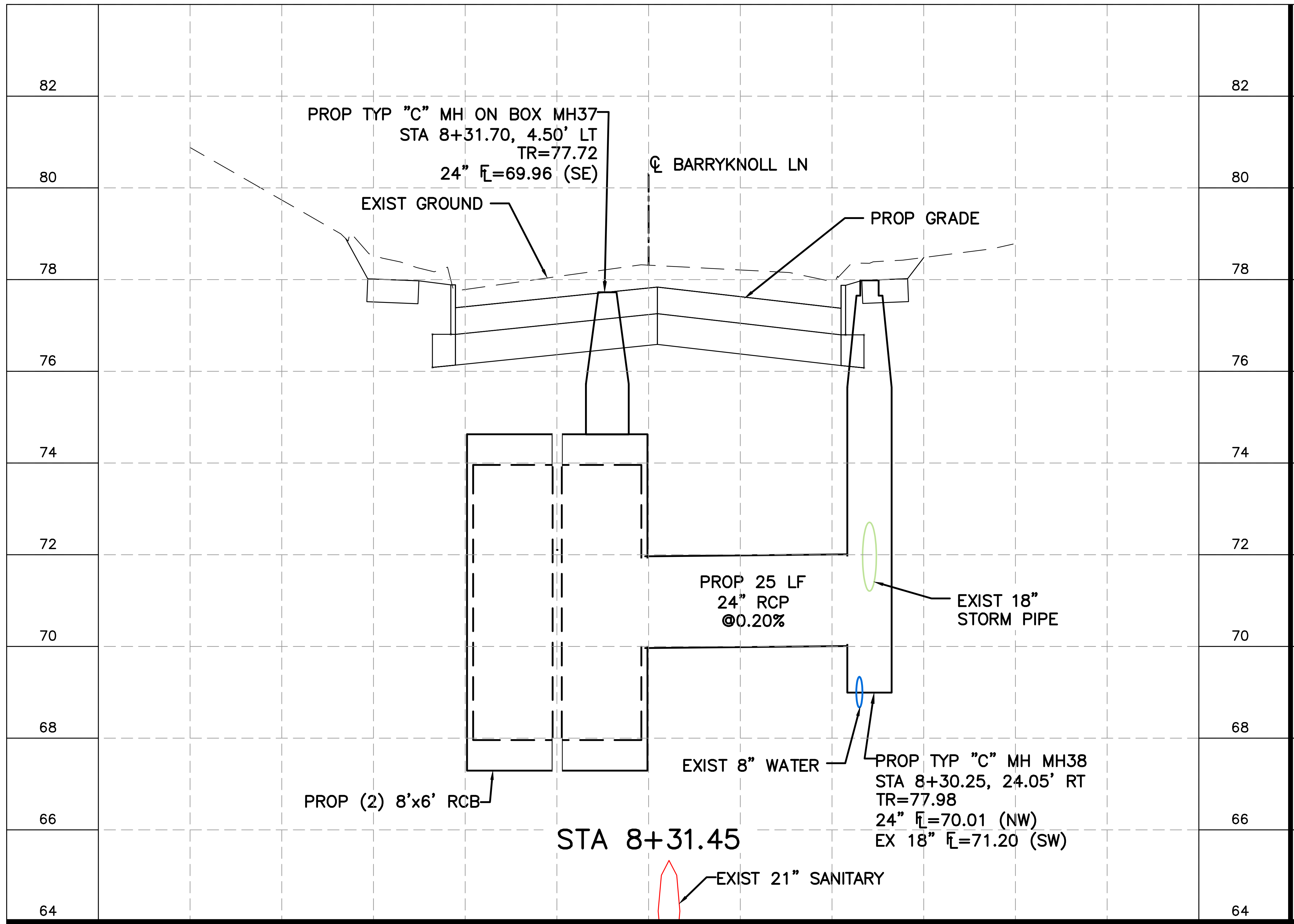
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

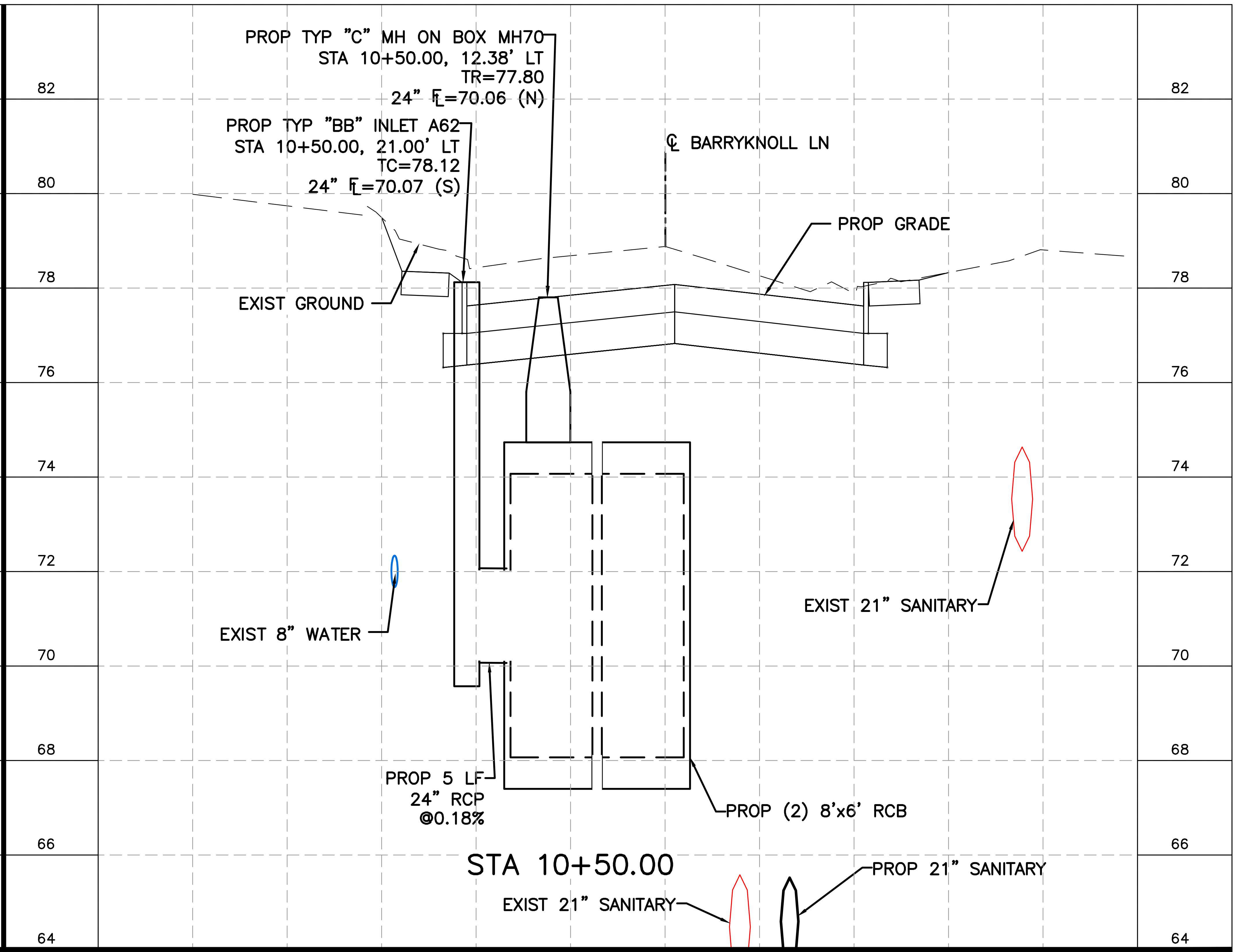
SHEET NO. 168 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 - drainage plans\d_drainage_storm_laterals_barryknoll_01.dwg Plotted April 15, 2026 at 6:10 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.


PROP TYP "C" MH ON BOX MH37
STA 8+31.70, 4.50' LT
TR=77.72
24" FL=69.96 (SE)
℄ BARRYKNOLL LN
EXIST GROUND
PROP GRADE
PROP 25 LF
24" RCP
@0.20%
EXIST 18"
STORM PIPE
EXIST 8" WATER
PROP TYP "C" MH MH38
STA 8+30.25, 24.05' RT
TR=77.98
24" FL=70.01 (NW)
EX 18" FL=71.20 (SW)
PROP (2) 8'x6' RCB
EXIST 21" SANITARY
82
80
78
76
74
72
70
68
66
64

STA 8+31.45


PROP TYP "C" MH ON BOX MH70
STA 10+50.00, 12.38' LT
TR=77.80
24" FL=70.06 (N)
PROP TYP "BB" INLET A62
STA 10+50.00, 21.00' LT
TC=78.12
24" FL=70.07 (S)
℄ BARRYKNOLL LN
PROP GRADE
EXIST GROUND
EXIST 21" SANITARY
EXIST 8" WATER
PROP 5 LF
24" RCP
@0.18%
PROP (2) 8'x6' RCB
PROP 21" SANITARY
EXIST 21" SANITARY
82
80
78
76
74
72
70
68
66
64

STA 10+50.00

NOTES:

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3. PIPE LENGTHS SHOWN ARE PAY LENGTHS.
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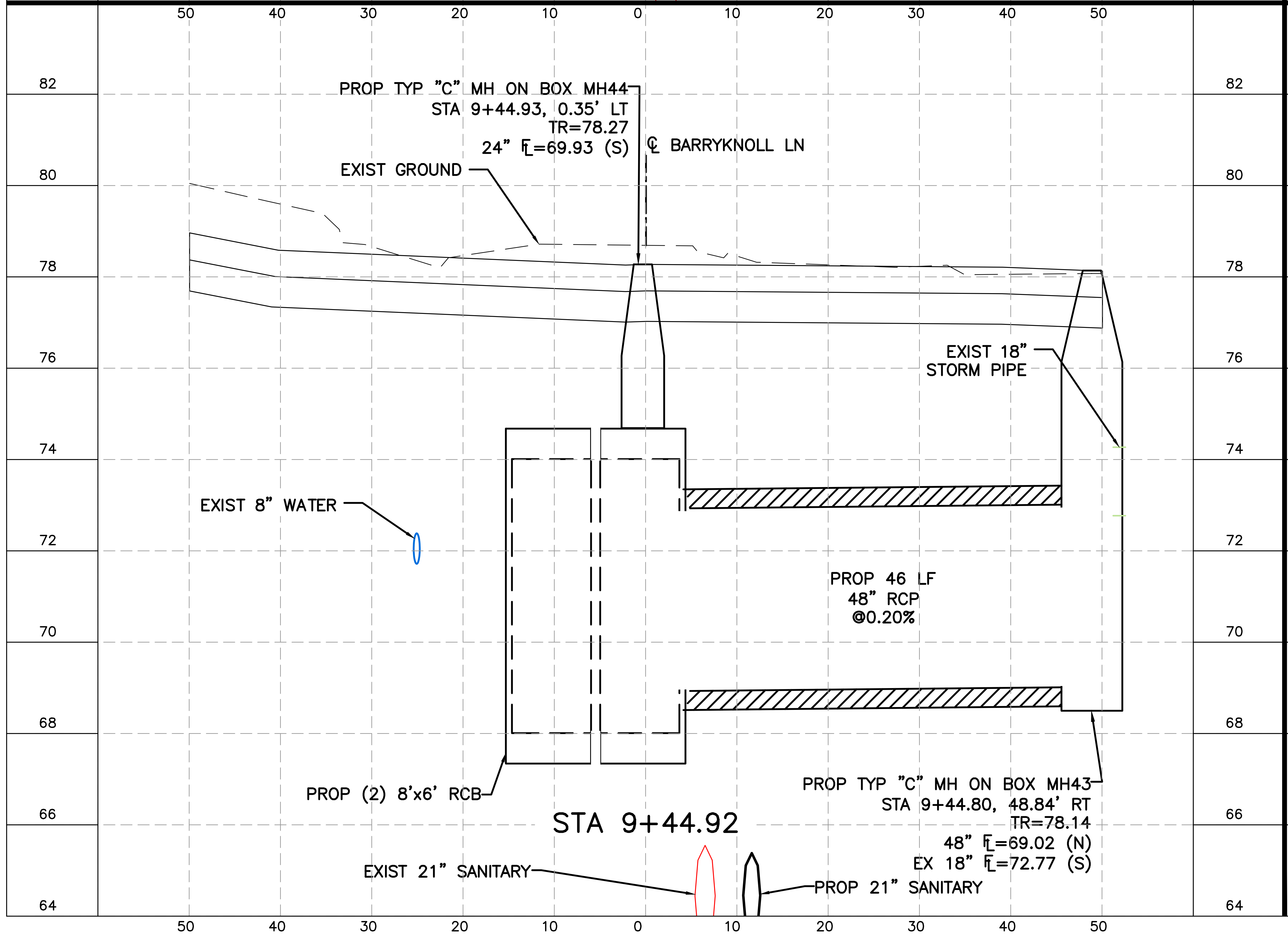
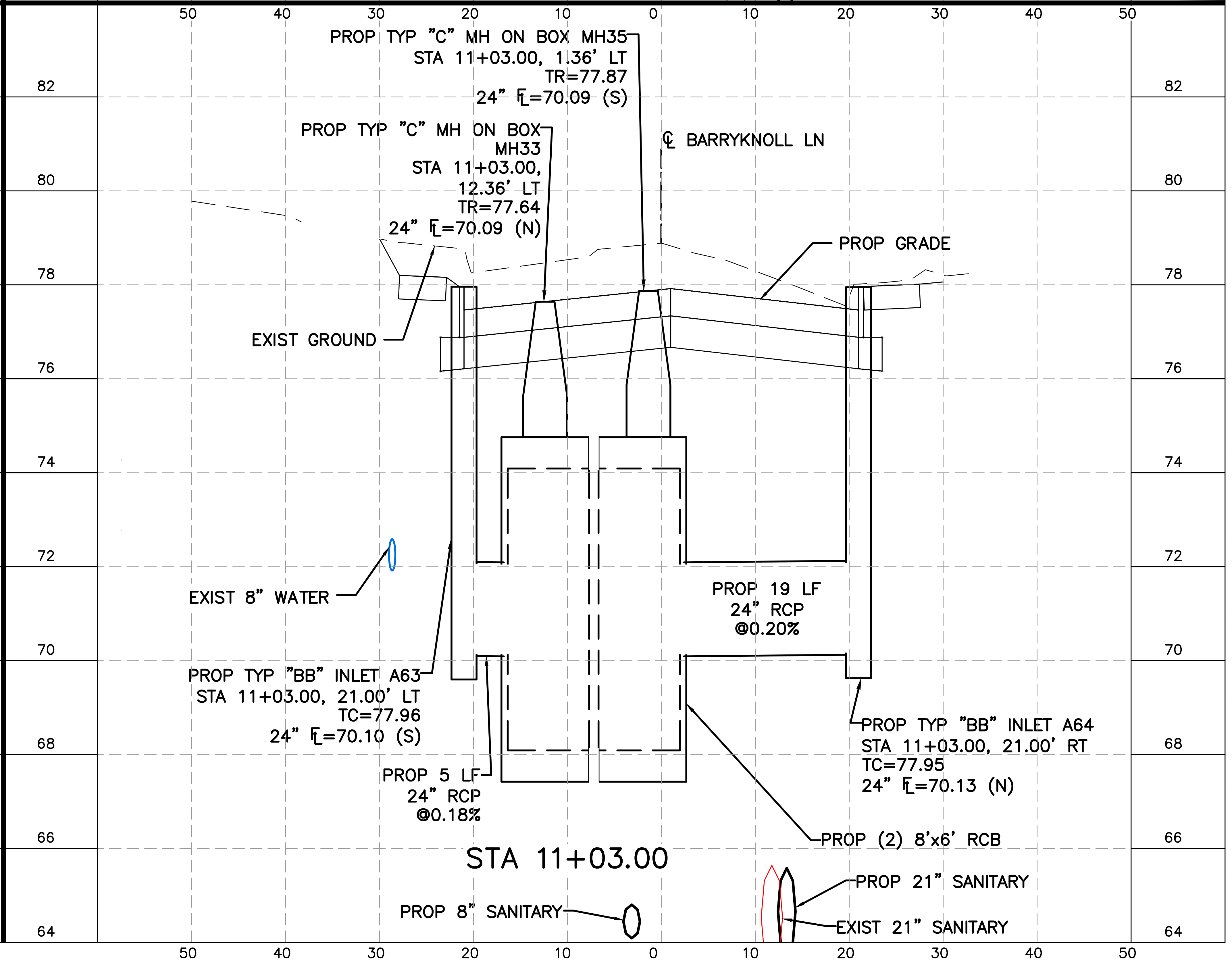

50
40
30
20
10
0
10
20
30
40
50
PROP TYP "C" MH ON BOX MH44
STA 9+44.93, 0.35' LT
TR=78.27
24" FL=69.93 (S)
℄ BARRYKNOLL LN
EXIST GROUND
EXIST 18"
STORM PIPE
EXIST 8" WATER
PROP 46 LF
48" RCP
@0.20%
PROP (2) 8'x6' RCB
PROP TYP "C" MH ON BOX MH43
STA 9+44.80, 48.84' RT
TR=78.14
48" FL=69.02 (N)
EX 18" FL=72.77 (S)
EXIST 21" SANITARY
PROP 21" SANITARY
82
80
78
76
74
72
70
68
66
64

STA 9+44.92


50
40
30
20
10
0
10
20
30
40
50
PROP TYP "C" MH ON BOX MH35
STA 11+03.00, 1.36' LT
TR=77.87
24" FL=70.09 (S)
PROP TYP "C" MH ON BOX
MH33
STA 11+03.00,
12.36' LT
TR=77.64
24" FL=70.09 (N)
℄ BARRYKNOLL LN
PROP GRADE
EXIST GROUND
EXIST 8" WATER
PROP 19 LF
24" RCP
@0.20%
PROP TYP "BB" INLET A63
STA 11+03.00, 21.00' LT
TC=77.96
24" FL=70.10 (S)
PROP TYP "BB" INLET A64
STA 11+03.00, 21.00' RT
TC=77.95
24" FL=70.13 (N)
PROP 5 LF
24" RCP
@0.18%
PROP (2) 8'x6' RCB
PROP 21" SANITARY
PROP 8" SANITARY
EXIST 21" SANITARY
82
80
78
76
74
72
70
68
66
64

STA 11+03.00

HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

HRGreen
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL LN
STORM SEWER LATERALS

SHEET 2 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=2' (FULL)

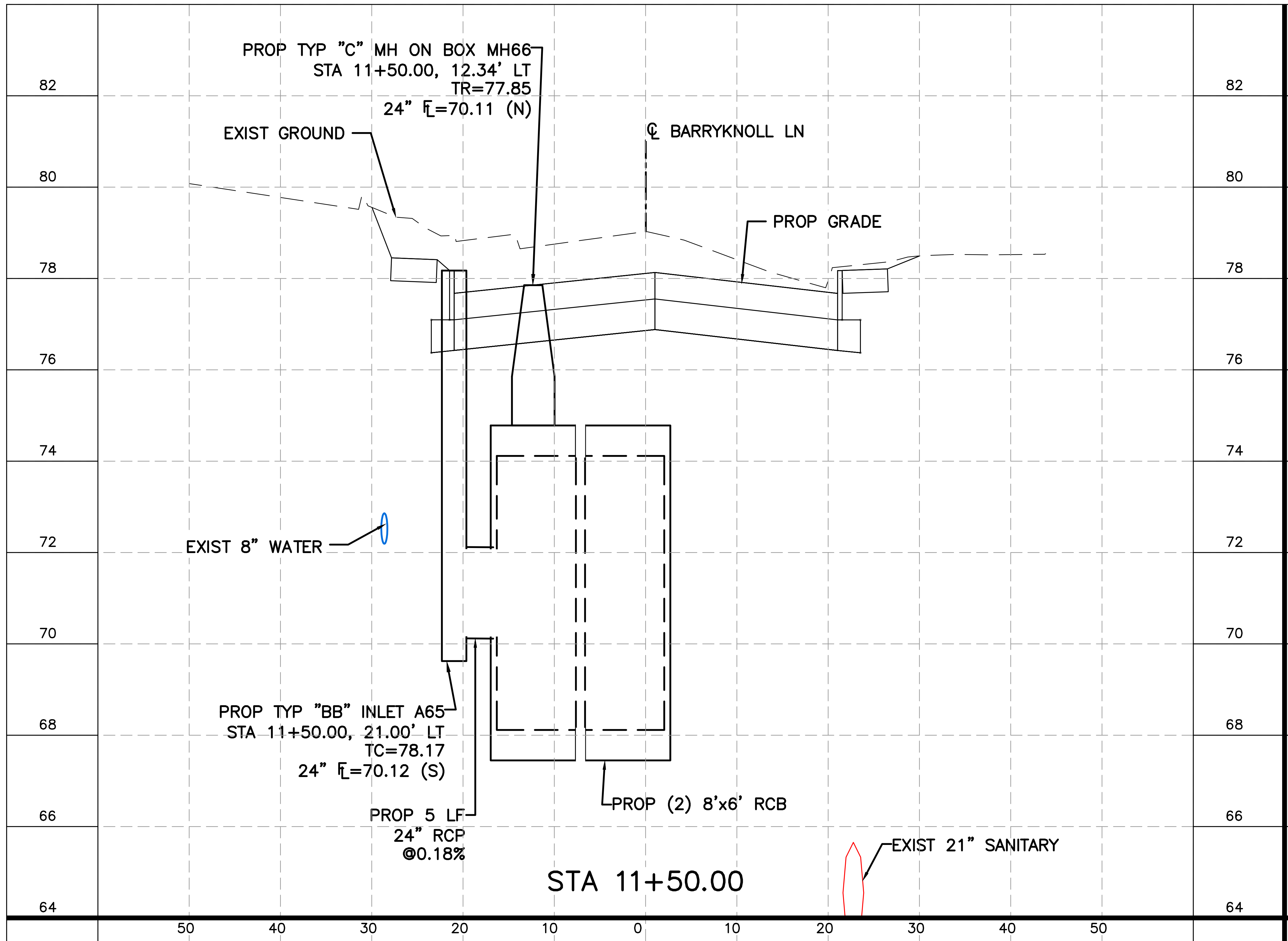
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

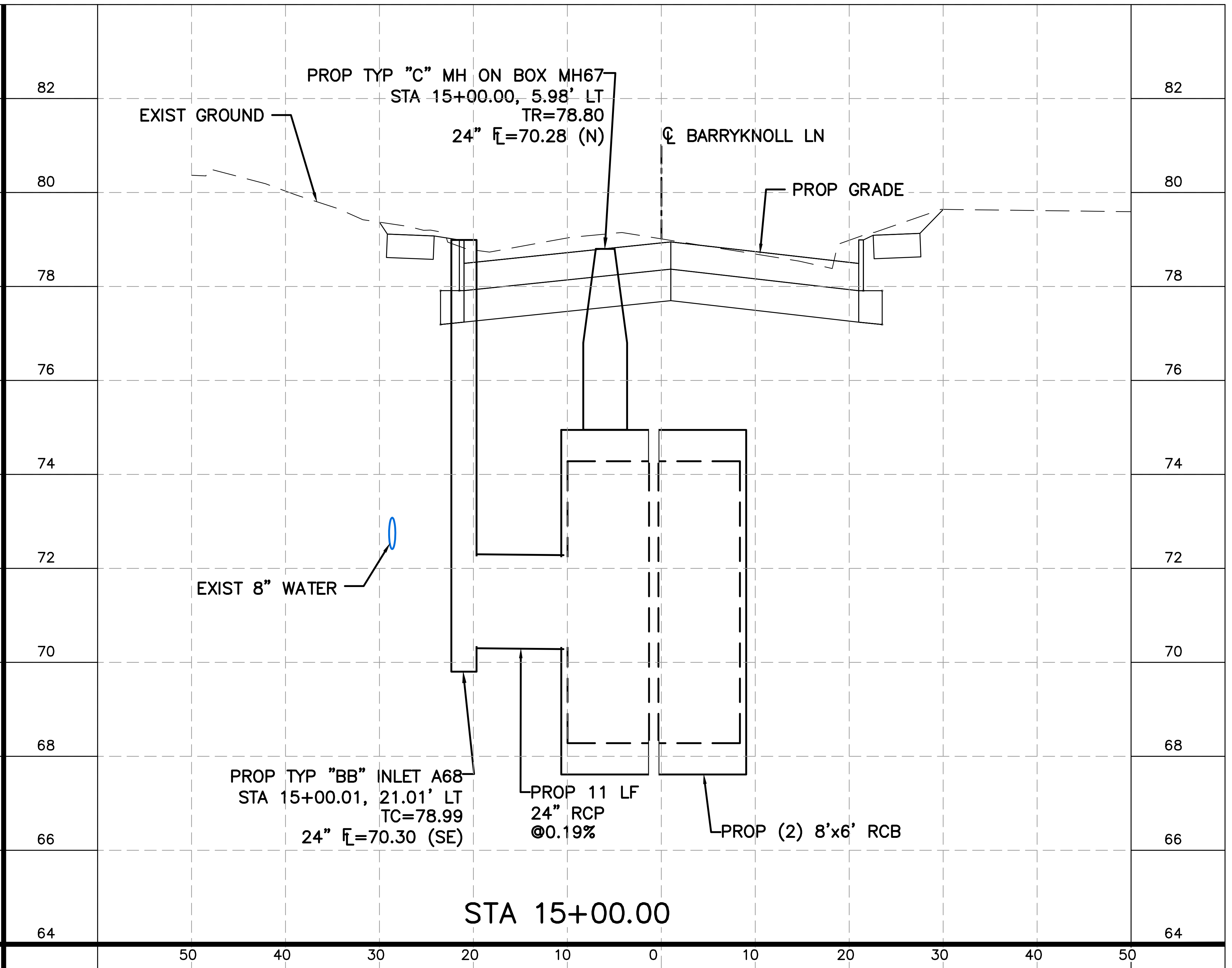
SHEET NO. 169 OF 345

j:\2021\210601.01\cad\dwgs\sheets\08 – drainage plans\d_drainage_storm_laterals_barryknoll_02.dwg Plotted April 15, 2026 at 6:16 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.


PROP TYP "C" MH ON BOX MH66
STA 11+50.00, 12.34' LT
TR=77.85
24" FL=70.11 (N)
EXIST GROUND
℄ BARRYKNOLL LN
PROP GRADE
EXIST 8" WATER
PROP TYP "BB" INLET A65
STA 11+50.00, 21.00' LT
TC=78.17
24" FL=70.12 (S)
PROP 5 LF
24" RCP
@0.18%
PROP (2) 8'x6' RCB
EXIST 21" SANITARY
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 11+50.00


PROP TYP "C" MH ON BOX MH67
STA 15+00.00, 5.98' LT
TR=78.80
24" FL=70.28 (N)
EXIST GROUND
℄ BARRYKNOLL LN
PROP GRADE
EXIST 8" WATER
PROP TYP "BB" INLET A68
STA 15+00.01, 21.01' LT
TC=78.99
24" FL=70.30 (SE)
PROP 11 LF
24" RCP
@0.19%
PROP (2) 8'x6' RCB
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 15+00.00

NOTES:

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4. PIPES ARE CLASS III, UNLESS NOTED.
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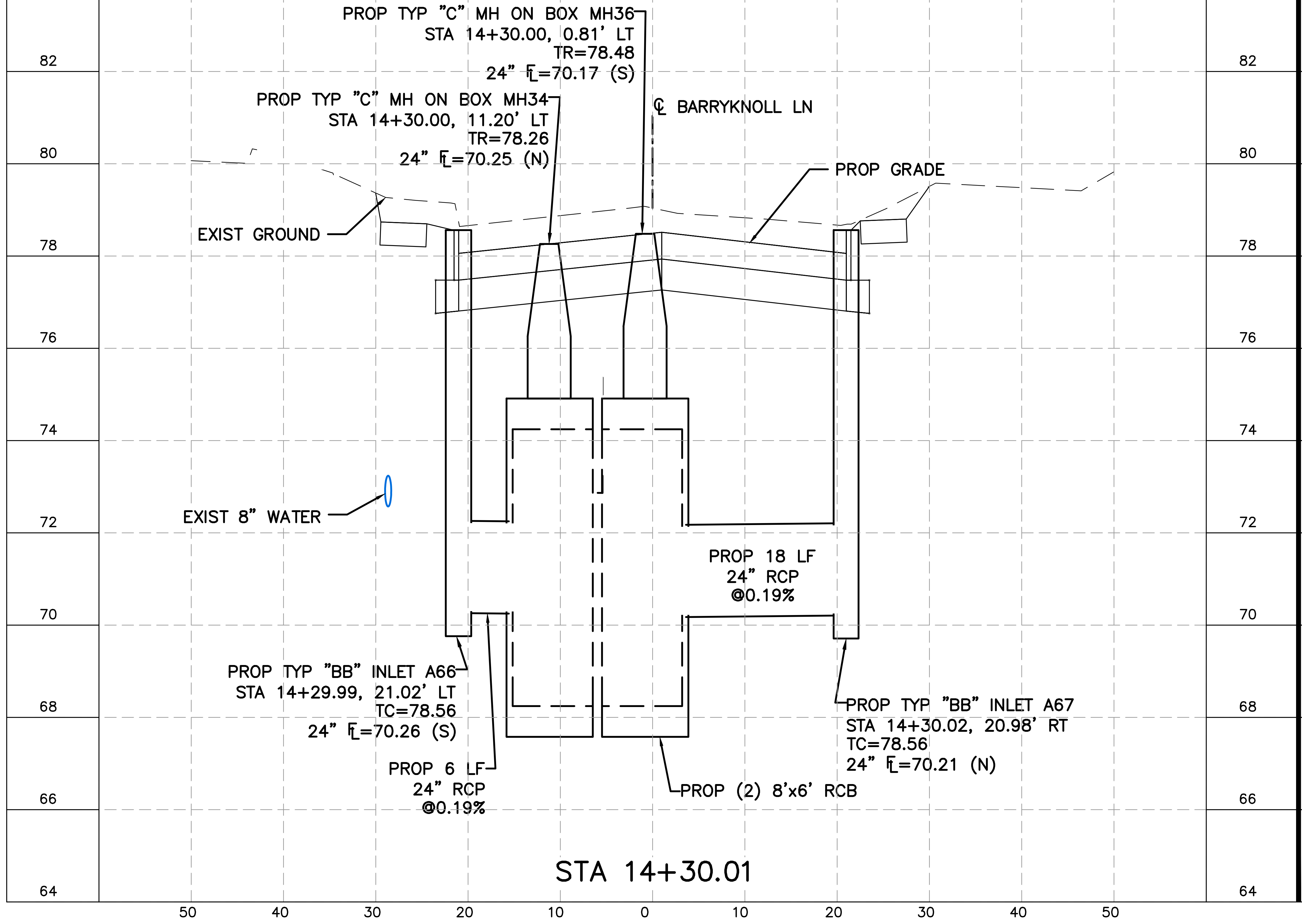
PROP TYP "C" MH ON BOX MH36
STA 14+30.00, 0.81' LT
TR=78.48
24" FL=70.17 (S)
PROP TYP "C" MH ON BOX MH34
STA 14+30.00, 11.20' LT
TR=78.26
24" FL=70.25 (N)
℄ BARRYKNOLL LN
PROP GRADE
EXIST GROUND
EXIST 8" WATER
PROP 18 LF
24" RCP
@0.19%
PROP TYP "BB" INLET A66
STA 14+29.99, 21.02' LT
TC=78.56
24" FL=70.26 (S)
PROP 6 LF
24" RCP
@0.19%
PROP (2) 8'x6' RCB
PROP TYP "BB" INLET A67
STA 14+30.02, 20.98' RT
TC=78.56
24" FL=70.21 (N)
82
80
78
76
74
72
70
68
66
64
50
40
30
20
10
0
10
20
30
40
50

STA 14+30.01

HORZ 0 10 20
VERT 0 2 4
SCALE IN FEET

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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL LN
STORM SEWER LATERALS

SHEET 3 OF 3

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=2' (FULL)

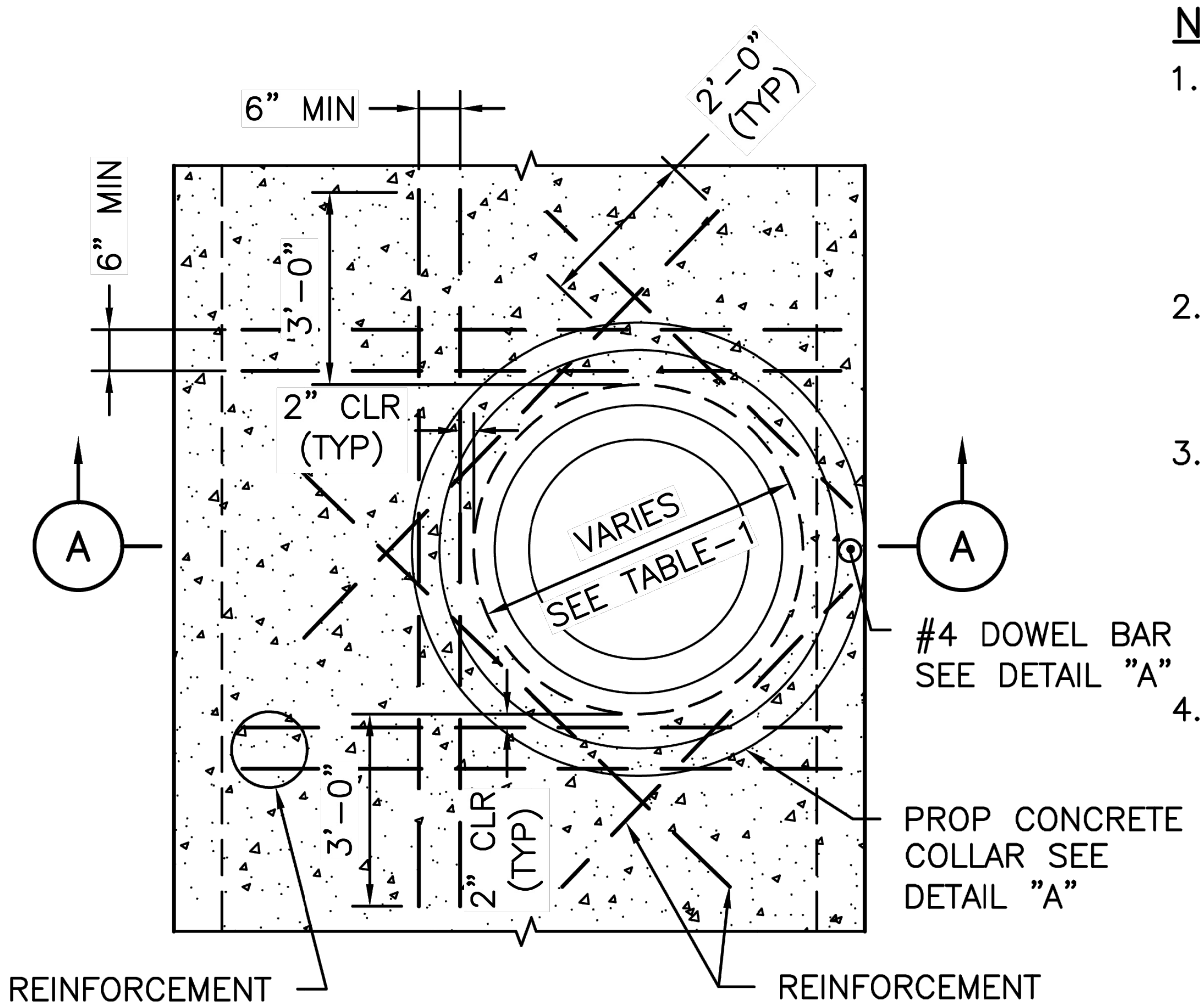
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 170 OF 345

j:\2021\210601.01\cad\dwgs\sheets\09 - drainage standards\drainage standard 01.dwg Plotted April 15, 2026 at 6:07 PM by Gowali, Ajinkya Ashok

No.	Date	Revisions	App.


6" MIN
2'-0" (TYP)
6" MIN
3'-0"
2" CLR (TYP)
A
A
VARIES SEE TABLE-1
#4 DOWEL BAR SEE DETAIL "A"
3'-0"
2" CLR (TYP)
PROP CONCRETE COLLAR SEE DETAIL "A"
REINFORCEMENT
REINFORCEMENT

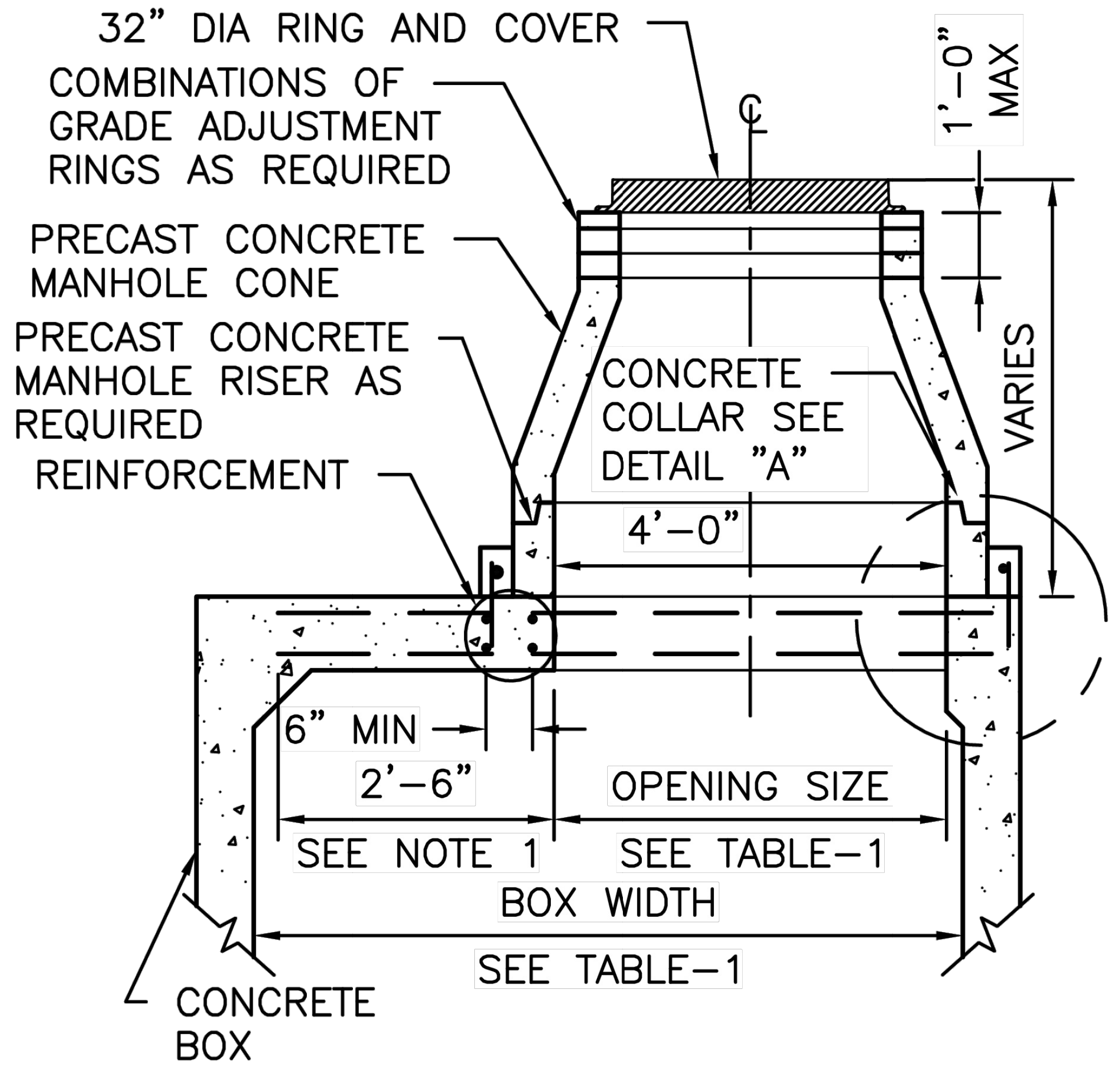
PLAN VIEW

NOTES:

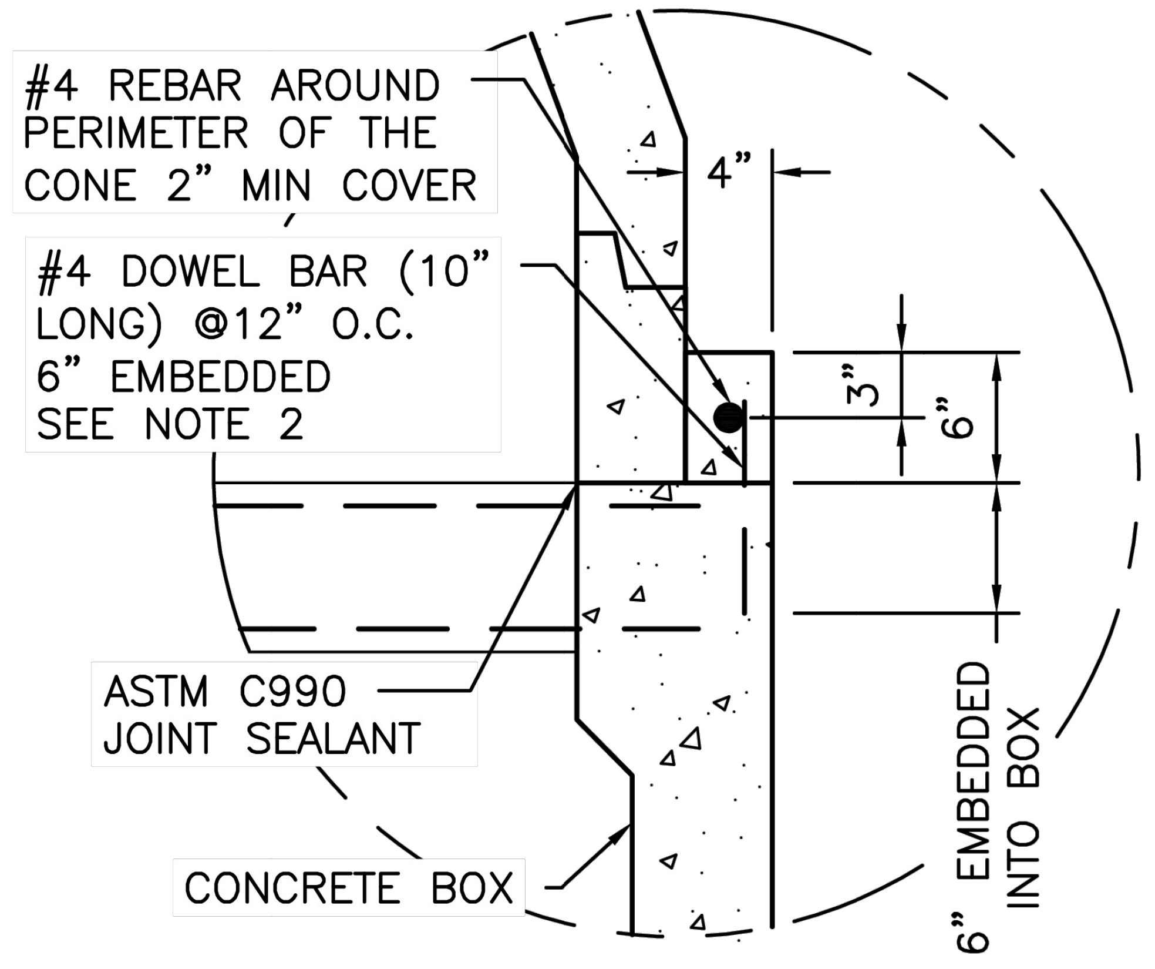
1. FOR SMALLER BOX SEWER WIDTHS, WHERE IT IS NOT POSSIBLE TO EXTEND REINFORCING STEEL 2'-6" BEYOND THE OPENING, REINFORCING STEEL SHALL BE EXTENDED 3" TO THE EDGE OF THE WALL.
2. TIE THE PROPOSED COLLAR STEEL TO LONGITUDINAL AND ELLIPTICAL STEEL, WHERE APPLICABLE.
3. FOR CONCRETE COLLAR PROVIDE CLASS A CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AND GRADE 60 REINFORCING STEEL IN ACCORDANCE WITH COH STANDARD SPECIFICATION SECTION 03315.
4. PROPOSED CONCRETE BOX TO BE DESIGNED BY ENGINEER AND MEET MINIMUM REQUIREMENTS ACCORDING TO COH STANDARD SPECIFICATION SECTION 02612.

TABLE-1

BOX WIDTH VS OPENING SIZE	
BOX WIDTH (INCHES)	OPENING SIZE (INCHES)
48"	36"
GREATER THAN 48"	48"


32" DIA RING AND COVER
COMBINATIONS OF GRADE ADJUSTMENT RINGS AS REQUIRED
PRECAST CONCRETE MANHOLE CONE
PRECAST CONCRETE MANHOLE RISER AS REQUIRED
REINFORCEMENT
℄
1'-0" MAX
VARIES
CONCRETE COLLAR SEE DETAIL "A"
4'-0"
6" MIN
2'-6"
SEE NOTE 1
OPENING SIZE
SEE TABLE-1
BOX WIDTH
SEE TABLE-1
CONCRETE BOX

SECTION A-A


#4 REBAR AROUND PERIMETER OF THE CONE 2" MIN COVER
4"
#4 DOWEL BAR (10" LONG) @12" O.C. 6" EMBEDDED SEE NOTE 2
3"
6"
ASTM C990 JOINT SEALANT
CONCRETE BOX
6" EMBEDDED INTO BOX

DETAIL A

CONCRETE COLLAR

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.

APPROVED BY:

Signed by: 1BEBB22072F84DC... CITY ENGINEER	Signed by: BE463EF0DF454EB... DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER MANHOLE TYPE "C" FOR PROPOSED CONCRETE BOX SEWER

(SCALE: NOT TO SCALE)

EFF DATE: MAR-02-2026 DWG NO: 02082-15

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 1 OF 13

WBS NO. M-430296-0017-3

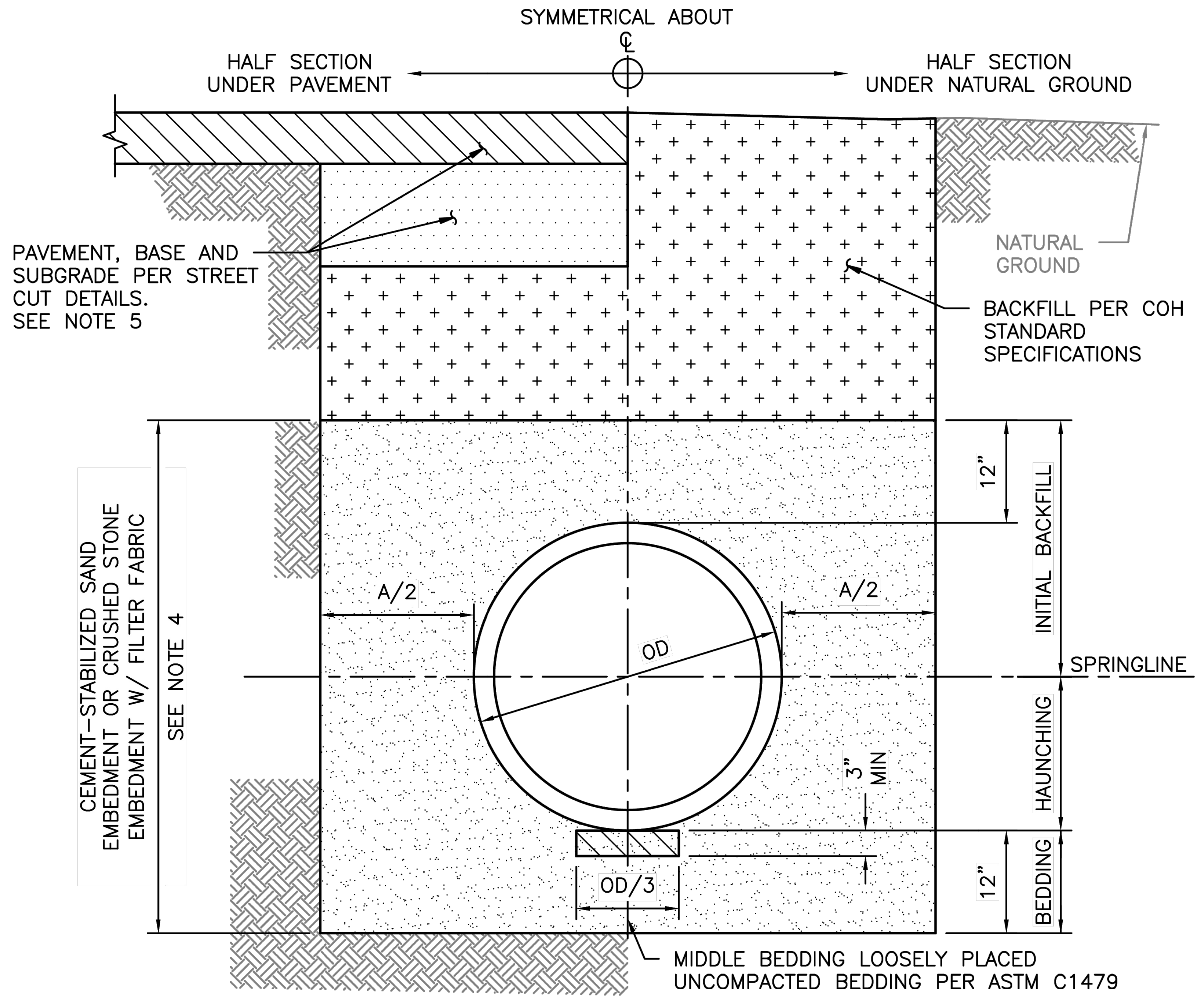
DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 171 OF 345

No.	Date	Revisions	App.


SYMMETRICAL ABOUT ℄
HALF SECTION UNDER PAVEMENT
HALF SECTION UNDER NATURAL GROUND
PAVEMENT, BASE AND SUBGRADE PER STREET CUT DETAILS. SEE NOTE 5
NATURAL GROUND
BACKFILL PER COH STANDARD SPECIFICATIONS
CEMENT-STABILIZED SAND EMBEDMENT OR CRUSHED STONE EMBEDMENT W/ FILTER FABRIC
SEE NOTE 4
A/2
A/2
OD
12"
INITIAL BACKFILL
SPRINGLINE
HAUNCHING
3" MIN
12"
BEDDING
OD/3
MIDDLE BEDDING LOOSELY PLACED UNCOMPACTED BEDDING PER ASTM C1479

TYPICAL CROSS-SECTION

NOTES:

1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS PER COH STANDARD. SEE COH STANDARD SPECIFICATION FOR REQUIREMENTS IN OTHER CONDITIONS.
2. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
30" OR LESS	24"
36" TO 42"	36"
GREATER THAN 42"	48"

3. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
4. ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS MAY BE ALLOWED. SEE COH STANDARD SPECIFICATIONS.
5. REFER TO THE COH STD DETAILS 02951-01 THROUGH 05 FOR STREET CUT REQUIREMENTS.
6. FOR THERMOPLASTIC STORM SEWER PIPE INSTALLATION REFER TO COH STD DETAIL 02317-10G.

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.

APPROVED BY:

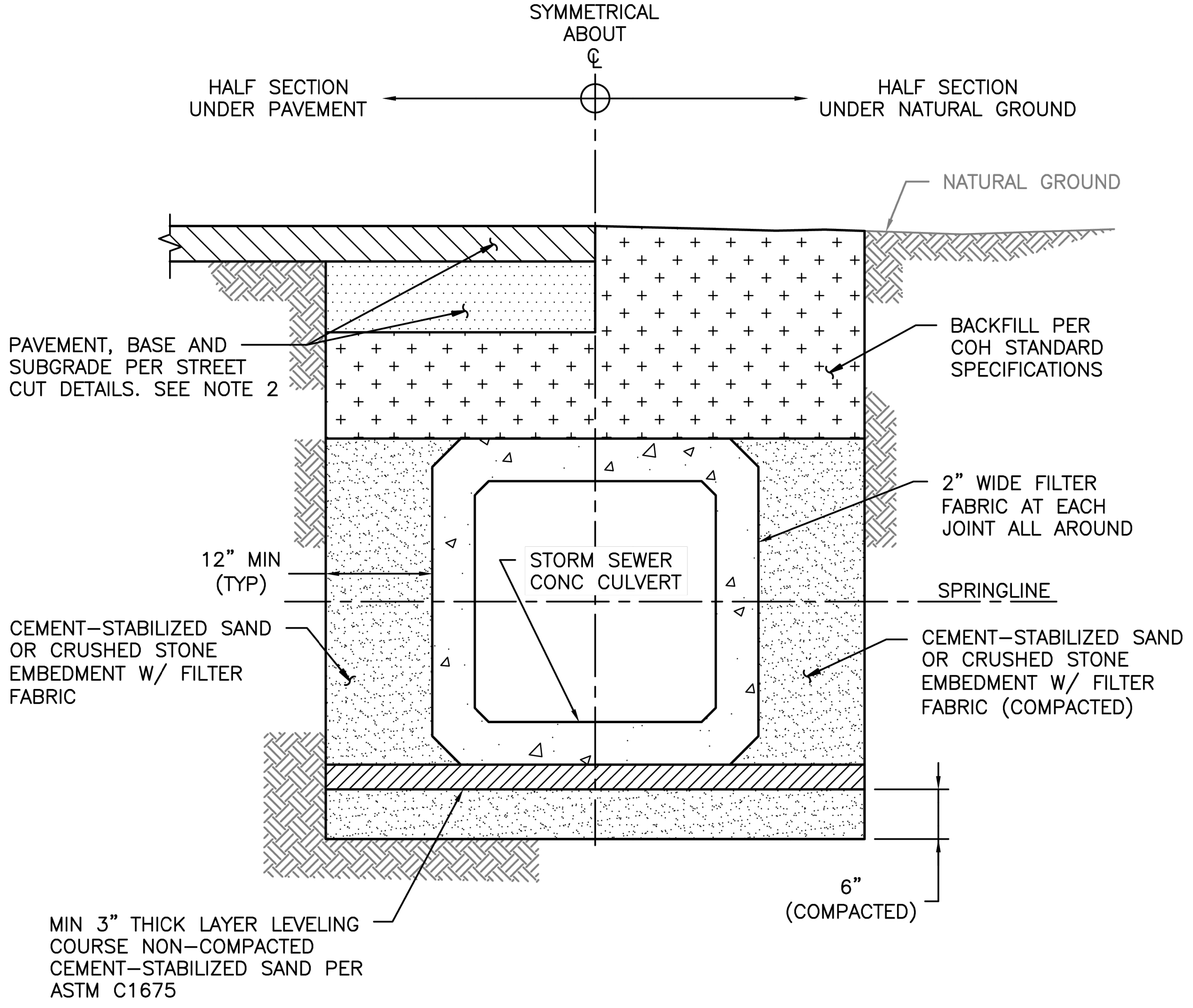
Signed by: 1BEBB22072F84DC...	Signed by: BE463EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SANITARY OR STORM SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH

(SCALE: NOT TO SCALE)

EFF DATE: MAR-02-2026 | DWG NO: 02317-03


SYMMETRICAL ABOUT ℄
HALF SECTION UNDER PAVEMENT
HALF SECTION UNDER NATURAL GROUND
NATURAL GROUND
PAVEMENT, BASE AND SUBGRADE PER STREET CUT DETAILS. SEE NOTE 2
BACKFILL PER COH STANDARD SPECIFICATIONS
2" WIDE FILTER FABRIC AT EACH JOINT ALL AROUND
12" MIN (TYP)
STORM SEWER CONC CULVERT
SPRINGLINE
CEMENT-STABILIZED SAND OR CRUSHED STONE EMBEDMENT W/ FILTER FABRIC
CEMENT-STABILIZED SAND OR CRUSHED STONE EMBEDMENT W/ FILTER FABRIC (COMPACTED)
6" (COMPACTED)
MIN 3" THICK LAYER LEVELING COURSE NON-COMPACTED CEMENT-STABILIZED SAND PER ASTM C1675

TYPICAL CROSS-SECTION

NOTES:

1. WHERE MULTIPLE BOX SEWER ARE USED IN THE SAME TRENCH, MIN OUTSIDE TO OUTSIDE BOX SEWER SEPARATION SHALL BE 6".
2. REFER TO COH STANDARD DETAILS 02951-01 THROUGH 05 FOR STREET CUT REQUIREMENTS.

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.

APPROVED BY:

Signed by: 1BEBB22072F84DC...	Signed by: BE463EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL FOR DRY STABLE TRENCH

(SCALE: NOT TO SCALE)

EFF DATE: MAR-02-2026 | DWG NO: 02317-05

HRGreen
FIRM NO. F-11278
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JOHN R. HUML
140416
HR Green 4/15/2026
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 2 OF 13

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 172 OF 345

j:\2021\210601.01\cad\dwgs\sheets\09 - drainage standards\drainage standard 02.dwg Plotted April 15, 2026 at 6:12 PM by Gawali, Ajinkya Ashok

j:\2021\210601.01\cad\dwgs\sheets\09 – drainage standards\drainage standard 03.dwg Plotted April 15, 2026 at 6:11 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.

DISCLAIMER:
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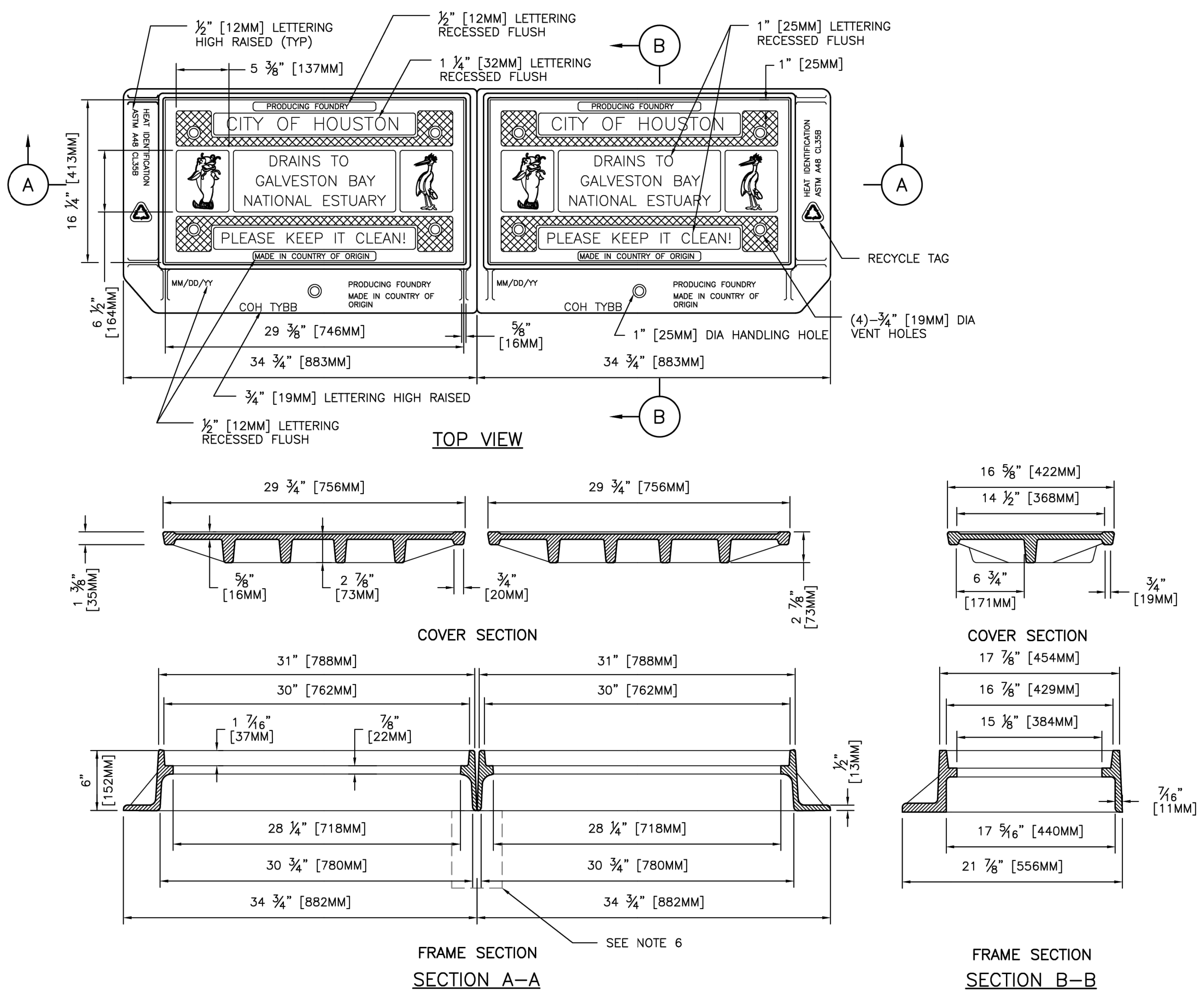

½" [12MM] LETTERING HIGH RAISED (TYP)
½" [12MM] LETTERING RECESSED FLUSH
1 ¼" [32MM] LETTERING RECESSED FLUSH
1" [25MM] LETTERING RECESSED FLUSH
1" [25MM]
5 ⅜" [137MM]
CITY OF HOUSTON
DRAINS TO GALVESTON BAY NATIONAL ESTUARY
PLEASE KEEP IT CLEAN!
PRODUCING FOUNDRY
MADE IN COUNTRY OF ORIGIN
MM/DD/YY
COH TYBB
16 ¼" [413MM]
6 ½" [164MM]
RECYCLE TAG
(4)–¾" [19MM] DIA VENT HOLES
1" [25MM] DIA HANDLING HOLE
⅝" [16MM]
29 ⅜" [746MM]
34 ¾" [883MM]
¾" [19MM] LETTERING HIGH RAISED
½" [12MM] LETTERING RECESSED FLUSH
TOP VIEW
29 ¾" [756MM]
1 ⅜" [35MM]
⅝" [16MM]
2 ⅞" [73MM]
¾" [20MM]
COVER SECTION
16 ⅝" [422MM]
14 ½" [368MM]
6 ¾" [171MM]
¾" [19MM]
COVER SECTION
31" [788MM]
30" [762MM]
1 7⁄16" [37MM]
⅞" [22MM]
6" [152MM]
½" [13MM]
28 ¼" [718MM]
30 ¾" [780MM]
34 ¾" [882MM]
SEE NOTE 6
FRAME SECTION
SECTION A–A
17 ⅞" [454MM]
16 ⅞" [429MM]
15 ⅛" [384MM]
7⁄16" [11MM]
17 5⁄16" [440MM]
21 ⅞" [556MM]
FRAME SECTION
SECTION B–B

NOTES:

1. APPROXIMATE WEIGHTS:

   EACH FRAME – 125 LBS (57KGS)
   EACH COVER – 120 LBS (55KGS)
   EACH UNIT – 245 LBS (111KGS)

2. MATERIALS – GRAY IRON ASTM A48 CL35B.
3. CASTING MUST BE MANUFACTURED AND PROOF TESTED IN ACCORDANCE WITH AASHTO M306.
4. EJ V4243 ASY OR APPROVED EQUAL.
5. IDENTIFICATION MARKINGS MUST COMPLY WITH CITY SPECIFICATIONS. MARKINGS NOT SHOWN ON THIS DETAIL MUST BE PLACED ON THE CASTING:
   A. PROVIDE ALL FRAME MARKINGS ON THE TOP SIDE OF THE FRAME.
   B. PROVIDE GRATE AND COVER MARKINGS ON EITHER TOP OR BOTTOM OF CASTING.
6. FOR INLET MAINTENANCE REFER TO COH STD 02632–04. FOR NEW INLET CONSTRUCTION REFER TO COH STD 02633–02.

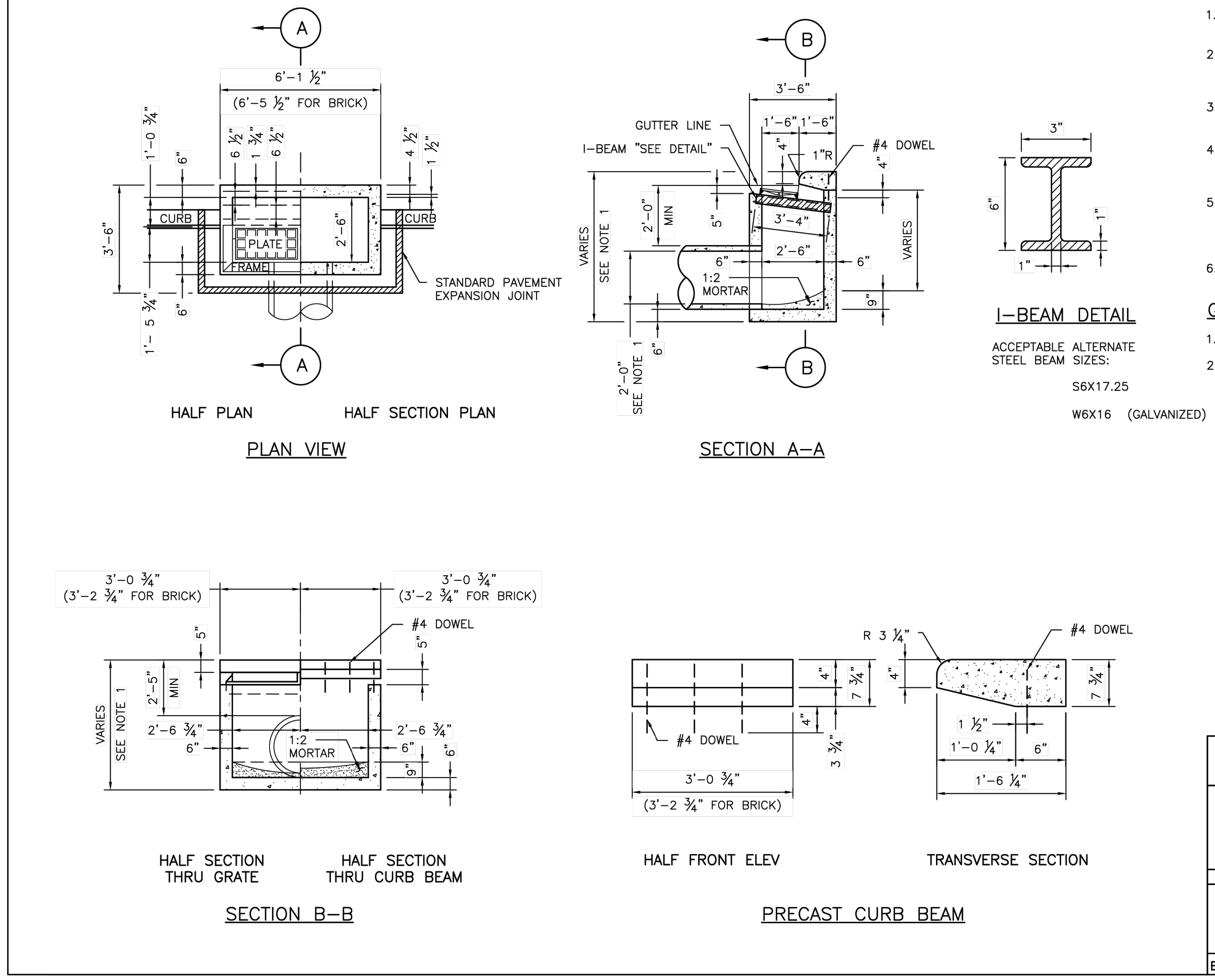
CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER TYPE "B–B"
INLET DOUBLE ASSEMBLY

(SCALE: NOT TO SCALE)
APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: MAR–02–2026	DWG NO: 02090–04

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.


6'–1 ½"
(6'–5 ½" FOR BRICK)
CURB
PLATE
FRAME
STANDARD PAVEMENT EXPANSION JOINT
HALF PLAN
HALF SECTION PLAN
PLAN VIEW
GUTTER LINE
I–BEAM "SEE DETAIL"
3'–6"
1'–6"
#4 DOWEL
1"R
3'–4"
2'–6"
MIN
VARIES SEE NOTE 1
1:2 MORTAR
SECTION A–A
3"
6"
1"
I–BEAM DETAIL
ACCEPTABLE ALTERNATE STEEL BEAM SIZES:
S6X17.25
W6X16 (GALVANIZED)
3'–0 ¾"
(3'–2 ¾" FOR BRICK)
#4 DOWEL
2'–5" MIN
2'–6 ¾"
1:2 MORTAR
HALF SECTION THRU GRATE
HALF SECTION THRU CURB BEAM
SECTION B–B
R 3 ¼"
#4 DOWEL
1 ½"
1'–0 ¼"
1'–6 ¼"
3'–0 ¾"
(3'–2 ¾" FOR BRICK)
HALF FRONT ELEV
TRANSVERSE SECTION
PRECAST CURB BEAM

NOTES:

1. DIMENSION VARIES BASED ON PIPE DIAMETER AND WALL THICKNESS.
2. CENTER REINFORCING IN SLAB AND WALLS. CENTER STEEL BEAM ON INLET AND CAST INTO WALLS AS SHOWN.
3. WHEN TOP OF CURB TO FLOWLINE IS GREATER THAN 8 FEET USE TYPE "C" INLET.
4. WHEN AN EXISTING "B–B" INLET WILL BE REPLACED BY A NEW INLET USE COH STD 02633–02.
5. EXISTING INLETS THAT WERE CONSTRUCTED ACCORDING TO 02632–04 SHALL BE MAINTAINED AS SPECIFIED IN DETAIL 02632–04.
6. EOR TO BE RESPONSIBLE FOR DESIGNING STRUCTURAL COMPONENTS IN THIS DETAIL.

GENERAL NOTES:

1. USE STANDARD CAST IRON FRAME & PLATES.
2. LEAD SHALL LEAVE INLET AT LOCATION AND GRADE REQUIRED.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER TYPE "B–B" INLET
FOR MAINTENANCE ONLY

(SCALE: NOT TO SCALE)
APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: MAR–02–2026	DWG NO: 02632–04

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JOHN R. HUML
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HR Green 4/15/2026
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

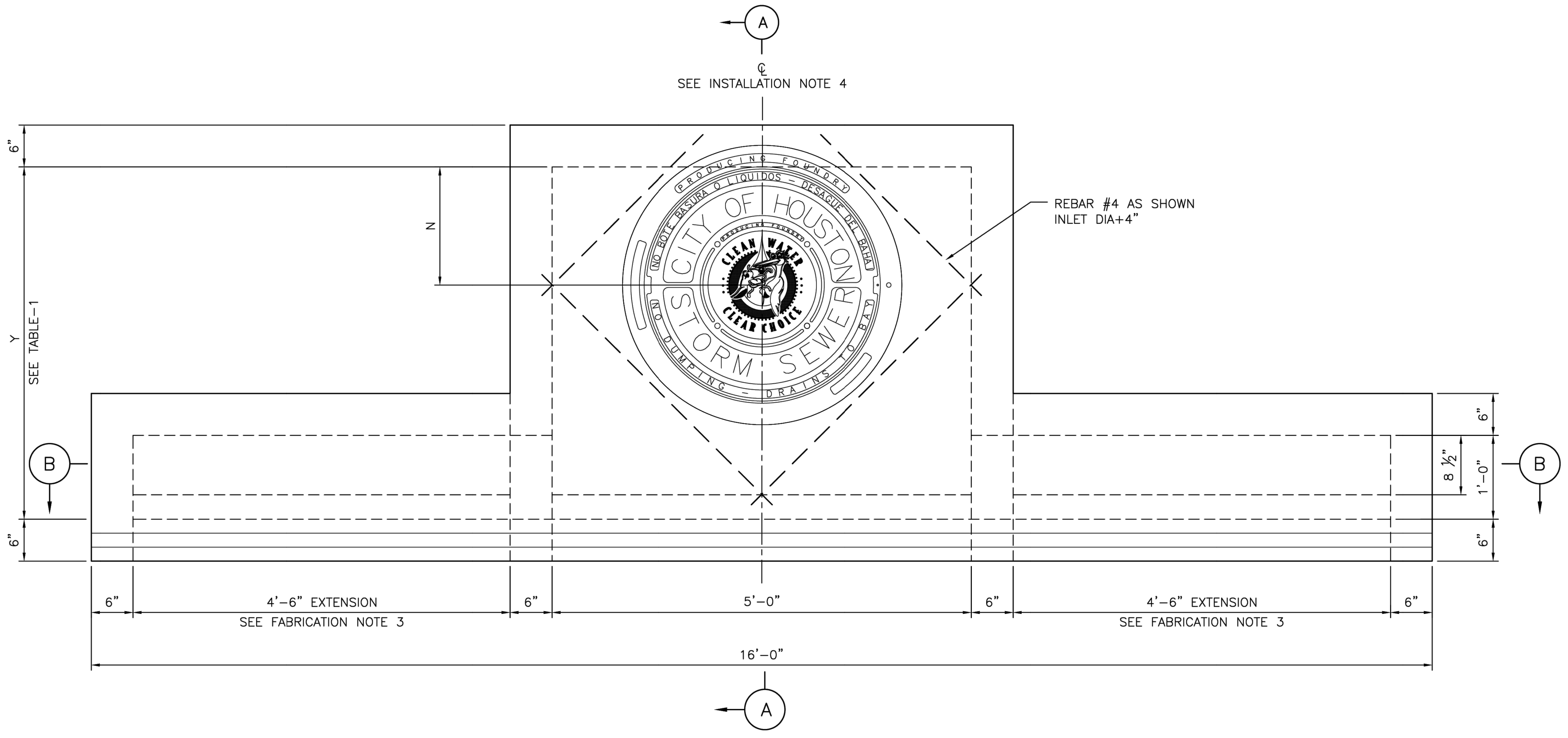
SHEET 3 OF 13

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 173 OF 345

No.	Date	Revisions	App.

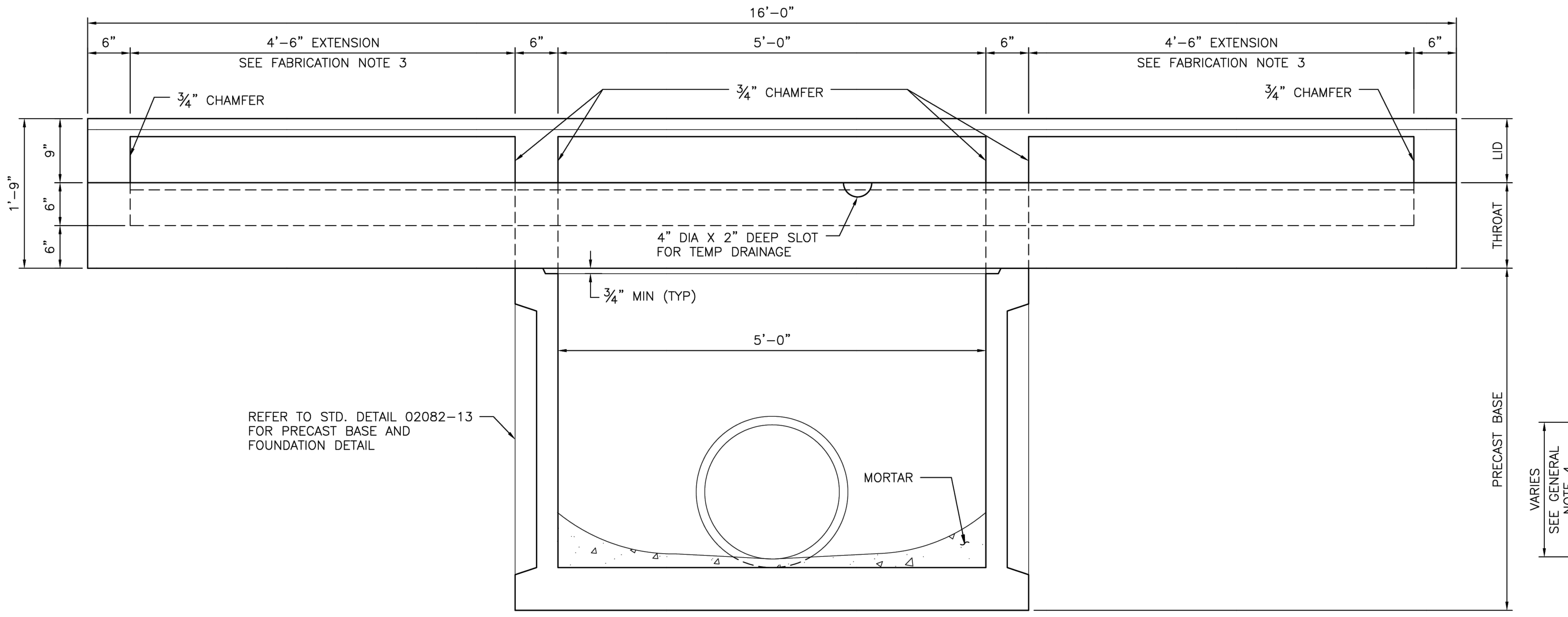
TABLE-1

SIZE (Y)	N	NOMINAL COVER SIZE
4'-0"	1'-4"	24"
5'-0"	1'-4"	32"
6'-0"	1'-4"	32"


A
℄
SEE INSTALLATION NOTE 4
REBAR #4 AS SHOWN
INLET DIA+4"
N
6"
Y
SEE TABLE-1
B
B
8 ½"
1'-0"
6"
6"
6"
6"
4'-6" EXTENSION
SEE FABRICATION NOTE 3
6"
5'-0"
6"
4'-6" EXTENSION
SEE FABRICATION NOTE 3
6"
16'-0"
A
CITY OF HOUSTON
STORM SEWER
CLEAN WATER
CLEAN CHOICE

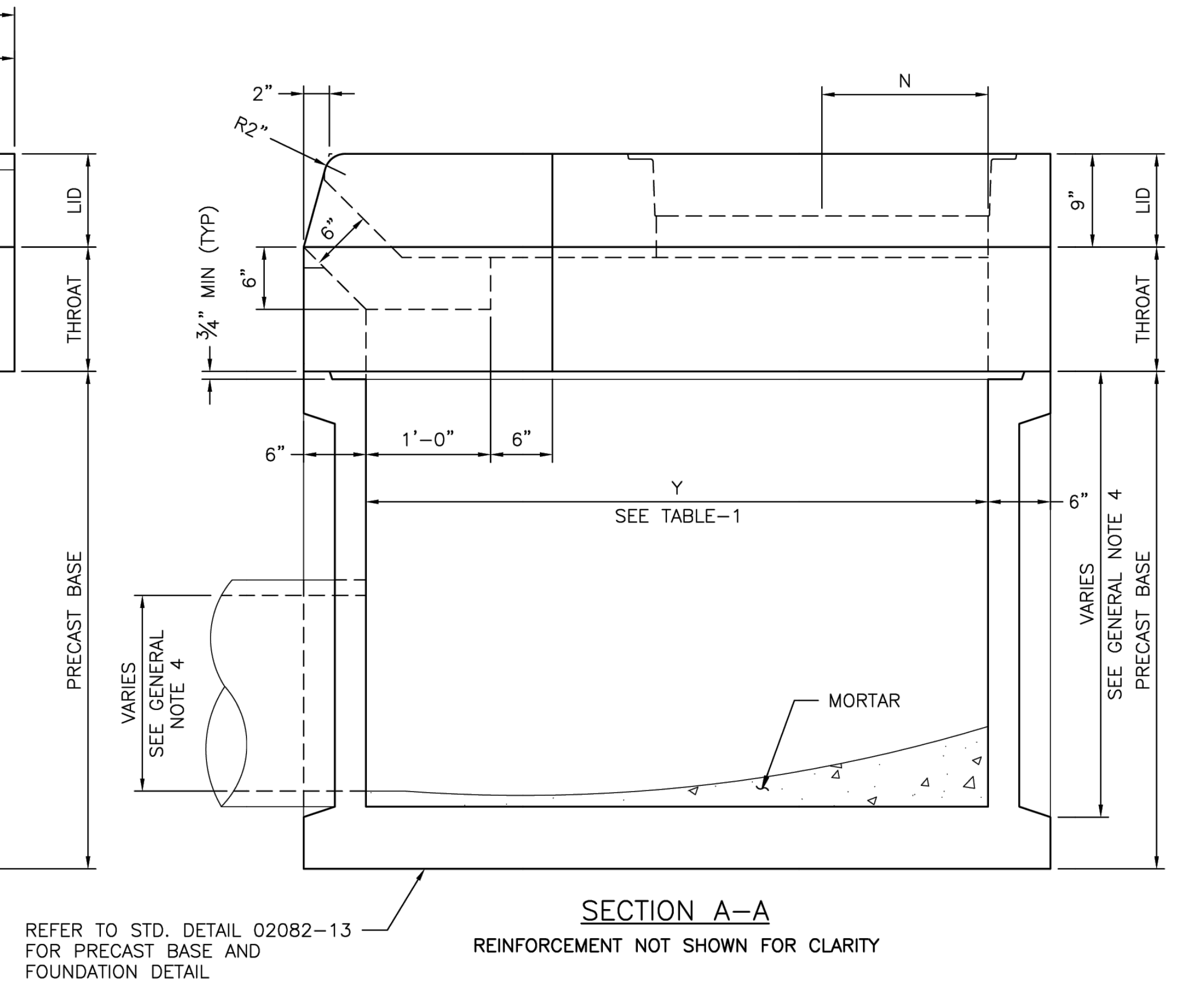
PLAN VIEW

(SHOWING LEFT AND RIGHT EXTENSIONS)
REINFORCEMENT NOT SHOWN FOR CLARITY


16'-0"
6"
4'-6" EXTENSION
SEE FABRICATION NOTE 3
6"
5'-0"
6"
4'-6" EXTENSION
SEE FABRICATION NOTE 3
6"
¾" CHAMFER
¾" CHAMFER
¾" CHAMFER
1'-9"
9"
6"
6"
4" DIA X 2" DEEP SLOT
FOR TEMP DRAINAGE
¾" MIN (TYP)
5'-0"
REFER TO STD. DETAIL 02082-13
FOR PRECAST BASE AND
FOUNDATION DETAIL
MORTAR
LID
THROAT
PRECAST BASE

SECTION B-B

(SHOWING LEFT AND RIGHT EXTENSIONS)
REINFORCEMENT NOT SHOWN FOR CLARITY


2"
R2"
6"
¾" MIN (TYP)
6"
N
9"
LID
THROAT
6"
1'-0"
6"
Y
SEE TABLE-1
6"
VARIES
SEE GENERAL NOTE 4
MORTAR
VARIES
SEE GENERAL NOTE 4
PRECAST BASE
REFER TO STD. DETAIL 02082-13
FOR PRECAST BASE AND
FOUNDATION DETAIL

SECTION A-A

REINFORCEMENT NOT SHOWN FOR CLARITY

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.
3. EXTENSIONS MAY BE RIGHT, OR LEFT (INLET TYPE C-1), BOTH (INLET TYPE C-2) OR NONE (INLET TYPE C). PROVIDE EXTENSIONS AS SPECIFIED ELSEWHERE IN THE PLANS.
4. DESIGN TONGUE AND GROOVE JOINTS FOR FULL CLOSURE ON BOTH SHOULDERS. MINIMUM SPIGOT DEPTH IS ¾". LID MAY EMPLOY A BUTT JOINT WITH DOWELS AT THE CONTRACTOR'S OPTION.
5. PROVIDE LIFTING DEVICES IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. PROVIDE CAST IRON SOLID COVER, UNLESS NOTED OTHERWISE ELSEWHERE IN THE PLANS.
7. CHAMFER VERTICAL EDGES OF INLET LID ¾" AS SHOWN IN SECTION B-B.

INSTALLATION NOTES:

1. INLET THROAT AND LID ARE NOT INTENDED FOR DIRECT TRAFFIC. DO NOT PLACE IN ROADWAY.
2. SEAL TONGUE AND GROOVE JOINTS AND BUTT 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 ½ THE JOINT DEPTH, WHICHEVER IS GREATER.
3. DO NOT GROUT RUBBER GASKET JOINTS WITHOUT MANUFACTURER'S RECOMMENDATION.
4. REFERENCE POINT IS LOCATED WHERE THE CENTERLINE (℄) OF THE MAIN THROAT INTERSECTS THE NORMAL GUTTER LINE. REFER TO STD. DETAIL 02771-04 CURB AND GUTTER TRANSITION FOR PRECAST INLET TYPE C, C-1, AND C-2.

GENERAL NOTES:

1. DESIGNED ACCORDING TO ASTM C913.
2. OPEN AREA OF MAIN THROAT = 360 SQ IN. OPEN AREA OF ONE EXTENSION THROAT = 324 SQ IN.
3. PAYMENT FOR INLET IS PER COH STANDARD SPECIFICATION 02633. EXTENSIONS ARE SUBSIDIARY TO INLET.
4. DIMENSION VARIES BASED ON PIPE DIAMETER AND WALL THICKNESS.

APPROVED BY:	APPROVED BY:
Signed by: 1BEBB22072F84DC...	Signed by: BE463EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR-02-2026	DWG NO: 02633-03

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PRECAST CONCRETE STORM SEWER INLET TYPE "C", "C-1", AND "C-2"

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

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FIRM NO. F-11278
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JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 4 OF 13

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 174 OF 345

DISCLAIMER:
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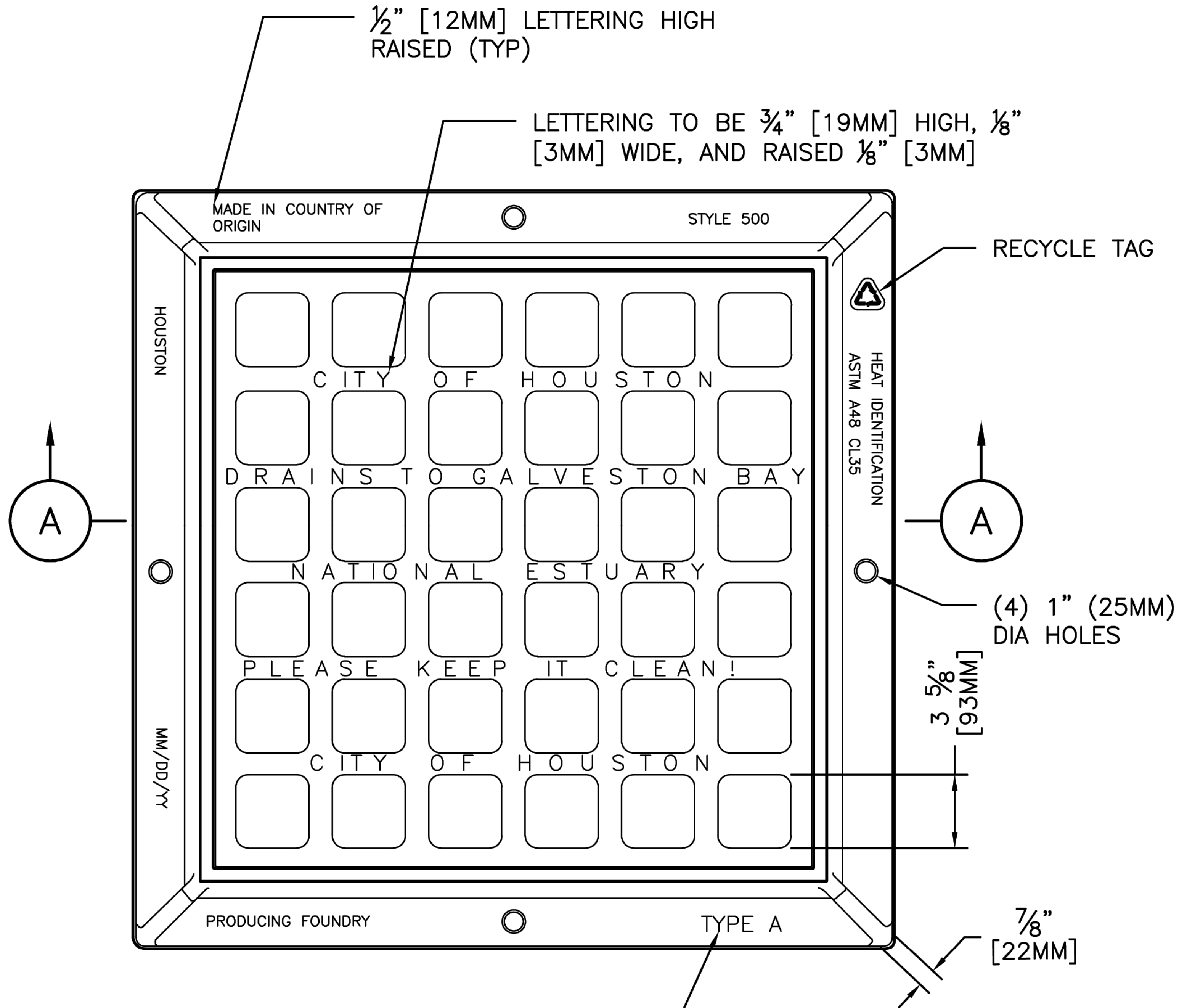
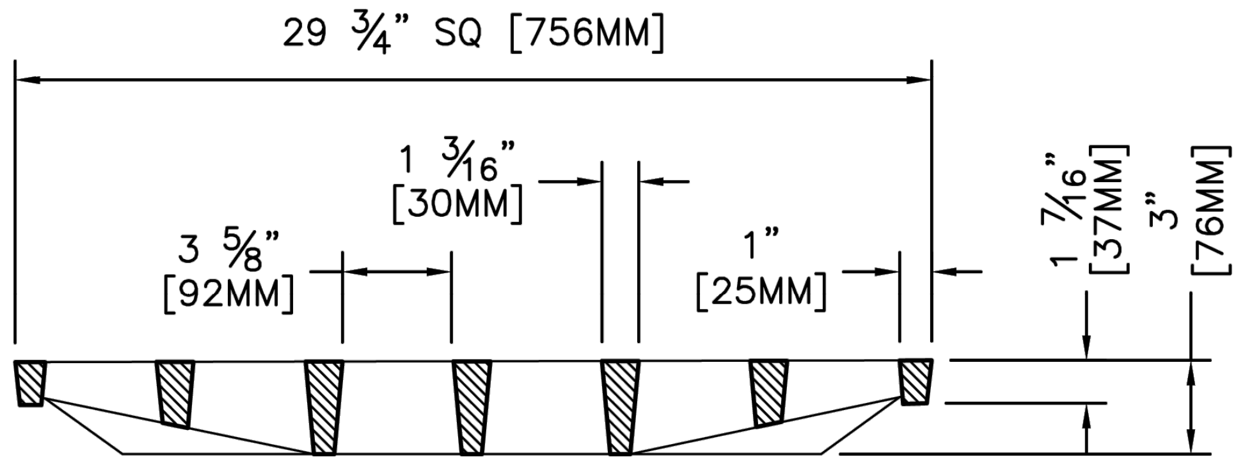
j:\2021\210601.01\cad\dwgs\sheets\09 - drainage standards\drainage standard 04.dwg Plotted April 15, 2026 at 6:11 PM by Gawali, Ajinkya Ashok


½" [12MM] LETTERING HIGH RAISED (TYP)
LETTERING TO BE ¾" [19MM] HIGH, ⅛" [3MM] WIDE, AND RAISED ⅛" [3MM]
MADE IN COUNTRY OF ORIGIN
STYLE 500
RECYCLE TAG
HOUSTON
HEAT IDENTIFICATION ASTM A48 CL35
CITY OF HOUSTON
DRAINS TO GALVESTON BAY
NATIONAL ESTUARY
PLEASE KEEP IT CLEAN!
CITY OF HOUSTON
A
A
(4) 1" (25MM) DIA HOLES
3 ⅝" [93MM]
MM/DD/YY
PRODUCING FOUNDRY
TYPE A
⅞" [22MM]
¾" [19MM] LETTERING HIGH RAISED

TOP VIEW


29 ¾" SQ [756MM]
1 3⁄16" [30MM]
3 ⅝" [92MM]
1" [25MM]
1 7⁄16" [37MM]
3" [76MM]

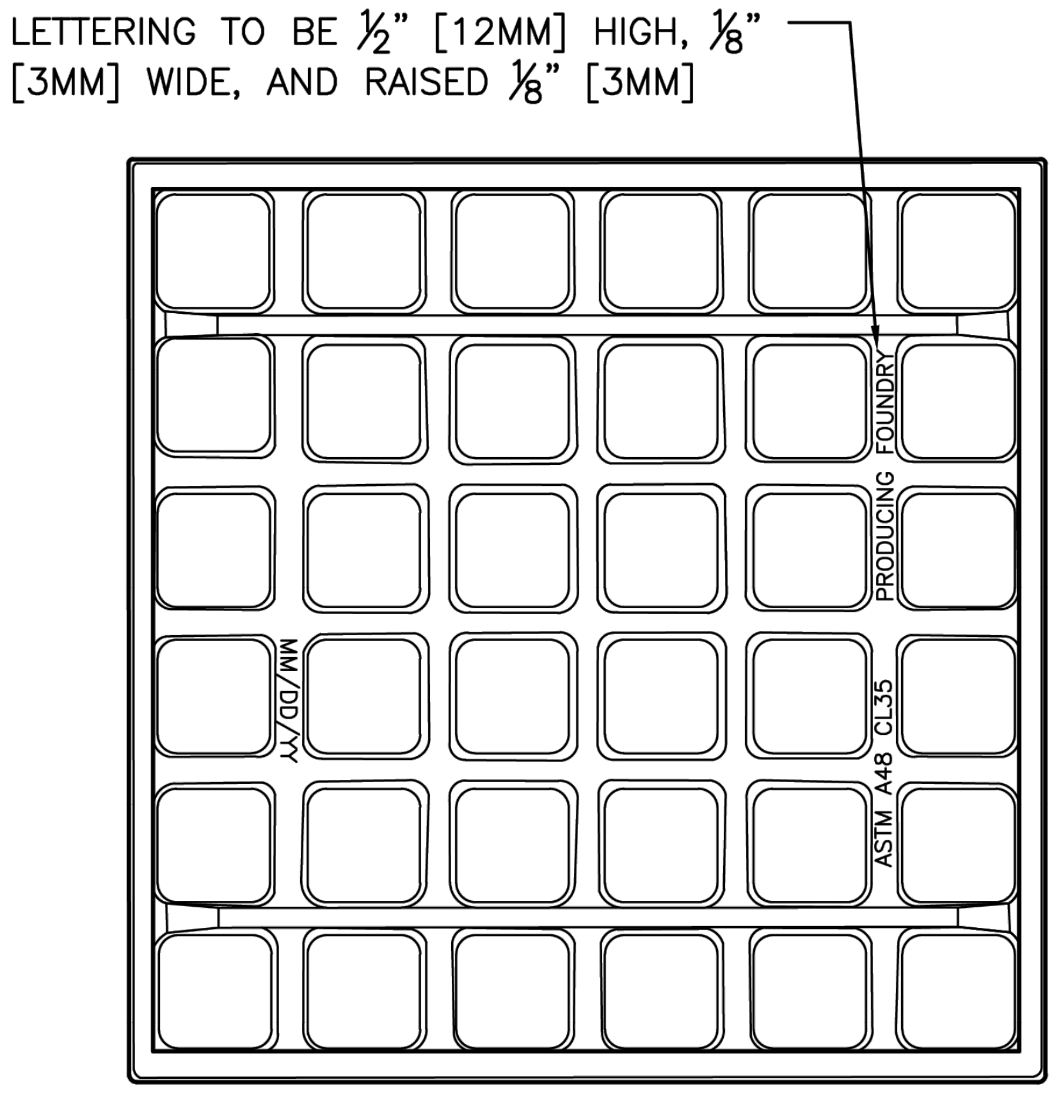
GRATE SECTION

NOTES:

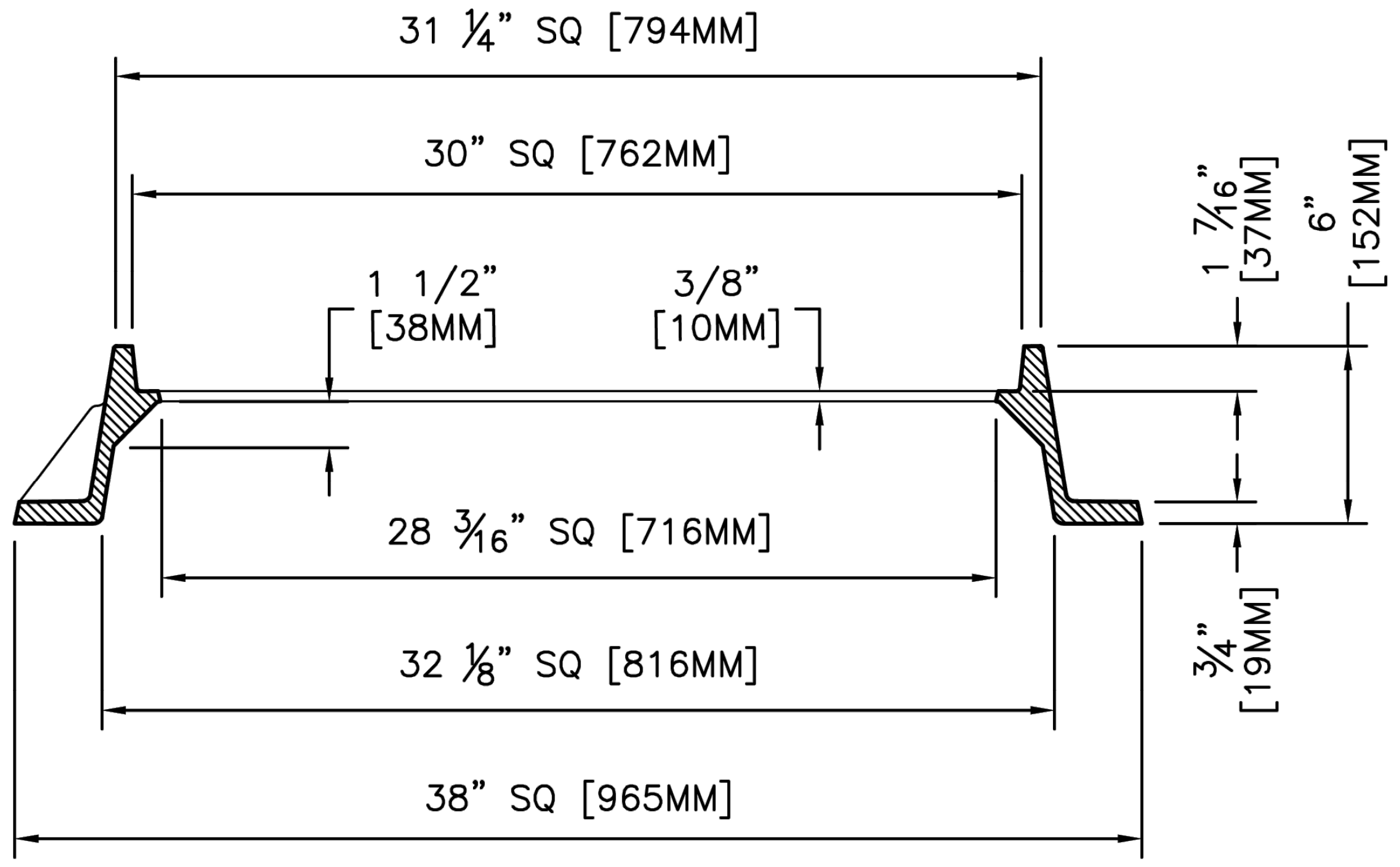
1. APPROXIMATE WEIGHTS:

GRATE	–	190 LBS (86KG)
FRAME	–	235 LBS (107KG)
UNIT	–	425 LBS (193KG)

2. MATERIAL– GRAY IRON ASTM A48 CL35B.
3. CASTING MUST BE MANUFACTURED AND PROOF TESTED IN ACCORDANCE WITH AASHTO M306.
4. EJ V4880 ASY OR APPROVED EQUAL.
5. OPEN AREA OF GRATE 473 SQ. IN. [3051 SQ.CM.].
6. IDENTIFICATION MARKINGS MUST COMPLY WITH CITY SPECIFICATIONS. MARKINGS NOT SHOWN ON THIS DETAIL MUST BE PLACED ON THE CASTING:
   A. PROVIDE ALL FRAME MARKINGS ON THE TOP SIDE OF THE FRAME.
   B. PROVIDE GRATE AND COVER MARKINGS ON EITHER TOP OR BOTTOM OF CASTING.


LETTERING TO BE ½" [12MM] HIGH, ⅛" [3MM] WIDE, AND RAISED ⅛" [3MM]
PRODUCING FOUNDRY
MM/DD/YY
ASTM A48 CL35

BOTTOM VIEW OF GRATE


31 ¼" SQ [794MM]
30" SQ [762MM]
1 1/2" [38MM]
3/8" [10MM]
1 7⁄16" [37MM]
6" [152MM]
28 3⁄16" SQ [716MM]
32 ⅛" SQ [816MM]
¾" [19MM]
38" SQ [965MM]

FRAME SECTION

SECTION A–A

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER TYPE "A" INLET GRATE AND FRAME

(SCALE: NOT TO SCALE)

APPROVED BY:

Signed by: 1BEBB22072F84DC...	Signed by: BE463EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: MAR–02–2026	DWG NO: 02090–07

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.

j:\2021\210601.01\cad\dwgs\sheets\09 – drainage standards\drainage standard 05.dwg Plotted April 15, 2026 at 6:16 PM by Gawali, Ajinkya Ashok

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416

4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 5 OF 13

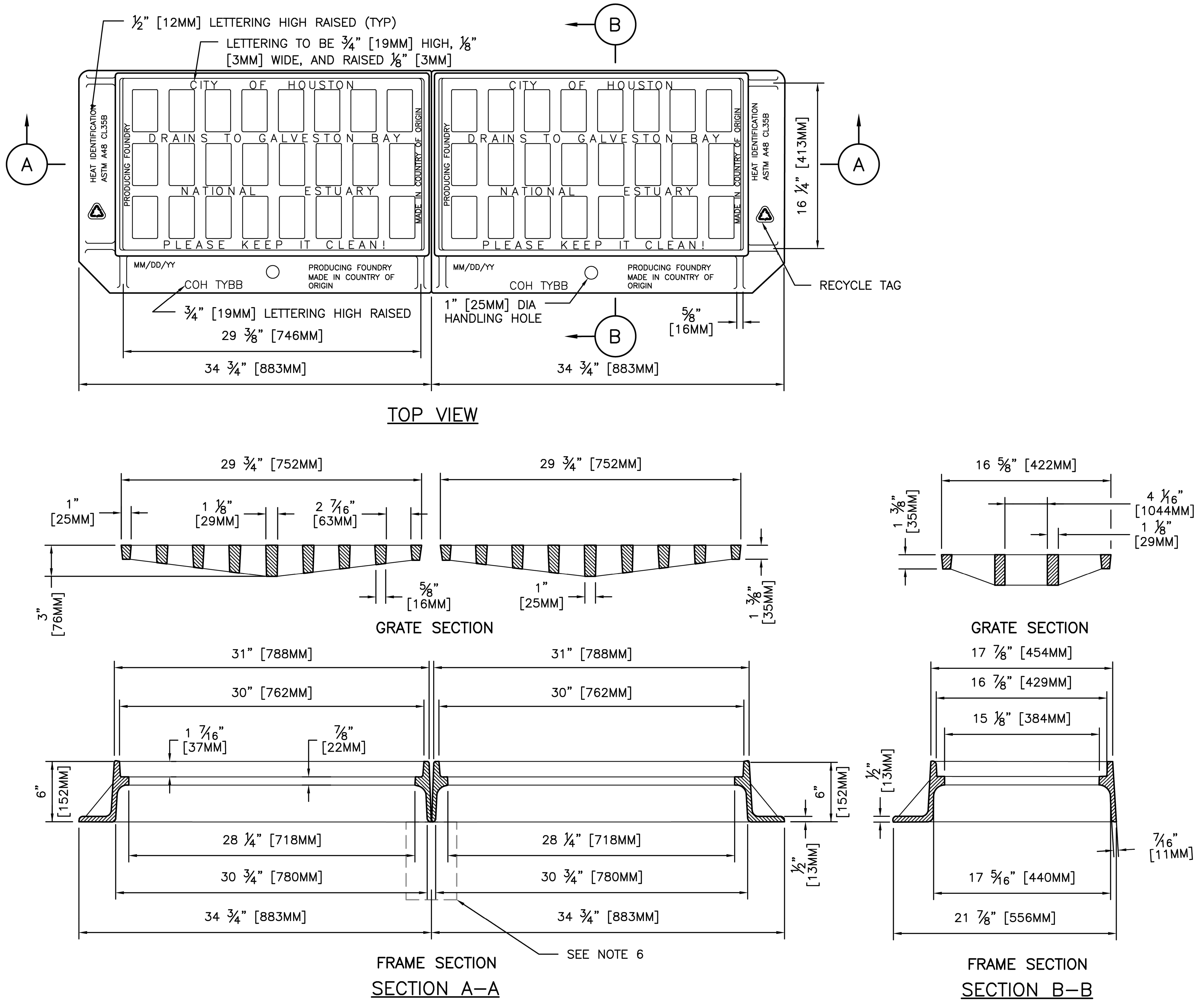
WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 175 OF 345


½" [12MM] LETTERING HIGH RAISED (TYP)
LETTERING TO BE ¾" [19MM] HIGH, ⅛" [3MM] WIDE, AND RAISED ⅛" [3MM]
B
A
CITY OF HOUSTON
DRAINS TO GALVESTON BAY
NATIONAL ESTUARY
PLEASE KEEP IT CLEAN!
HEAT IDENTIFICATION
ASTM A48 CL35B
PRODUCING FOUNDRY
MADE IN COUNTRY OF ORIGIN
MM/DD/YY
COH TYBB
PRODUCING FOUNDRY MADE IN COUNTRY OF ORIGIN
16 ¼" [413MM]
RECYCLE TAG
¾" [19MM] LETTERING HIGH RAISED
1" [25MM] DIA HANDLING HOLE
⅝" [16MM]
29 ⅜" [746MM]
34 ¾" [883MM]
34 ¾" [883MM]
TOP VIEW
29 ¾" [752MM]
29 ¾" [752MM]
1" [25MM]
1 ⅛" [29MM]
2 7⁄16" [63MM]
3" [76MM]
⅝" [16MM]
1" [25MM]
1 ⅜" [35MM]
GRATE SECTION
16 ⅝" [422MM]
1 ⅜" [35MM]
4 1⁄16" [1044MM]
1 ⅛" [29MM]
GRATE SECTION
31" [788MM]
31" [788MM]
30" [762MM]
30" [762MM]
1 7⁄16" [37MM]
⅞" [22MM]
6" [152MM]
6" [152MM]
28 ¼" [718MM]
28 ¼" [718MM]
30 ¾" [780MM]
30 ¾" [780MM]
½" [13MM]
34 ¾" [883MM]
34 ¾" [883MM]
SEE NOTE 6
FRAME SECTION
SECTION A–A
17 ⅞" [454MM]
16 ⅞" [429MM]
15 ⅛" [384MM]
½" [13MM]
7⁄16" [11MM]
17 5⁄16" [440MM]
21 ⅞" [556MM]
FRAME SECTION
SECTION B–B

NOTES:

1. APPROXIMATE WEIGHTS:

   EACH GRATE – 115 LBS (52KGS)
   EACH FRAME – 120 LBS (55KGS)
   EACH UNIT – 235 LBS (107KGS)

2. MATERIAL– GRAY IRON ASTM A48 CL35B.

3. CASTING MUST BE MANUFACTURED AND PROOF TESTED IN ACCORDANCE WITH AASHTO M306.

4. EJ V4243 ASY OR APPROVED EQUAL
   TYPE B–B 480 SQ. IN. [3096 SQ. CM.]
   TYPE B 240 SQ. IN. [1548 SQ. CM.]

5. IDENTIFICATION MARKINGS MUST COMPLY WITH CITY SPECIFICATIONS. MARKINGS NOT SHOWN ON THIS DETAIL MUST BE PLACED ON THE CASTING:

   A. PROVIDE ALL FRAME MARKINGS ON THE TOP SIDE OF THE FRAME.
   B. PROVIDE GRATE AND COVER MARKINGS ON EITHER TOP OR BOTTOM OF CASTING.

6. FOR INLET MAINTENANCE REFER TO COH STD 02632–04. FOR NEW INLET CONSTRUCTION REFER TO COH STD 02633–02.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER FRAME AND GRATE FOR TYPE "B–B" INLET DOUBLE ASSEMBLY
(SCALE: NOT TO SCALE)

APPROVED BY:

Signed by: 1BEBB22072F84DC...	Signed by: BE453EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: MAR–02–2026	DWG NO: 02090–05

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.

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No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
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FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 6 OF 13

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO 176 OF 345

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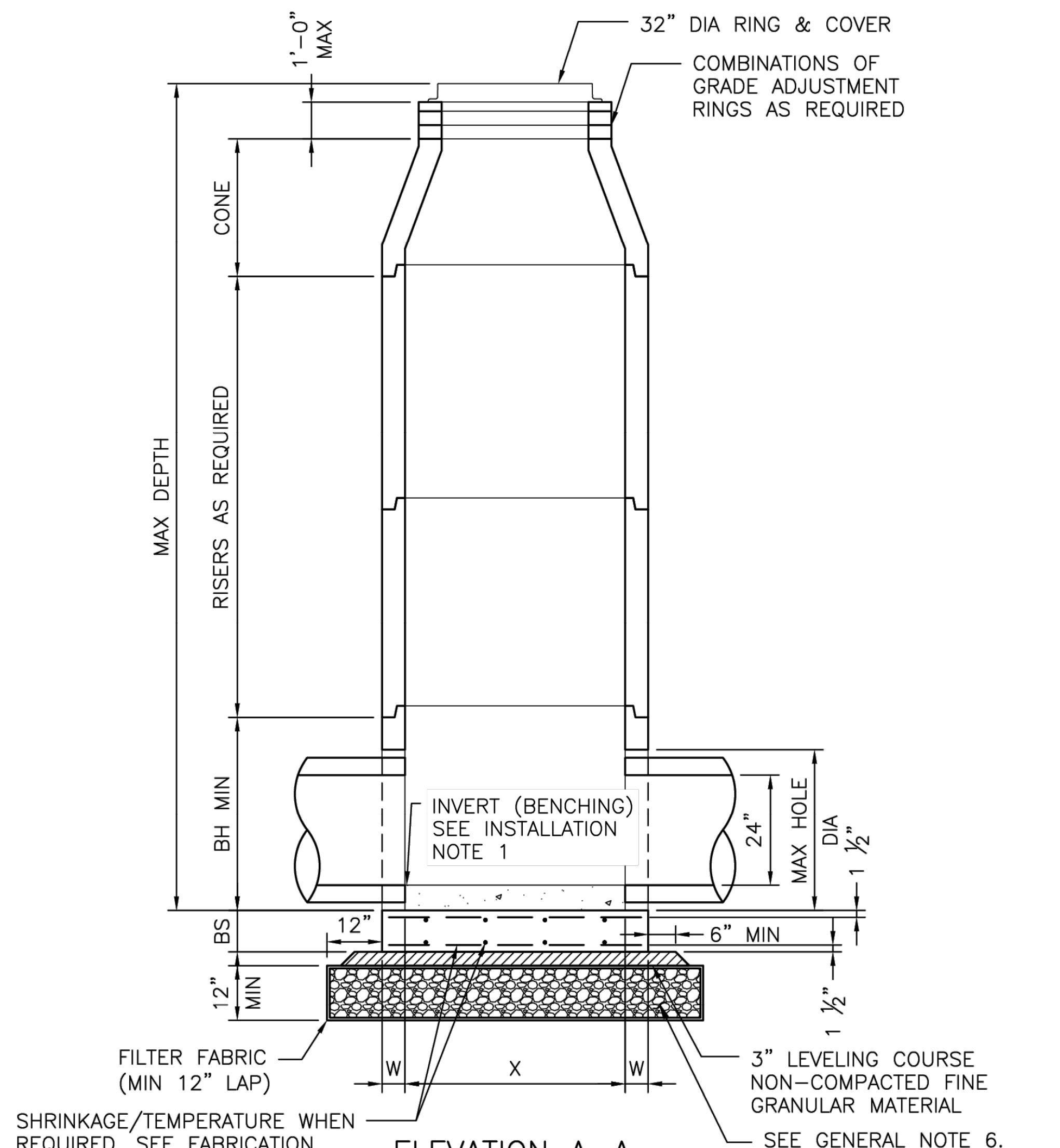
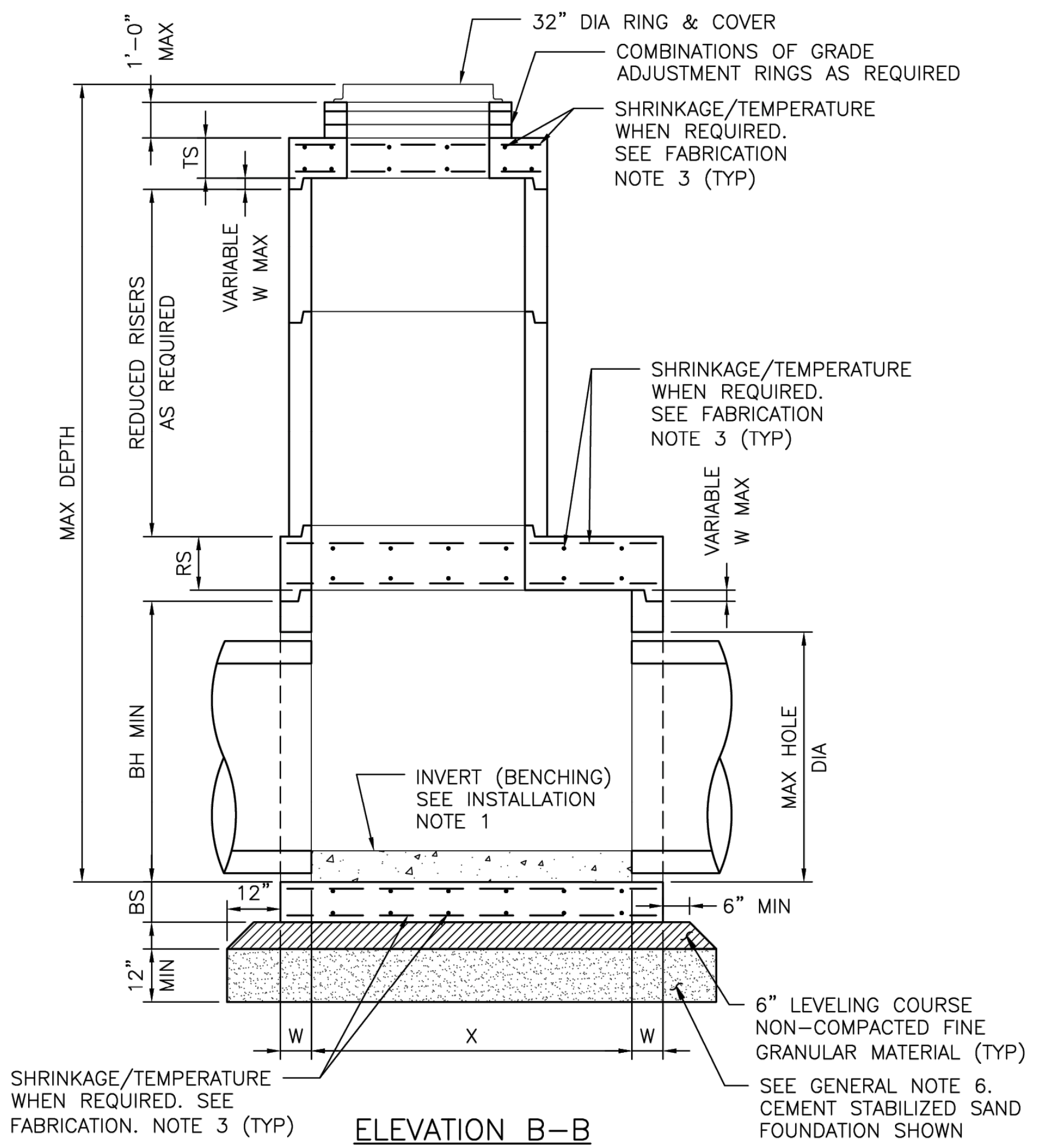

32" DIA RING & COVER
COMBINATIONS OF GRADE ADJUSTMENT RINGS AS REQUIRED
1'-0" MAX
CONE
RISERS AS REQUIRED
MAX DEPTH
BH MIN
BS
12" MIN
INVERT (BENCHING) SEE INSTALLATION NOTE 1
24"
MAX HOLE DIA
1 ½"
12"
6" MIN
1 ½"
W
X
W
FILTER FABRIC (MIN 12" LAP)
SHRINKAGE/TEMPERATURE WHEN REQUIRED. SEE FABRICATION NOTE 3 (TYP)
3" LEVELING COURSE NON-COMPACTED FINE GRANULAR MATERIAL
SEE GENERAL NOTE 6. CRUSHED STONE FOUNDATION W/ FILTER FABRIC SHOWN

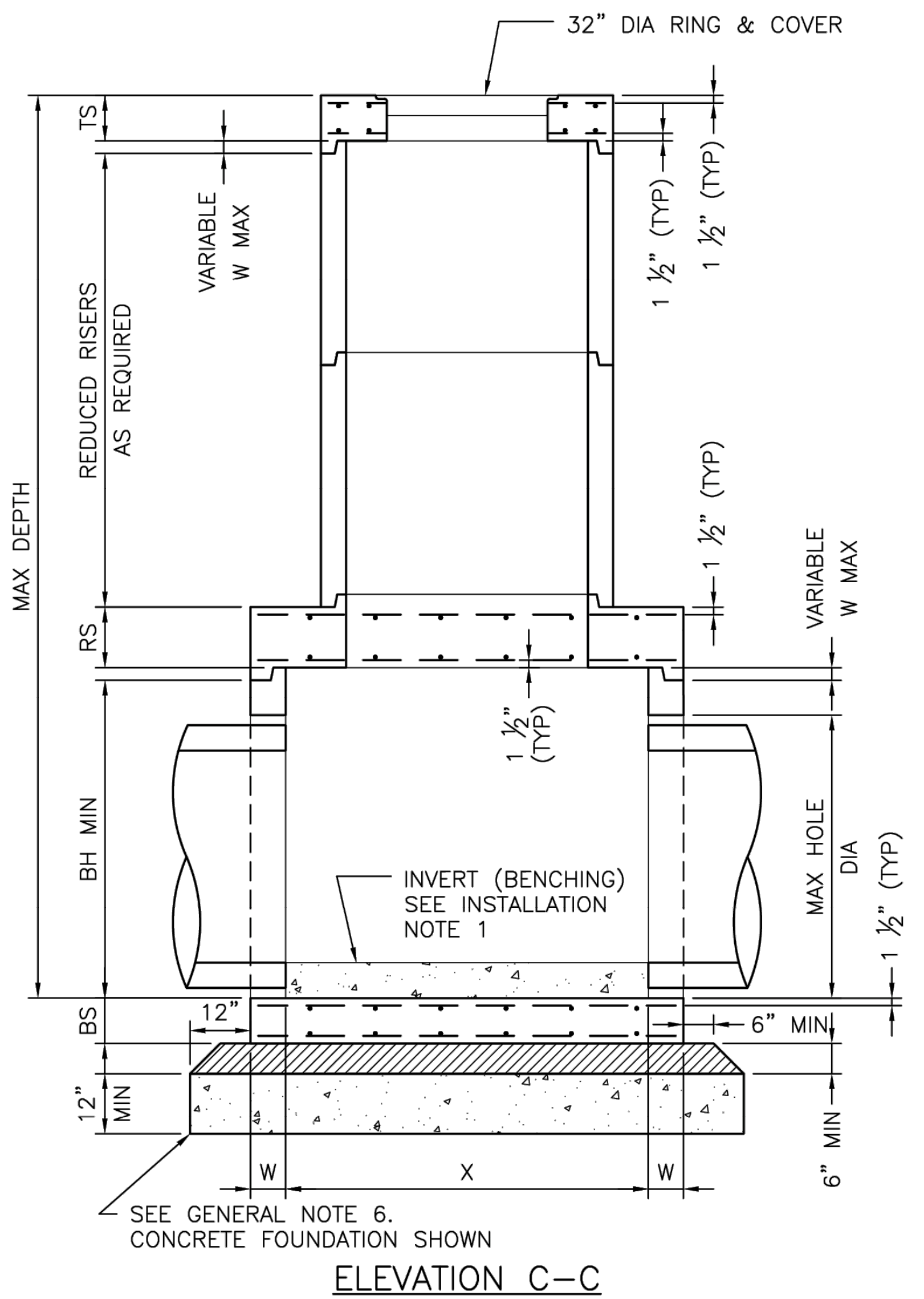
ELEVATION A–A

CONE TOP WITH SHIP LOOSE RING & COVER OPTION


32" DIA RING & COVER
COMBINATIONS OF GRADE ADJUSTMENT RINGS AS REQUIRED
SHRINKAGE/TEMPERATURE WHEN REQUIRED. SEE FABRICATION NOTE 3 (TYP)
1'-0" MAX
TS
VARIABLE W MAX
REDUCED RISERS AS REQUIRED
MAX DEPTH
SHRINKAGE/TEMPERATURE WHEN REQUIRED. SEE FABRICATION NOTE 3 (TYP)
VARIABLE W MAX
RS
BH MIN
MAX HOLE DIA
INVERT (BENCHING) SEE INSTALLATION NOTE 1
BS
12" MIN
12"
6" MIN
W
X
W
6" LEVELING COURSE NON-COMPACTED FINE GRANULAR MATERIAL (TYP)
SEE GENERAL NOTE 6. CEMENT STABILIZED SAND FOUNDATION SHOWN
SHRINKAGE/TEMPERATURE WHEN REQUIRED. SEE FABRICATION. NOTE 3 (TYP)

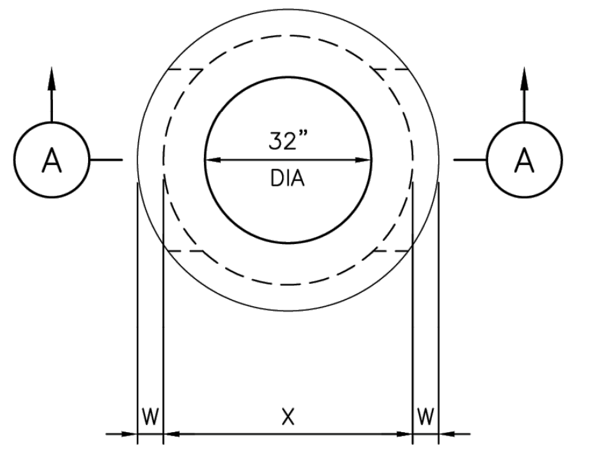
ELEVATION B–B

FLAT SLAB TOP WITH SHIP LOOSE RING & COVER OPTION


32" DIA RING & COVER
TS
VARIABLE W MAX
1 ½" (TYP)
1 ½" (TYP)
REDUCED RISERS AS REQUIRED
MAX DEPTH
1 ½" (TYP)
VARIABLE W MAX
RS
1 ½" (TYP)
BH MIN
MAX HOLE DIA
1 ½" (TYP)
INVERT (BENCHING) SEE INSTALLATION NOTE 1
BS
12" MIN
12"
6" MIN
6" MIN
W
X
W
SEE GENERAL NOTE 6. CONCRETE FOUNDATION SHOWN

ELEVATION C–C

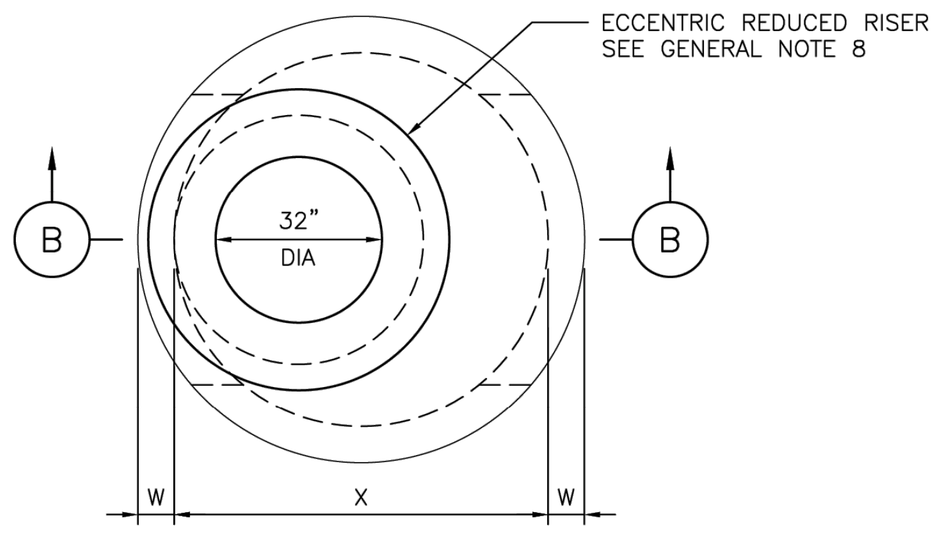
FLAT SLAB TOP WITH INVERTED RING & COVER OPTION


A
A
32" DIA
W
X
W

PLAN VIEW A

COVER NOT SHOWN

4–FT DIA MANHOLE

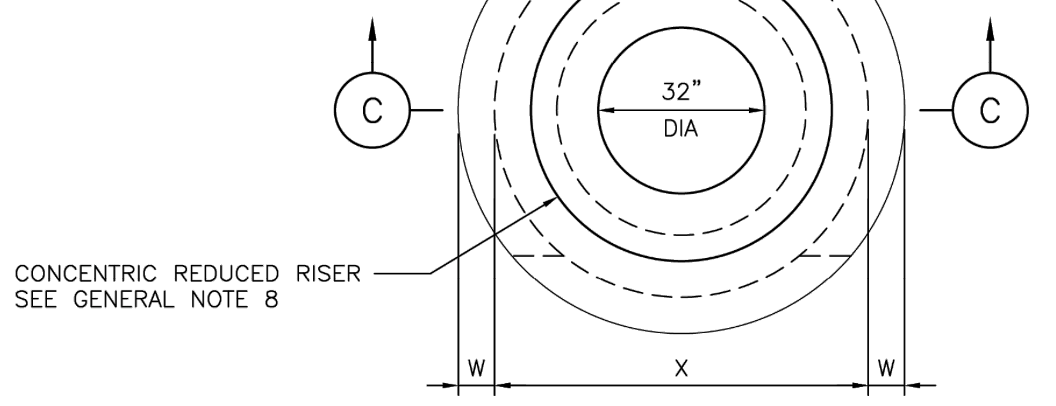

ECCENTRIC REDUCED RISER SEE GENERAL NOTE 8
B
B
32" DIA
W
X
W

PLAN VIEW B

COVER NOT SHOWN

5–FT & 6–FT DIA MANHOLE

ECCENTRIC MANHOLE
(PREFERRED CONFIGURATION)


C
C
32" DIA
CONCENTRIC REDUCED RISER SEE GENERAL NOTE 8
W
X
W

PLAN VIEW C

COVER NOT SHOWN

5–FT & 6–FT DIA MANHOLE

ECCENTRIC MANHOLE
(ALTERNATE CONFIGURATION)

TABLE–1

PRECAST ROUND MANHOLE (PRM) MINIMUM REQUIREMENTS FOR 24 IN. TO 42 IN. INTERNAL DIA STORM SEWER PIPES

	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
	X	BS	W	ID	RS	TS	MAX DEPTH	BH MIN	MAX HOLE DIA
	FT	IN.	IN.	IN.	IN.	IN.	FT.	IN.	IN.
PRM	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 IN^2/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 ¾".
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 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 ½ 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.

APPROVED BY:	APPROVED BY:
Signed by: 1BEBB22072F84DC...	Signed by: BE463EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: MAR–02–2026	DWG NO: 02082–12

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER TYPE "C"
PRECAST ROUND MANHOLE

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

No.	Date	Revisions	App.

FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 7 OF 13

WBS NO. M–430296–0017–3

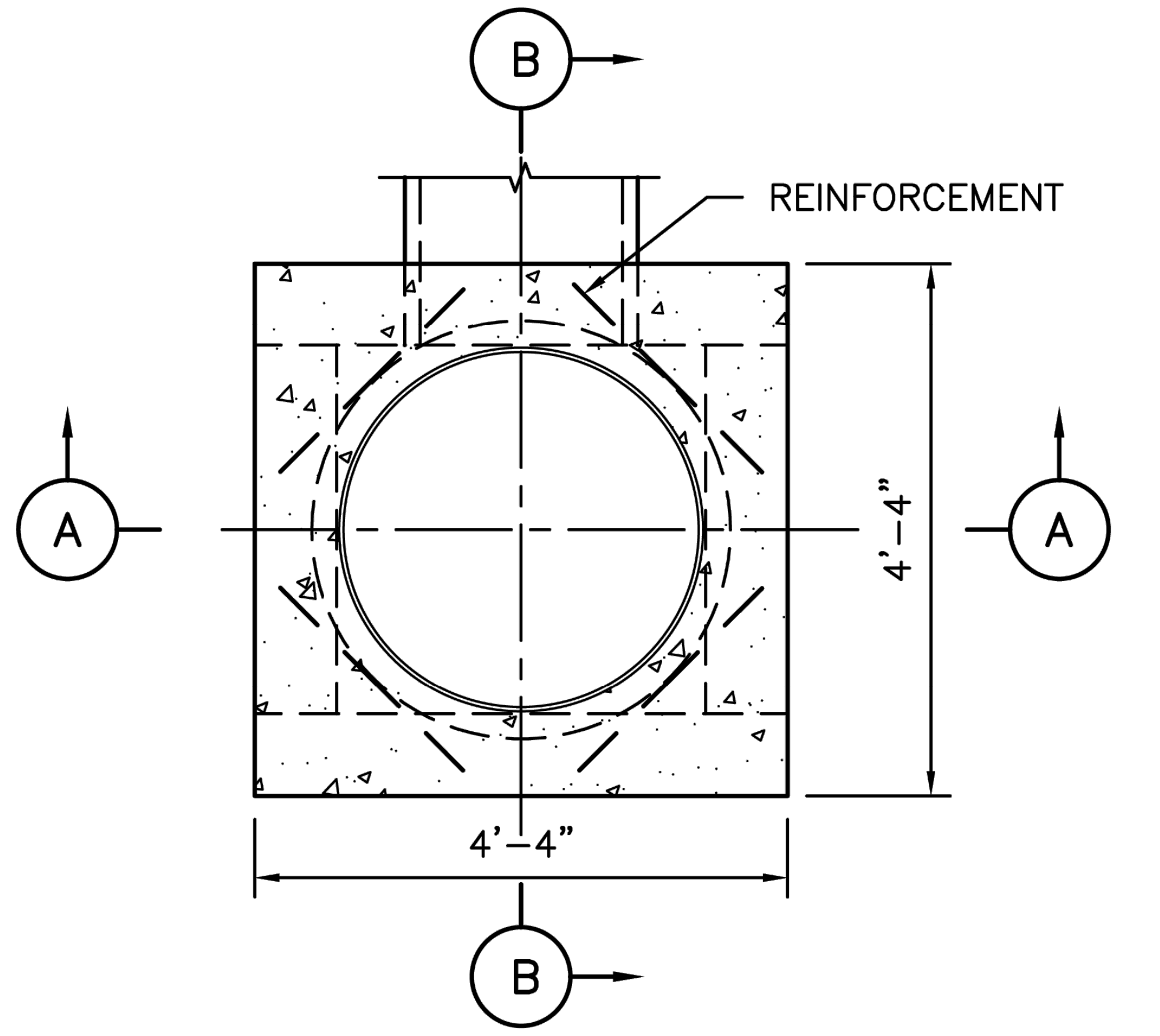
DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 177 OF 345

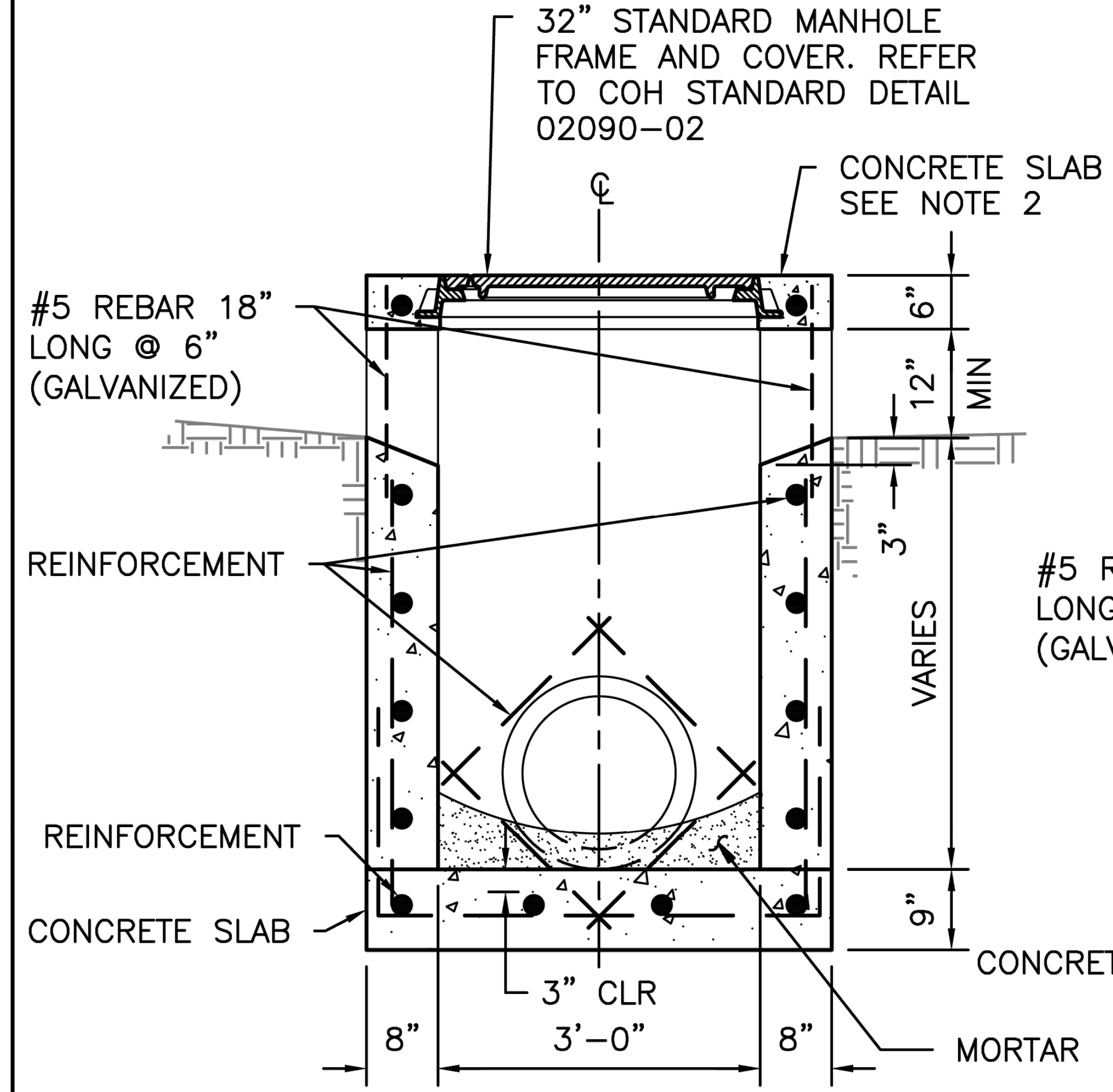
No.	Date	Revisions	App.


B
REINFORCEMENT
A
A
4'-4"
4'-4"
B

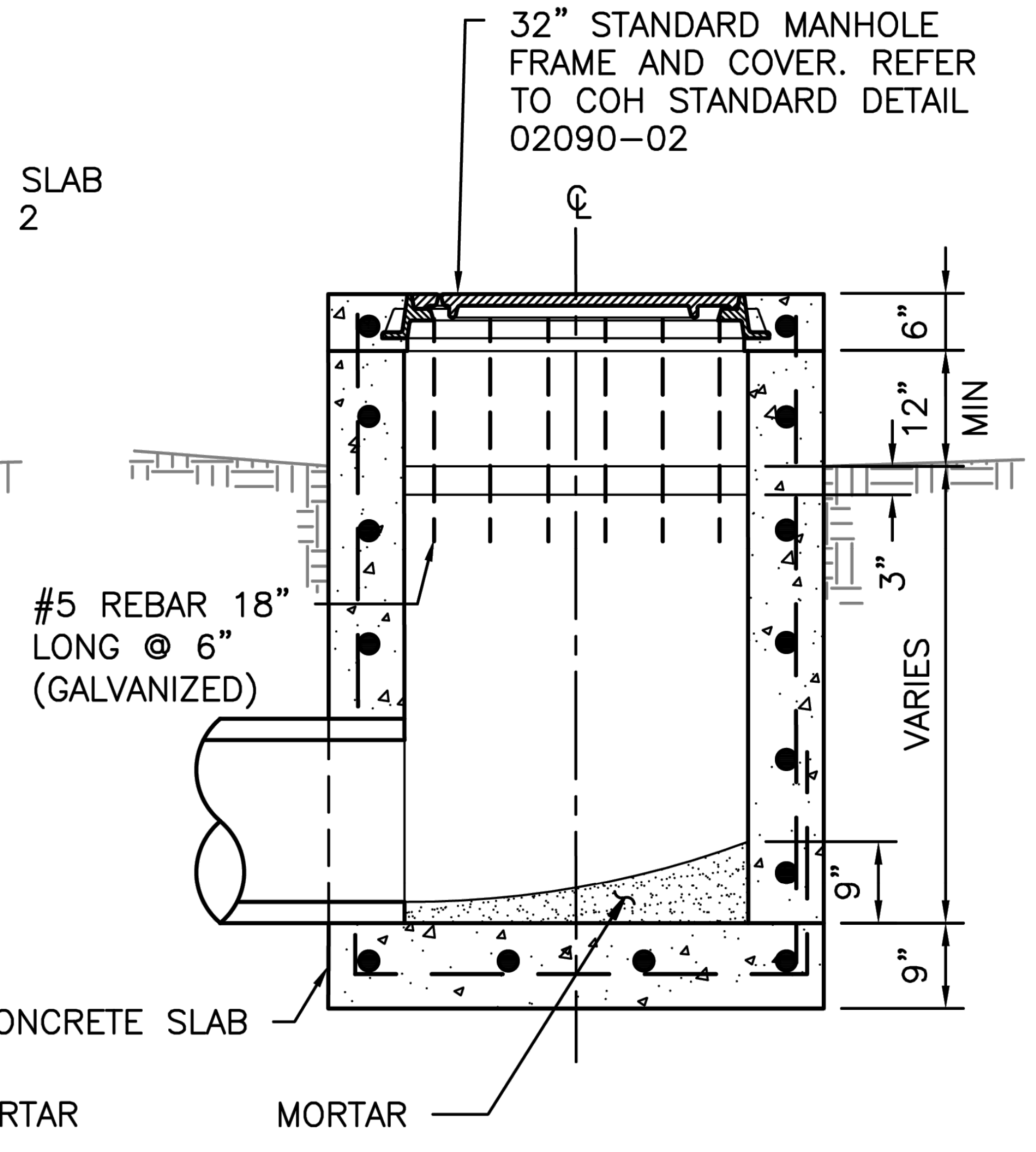
PLAN VIEW

NOTES:

1. TYPE "E" INLET TOP CAN BE CONSTRUCTED ON A STANDARD "C" MANHOLE.
2. PROVIDE CLASS A CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AND GRADE 60 REINFORCING STEEL IN ACCORDANCE WITH COH STANDARD SPECIFICATION SECTION 03315.
3. ENGINEER OF OF RECORD TO DESIGN REINFORCEMENT AND ENSURE THE DESIGN MEETS THE PROJECT REQUIREMENTS.


32" STANDARD MANHOLE FRAME AND COVER. REFER TO COH STANDARD DETAIL 02090-02
CONCRETE SLAB SEE NOTE 2
℄
#5 REBAR 18" LONG @ 6" (GALVANIZED)
REINFORCEMENT
REINFORCEMENT
CONCRETE SLAB
6"
12" MIN
3"
VARIES
9"
3" CLR
8"
3'-0"
8"
MORTAR

SECTION A–A


32" STANDARD MANHOLE FRAME AND COVER. REFER TO COH STANDARD DETAIL 02090-02
℄
#5 REBAR 18" LONG @ 6" (GALVANIZED)
CONCRETE SLAB
MORTAR
6"
12" MIN
3"
VARIES
9"
9"

SECTION B–B

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.

APPROVED BY:

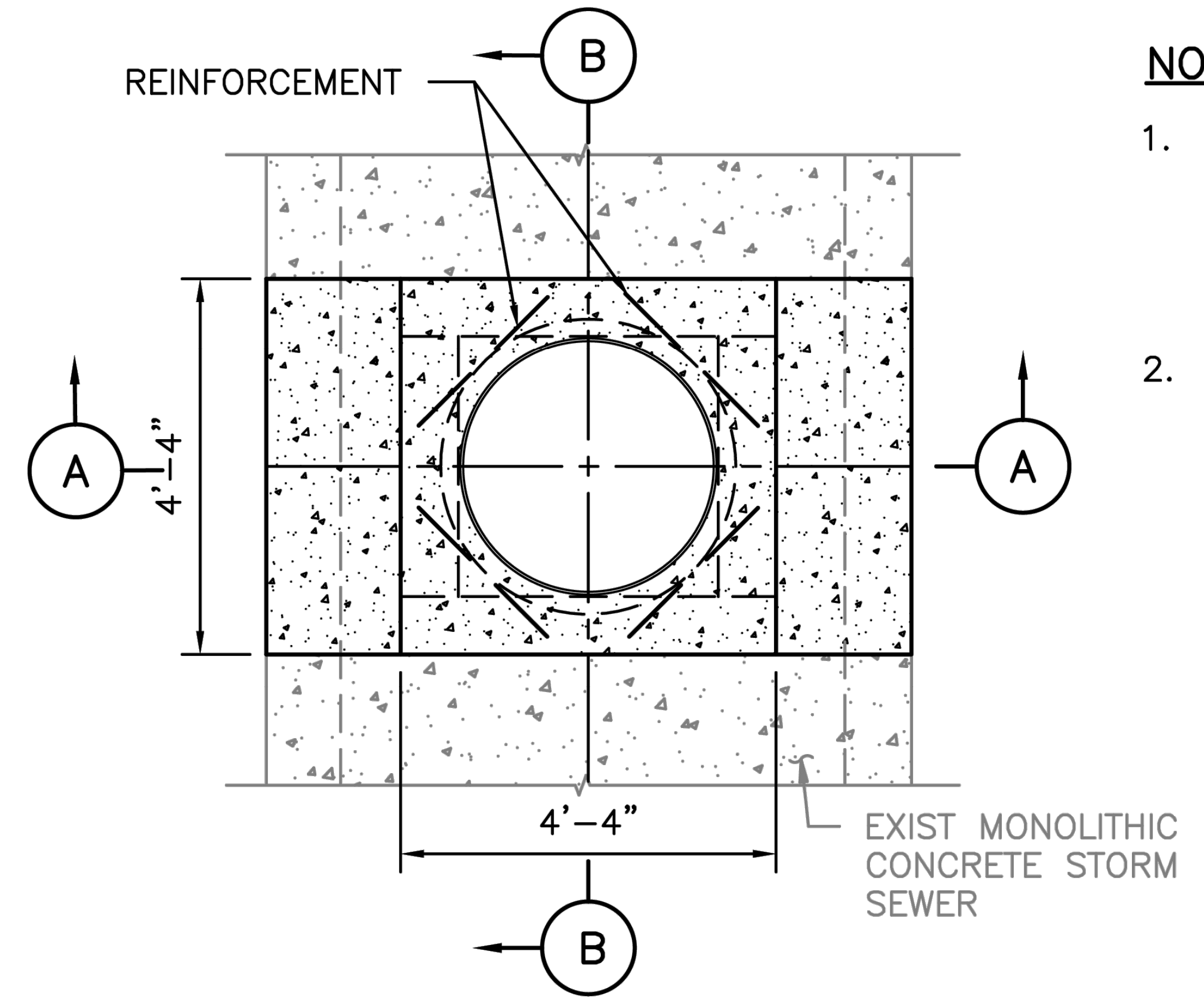
Signed by: 1BEBB22072F84DC... CITY ENGINEER	Signed by: BE463EF0DF454EB... DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER TYPE "E" INLET

(SCALE: NOT TO SCALE)

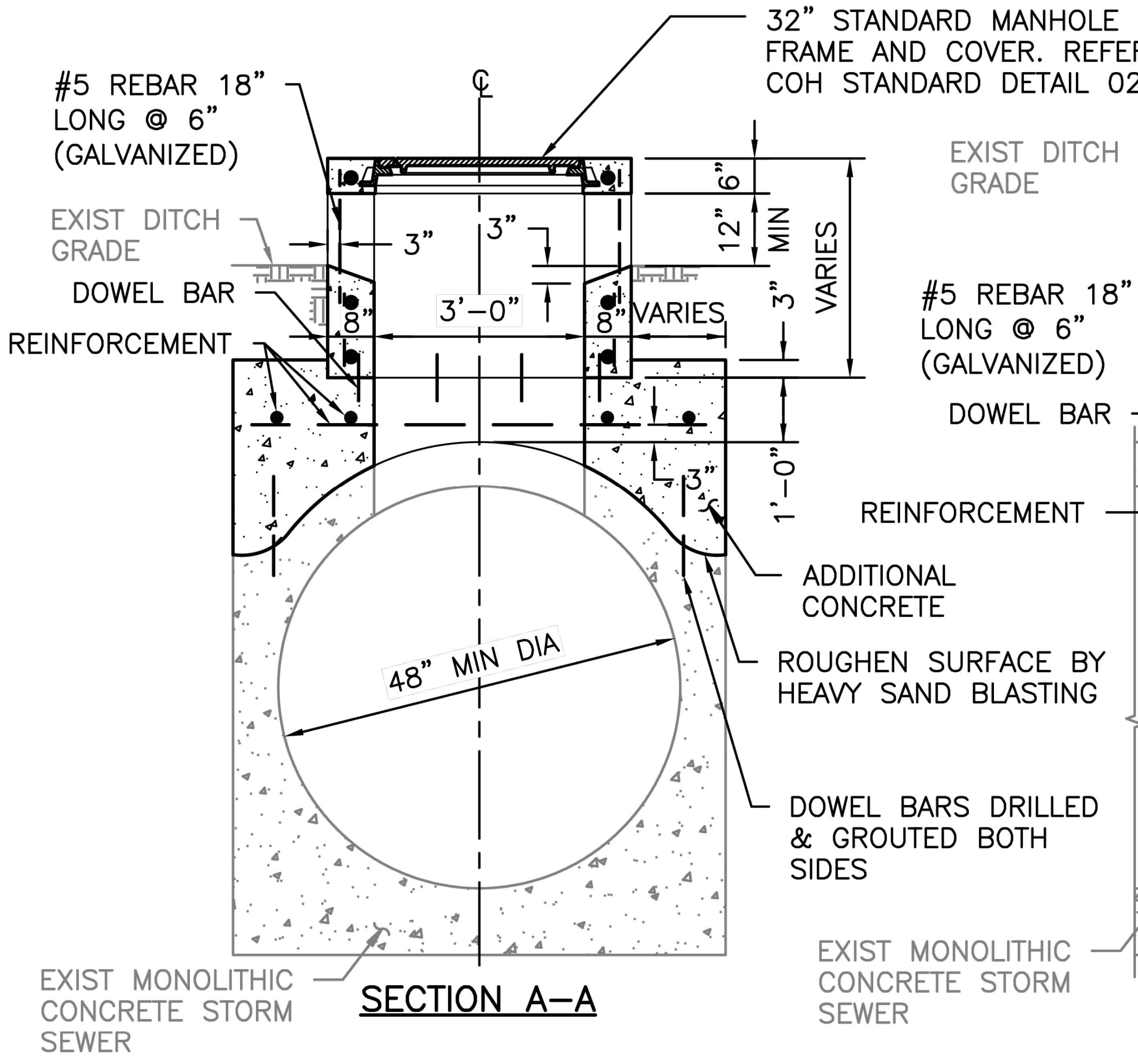
EFF DATE: MAR–02–2026 | DWG NO: 02632–09


REINFORCEMENT
B
A
A
4'-4"
4'-4"
EXIST MONOLITHIC CONCRETE STORM SEWER
B

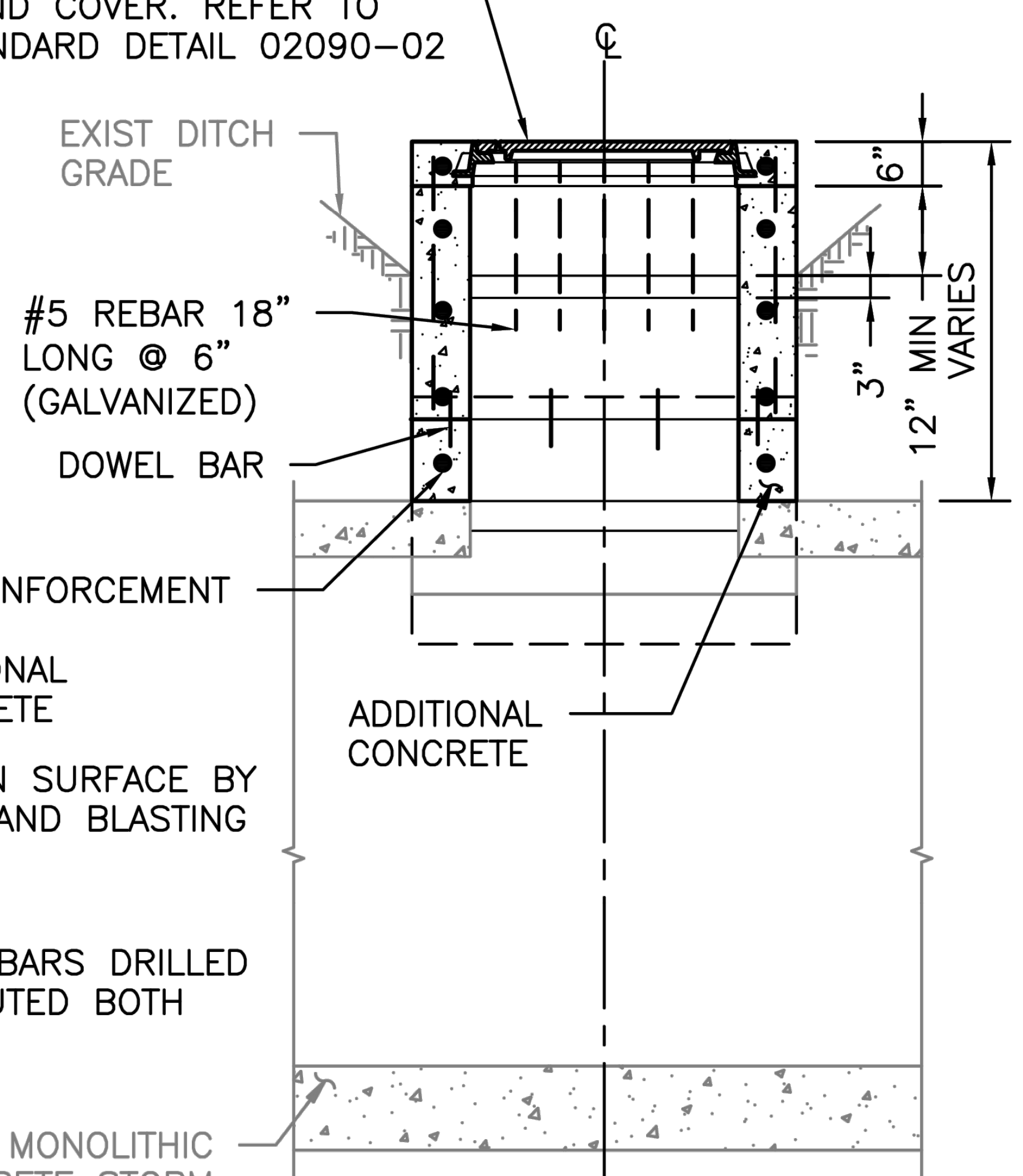
PLAN VIEW
COVER NOT SHOWN

NOTE:

1. PROVIDE CLASS A CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AND GRADE 60 REINFORCING STEEL IN ACCORDANCE WITH COH STANDARD SPECIFICATION SECTION 03315.
2. THE REINFORCEMENT DESIGN WILL BE BY THE ENGINEER OF OF RECORD TO DESIGN REINFORCEMENT AND ENSURE THE DESIGN MEETS THE PROJECT REQUIREMENTS.


32" STANDARD MANHOLE FRAME AND COVER. REFER TO COH STANDARD DETAIL 02090-02
#5 REBAR 18" LONG @ 6" (GALVANIZED)
℄
EXIST DITCH GRADE
DOWEL BAR
REINFORCEMENT
3"
3"
3'-0"
8"
8"
VARIES
6"
12" MIN
3"
VARIES
1'-0"
3"
48" MIN DIA
REINFORCEMENT
ADDITIONAL CONCRETE
ROUGHEN SURFACE BY HEAVY SAND BLASTING
DOWEL BARS DRILLED & GROUTED BOTH SIDES
EXIST MONOLITHIC CONCRETE STORM SEWER
EXIST MONOLITHIC CONCRETE STORM SEWER

SECTION A–A


℄
EXIST DITCH GRADE
#5 REBAR 18" LONG @ 6" (GALVANIZED)
DOWEL BAR
ADDITIONAL CONCRETE
6"
3"
12" MIN
VARIES

SECTION B–B

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.

APPROVED BY:

Signed by: 1BEBB22072F84DC... CITY ENGINEER	Signed by: BE463EF0DF454EB... DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER TYPE "E" INLET
ON EXIST MONOLITHIC CONC
SEWERS OF 48" DIA & GREATER

(SCALE: NOT TO SCALE)

EFF DATE: MAR–02–2026 | DWG NO: 02632–10

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
HR Green
4/15/2026
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 8 OF 13

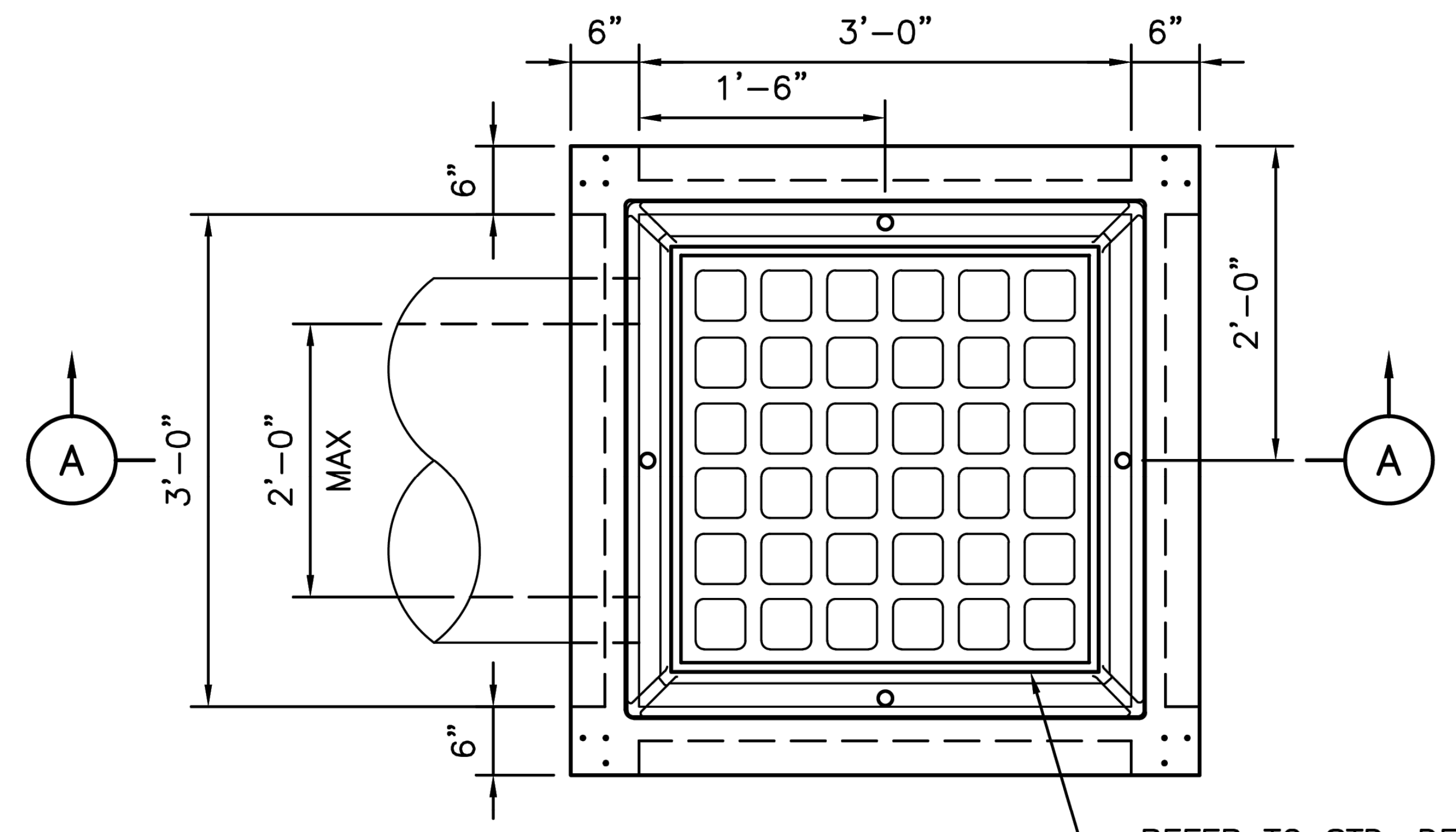
WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 178 OF 345

j:\2021\210601.01\cad\dwgs\sheets\09 – drainage standards\drainage standard 08.dwg Plotted April 15, 2026 at 6:10 PM by Gawali, Ajinkya Ashok

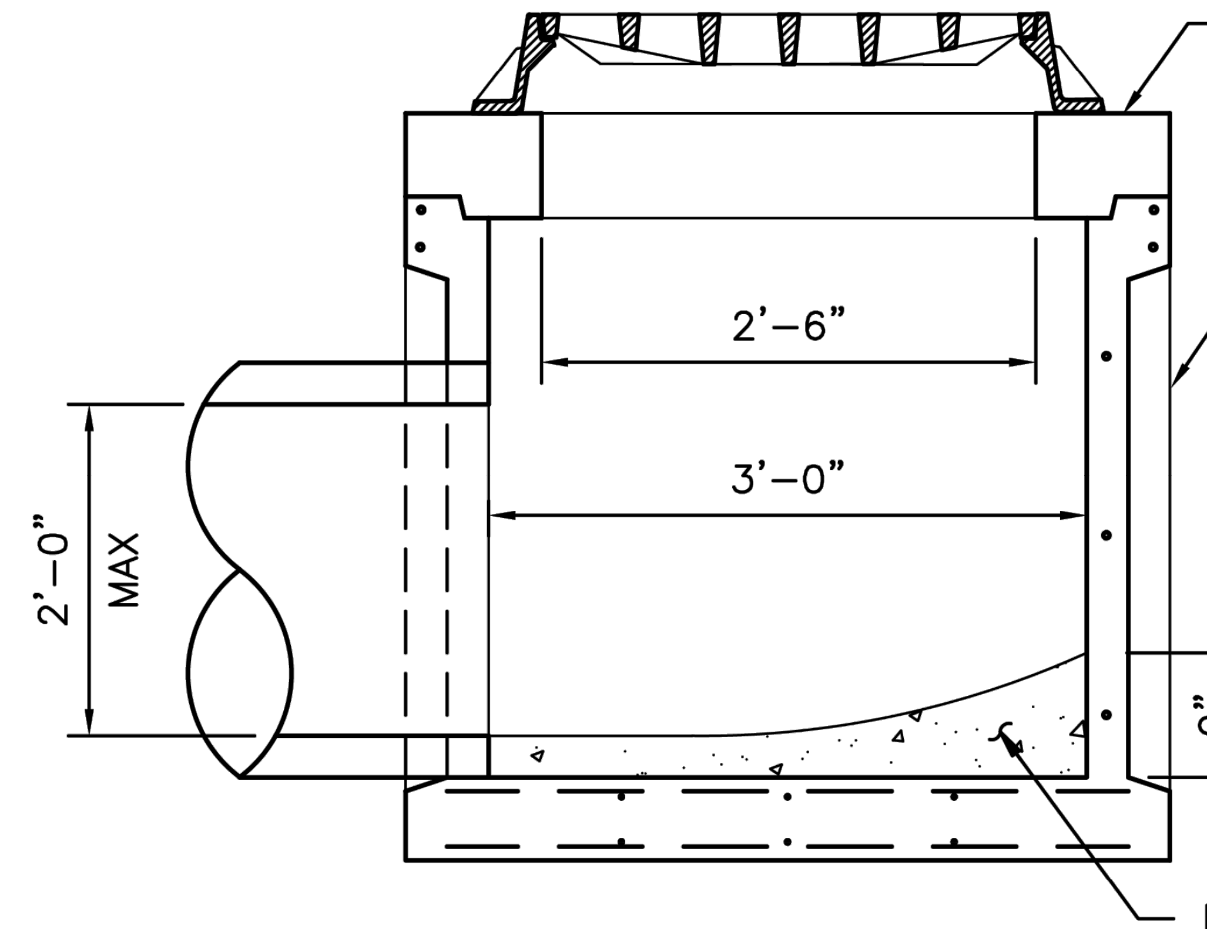


PLAN VIEW

REFER TO STD. DETAIL 02090-07
FOR FRAME & GRATE DETAILS.
SEE NOTE 1

NOTES:

1. THERE ARE DIFFERENT OPTIONS FOR INSTALLATION OF FRAME AND GRATE. REFER TO COH STANDARD DETAIL 02082-14 PRECAST CONCRETE TOP SLAB LIDS FOR DIFFERENT OPTIONS.
2. THIS INLET MAY BE USED IN DRIVEWAYS, PARKING LOTS, SMALL AREAS (CURB AND GUTTER SYSTEM NOT AVAILABLE AREAS). THIS INLET SHALL NOT BE USED ON TRAVEL LANES.



REFER TO STD. DETAIL
02082-14 FOR
PRECAST SLAB LID.
SEE NOTE 1

REFER TO STD. DETAIL
02082-13 FOR
PRECAST BASE AND
FOUNDATION DETAIL

MORTAR

SECTION A-A

SHIP LOOSE FRAME AND GRATE OPTION
(STYLE SH SHOWN)
* SEE NOTE 1

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.

APPROVED BY:

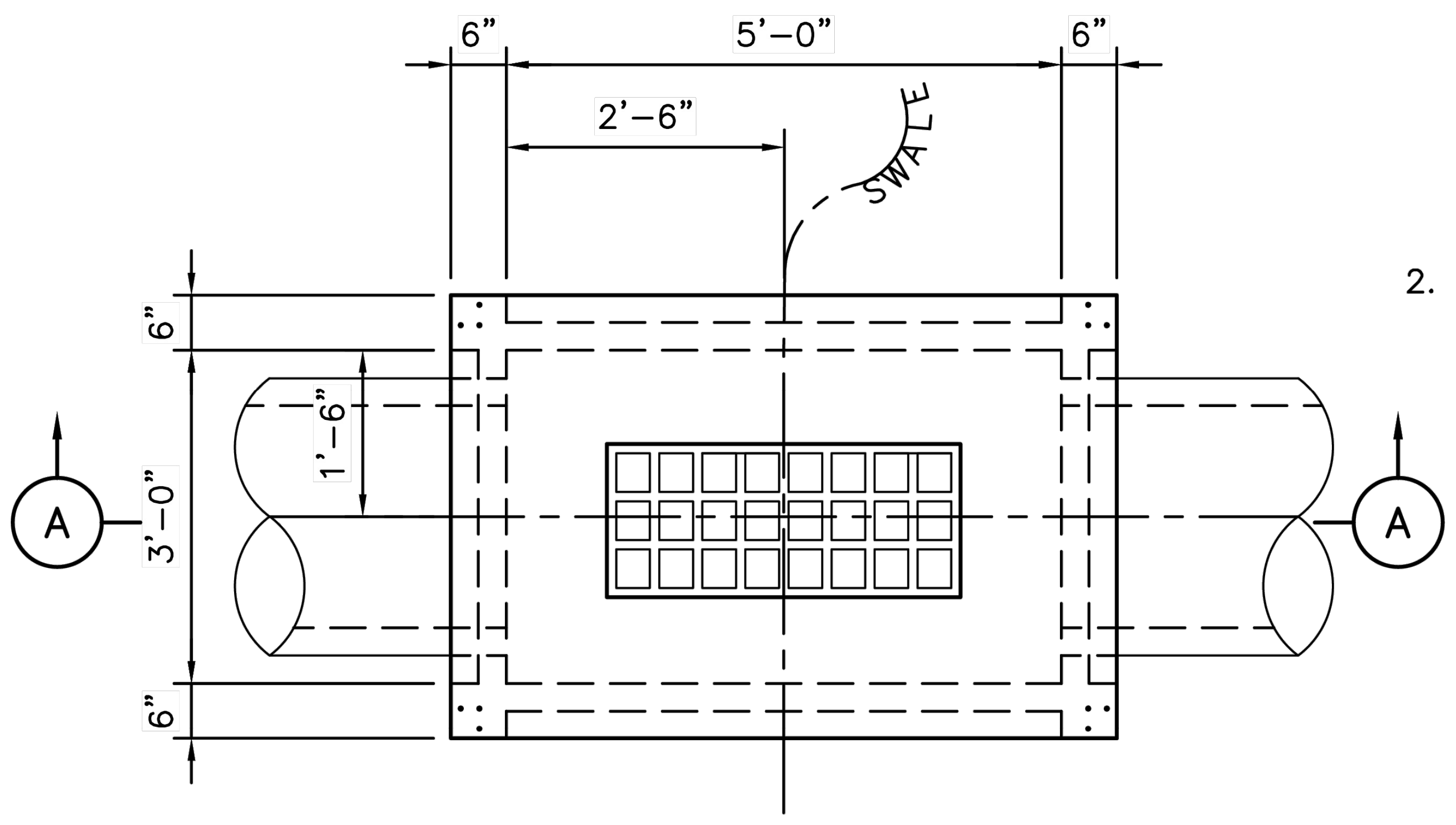
Signed by: 1BEBB22072F84DC... CITY ENGINEER	Signed by: BE463EF0DF454EB... DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PRECAST CONCRETE STORM SEWER
INLET TYPE "A"

(SCALE: NOT TO SCALE)

EFF DATE: MAR-02-2026 | DWG NO: 02633-01



PLAN VIEW

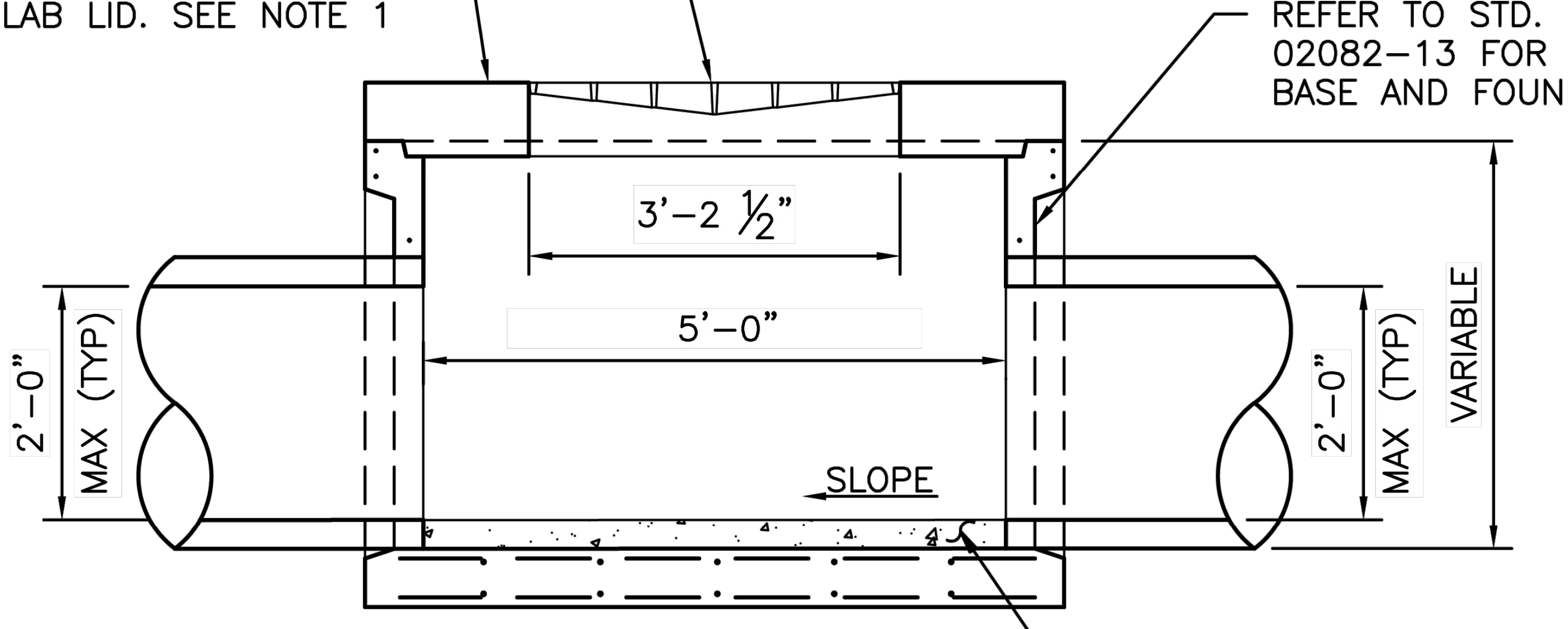
NOTES:

1. THERE ARE DIFFERENT OPTIONS FOR INSTALLATION OF FRAME AND GRATE. REFER TO STANDARD DETAIL 02082-14 PRECAST CONCRETE TOP SLAB LIDS FOR DIFFERENT OPTIONS.
2. THIS INLET MAY BE USED NEAR SCHOOLS, REHAB PROJECTS, WALKING AND BIKING AREAS. FOR SOD AREAS TYPE A INLET IS RECOMMENDED. THIS INLET SHALL NOT BE USED ON TRAVEL LANES.

REFER TO STD. DETAIL 02090-06
FOR FRAME & GRATE DETAILS

REFER TO STD. DETAIL
02082-14 FOR PRECAST
SLAB LID. SEE NOTE 1

REFER TO STD. DETAIL
02082-13 FOR PRECAST
BASE AND FOUNDATION



MORTAR

SECTION A-A

CAST-IN FRAME AND GRATE OPTION
(STYLE FG SHOWN)
* SEE NOTE 1

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.

APPROVED BY:

Signed by: 1BEBB22072F84DC... CITY ENGINEER	Signed by: BE463EF0DF454EB... DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PRECAST CONCRETE STORM SEWER
INLET TYPE "D"

(SCALE: NOT TO SCALE)

EFF DATE: MAR-02-2026 | DWG NO: 02633-04

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 9 OF 13

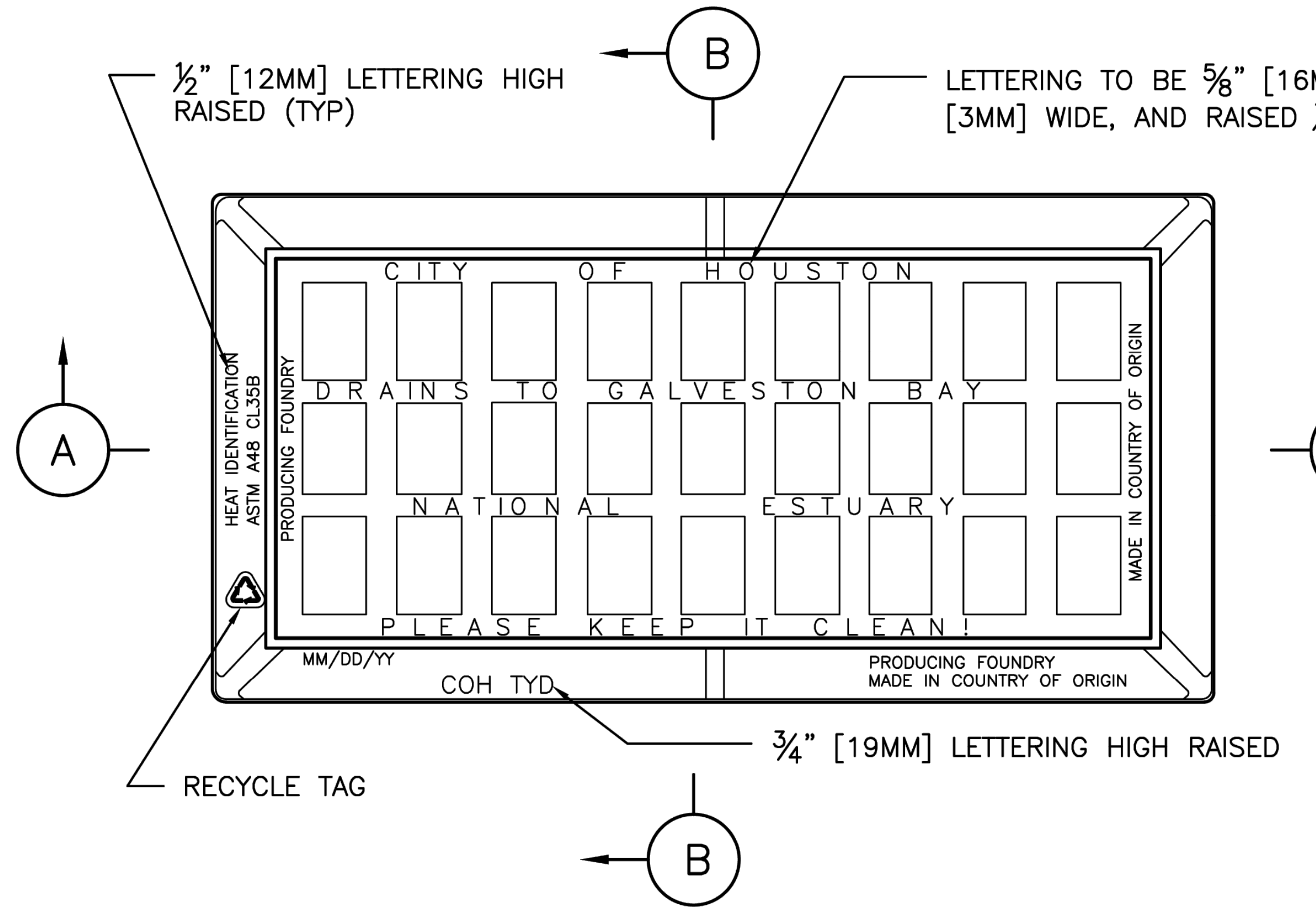
WBS NO. M-430296-0017-3

DRAWING SCALE

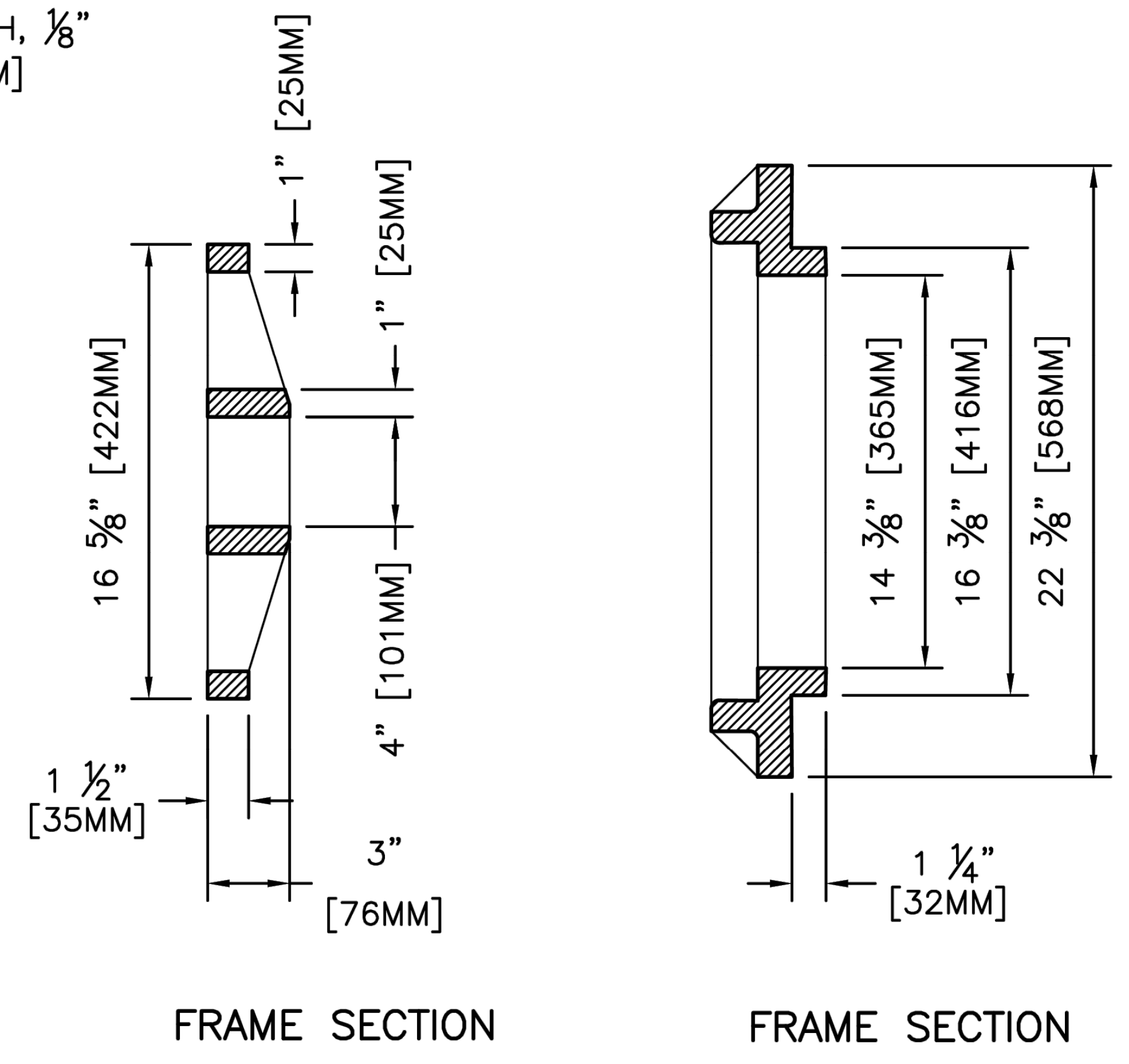
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 179 OF 345

j:\2021\210601.01\cad\dwgs\sheets\09 - drainage standards\drainage standard 14.dwg Plotted April 15, 2026 at 6:09 PM by Gawali, Ajinkya Ashok


½" [12MM] LETTERING HIGH RAISED (TYP)
LETTERING TO BE ⅝" [16MM] HIGH, ⅛" [3MM] WIDE, AND RAISED ⅛" [3MM]
B
A
CITY OF HOUSTON
DRAINS TO GALVESTON BAY
NATIONAL ESTUARY
PLEASE KEEP IT CLEAN!
HEAT IDENTIFICATION ASTM A48 CL35B
PRODUCING FOUNDRY
MADE IN COUNTRY OF ORIGIN
MM/DD/YY
COH TYD
PRODUCING FOUNDRY MADE IN COUNTRY OF ORIGIN
¾" [19MM] LETTERING HIGH RAISED
RECYCLE TAG

TOP VIEW


1" [25MM]
1" [25MM]
16 ⅝" [422MM]
4" [101MM]
1 ½" [35MM]
3" [76MM]
FRAME SECTION
14 ⅜" [365MM]
16 ⅜" [416MM]
22 ⅜" [568MM]
1 ¼" [32MM]
FRAME SECTION

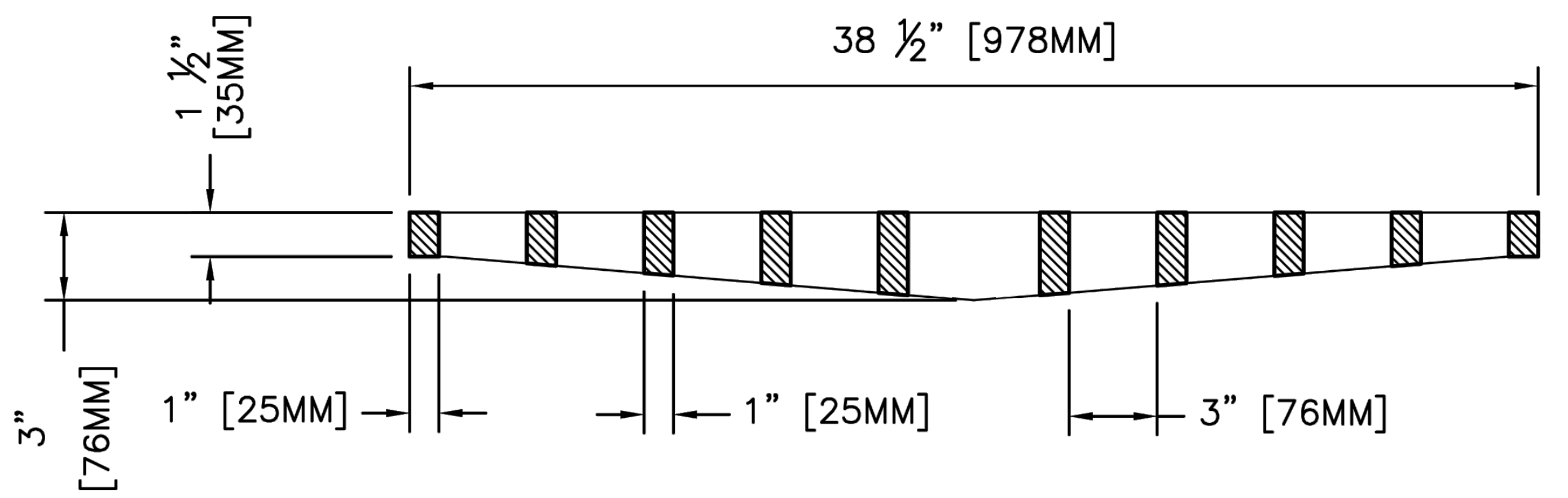
SECTION B–B

NOTES:

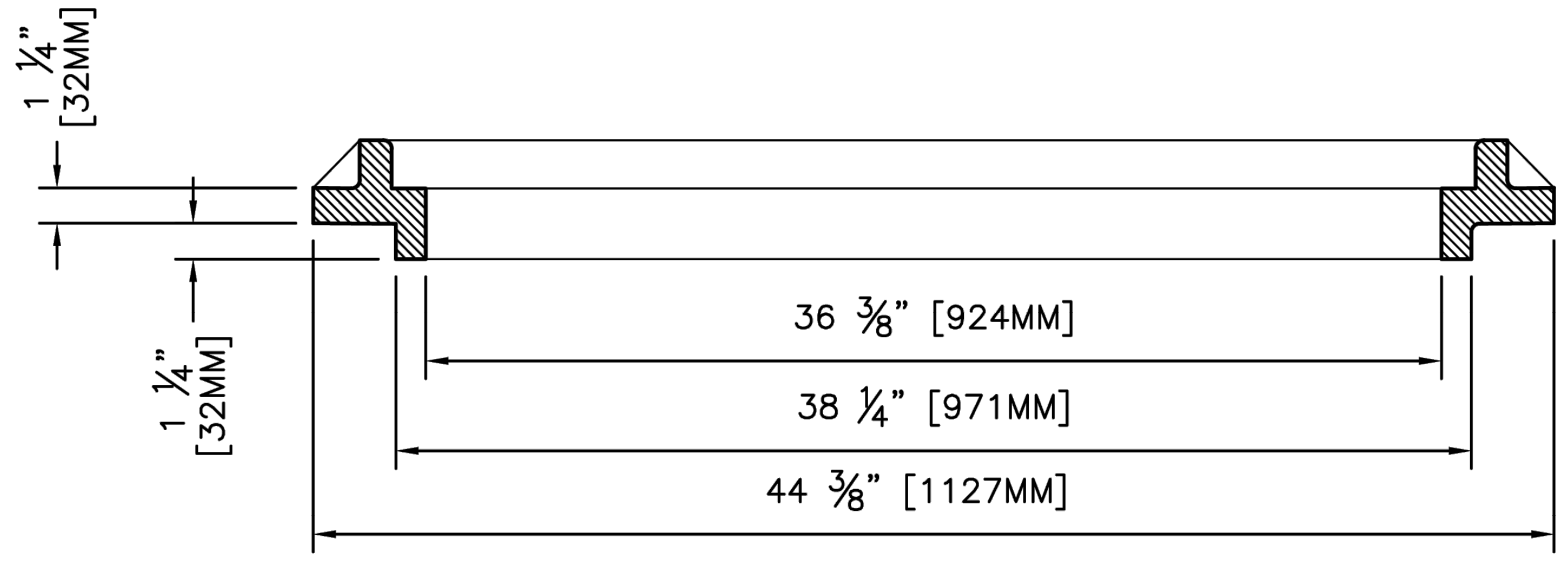
1. APPROXIMATE WEIGHTS:

   GRATE – 125 LBS (57KGS)
   FRAME – 108 LBS (49KGS)
   UNIT – 233 LBS (106KGS)

2. MATERIAL– GRAY IRON ASTM A48 CL35B.
3. CASTING MUST BE MANUFACTURED AND PROOF TESTED IN ACCORDANCE WITH AASHTO M306.
4. OPEN AREA OF GRATE: 324 SQ. IN. [2090 SQ. CM.].
5. IDENTIFICATION MARKINGS MUST COMPLY WITH CITY SPECIFICATIONS. MARKINGS NOT SHOWN ON THIS DETAIL MUST BE PLACED ON THE CASTING:
   A. PROVIDE ALL FRAME MARKINGS ON THE TOP SIDE OF THE FRAME.
   B. PROVIDE GRATE AND COVER MARKINGS ON EITHER TOP OR BOTTOM OF CASTING.


38 ½" [978MM]
1 ½" [35MM]
3" [76MM]
1" [25MM]
1" [25MM]
3" [76MM]

GRATE SECTION


1 ¼" [32MM]
1 ¼" [32MM]
36 ⅜" [924MM]
38 ¼" [971MM]
44 ⅜" [1127MM]

FRAME SECTION

SECTION A–A

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER TYPE "D" INLET
GRATE AND FRAME

(SCALE: NOT TO SCALE)
APPROVED BY:

Signed by: 1BEBB22072F84DC...	Signed by: BE453EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: MAR–02–2026	DWG NO: 02090–06

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 10 OF 13

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

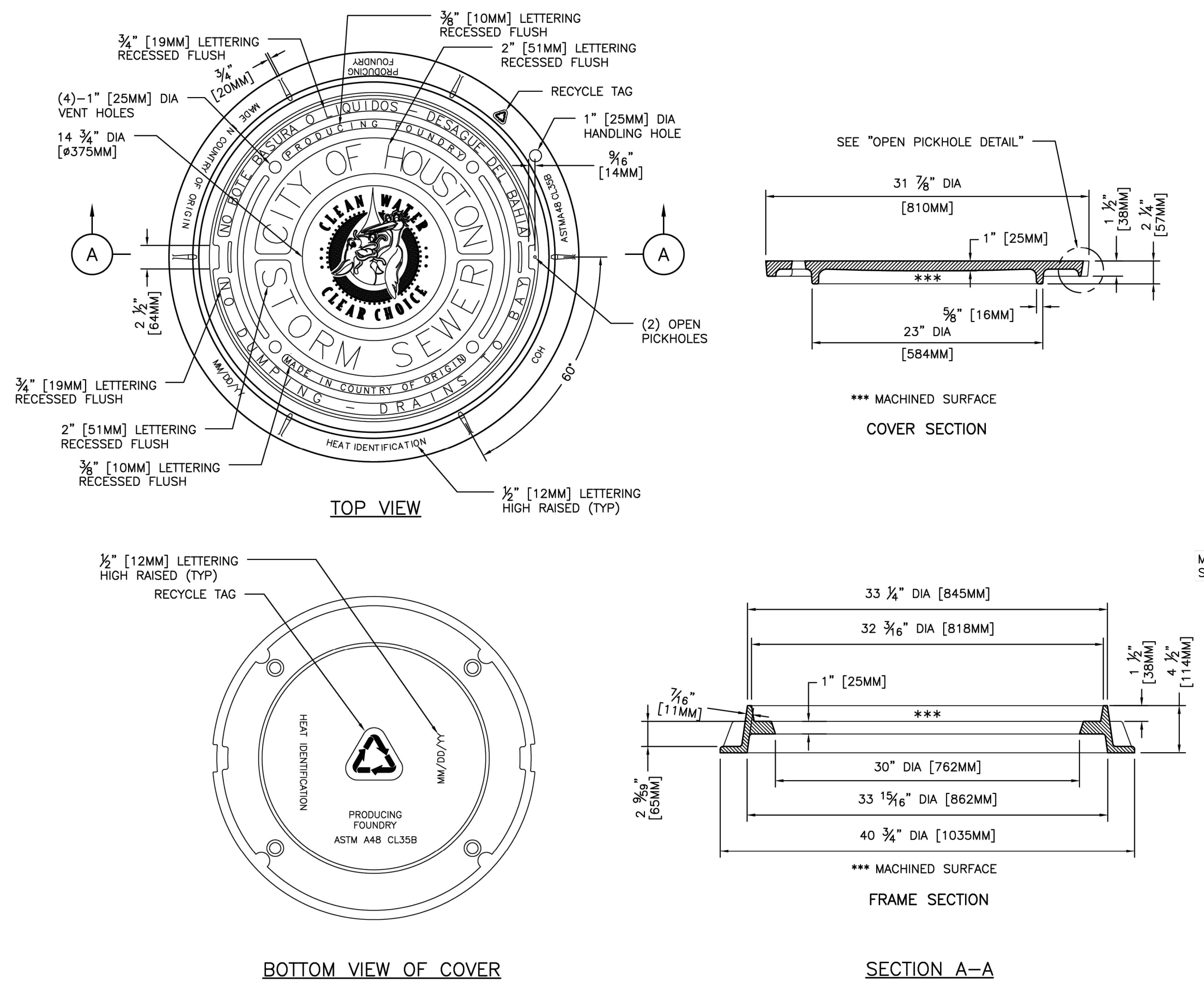
SHEET NO. 180 OF 345

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.

j:\2021\210601.01\cad\dwgs\sheets\09 – drainage standards\drainage standard 15.dwg Plotted April 15, 2026 at 6:08 PM by Gawali, Ajinkya Ashok

No.
Date
Revisions
App.



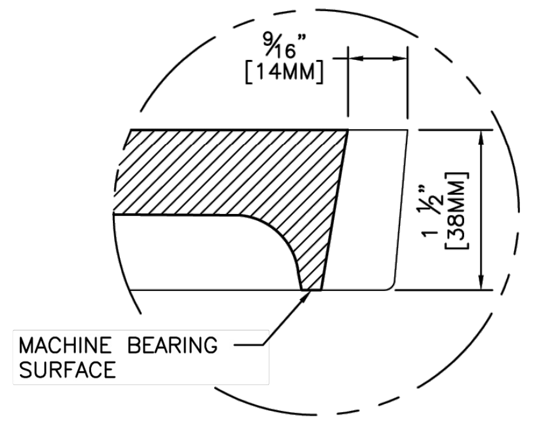
⅜" [10MM] LETTERING RECESSED FLUSH
¾" [19MM] LETTERING RECESSED FLUSH
2" [51MM] LETTERING RECESSED FLUSH
¾" [20MM]
RECYCLE TAG
(4)–1" [25MM] DIA VENT HOLES
1" [25MM] DIA HANDLING HOLE
14 ¾" DIA [ø375MM]
⁹⁄₁₆" [14MM]
A
A
CITY OF HOUSTON
STORM SEWER
CLEAN WATER CLEAN CHOICE
NO DUMPING – DRAINS TO BAY
PRODUCING FOUNDRY
MADE IN COUNTRY OF ORIGIN
HEAT IDENTIFICATION
2 ½" [64MM]
(2) OPEN PICKHOLES
¾" [19MM] LETTERING RECESSED FLUSH
2" [51MM] LETTERING RECESSED FLUSH
⅜" [10MM] LETTERING RECESSED FLUSH
½" [12MM] LETTERING HIGH RAISED (TYP)
60°
TOP VIEW
SEE "OPEN PICKHOLE DETAIL"
31 ⅞" DIA
[810MM]
1" [25MM]
1 ½" [38MM]
2 ¼" [57MM]
***
⅝" [16MM]
23" DIA
[584MM]
*** MACHINED SURFACE
COVER SECTION
½" [12MM] LETTERING HIGH RAISED (TYP)
RECYCLE TAG
HEAT IDENTIFICATION
MM/DD/YY
PRODUCING FOUNDRY
ASTM A48 CL35B
BOTTOM VIEW OF COVER
33 ¼" DIA [845MM]
32 3⁄16" DIA [818MM]
1" [25MM]
1 ½" [38MM]
4 ½" [114MM]
7⁄16" [11MM]
***
2 9⁄16" [65MM]
30" DIA [762MM]
33 15⁄16" DIA [862MM]
40 ¾" DIA [1035MM]
*** MACHINED SURFACE
FRAME SECTION
SECTION A–A

NOTES:

1. APPROXIMATE WEIGHTS:

FRAME – 125 LBS (57KGS)
COVER – 205 LBS (93KGS)
UNIT – 330 LBS (150KGS)

2. MATERIALS – GRAY IRON ASTM A48 CL35B.
3. CASTING MUST BE MANUFACTURED AND PROOF TESTED IN ACCORDANCE WITH AASHTO M306.
4. EJ V1430 ASY OR APPROVED EQUAL
5. IDENTIFICATION MARKINGS MUST COMPLY WITH CITY SPECIFICATIONS. MARKINGS NOT SHOWN ON THIS DETAIL MUST BE PLACED ON THE CASTING:
   - A. PROVIDE ALL FRAME MARKINGS ON THE TOP SIDE OF THE FRAME.
   - B. PROVIDE GRATE AND COVER MARKINGS ON EITHER TOP OR BOTTOM OF CASTING.



⁹⁄₁₆" [14MM]
1 ½" [38MM]
MACHINE BEARING SURFACE

OPEN PICKHOLE DETAIL

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER MANHOLE
FRAME AND COVER

(SCALE: NOT TO SCALE)
APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: MAR–02–2026	DWG NO: 02090–02

DISCLAIMER:
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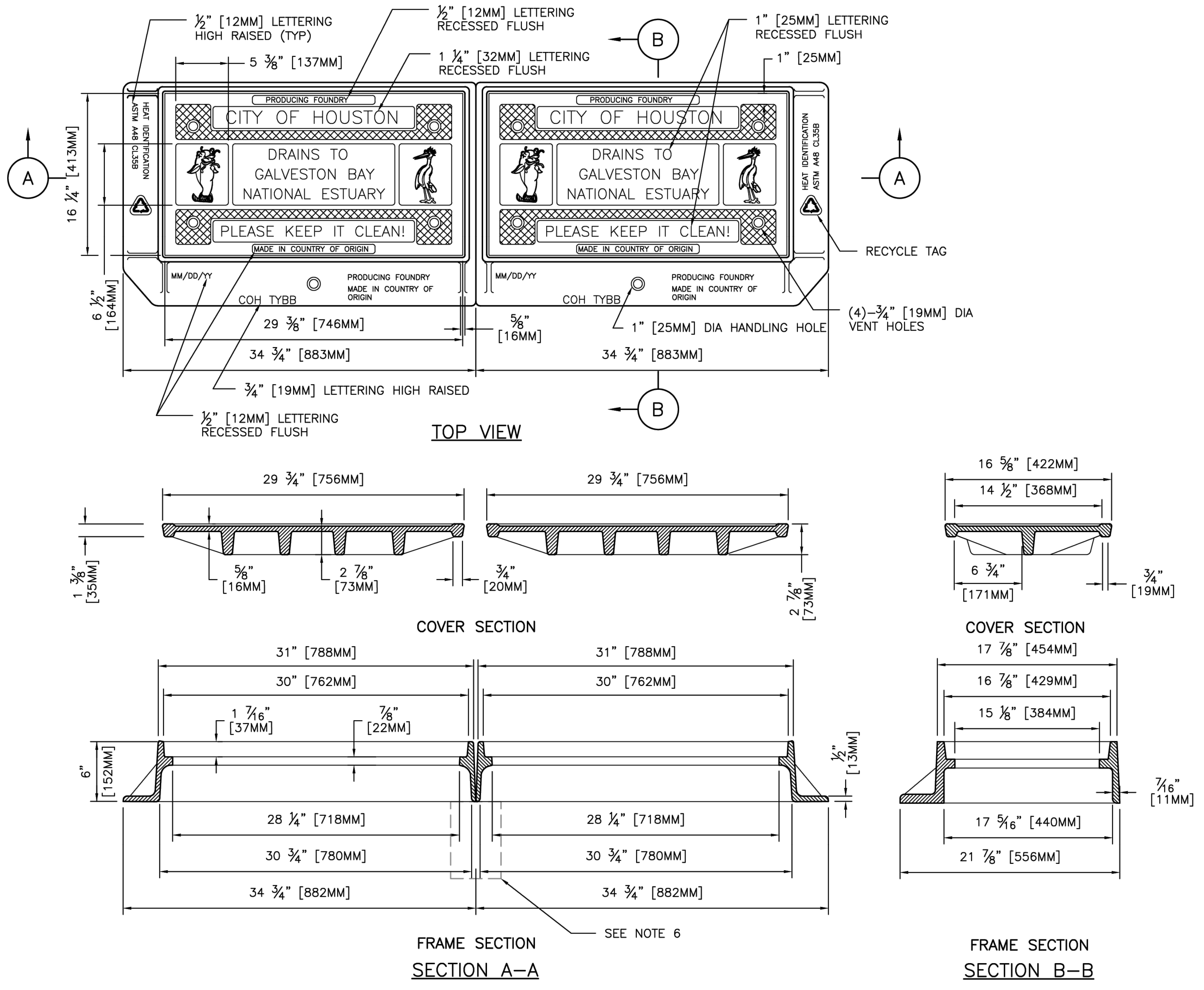

½" [12MM] LETTERING HIGH RAISED (TYP)
½" [12MM] LETTERING RECESSED FLUSH
1 ¼" [32MM] LETTERING RECESSED FLUSH
1" [25MM] LETTERING RECESSED FLUSH
5 ⅜" [137MM]
1" [25MM]
B
PRODUCING FOUNDRY
CITY OF HOUSTON
DRAINS TO GALVESTON BAY NATIONAL ESTUARY
PLEASE KEEP IT CLEAN!
MADE IN COUNTRY OF ORIGIN
HEAT IDENTIFICATION
ASTM A48 CL35B
A
A
16 ¼" [413MM]
RECYCLE TAG
6 ½" [164MM]
MM/DD/YY
COH TYBB
PRODUCING FOUNDRY MADE IN COUNTRY OF ORIGIN
(4)–¾" [19MM] DIA VENT HOLES
29 ⅜" [746MM]
⅝" [16MM]
1" [25MM] DIA HANDLING HOLE
34 ¾" [883MM]
34 ¾" [883MM]
¾" [19MM] LETTERING HIGH RAISED
½" [12MM] LETTERING RECESSED FLUSH
B
TOP VIEW
29 ¾" [756MM]
29 ¾" [756MM]
1 ⅜" [35MM]
⅝" [16MM]
2 ⅞" [73MM]
¾" [20MM]
2 ⅞" [73MM]
COVER SECTION
16 ⅝" [422MM]
14 ½" [368MM]
6 ¾" [171MM]
¾" [19MM]
COVER SECTION
31" [788MM]
31" [788MM]
30" [762MM]
30" [762MM]
1 7⁄16" [37MM]
⅞" [22MM]
6" [152MM]
½" [13MM]
28 ¼" [718MM]
28 ¼" [718MM]
30 ¾" [780MM]
30 ¾" [780MM]
34 ¾" [882MM]
34 ¾" [882MM]
SEE NOTE 6
FRAME SECTION
SECTION A–A
17 ⅞" [454MM]
16 ⅞" [429MM]
15 ⅛" [384MM]
7⁄16" [11MM]
17 5⁄16" [440MM]
21 ⅞" [556MM]
FRAME SECTION
SECTION B–B

NOTES:

1. APPROXIMATE WEIGHTS:

EACH FRAME – 125 LBS (57KGS)
EACH COVER – 120 LBS (55KGS)
EACH UNIT – 245 LBS (111KGS)

2. MATERIALS – GRAY IRON ASTM A48 CL35B.
3. CASTING MUST BE MANUFACTURED AND PROOF TESTED IN ACCORDANCE WITH AASHTO M306.
4. EJ V4243 ASY OR APPROVED EQUAL.
5. IDENTIFICATION MARKINGS MUST COMPLY WITH CITY SPECIFICATIONS. MARKINGS NOT SHOWN ON THIS DETAIL MUST BE PLACED ON THE CASTING:
   - A. PROVIDE ALL FRAME MARKINGS ON THE TOP SIDE OF THE FRAME.
   - B. PROVIDE GRATE AND COVER MARKINGS ON EITHER TOP OR BOTTOM OF CASTING.
6. FOR INLET MAINTENANCE REFER TO COH STD 02632–04. FOR NEW INLET CONSTRUCTION REFER TO COH STD 02633–02.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

STORM SEWER TYPE "B–B"
INLET DOUBLE ASSEMBLY

(SCALE: NOT TO SCALE)
APPROVED BY:

CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: MAR–02–2026	DWG NO: 02090–04

DISCLAIMER:
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HRGreen
FIRM NO. F–11278
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PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
HR Green 4/15/2026
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 11 OF 13

WBS NO. M–430296–0017–3

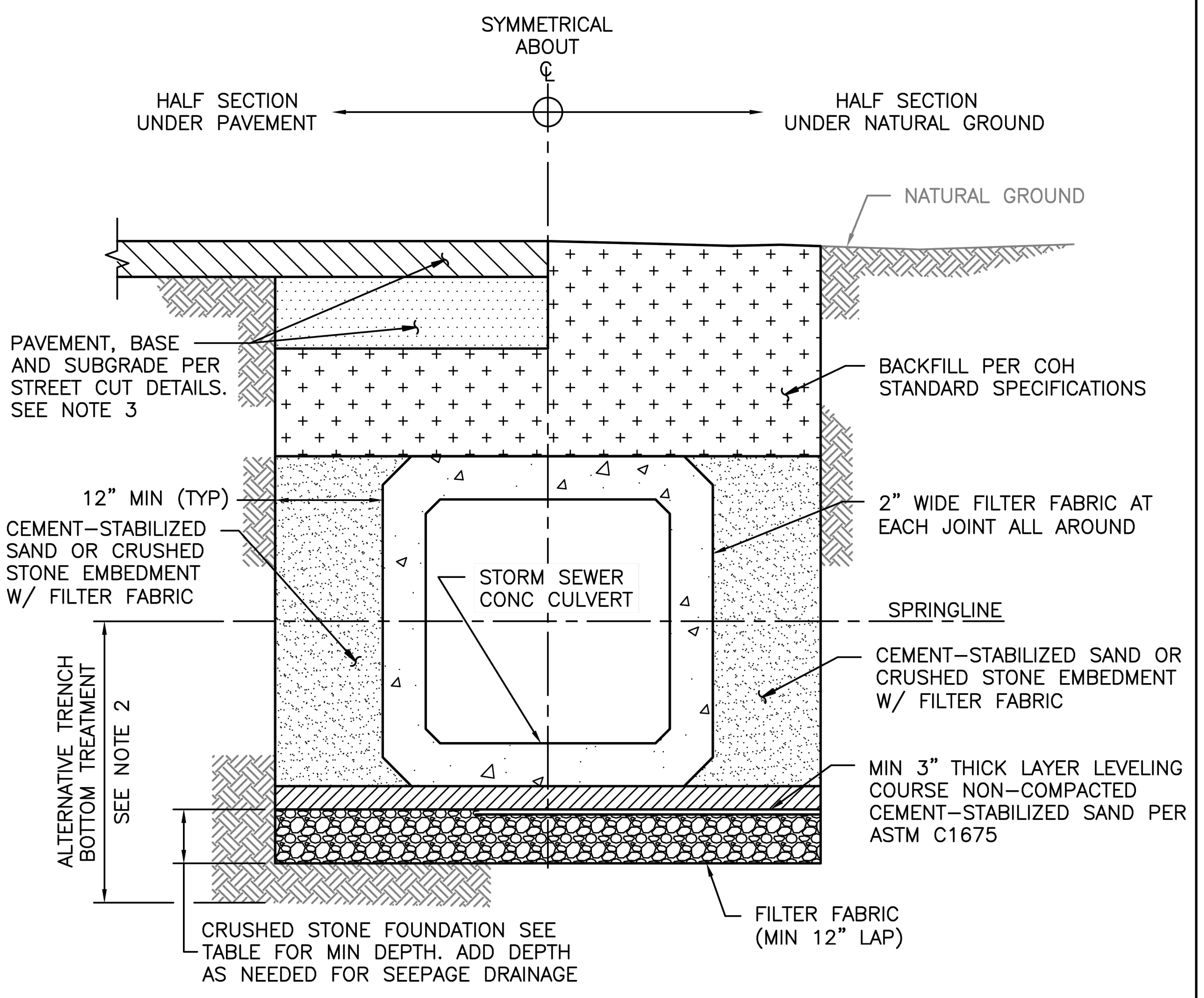
DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 181 OF 345

j:\2021\210601.01\cad\dwgs\sheets\09 – drainage standards\drainage standard 16.dwg Plotted April 15, 2026 at 6:14 PM by Gawali, Ajinkya Ashok


SYMMETRICAL
ABOUT
℄
HALF SECTION
UNDER PAVEMENT
HALF SECTION
UNDER NATURAL GROUND
NATURAL GROUND
PAVEMENT, BASE
AND SUBGRADE PER
STREET CUT DETAILS.
SEE NOTE 3
BACKFILL PER COH
STANDARD SPECIFICATIONS
12" MIN (TYP)
CEMENT–STABILIZED
SAND OR CRUSHED
STONE EMBEDMENT
W/ FILTER FABRIC
2" WIDE FILTER FABRIC AT
EACH JOINT ALL AROUND
STORM SEWER
CONC CULVERT
SPRINGLINE
CEMENT–STABILIZED SAND OR
CRUSHED STONE EMBEDMENT
W/ FILTER FABRIC
ALTERNATIVE TRENCH
BOTTOM TREATMENT
SEE NOTE 2
MIN 3" THICK LAYER LEVELING
COURSE NON–COMPACTED
CEMENT–STABILIZED SAND PER
ASTM C1675
FILTER FABRIC
(MIN 12" LAP)
CRUSHED STONE FOUNDATION SEE
TABLE FOR MIN DEPTH. ADD DEPTH
AS NEEDED FOR SEEPAGE DRAINAGE

TYPICAL CROSS–SECTION

NOTES:

1. WHERE MULTIPLE BOX SEWERS ARE USED IN THE SAME TRENCH, MIN OUTSIDE TO OUTSIDE BOX SEWER SEPARATION SHALL BE 6".
2. ALTERNATIVE TRENCH BOTTOM TREATMENT MAY BE USED AS APPROVED BY THE CITY ENGINEERS AND AS PAID FOR IN THE PROPOSAL.
3. REFER TO COH STANDARD DETAILS 02951–01 THROUGH 05 FOR STREET CUT REQUIREMENTS.

TABLE

CULVERT SIZE (FT)	FOUNDATION DEPTH (INCHES)
3' X 2' TO 6' X 6'	12"
6' X 6' AND LARGER	18"

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.

APPROVED BY:

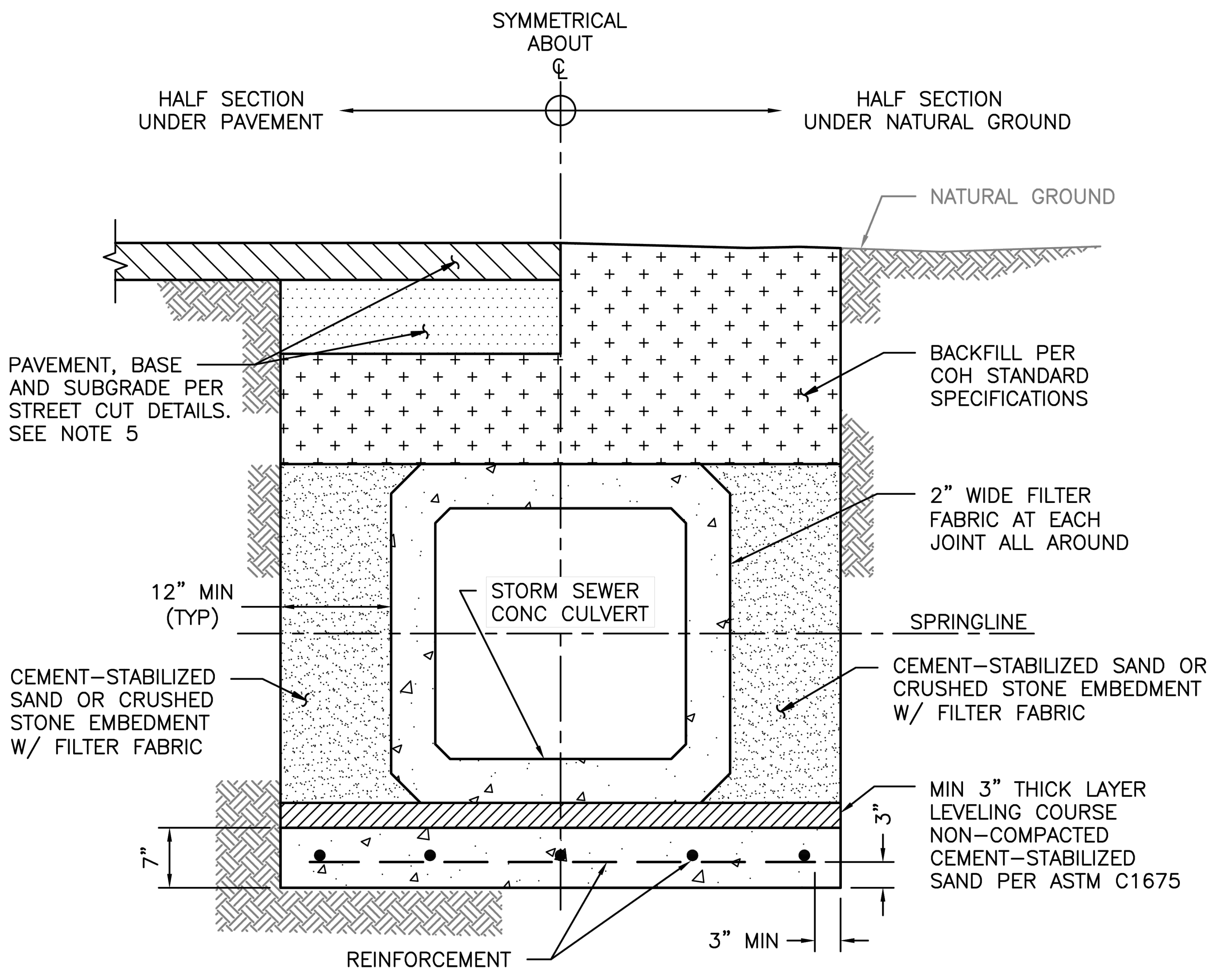
Signed by: 1BEBB22072F84DC...	Signed by: BE463EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL FOR WET STABLE TRENCH

(SCALE: NOT TO SCALE)

EFF DATE: MAR–02–2026 DWG NO: 02317–06


SYMMETRICAL
ABOUT
℄
HALF SECTION
UNDER PAVEMENT
HALF SECTION
UNDER NATURAL GROUND
NATURAL GROUND
PAVEMENT, BASE
AND SUBGRADE PER
STREET CUT DETAILS.
SEE NOTE 5
BACKFILL PER
COH STANDARD
SPECIFICATIONS
2" WIDE FILTER
FABRIC AT EACH
JOINT ALL AROUND
12" MIN
(TYP)
STORM SEWER
CONC CULVERT
SPRINGLINE
CEMENT–STABILIZED
SAND OR CRUSHED
STONE EMBEDMENT
W/ FILTER FABRIC
CEMENT–STABILIZED SAND OR
CRUSHED STONE EMBEDMENT
W/ FILTER FABRIC
MIN 3" THICK LAYER
LEVELING COURSE
NON–COMPACTED
CEMENT–STABILIZED
SAND PER ASTM C1675
3"
7"
REINFORCEMENT
3" MIN

TYPICAL CROSS–SECTION

NOTES:

1. WHERE MULTIPLE BOX SEWERS ARE USED IN THE SAME TRENCH, MIN OUTSIDE TO OUTSIDE BOX SEWER SEPARATION SHALL BE 6".
2. REINFORCED CONCRETE SLAB PIPE BEDDING TO BE PLACED IN DRY TRENCH ONLY.
3. CONCRETE IN SLAB TO REACH MIN COMPRESSIVE STRENGTH OF 1,000 PSI BASED ON MAX DESIGN BEFORE PIPE IS LAID.
4. PRECAST SEAL SLAB MAY BE USED AS APPROVED BY CITY ENGINEER.
5. REFER TO COH STANDARD DETAILS 02951–01 THROUGH 05 FOR STREET CUT REQUIREMENTS.

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.

APPROVED BY:

Signed by: 1BEBB22072F84DC...	Signed by: BE463EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PRECAST CONCRETE BOX STORM SEWER BEDDING AND BACKFILL WITH SEAL SLAB

(SCALE: NOT TO SCALE)

EFF DATE: MAR–02–2026 DWG NO: 02317–07

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

JOHN R. HUML
140416
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 12 OF 13

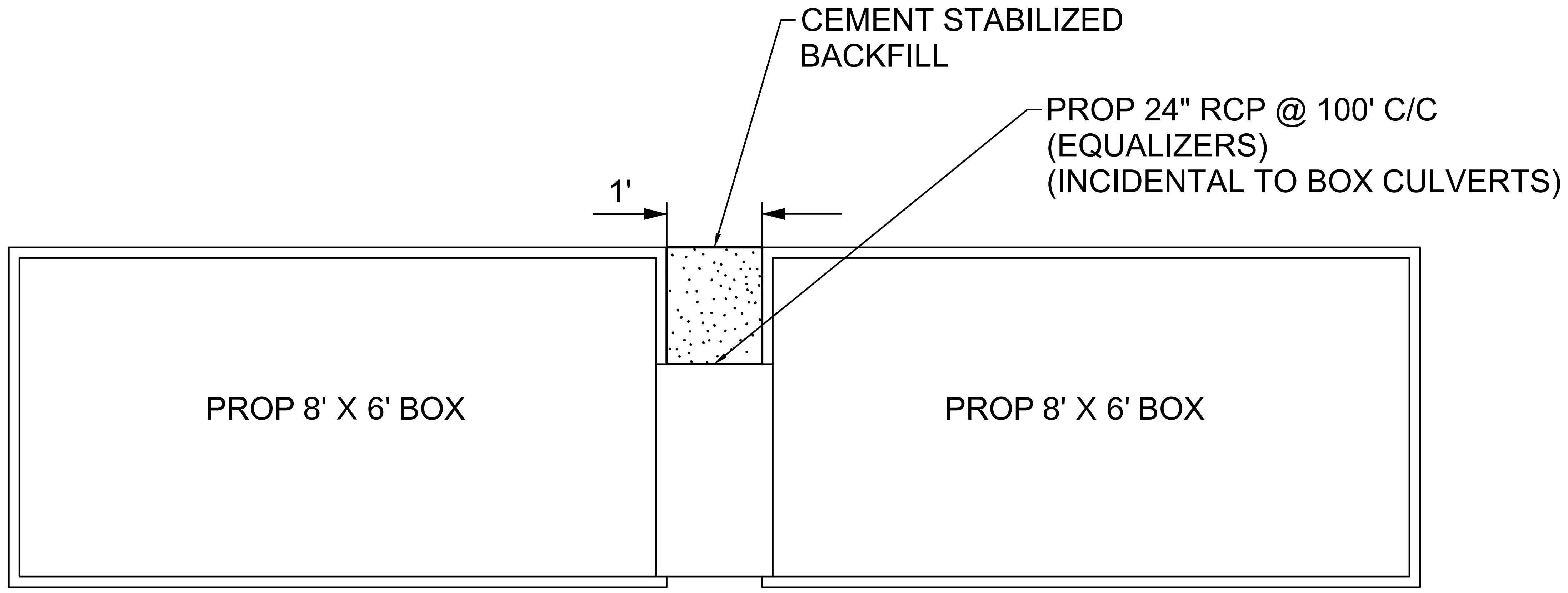
WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

No.	Date	Revisions	App.


CEMENT STABILIZED BACKFILL
PROP 24" RCP @ 100' C/C (EQUALIZERS) (INCIDENTAL TO BOX CULVERTS)
1'
PROP 8' X 6' BOX
PROP 8' X 6' BOX

INSET A

SHOWING PROP 2-8'X6' RCB
NOT TO SCALE

HRGreen
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRAINAGE STANDARD DETAILS

SHEET 13 OF 13

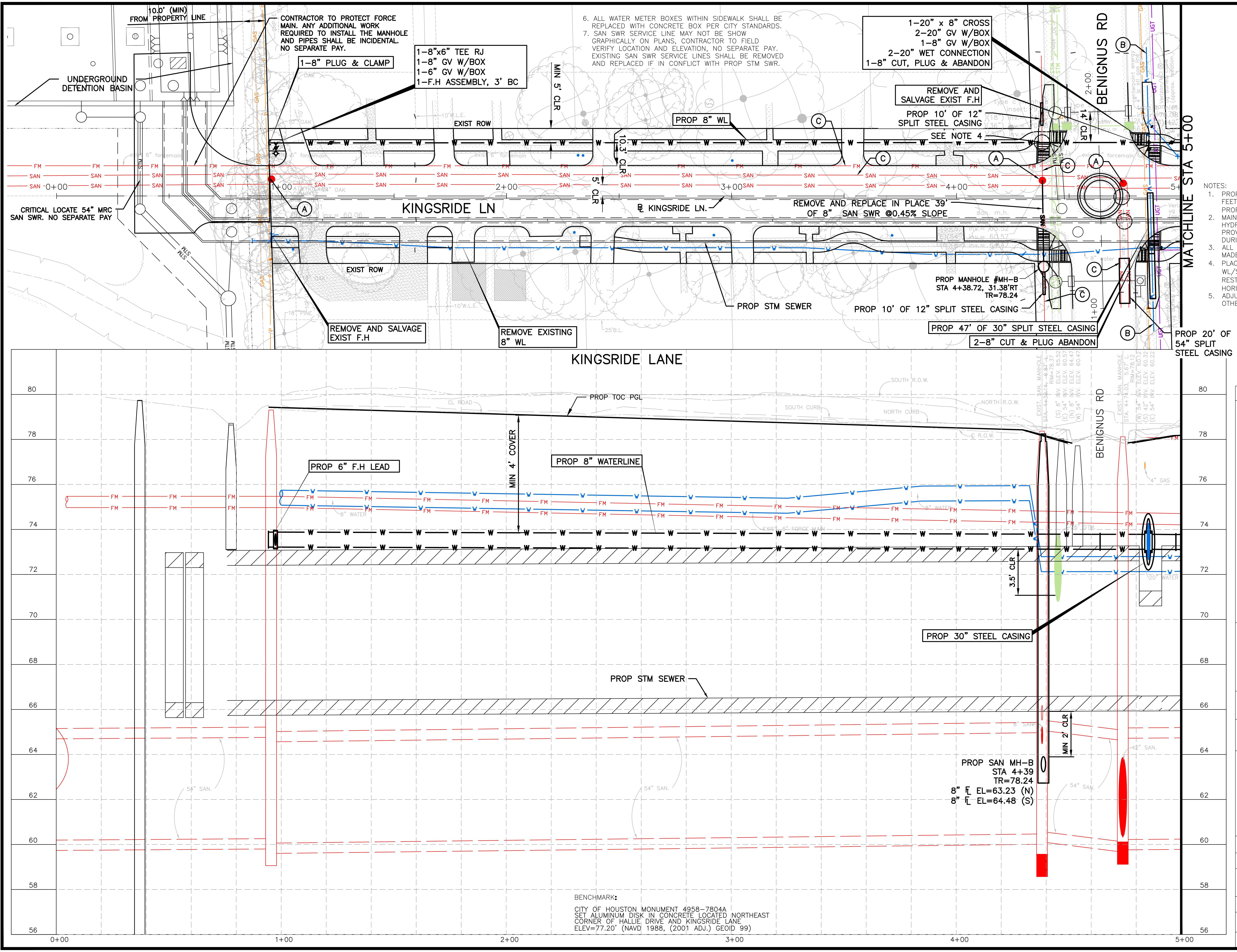
WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

j:\2021\210601.01\cad\dwgs\sheets\09 - drainage standards\drainage standard 12.dwg Plotted April 15, 2026 at 6:10 PM by Gawali, Ajinkya Ashok


10.0' (MIN) FROM PROPERTY LINE
CONTRACTOR TO PROTECT FORCE MAIN. ANY ADDITIONAL WORK REQUIRED TO INSTALL THE MANHOLE AND PIPES SHALL BE INCIDENTAL. NO SEPARATE PAY.
1–8" PLUG & CLAMP
1–8"x6" TEE RJ
1–8" GV W/BOX
1–6" GV W/BOX
1–F.H ASSEMBLY, 3' BC
UNDERGROUND DETENTION BASIN
MIN 5' CLR
EXIST ROW
PROP 8" WL
10.3' CLR
5' CLR
CRITICAL LOCATE 54" MRC SAN SWR. NO SEPARATE PAY
KINGSRIDE LN
℄ KINGSRIDE LN.
0+00
1+00
2+00
3+00
4+00
5+00
REMOVE AND SALVAGE EXIST F.H
REMOVE EXISTING 8" WL
PROP STM SEWER
1–20" x 8" CROSS
2–20" GV W/BOX
1–8" GV W/BOX
2–20" WET CONNECTION
1–8" CUT, PLUG & ABANDON
REMOVE AND SALVAGE EXIST F.H
PROP 10' OF 12" SPLIT STEEL CASING
SEE NOTE 4
14' CLR
REMOVE AND REPLACE IN PLACE 39' OF 8" SAN SWR @0.45% SLOPE
PROP MANHOLE #MH–B
STA 4+38.72, 31.38'RT
TR=78.24
PROP 10' OF 12" SPLIT STEEL CASING
PROP 47' OF 30" SPLIT STEEL CASING
2–8" CUT & PLUG ABANDON
PROP 20' OF 54" SPLIT STEEL CASING
BENIGNUS RD
MATCHLINE STA 5+00
KINGSRIDE LANE
PROP TOC PGL
MIN 4' COVER
PROP 6" F.H LEAD
PROP 8" WATERLINE
3.5' CLR
PROP 30" STEEL CASING
PROP STM SEWER
MIN 2' CLR
PROP SAN MH–B
STA 4+39
TR=78.24
8" ℄ EL=63.23 (N)
8" ℄ EL=64.48 (S)
80
78
76
74
72
70
68
66
64
62
60
58
56
0+00
1+00
2+00
3+00
4+00
5+00

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY. EXISTING SAN SWR SERVICE LINES SHALL BE REMOVED AND REPLACED IF IN CONFLICT WITH PROP STM SWR.

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

— SAN —	PROPOSED SAN SWR
— W —	PROPOSED WATER LINE
— SAN —	EXIST SAN SWR LEADS
//////	ABANDONED SAN SWR
— W —	EXIST WATER LINE
▨	D.I.P. W RESTRAINED JOINTS
○	CRITICAL LOCATION
(A)	ADJUST TO GRADE
(B)	EXIST WATER LINE TO REMAIN
(C)	EXIST SAN SWR TO REMAIN

No.	Date	Revisions	App.

NOTES:
1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

0 20 40
SCALE IN FEET

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207–2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

CABLE COMPANY — DATE

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HRGreen
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Ahmed
AHMED ALOBAIDI
155052
07.30.2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER PLAN & PROFILE KINGSRIDE LANE BEGIN PROJECT TO STA 5+00

SHEET 1 OF 6

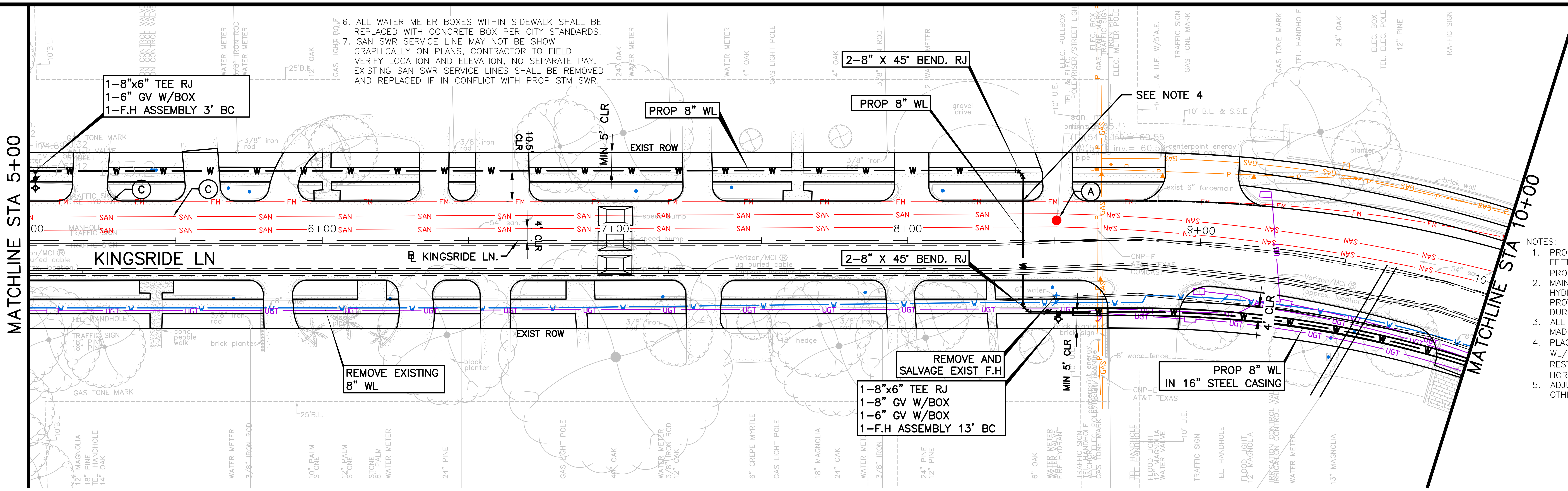
WBS NO. M–430296–0017–3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 184 OF 345

j:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\pp_wl & san_kingsride_01.dwg Plotted July 30, 2026 at 10:00 AM by Wallace, Shawn


MATCHLINE STA 5+00
MATCHLINE STA 10+00
KINGSRIDE LN
℄ KINGSRIDE LN.
1–8"x6" TEE RJ
1–6" GV W/BOX
1–F.H ASSEMBLY 3' BC
PROP 8" WL
PROP 8" WL
2–8" X 45° BEND. RJ
SEE NOTE 4
10.5' CLR
MIN 5' CLR
EXIST ROW
4' CLR
6+00
7+00
8+00
9+00
2–8" X 45° BEND. RJ
REMOVE EXISTING 8" WL
REMOVE AND SALVAGE EXIST F.H
1–8"x6" TEE RJ
1–8" GV W/BOX
1–6" GV W/BOX
1–F.H ASSEMBLY 13' BC
MIN 5' CLR
PROP 8" WL IN 16" STEEL CASING
4' CLR
EXIST ROW

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY. EXISTING SAN SWR SERVICE LINES SHALL BE REMOVED AND REPLACED IF IN CONFLICT WITH PROP STM SWR.

LEGEND

— SAN —	PROPOSED SAN SWR
— W —	PROPOSED WATER LINE
— SAN —	EXIST SAN SWR LEADS
///////	ABANDONED SAN SWR
— W —	EXIST WATER LINE
▨	D.I.P. W RESTRAINED JOINTS
○	CRITICAL LOCATION
Ⓐ	ADJUST TO GRADE
Ⓑ	EXIST WATER LINE TO REMAIN
Ⓒ	EXIST SAN SWR TO REMAIN

No.	Date	Revisions	App.

NOTES:
1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

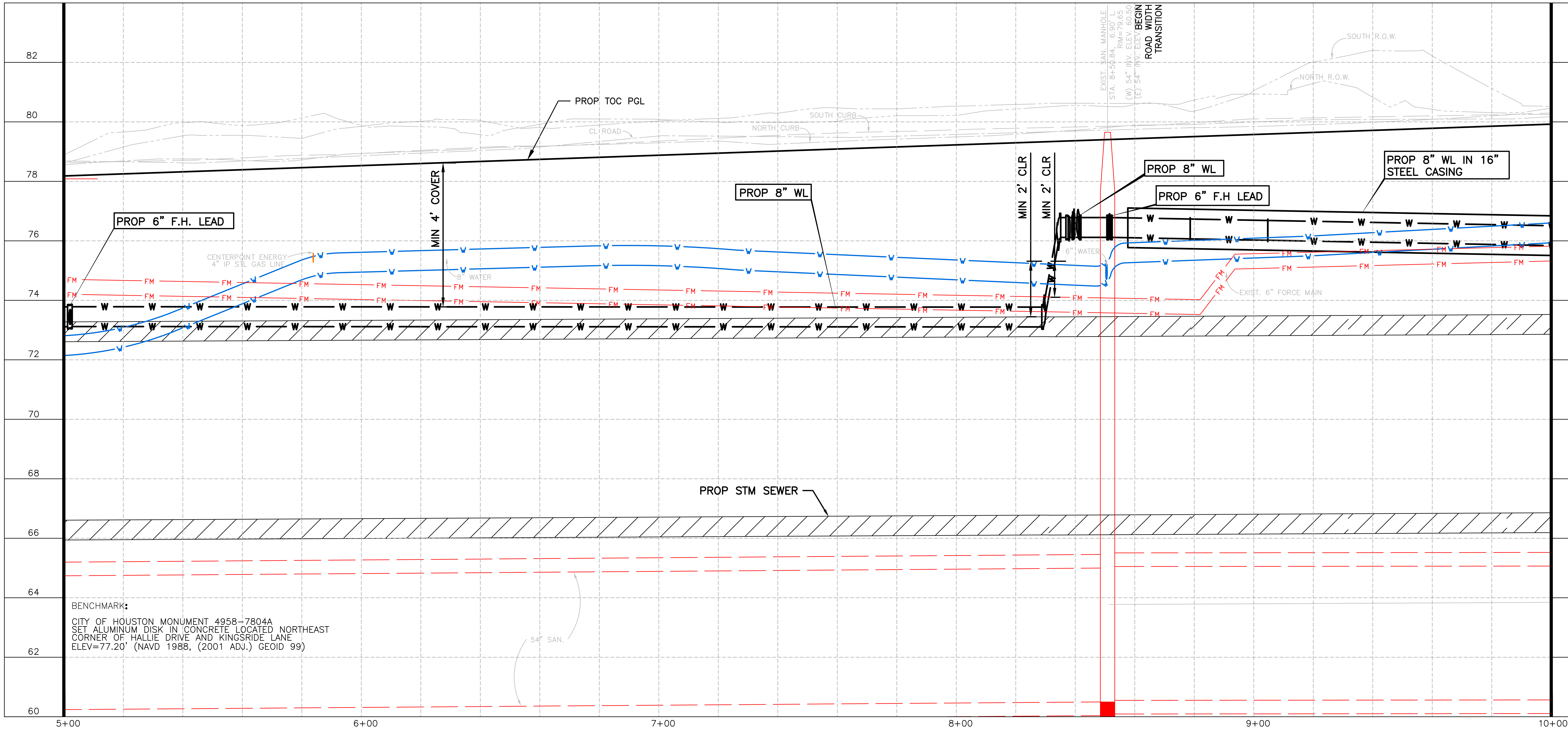
0 20 40
SCALE IN FEET

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207–2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

KINGSRIDE LANE


82
80
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76
74
72
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66
64
62
60
5+00
6+00
7+00
8+00
9+00
10+00
PROP TOC PGL
PROP 6" F.H. LEAD
MIN 4' COVER
PROP 8" WL
MIN 2' CLR
MIN 2' CLR
PROP 8" WL
PROP 6" F.H LEAD
PROP 8" WL IN 16" STEEL CASING
BEGIN ROAD WIDTH TRANSITION
PROP STM SEWER

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

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CABLE COMPANY — DATE

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HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
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FAX: 713.965.0044

Ahmed
AHMED ALOBAIDI
155052
07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 5+00 TO STA 10+00

SHEET 2 OF 6

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

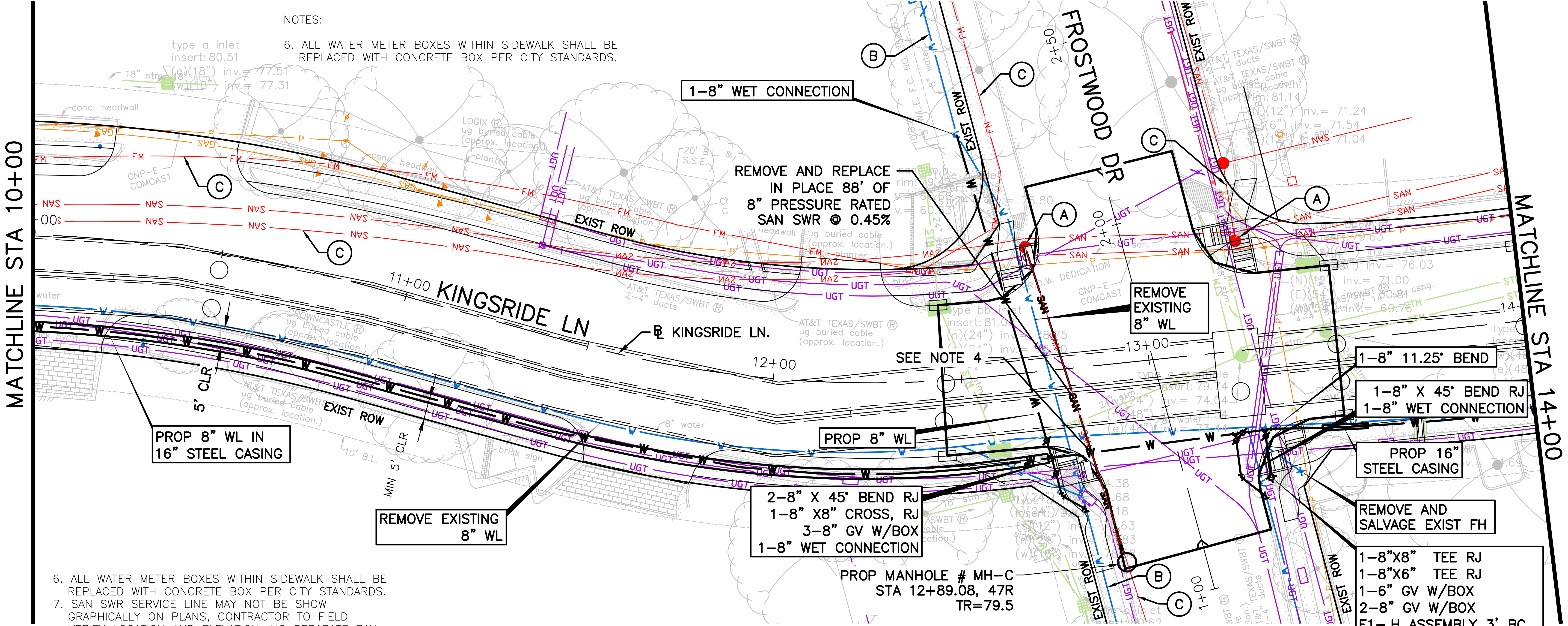
KEVIN HAMMOND, P.E.

SHEET NO. 185 OF 345

j:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\pp_wl & san_kingsride_02.dwg Plotted July 14, 2026 at 4:55 PM by McCourt, Jeff

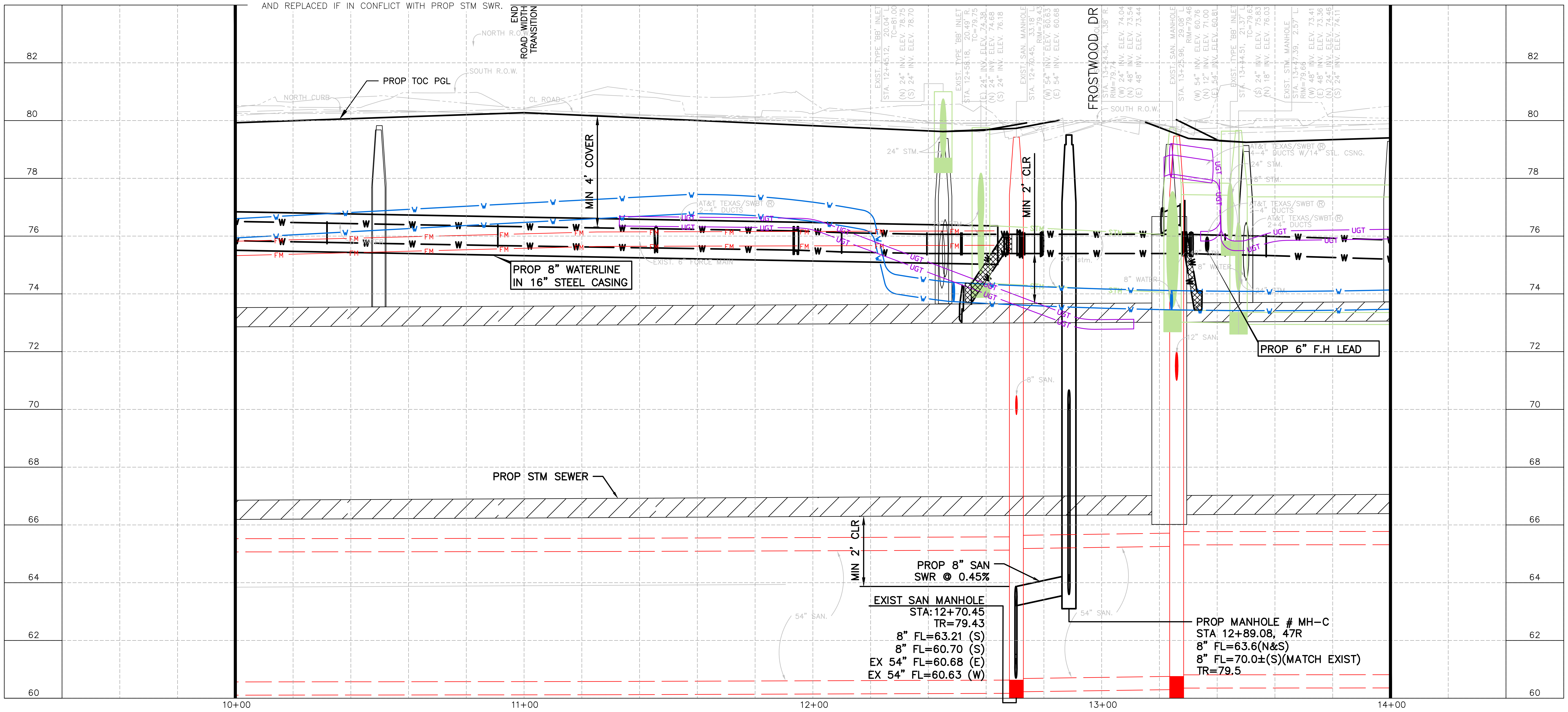
NOTES:

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.


MATCHLINE STA 10+00
MATCHLINE STA 14+00
11+00 KINGSRIDE LN
℄ KINGSRIDE LN.
12+00
13+00
FROSTWOOD DR
1–8" WET CONNECTION
REMOVE AND REPLACE IN PLACE 88' OF 8" PRESSURE RATED SAN SWR @ 0.45%
SEE NOTE 4
REMOVE EXISTING 8" WL
1–8" 11.25' BEND
1–8" X 45' BEND RJ
1–8" WET CONNECTION
PROP 16" STEEL CASING
REMOVE AND SALVAGE EXIST FH
1–8"X8" TEE RJ
1–8"X6" TEE RJ
1–6" GV W/BOX
2–8" GV W/BOX
F1–H ASSEMBLY 3' BC
PROP 8" WL
2–8" X 45' BEND RJ
1–8" X8" CROSS, RJ
3–8" GV W/BOX
1–8" WET CONNECTION
PROP MANHOLE # MH–C
STA 12+89.08, 47R
TR=79.5
REMOVE EXISTING 8" WL
PROP 8" WL IN 16" STEEL CASING
EXIST ROW
5' CLR
MIN 5' CLR
A
B
C

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY. EXISTING SAN SWR SERVICE LINES SHALL BE REMOVED AND REPLACED IF IN CONFLICT WITH PROP STM SWR.

KINGSRIDE LANE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10+00
11+00
12+00
13+00
14+00
END ROAD WIDTH TRANSITION
PROP TOC PGL
NORTH R.O.W.
SOUTH R.O.W.
FROSTWOOD DR
MIN 4' COVER
MIN 2' CLR
PROP 8" WATERLINE IN 16" STEEL CASING
PROP 6" F.H LEAD
PROP STM SEWER
PROP 8" SAN SWR @ 0.45%
EXIST SAN MANHOLE
STA: 12+70.45
TR=79.43
8" FL=63.21 (S)
8" FL=60.70 (S)
EX 54" FL=60.68 (E)
EX 54" FL=60.63 (W)
PROP MANHOLE # MH–C
STA 12+89.08, 47R
8" FL=63.6(N&S)
8" FL=70.0±(S)(MATCH EXIST)
TR=79.5

LEGEND

— SAN —	PROPOSED SAN SWR	◌	CRITICAL LOCATION
— W —	PROPOSED WATER LINE	Ⓐ	ADJUST TO GRADE
— SAN —	EXIST SAN SWR LEADS	Ⓑ	EXIST WATER LINE TO REMAIN
⁄⁄⁄⁄⁄	ABANDONED SAN SWR	Ⓒ	EXIST SAN SWR TO REMAIN
— W —	EXIST WATER LINE		
▨	D.I.P. W RESTRAINED JOINTS		

NOTES:
1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
6. HAND EXCAVATION SHALL BE USED DURING INSTALLATION OF THE PROPOSED WATER LINE FROM STA. 13+50 TO STA. 15+50 TO PREVENT DAMAGE TO THE EXISTING WATER LINE. THE CONTRACTOR SHALL PROTECT THE EXISTING WATER LINE THROUGHOUT CONSTRUCTION. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

No.	Date	Revisions	App.

0 20 40
SCALE IN FEET

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207–2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

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CABLE COMPANY — DATE

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HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

Ahmed Alobaidi
AHMED ALOBAIDI
155052
07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 10+00 TO STA 14+00

SHEET 3 OF 6

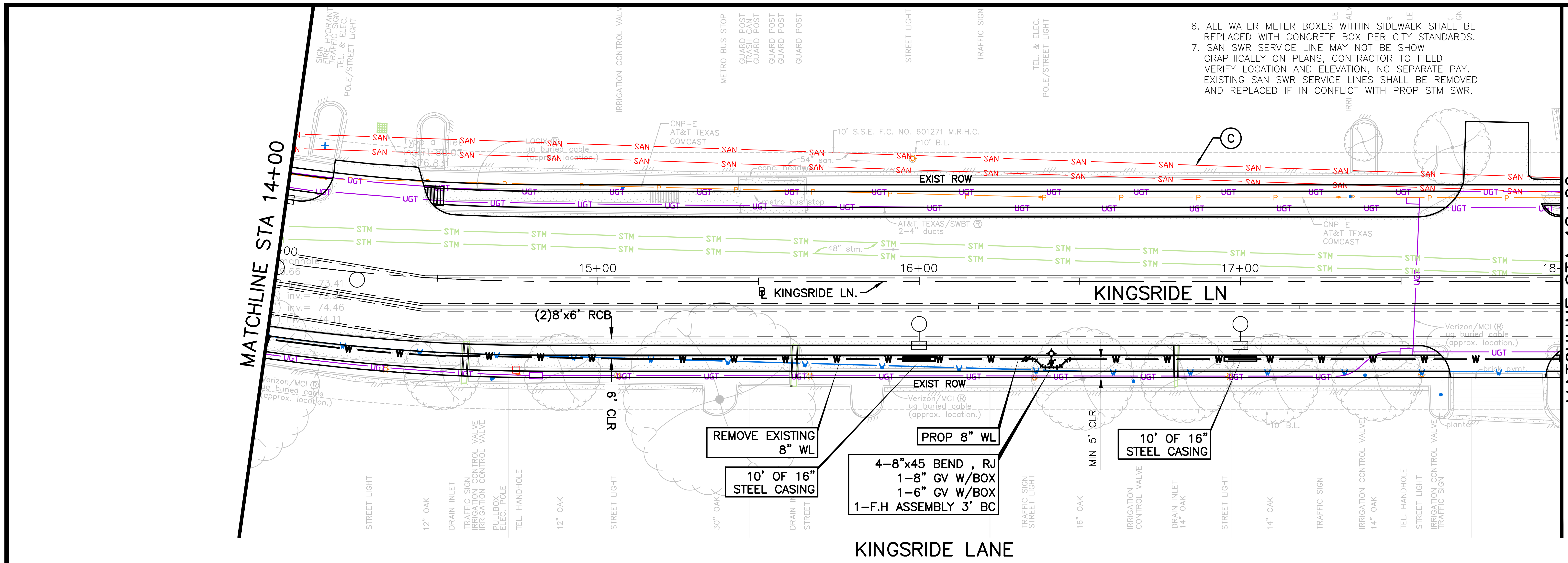
WBS NO. M–430296–0017–3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

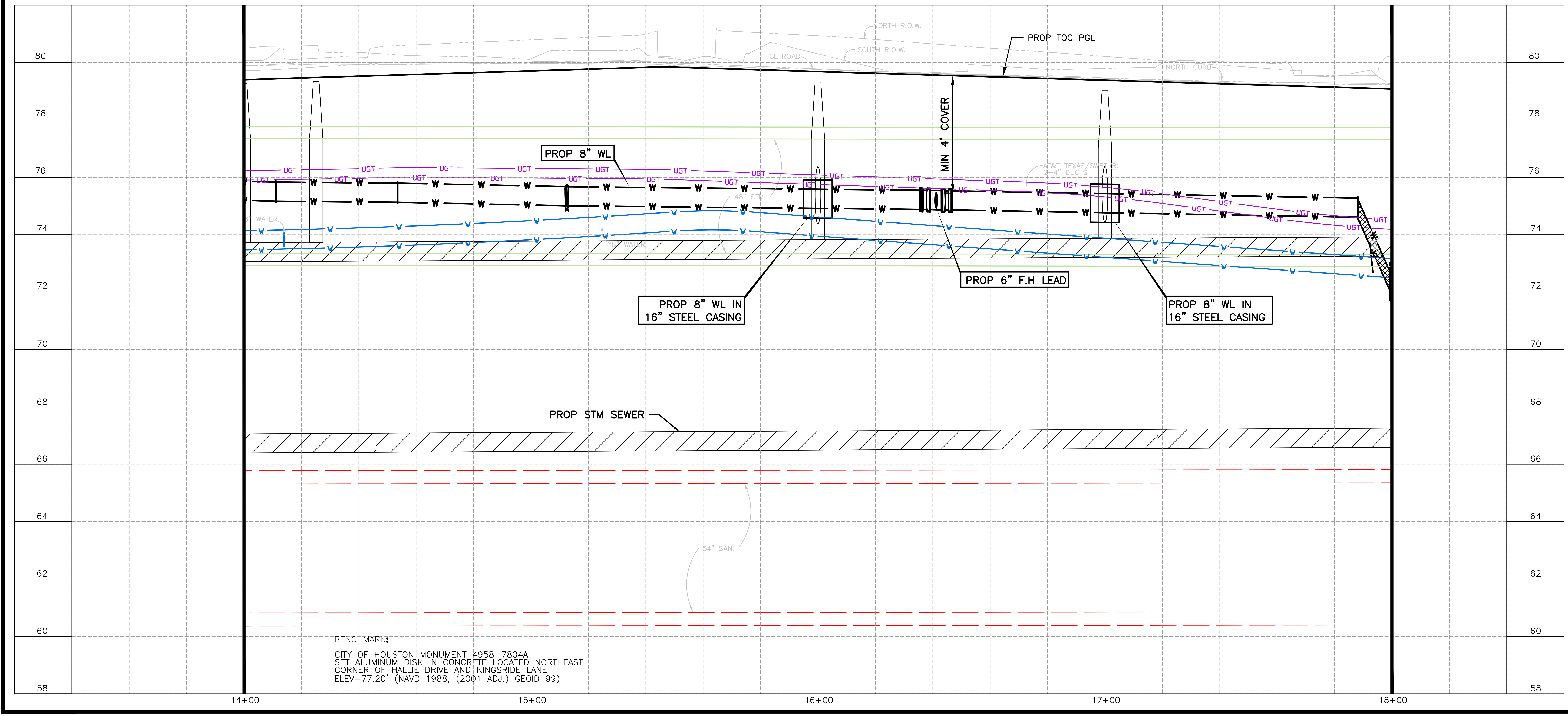
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 186 OF 345

j:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\pp_wl & san_kingsride_03.dwg Plotted July 14, 2026 at 4:56 PM by McCourt, Jeff


MATCHLINE STA 14+00
MATCHLINE STA 18+00
15+00
16+00
17+00
℄ KINGSRIDE LN.
KINGSRIDE LN
EXIST ROW
(2)8'x6' RCB
6' CLR
MIN 5' CLR
REMOVE EXISTING 8" WL
10' OF 16" STEEL CASING
PROP 8" WL
4–8"x45 BEND , RJ
1–8" GV W/BOX
1–6" GV W/BOX
1–F.H ASSEMBLY 3' BC
10' OF 16" STEEL CASING
C
KINGSRIDE LANE

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY. EXISTING SAN SWR SERVICE LINES SHALL BE REMOVED AND REPLACED IF IN CONFLICT WITH PROP STM SWR.


PROP TOC PGL
MIN 4' COVER
PROP 8" WL
PROP 8" WL IN 16" STEEL CASING
PROP 6" F.H LEAD
PROP 8" WL IN 16" STEEL CASING
PROP STM SEWER
80
78
76
74
72
70
68
66
64
62
60
58
14+00
15+00
16+00
17+00
18+00

BENCHMARK:
CITY OF HOUSTON MONUMENT 4958–7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

—SAN—	PROPOSED SAN SWR	◌	CRITICAL LOCATION
—W—	PROPOSED WATER LINE	Ⓐ	ADJUST TO GRADE
—SAN—	EXIST SAN SWR LEADS	Ⓑ	EXIST WATER LINE TO REMAIN
///////	ABANDONED SAN SWR	Ⓒ	EXIST SAN SWR TO REMAIN
—W—	EXIST WATER LINE		
▨	D.I.P. W RESTRAINED JOINTS		

NOTES:

1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
6. HAND EXCAVATION SHALL BE USED DURING INSTALLATION OF THE PROPOSED WATER LINE FROM STA. 13+50 TO STA. 15+50 TO PREVENT DAMAGE TO THE EXISTING WATER LINE. THE CONTRACTOR SHALL PROTECT THE EXISTING WATER LINE THROUGHOUT CONSTRUCTION. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

0 20 40
SCALE IN FEET

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No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 14+00 TO STA 18+00

SHEET 4 OF 6

WBS NO. M–430296–0017–3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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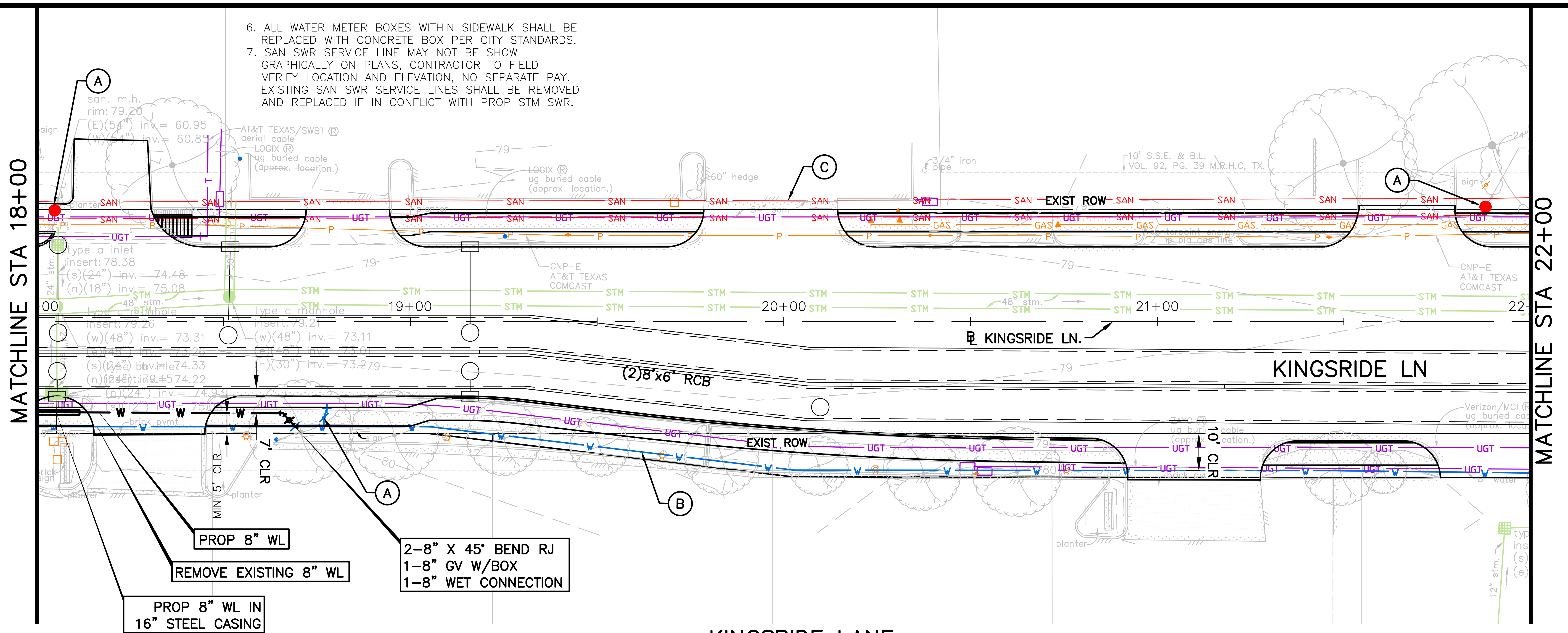
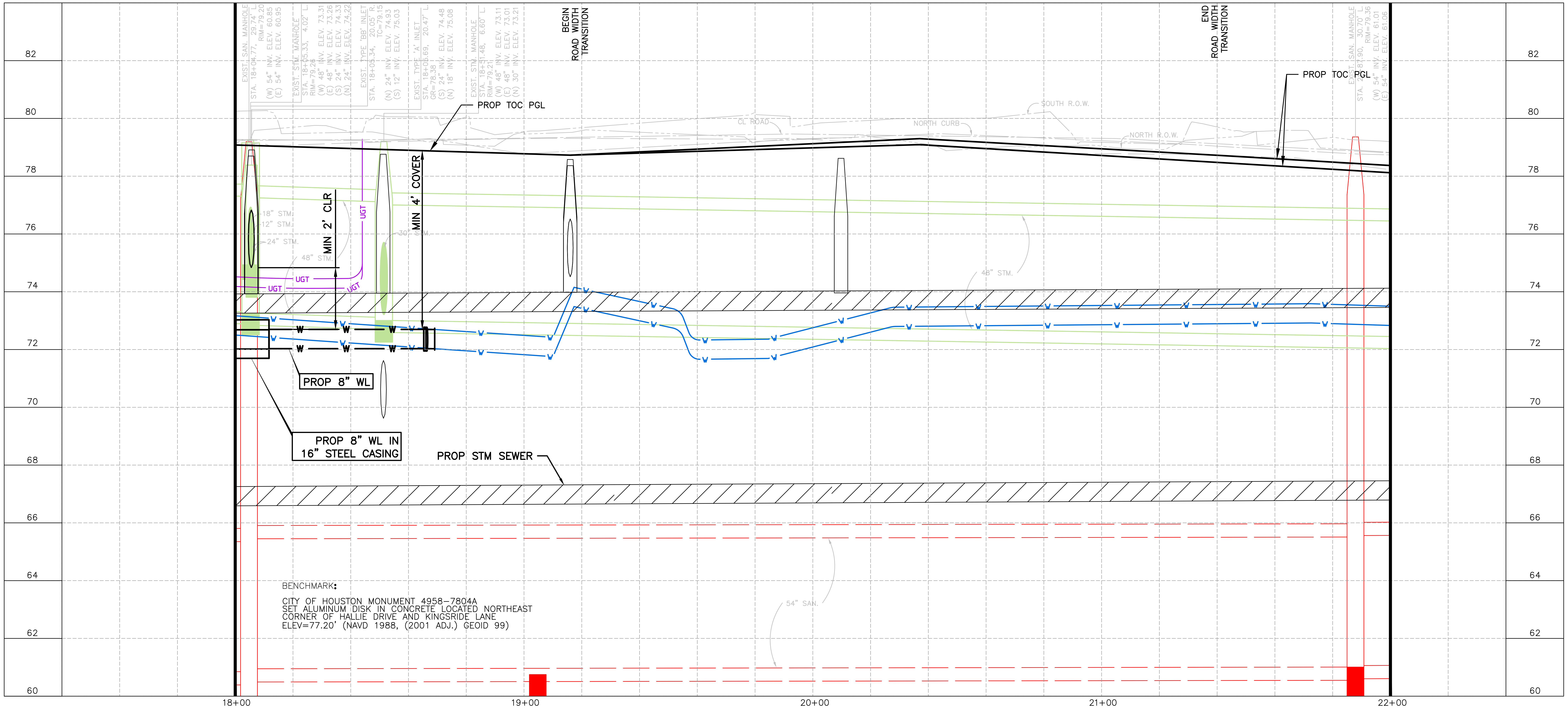
6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY. EXISTING SAN SWR SERVICE LINES SHALL BE REMOVED AND REPLACED IF IN CONFLICT WITH PROP STM SWR.


MATCHLINE STA 18+00
MATCHLINE STA 22+00
A
B
C
EXIST ROW
KINGSRIDE LN
℄ KINGSRIDE LN.
(2)8'x6' RCB
19+00
20+00
21+00
PROP 8" WL
REMOVE EXISTING 8" WL
PROP 8" WL IN 16" STEEL CASING
2-8" X 45° BEND RJ
1-8" GV W/BOX
1-8" WET CONNECTION
MIN 5' CLR
7' CLR
10' CLR
AT&T TEXAS/SWBT aerial cable
LOGIX ug buried cable (approx. location)
CNP-E AT&T TEXAS COMCAST
Verizon/MCI ug buried cable

KINGSRIDE LANE


BEGIN ROAD WIDTH TRANSITION
END ROAD WIDTH TRANSITION
PROP TOC PGL
MIN 2' CLR
MIN 4' COVER
PROP 8" WL
PROP 8" WL IN 16" STEEL CASING
PROP STM SEWER
UGT
82
80
78
76
74
72
70
68
66
64
62
60
18+00
19+00
20+00
21+00
22+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF HALLIE DRIVE AND KINGSRIDE LANE
ELEV=77.20' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

—SAN—	PROPOSED SAN SWR
—W—	PROPOSED WATER LINE
—SAN—	EXIST SAN SWR LEADS
⁄⁄⁄⁄⁄	ABANDONED SAN SWR
—W—	EXIST WATER LINE
▨	D.I.P. W RESTRAINED JOINTS
○	CRITICAL LOCATION
Ⓐ	ADJUST TO GRADE
Ⓑ	EXIST WATER LINE TO REMAIN
Ⓒ	EXIST SAN SWR TO REMAIN

No.	Date	Revisions	App.

NOTES:
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3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

0 20 40
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 18+00 TO STA 22+00

SHEET 5 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 188 OF 345

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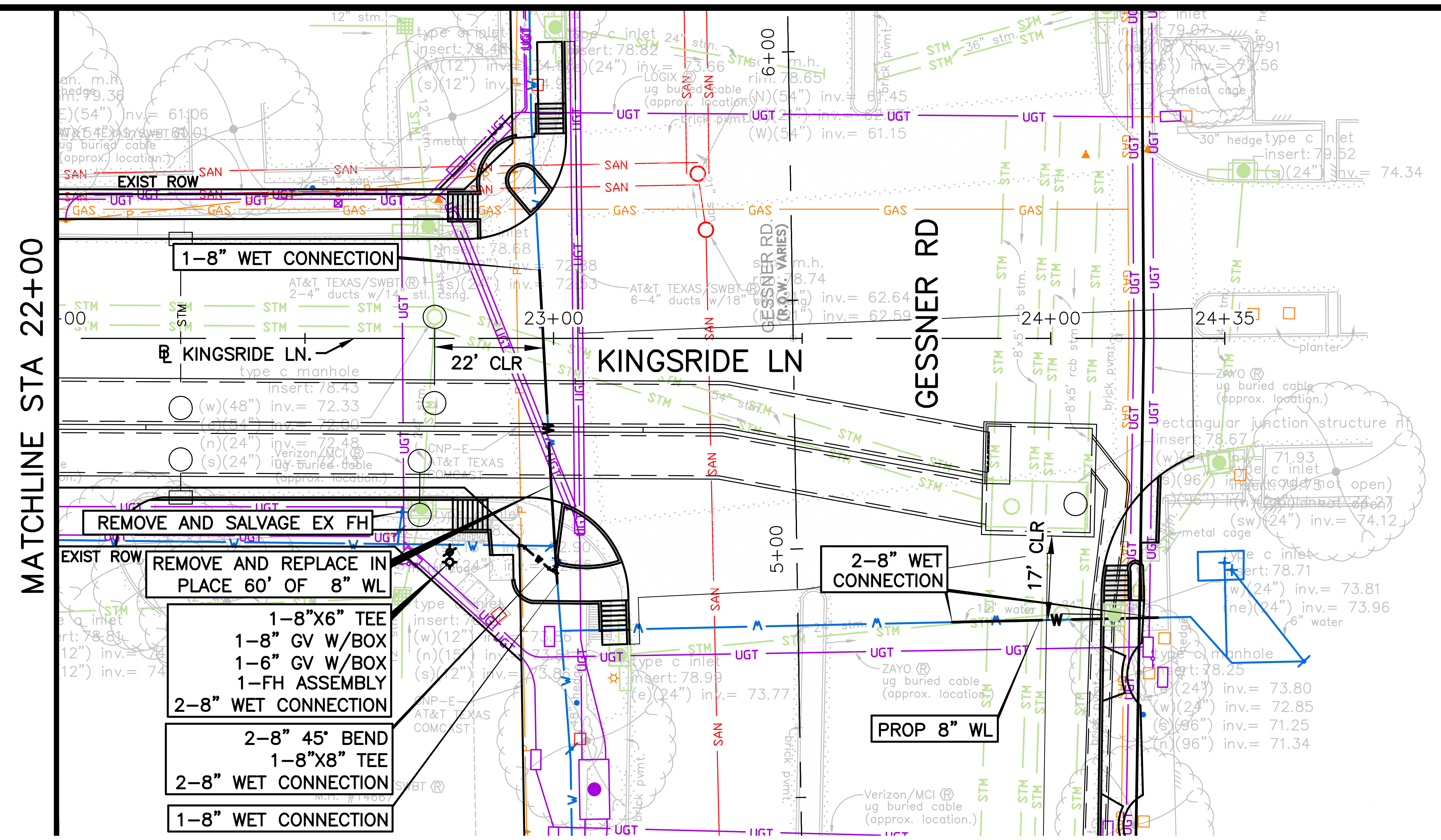
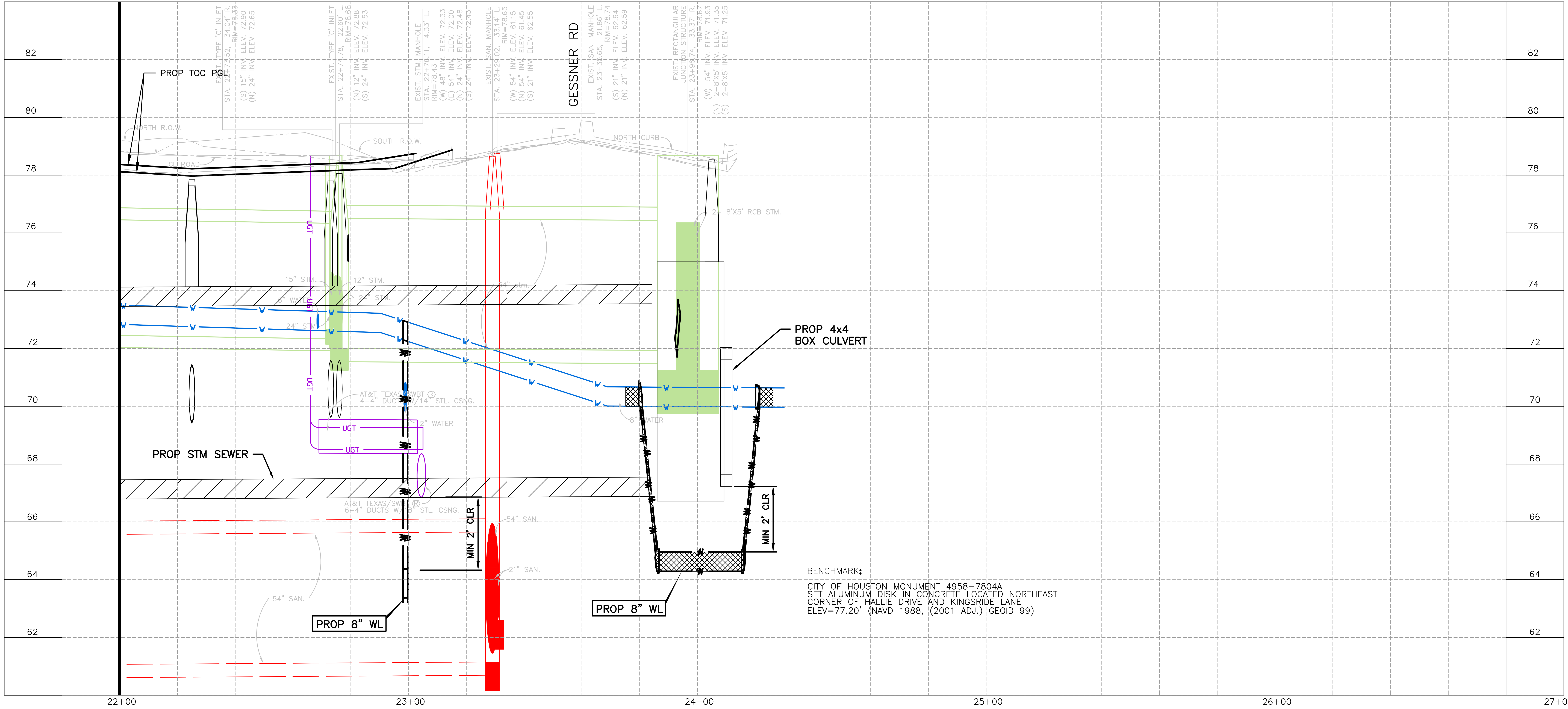

MATCHLINE STA 22+00
EXIST ROW
1-8" WET CONNECTION
℄ KINGSRIDE LN.
22' CLR
KINGSRIDE LN
GESSNER RD
23+00
24+00
24+35
5+00
6+00
17' CLR
REMOVE AND SALVAGE EX FH
REMOVE AND REPLACE IN PLACE 60' OF 8" WL
1-8"X6" TEE
1-8" GV W/BOX
1-6" GV W/BOX
1-FH ASSEMBLY
2-8" WET CONNECTION
2-8" 45° BEND
1-8"X8" TEE
2-8" WET CONNECTION
1-8" WET CONNECTION
2-8" WET CONNECTION
PROP 8" WL

KINGSRIDE LANE


82
80
78
76
74
72
70
68
66
64
62
PROP TOC PGL
NORTH R.O.W.
SOUTH R.O.W.
NORTH CURB
GESSNER RD
PROP 4x4 BOX CULVERT
PROP STM SEWER
MIN 2' CLR
PROP 8" WL
PROP 8" WL
8'X5' RCB STM.
22+00
23+00
24+00
25+00
26+00
27+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-7804A
SET ALUMINUM DISK IN CONCRETE LOCATED NORTHEAST
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LEGEND

—SAN—	PROPOSED SAN SWR
—W—	PROPOSED WATER LINE
—SAN—	EXIST SAN SWR LEADS
⫽⫽⫽	ABANDONED SAN SWR
—W—	EXIST WATER LINE
▨	D.I.P. W RESTRAINED JOINTS
◯	CRITICAL LOCATION
Ⓐ	ADJUST TO GRADE
Ⓑ	EXIST WATER LINE TO REMAIN
Ⓒ	EXIST SAN SWR TO REMAIN

App
Revisions
Date
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0 20 40
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
KINGSRIDE LANE
STA 22+00 TO END PROJECT
SHEET 6 OF 6

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
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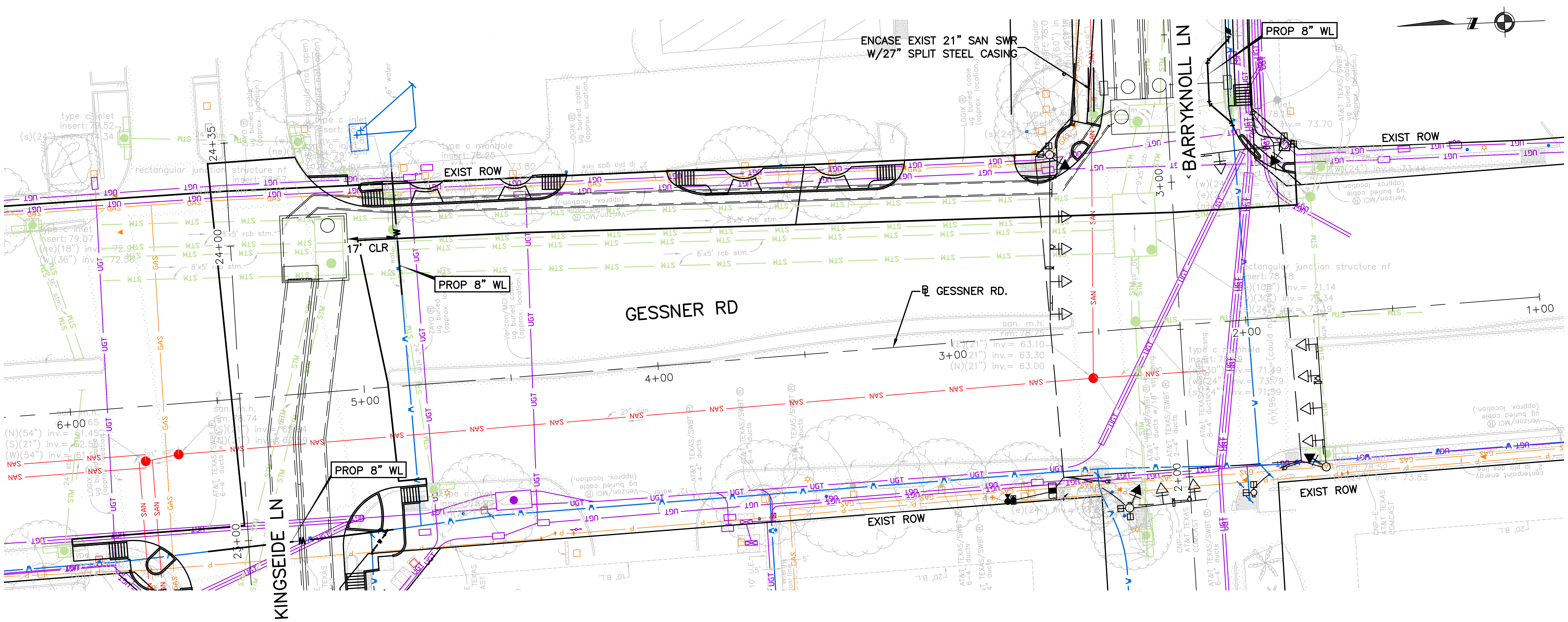
j:\2021\210601.01\cad\dwgs\sheets\10 - water & sanitary sewer plans\pp_wl & san_kingsride_06.dwg Plotted July 14, 2026 at 4:55 PM by McCourt, Jeff



LEGEND

- SAN — PROPOSED SAN SWR
- W — PROPOSED WATER LINE
- SAN — EXIST SAN SWR LEADS
- ABANDONED SAN SWR
- W — EXIST WATER LINE
- D.I.P. W RESTRAINED JOINTS
- CRITICAL LOCATION
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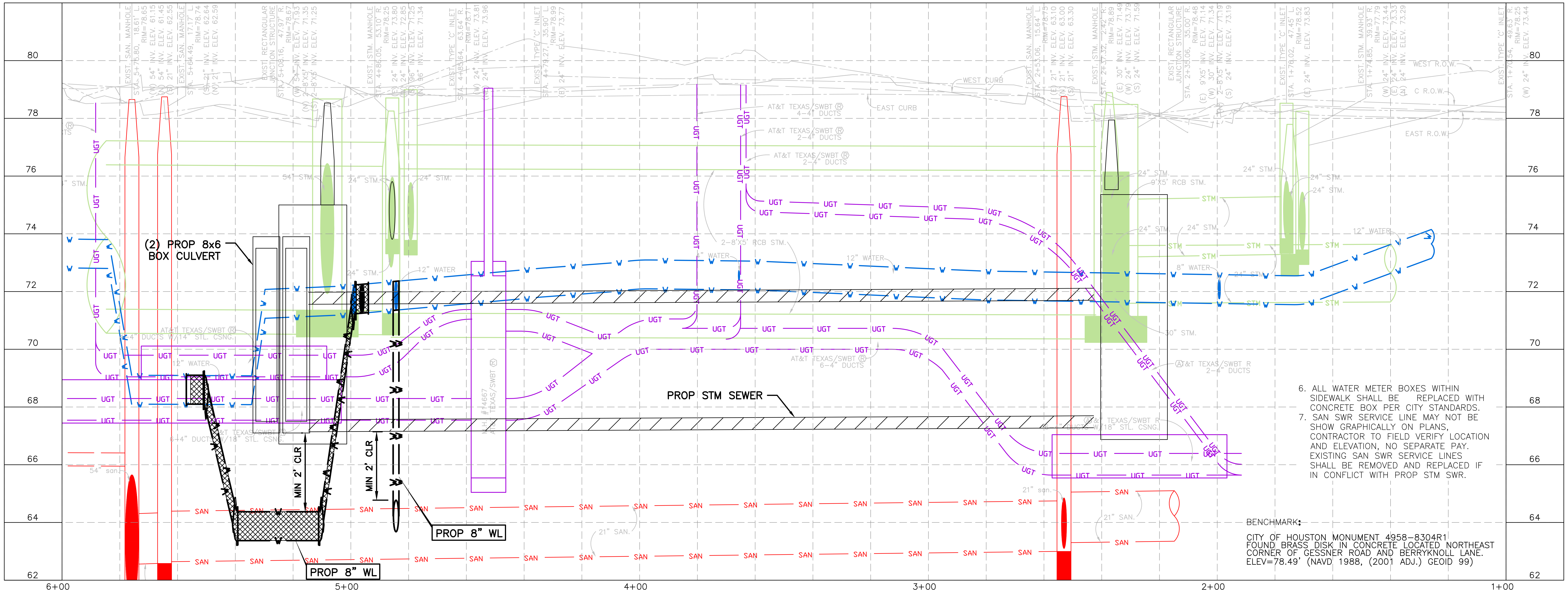

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BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
GESSNER ROAD
BEGIN PROJECT TO END PROJECT

SHEET 1 OF 1

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

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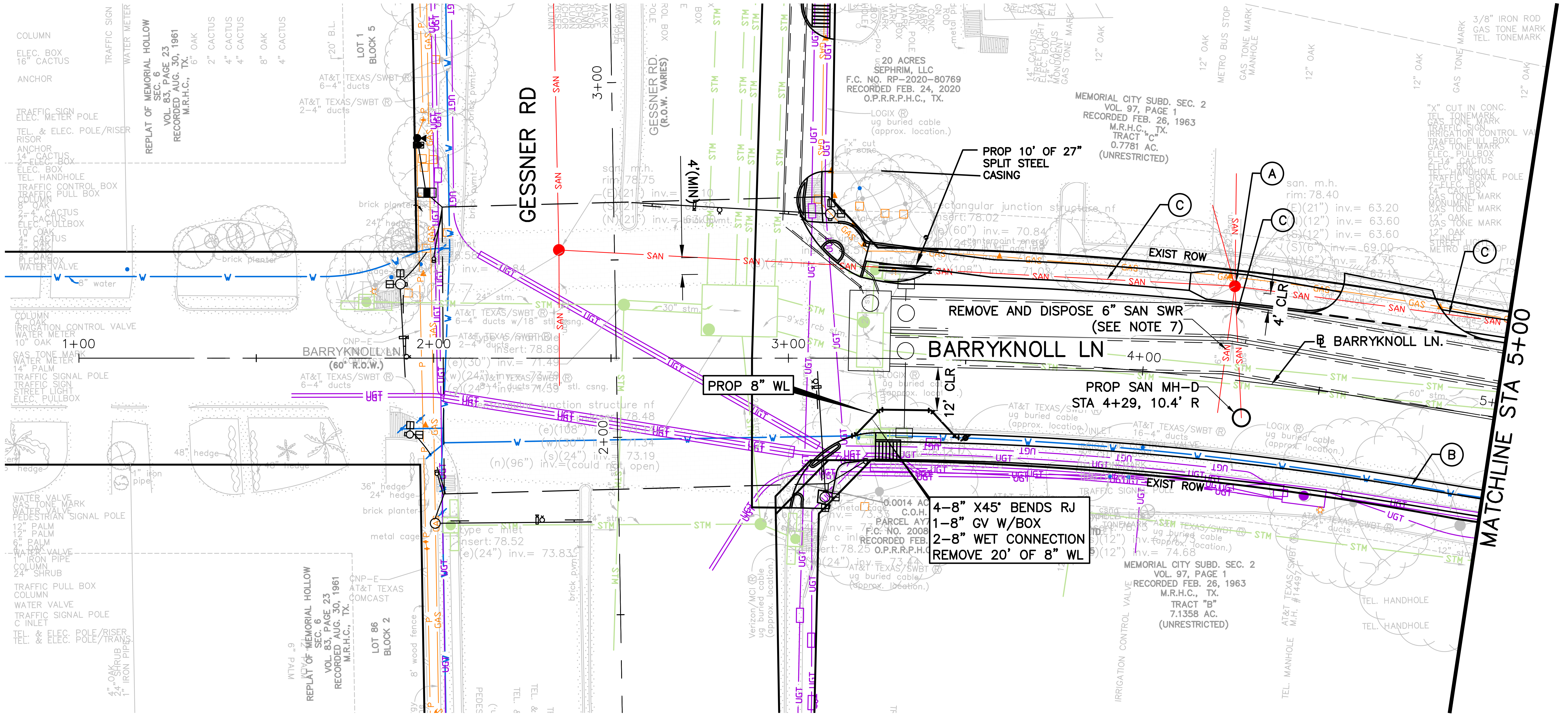
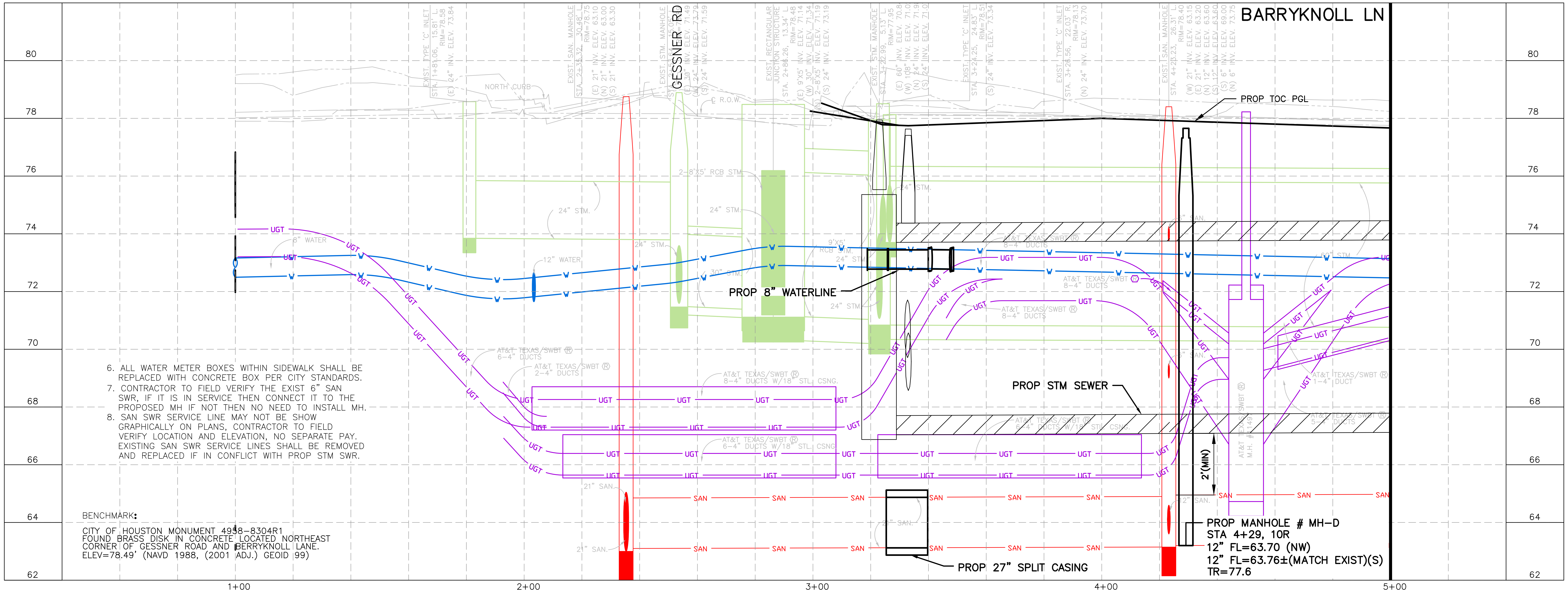

GESSNER RD
GESSNER RD. (R.O.W. VARIES)
BARRYKNOLL LN (60' R.O.W.)
1+00
2+00
3+00
4+00
4'(MIN)
PROP 10' OF 27" SPLIT STEEL CASING
20 ACRES SEPHRIM, LLC F.C. NO. RP-2020-80769 RECORDED FEB. 24, 2020 O.P.R.R.P.H.C., TX.
MEMORIAL CITY SUBD. SEC. 2 VOL. 97, PAGE 1 RECORDED FEB. 26, 1963 M.R.H.C., TX. TRACT "C" 0.7781 AC. (UNRESTRICTED)
A
C
C
C
B
EXIST ROW
REMOVE AND DISPOSE 6" SAN SWR (SEE NOTE 7)
BARRYKNOLL LN
℄ BARRYKNOLL LN.
4' CLR
12' CLR
PROP SAN MH-D STA 4+29, 10.4' R
PROP 8" WL
4-8" X45° BENDS RJ
1-8" GV W/BOX
2-8" WET CONNECTION
REMOVE 20' OF 8" WL
EXIST ROW
MEMORIAL CITY SUBD. SEC. 2 VOL. 97, PAGE 1 RECORDED FEB. 26, 1963 M.R.H.C., TX. TRACT "B" 7.1358 AC. (UNRESTRICTED)
REPLAT OF MEMORIAL HOLLOW SEC. 6 VOL. 83, PAGE 23 RECORDED AUG. 30, 1961 M.R.H.C., TX.
LOT 86 BLOCK 2
LOT 1 BLOCK 5
MATCHLINE STA 5+00


BARRYKNOLL LN
GESSNER RD
PROP TOC PGL
PROP 8" WATERLINE
PROP STM SEWER
2'(MIN)
PROP MANHOLE # MH-D
STA 4+29, 10R
12" FL=63.70 (NW)
12" FL=63.76±(MATCH EXIST)(S)
TR=77.6
PROP 27" SPLIT CASING
80
78
76
74
72
70
68
66
64
62
1+00
2+00
3+00
4+00
5+00

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. CONTRACTOR TO FIELD VERIFY THE EXIST 6" SAN SWR, IF IT IS IN SERVICE THEN CONNECT IT TO THE PROPOSED MH IF NOT THEN NO NEED TO INSTALL MH.
8. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY. EXISTING SAN SWR SERVICE LINES SHALL BE REMOVED AND REPLACED IF IN CONFLICT WITH PROP STM SWR.

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

— SAN —	PROPOSED SAN SWR
— W —	PROPOSED WATER LINE
— SAN —	EXIST SAN SWR LEADS
///////	ABANDONED SAN SWR
— W —	EXIST WATER LINE
▨	D.I.P. W RESTRAINED JOINTS
◌	CRITICAL LOCATION
Ⓐ	ADJUST TO GRADE
Ⓑ	EXIST WATER LINE TO REMAIN
Ⓒ	EXIST SAN SWR TO REMAIN

No.	Date	Revisions	App.

NOTES:
1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

0 20 40
SCALE IN FEET

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

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CABLE COMPANY DATE

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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

Ahmed

AHMED ALOBAIDI
155052
07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER PLAN & PROFILE BARRYKNOLL LANE BEGIN PROJECT TO STA 5+00
SHEET 1 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 191 OF 345

j:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\pp_wl & san_barryknoll_01.dwg Plotted July 14, 2026 at 4:57 PM by McCourt, Jeff

6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. CONTRACTOR TO FIELD VERIFY THE EXIST 6" SAN SWR, IF IT IS IN SERVICE THEN CONNECT IT TO THE PROPOSED MH IF NOT THEN NO NEED TO INSTALL MH.
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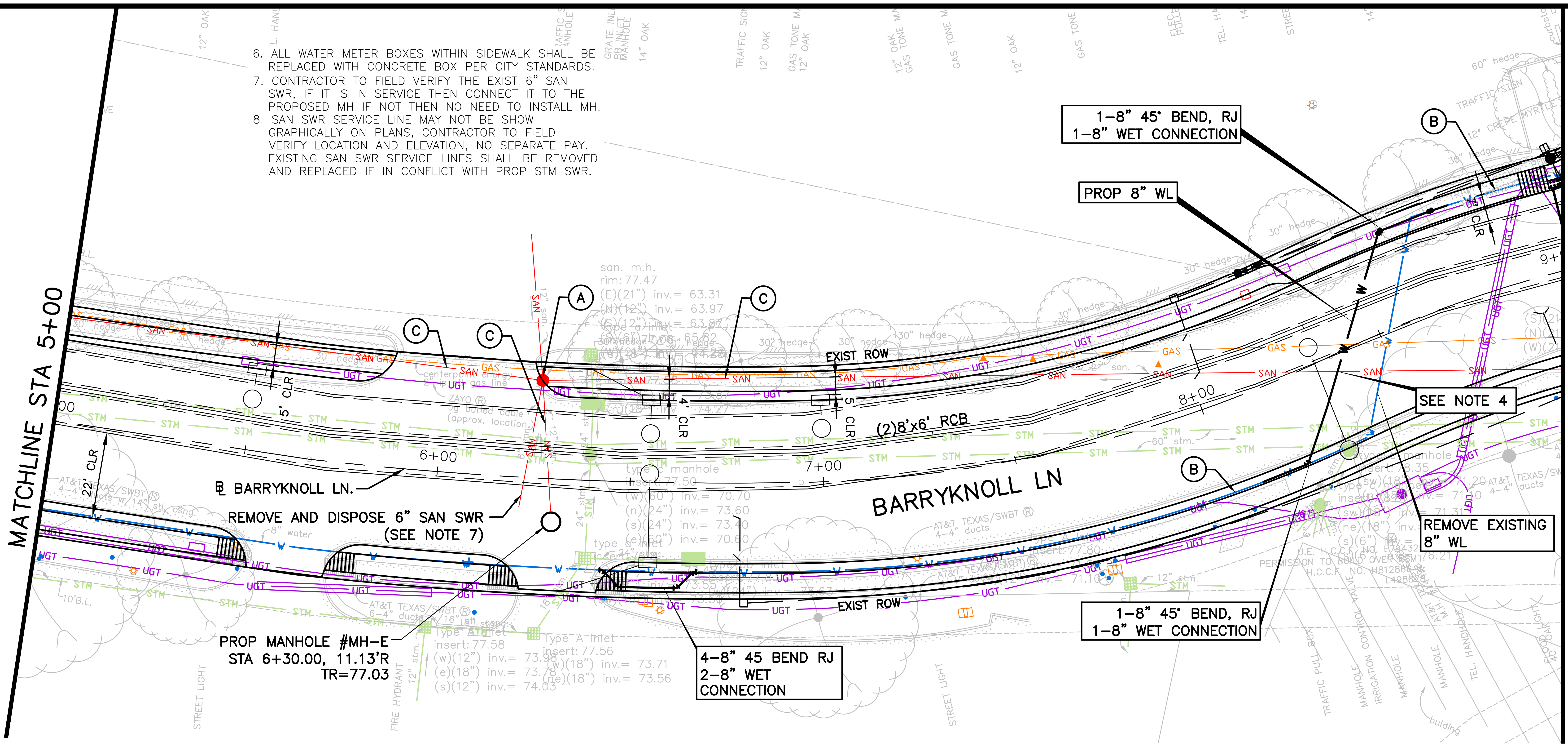
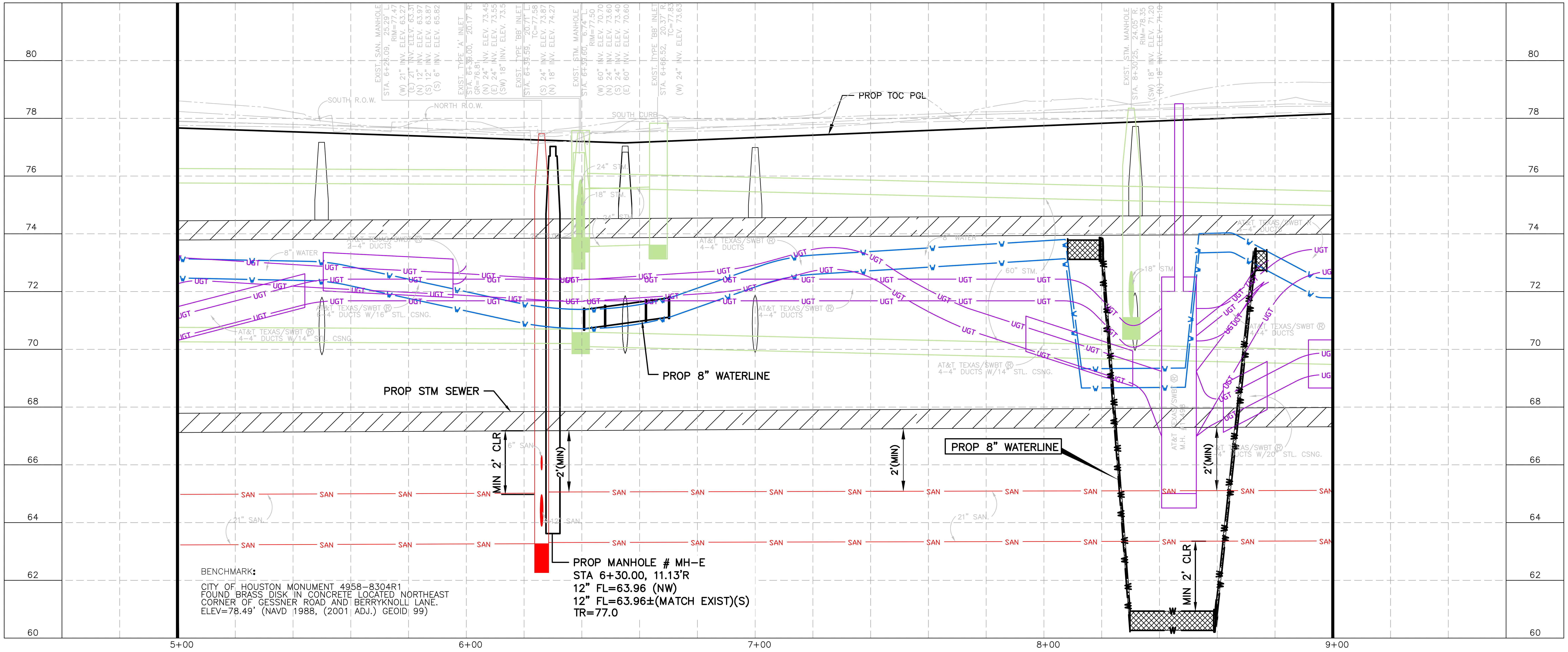

MATCHLINE STA 5+00
MATCHLINE STA 9+00
BARRYKNOLL LN
℄ BARRYKNOLL LN.
REMOVE AND DISPOSE 6" SAN SWR
(SEE NOTE 7)
PROP MANHOLE #MH–E
STA 6+30.00, 11.13'R
TR=77.03
4–8" 45 BEND RJ
2–8" WET
CONNECTION
1–8" 45' BEND, RJ
1–8" WET CONNECTION
PROP 8" WL
SEE NOTE 4
REMOVE EXISTING
8" WL
1–8" 45' BEND, RJ
1–8" WET CONNECTION
(2)8'x6' RCB
EXIST ROW
EXIST ROW
22' CLR
5' CLR
4' CLR
5' CLR
CLR
6+00
7+00
8+00
A
B
B
C
C
C
C
SAN
GAS
UGT
STM
W


80
78
76
74
72
70
68
66
64
62
60
PROP TOC PGL
SOUTH R.O.W.
NORTH R.O.W.
SOUTH CURB
PROP 8" WATERLINE
PROP STM SEWER
PROP 8" WATERLINE
MIN 2' CLR
2'(MIN)
2'(MIN)
2'(MIN)
MIN 2' CLR
PROP MANHOLE # MH–E
STA 6+30.00, 11.13'R
12" FL=63.96 (NW)
12" FL=63.96±(MATCH EXIST)(S)
TR=77.0
SAN
UGT
5+00
6+00
7+00
8+00
9+00

BENCHMARK:

CITY OF HOUSTON MONUMENT 4958–8304R1
FOUND BRASS DISK IN CONCRETE LOCATED NORTHEAST
CORNER OF GESSNER ROAD AND BERRYKNOLL LANE.
ELEV=78.49' (NAVD 1988, (2001 ADJ.) GEOID 99)

LEGEND

— SAN —	PROPOSED SAN SWR
— W —	PROPOSED WATER LINE
— SAN —	EXIST SAN SWR LEADS
⫽⫽⫽	ABANDONED SAN SWR
— W —	EXIST WATER LINE
▩	D.I.P. W RESTRAINED JOINTS
◌	CRITICAL LOCATION
Ⓐ	ADJUST TO GRADE
Ⓑ	EXIST WATER LINE TO REMAIN
Ⓒ	EXIST SAN SWR TO REMAIN

No.	Date	Revisions	App.

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0 20 40
SCALE IN FEET

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
BARRYKNOLL LANE
STA 5+00 TO STA 9+00
SHEET 2 OF 4

WBS NO. M–430296–0017–3

DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 192 OF 345

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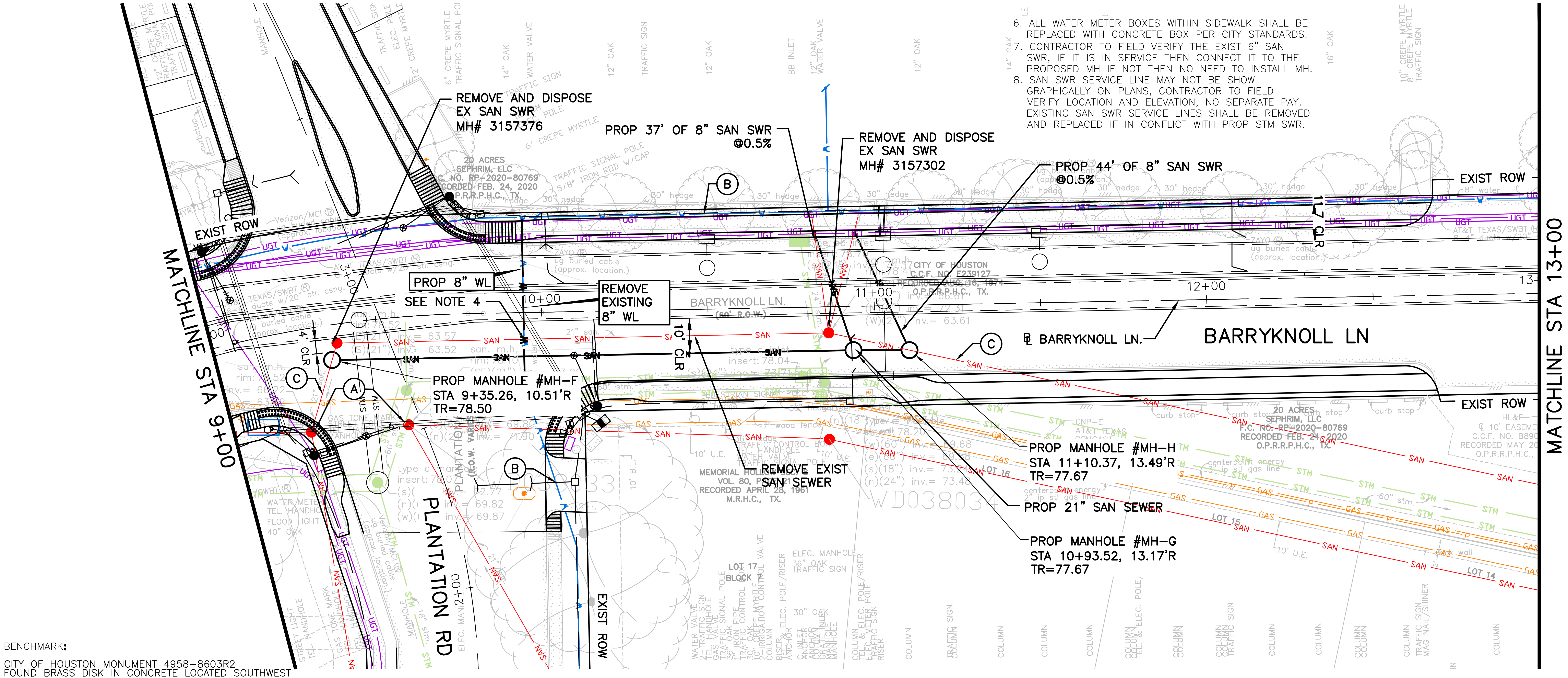
REMOVE AND DISPOSE
EX SAN SWR
MH# 3157376
PROP 37' OF 8" SAN SWR
@0.5%
REMOVE AND DISPOSE
EX SAN SWR
MH# 3157302
PROP 44' OF 8" SAN SWR
@0.5%
EXIST ROW
MATCHLINE STA 9+00
MATCHLINE STA 13+00
PROP 8" WL
SEE NOTE 4
REMOVE
EXISTING
8" WL
10+00
11+00
12+00
BARRYKNOLL LN.
℄ BARRYKNOLL LN.
BARRYKNOLL LN
PROP MANHOLE #MH-F
STA 9+35.26, 10.51'R
TR=78.50
PROP MANHOLE #MH-H
STA 11+10.37, 13.49'R
TR=77.67
PROP 21" SAN SEWER
PROP MANHOLE #MH-G
STA 10+93.52, 13.17'R
TR=77.67
REMOVE EXIST
SAN SEWER
PLANTATION RD
EXIST ROW
A
B
C
10' CLR
4' CLR

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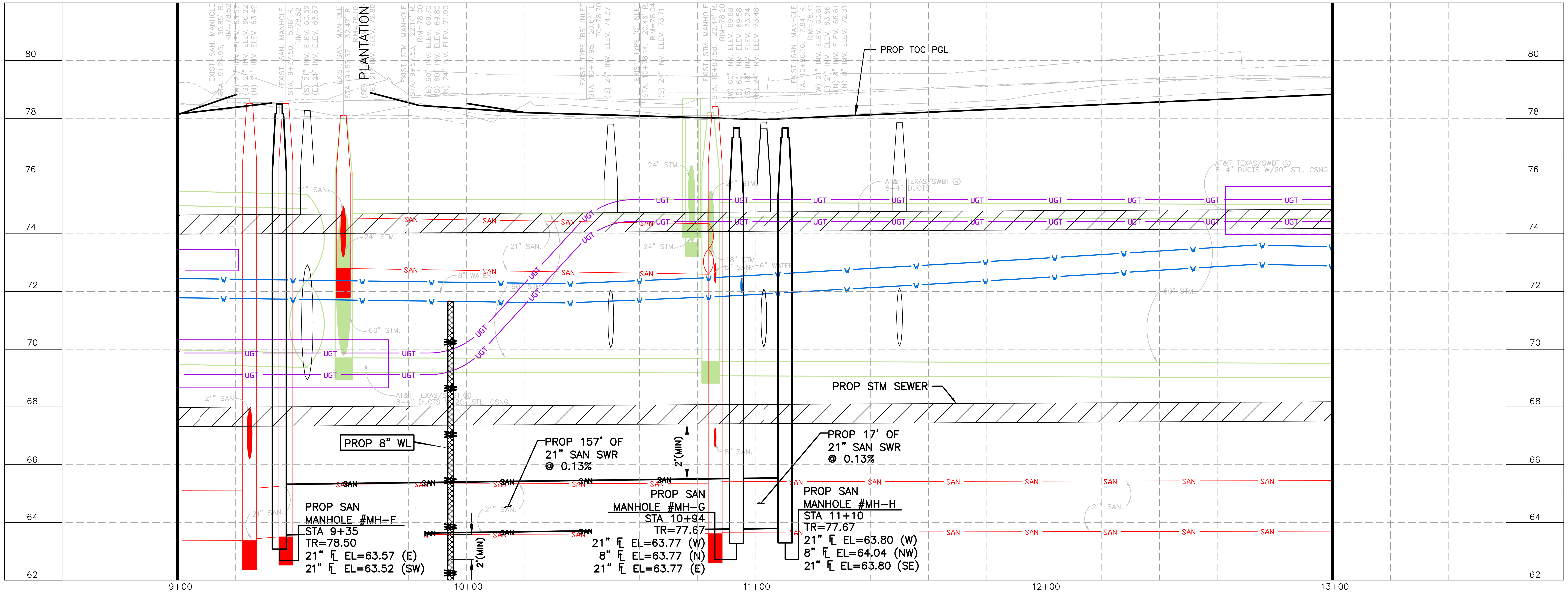
BENCHMARK:

CITY OF HOUSTON MONUMENT 4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED SOUTHWEST CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)


80
78
76
74
72
70
68
66
64
62
PROP TOC PGL
PLANTATION
PROP STM SEWER
PROP 8" WL
PROP 157' OF
21" SAN SWR
@ 0.13%
2'(MIN)
PROP 17' OF
21" SAN SWR
@ 0.13%
PROP SAN
MANHOLE #MH-F
STA 9+35
TR=78.50
21" ℄ EL=63.57 (E)
21" ℄ EL=63.52 (SW)
PROP SAN
MANHOLE #MH-G
STA 10+94
TR=77.67
21" ℄ EL=63.77 (W)
8" ℄ EL=63.77 (N)
21" ℄ EL=63.77 (E)
PROP SAN
MANHOLE #MH-H
STA 11+10
TR=77.67
21" ℄ EL=63.80 (W)
8" ℄ EL=64.04 (NW)
21" ℄ EL=63.80 (SE)
9+00
10+00
11+00
12+00
13+00

LEGEND

—SAN—	PROPOSED SAN SWR
—W—	PROPOSED WATER LINE
—SAN—	EXIST SAN SWR LEADS
⫽⫽⫽⫽⫽	ABANDONED SAN SWR
—W—	EXIST WATER LINE
▨	D.I.P. W RESTRAINED JOINTS
○	CRITICAL LOCATION
Ⓐ	ADJUST TO GRADE
Ⓑ	EXIST WATER LINE TO REMAIN
Ⓒ	EXIST SAN SWR TO REMAIN

No.	Date	Revisions	App.

NOTES:
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0 20 40
SCALE IN FEET

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
BARRYKNOLL LANE
STA 9+00 TO STA 13+00

SHEET 3 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (FULL)
V: 1"=2' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 193 OF 345

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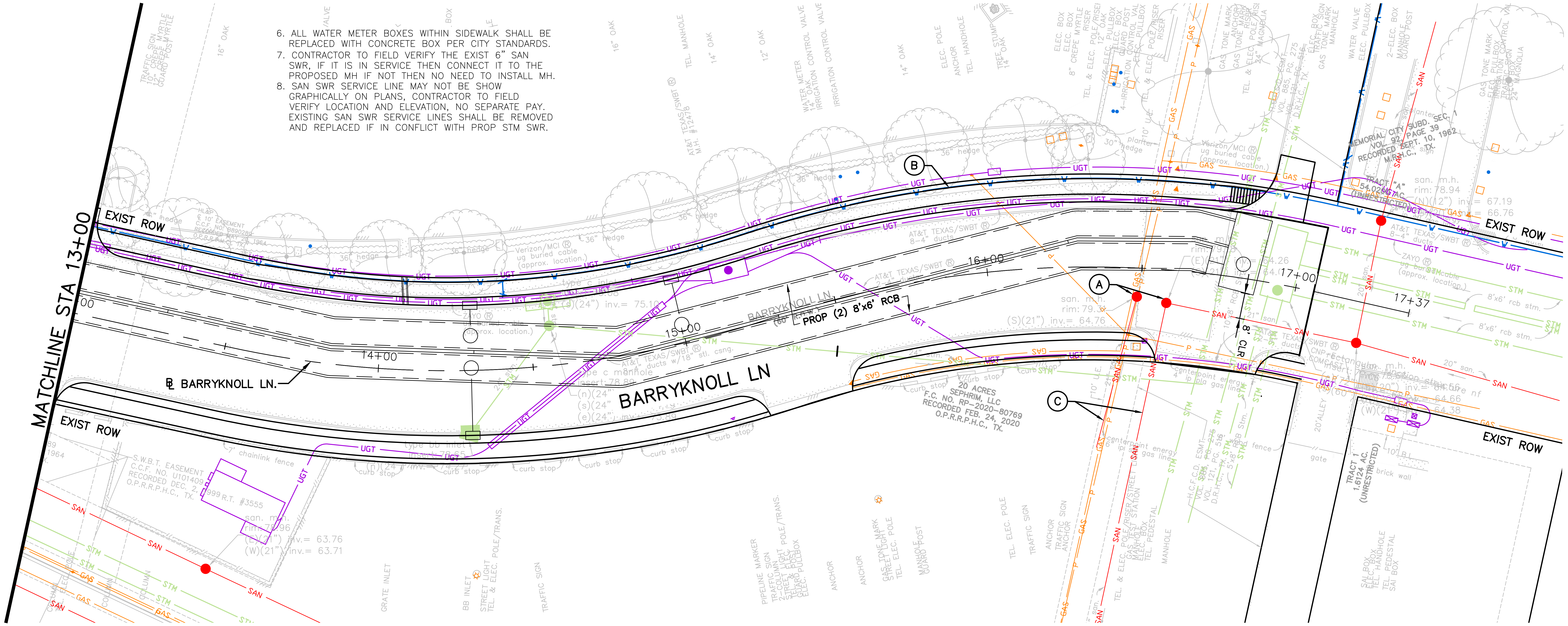
MATCHLINE STA 13+00
EXIST ROW
EXIST ROW
℄ BARRYKNOLL LN.
BARRYKNOLL LN
BARRYKNOLL LN
PROP (2) 8'x6' RCB
14+00
15+00
16+00
17+00
17+37
A
B
C
20 ACRES
SEPHRIM, LLC
F.C. NO. RP-2020-80769
RECORDED FEB. 24, 2020
O.P.R.R.P.H.C., TX.
MEMORIAL CITY SUBD. SEC. 1
VOL. 92 PAGE 39
RECORDED SEPT. 10, 1962
M.R.H.C., TX.
TRACT 1
1.6124 AC.
(UNRESTRICTED)
UGT
SAN
STM
GAS
8" CLR

LEGEND

— SAN —	PROPOSED SAN SWR
— W —	PROPOSED WATER LINE
— SAN —	EXIST SAN SWR LEADS
//////	ABANDONED SAN SWR
— W —	EXIST WATER LINE
▨	D.I.P. W RESTRAINED JOINTS
○	CRITICAL LOCATION
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0 20 40
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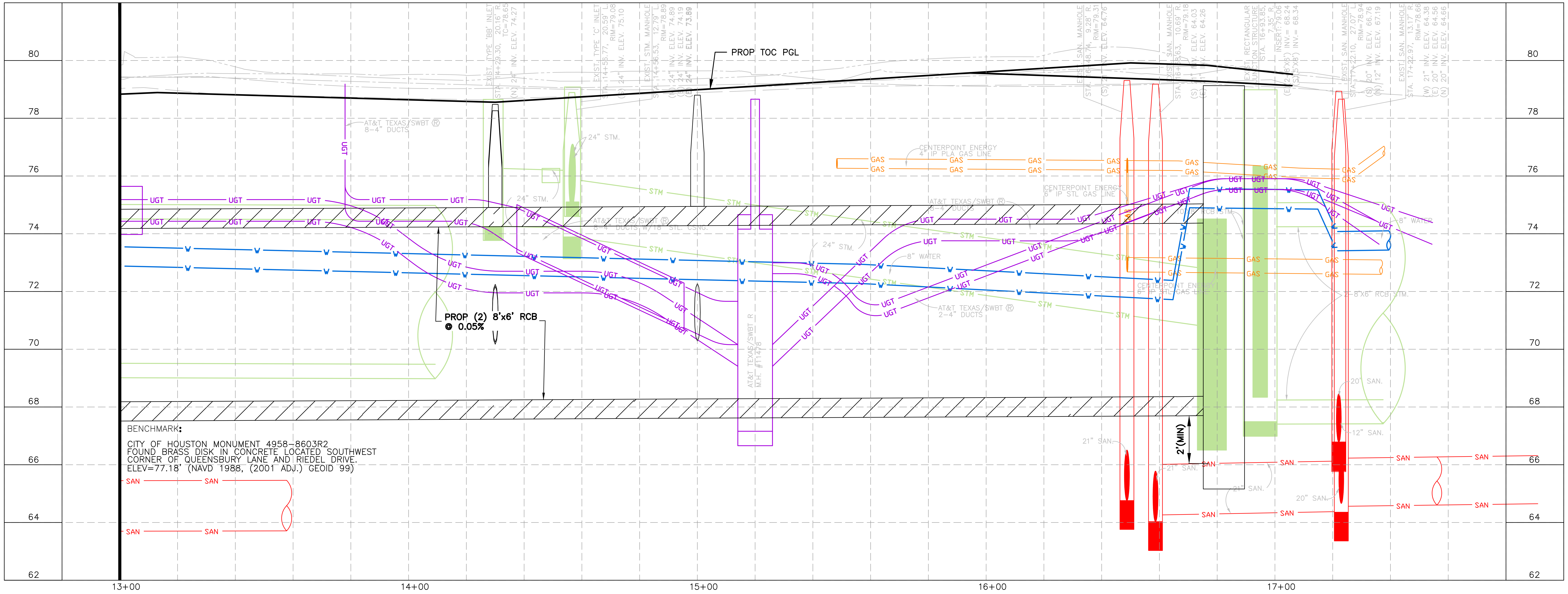
PROP TOC PGL
PROP (2) 8'x6' RCB
@ 0.05%
2'(MIN)
AT&T TEXAS/SWBT 8-4" DUCTS
CENTERPOINT ENERGY 4" IP PLA GAS LINE
CENTERPOINT ENERGY 6" IP STL GAS LINE
24" STM.
8" WATER
21" SAN.
20" SAN.
12" SAN.
2-8'x6' RCB STM.
UGT
GAS
SAN
STM
80
78
76
74
72
70
68
66
64
62
13+00
14+00
15+00
16+00
17+00

BENCHMARK:
CITY OF HOUSTON MONUMENT 4958-8603R2
FOUND BRASS DISK IN CONCRETE LOCATED SOUTHWEST
CORNER OF QUEENSBURY LANE AND RIEDEL DRIVE.
ELEV=77.18' (NAVD 1988, (2001 ADJ.) GEOID 99)

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
WATER AND SANITARY SEWER
PLAN & PROFILE
BARRYKNOLL LANE
STA 13+00 TO END PROJECT

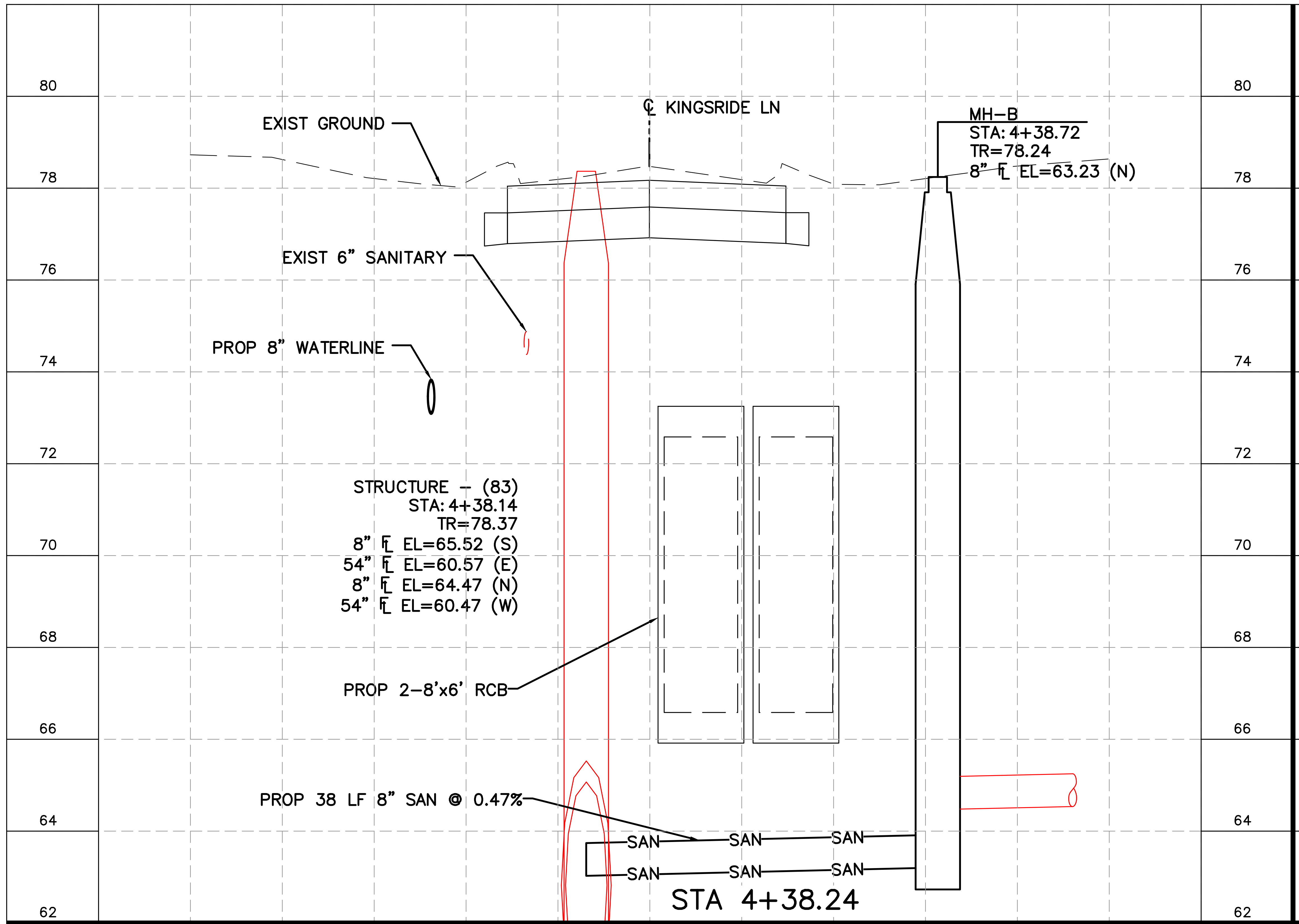
SHEET 4 OF 4

WBS NO. M-430296-0017-3

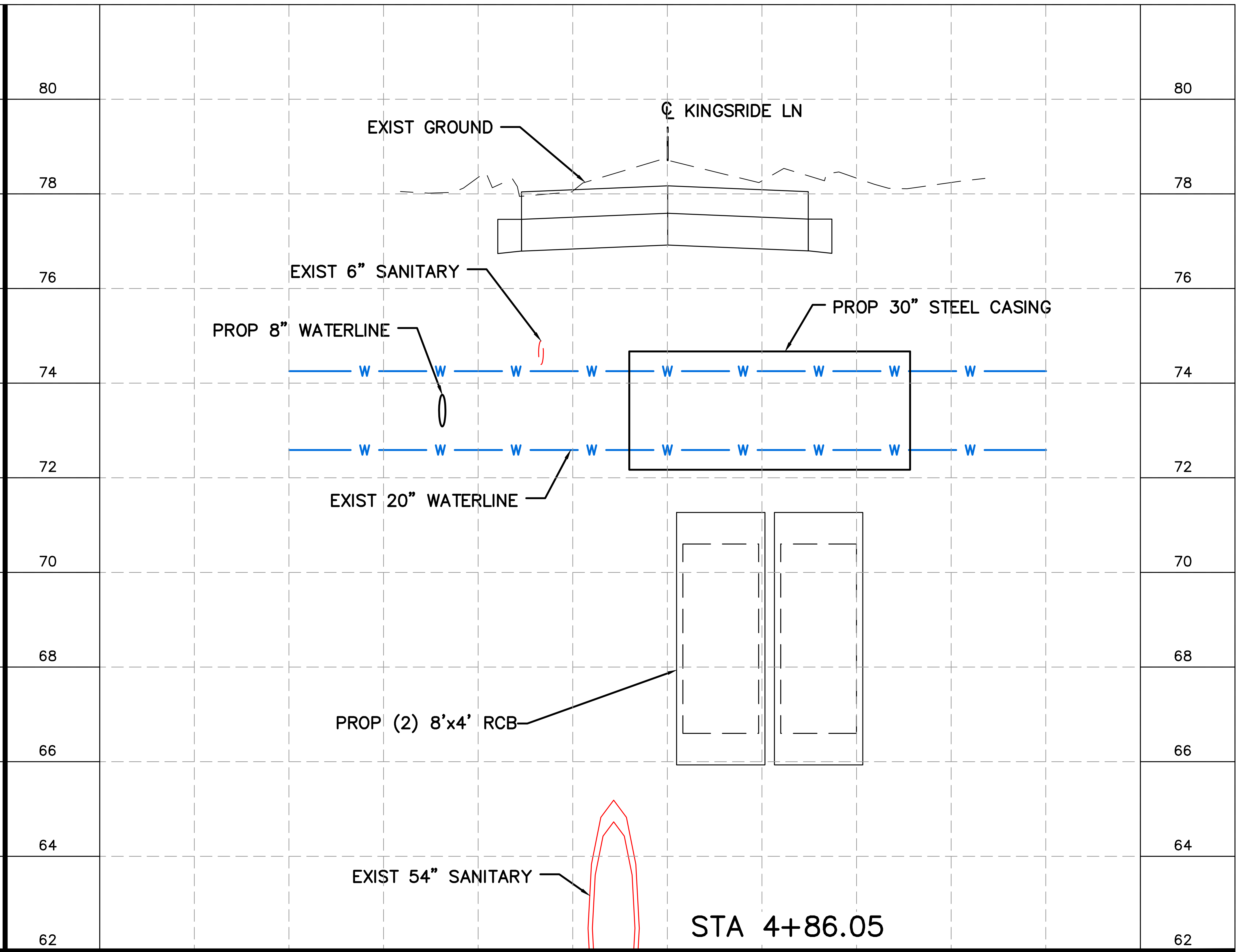
DRAWING SCALE
H: 1"=20' (22"X34")
V: 1"=2' (22"X34")

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

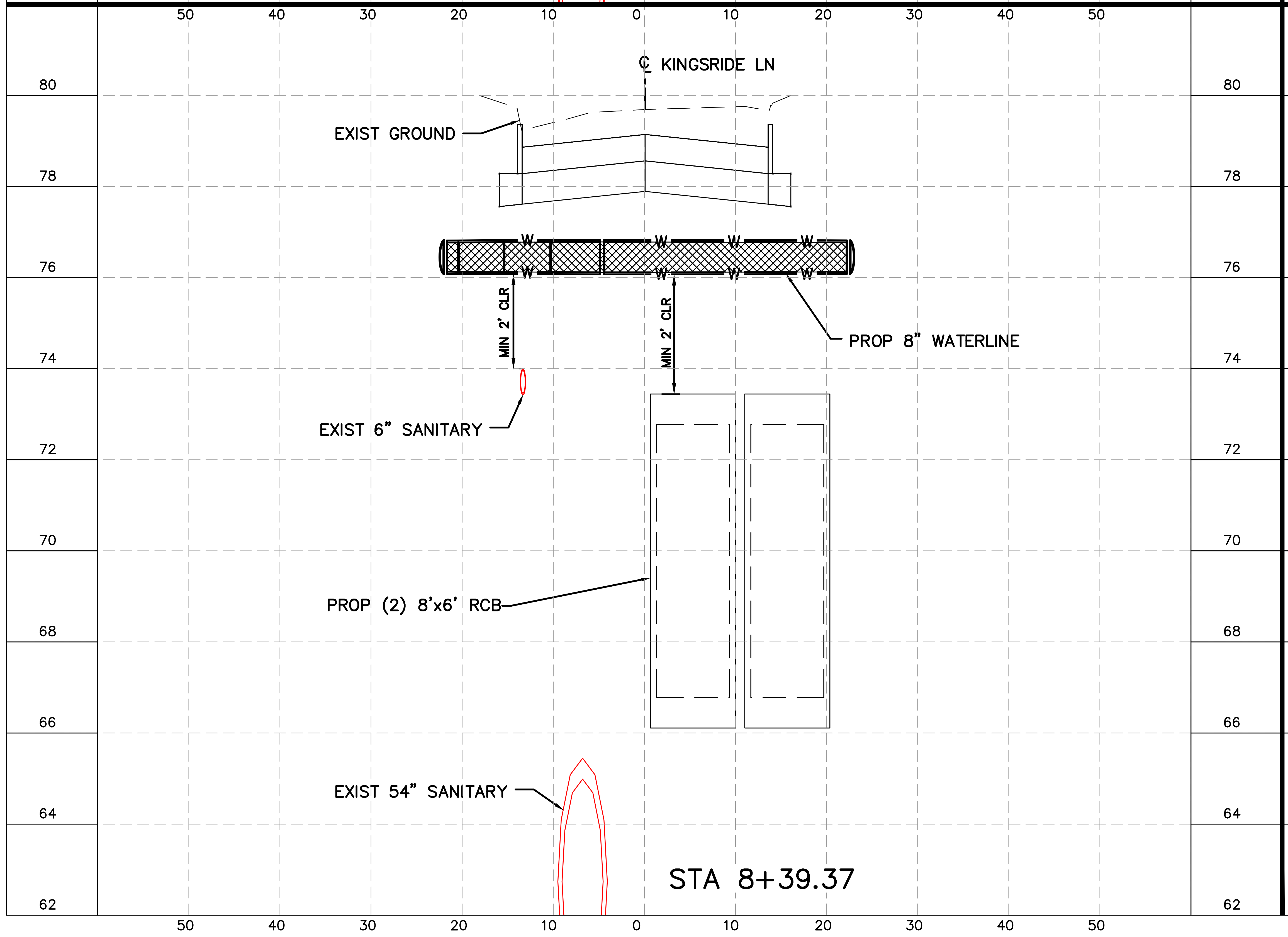
j:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\pp_wl & san_barryknoll_04.dwg Plotted July 14, 2026 at 4:54 PM by McCourt, Jeff



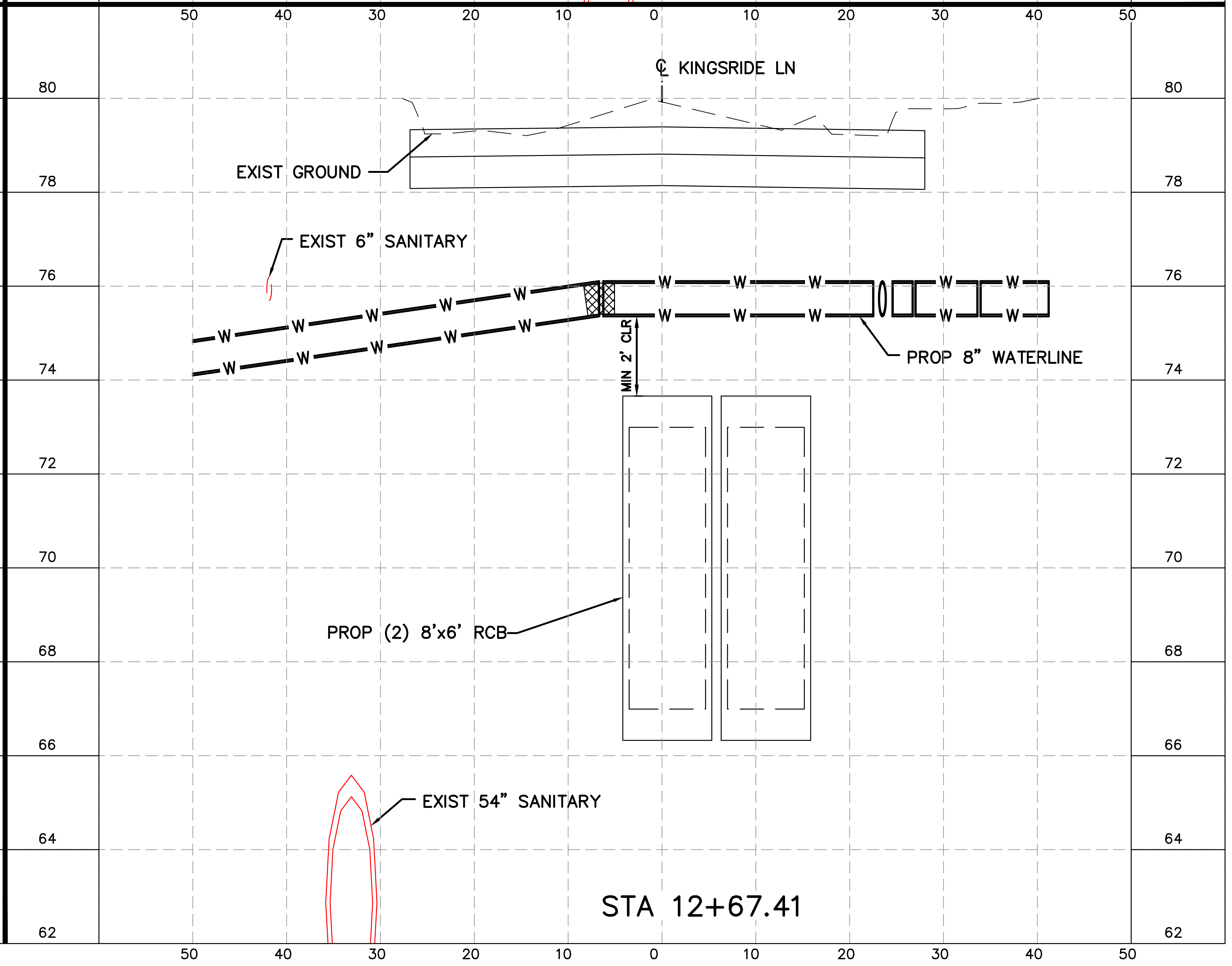
℄ KINGSRIDE LN
EXIST GROUND
MH-B
STA: 4+38.72
TR=78.24
8" ℄ EL=63.23 (N)
EXIST 6" SANITARY
PROP 8" WATERLINE
STRUCTURE – (83)
STA: 4+38.14
TR=78.37
8" ℄ EL=65.52 (S)
54" ℄ EL=60.57 (E)
8" ℄ EL=64.47 (N)
54" ℄ EL=60.47 (W)
PROP 2-8'x6' RCB
PROP 38 LF 8" SAN @ 0.47%
SAN
STA 4+38.24
80
78
76
74
72
70
68
66
64
62



℄ KINGSRIDE LN
EXIST GROUND
EXIST 6" SANITARY
PROP 30" STEEL CASING
PROP 8" WATERLINE
W
EXIST 20" WATERLINE
PROP (2) 8'x4' RCB
EXIST 54" SANITARY
STA 4+86.05
80
78
76
74
72
70
68
66
64
62



50 40 30 20 10 0 10 20 30 40 50
℄ KINGSRIDE LN
EXIST GROUND
W
MIN 2' CLR
PROP 8" WATERLINE
EXIST 6" SANITARY
PROP (2) 8'x6' RCB
EXIST 54" SANITARY
STA 8+39.37
80
78
76
74
72
70
68
66
64
62



50 40 30 20 10 0 10 20 30 40 50
℄ KINGSRIDE LN
EXIST GROUND
EXIST 6" SANITARY
W
MIN 2' CLR
PROP 8" WATERLINE
PROP (2) 8'x6' RCB
EXIST 54" SANITARY
STA 12+67.41
80
78
76
74
72
70
68
66
64
62

No.	Date	Revisions	App.

LEGEND

▨ D.I.P. W RESTRAINED JOINTS

NOTES:

1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY. EXISTING SAN SWR SERVICE LINES SHALL BE REMOVED AND REPLACED IF IN CONFLICT WITH PROP STM SWR.

0 10 20
SCALE IN FEET

H: 1"=10' (FULL)
V: 1"=2' (FULL)

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

Ahmed Alobaidi
AHMED ALOBAIDI
155052
07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
WATER & SANITARY SEWER LATERALS

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

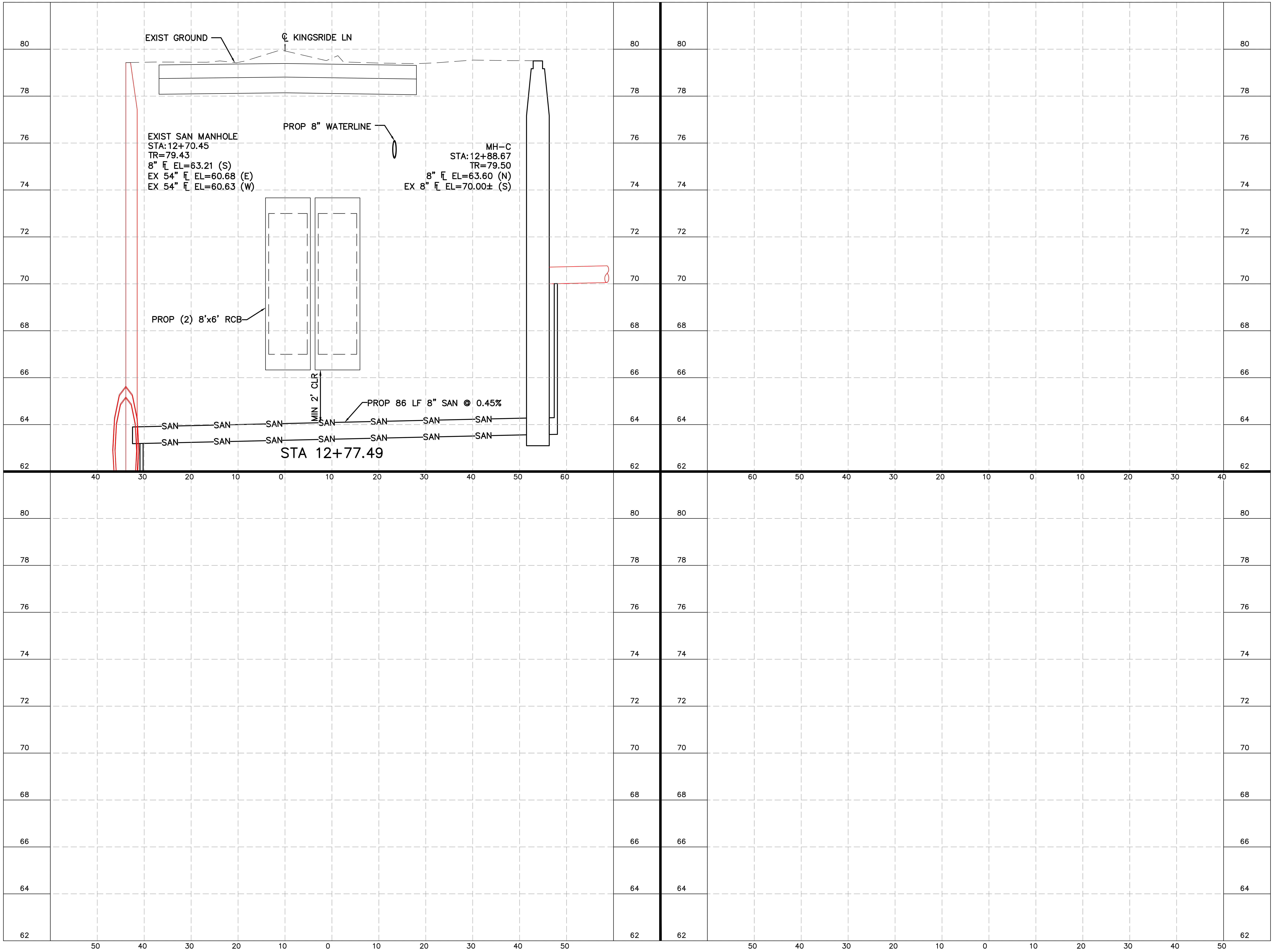
H: 1"=10' (FULL)
V: 1"=2' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 195 OF 345

j:\2021\210601.01\cad\dwgs\sheets\10 - water & sanitary sewer plans\wl & san_laterals_kingsride_01.dwg Plotted July 14, 2026 at 5:19 PM by McCourt, Jeff


EXIST GROUND
℄ KINGSRIDE LN
EXIST SAN MANHOLE
STA:12+70.45
TR=79.43
8" ℄ EL=63.21 (S)
EX 54" ℄ EL=60.68 (E)
EX 54" ℄ EL=60.63 (W)
PROP 8" WATERLINE
MH–C
STA:12+88.67
TR=79.50
8" ℄ EL=63.60 (N)
EX 8" ℄ EL=70.00± (S)
PROP (2) 8'x6' RCB
MIN 2' CLR
PROP 86 LF 8" SAN @ 0.45%
SAN
STA 12+77.49
80
78
76
74
72
70
68
66
64
62
40
30
20
10
0
10
20
30
40
50
60
50

No.	Revisions	Date	App.

LEGEND

▨ D.I.P. W RESTRAINED JOINTS

NOTES:
1. PROPOSED WATERLINE TO HAVE A MINIMUM OF TWO (2) FEET VERTICAL CLEARANCE FROM ALL PROPOSE/EXISTING STORM/SANITARY SEWER
2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
3. ALL CONNECTIONS TO EXISTING WATER LINES TO BE MADE WITHIN ROW LIMITS.
4. PLACE ONE FULL SECTION (MIN.18') OF PROPOSED WL/SS CENTERED AT WL/SS CROSSING. PROVIDE RESTRAINED JOINTS ON SS/WL SPACED AT LEAST 9' HORIZONTALLY FROM CL OF WL/SS.
5. ADJUST ALL SAN SWR MANHOLES TO GRADE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
6. ALL WATER METER BOXES WITHIN SIDEWALK SHALL BE REPLACED WITH CONCRETE BOX PER CITY STANDARDS.
7. SAN SWR SERVICE LINE MAY NOT BE SHOW GRAPHICALLY ON PLANS, CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION, NO SEPARATE PAY. EXISTING SAN SWR SERVICE LINES SHALL BE REMOVED AND REPLACED IF IN CONFLICT WITH PROP STM SWR.

0 10 20
SCALE IN FEET

H: 1"=10' (FULL)
V: 1"=2' (FULL)

HRGreen
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11750 KATY FREEWAY
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

KINGSRIDE LN
WATER & SANITARY SEWER LATERALS

SHEET 2 OF 3

WBS NO. M–430296–0017–3

DRAWING SCALE

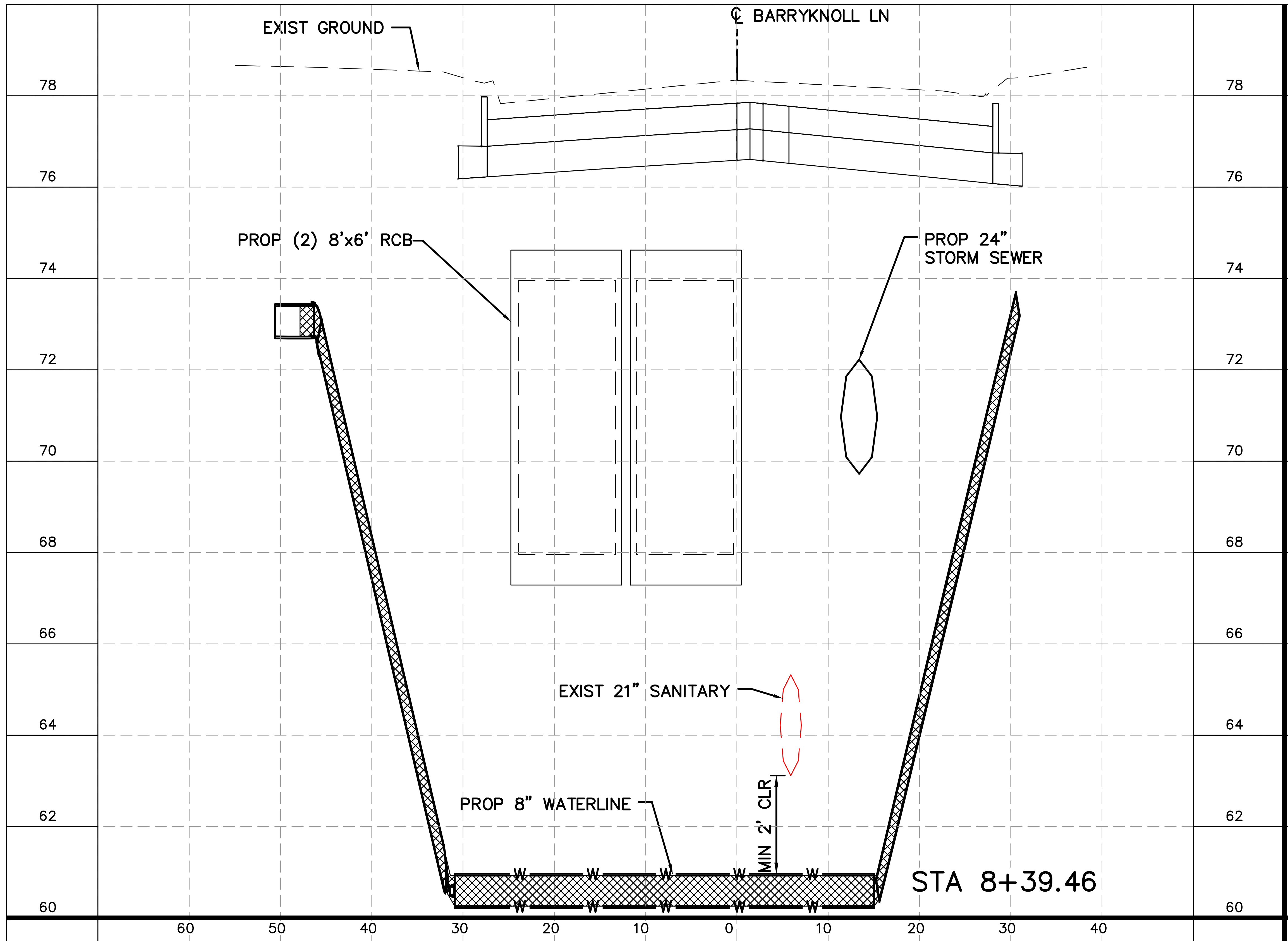
H: 1"=10' (FULL)
V: 1"=2' (FULL)

CITY OF HOUSTON PM

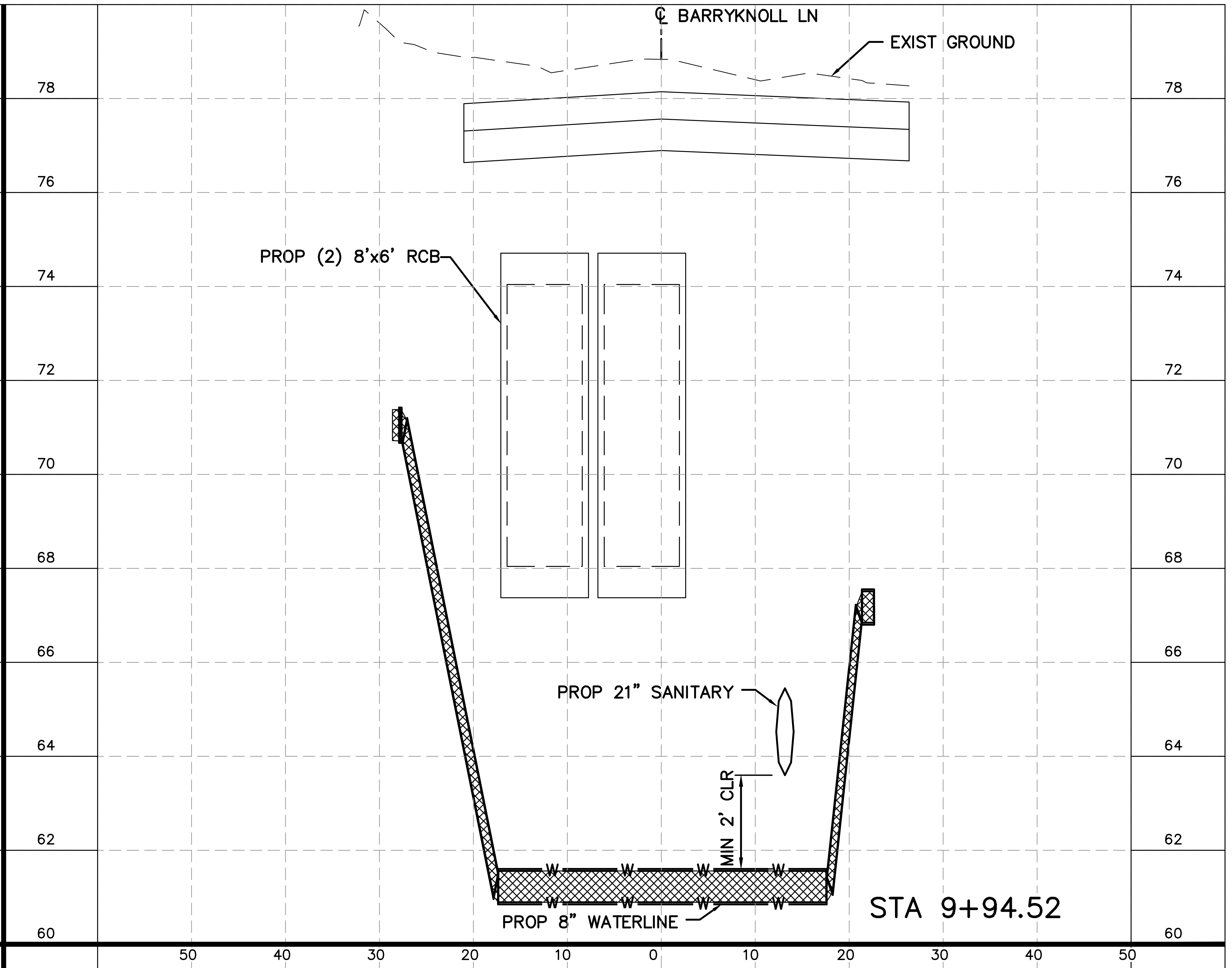
KEVIN HAMMOND, P.E.

SHEET NO. 196 OF 345

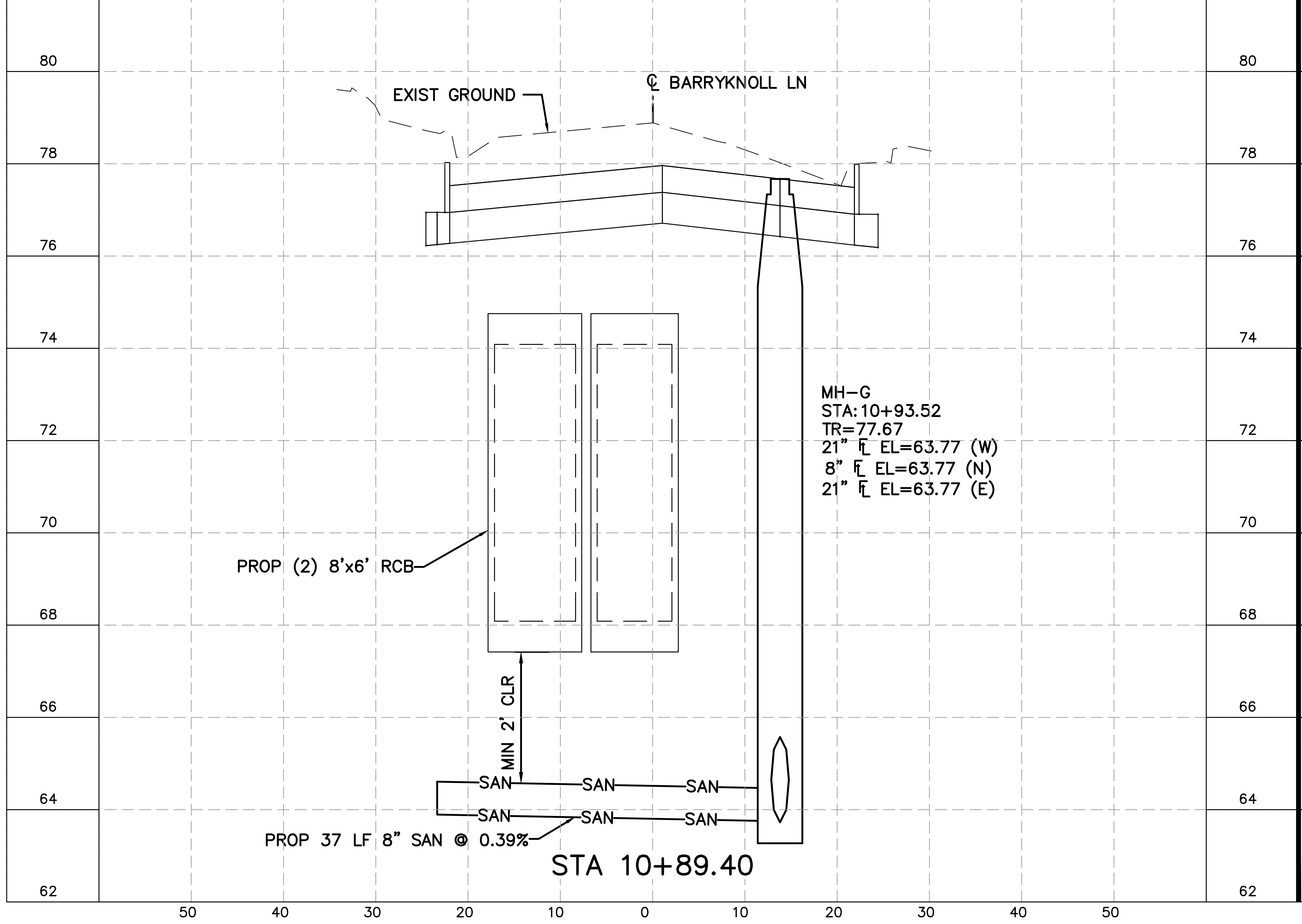
j:\2021\210601.01\cad\dwgs\sheets\10 – water & sanitary sewer plans\wl & san_laterals_kingsirde_02.dwg Plotted July 14, 2026 at 5:19 PM by McCourt, Jeff j:\2021\210601.01\cad\dwgs\sheets\10 - water & sanitary sewer plans\wl & san_laterals_barryknoll_01.dwg Plotted July 14, 2026 at 5:19 PM by McCourt, Jeff


EXIST GROUND
℄ BARRYKNOLL LN
PROP (2) 8'x6' RCB
PROP 24" STORM SEWER
EXIST 21" SANITARY
PROP 8" WATERLINE
MIN 2' CLR
W
78 76 74 72 70 68 66 64 62 60

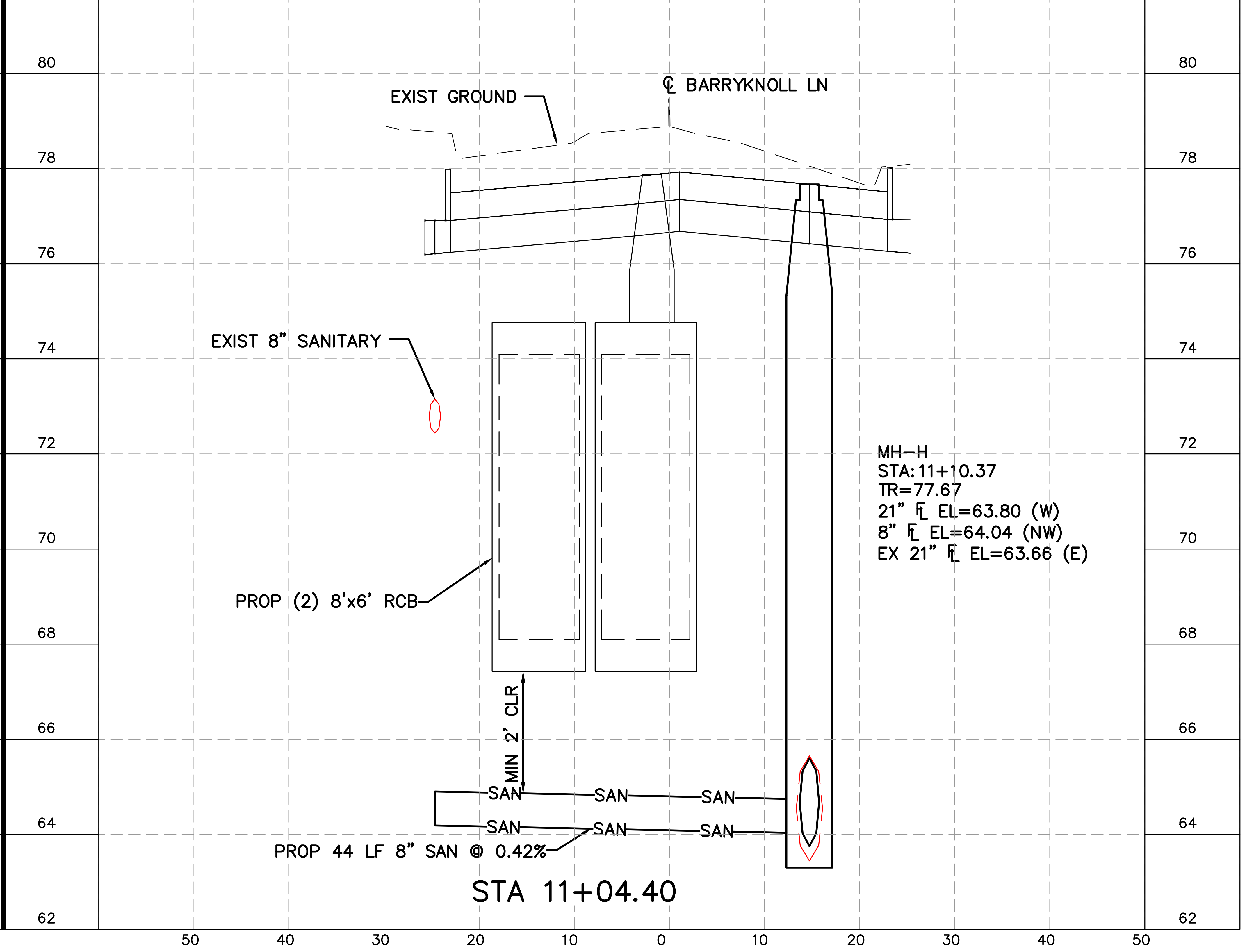
STA 8+39.46


℄ BARRYKNOLL LN
EXIST GROUND
PROP (2) 8'x6' RCB
PROP 21" SANITARY
MIN 2' CLR
PROP 8" WATERLINE
W
78 76 74 72 70 68 66 64 62 60
50 40 30 20 10 0 10 20 30 40 50

STA 9+94.52


60 50 40 30 20 10 0 10 20 30 40
EXIST GROUND
℄ BARRYKNOLL LN
MH-G
STA:10+93.52
TR=77.67
21" ℄ EL=63.77 (W)
8" ℄ EL=63.77 (N)
21" ℄ EL=63.77 (E)
PROP (2) 8'x6' RCB
MIN 2' CLR
SAN
PROP 37 LF 8" SAN @ 0.39%
80 78 76 74 72 70 68 66 64 62
50 40 30 20 10 0 10 20 30 40 50

STA 10+89.40


EXIST GROUND
℄ BARRYKNOLL LN
EXIST 8" SANITARY
MH-H
STA:11+10.37
TR=77.67
21" ℄ EL=63.80 (W)
8" ℄ EL=64.04 (NW)
EX 21" ℄ EL=63.66 (E)
PROP (2) 8'x6' RCB
MIN 2' CLR
SAN
PROP 44 LF 8" SAN @ 0.42%
80 78 76 74 72 70 68 66 64 62
50 40 30 20 10 0 10 20 30 40 50

STA 11+04.40

LEGEND

▨ D.I.P. W RESTRAINED JOINTS

NOTES:
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2. MAINTAIN WATER SERVICES TO ALL CUSTOMER, FIRE HYDRANTS, AND INTERCONNECTIONS AT ALL TIME. PROVIDE TEMPORARY CONNECTION AS NECESSARY DURING CONSTRUCTION.
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No.	Date	Revisions	App.

0 10 20
SCALE IN FEET
H: 1"=10' (FULL)
V: 1"=2' (FULL)

HRGreen
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07/14/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

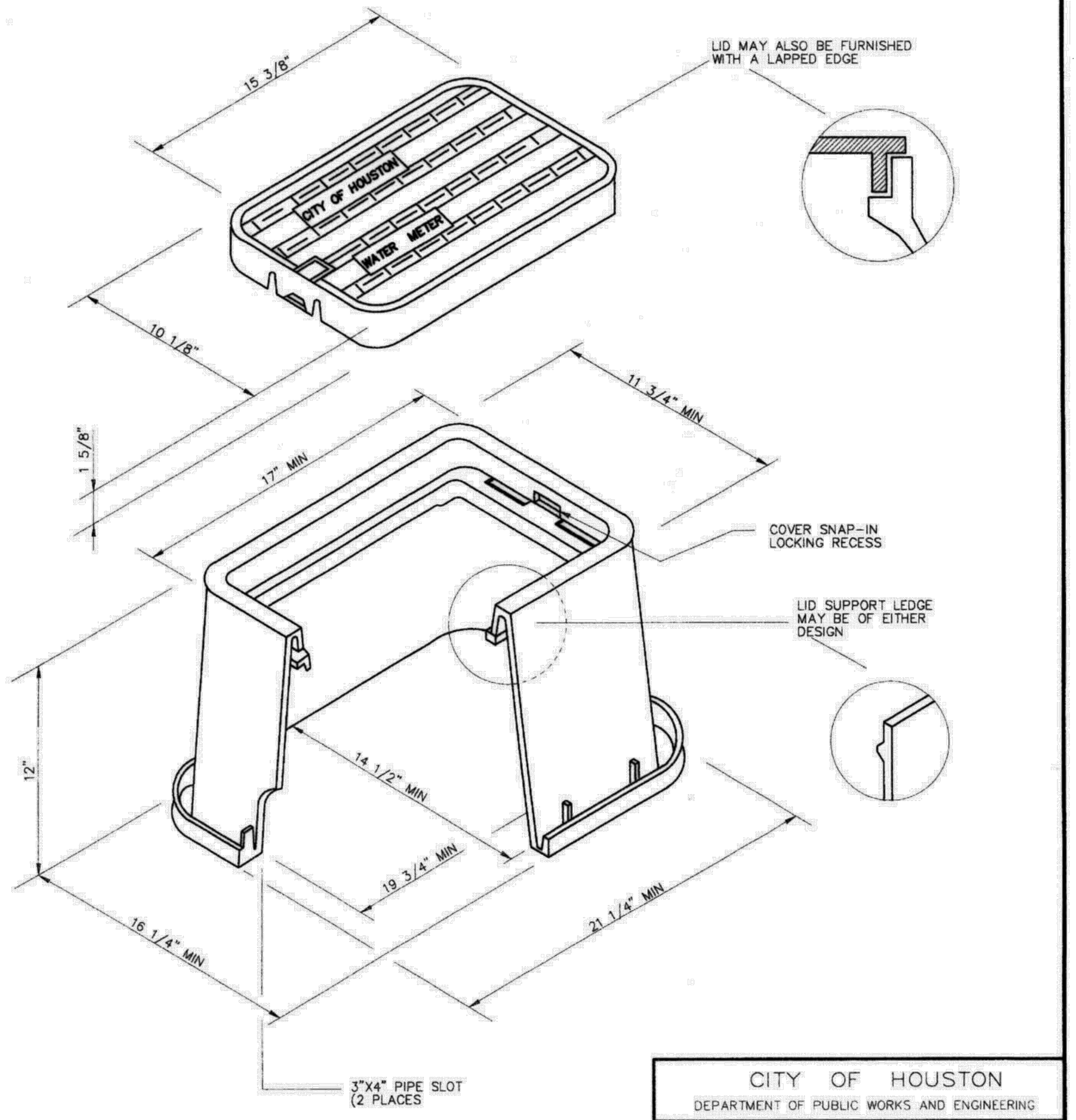
BARRYKNOLL LN
WATER & SANITARY SEWER LATERALS

SHEET 3 OF 3

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=2' (FULL)
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 197 OF 345

j:\2021\210601.01\cad\dwgs\sheets\11 - water & sanitary sewer standards\water standard 01.dwg Plotted April 15, 2026 at 6:46 PM by Alobaidi, Ahmed

No.	Date	Revisions	App.



15 3/8"
CITY OF HOUSTON
WATER METER
10 1/8"
11 3/4" MIN
1 5/8"
17" MIN
12"
14 1/2" MIN
19 3/4" MIN
21 1/4" MIN
16 1/4" MIN

LID MAY ALSO BE FURNISHED WITH A LAPPED EDGE

COVER SNAP-IN LOCKING RECESS

LID SUPPORT LEDGE MAY BE OF EITHER DESIGN

3"X4" PIPE SLOT (2 PLACES)

NOTE

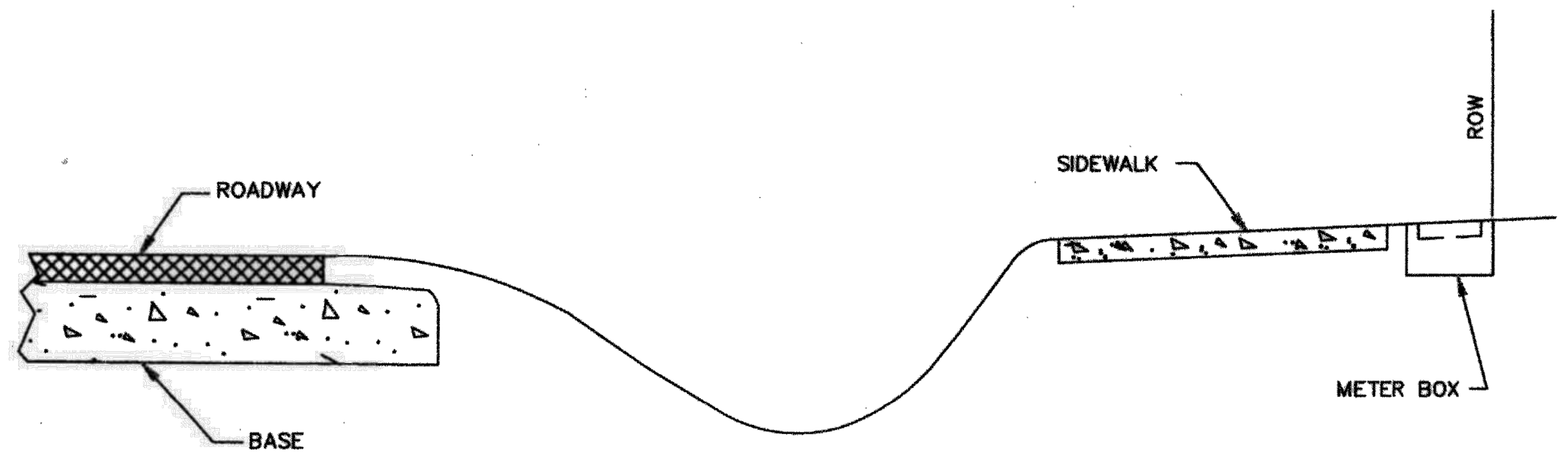
1. LID MUST BE ABLE TO ACCEPT THE CITY'S AMR TRANSMITTING ENDPOINT.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STANDARD PLASTIC
METER BOX
FOR ⅝" AND 1" METERS
(NOT TO SCALE)

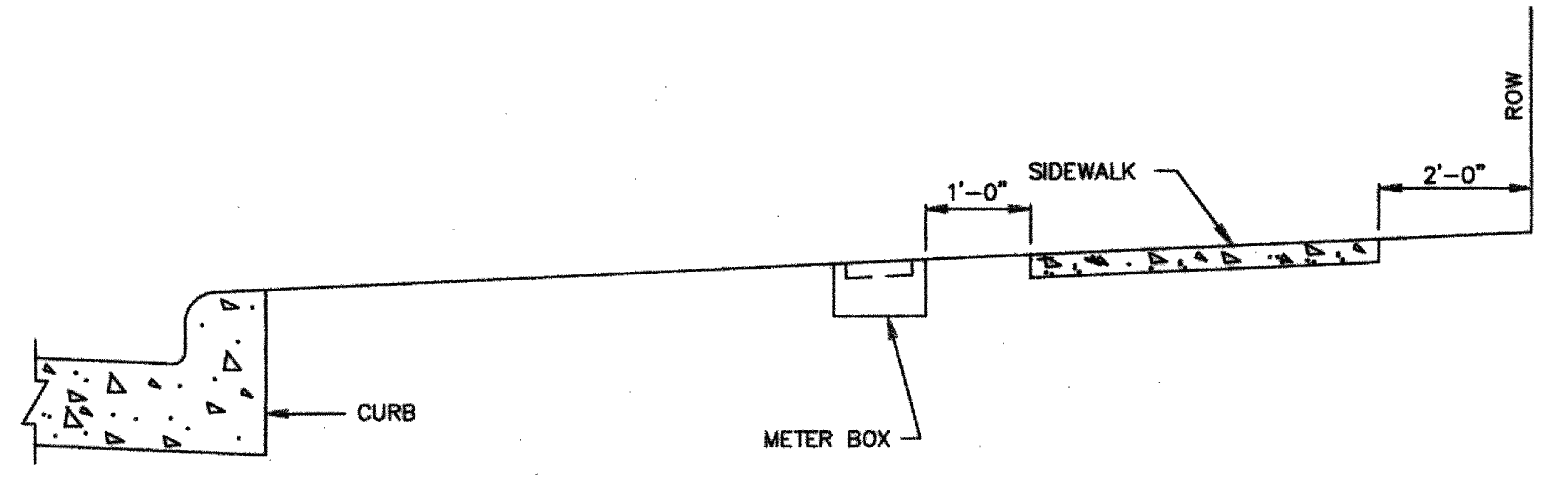
APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02085-01

COH



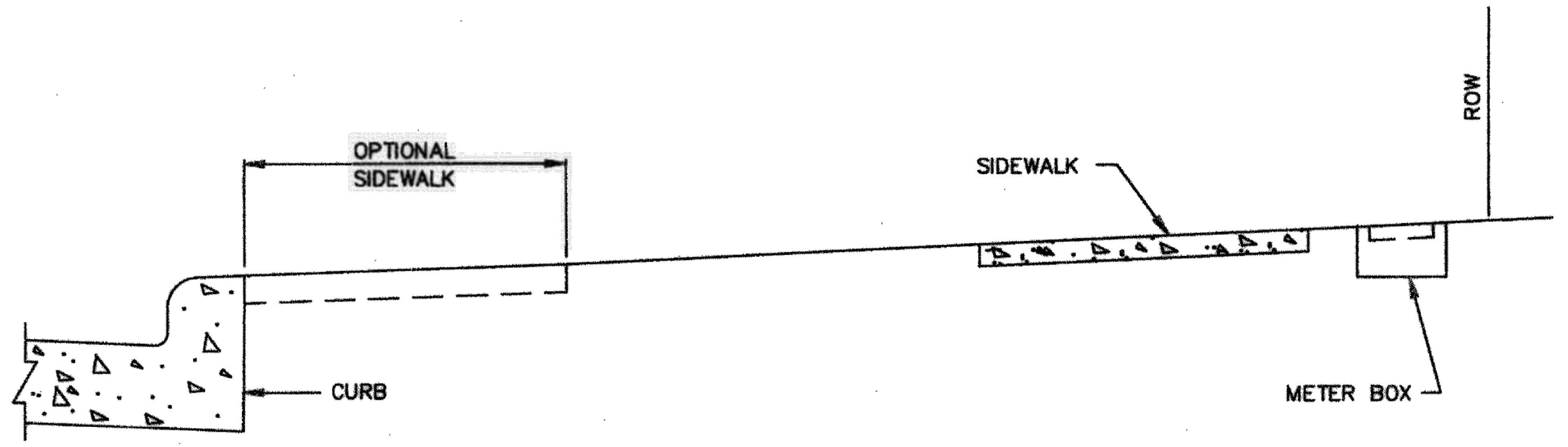
ROADWAY
BASE
SIDEWALK
ROW
METER BOX

OPEN DITCH STREET



ROW
SIDEWALK
1'-0"
2'-0"
CURB
METER BOX

CURB STREET



OPTIONAL SIDEWALK
SIDEWALK
ROW
CURB
METER BOX

CURB STREET

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

LOCATION OF WATER
METER BOX FOR
2" DIAMETER AND LESS
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02085-02

HRGreen
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11750 KATY FREEWAY
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04/15/2026
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 1 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

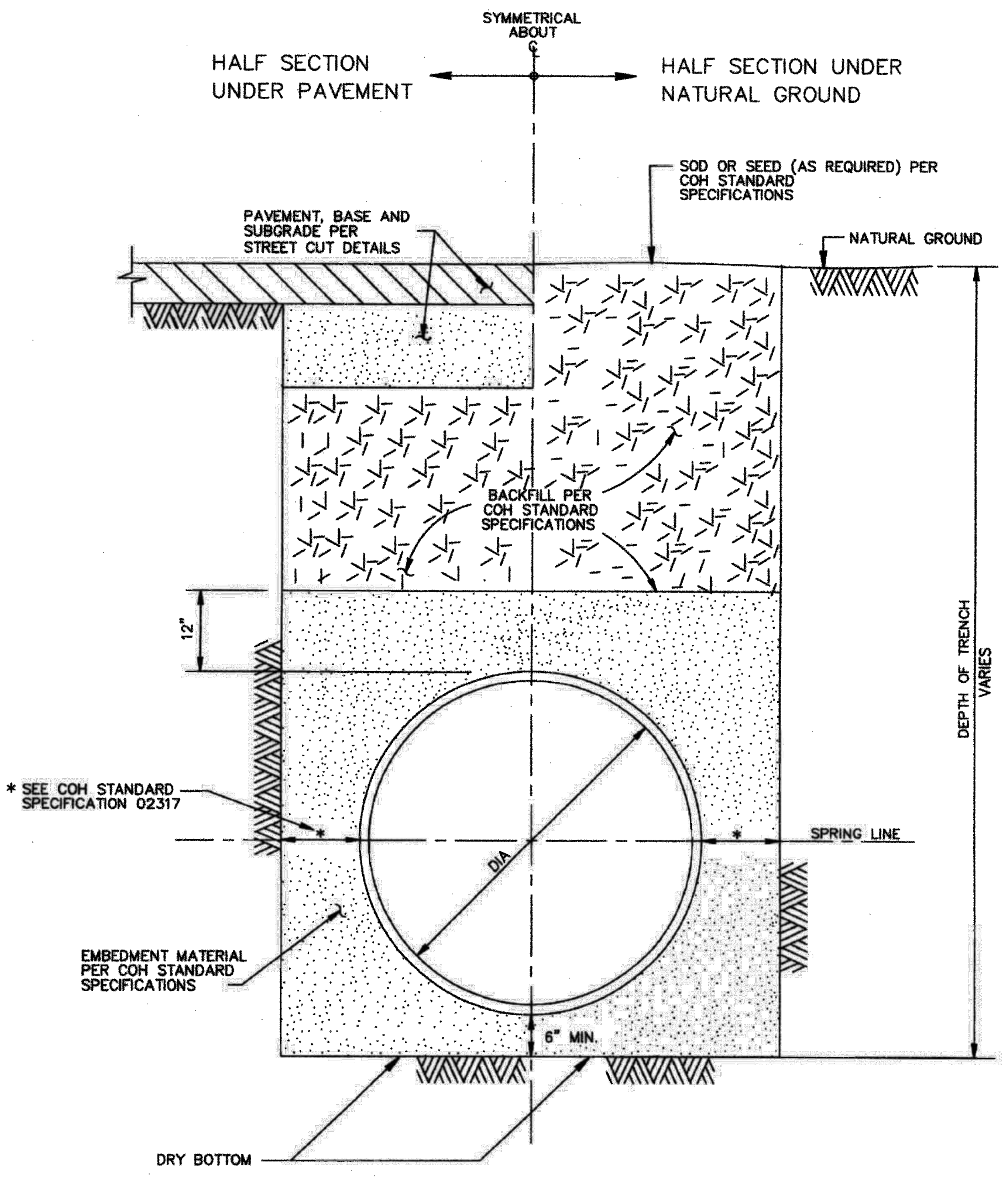
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 198 OF 345

j:\2021\210601.01\cad\dwgs\sheets\11 - water & sanitary sewer standards\water standard 02.dwg Plotted April 15, 2026 at 6:46 PM by Alobaidi, Ahmed

No.	Date	Revisions	App


SYMMETRICAL ABOUT ℄
HALF SECTION UNDER PAVEMENT
HALF SECTION UNDER NATURAL GROUND
SOD OR SEED (AS REQUIRED) PER COH STANDARD SPECIFICATIONS
PAVEMENT, BASE AND SUBGRADE PER STREET CUT DETAILS
NATURAL GROUND
BACKFILL PER COH STANDARD SPECIFICATIONS
12"
DEPTH OF TRENCH VARIES
* SEE COH STANDARD SPECIFICATION 02317
*
*
SPRING LINE
DIA.
EMBEDMENT MATERIAL PER COH STANDARD SPECIFICATIONS
6" MIN.
DRY BOTTOM

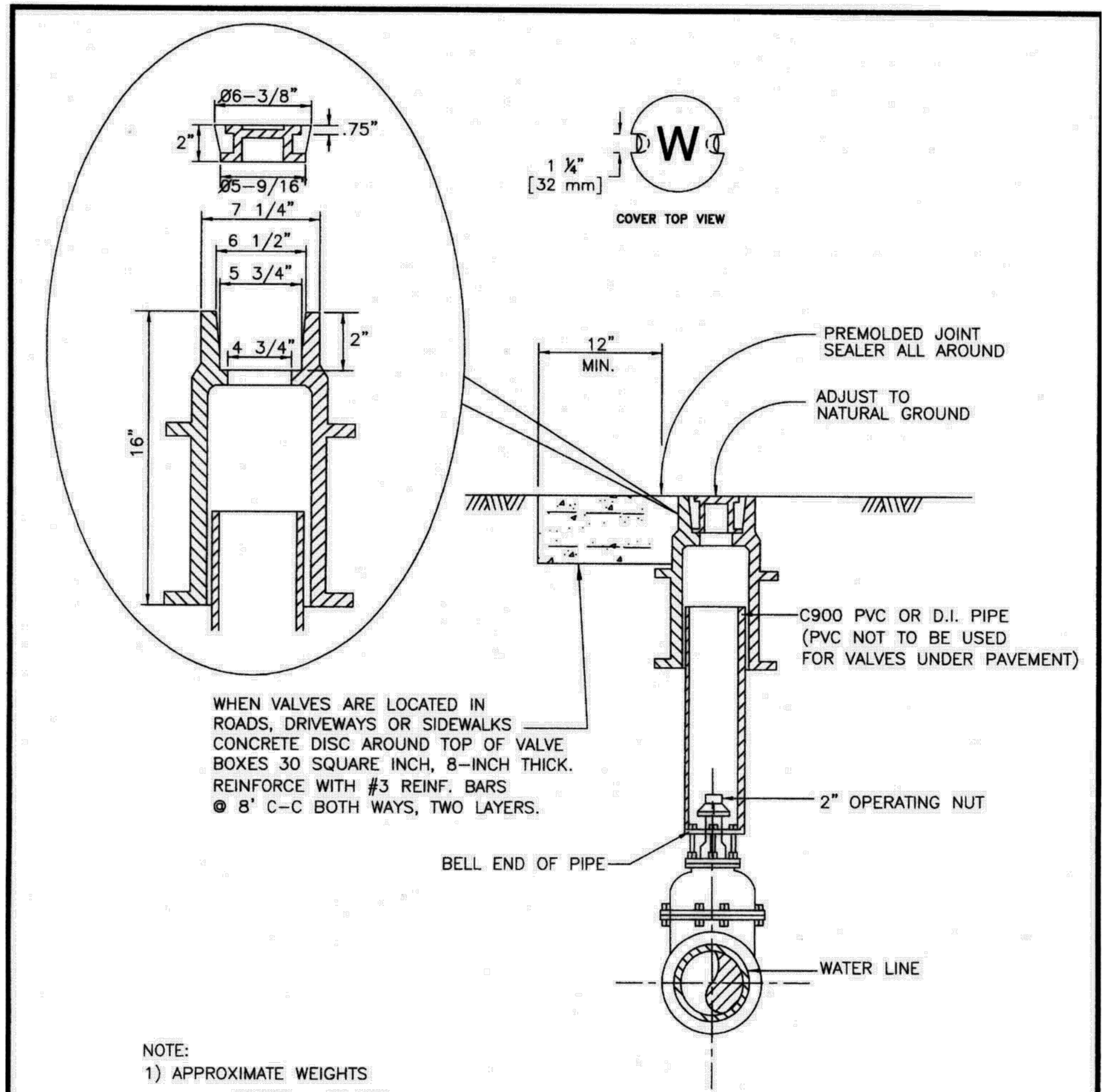
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER DISTRIBUTION MAIN BEDDING AND BACKFILL FOR OPEN CUT TRENCHES

(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010	DWG NO: 02317-04


Ø6-3/8"
.75"
2"
Ø5-9/16"
7 1/4"
6 1/2"
5 3/4"
4 3/4"
2"
16"
1 ¼" [32 mm]
W
COVER TOP VIEW
12" MIN.
PREMOLDED JOINT SEALER ALL AROUND
ADJUST TO NATURAL GROUND
C900 PVC OR D.I. PIPE (PVC NOT TO BE USED FOR VALVES UNDER PAVEMENT)
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.
2" OPERATING NUT
BELL END OF PIPE
WATER LINE

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:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF. DATE: JULY 01, 2010	DWG. NO: 02085-03

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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PH: 832.318.8800
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Ahmed Alobaidi
04/15/2026
AHMED ALOBAIDI
155052
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 2 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

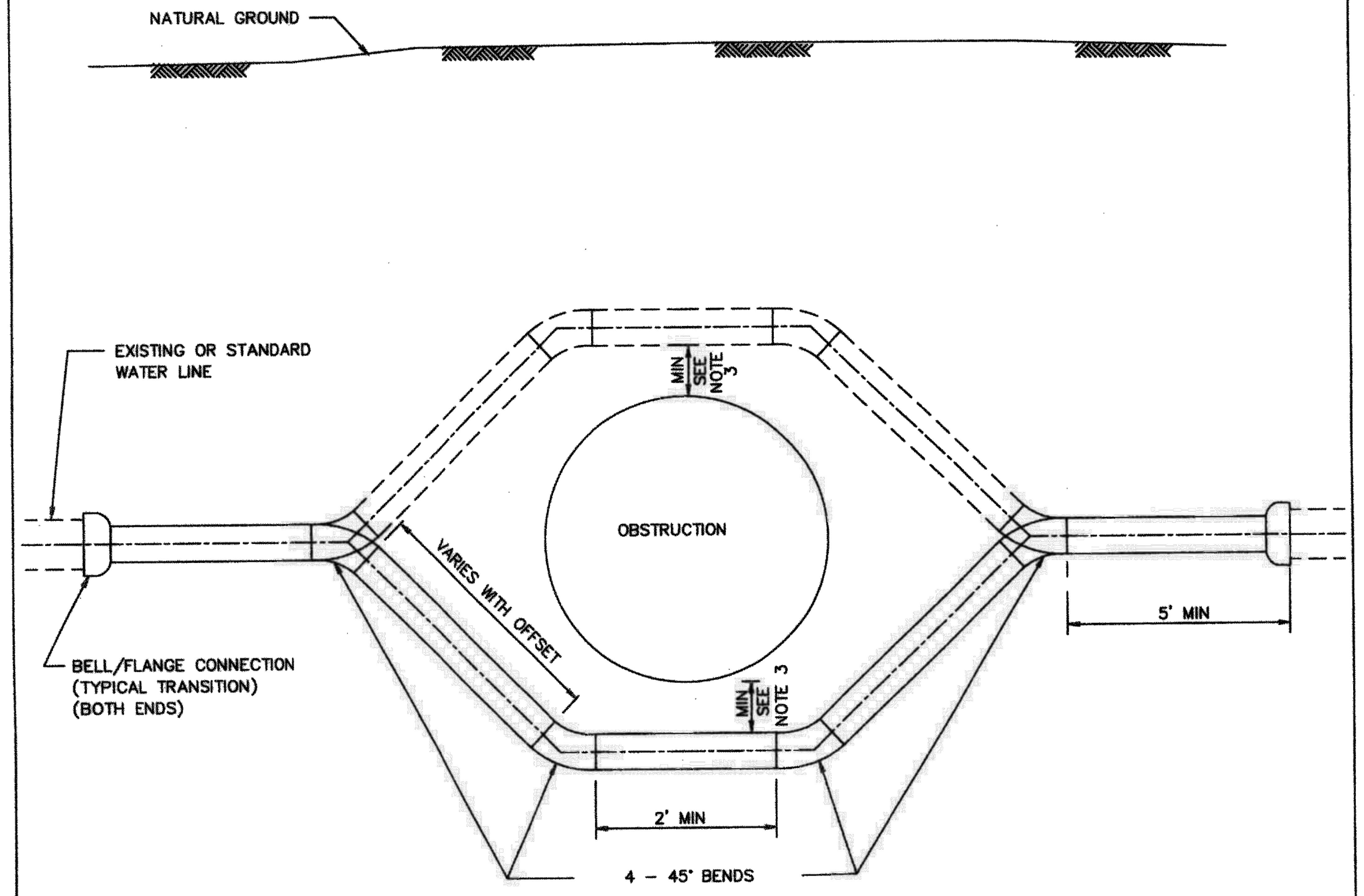
KEVIN HAMMOND, P.E.

SHEET NO. 199 OF 345

No.	Date	Revisions	App.

NOTE:

1. MATERIALS AND COATINGS TO BE IN ACCORDANCE WITH WATER LINE STANDARD SPECIFICATIONS.
2. RESTRAIN EXISTING PIPING BEYOND STEEL SECTION AS REQUIRED TO PREVENT MOVEMENT.
3. AS PER DESIGN GUIDELINE.


NATURAL GROUND
EXISTING OR STANDARD WATER LINE
MIN SEE NOTE 3
OBSTRUCTION
VARIES WITH OFFSET
BELL/FLANGE CONNECTION (TYPICAL TRANSITION) (BOTH ENDS)
5' MIN
MIN SEE NOTE 3
2' MIN
4 – 45° BENDS

PIPE OFFSET ALTERNATES

1. DUCTILE IRON PIPE PRESSURE 250 PSI WITH APPROVED RESTRAINED JOINTS.
2. PVC PIPE WITH INTEGRAL RESTRAINED JOINT SYSTEM, OR DUCTILE – IRON RESTRINED JOINT FITTINGS, EPOXY LINED AND COATED. USE 250 PSI AWWA C900 DR 14 FOR PVC RESTRAINED JOINTS.
3. PVC NOT ALLOWED FOR GREATER THAN 20 FT OF COVER OR FOR DIAMETER LARGER THAN 20 IN.
4. USE ONLY DUCTILE IRON AND PVC PRODUCTS LISTED ON OCE DIVISION APPROVED PRODUCTS LIST AND IN ACCORDANCE WITH CITY STANDARD SPECIFICATIONS.

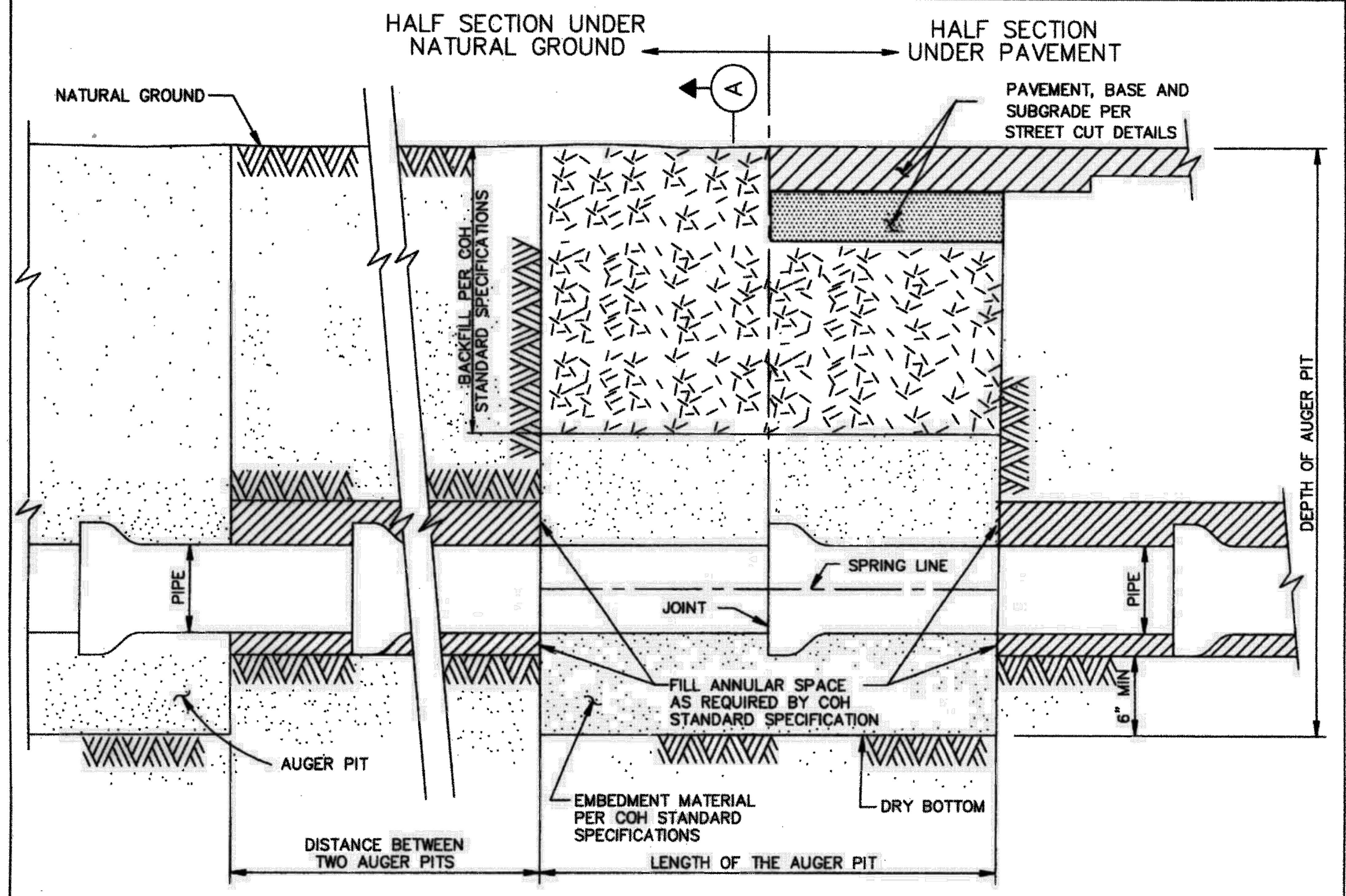
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL STEEL PIPE OFFSET
SECTION FOR WATER LINES

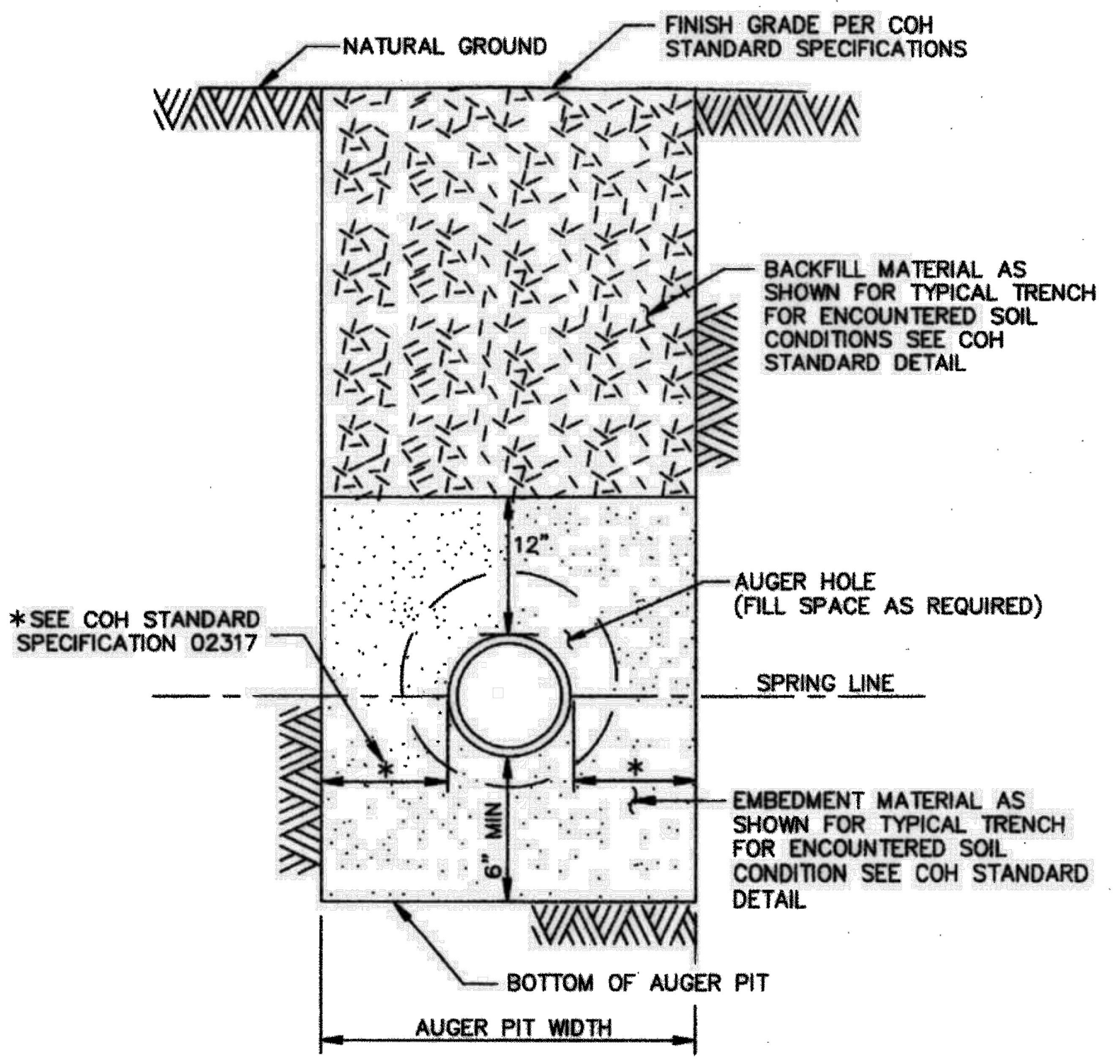
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010
DWG NO: 02511-01

COH


HALF SECTION UNDER NATURAL GROUND
HALF SECTION UNDER PAVEMENT
A
NATURAL GROUND
PAVEMENT, BASE AND SUBGRADE PER STREET CUT DETAILS
BACKFILL PER COH STANDARD SPECIFICATIONS
DEPTH OF AUGER PIT
PIPE
SPRING LINE
JOINT
PIPE
FILL ANNULAR SPACE AS REQUIRED BY COH STANDARD SPECIFICATION
6" MIN
AUGER PIT
EMBEDMENT MATERIAL PER COH STANDARD SPECIFICATIONS
DRY BOTTOM
DISTANCE BETWEEN TWO AUGER PITS
LENGTH OF THE AUGER PIT

ELEVATION (A)


NATURAL GROUND
FINISH GRADE PER COH STANDARD SPECIFICATIONS
BACKFILL MATERIAL AS SHOWN FOR TYPICAL TRENCH FOR ENCOUNTERED SOIL CONDITIONS SEE COH STANDARD DETAIL
12"
AUGER HOLE (FILL SPACE AS REQUIRED)
*SEE COH STANDARD SPECIFICATION 02317
SPRING LINE
*
*
EMBEDMENT MATERIAL AS SHOWN FOR TYPICAL TRENCH FOR ENCOUNTERED SOIL CONDITION SEE COH STANDARD DETAIL
6" MIN
BOTTOM OF AUGER PIT
AUGER PIT WIDTH

SECTION (A)

NOTE:

1. SELECT BACKFILL FOR RIGID PAVEMENT; FLEXIBLE BASE MATERIAL FOR ASPHALT PAVEMENT.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

BEDDING AND BACKFILL
AUGER PIT AND AUGER HOLE

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010
DWG NO: 02447-01

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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PH: 832.318.8800
FAX: 713.965.0044

Ahmed Alobaidi
04/15/2026
AHMED ALOBAIDI
155052
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 3 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 200 OF 345

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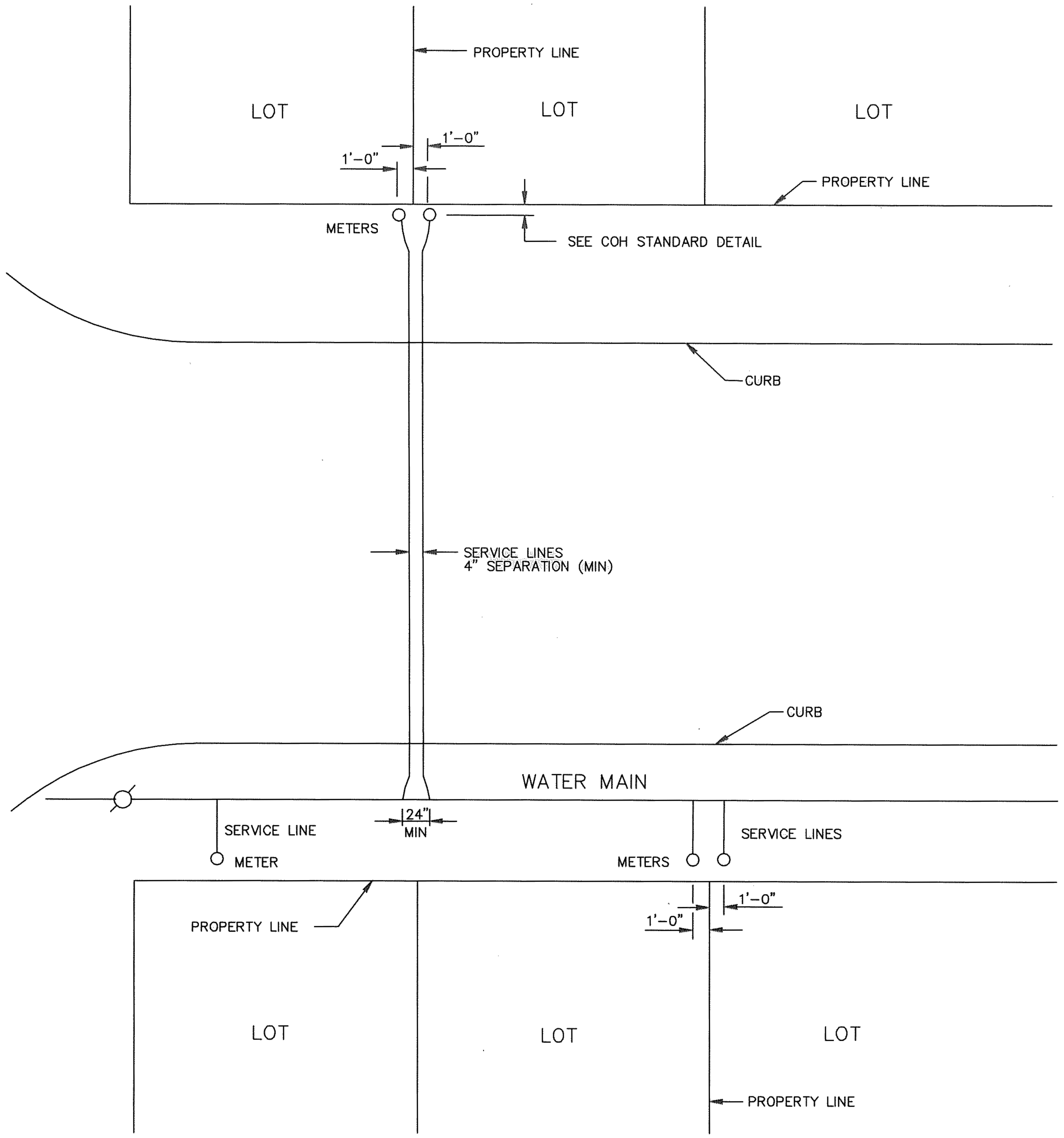

PROPERTY LINE
LOT
LOT
LOT
1'-0"
1'-0"
PROPERTY LINE
METERS
SEE COH STANDARD DETAIL
CURB
SERVICE LINES
4" SEPARATION (MIN)
CURB
WATER MAIN
24"
MIN
SERVICE LINE
METER
METERS
SERVICE LINES
1'-0"
1'-0"
PROPERTY LINE
LOT
LOT
LOT
PROPERTY LINE

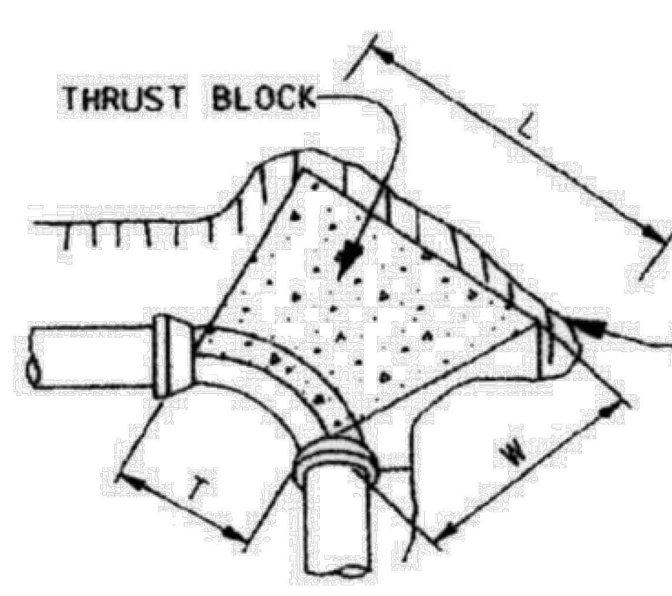
GENERAL NOTES:

1. TWO SERVICE LINES MAY BE INSTALLED IN SAME TRENCH PROVIDING 4" CLEARANCE IS MAINTAINED.
2. ONE METER PER SERVICE LINE

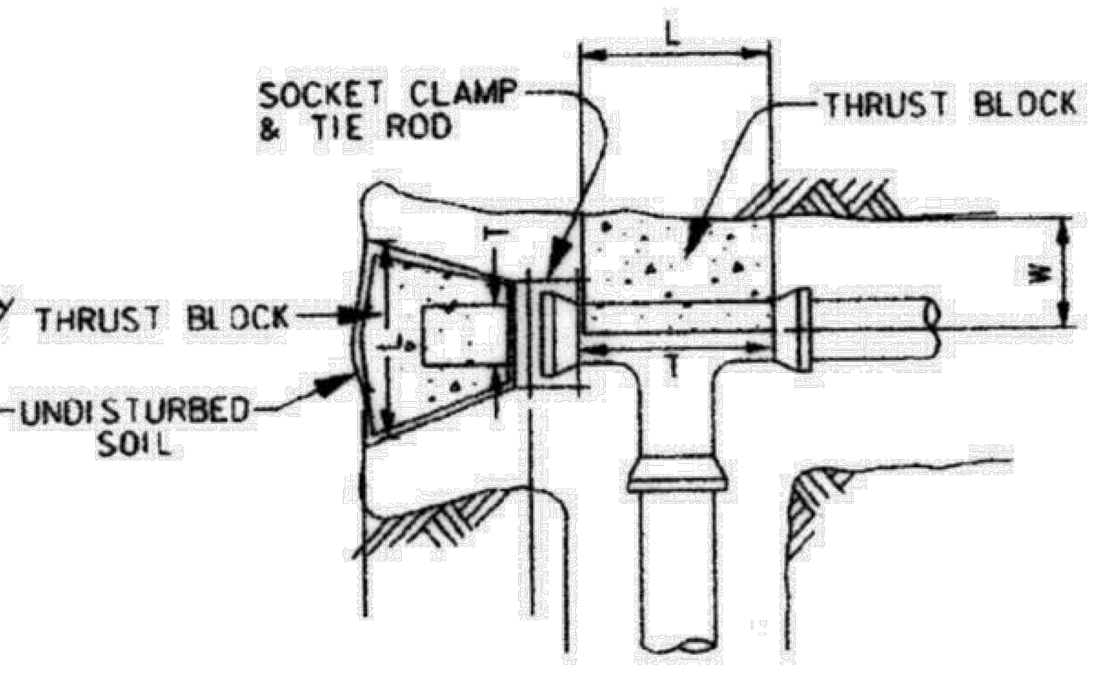
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL 3/4" THROUGH 2"
SERVICE ARRANGEMENTS
(NOT TO SCALE)

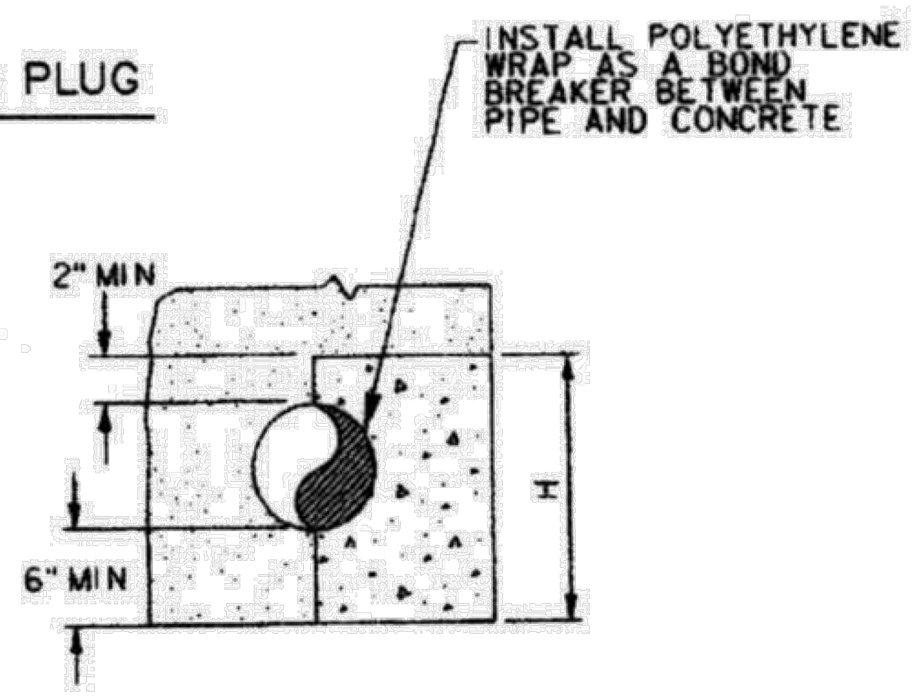
APPROVED BY: CITY ENGINEER	APPROVED BY: Dale A. Rudick DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2016	DWG NO: 02512-01


THRUST BLOCK
L
T
W

90° BEND
(45° BENDS SIMILAR)


SOCKET CLAMP & TIE ROD
L
THRUST BLOCK
THRUST BLOCK
UNDISTURBED SOIL
W
T

TEE & PLUG


INSTALL POLYETHYLENE WRAP AS A BOND BREAKER BETWEEN PIPE AND CONCRETE
2" MIN
6" MIN
H

PIPE
CROSS SECTION

MINIMUM BLOCKING DIMENSION IN INCHES

PIPE SIZE	90° BEND				45° BEND				TEE/PLUG			
	W	H	L	T	W	H	L	T	W	H	L	T
4"	6	12	14	10	6	8	11	8	6	10	12	12
6"	8	14	26	12	8	14	14	12	8	14	19	19
8"	10	16	40	16	10	18	20	16	10	18	26	26
10"	12	24	42	18	12	22	25	18	12	24	30	30
12"	14	36	40	30	14	26	30	22	14	26	40	40

CORRECTION FACTORS

SOIL TYPE	SOIL BEARING STRENGTH S_b (lb/ft²)	MULTIPLY "L" AND "H" BY
SOFT CLAY	1000	1.73
SILT	1500	1.41
SANDY SILT	3000	1.00
SAND	4000	0.87
SANDY CLAY	6000	0.71
HARD CLAY	9000	0.58

NOTES:

1. DEPTH "W" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE.
2. BLOCKING MUST BE PLACED AGAINST UNDISTURBED EARTH. WHERE THIS IS NOT POSSIBLE, THE FILL BETWEEN THE BEARING SURFACE AND UNDISTURBED SOIL MUST BE COMPACTED TO AT LEAST 90% STANDARD PROCTOR DENSITY.
3. PROVIDE CONCRETE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 03315 – CONCRETE FOR UTILITY CONSTRUCTION.
4. BLOCKING DIMENSIONS SHOWN ARE BASED ON 3000 PSI SOIL BEARING STRENGTH AND 125 PSI INTERNAL WATER PRESSURE. FOR OTHER SOIL CONDITIONS, MULTIPLY DIMENSIONS "L" AND "H" BY THE APPROPRIATE CORRECTION FACTOR.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

THRUST BLOCK DETAIL
FOR WATER LINES
(4-INCH TO 12 INCH)
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02511-02

No.	Date	Revisions	App.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 4 OF 6

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 201 OF 345

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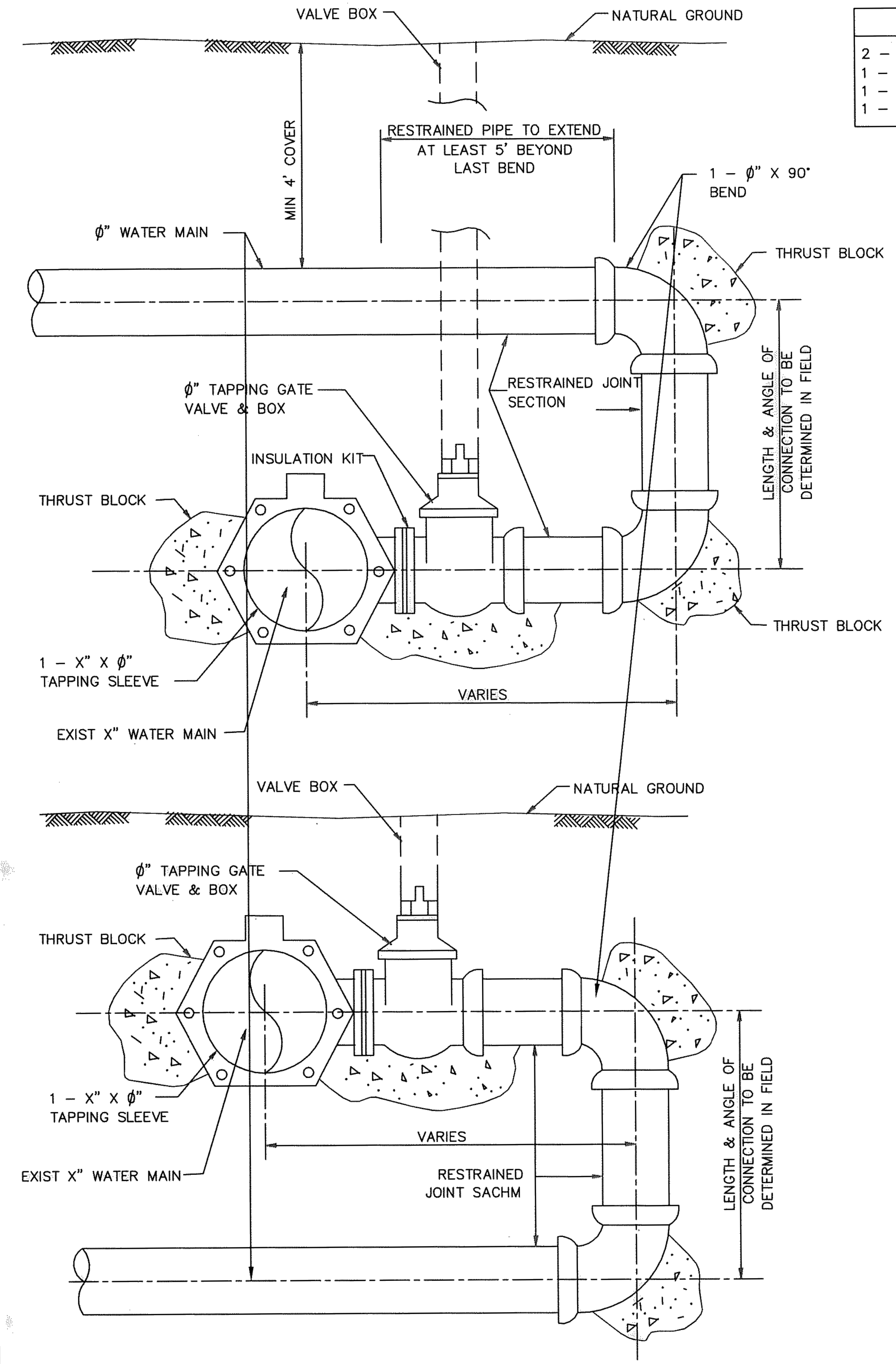
j:\2021\210601.01\cad\dwgs\sheets\11 – water & sanitary sewer standards\water standard 05.dwg Plotted April 15, 2026 at 6:46 PM by Alobaidi, Ahmed

FITTINGS
2 – ϕ" X 90° BENDS 1 – ϕ" TS&V WITH BOX 1 – ϕ" INSULATING KIT 1 – ϕ" FLANG X M.J.


VALVE BOX
NATURAL GROUND
MIN 4' COVER
RESTRAINED PIPE TO EXTEND AT LEAST 5' BEYOND LAST BEND
1 – ϕ" X 90° BEND
ϕ" WATER MAIN
THRUST BLOCK
ϕ" TAPPING GATE VALVE & BOX
RESTRAINED JOINT SECTION
LENGTH & ANGLE OF CONNECTION TO BE DETERMINED IN FIELD
INSULATION KIT
THRUST BLOCK
THRUST BLOCK
1 – X" X ϕ" TAPPING SLEEVE
VARIES
EXIST X" WATER MAIN
VALVE BOX
NATURAL GROUND
ϕ" TAPPING GATE VALVE & BOX
THRUST BLOCK
1 – X" X ϕ" TAPPING SLEEVE
VARIES
EXIST X" WATER MAIN
RESTRAINED JOINT SACHM
LENGTH & ANGLE OF CONNECTION TO BE DETERMINED IN FIELD

GENERAL NOTES:

1. X" AND ϕ" DENOTE RUN AND BRANCH LINE SIZES RESPECTIVELY.
2. 90° BENDS ARE TO BE ROLLED TO PROVIDE CLEARANCE FOR VALVE BOX.
3. WATER MAIN ASSEMBLY FOR BACK TAP SAME FOR PROPOSED WATER MAIN UNDER EXISTING MAIN.
4. PROVIDE RESTRAINED JOINT PIPE AS SHOWN.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

BACK TAP
ON EXISTING LINE

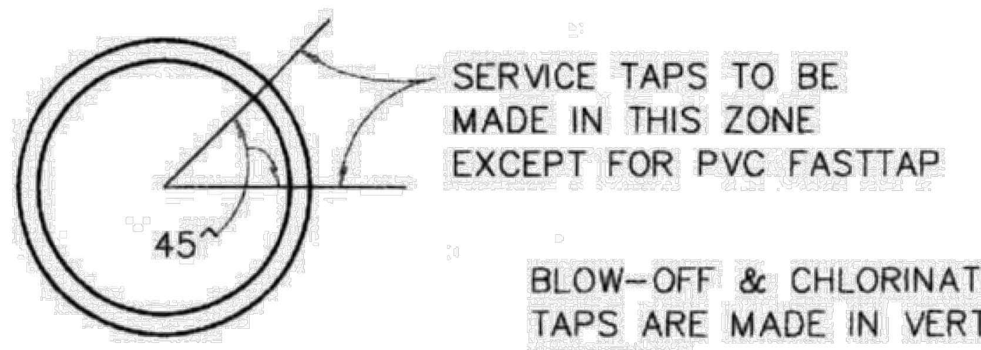
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2016
DWG NO: 02512-03

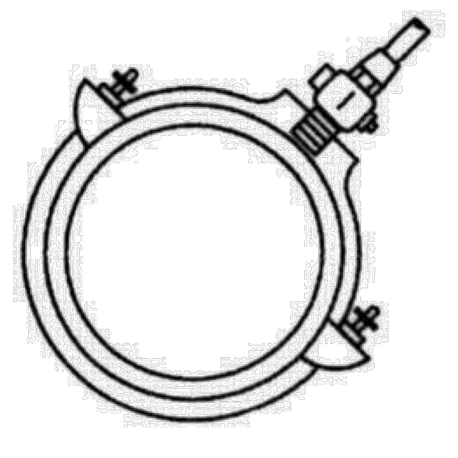
PIPE TAPPING SCHEDULE

WATER MAIN TYPE AND DIAMETER	SERVICE SIZE			
	3/4"	1"	1 1/2"	2"
4" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
4" ASBESTOS (EXISTING) CEMENT	WBSS	WBSS	DSS, WBSS	DSS, WBSS
4" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" ASBESTOS (EXISTING) CEMENT	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" ASBESTOS (EXISTING) CEMENT	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
16" AND UP CAST IRON OR DUCTILE IRON	DWBSS	DWBSS	DWBSS	DWBSS
16" AND UP ASBESTOS (EXISTING) CEMENT	DWBSS	DWBSS	DWBSS	DWBSS
16" AND UP PVC (AWWA C900)	DWBSS	DWBSS	DWBSS	DWBSS

DSS – DUAL STRAP SADDLES
WBSS – WIDE BAND STRAP SADDLES
DWBSS – DUAL WIDE BAND STRAP SADDLES


45°
SERVICE TAPS TO BE MADE IN THIS ZONE EXCEPT FOR PVC FASTTAP

BLOW-OFF & CHLORINATION TAPS ARE MADE IN VERTICAL POSITION



WIDE BAND SINGLE SADDLE OR DUAL SADDLES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SERVICE TAPS

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010
DWG NO: 02512-02

HRGreen
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04/15/2026
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

WATER STANDARD DETAILS

SHEET 5 OF 6

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 202 OF 345

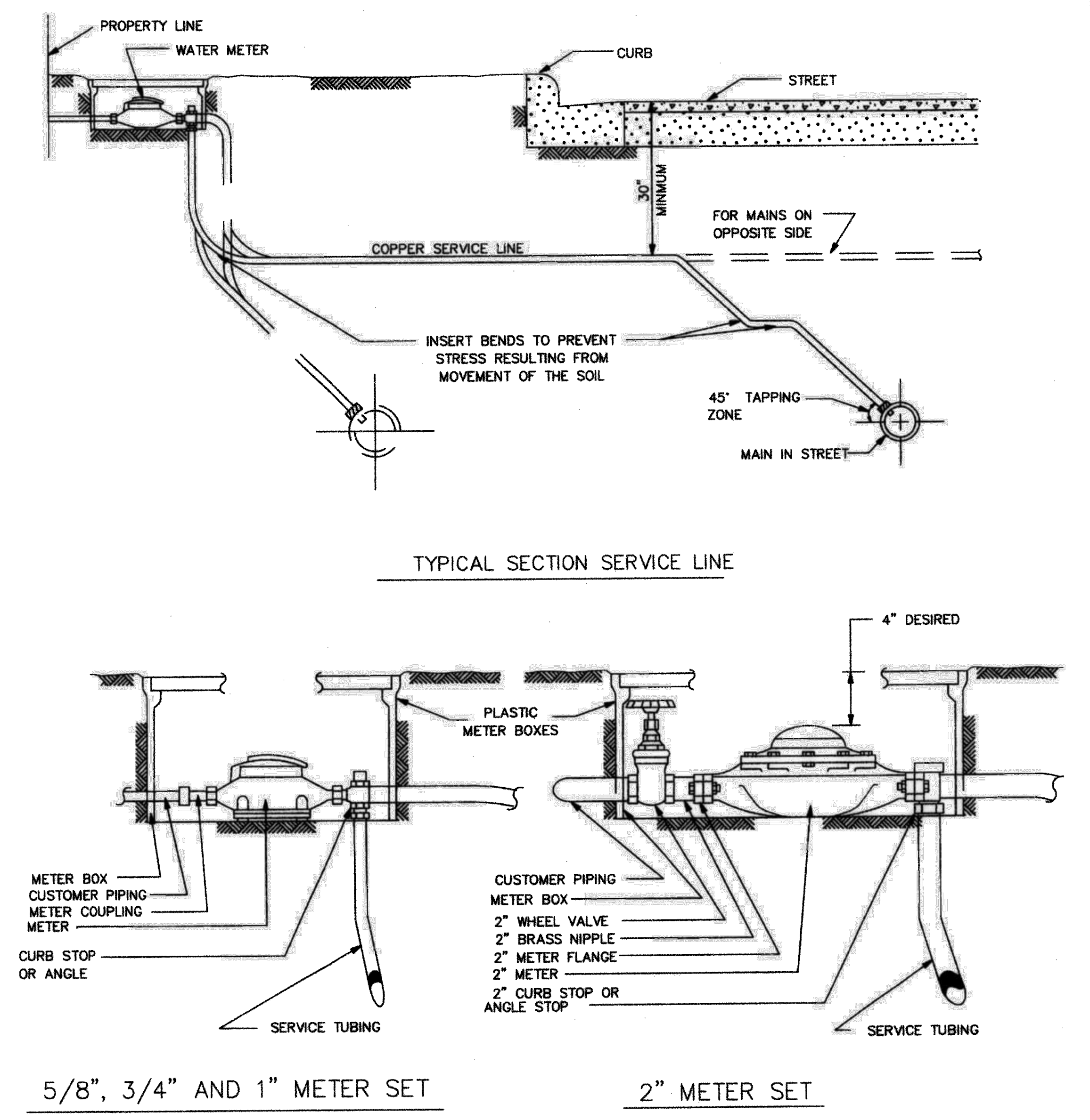
No.	Date	Revisions	App.

j:\2021\210601.01\cad\dwgs\sheets\11 – water & sanitary sewer standards\water standard 06.dwg Plotted April 15, 2026 at 6:46 PM by Alobaidi, Ahmed

No.	Date	Revisions	App.

NOTES:

1 1/2" METER SET IS SAME AS 2" EXCEPT WHEEL VALVE IS NOT REQUIRED.


PROPERTY LINE
WATER METER
CURB
STREET
30" MINIMUM
FOR MAINS ON OPPOSITE SIDE
COPPER SERVICE LINE
INSERT BENDS TO PREVENT STRESS RESULTING FROM MOVEMENT OF THE SOIL
45° TAPPING ZONE
MAIN IN STREET
TYPICAL SECTION SERVICE LINE
4" DESIRED
PLASTIC METER BOXES
METER BOX
CUSTOMER PIPING
METER COUPLING
METER
CURB STOP OR ANGLE
SERVICE TUBING
CUSTOMER PIPING
METER BOX
2" WHEEL VALVE
2" BRASS NIPPLE
2" METER FLANGE
2" METER
2" CURB STOP OR ANGLE STOP
SERVICE TUBING
5/8", 3/4" AND 1" METER SET
2" METER SET

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL METER SETTINGS
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010
DWG NO: 02526-01

NOTES ON USE OF STANDARD DETAIL 02082-02

NOTES TO SPECIFIER:

1. *"–" INDICATES THAT A SPECIAL DESIGN OR THE NEXT LARGER MANHOLE SIZE SHALL BE USED.*
2. *TABLE 1 IS BASED ON A MIN SEPARATION DISTANCE "S" OF 15.5" OR INTERSECTION PIPE OD/2, WHICHEVER IS GREATER, BETWEEN MAIN AND INTERSECTING PIPES ALONG THE MANHOLE INSIDE WALL ARC.*
3. *PIPE WALL THICKNESS USED IN TABLE 1 ARE BASED ON RCP. THE DESIGN ENGINEER MAY CALCULATE TO SEE IF THINNER WALL PIPES CAN MEET THE SEPARATION CRITERIA FOR ANGLES SMALLER THAN THE TABLE ALLOWS.*

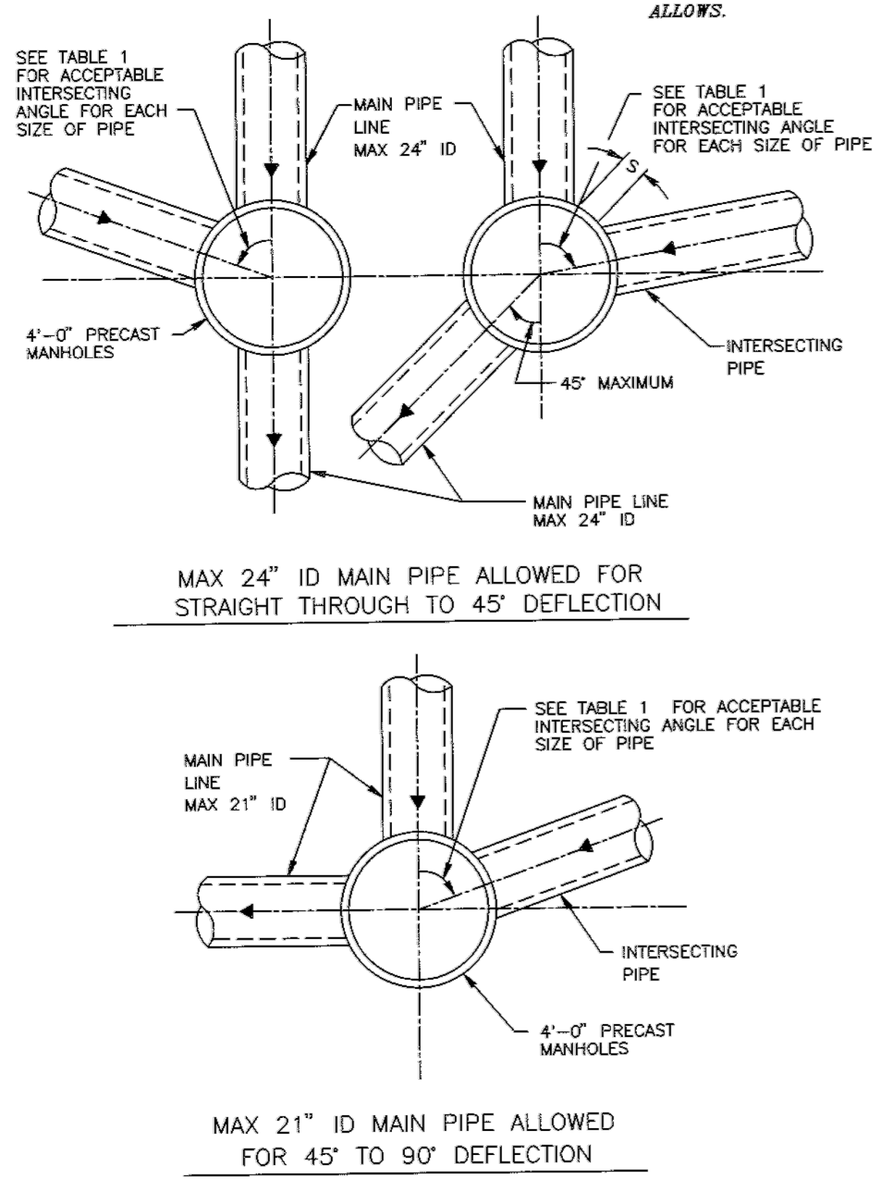

SEE TABLE 1 FOR ACCEPTABLE INTERSECTING ANGLE FOR EACH SIZE OF PIPE
MAIN PIPE LINE MAX 24" ID
SEE TABLE 1 FOR ACCEPTABLE INTERSECTING ANGLE FOR EACH SIZE OF PIPE
S
4'-0" PRECAST MANHOLES
INTERSECTING PIPE
45° MAXIMUM
MAIN PIPE LINE MAX 24" ID
MAX 24" ID MAIN PIPE ALLOWED FOR STRAIGHT THROUGH TO 45° DEFLECTION
MAIN PIPE LINE MAX 21" ID
SEE TABLE 1 FOR ACCEPTABLE INTERSECTING ANGLE FOR EACH SIZE OF PIPE
INTERSECTING PIPE
4'-0" PRECAST MANHOLES
MAX 21" ID MAIN PIPE ALLOWED FOR 45° TO 90° DEFLECTION

TABLE 1

MIN ANGLE AND INTERSECTING PIPE SIZES FOR A 4'-0" DIA MANHOLE

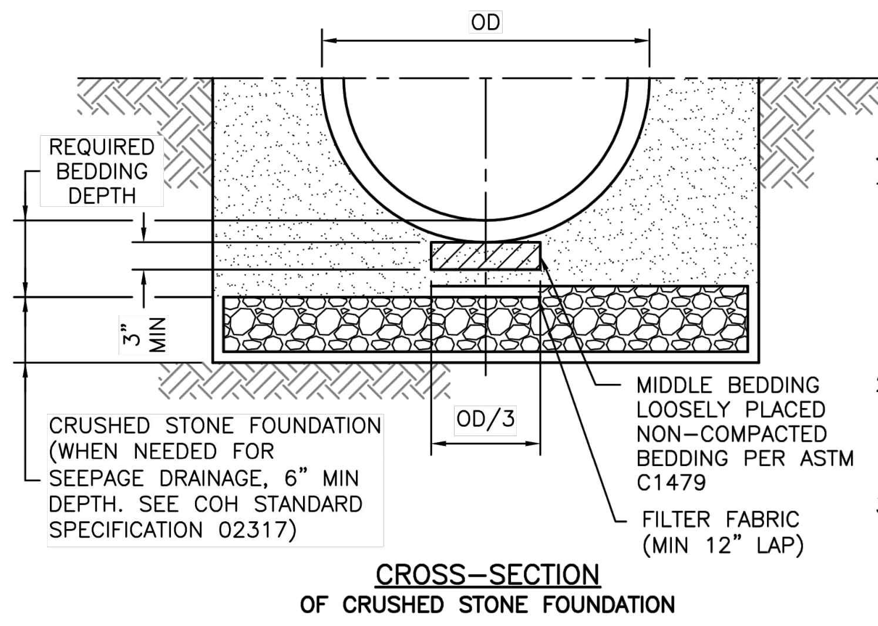
INTERSECTING PIPE SIZE (INCHES)	MIN INTERSECTING ANGLE IN DEGREES FOR FOR VARIOUS MAIN PIPE SIZES IN INCHES							
	6"	8"	10"	12"	15"	18"	21"	24"
6	55	58	60	65	70	75	80	85
8		60	63	68	73	77	82	87
10			66	71	75	80	85	90
12				76	80	85	90	–
15					85	90	–	–
18						–	–	–
21							–	–
24								–

NOT APPLICABLE UNLESS HYDRAULICS DICTATE (INTERSECTING PIPE > MAIN PIPE)

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
4'-0" DIAMETER PRECAST
CONCRETE MANHOLE NOTES
(NOT TO SCALE)

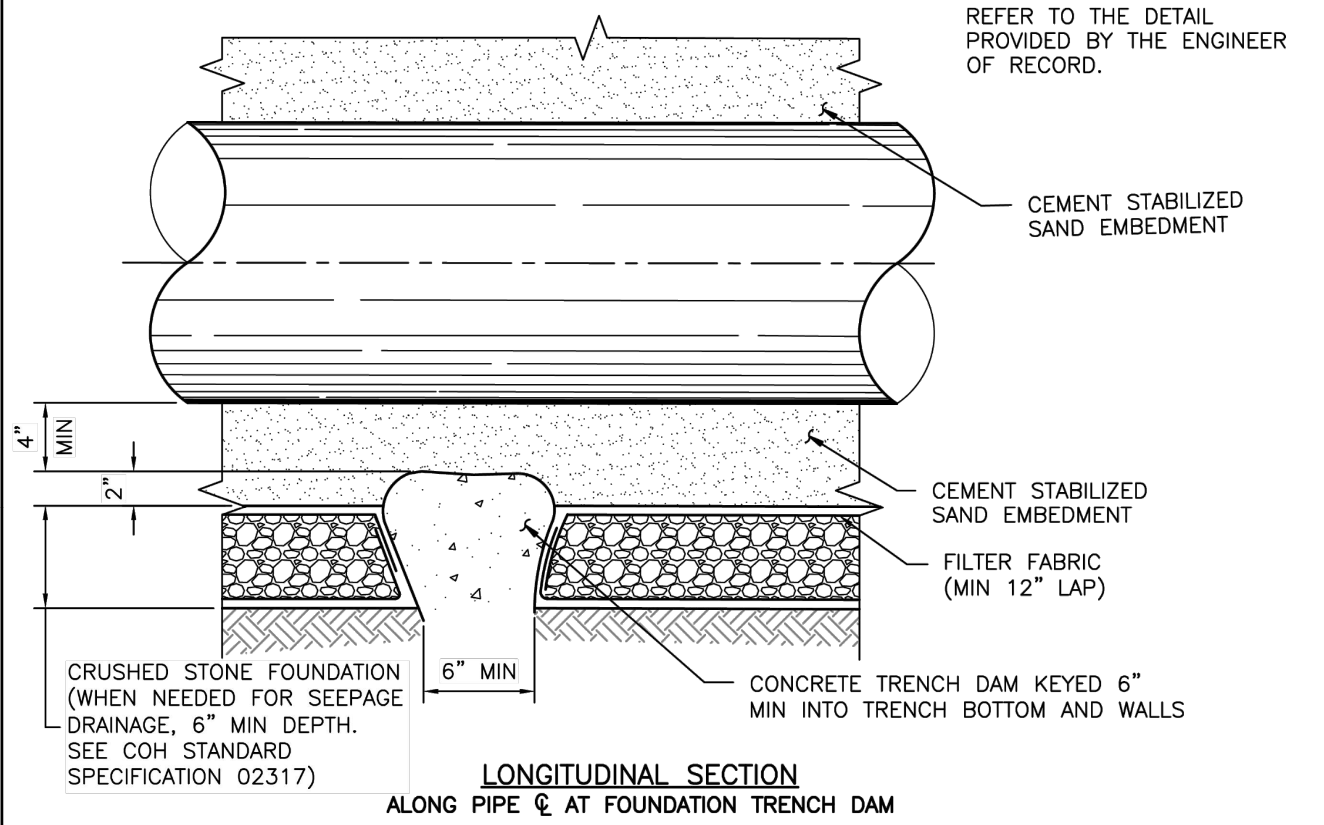
APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002
DWG NO: 02082N-02


OD
REQUIRED BEDDING DEPTH
3" MIN
OD/3
CRUSHED STONE FOUNDATION (WHEN NEEDED FOR SEEPAGE DRAINAGE, 6" MIN DEPTH. SEE COH STANDARD SPECIFICATION 02317)
MIDDLE BEDDING LOOSELY PLACED NON-COMPACTED BEDDING PER ASTM C1479
FILTER FABRIC (MIN 12" LAP)

CROSS-SECTION
OF CRUSHED STONE FOUNDATION

NOTES:

1. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
2. THIS DETAIL SHALL BE USED WITH CEMENT STABILIZED SAND EMBEDMENT, IN WET STABLE TRENCH CONDITIONS.
3. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.
4. FOR THERMOPLASTIC STORM SEWER PIPE INSTALLATION REFER TO THE DETAIL PROVIDED BY THE ENGINEER OF RECORD.


CEMENT STABILIZED SAND EMBEDMENT
4" MIN
2"
CEMENT STABILIZED SAND EMBEDMENT
FILTER FABRIC (MIN 12" LAP)
CRUSHED STONE FOUNDATION (WHEN NEEDED FOR SEEPAGE DRAINAGE, 6" MIN DEPTH. SEE COH STANDARD SPECIFICATION 02317)
6" MIN
CONCRETE TRENCH DAM KEYED 6" MIN INTO TRENCH BOTTOM AND WALLS

LONGITUDINAL SECTION
ALONG PIPE ℄ AT FOUNDATION TRENCH DAM

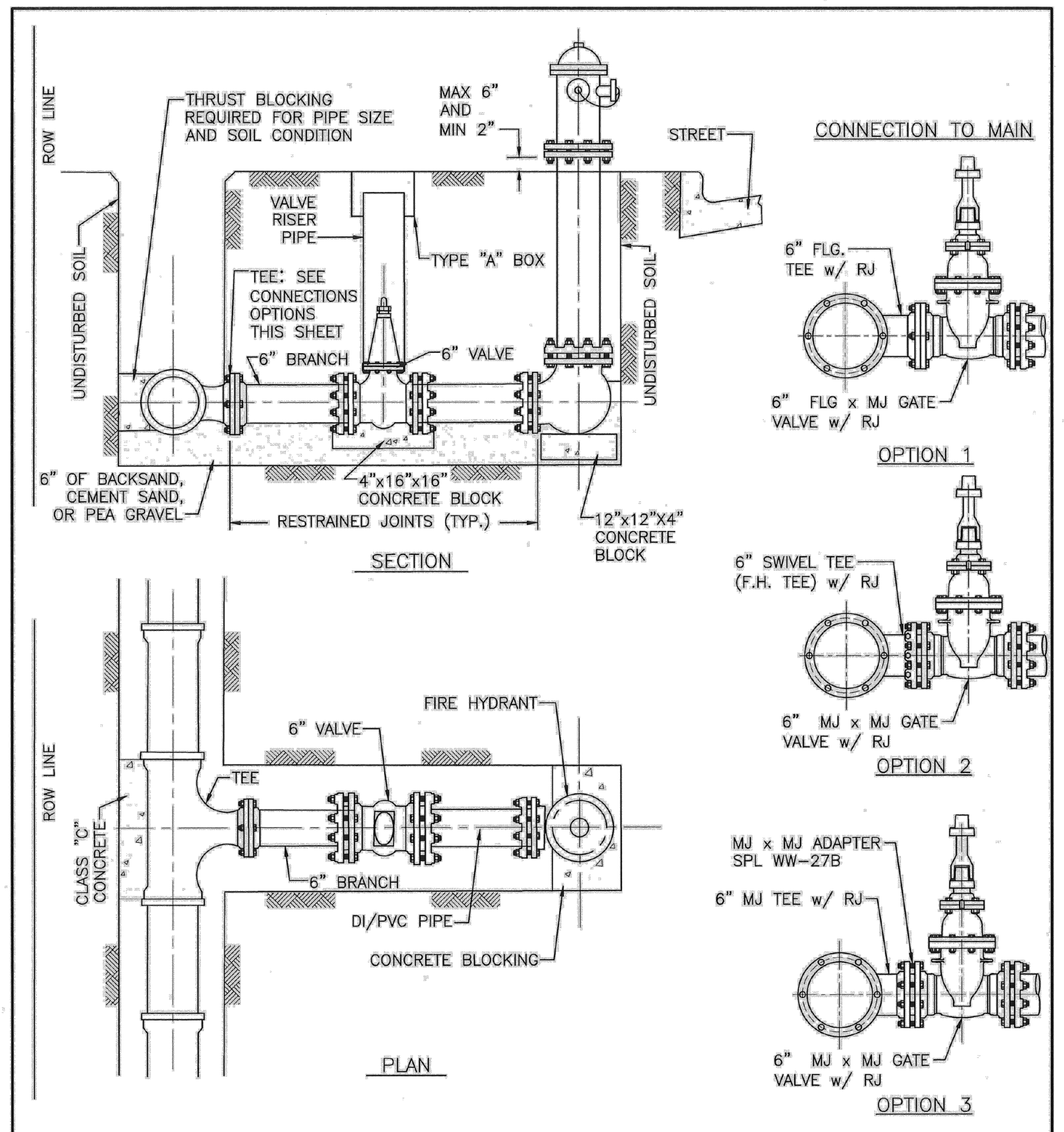
DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. THE DESIGN REQUIREMENTS ON THIS STANDARD DO NOT PURPORT TO ADDRESS ALL OF THE SAFETY CONCERNS ASSOCIATED WITH THEIR USE. THE ENGINEER OF RECORD (EOR) IS TO REVIEW THESE DESIGN REQUIREMENTS AND BY AUTHORIZING THEIR 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.

APPROVED BY:
Signed by: 1BEBB22072F84DC... CITY ENGINEER
Signed by: BE463EF0DF454EB... DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SANITARY OR STORM SEWER
CRUSHED STONE FOUNDATION
FOR WET STABLE TRENCH
(SCALE: NOT TO SCALE)

EFF DATE: MAR-02-2026
DWG NO: 02317-02


ROW LINE
UNDISTURBED SOIL
THRUST BLOCKING REQUIRED FOR PIPE SIZE AND SOIL CONDITION
MAX 6" AND MIN 2"
STREET
VALVE RISER PIPE
TYPE "A" BOX
TEE: SEE CONNECTIONS OPTIONS THIS SHEET
6" BRANCH
6" VALVE
UNDISTURBED SOIL
6" OF BACKSAND, CEMENT SAND, OR PEA GRAVEL
4"x16"x16" CONCRETE BLOCK
RESTRAINED JOINTS (TYP.)
12"x12"X4" CONCRETE BLOCK
SECTION
CONNECTION TO MAIN
6" FLG. TEE w/ RJ
6" FLG x MJ GATE VALVE w/ RJ
OPTION 1
6" SWIVEL TEE (F.H. TEE) w/ RJ
6" MJ x MJ GATE VALVE w/ RJ
OPTION 2
MJ x MJ ADAPTER SPL WW-27B
6" MJ TEE w/ RJ
6" MJ x MJ GATE VALVE w/ RJ
OPTION 3
ROW LINE
CLASS "C" CONCRETE
TEE
6" VALVE
FIRE HYDRANT
6" BRANCH
DI/PVC PIPE
CONCRETE BLOCKING
PLAN

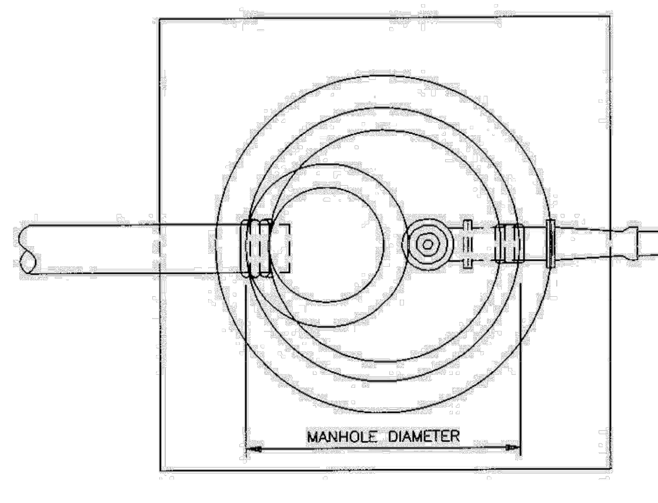
NOTES:

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: Suhail Kanwar CITY ENGINEER
APPROVED BY: DIRECTOR OF HOUSTON PUBLIC WORKS
EFF DATE: JUL-01-2021
DWG NO: 02520-01


MANHOLE DIAMETER

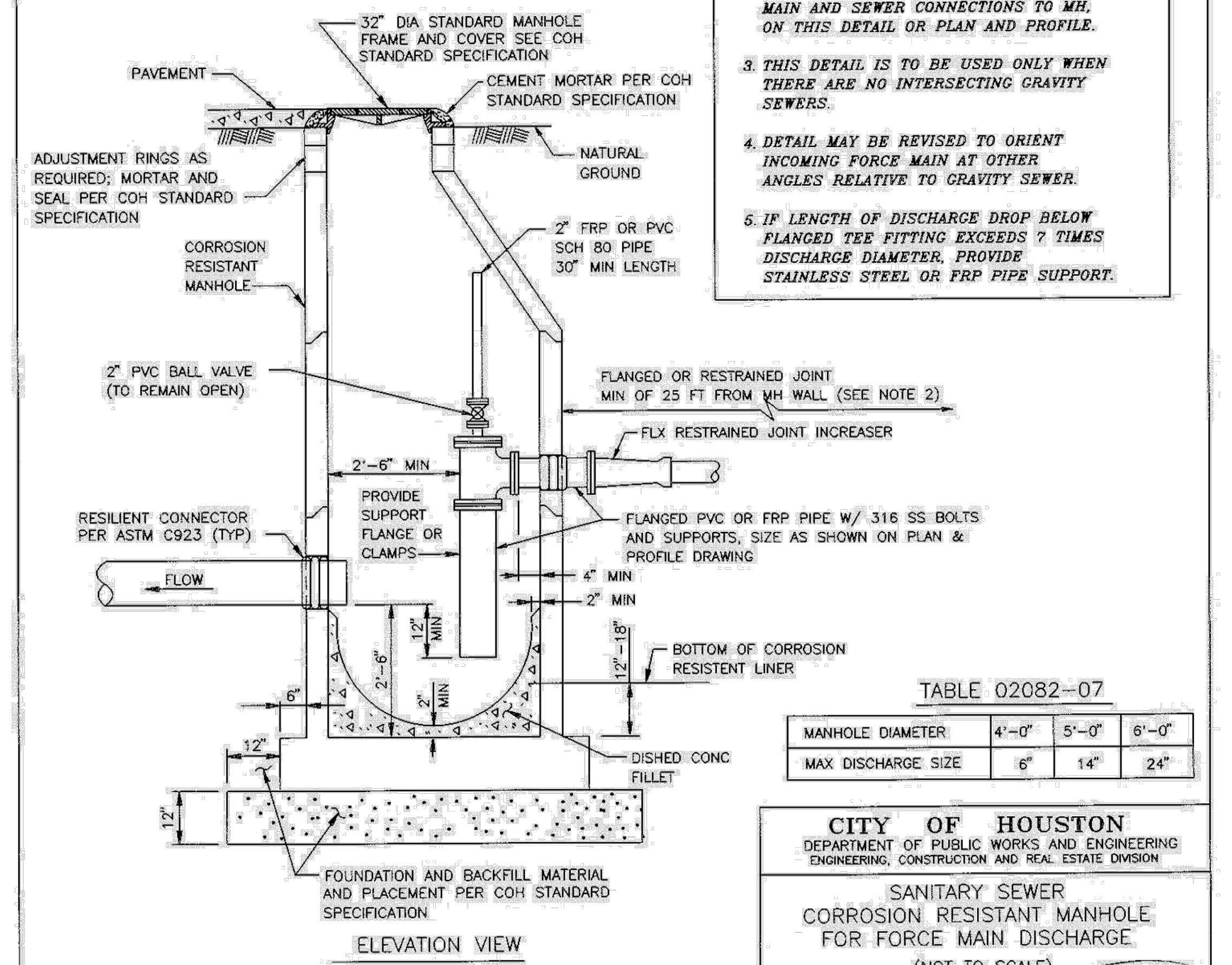
PLAN VIEW

NOTES:

1. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
2. IF FORCE MAIN HAS BENDS WITHIN 25 FT OF MANHOLE, EXTEND RESTRAINED JOINTS TO 25 FT MINIMUM UPSTREAM OF BEND.
3. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREA.
4. MINIMUM REINFORCING IN BASE SHALL BE 5 @ 8 E W.
5. PRECAST RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".

NOTES TO SPECIFIER:

1. *INDICATE SIZE OF FORCE MAIN, INCREASER AND DISCHARGE EITHER ON THIS DETAIL OR ON PLAN AND PROFILE.*
2. *PROVIDE INVERT ELEVATIONS OR FORCE MAIN AND SEWER CONNECTIONS TO MH, ON THIS DETAIL OR PLAN AND PROFILE.*
3. *THIS DETAIL IS TO BE USED ONLY WHEN THERE ARE NO INTERSECTING GRAVITY SEWERS.*
4. *DETAIL MAY BE REVISED TO ORIENT INCOMING FORCE MAIN AT OTHER ANGLES RELATIVE TO GRAVITY SEWER.*
5. *IF LENGTH OF DISCHARGE DROP BELOW FLANGED TEE FITTING EXCEEDS 7 TIMES DISCHARGE DIAMETER, PROVIDE STAINLESS STEEL OR FRP PIPE SUPPORT.*


PAVEMENT
32" DIA STANDARD MANHOLE FRAME AND COVER SEE COH STANDARD SPECIFICATION
CEMENT MORTAR PER COH STANDARD SPECIFICATION
ADJUSTMENT RINGS AS REQUIRED; MORTAR AND SEAL PER COH STANDARD SPECIFICATION
NATURAL GROUND
CORROSION RESISTANT MANHOLE
2" FRP OR PVC SCH 80 PIPE 30" MIN LENGTH
2" PVC BALL VALVE (TO REMAIN OPEN)
FLANGED OR RESTRAINED JOINT MIN OF 25 FT FROM MH WALL (SEE NOTE 2)
FLX RESTRAINED JOINT INCREASER
2'-6" MIN
PROVIDE SUPPORT FLANGE OR CLAMPS
RESILIENT CONNECTOR PER ASTM C923 (TYP)
FLANGED PVC OR FRP PIPE W/ 316 SS BOLTS AND SUPPORTS, SIZE AS SHOWN ON PLAN & PROFILE DRAWING
FLOW
4" MIN
2" MIN
12" MIN
2'-6"
12"-18"
BOTTOM OF CORROSION RESISTENT LINER
2" MIN
6"
12"
12"
DISHED CONC FILLET
FOUNDATION AND BACKFILL MATERIAL AND PLACEMENT PER COH STANDARD SPECIFICATION

ELEVATION VIEW

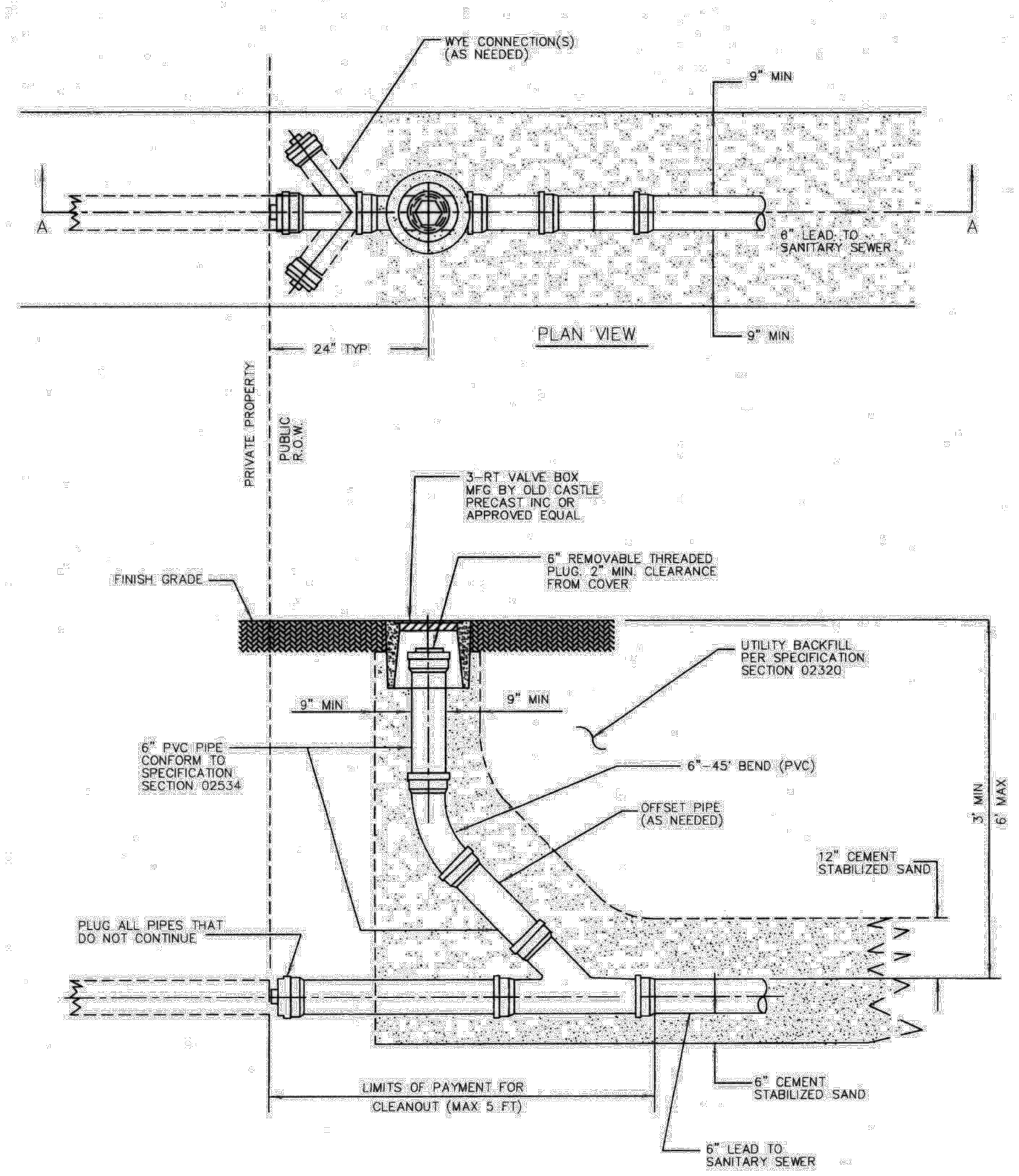
TABLE 02082-07

MANHOLE DIAMETER	4'-0"	5'-0"	6'-0"
MAX DISCHARGE SIZE	6"	14"	24"

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
CORROSION RESISTANT MANHOLE
FOR FORCE MAIN DISCHARGE
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002
DWG NO: 02082-07


WYE CONNECTION(S) (AS NEEDED)
9" MIN
A
A
6" LEAD TO SANITARY SEWER
9" MIN
24" TYP
PLAN VIEW
PRIVATE PROPERTY
PUBLIC R.O.W.
3-RT VALVE BOX MFG BY OLD CASTLE PRECAST INC OR APPROVED EQUAL
6" REMOVABLE THREADED PLUG. 2" MIN. CLEARANCE FROM COVER
FINISH GRADE
UTILITY BACKFILL PER SPECIFICATION SECTION 02320
9" MIN
9" MIN
6" PVC PIPE CONFORM TO SPECIFICATION SECTION 02534
6"-45° BEND (PVC)
OFFSET PIPE (AS NEEDED)
3' MIN
6' MAX
12" CEMENT STABILIZED SAND
PLUG ALL PIPES THAT DO NOT CONTINUE
LIMITS OF PAYMENT FOR CLEANOUT (MAX 5 FT)
6" CEMENT STABILIZED SAND
6" LEAD TO SANITARY SEWER
SECTION A-A

NOTES:

1. USE CEMENT STABILIZED SAND BEDDING 6" BELOW PIPE AND 12" ABOVE PIPE.
2. MAINTAIN MINIMUM CLEARANCE OF 12" FROM DRIVEWAY.
3. CLEANOUT COVER SHALL BE EMBOSSED WITH "SS CO COH".
4. DO NOT LOCATE WITHIN SIDEWALK PAVING, EXCEPT WHEN REQUIRED.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STANDARD CLEANOUT
DETAIL ON SERVICE LEAD
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010
DWG NO: 02534-05

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

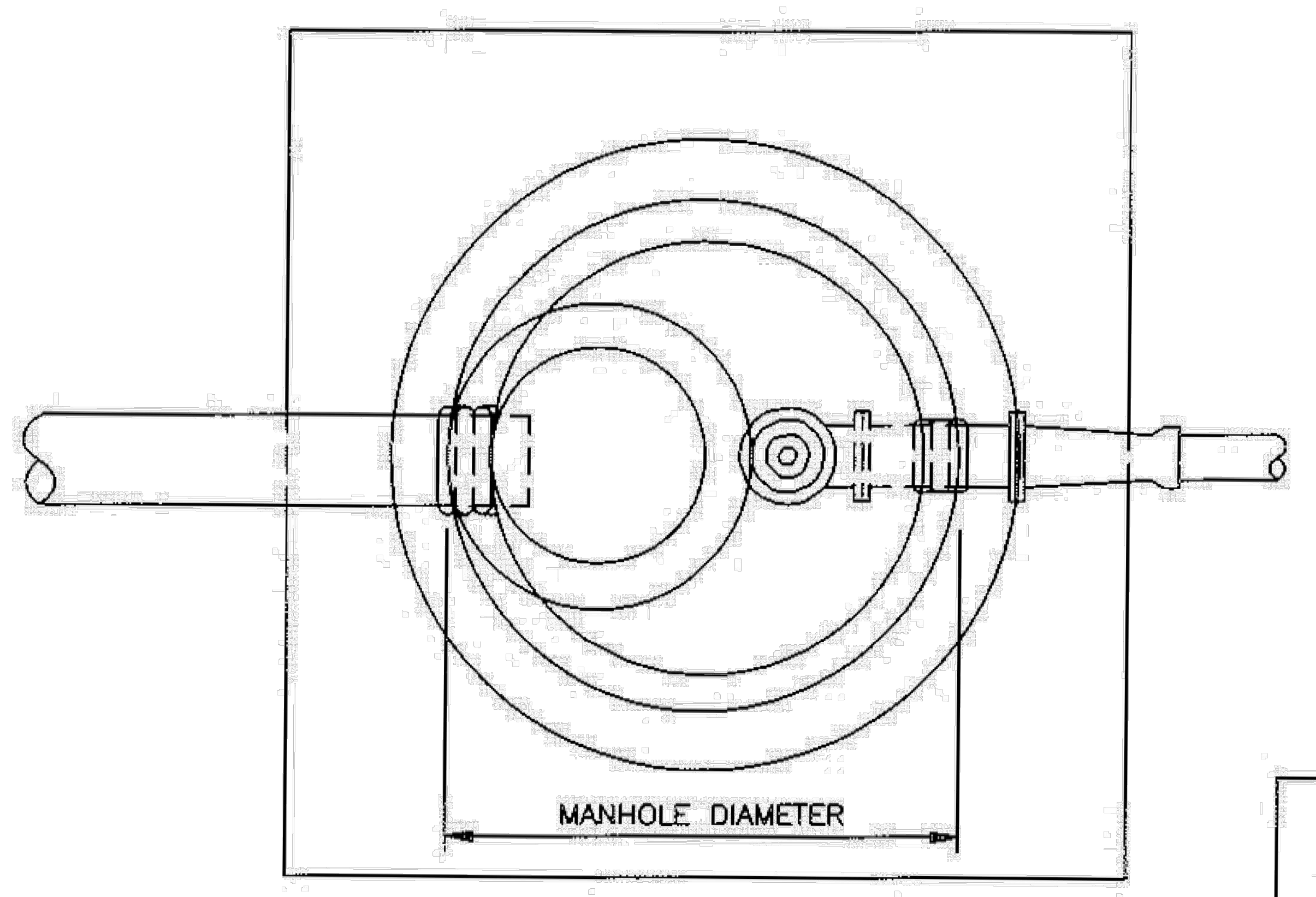
WATER STANDARD DETAILS

SHEET 6 OF 6

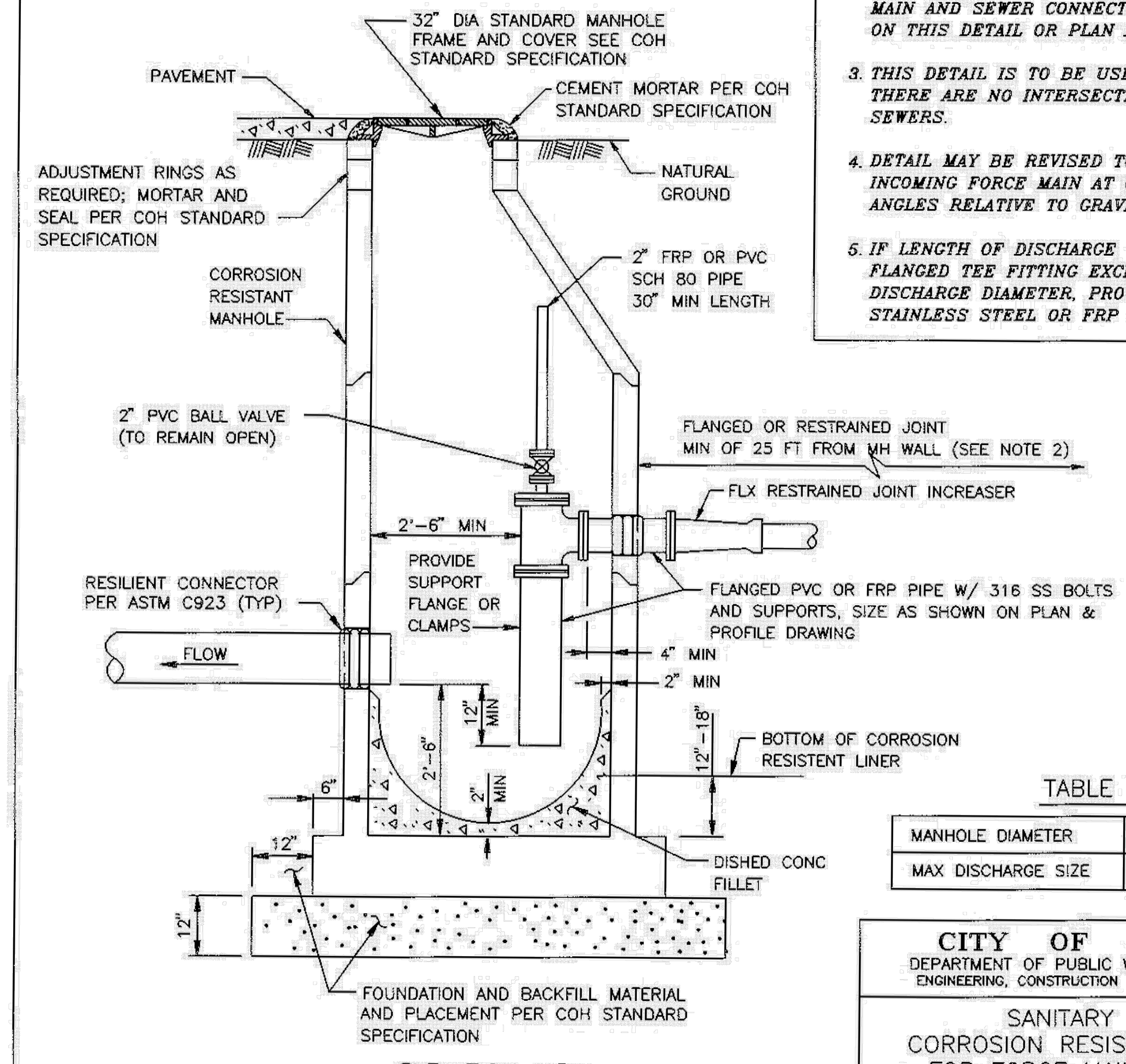
WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 203 OF 345


MANHOLE DIAMETER

PLAN VIEW


32" DIA STANDARD MANHOLE FRAME AND COVER SEE COH STANDARD SPECIFICATION
PAVEMENT
CEMENT MORTAR PER COH STANDARD SPECIFICATION
ADJUSTMENT RINGS AS REQUIRED; MORTAR AND SEAL PER COH STANDARD SPECIFICATION
NATURAL GROUND
2" FRP OR PVC SCH 80 PIPE 30" MIN LENGTH
CORROSION RESISTANT MANHOLE
2" PVC BALL VALVE (TO REMAIN OPEN)
FLANGED OR RESTRAINED JOINT MIN OF 25 FT FROM MH WALL (SEE NOTE 2)
FLX RESTRAINED JOINT INCREASER
2'-6" MIN
PROVIDE SUPPORT FLANGE OR CLAMPS
RESILIENT CONNECTOR PER ASTM C923 (TYP)
FLANGED PVC OR FRP PIPE W/ 316 SS BOLTS AND SUPPORTS, SIZE AS SHOWN ON PLAN & PROFILE DRAWING
FLOW
4" MIN
2" MIN
12" MIN
2'-6"
12"-18"
BOTTOM OF CORROSION RESISTENT LINER
6"
2" MIN
12"
DISHED CONC FILLET
12"
FOUNDATION AND BACKFILL MATERIAL AND PLACEMENT PER COH STANDARD SPECIFICATION

ELEVATION VIEW

NOTES:

1. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
2. IF FORCE MAIN HAS BENDS WITHIN 25 FT OF MANHOLE, EXTEND RESTRAINED JOINTS TO 25 FT MINIMUM UPSTREAM OF BEND.
3. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREA.
4. MINIMUM REINFORCING IN BASE SHALL BE 5 @ 8 E W.
5. PRECAST RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".

NOTES TO SPECIFIER:

1. *INDICATE SIZE OF FORCE MAIN, INCREASER AND DISCHARGE EITHER ON THIS DETAIL OR ON PLAN AND PROFILE.*
2. *PROVIDE INVERT ELEVATIONS OR FORCE MAIN AND SEWER CONNECTIONS TO MH, ON THIS DETAIL OR PLAN AND PROFILE.*
3. *THIS DETAIL IS TO BE USED ONLY WHEN THERE ARE NO INTERSECTING GRAVITY SEWERS.*
4. *DETAIL MAY BE REVISED TO ORIENT INCOMING FORCE MAIN AT OTHER ANGLES RELATIVE TO GRAVITY SEWER.*
5. *IF LENGTH OF DISCHARGE DROP BELOW FLANGED TEE FITTING EXCEEDS 7 TIMES DISCHARGE DIAMETER, PROVIDE STAINLESS STEEL OR FRP PIPE SUPPORT.*

TABLE 02082–07

MANHOLE DIAMETER	4'-0"	5'-0"	6'-0"
MAX DISCHARGE SIZE	6"	14"	24"

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
CORROSION RESISTANT MANHOLE
FOR FORCE MAIN DISCHARGE
(NOT TO SCALE)

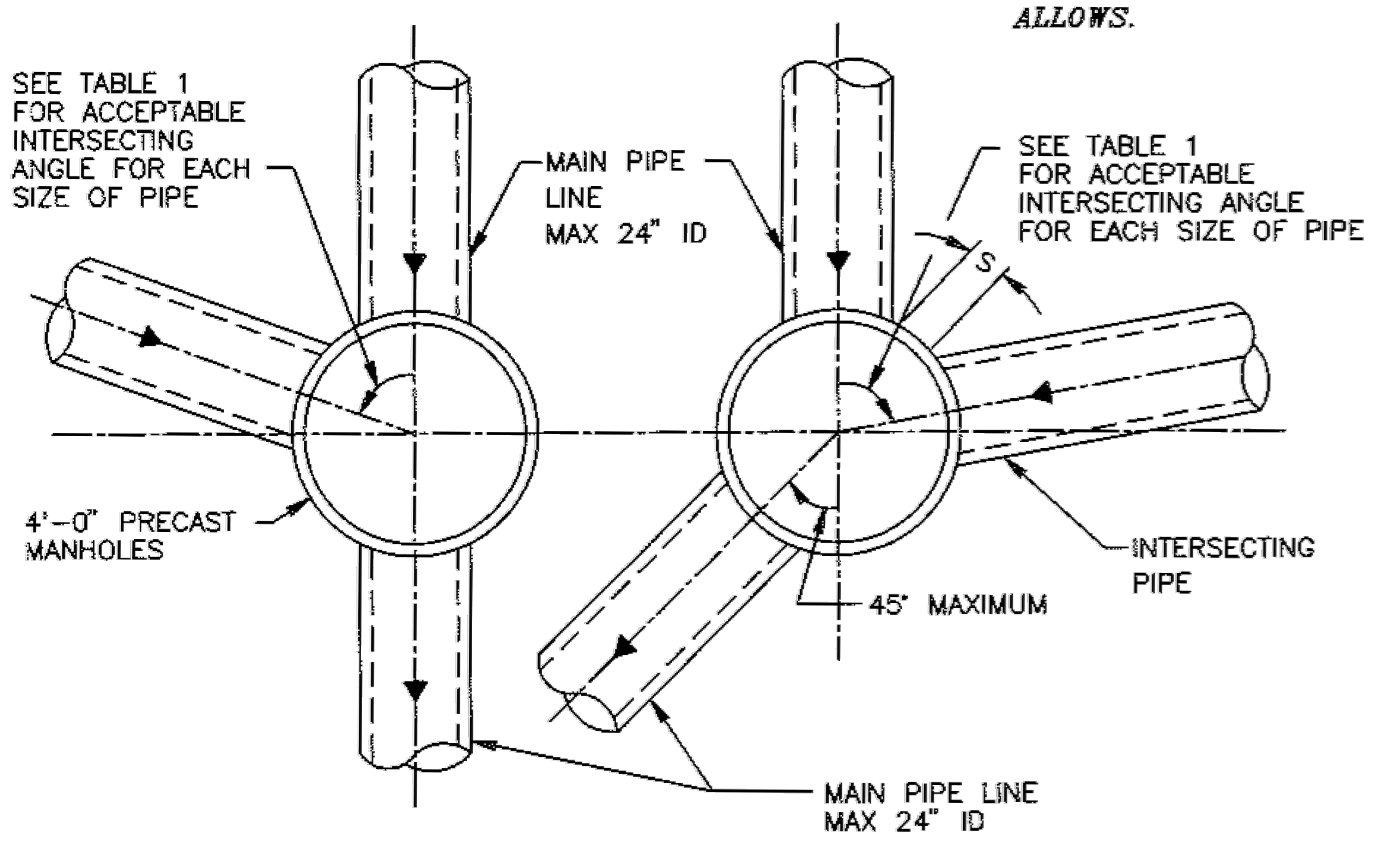
APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002
DWG NO: 02082–07

COH

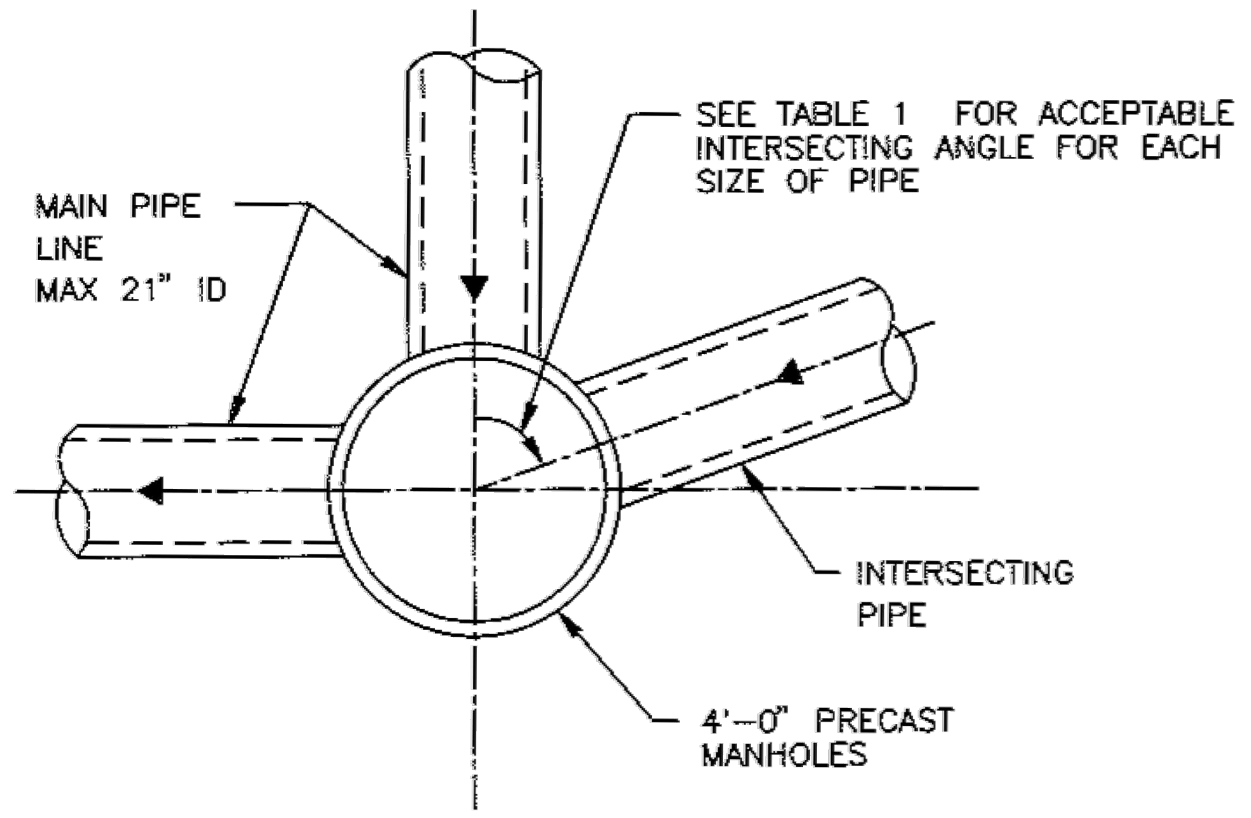
NOTES ON USE OF STANDARD DETAIL 02082–02

NOTES TO SPECIFIER:

1. *"–" INDICATES THAT A SPECIAL DESIGN OR THE NEXT LARGER MANHOLE SIZE SHALL BE USED.*
2. *TABLE 1 IS BASED ON A MIN SEPARATION DISTANCE "S" OF 15.5" OR INTERSECTION PIPE OD/2, WHICHEVER IS GREATER, BETWEEN MAIN AND INTERSECTING PIPES ALONG THE MANHOLE INSIDE WALL ARC.*
3. *PIPE WALL THICKNESS USED IN TABLE 1 ARE BASED ON RCP. THE DESIGN ENGINEER MAY CALCULATE TO SEE IF THINNER WALL PIPES CAN MEET THE SEPARATION CRITERIA FOR ANGLES SMALLER THAN THE TABLE ALLOWS.*


SEE TABLE 1 FOR ACCEPTABLE INTERSECTING ANGLE FOR EACH SIZE OF PIPE
MAIN PIPE LINE MAX 24" ID
SEE TABLE 1 FOR ACCEPTABLE INTERSECTING ANGLE FOR EACH SIZE OF PIPE
S
4'-0" PRECAST MANHOLES
INTERSECTING PIPE
45° MAXIMUM
MAIN PIPE LINE MAX 24" ID

MAX 24" ID MAIN PIPE ALLOWED FOR STRAIGHT THROUGH TO 45° DEFLECTION


MAIN PIPE LINE MAX 21" ID
SEE TABLE 1 FOR ACCEPTABLE INTERSECTING ANGLE FOR EACH SIZE OF PIPE
INTERSECTING PIPE
4'-0" PRECAST MANHOLES

MAX 21" ID MAIN PIPE ALLOWED FOR 45° TO 90° DEFLECTION

TABLE 1

MIN ANGLE AND INTERSECTING PIPE SIZES FOR A 4'–0" DIA MANHOLE

INTERSECTING PIPE SIZE (INCHES)	MIN INTERSECTING ANGLE IN DEGREES FOR FOR VARIOUS MAIN PIPE SIZES IN INCHES							
	6"	8"	10"	12"	15"	18"	21"	24"
6	55	58	60	65	70	75	80	85
8		60	63	68	73	77	82	87
10			66	71	75	80	85	90
12				76	80	85	90	–
15					85	90	–	–
18	NOT APPLICABLE UNLESS HYDRAULICS DICTATE (INTERSECTING PIPE > MAIN PIPE)					–	–	–
21							–	–
24								–

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
4'–0" DIAMETER PRECAST
CONCRETE MANHOLE NOTES
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002
DWG NO: 02082N–02

COH

No. Date Revisions App.

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SURVEYED BY: UNITED ENGINEERS, INC.

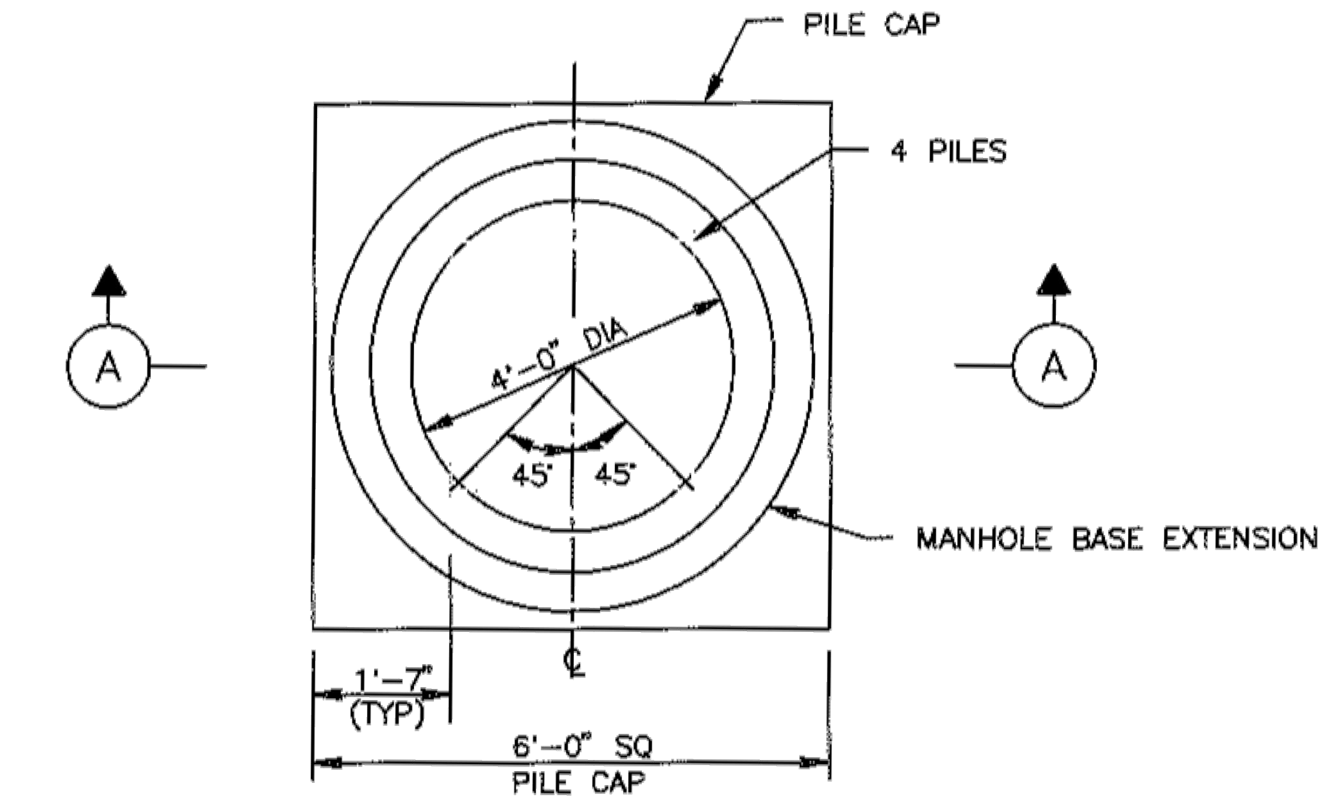
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

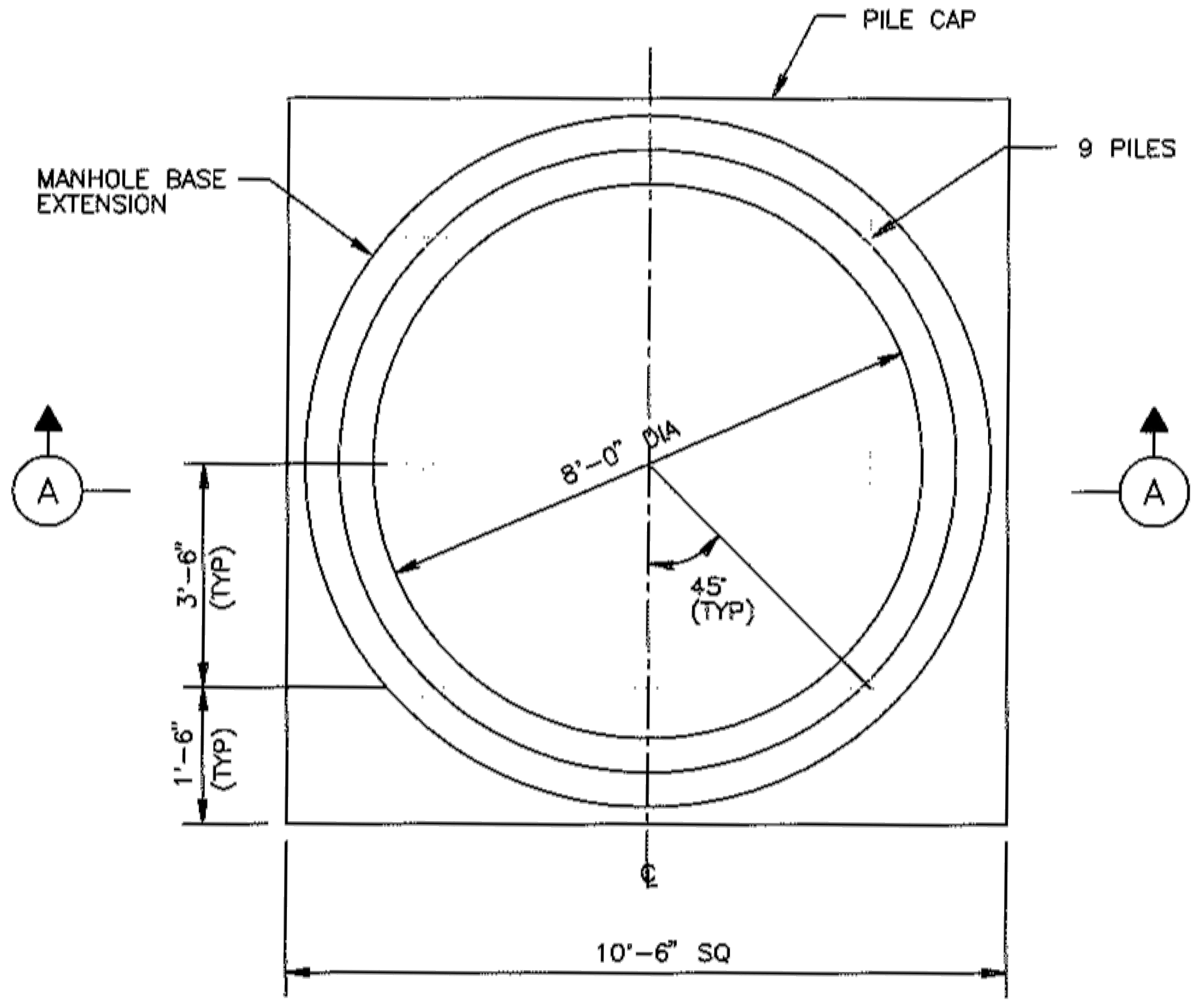
SANITARY STANDARD DETAILS

SHEET 1 OF 6

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 204 OF 345


PILE CAP
4 PILES
A
A
4'-0" DIA
45°
45°
MANHOLE BASE EXTENSION
℄
1'-7" (TYP)
6'-0" SQ PILE CAP

6 PILE PLAN
4'-0" ID MANHOLE

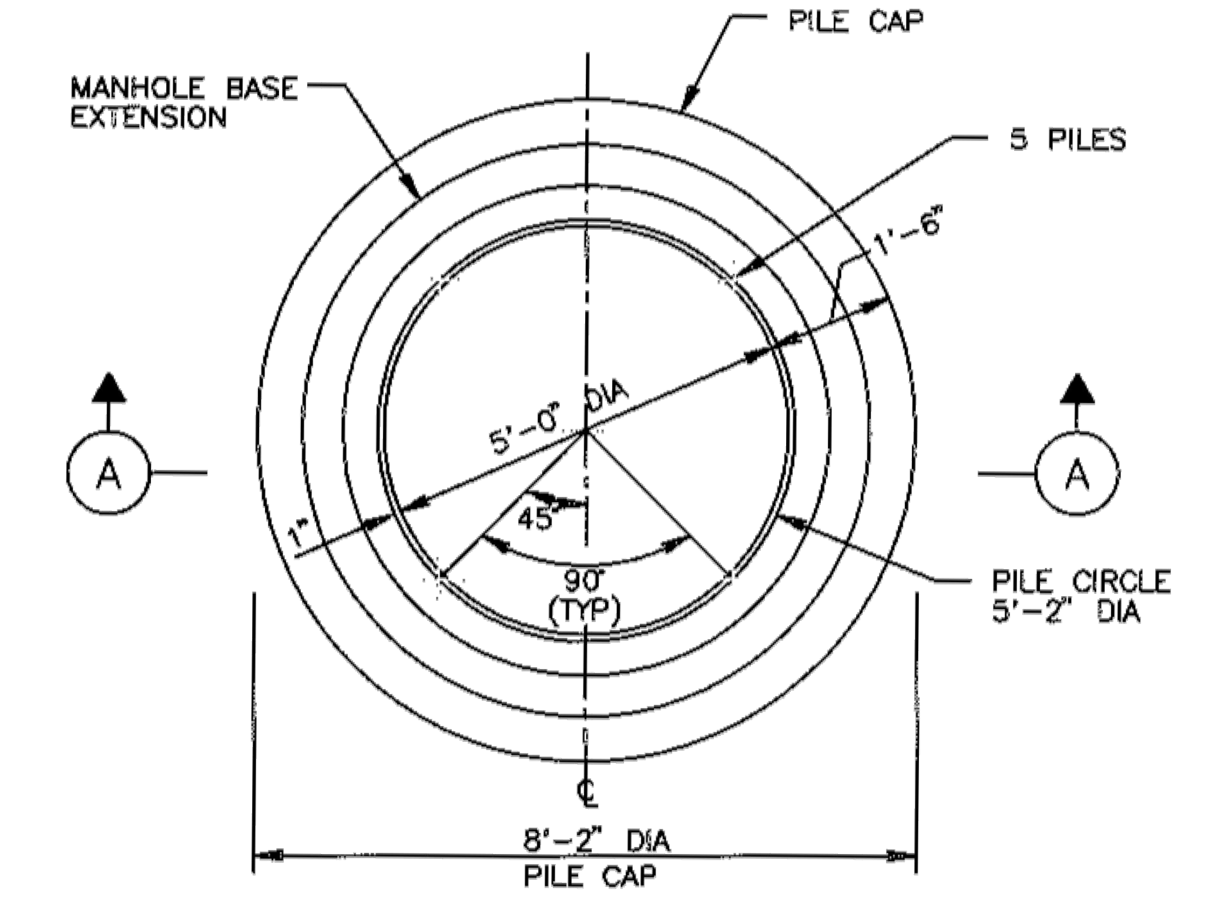

PILE CAP
9 PILES
MANHOLE BASE EXTENSION
A
A
8'-0" DIA
45° (TYP)
3'-6" (TYP)
1'-6" (TYP)
℄
10'-6" SQ

9 PILE PLAN
8'-0" ID MANHOLE

TABLE 1

PILE REQUIREMENTS

MANHOLE ID (FT)	NUMBER OF PILES	DEPTH TO INVERT (FT)	CAPACITY/ PILE (TONS) MINIMUM	PILE CAP DIMEN A (FT)	PILE CAP REINF (EW, T&B)
4	4	10	9	1'-9"	# 6 @ 6"
		12	10		
		15	11		
		20	13		
		25	15		
		30	17		
5	5	10	10	1'-9"	# 6 @ 6"
		12	11		
		15	12		
		20	15		
		25	17		
		30	20		
6	6	10	9	2'-0"	# 6 @ 6"
		12	10		
		15	12		
		20	15		
		25	17		
		30	20		
8	9	10	8	2'-0"	# 7 @ 6"
		12	9		
		15	10		
		20	13		
		25	16		
		30	18		


MANHOLE BASE EXTENSION
PILE CAP
5 PILES
1'-6"
A
A
5'-0" DIA
1"
45°
90° (TYP)
PILE CIRCLE 5'-2" DIA
℄
8'-2" DIA PILE CAP

PLAN
5'-0" ID MANHOLE

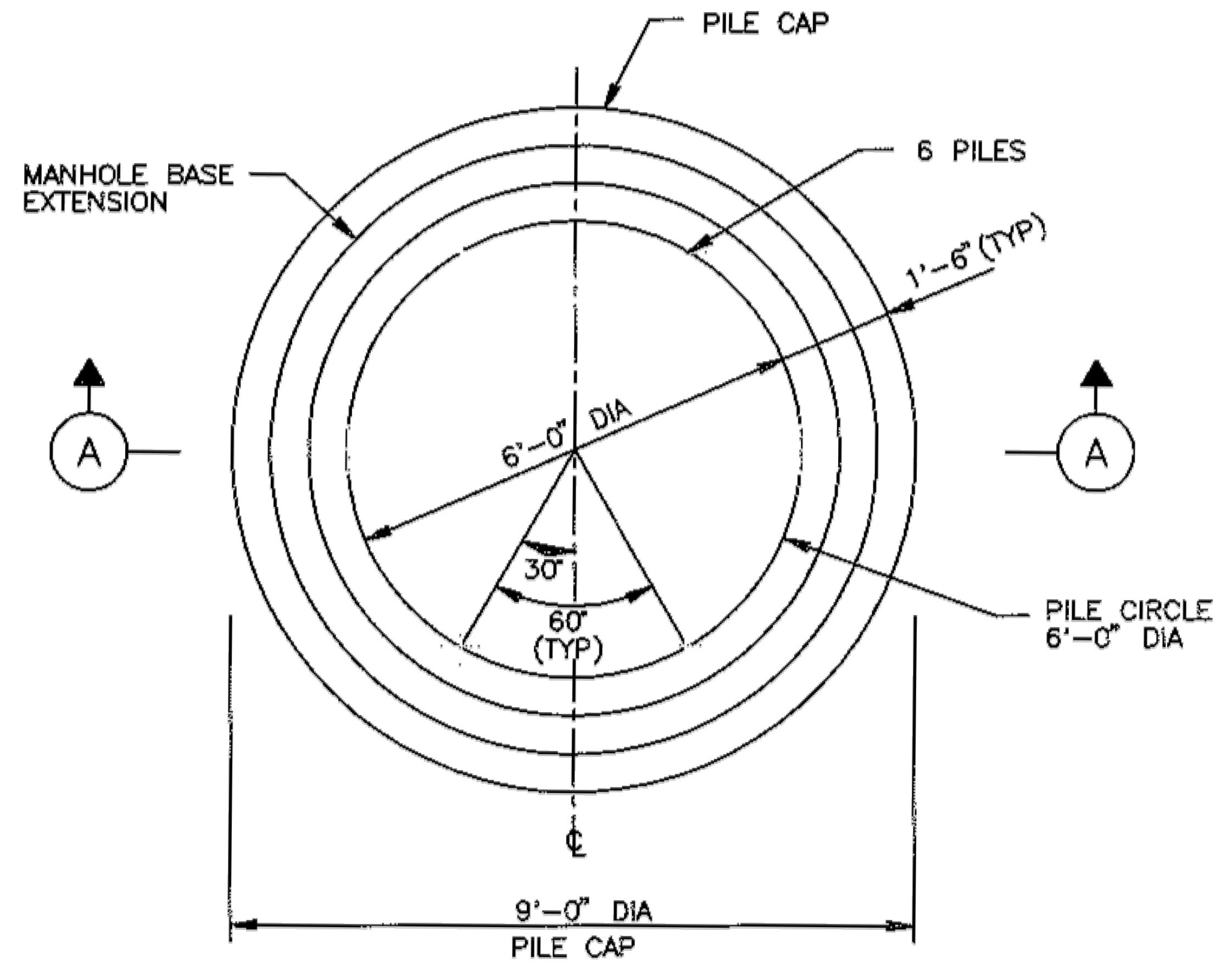
NOTES:

1. PILING SUPPORT SHALL BE INSTALLED AT ALL LOCATIONS WHERE HEAVING SUBGRADE CONDITIONS ARE LIKELY TO OCCUR, AS DETERMINED BY THE CITY ENGINEER.

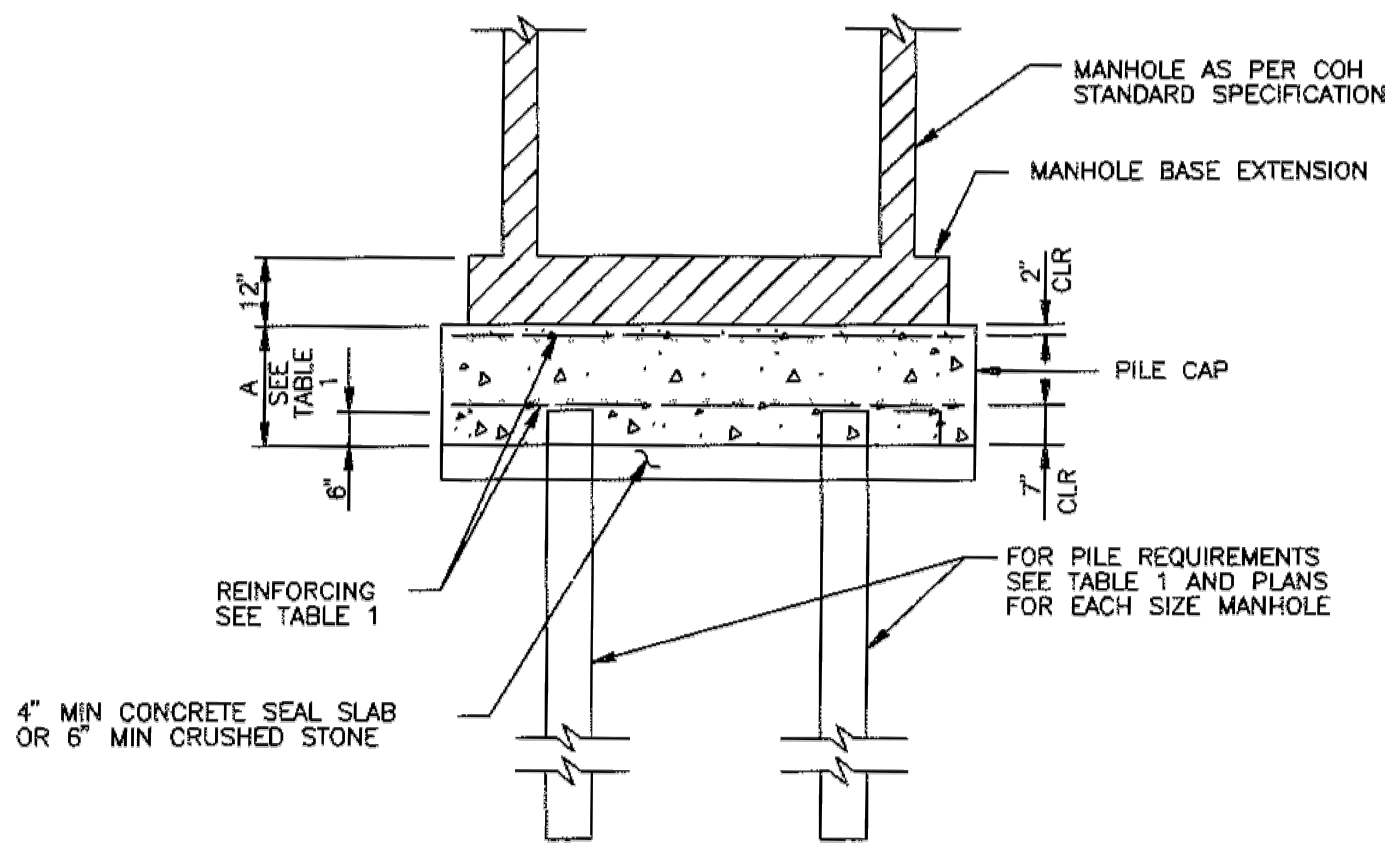
2. THE CITY ENGINEER WILL PROVIDE THE SIZE, LENGTH, AND MATERIAL OF PILE NEEDED TO CARRY THE CAPACITY SHOWN ON TABLE 1 BASED ON ACTUAL CONDITIONS REVEALED AT TIME OF CONSTRUCTION.

NOTES TO SPECIFIER:

1. *INCLUDE THIS DETAIL ONLY IF THE GEOTECHNICAL REPORT INDICATES THAT AN UNSTABLE FOUNDATION (ONE WHICH WILL NOT ALLOW COMPACTION AND/OR DEWATERING AS SPECIFIED) IS POSSIBLE. IF THIS CONDITION IS REPORTED BY THE GEOTECHNICAL ENGINEER, NOTIFY THE CITY'S PROJECT MANAGER.*
2. *ALWAYS INCLUDE COMPANION STANDARD DETAIL SHOWING CRUSHED STONE SUPPORTED MANHOLE FOR UNSTABLE SUBGRADE WITH THIS DETAIL.*
3. *WHERE SOIL BORINGS ARE MADE AT MANHOLE LOCATIONS AND THE GEOTECHNICAL ENGINEER BELIEVES THAT THE CONDITIONS REQUIRING THIS DETAIL ARE LIKELY TO EXIST, PROVIDE PILE DESIGN INFORMATION DETERMINED BY THE GEOTECHNICAL ENGINEER FOR EACH SUCH MANHOLE. ADJUST NOTE#2 TO INDICATE THAT THE PILE INFORMATION PROVIDED MAY NEED TO BE ADJUSTED OR THE PILES ELIMINATED AND THAT OTHER MANHOLE LOCATIONS NOT SHOWN AS PILE SUPPORTED MAY NEED PILES DEPENDING ON ACTUAL CONDITIONS UNCOVERED.*
4. *PROVIDE APPROPRIATE PILE SPECIFICATIONS.*


PILE CAP
MANHOLE BASE EXTENSION
6 PILES
1'-6" (TYP)
A
A
6'-0" DIA
30°
60° (TYP)
PILE CIRCLE 6'-0" DIA
℄
9'-0" DIA PILE CAP

6 PILE PLAN
6'-0" ID MANHOLE


MANHOLE AS PER COH STANDARD SPECIFICATION
MANHOLE BASE EXTENSION
12"
2" CLR
A SEE TABLE 1
PILE CAP
6"
1" CLR
REINFORCING SEE TABLE 1
FOR PILE REQUIREMENTS SEE TABLE 1 AND PLANS FOR EACH SIZE MANHOLE
4" MIN CONCRETE SEAL SLAB OR 6" MIN CRUSHED STONE

SECTION A

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
PILE SUPPORTED MANHOLE
FOR UNSTABLE SUBGRADE
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082-04

No.	Date	Revisions	App.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 2 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 205 OF 345

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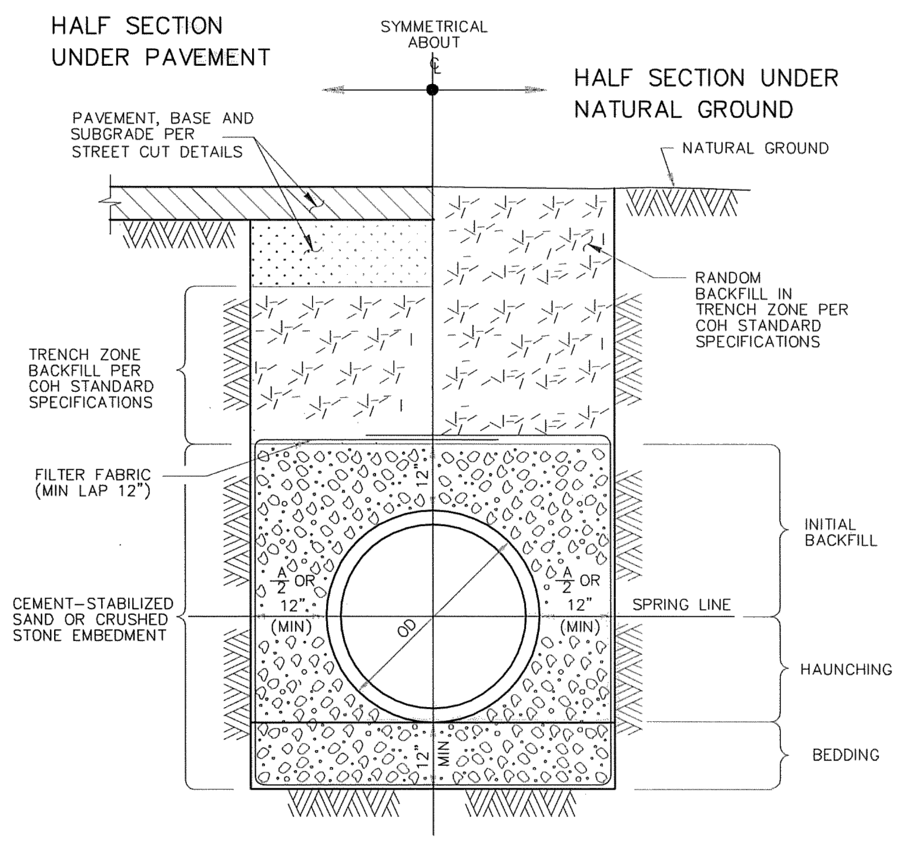
COH


HALF SECTION
UNDER PAVEMENT
SYMMETRICAL ABOUT ℄
HALF SECTION UNDER
NATURAL GROUND
PAVEMENT, BASE AND SUBGRADE PER STREET CUT DETAILS
NATURAL GROUND
RANDOM BACKFILL IN TRENCH ZONE PER COH STANDARD SPECIFICATIONS
TRENCH ZONE BACKFILL PER COH STANDARD SPECIFICATIONS
FILTER FABRIC (MIN LAP 12")
12"
A/2 OR 12" (MIN)
A/2 OR 12" (MIN)
OD
SPRING LINE
INITIAL BACKFILL
HAUNCHING
BEDDING
12" MIN
CEMENT-STABILIZED SAND OR CRUSHED STONE EMBEDMENT

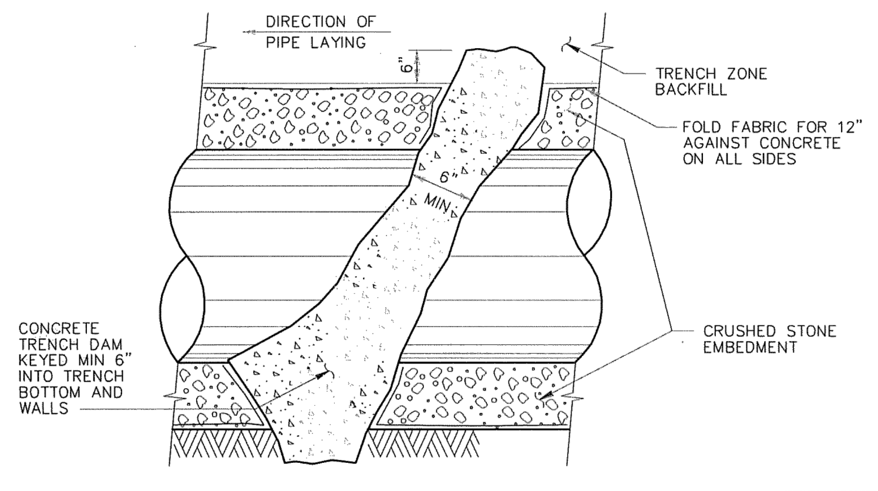
TYPICAL CROSS-SECTION

NOTES:

1. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
18" TO 30"	24"
OVER 30"	36"

2. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
3. TRENCH DAM MAY BE FORMED OR UNFORMED. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
4. TRENCH DAM SHALL BE PLACED AT LEAST 5 FT AWAY FROM ANY PIPELINE STRUCTURE. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.
5. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.
6. CEMENT-STABILIZED SAND IS PREFERRED, FOR EMBEDMENT, BUT CRUSHED STONE MAY BE USED ONLY WHEN SPECIFIED ON THE PLANS.


DIRECTION OF PIPE LAYING
6"
TRENCH ZONE BACKFILL
FOLD FABRIC FOR 12" AGAINST CONCRETE ON ALL SIDES
6" MIN
CONCRETE TRENCH DAM KEYED MIN 6" INTO TRENCH BOTTOM AND WALLS
CRUSHED STONE EMBEDMENT

LONGITUDINAL SECTION ALONG PIPE ℄
AT EMBEDMENT TRENCH DAM

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:	APPROVED BY: Dale A. Rudick
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2016	DWG NO: 02317-01

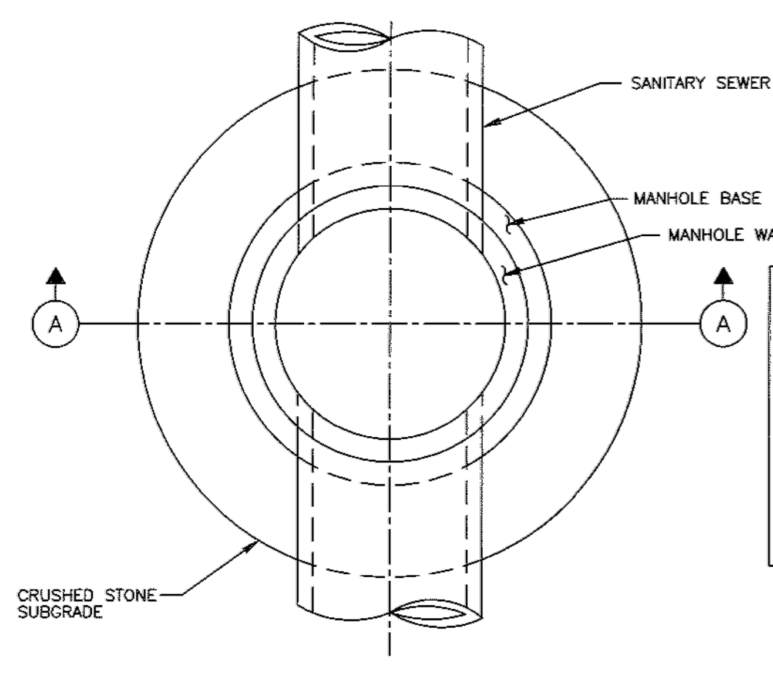
COH

NOTES:

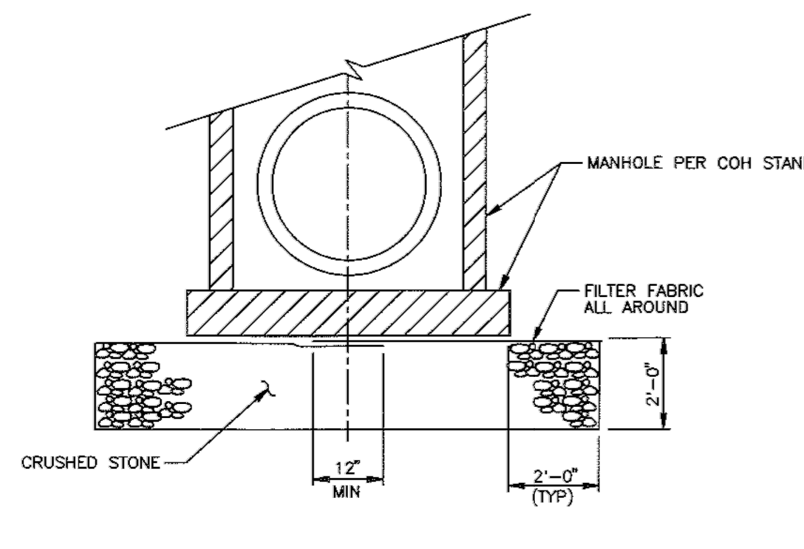
1. CRUSHED STONE SUPPORT UNDER A MANHOLE BASE SHALL BE INSTALLED AT LOCATIONS WHERE REQUIRED SUBGRADE COMPACTION OR DEWATERING CANNOT BE ACHIEVED.
2. WHERE HEAVING SUBGRADE CONDITIONS OCCUR, AS DETERMINED BY THE CITY ENGINEER, A PILE SUPPORTED MANHOLE SHALL BE PROVIDED.

NOTE TO SPECIFIER:

1. *INCLUDE THIS DETAIL ONLY IF THE GEOTECHNICAL REPORT INDICATES THAT AN UNSTABLE FOUNDATION (ONE WHICH WILL NOT ALLOW COMPACTION OR DEWATERING AS SPECIFIED) IS POSSIBLE. IF THIS CONDITION IS REPORTED BY THE GEOTECHNICAL ENGINEER, NOTIFY THE CITY'S PROJECT MANAGER.*
2. *ALWAYS INCLUDE COMPANION STANDARD DETAIL FOR PILE SUPPORTED MANHOLE FOR UNSTABLE SUBGRADE WITH THIS DETAIL, IF GEOTECHNICAL REPORT INDICATES HEAVING SUBGRADE IS LIKELY.*


SANITARY SEWER
MANHOLE BASE
MANHOLE WALL
A
A
CRUSHED STONE SUBGRADE

PLAN


MANHOLE PER COH STANDARD
FILTER FABRIC ALL AROUND
2'-0"
CRUSHED STONE
12" MIN
2'-0" (TYP)

SECTION Ⓐ

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

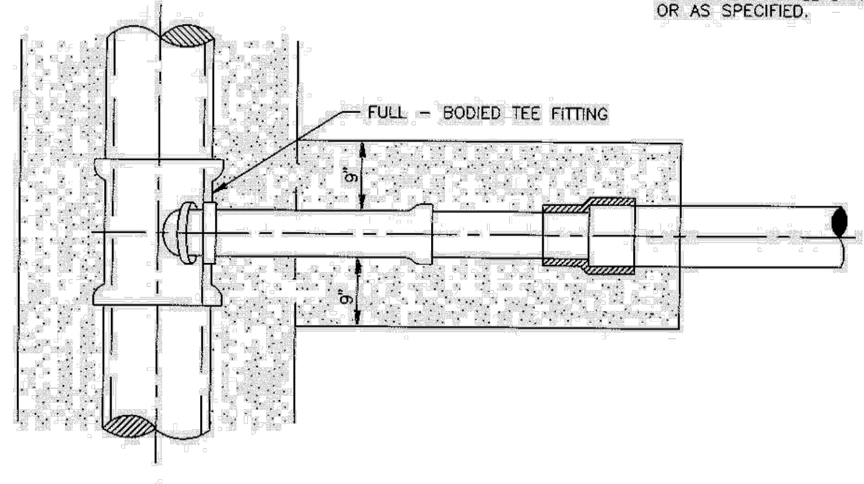
SANITARY SEWER
CRUSHED STONE SUPPORTED
MANHOLE FOR WET STABLE TRENCH
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082-05

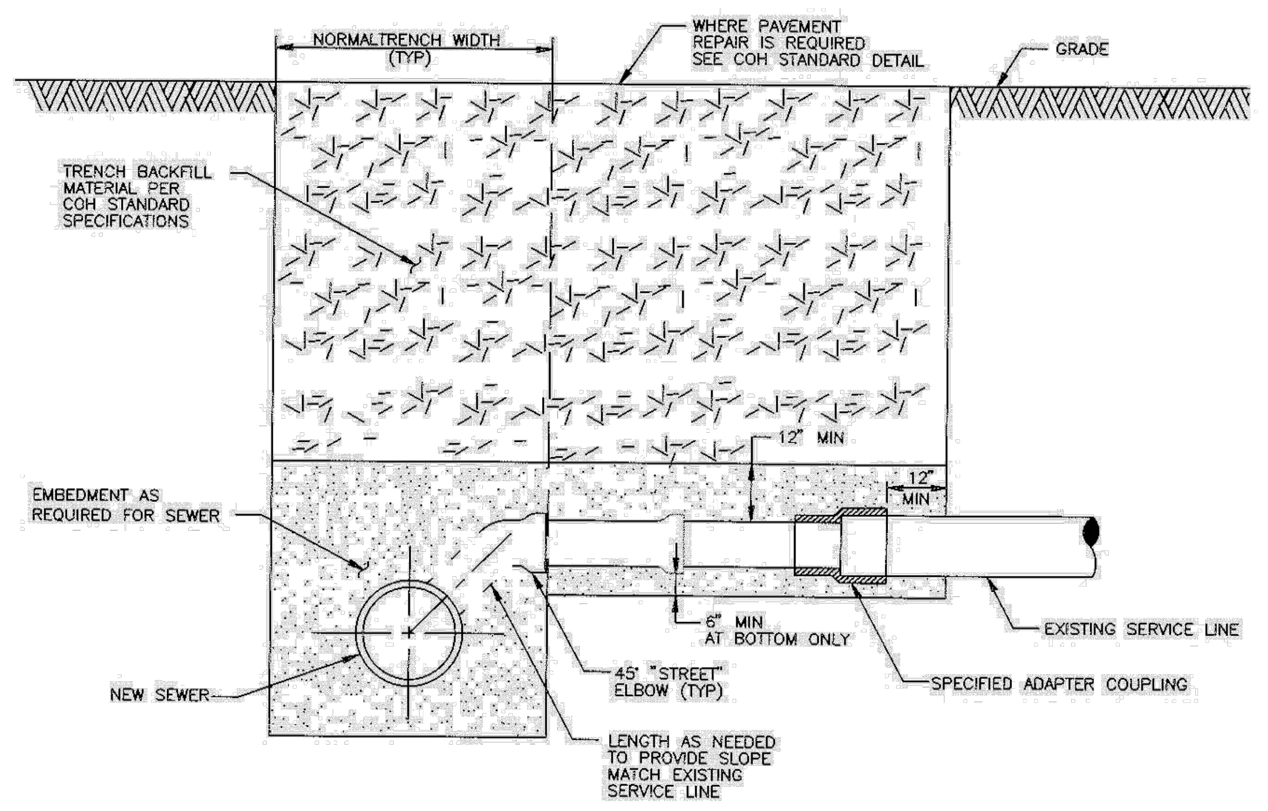
COH

NOTE:

1. REPLACE EXISTING SERVICE LINE TO EXTENT SHOWN ON PLAN AND PROFILE DRAWINGS, OR AS SPECIFIED.


FULL - BODIED TEE FITTING
9"
9"

PLAN


NORMALTRENCH WIDTH (TYP)
WHERE PAVEMENT REPAIR IS REQUIRED SEE COH STANDARD DETAIL
GRADE
TRENCH BACKFILL MATERIAL PER COH STANDARD SPECIFICATIONS
12" MIN
12" MIN
EMBEDMENT AS REQUIRED FOR SEWER
6" MIN AT BOTTOM ONLY
EXISTING SERVICE LINE
NEW SEWER
45° "STREET" ELBOW (TYP)
SPECIFIED ADAPTER COUPLING
LENGTH AS NEEDED TO PROVIDE SLOPE MATCH EXISTING SERVICE LINE

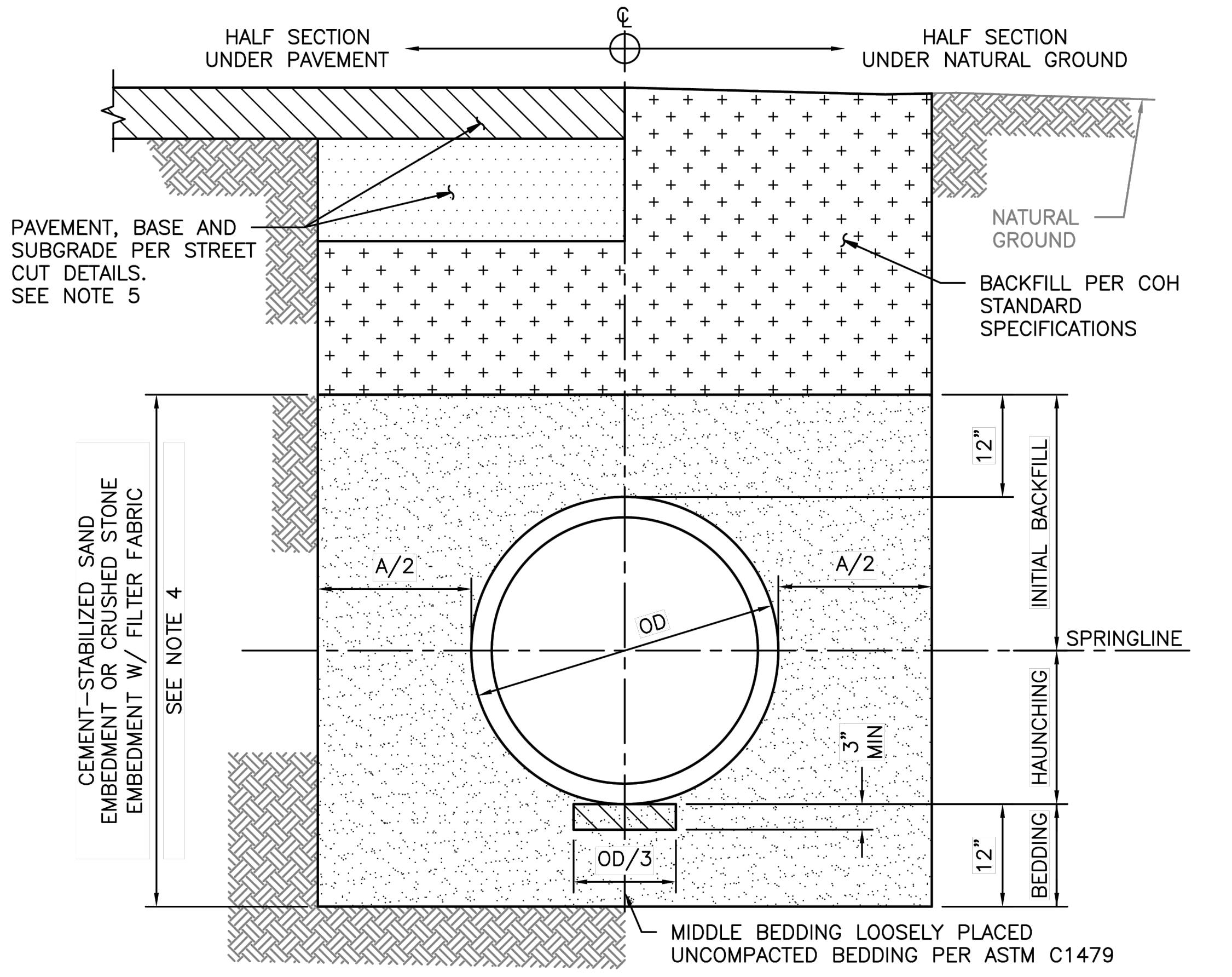
CROSS-SECTION OF SEWER
AT SERVICE CONNECTION

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:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02534-04

COH


SYMMETRICAL ABOUT ℄
HALF SECTION UNDER PAVEMENT
HALF SECTION UNDER NATURAL GROUND
PAVEMENT, BASE AND SUBGRADE PER STREET CUT DETAILS. SEE NOTE 5
NATURAL GROUND
BACKFILL PER COH STANDARD SPECIFICATIONS
CEMENT-STABILIZED SAND EMBEDMENT OR CRUSHED STONE EMBEDMENT W/ FILTER FABRIC
SEE NOTE 4
12"
A/2
A/2
OD
INITIAL BACKFILL
SPRINGLINE
HAUNCHING
3" MIN
OD/3
12"
BEDDING
MIDDLE BEDDING LOOSELY PLACED UNCOMPACTED BEDDING PER ASTM C1479

TYPICAL CROSS-SECTION

NOTES:

1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS PER COH STANDARD. SEE COH STANDARD SPECIFICATION FOR REQUIREMENTS IN OTHER CONDITIONS.
2. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR THE NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
30" OR LESS	24"
36" TO 42"	36"
GREATER THAN 42"	48"

3. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
4. ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS MAY BE ALLOWED. SEE COH STANDARD SPECIFICATIONS.
5. REFER TO THE COH STD DETAILS 02951-01 THROUGH 05 FOR STREET CUT REQUIREMENTS.
6. FOR THERMOPLASTIC STORM SEWER PIPE INSTALLATION REFER TO COH STD DETAIL 02317-10G.

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.

APPROVED BY:

Signed by: 1BEBB22072F84DC...	Signed by: BE463EF0DF454EB...
CITY ENGINEER	DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

SANITARY OR STORM SEWER
BEDDING AND BACKFILL FOR DRY
STABLE TRENCH

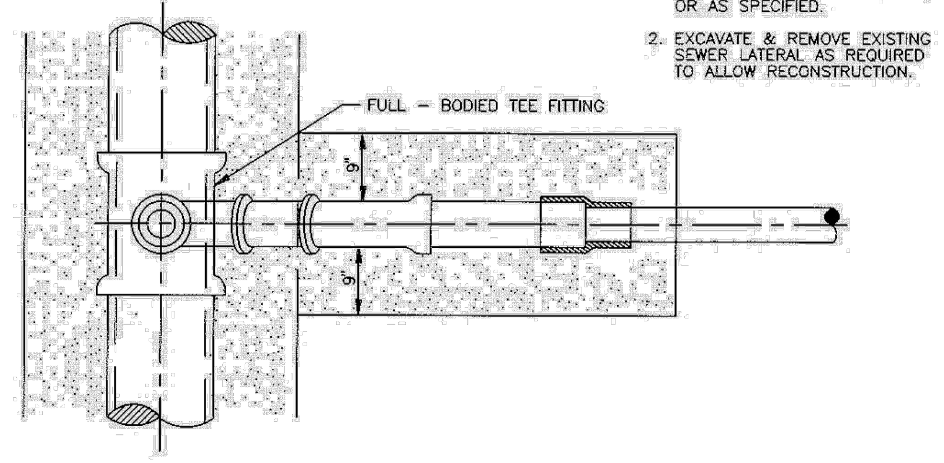
(SCALE: NOT TO SCALE)

EFF DATE: MAR-02-2026 | DWG NO: 02317-03

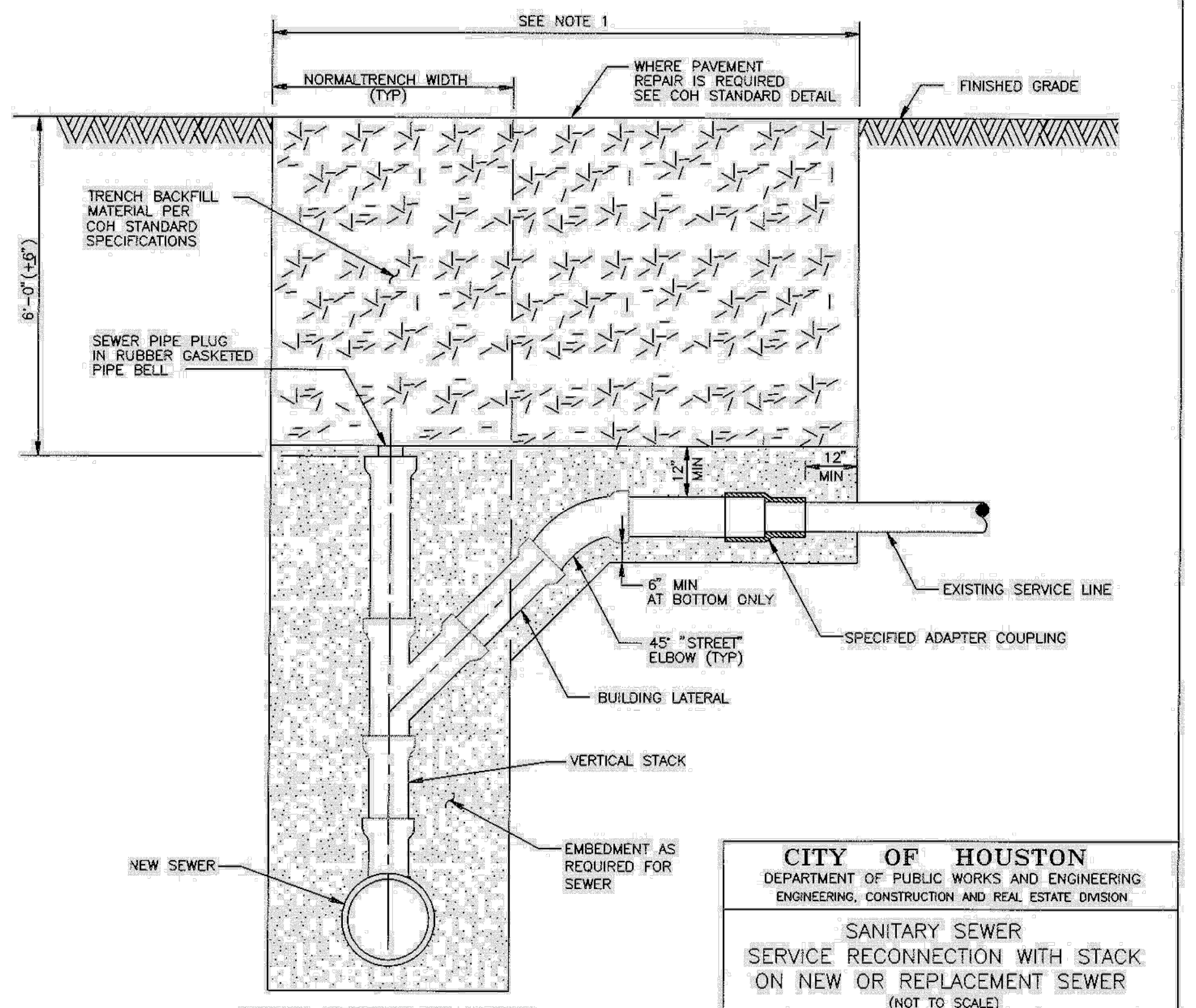
COH

NOTES:

1. REPLACE EXISTING SERVICE LINE TO EXTENT SHOWN ON PLAN AND PROFILE DRAWINGS, OR AS SPECIFIED.
2. EXCAVATE & REMOVE EXISTING SEWER LATERAL AS REQUIRED TO ALLOW RECONSTRUCTION.


FULL - BODIED TEE FITTING
9"
9"

PLAN


SEE NOTE 1
NORMALTRENCH WIDTH (TYP)
WHERE PAVEMENT REPAIR IS REQUIRED SEE COH STANDARD DETAIL
FINISHED GRADE
TRENCH BACKFILL MATERIAL PER COH STANDARD SPECIFICATIONS
6'-0" (±6")
SEWER PIPE PLUG IN RUBBER GASKETED PIPE BELL
12" MIN
12" MIN
6" MIN AT BOTTOM ONLY
EXISTING SERVICE LINE
SPECIFIED ADAPTER COUPLING
45° "STREET" ELBOW (TYP)
BUILDING LATERAL
VERTICAL STACK
EMBEDMENT AS REQUIRED FOR SEWER
NEW SEWER

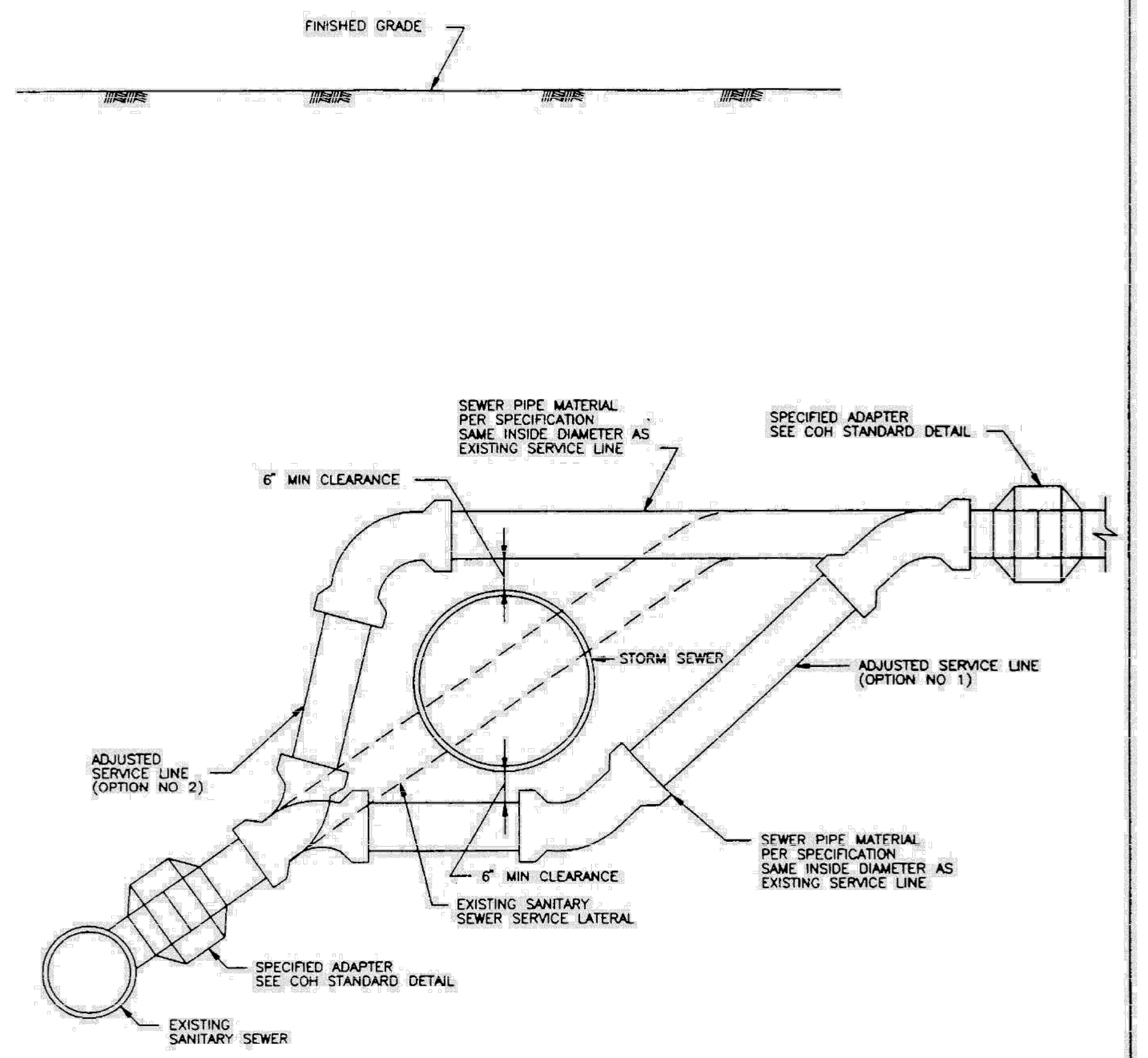
CROSS-SECTION OF SEWER
AT SERVICE CONNECTION

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
SERVICE RECONNECTION WITH STACK
ON NEW OR REPLACEMENT SEWER
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02534-02

COH


FINISHED GRADE
SEWER PIPE MATERIAL PER SPECIFICATION SAME INSIDE DIAMETER AS EXISTING SERVICE LINE
SPECIFIED ADAPTER SEE COH STANDARD DETAIL
6" MIN CLEARANCE
STORM SEWER
ADJUSTED SERVICE LINE (OPTION NO 1)
ADJUSTED SERVICE LINE (OPTION NO 2)
6" MIN CLEARANCE
EXISTING SANITARY SEWER SERVICE LATERAL
SEWER PIPE MATERIAL PER SPECIFICATION SAME INSIDE DIAMETER AS EXISTING SERVICE LINE
SPECIFIED ADAPTER SEE COH STANDARD DETAIL
EXISTING SANITARY SEWER

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
SERVICE LINE RECONNECTION
FOR STORM SEWER CONFLICTS
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02534-03

COH

No.	Date	Revisions	App.

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04/15/2026
AHMED ALOBAIDI
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 3 OF 6

WBS NO. M-430296-0017-3

DRAWING SCALE

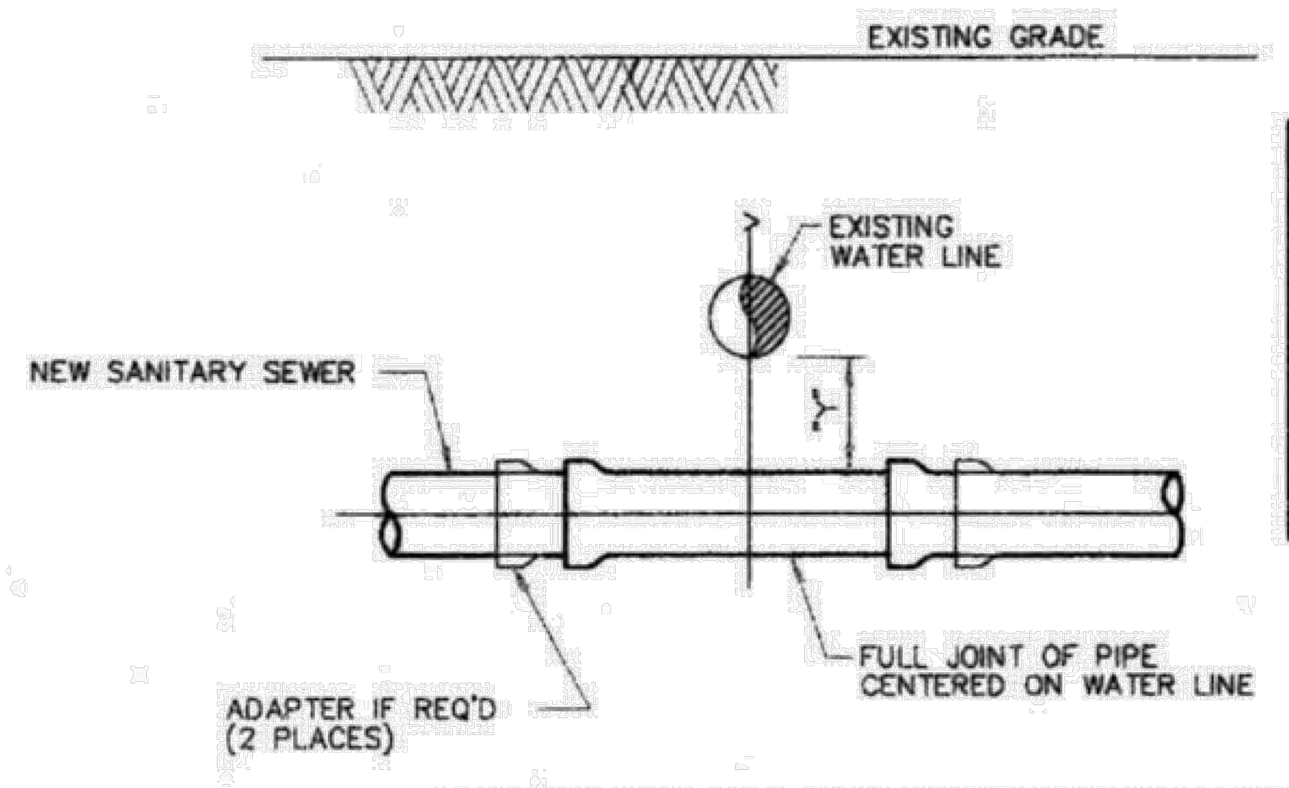
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 206 OF 345

j:\2021\210601.01\cad\dwgs\sheets\11 - water & sanitary sewer standards\sanitary standard 03.dwg Plotted April 15, 2026 at 7:02 PM by Alobaidi, Ahmed

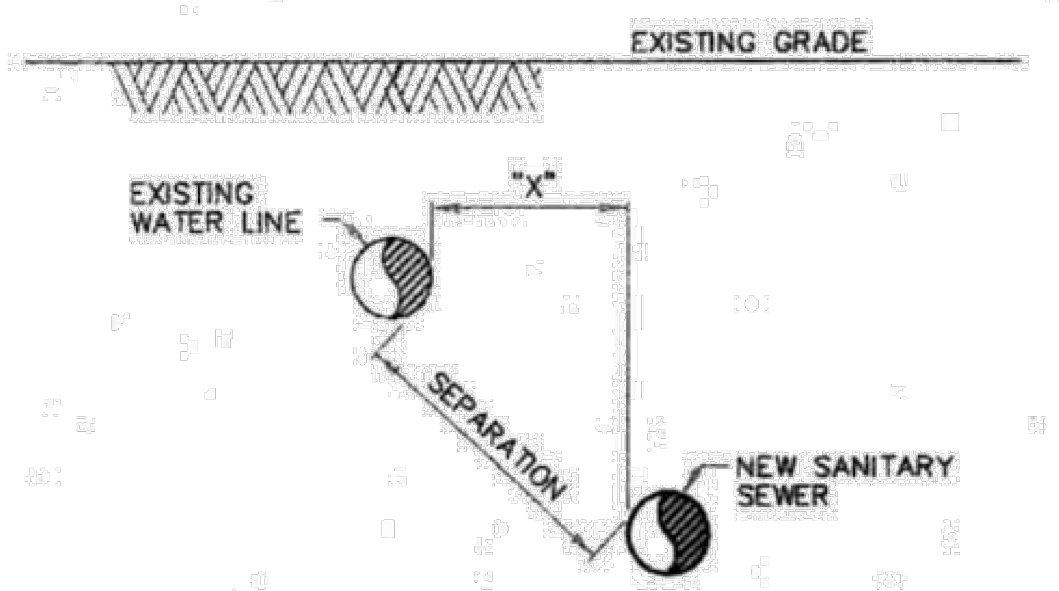
No.	Date	Revisions	App.


EXISTING GRADE
EXISTING WATER LINE
NEW SANITARY SEWER
"Y"
ADAPTER IF REQ'D (2 PLACES)
FULL JOINT OF PIPE CENTERED ON WATER LINE

NEW SANITARY SEWER CROSSING EXISTING WATER LINE

INSTALLATION REQUIREMENTS

1. 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.
2. IF "Y" IS GREATER THAN 2' AND "Y" IS LESS THAN 9', USE GRAVITY SEWER PIPE IN CEMENT-STABILIZED SAND EMBEDMENT.
3. IF "Y" IS GREATER THAN 9', USE STANDARD EMBEDMENT AND NORMAL JOINT SPACING.



NEW SANITARY SEWER PARALLEL TO EXISTING WATER LINE

INSTALLATION REQUIREMENTS

1. 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.
2. IF SEPARATION IS 9' OR GREATER, USE STANDARD PIPE AND EMBEDMENT.

NOTES:

1. 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.
2. WHEN PRESSURE-RATED PIPE IS REQUIRED, PROVIDE PIPE WITH MINIMUM 150 psi PRESSURE RATING.
3. ADAPTERS MUST BE FACTORY MOLDED OR FABRICATED, WITH RING STIFFNES 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.
4. INSTALL FORCE MAINS SAME AS FOR GRAVITY SEWER, USING SPECIFIED PRESSURE PIPE.
5. "Y" MUST ALWAYS BE GREATER THAN OR EQUAL TO 1 FT FOR PRESSURE RATED SS AND 2 FT FOR NON-PRESSURE RATED SS.
6. "X" MUST BE GREATER THAN OR EQUAL TO 4 FT.
7. ALTERNATIVES MAY BE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
8. SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE CONNECTIONS – REFER TO PLUMBING CODE FOR APPLICABLE REQUIREMENTS.

INSTALLING SANITARY SEWERS CROSSING OR PARALLEL TO WATER LINES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SANITARY SEWER
INSTALLING SANITARY SEWERS
CROSSING OR PARALLEL TO WATER LINES
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER
APPROVED: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010
DWG NO: 02531-05

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 4 OF 6

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 207 OF 345

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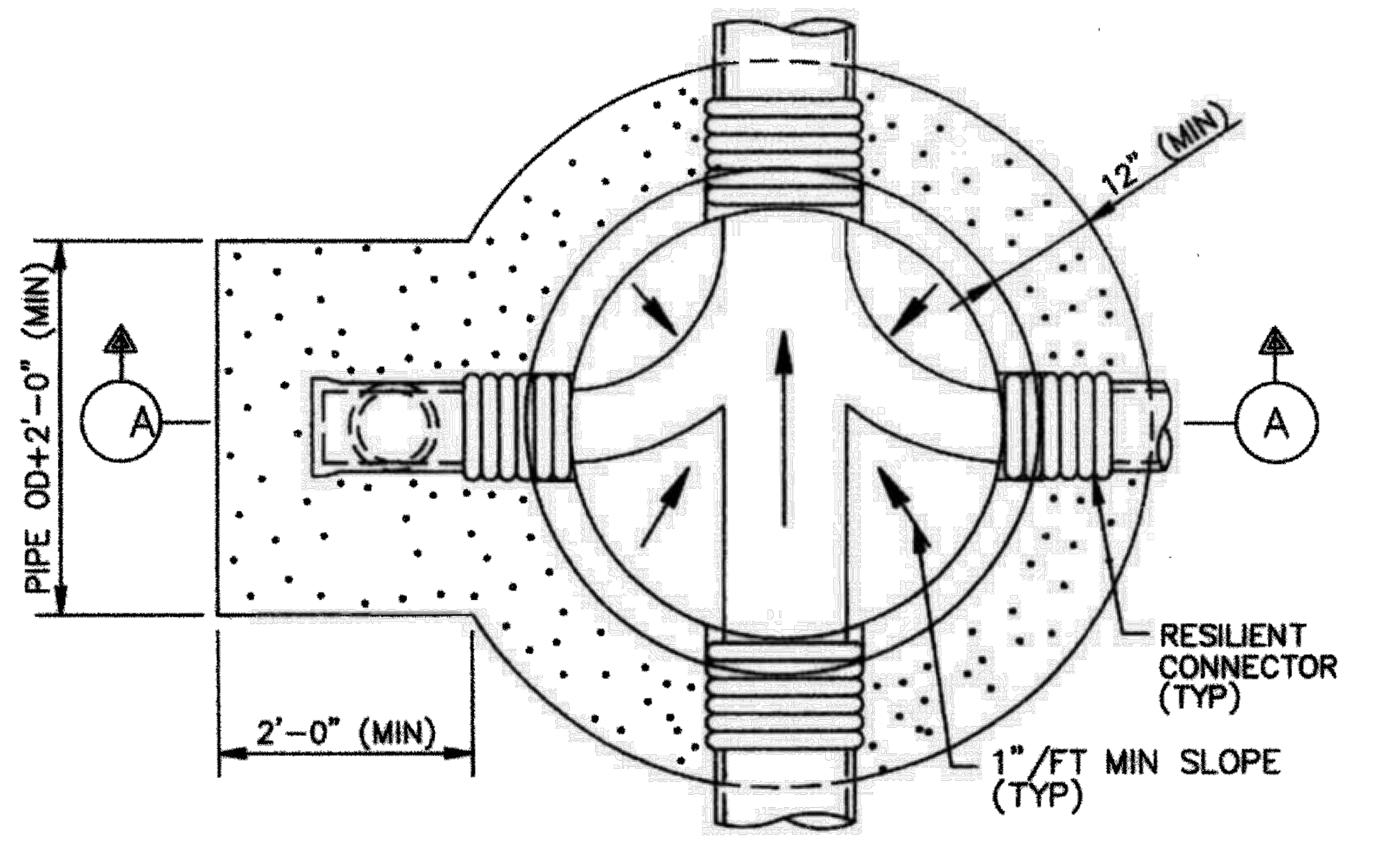
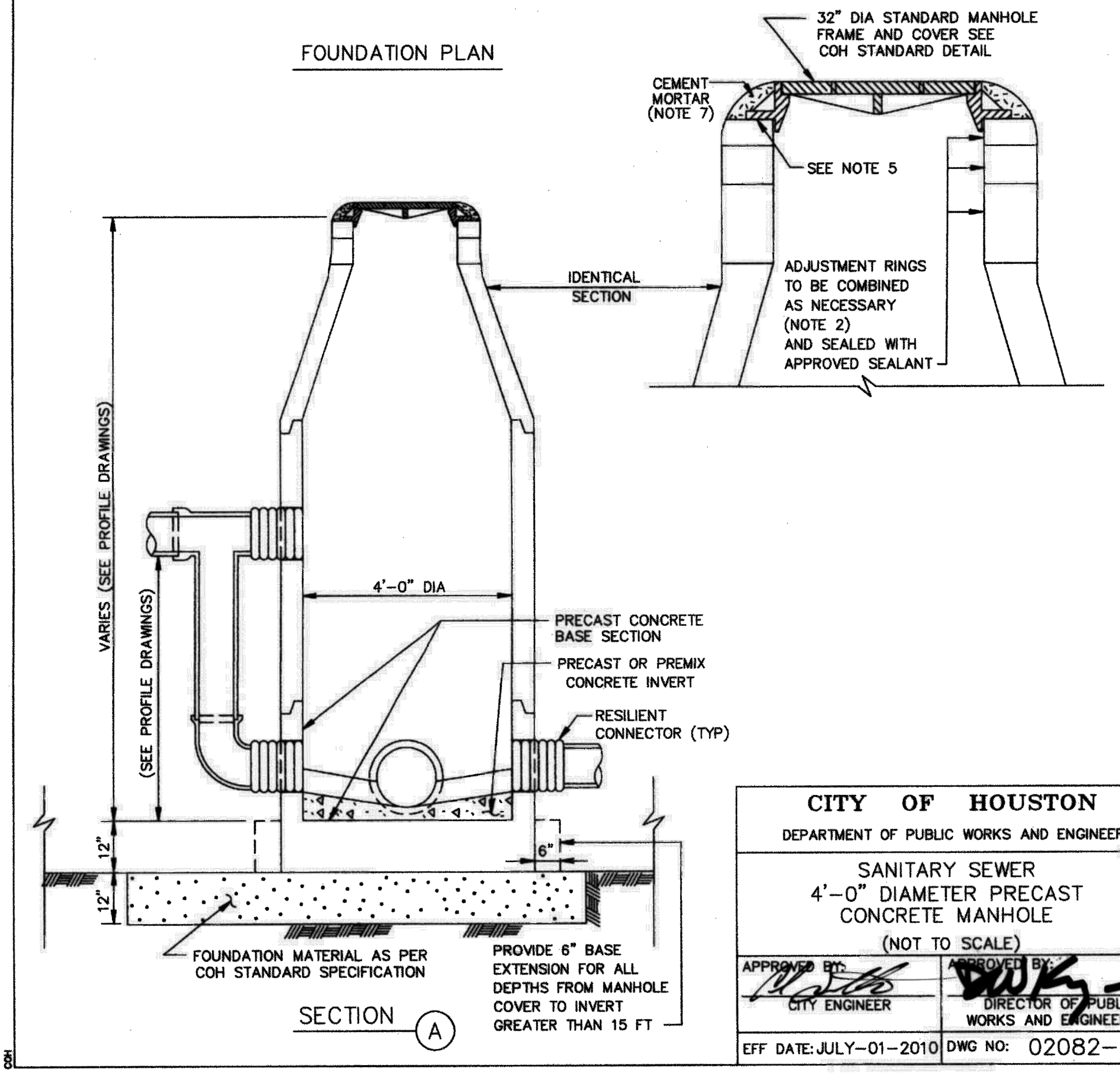

PIPE OD+2'-0" (MIN)
A
A
12" (MIN)
RESILIENT CONNECTOR (TYP)
1"/FT MIN SLOPE (TYP)
2'-0" (MIN)

FOUNDATION PLAN

NOTES:

1. DEPTH OF MANHOLE DETERMINES SECTIONS REQUIRED.
2. PRECAST CONCRETE RINGS SHALL BE PROVIDED FOR A COMBINED ADJUSTMENT HEIGHT OF AT LEAST 12". THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 1'-6".
3. MANHOLE WALL THICKNESS FOR DEPTH EXCEEDING 12'-0" SHALL BE DETERMINED TO MEET LOADING CONDITIONS. MIN THICKNESS 5".
4. MANHOLE DROP AND INTERSECTING PIPES SHALL BE INSTALLED ONLY WHEN CALLED FOR IN PLAN AND PROFILE DRAWING.
5. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
6. ECCENTRIC PRECAST CONCRETE MANHOLE MAY BE USED.
7. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREAS.
8. MIN REINFORCING IN THE PRECAST CONCRETE BASE SHALL BE # 5 @ 8 EW.


32" DIA STANDARD MANHOLE FRAME AND COVER SEE COH STANDARD DETAIL
CEMENT MORTAR (NOTE 7)
SEE NOTE 5
IDENTICAL SECTION
ADJUSTMENT RINGS TO BE COMBINED AS NECESSARY (NOTE 2) AND SEALED WITH APPROVED SEALANT
VARIES (SEE PROFILE DRAWINGS)
(SEE PROFILE DRAWINGS)
4'-0" DIA
PRECAST CONCRETE BASE SECTION
PRECAST OR PREMIX CONCRETE INVERT
RESILIENT CONNECTOR (TYP)
12"
12"
6"
FOUNDATION MATERIAL AS PER COH STANDARD SPECIFICATION
PROVIDE 6" BASE EXTENSION FOR ALL DEPTHS FROM MANHOLE COVER TO INVERT GREATER THAN 15 FT

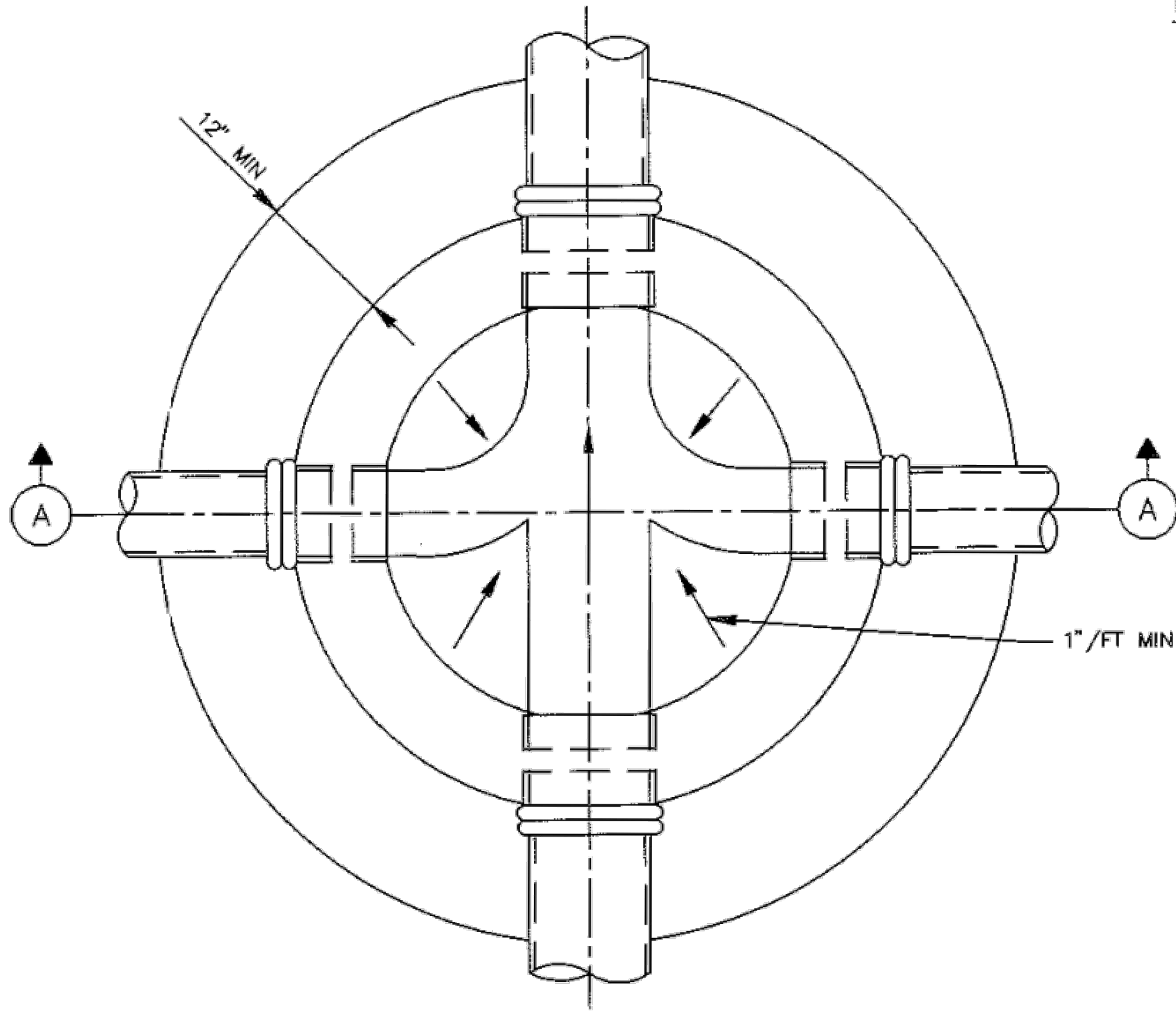
SECTION (A)

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SANITARY SEWER
4'-0" DIAMETER PRECAST
CONCRETE MANHOLE
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010	DWG NO: 02082-02

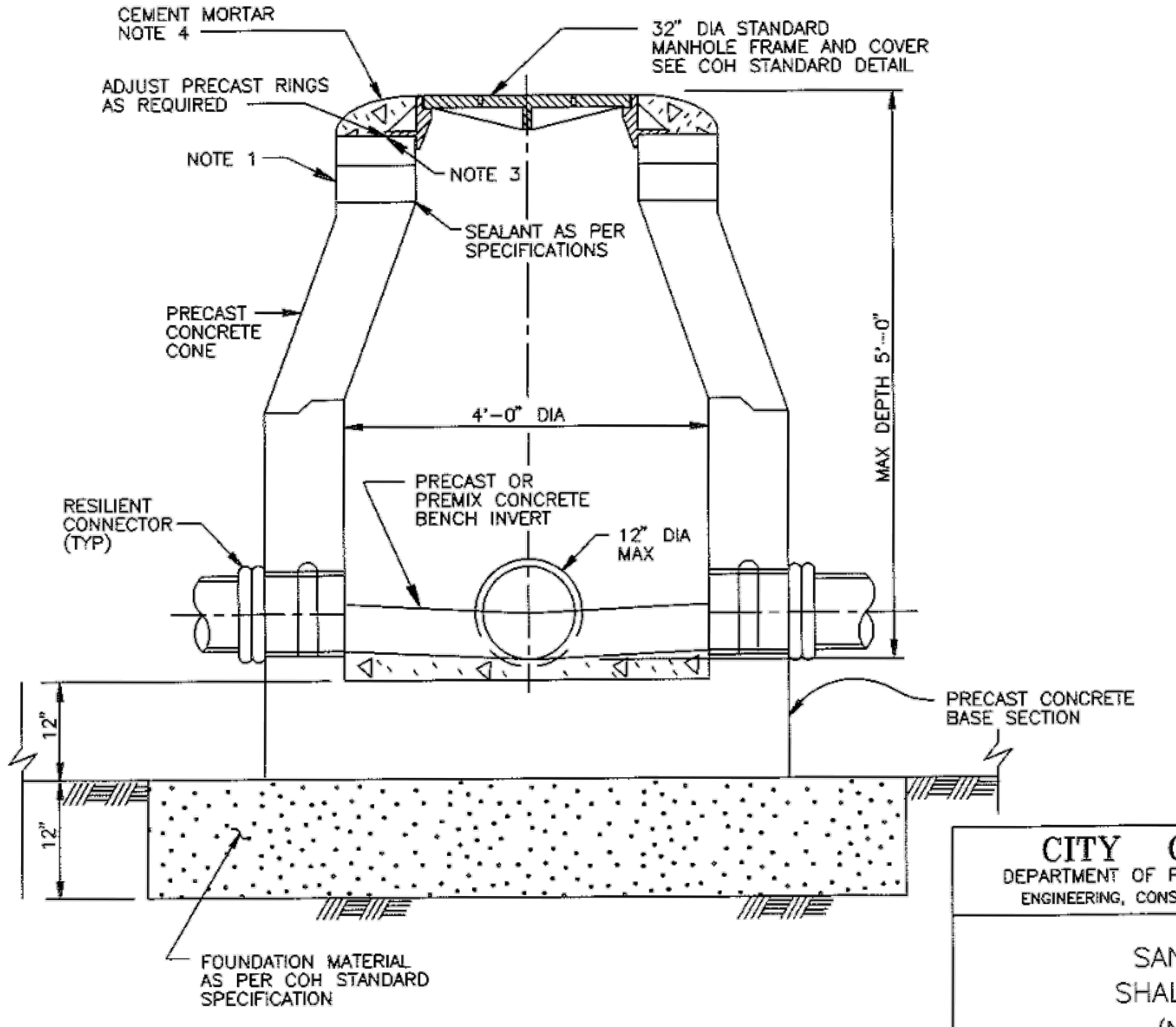
COH


12" MIN
A
A
1"/FT MIN SLOPE (TYP)

FOUNDATION PLAN

NOTES:

1. A MINIMUM OF 3" PRECAST CONCRETE OR HDPE ADJUSTMENT RING SHALL BE PROVIDED. THE TOTAL HEIGHT OF THE ADJUSTMENT RINGS SHALL NOT EXCEED 12".
2. MANHOLE INTERSECTING PIPES SHALL BE INSTALLED ONLY WHEN CALLED FOR IN PLAN AND PROFILE DRAWING.
3. SEAT MANHOLE FRAME IN SEALANT PER COH STANDARD SPECIFICATION.
4. OMIT CEMENT MORTAR WHEN MANHOLE IS LOCATED IN PAVED AREAS.
5. MINIMUM REINFORCING IN THE BASE BE # 5 @ 8 EW.
6. PROVIDE BACKFILL MATERIAL AS PER COH STANDARD SPECIFICATION.


CEMENT MORTAR NOTE 4
32" DIA STANDARD MANHOLE FRAME AND COVER SEE COH STANDARD DETAIL
ADJUST PRECAST RINGS AS REQUIRED
NOTE 1
NOTE 3
SEALANT AS PER SPECIFICATIONS
PRECAST CONCRETE CONE
MAX DEPTH 5'-0"
4'-0" DIA
PRECAST OR PREMIX CONCRETE BENCH INVERT
12" DIA MAX
RESILIENT CONNECTOR (TYP)
PRECAST CONCRETE BASE SECTION
12"
12"
FOUNDATION MATERIAL AS PER COH STANDARD SPECIFICATION

SECTION (A)

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
SHALLOW MANHOLE
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02082-01

COH

No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAIL

SHEET 5 OF 6

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 208 OF 345

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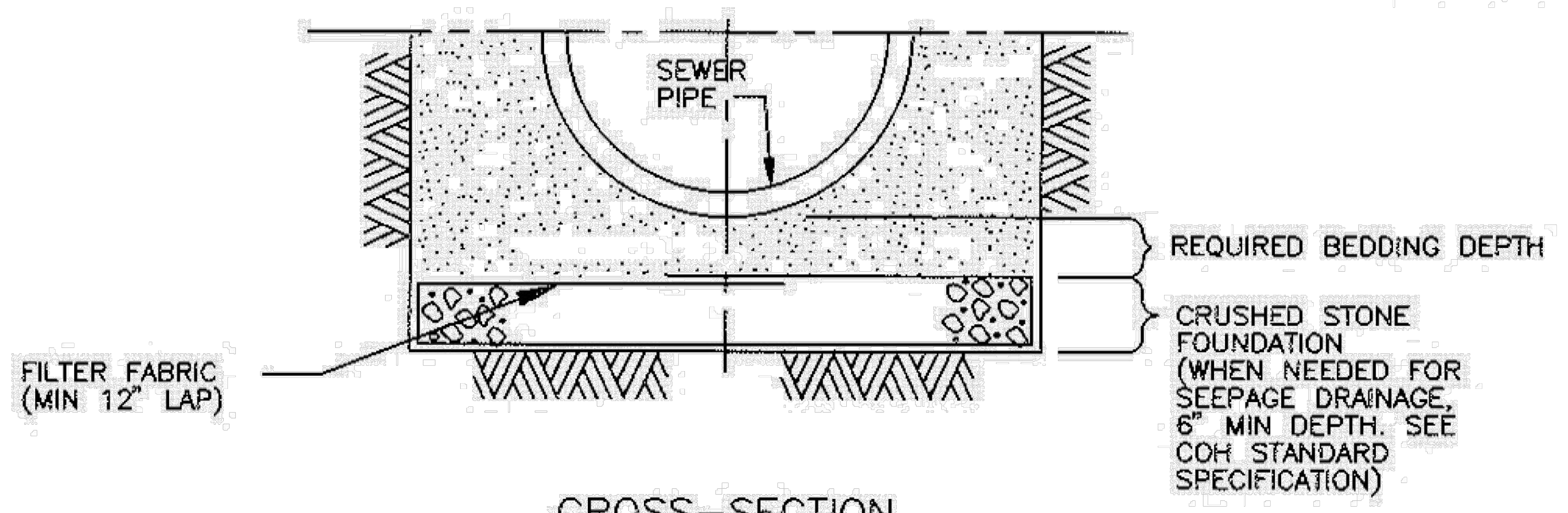
j:\2021\210601.01\cad\dwgs\sheets\11 - water & sanitary sewer standards\sanitary standard 09.dwg Plotted April 15, 2026 at 6:48 PM by Alobaidi, Ahmed

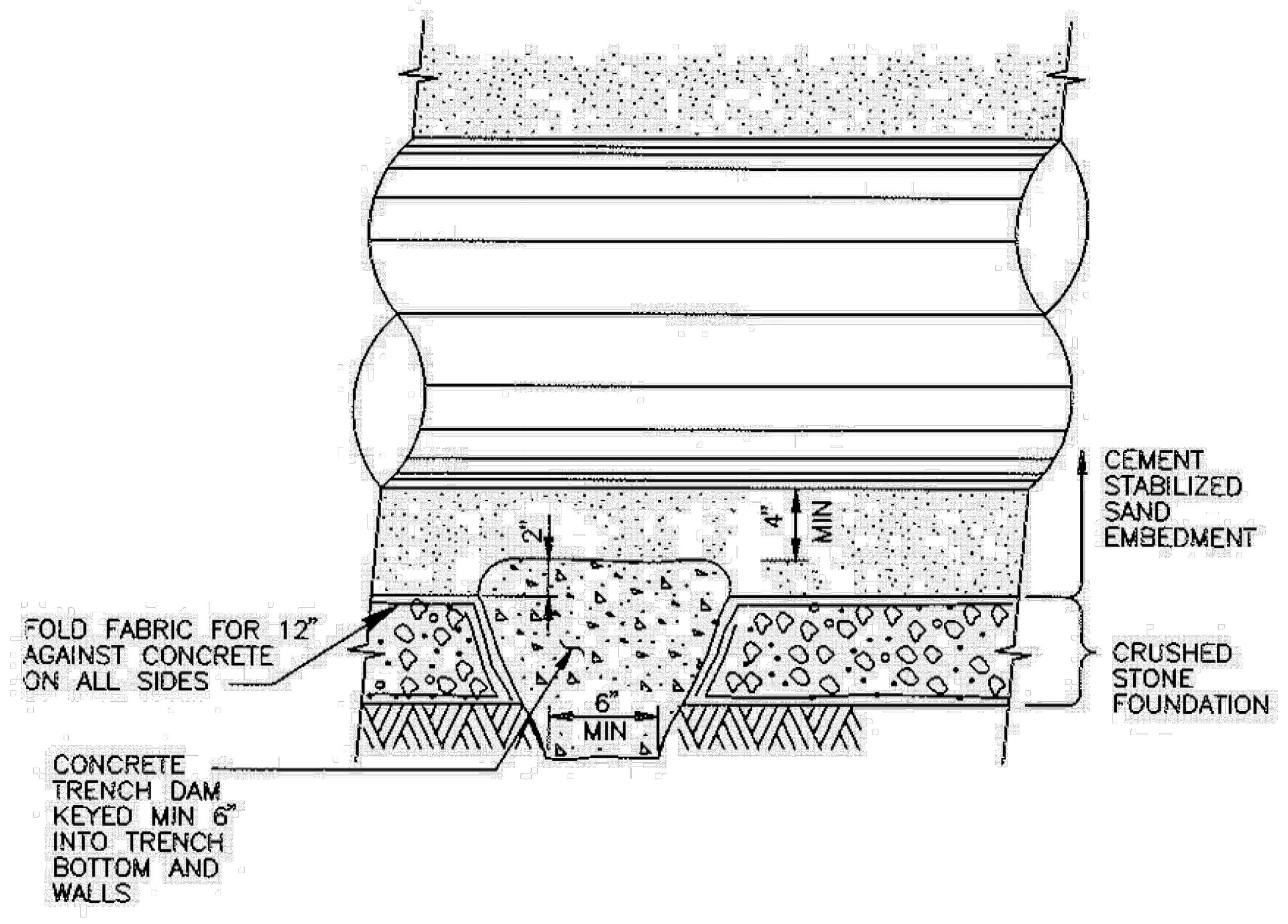
No.	Date	Revisions	App.

NOTES:

1. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR IN FIELD, MEETING MINIMUM THICKNESS AND KEY DEPTH REQUIREMENTS.
2. THIS DETAIL SHALL BE USED WITH CEMENT STABILIZED SAND EMBEDMENT, OR OTHER CLASS II EMBEDMENT, IN WET STABLE TRENCH CONDITIONS.
3. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.


SEWER PIPE
REQUIRED BEDDING DEPTH
CRUSHED STONE FOUNDATION (WHEN NEEDED FOR SEEPAGE DRAINAGE, 6" MIN DEPTH. SEE COH STANDARD SPECIFICATION)
FILTER FABRIC (MIN 12" LAP)

CROSS-SECTION
OF CRUSHED STONE FOUNDATION


CEMENT STABILIZED SAND EMBEDMENT
4" MIN
2"
6"
MIN
CRUSHED STONE FOUNDATION
FOLD FABRIC FOR 12" AGAINST CONCRETE ON ALL SIDES
CONCRETE TRENCH DAM KEYED MIN 6" INTO TRENCH BOTTOM AND WALLS

LONGITUDINAL SECTION ALONG PIPE ℄
AT FOUNDATION TRENCH DAM

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY OR STORM SEWER
CRUSHED STONE FOUNDATION
FOR WET STABLE TRENCH

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02317-02

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SANITARY STANDARD DETAILS

SHEET 6 OF 6

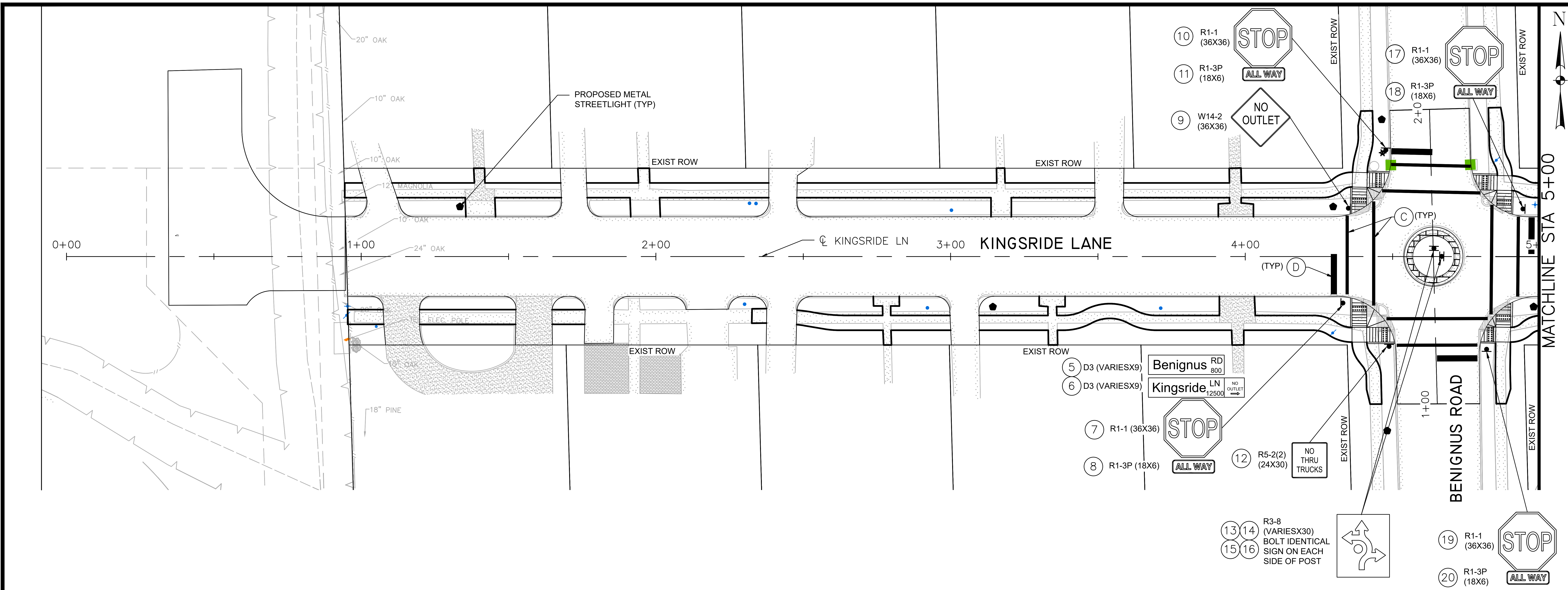
WBS NO. M-430296-0017-3

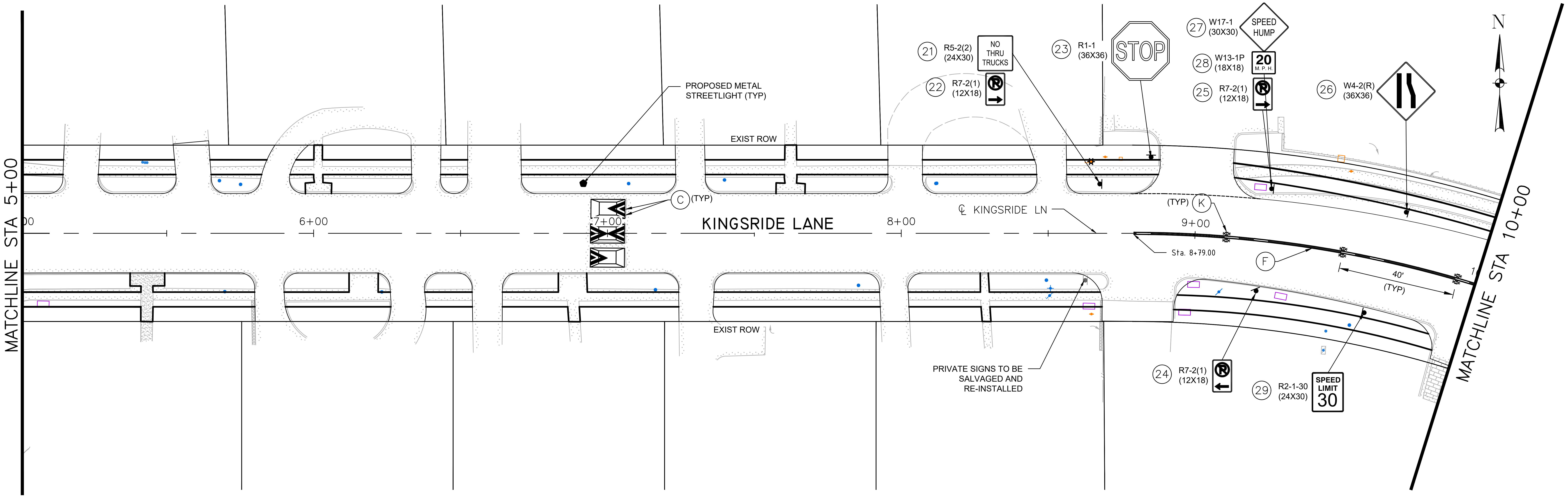
DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 209 OF 345


20" OAK
10" OAK
10" OAK
12" MAGNOLIA
10" OAK
24" OAK
18" PINE
ELEC. POLE
PROPOSED METAL STREETLIGHT (TYP)
EXIST ROW
EXIST ROW
EXIST ROW
EXIST ROW
0+00
1+00
2+00
℄ KINGSRIDE LN
3+00
KINGSRIDE LANE
4+00
(TYP) D
C (TYP)
2+00
1+00
BENIGNUS ROAD
EXIST ROW
EXIST ROW
EXIST ROW
EXIST ROW
MATCHLINE STA 5+00
N
10 R1-1 (36X36)
STOP
11 R1-3P (18X6)
ALL WAY
9 W14-2 (36X36)
NO OUTLET
17 R1-1 (36X36)
STOP
18 R1-3P (18X6)
ALL WAY
5 D3 (VARIESX9)
Benignus RD 800
6 D3 (VARIESX9)
Kingsride LN 12500 NO OUTLET
7 R1-1 (36X36)
STOP
8 R1-3P (18X6)
ALL WAY
12 R5-2(2) (24X30)
NO THRU TRUCKS
13 14 15 16 R3-8 (VARIESX30) BOLT IDENTICAL SIGN ON EACH SIDE OF POST
19 R1-1 (36X36)
STOP
20 R1-3P (18X6)
ALL WAY


MATCHLINE STA 5+00
PROPOSED METAL STREETLIGHT (TYP)
EXIST ROW
C (TYP)
6+00
7+00
KINGSRIDE LANE
8+00
℄ KINGSRIDE LN
(TYP) K
9+00
Sta. 8+79.00
F
40' (TYP)
EXIST ROW
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
MATCHLINE STA 10+00
N
21 R5-2(2) (24X30)
NO THRU TRUCKS
22 R7-2(1) (12X18)
23 R1-1 (36X36)
STOP
27 W17-1 (30X30)
SPEED HUMP
28 W13-1P (18X18)
20 M.P.H.
25 R7-2(1) (12X18)
26 W4-2(R) (36X36)
24 R7-2(1) (12X18)
29 R2-1-30 (24X30)
SPEED LIMIT 30

LEGEND

Ⓐ	PAV MRK: WB4–C40
Ⓑ	PAV MRK: WS6–C20
Ⓒ	PAV MRK: WS12
Ⓓ	PAV MRK: WS24
Ⓔ	PAV MRK: YDS4–A20/A20
Ⓕ	PAV MRK: YDS4–A40/A40
Ⓗ	PAV MRK: ARROW (W)
Ⓘ	PAV MRK: "ONLY" (W)
Ⓙ	RAIS PAV MRK: TYPE I–C
Ⓚ	RAIS PAV MRK: TYPE II–A–A
Ⓛ	MEDIAN NOSE PAINT (Y)

No.	Revisions	Date	App.

NOTES:

1. REFER TO SUMMARY OF SMALL SIGNS FOR ADDITIONAL INFORMATION.
2. REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
3. 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.
4. 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.
5. CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POSTS, AND HARDWARE AS SHOWN ON THE PLANS AND STANDARD DETAILS.
6. REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.
7. STYLE OF STREET NAME SIGNS SHALL MATCH EXISTING.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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4/15/2026
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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
SIGNING & PVMT MARKING PLAN
KINGSRIDE LANE
BEGIN PROJECT TO STA 10+00

SHEET 1 OF 7

WBS NO. M–430296–0017–3

DRAWING SCALE

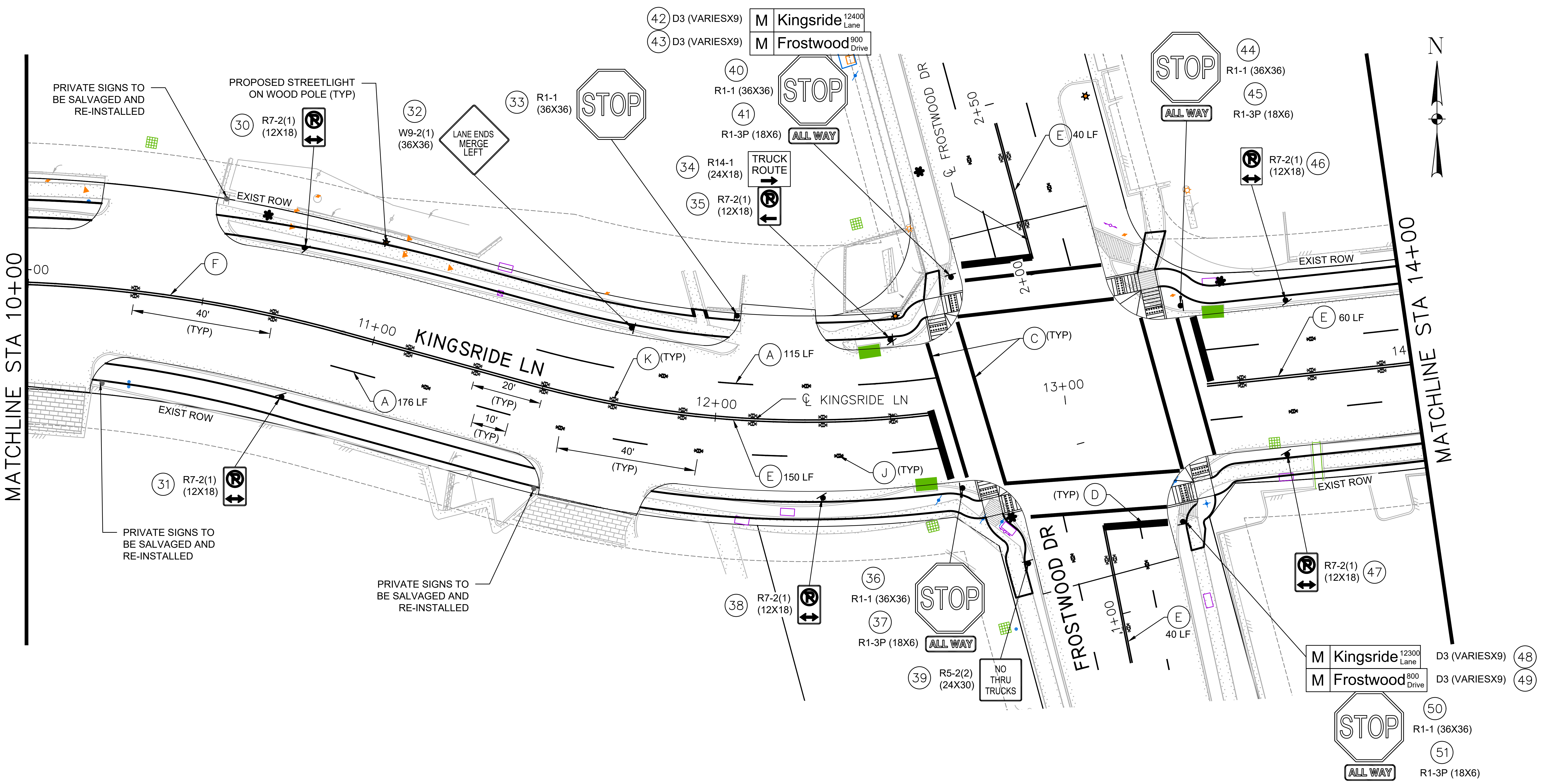
H: 1"=20' (22'X34')

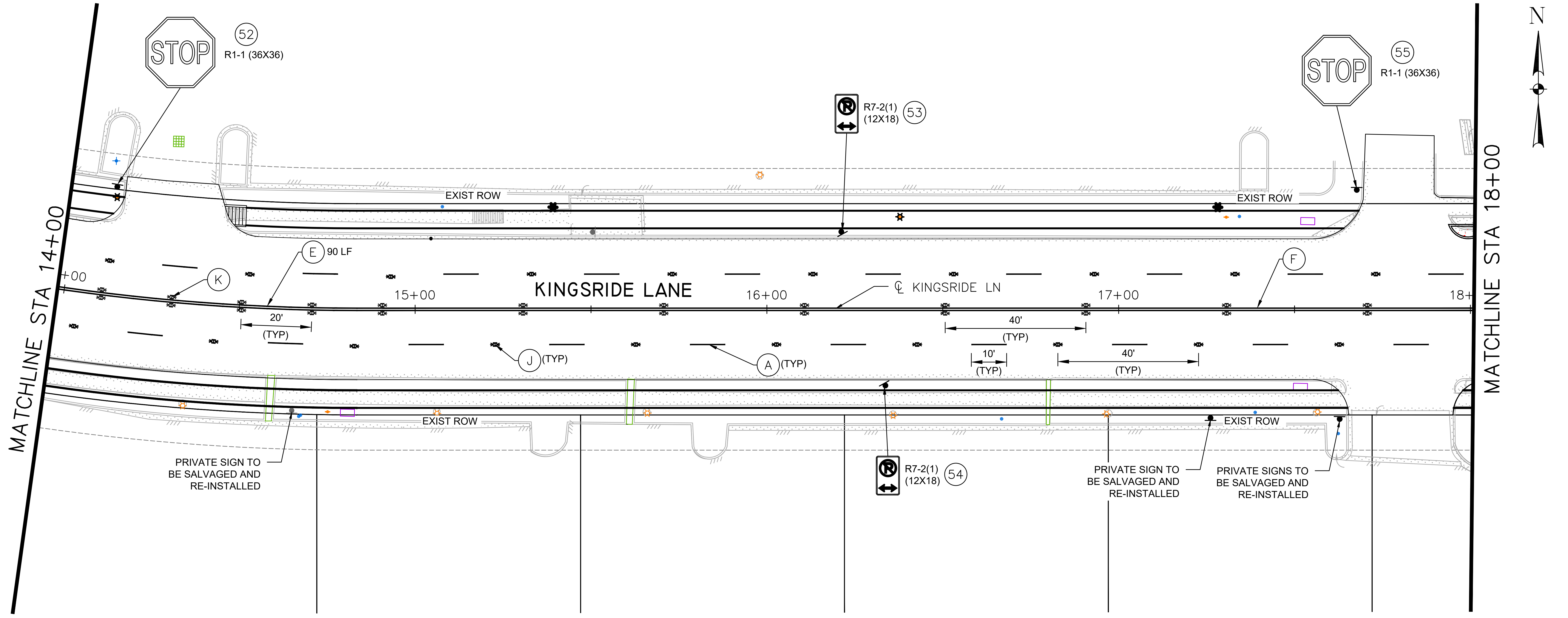
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 210 OF 345

j:\2021\210601.01\cad\dwgs\sheets\12 – signing & pavement marking plans\c–pvmk–01_kingsride ln.dwg Plotted April 15, 2026 at 3:47 PM by Gawali, Ajinkya Ashok j:\2021\210601.01\cad\dwgs\sheets\12 - signing & pavement marking plans\c-pvmk-02_kingsride ln.dwg Plotted April 15, 2026 at 3:49 PM by Gowali, Ajinkya Ashok


42 D3 (VARIESX9) M Kingsride 12400 Lane
43 D3 (VARIESX9) M Frostwood 900 Drive
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
PROPOSED STREETLIGHT ON WOOD POLE (TYP)
30 R7-2(1) (12X18)
32 W9-2(1) (36X36)
LANE ENDS MERGE LEFT
33 R1-1 (36X36)
STOP
40 R1-1 (36X36)
41 R1-3P (18X6)
ALL WAY
34 R14-1 (24X18)
TRUCK ROUTE
35 R7-2(1) (12X18)
44 R1-1 (36X36)
45 R1-3P (18X6)
46 R7-2(1) (12X18)
N
E 40 LF
E 60 LF
C (TYP)
13+00
2+50
2+00
℄ FROSTWOOD DR
EXIST ROW
MATCHLINE STA 10+00
MATCHLINE STA 14+00
F
40' (TYP)
11+00
KINGSRIDE LN
12+00
℄ KINGSRIDE LN
K (TYP)
A 115 LF
A 176 LF
20' (TYP)
10' (TYP)
40' (TYP)
E 150 LF
J (TYP)
31 R7-2(1) (12X18)
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
(TYP) D
FROSTWOOD DR
1+00
E 40 LF
47 R7-2(1) (12X18)
38 R7-2(1) (12X18)
36 R1-1 (36X36)
37 R1-3P (18X6)
ALL WAY
39 R5-2(2) (24X30)
NO THRU TRUCKS
M Kingsride 12300 Lane D3 (VARIESX9) 48
M Frostwood 800 Drive D3 (VARIESX9) 49
50 R1-1 (36X36)
51 R1-3P (18X6)
ALL WAY


STOP
52 R1-1 (36X36)
R7-2(1) (12X18) 53
STOP
55 R1-1 (36X36)
N
EXIST ROW
EXIST ROW
MATCHLINE STA 14+00
MATCHLINE STA 18+00
E 90 LF
K
15+00
KINGSRIDE LANE
16+00
℄ KINGSRIDE LN
17+00
18+
F
20' (TYP)
40' (TYP)
10' (TYP)
40' (TYP)
J (TYP)
A (TYP)
EXIST ROW
EXIST ROW
PRIVATE SIGN TO BE SALVAGED AND RE-INSTALLED
R7-2(1) (12X18) 54
PRIVATE SIGN TO BE SALVAGED AND RE-INSTALLED
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED

App
Revisions
Date
No.

LEGEND

A	PAV MRK: WB4-C40
B	PAV MRK: WS6-C20
C	PAV MRK: WS12
D	PAV MRK: WS24
E	PAV MRK: YDS4-A20/A20
F	PAV MRK: YDS4-A40/A40
H	PAV MRK: ARROW (W)
I	PAV MRK: "ONLY" (W)
J	RAIS PAV MRK: TYPE I-C
K	RAIS PAV MRK: TYPE II-A-A
L	MEDIAN NOSE PAINT (Y)

NOTES:

1. REFER TO SUMMARY OF SMALL SIGNS FOR ADDITIONAL INFORMATION.
2. REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
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5. CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POSTS, AND HARDWARE AS SHOWN ON THE PLANS AND STANDARD DETAILS.
6. REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.
7. STYLE OF STREET NAME SIGNS SHALL MATCH EXISTING.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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SURVEYED BY: UNITED ENGINEERS, INC.

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4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
KINGSRIDE LANE
STA 10+00 TO STA 18+00

SHEET 2 OF 7

WBS NO. M-430296-0017-3

DRAWING SCALE

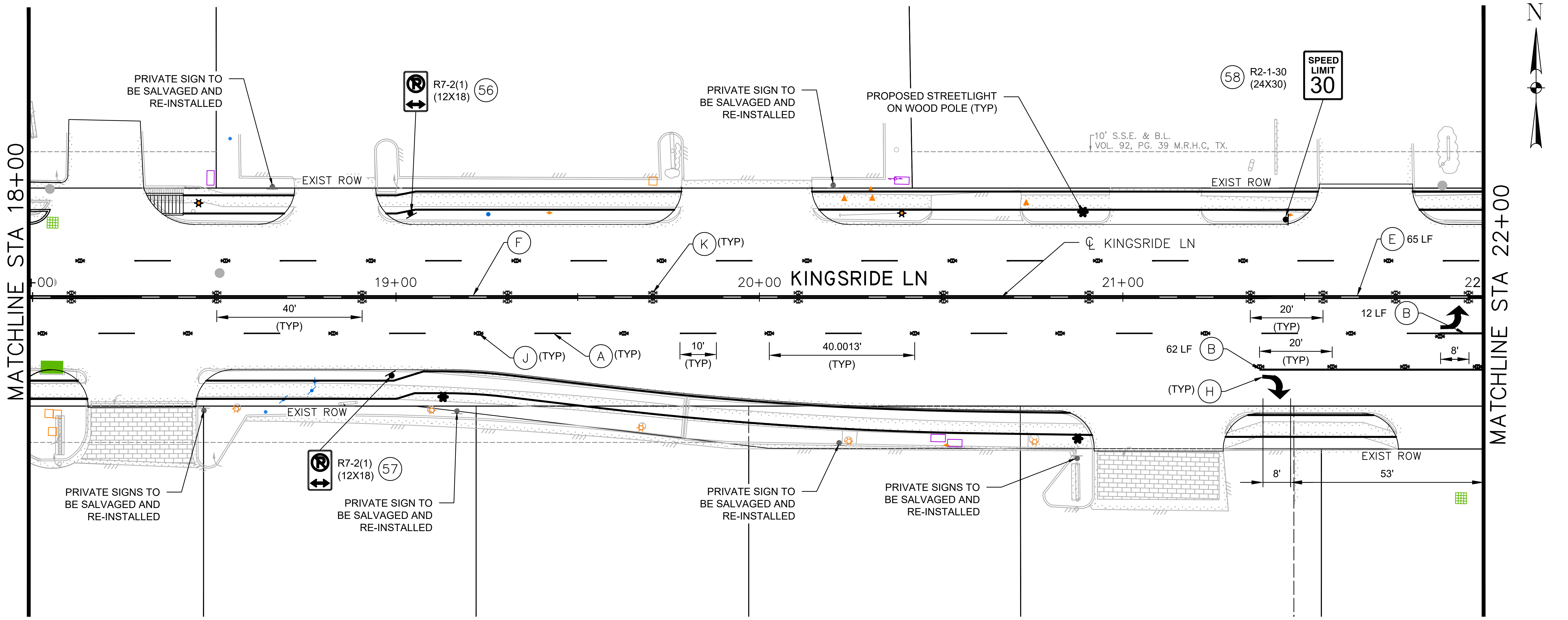
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

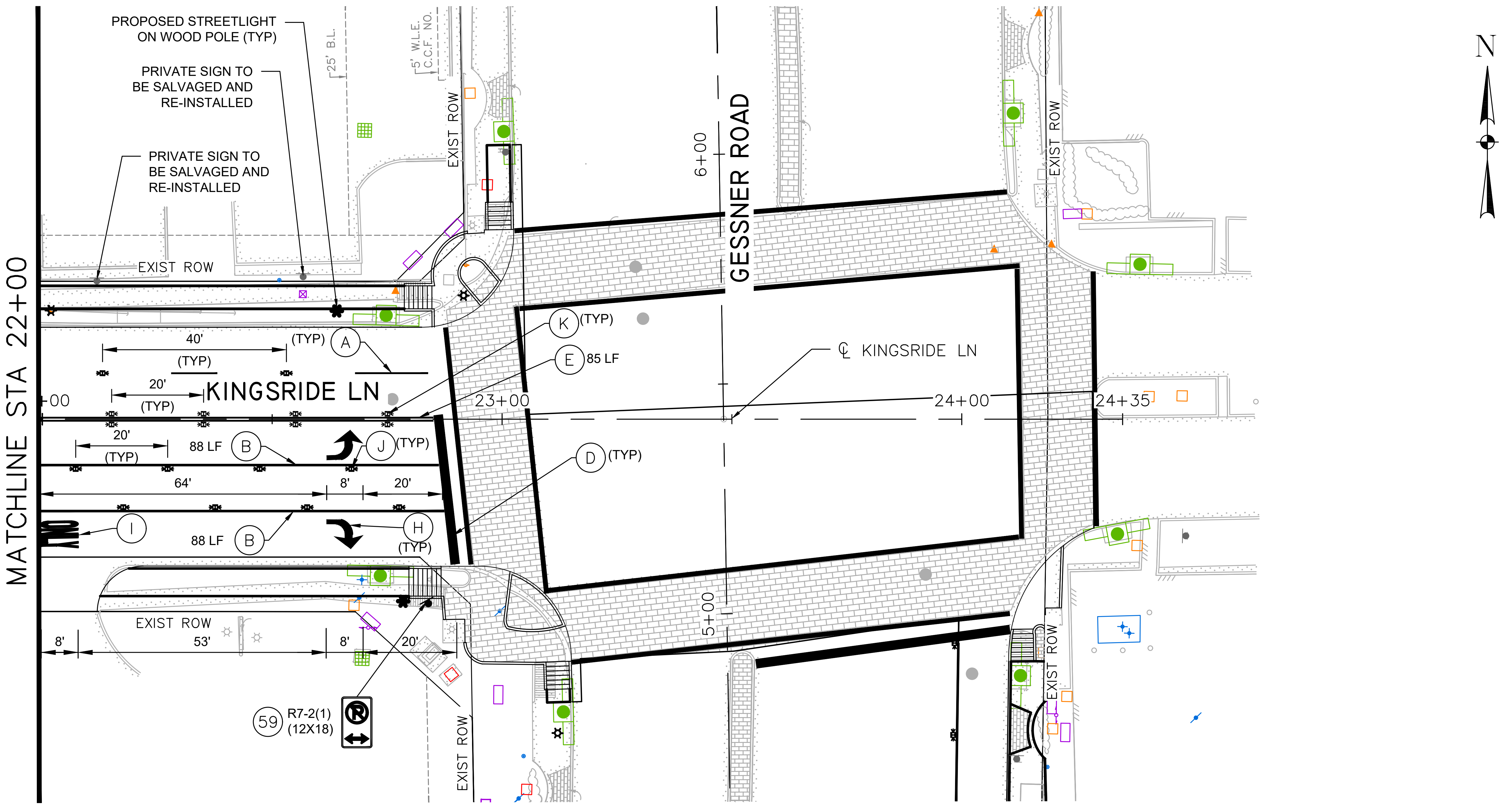
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 211 OF 345

j:\2021\210601.01\cad\dwgs\sheets\12 - signing & pavement marking plans\c-pvmk-03_kingsride ln.dwg Plotted April 15, 2026 at 3:48 PM by Gowali, Ajinkya Ashok


MATCHLINE STA 18+00
MATCHLINE STA 22+00
KINGSRIDE LN
℄ KINGSRIDE LN
19+00
20+00
21+00
N
PRIVATE SIGN TO BE SALVAGED AND RE-INSTALLED
R7-2(1) (12X18) 56
PROPOSED STREETLIGHT ON WOOD POLE (TYP)
58 R2-1-30 (24X30)
SPEED LIMIT 30
10' S.S.E. & B.L. VOL. 92, PG. 39 M.R.H.C, TX.
EXIST ROW
F
K (TYP)
E 65 LF
40' (TYP)
J (TYP)
A (TYP)
10' (TYP)
40.0013' (TYP)
20' (TYP)
12 LF B
62 LF B
(TYP) H
8'
53'
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
R7-2(1) (12X18) 57


MATCHLINE STA 22+00
KINGSRIDE LN
℄ KINGSRIDE LN
GESSNER ROAD
6+00
5+00
23+00
24+00
24+35
N
PROPOSED STREETLIGHT ON WOOD POLE (TYP)
PRIVATE SIGN TO BE SALVAGED AND RE-INSTALLED
25' B.L.
5' W.L.E. C.C.F. NO.
EXIST ROW
40' (TYP)
(TYP) A
20' (TYP)
K (TYP)
E 85 LF
20' (TYP)
88 LF B
J (TYP)
64'
8'
20'
D (TYP)
I
88 LF B
H (TYP)
53'
59 R7-2(1) (12X18)

LEGEND

- Ⓐ PAV MRK: WB4–C40
- Ⓑ PAV MRK: WS6–C20
- Ⓒ PAV MRK: WS12
- Ⓓ PAV MRK: WS24
- Ⓔ PAV MRK: YDS4–A20/A20
- Ⓕ PAV MRK: YDS4–A40/A40
- Ⓗ PAV MRK: ARROW (W)
- Ⓘ PAV MRK: "ONLY" (W)
- Ⓙ RAIS PAV MRK: TYPE I–C
- Ⓚ RAIS PAV MRK: TYPE II–A–A
- Ⓛ MEDIAN NOSE PAINT (Y)

No.	Revisions	Date	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
KINGSRIDE LANE
STA 18+00 TO END PROJECT

SHEET 3 OF 7

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 212 OF 345

No.	Date	Revisions	App.

LEGEND

Ⓐ	PAV MRK: WB4–C40
Ⓑ	PAV MRK: WS6–C20
Ⓒ	PAV MRK: WS12
Ⓓ	PAV MRK: WS24
Ⓔ	PAV MRK: YDS4–A20/A20
Ⓕ	PAV MRK: YDS4–A40/A40
Ⓗ	PAV MRK: ARROW (W)
Ⓘ	PAV MRK: "ONLY" (W)
Ⓙ	RAIS PAV MRK: TYPE I–C
Ⓚ	RAIS PAV MRK: TYPE II–A–A
Ⓛ	MEDIAN NOSE PAINT (Y)

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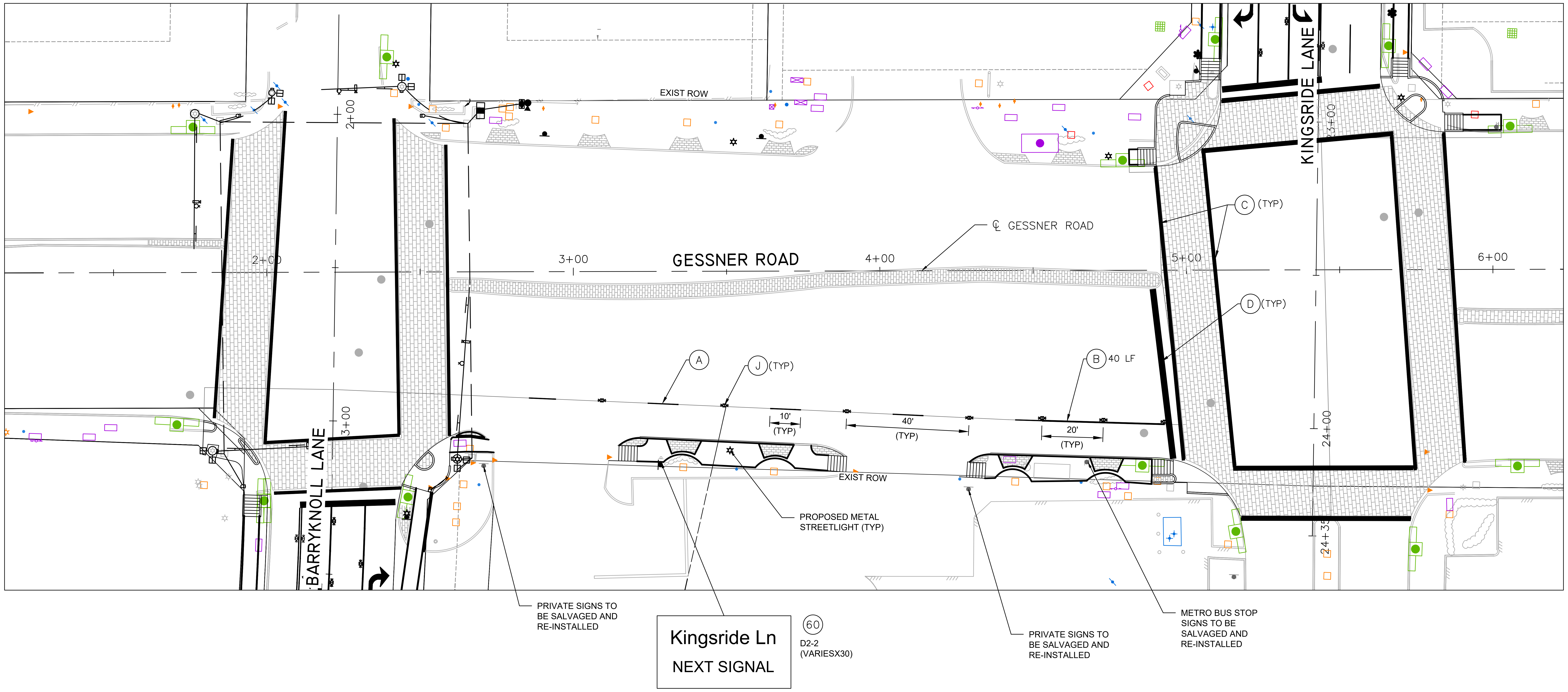
EXIST ROW
2+00
3+00
GESSNER ROAD
℄ GESSNER ROAD
4+00
5+00
6+00
KINGSRIDE LANE
23+00
24+00
24+35
BARRYKNOLL LANE
2+00
3+00
C (TYP)
D (TYP)
A
J (TYP)
B 40 LF
10' (TYP)
40' (TYP)
20' (TYP)
EXIST ROW
PROPOSED METAL STREETLIGHT (TYP)
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
Kingsride Ln
NEXT SIGNAL
60
D2-2 (VARIESX30)
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
METRO BUS STOP SIGNS TO BE SALVAGED AND RE-INSTALLED

N

10 0 10 20

(IN FEET)
1 INCH = 20 FEET

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
SIGNING & PVMT MARKING PLAN
GESSNER ROAD
BEGIN PROJECT TO END PROJET

SHEET 4 OF 7

WBS NO. M–430296–0017–3

DRAWING SCALE

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H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 213 OF 345

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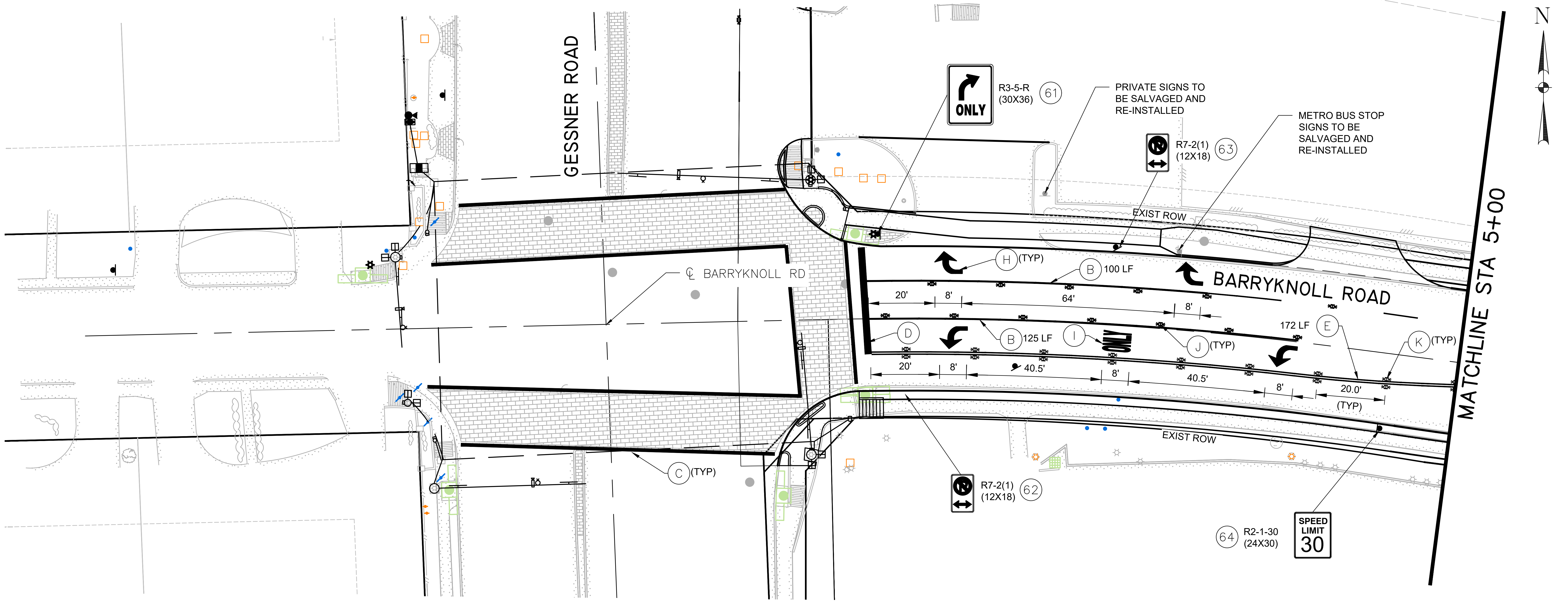
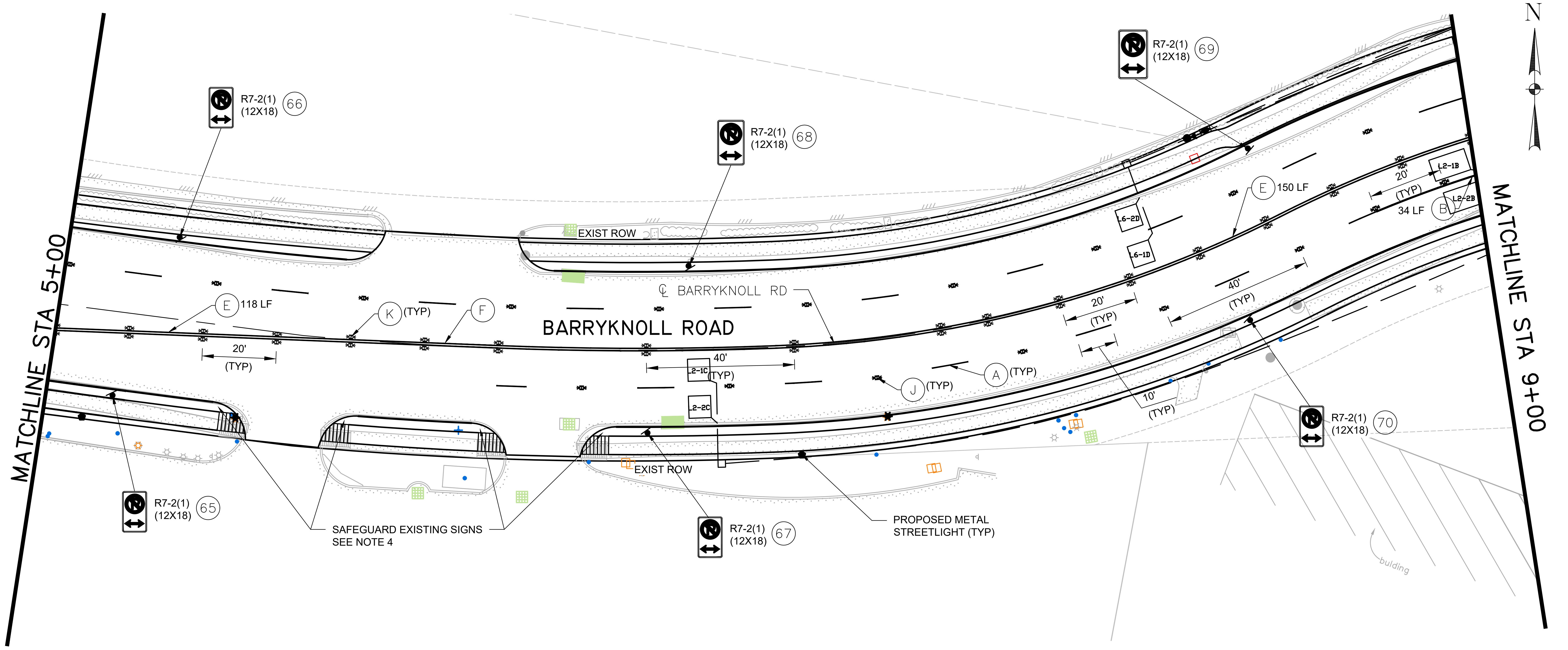


GESSNER ROAD
℄ BARRYKNOLL RD
BARRYKNOLL ROAD
MATCHLINE STA 5+00
N
ONLY
R3-5-R (30X36) 61
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
R7-2(1) (12X18) 63
METRO BUS STOP SIGNS TO BE SALVAGED AND RE-INSTALLED
EXIST ROW
H (TYP)
B 100 LF
20'
8'
64'
8'
172 LF E
K (TYP)
D
B 125 LF
I
J (TYP)
20'
8'
40.5'
8'
40.5'
8'
20.0' (TYP)
EXIST ROW
C (TYP)
R7-2(1) (12X18) 62
64 R2-1-30 (24X30)
SPEED LIMIT 30



N
R7-2(1) (12X18) 66
R7-2(1) (12X18) 68
R7-2(1) (12X18) 69
EXIST ROW
℄ BARRYKNOLL RD
BARRYKNOLL ROAD
MATCHLINE STA 5+00
MATCHLINE STA 9+00
E 118 LF
K (TYP)
F
20' (TYP)
40' (TYP)
L2-1C
L2-2C
E 150 LF
20' (TYP)
34 LF B
L2-1B
L2-2B
L6-2D
L6-1D
20' (TYP)
40' (TYP)
J (TYP)
A (TYP)
10' (TYP)
EXIST ROW
R7-2(1) (12X18) 65
SAFEGUARD EXISTING SIGNS SEE NOTE 4
R7-2(1) (12X18) 67
PROPOSED METAL STREETLIGHT (TYP)
R7-2(1) (12X18) 70
building

No.	Date	Revisions	App.

LEGEND

Ⓐ	PAV MRK: WB4–C40
Ⓑ	PAV MRK: WS6–C20
Ⓒ	PAV MRK: WS12
Ⓓ	PAV MRK: WS24
Ⓔ	PAV MRK: YDS4–A20/A20
Ⓕ	PAV MRK: YDS4–A40/A40
Ⓗ	PAV MRK: ARROW (W)
Ⓘ	PAV MRK: "ONLY" (W)
Ⓙ	RAIS PAV MRK: TYPE I–C
Ⓚ	RAIS PAV MRK: TYPE II–A–A
Ⓛ	MEDIAN NOSE PAINT (Y)

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10 0 10 20
(IN FEET)
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
BARRYKNOLL LANE
BEGIN PROJECT TO STA 9+00

SHEET 5 OF 7

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 214 OF 345

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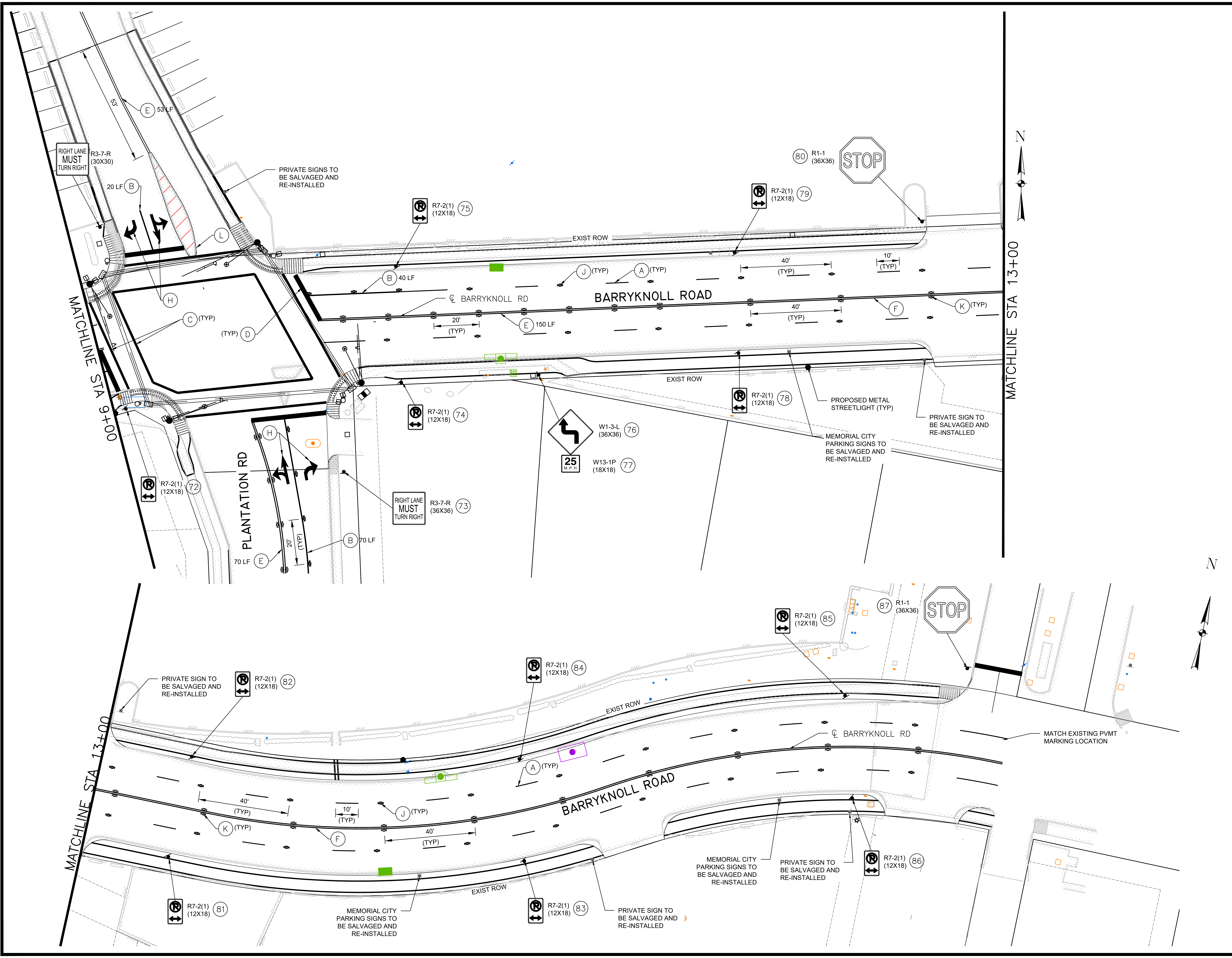

RIGHT LANE MUST TURN RIGHT
R3-7-R (30X30)
E 53 LF
53'
20 LF B
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
R7-2(1) (12X18) 75
R7-2(1) (12X18) 79
80 R1-1 (36X36)
STOP
EXIST ROW
L
B 40 LF
J (TYP)
A (TYP)
40' (TYP)
10' (TYP)
H
℄ BARRYKNOLL RD
BARRYKNOLL ROAD
C (TYP)
(TYP) D
20' (TYP)
E 150 LF
40' (TYP)
F
K (TYP)
MATCHLINE STA 13+00
MATCHLINE STA 9+00
EXIST ROW
R7-2(1) (12X18) 74
W1-3-L (36X36) 76
25 M.P.H.
W13-1P (18X18) 77
R7-2(1) (12X18) 78
PROPOSED METAL STREETLIGHT (TYP)
MEMORIAL CITY PARKING SIGNS TO BE SALVAGED AND RE-INSTALLED
PRIVATE SIGN TO BE SALVAGED AND RE-INSTALLED
H
PLANTATION RD
R7-2(1) (12X18) 72
RIGHT LANE MUST TURN RIGHT
R3-7-R (36X36) 73
B 70 LF
70 LF E
20' (TYP)
N
R7-2(1) (12X18) 85
87 R1-1 (36X36)
STOP
PRIVATE SIGN TO BE SALVAGED AND RE-INSTALLED
R7-2(1) (12X18) 82
R7-2(1) (12X18) 84
EXIST ROW
℄ BARRYKNOLL RD
MATCH EXISTING PVMT MARKING LOCATION
MATCHLINE STA 13+00
A (TYP)
BARRYKNOLL ROAD
40' (TYP)
10' (TYP)
J (TYP)
K (TYP)
F
40' (TYP)
MEMORIAL CITY PARKING SIGNS TO BE SALVAGED AND RE-INSTALLED
PRIVATE SIGN TO BE SALVAGED AND RE-INSTALLED
R7-2(1) (12X18) 86
R7-2(1) (12X18) 81
MEMORIAL CITY PARKING SIGNS TO BE SALVAGED AND RE-INSTALLED
EXIST ROW
R7-2(1) (12X18) 83
PRIVATE SIGN TO BE SALVAGED AND RE-INSTALLED
N

LEGEND

Ⓐ	PAV MRK: WB4–C40
Ⓑ	PAV MRK: WS6–C20
Ⓒ	PAV MRK: WS12
Ⓓ	PAV MRK: WS24
Ⓔ	PAV MRK: YDS4–A20/A20
Ⓕ	PAV MRK: YDS4–A40/A40
Ⓗ	PAV MRK: ARROW (W)
Ⓘ	PAV MRK: "ONLY" (W)
Ⓙ	RAIS PAV MRK: TYPE I–C
Ⓚ	RAIS PAV MRK: TYPE II–A–A
Ⓛ	MEDIAN NOSE PAINT (Y)

No.	Revisions	Date	App.

NOTES:

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10 0 10 20

(IN FEET)
1 INCH = 20 FEET

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TIRZ #17
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SIGNING & PVMT MARKING PLAN
BARRYKNOLL LANE
STA 9+00 TO END PROJECT

SHEET 6 OF 7

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

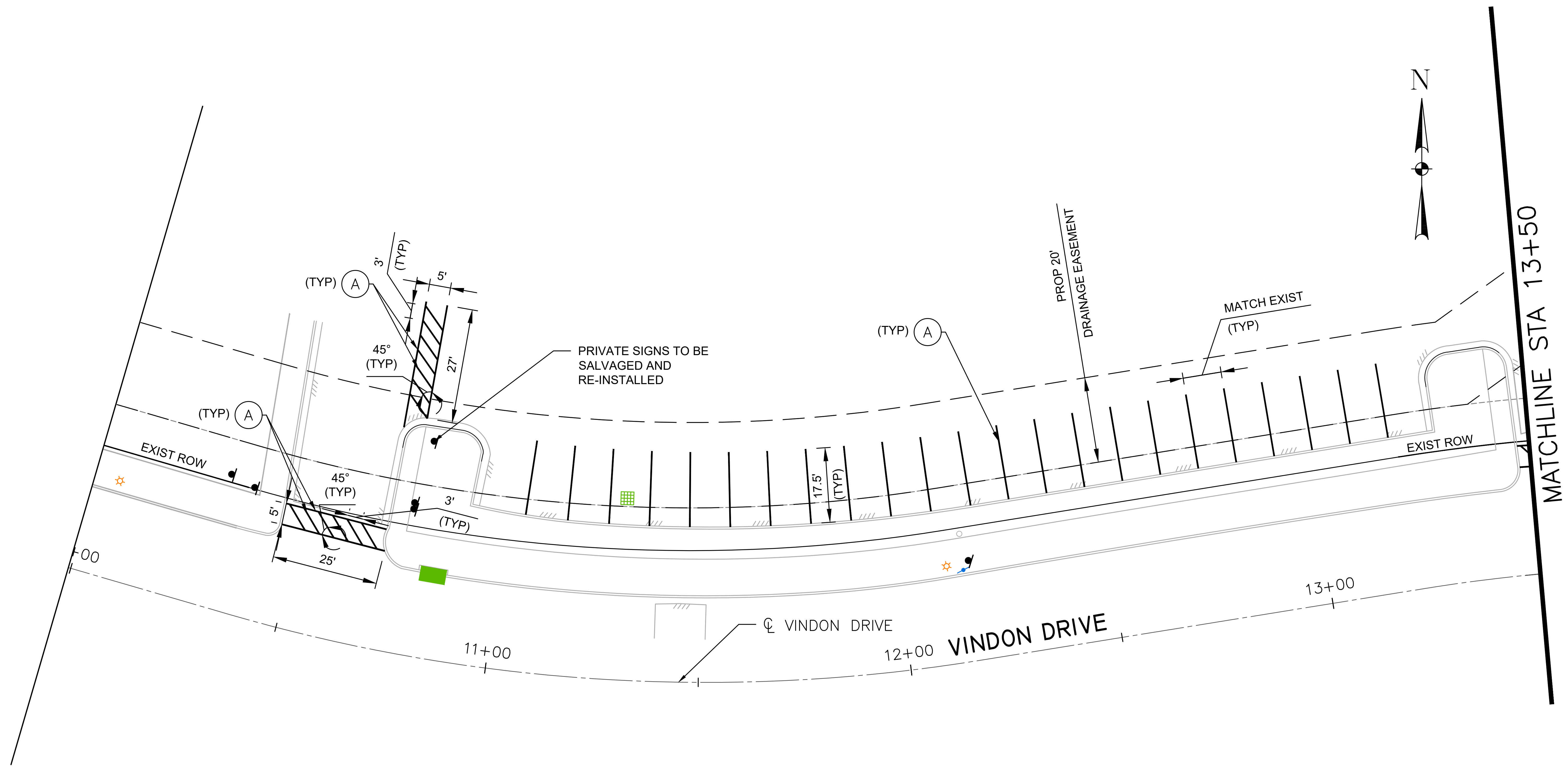
SHEET NO. 215 OF 345

j:\2021\210601.01\cad\dwgs\sheets\12 - signing & pavement marking plans\c-pvmk-06_barryknoll rd.dwg Plotted April 15, 2026 at 3:48 PM by Gawali, Ajinkya Ashok

LEGEND

Ⓐ PAV MRK: YS4

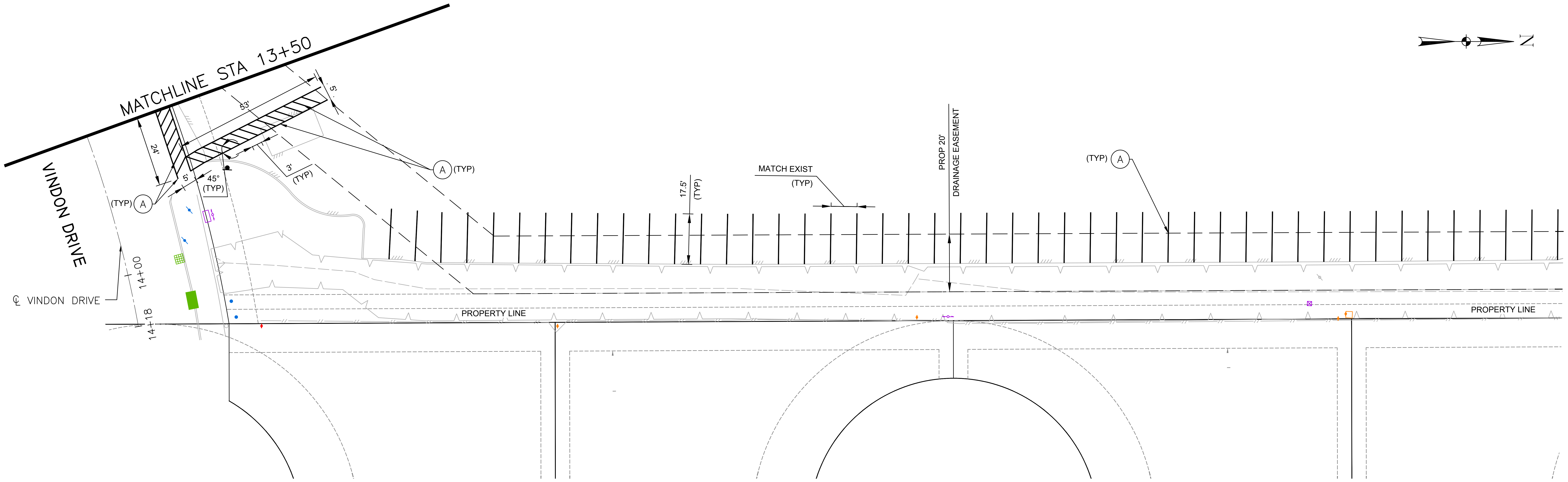
No.	Date	Revisions	App.



N
(TYP) Ⓐ
3'
(TYP)
5'
45°
(TYP)
27'
PRIVATE SIGNS TO BE SALVAGED AND RE-INSTALLED
(TYP) Ⓐ
EXIST ROW
45°
(TYP)
3'
(TYP)
5'
25'
(TYP) Ⓐ
17.5'
(TYP)
PROP 20' DRAINAGE EASEMENT
MATCH EXIST
(TYP)
EXIST ROW
MATCHLINE STA 13+50
℄ VINDON DRIVE
VINDON DRIVE
11+00
12+00
13+00
+00

NOTES:

1. REFER TO SUMMARY OF SMALL SIGNS FOR ADDITIONAL INFORMATION.
2. REFER TO SIGN AND PAVEMENT MARKING STANDARDS FOR ADDITIONAL INFORMATION.
3. 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.
4. 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.
5. CONTRACTOR SHALL INSTALL ALL PERMANENT SIGNS, POSTS, AND HARDWARE AS SHOWN ON THE PLANS AND STANDARD DETAILS.
6. REMOVAL OF EXISTING SIGNS SHALL BE INCIDENTAL.
7. STYLE OF STREET NAME SIGNS SHALL MATCH EXISTING.



MATCHLINE STA 13+50
5'
53'
24'
5'
45°
(TYP)
3'
(TYP)
Ⓐ (TYP)
(TYP) Ⓐ
VINDON DRIVE
℄ VINDON DRIVE
14+00
14+18
17.5'
(TYP)
MATCH EXIST
(TYP)
PROP 20' DRAINAGE EASEMENT
(TYP) Ⓐ
PROPERTY LINE
PROPERTY LINE
N

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING & PVMT MARKING PLAN
MEMORIAL MIDDLE SCHOOL
STA 10+00 TO STA 14+18

SHEET 7 OF 7

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 216 OF 345

j:\2021\210601.01\cad\dwgs\sheets\12 - signing & pavement marking plans\c-pvmk-07_memorial middle school.dwg Plotted April 15, 2026 at 3:48 PM by Gawali, Ajinkya Ashok

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 INTENDED FOR BID)	SIGN POST SIZE (TABLE A)
1	5	D3	BENIGNUS RD	VARIES X 9	X			1	VARIES	1-3/4" X 1-3/4"
	6	D3	KINGSRIDE LN (NO OUTLET RIGHT ARROW)	VARIES X 9	X				VARIES	
	7	R1-1	STOP	36X36	X				9	
	8	R1-3P	ALL WAY	18X6	X				0.75	
	9	W14-2	NO OUTLET	36X36	X			1	9	1-3/4" X 1-3/4"
	10	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	11	R1-3P	ALL WAY	18X6	X				0.75	
	12	R5-2(2)	NO THRU TRUCKS	24X30	X			1	5	1-3/4" X 1-3/4"
	13	R3-8	ADVANCED INTERSECTION TRAFFIC CONTROL	VARIES X 30	X			1	VARIES	1-3/4" X 1-3/4"
	14	R3-8	ADVANCED INTERSECTION TRAFFIC CONTROL	VARIES X 30	X				VARIES	
	15	R3-8	ADVANCED INTERSECTION TRAFFIC CONTROL	VARIES X 30	X			1	VARIES	1-3/4" X 1-3/4"
	16	R3-8	ADVANCED INTERSECTION TRAFFIC CONTROL	VARIES X 30	X				VARIES	
	17	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	18	R1-3P	ALL WAY	18X6	X				0.75	
	19	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	20	R1-3P	ALL WAY	18X6	X				0.75	
	21	R5-2(2)	NO THRU TRUCKS	24X30	X			1	5	1-3/4" X 1-3/4"
	22	R7-2(1)	NO PARKING (ARROW) (LEFT)	12X18	X				1.5	
	23	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	24	R7-2(1)	NO PARKING (ARROW) (LEFT)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	25	R7-2(1)	NO PARKING (ARROW) (LEFT)	12X18	X			1	1.5	
	26	W4-2(R)	LANE ENDS MERGE LEFT	36X36	X			1	9	1-3/4" X 1-3/4"
	27	W17-1	SPEED HUMP	30X30	X			1	6.25	1-3/4" X 1-3/4"
	28	W13-1P	20 MPH	18X18	X				4	
	29	R2-1-30	SPEED LIMIT 30	24X30	X			1	5	1-3/4" X 1-3/4"
2	30	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	31	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	32	W9-2(1)	LANE ENDS MERGE LEFT	36X36	X			1	9	1-3/4" X 1-3/4"
	33	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	34	R14-1	TRUCK ROUTE (RIGHT ARROW)	24X18	X			1	3	1-3/4" X 1-3/4"
	35	R7-2(1)	NO PARKING (ARROW) (LEFT)	12X18	X				1.5	
	36	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	37	R1-3P	ALL WAY	18X6	X				0.75	
	38	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	39	R5-2(2)	NO THRU TRUCKS	24X30	X			1	5	1-3/4" X 1-3/4"
	40	R1-1	STOP	36X36	X				9	
	41	R1-3P	ALL WAY	18X6	X				0.75	
	42	D3	KINGSRIDE LN 12400 (MEMORIAL DISTRICT STREET SIGN)	VARIES X 9	X			1	VARIES	1-3/4" X 1-3/4"
	43	D3	FROSTWOOD DR 900 (MEMORIAL DISTRICT STREET SIGN)	VARIES X 9	X				VARIES	
	44	R1-1	STOP	36X36	X				9	
	45	R1-3P	ALL WAY	18X6	X				0.75	
	46	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	47	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	48	D3	KINGSRIDE LN 12300 (MEMORIAL DISTRICT STREET SIGN)	VARIES X 9	X			1	VARIES	1-3/4" X 1-3/4"
	49	D3	FROSTWOOD DR 800 (MEMORIAL DISTRICT STREET SIGN)	VARIES X 9	X				VARIES	
	50	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	51	R1-3P	ALL WAY	18X6	X				0.75	
	52	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	53	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	54	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	55	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
3	56	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	57	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	58	R2-1-30	SPEED LIMIT 30	24X30	X			1	5	1-3/4" X 1-3/4"
	59	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X				1.5	
4	60	D2-2	KINGSRIDE LN NEXT SIGNAL	VARIES X 30	X			1	VARIES	1-3/4" X 1-3/4"
5	61	R3-5-R	RIGHT TURN ONLY	30X36	X			1	7.5	1-3/4" X 1-3/4"
	62	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	63	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
1	64	R-2-1-30	SPEED LIMIT 30	24X30	X			1	5	1-3/4" X 1-3/4"
	65	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	66	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	67	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	68	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	69	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	70	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
6	71	R3-7-R	RIGHT LANE MUST TURN RIGHT	36X36	X			1	9	1-3/4" X 1-3/4"
	72	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	73	R3-7-R	RIGHT LANE MUST TURN RIGHT	36X36	X			1	9	1-3/4" X 1-3/4"
	74	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	75	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	76	W1-3-L	REVERSE RIGHT ANGLE TURN	36X36	X			1	6.25	1-3/4" X 1-3/4"
	77	W13-1P	25 MPH	18X18	X				2.25	
	78	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
2	79	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	80	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"
	81	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
2	82	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	83	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	84	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	85	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	86	R7-2(1)	NO PARKING (ARROW) (BOTH)	12X18	X			1	1.5	1-3/4" X 1-3/4"
	87	R1-1	STOP	36X36	X			1	9	1-3/4" X 1-3/4"

No.	Date	Revisions	App.

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
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125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
SMALL SIGN SUMMARY

SHEET 1 OF 1

WBS NO. M–430296–0017–3

DRAWING SCALE
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 217 OF 345

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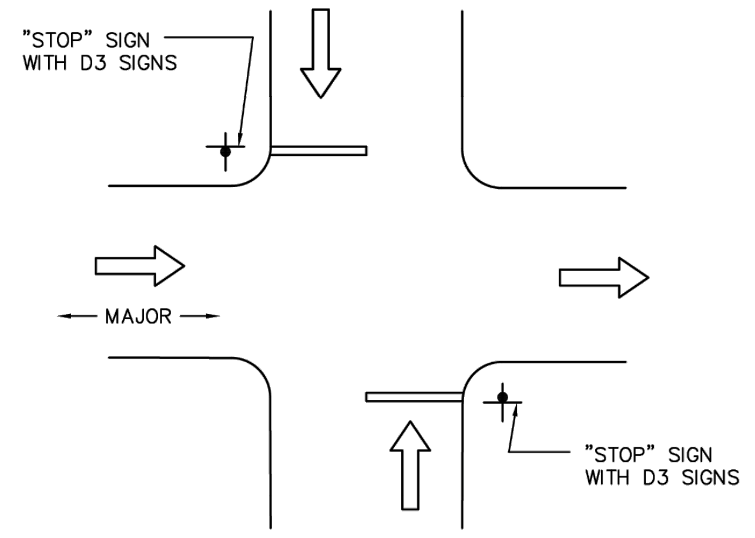
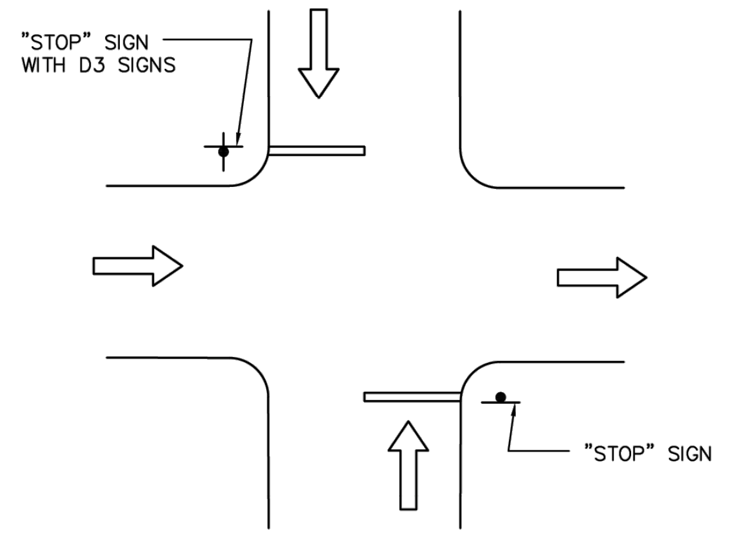
No.	Date	Revisions	App.

DocuSign Envelope ID: CB71C116-B716-4899-A5EE-0D2F2CC55AF6

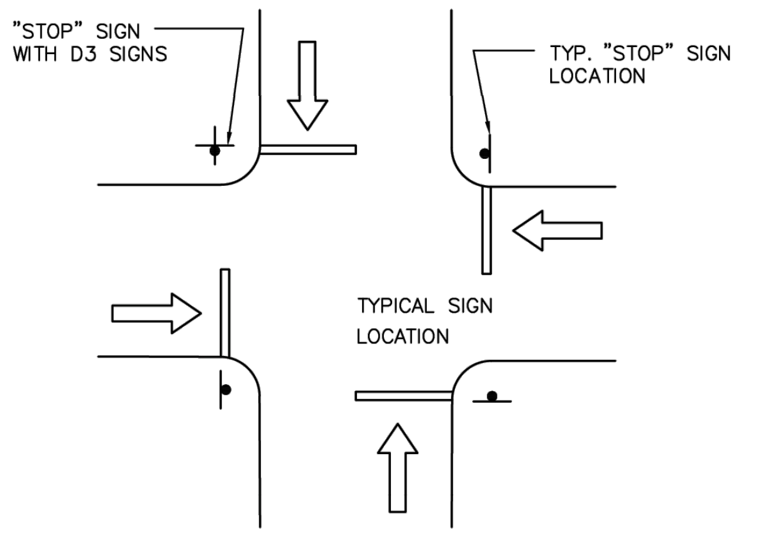
TYPICAL SIGN PLACEMENT


"STOP" SIGN WITH D3 SIGNS
MAJOR
"STOP" SIGN WITH D3 SIGNS

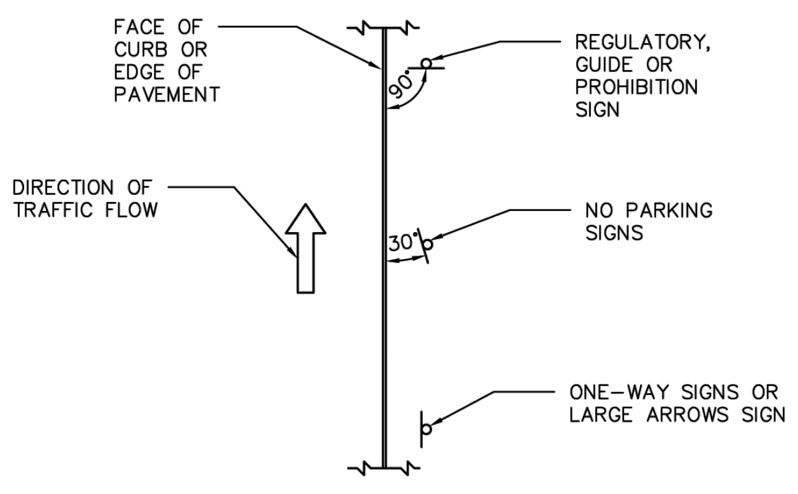
TWO-WAY STOP
AND ONE-WAY OPERATION
ON MAJOR/LOCAL INTERSECTION


"STOP" SIGN WITH D3 SIGNS
"STOP" SIGN

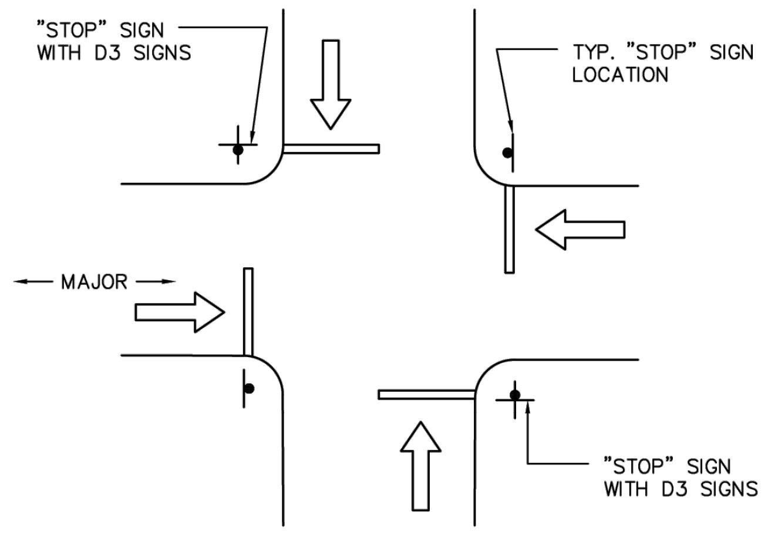
TWO-WAY STOP
AND ONE-WAY OPERATION
ON LOCAL/LOCAL INTERSECTION


"STOP" SIGN WITH D3 SIGNS
TYP. "STOP" SIGN LOCATION
TYPICAL SIGN LOCATION

FOUR-WAY STOP CONTROL
ON LOCAL/LOCAL INTERSECTION


FACE OF CURB OR EDGE OF PAVEMENT
DIRECTION OF TRAFFIC FLOW
30°
30°
REGULATORY, GUIDE OR PROHIBITION SIGN
NO PARKING SIGNS
ONE-WAY SIGNS OR LARGE ARROWS SIGN

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


"STOP" SIGN WITH D3 SIGNS
TYP. "STOP" SIGN LOCATION
MAJOR
"STOP" SIGN WITH D3 SIGNS

FOUR-WAY STOP CONTROL
ON MAJOR/LOCAL INTERSECTION

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TYPICAL SIGN PLACEMENT

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...
CITY ENGINEER

DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by: Carol Haddock A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV-27-2023
DWG NO: 01554-07

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.

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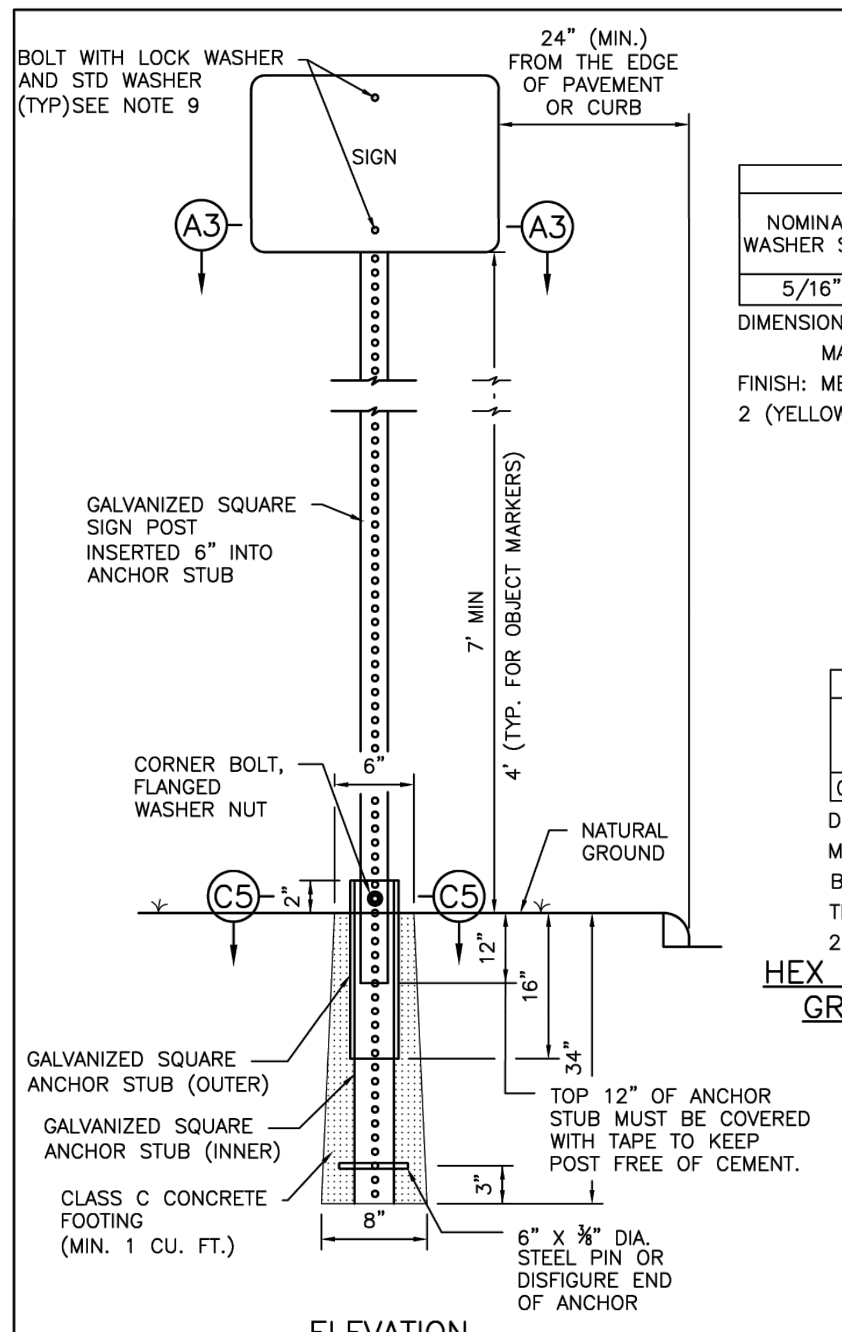
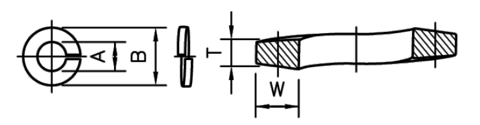

BOLT WITH LOCK WASHER AND STD WASHER (TYP) SEE NOTE 9
SIGN
24" (MIN.) FROM THE EDGE OF PAVEMENT OR CURB
A3
A3
GALVANIZED SQUARE SIGN POST INSERTED 6" INTO ANCHOR STUB
7' MIN
4' (TYP. FOR OBJECT MARKERS)
CORNER BOLT, FLANGED WASHER NUT
6"
NATURAL GROUND
C5
C5
2"
12"
16"
34"
GALVANIZED SQUARE ANCHOR STUB (OUTER)
GALVANIZED SQUARE ANCHOR STUB (INNER)
CLASS C CONCRETE FOOTING (MIN. 1 CU. FT.)
TOP 12" OF ANCHOR STUB MUST BE COVERED WITH TAPE TO KEEP POST FREE OF CEMENT.
3"
8"
6" X ⅜" DIA. STEEL PIN OR DISFIGURE END OF ANCHOR

ELEVATION

TYPICAL GROUND SIGN INSTALLATION
PERFORATED SQUARE METAL TUBING

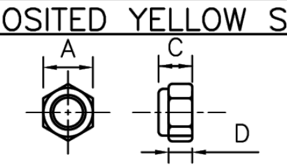
TABLE A	
GALVANIZED SQUARE SIGN POST (PERFORATED)	1-3/4"x-1-3/4" (14 GAUGE)
GALVANIZED SQUARE ANCHOR STUB (PREFORATAED) (INNER)	2"x2"x36" (14 GAUGE)
GALVANIZED SQUARE ANCHOR STUB (PERFORATED) (OUTER)	2 1/4" x 2 1/4" x 18" (14 GAUGE)



	A		B	T	W
NOMINAL WASHER SIZE	INSIDE DIAMETER		OUTSIDE DIAMETER	MEAN SECTION (THICKNESS)	SECTION WIDTH
	MAX	MIN	MAX		
5/16"	0.332"	0.314"	0.583"	0.078"	0.125"

DIMENSIONS: ASME B18.21.1
MATERIAL: ALLOY STEEL PER ASME B18.21.1
FINISH: MECHANICAL ZINC PER ASTM B695, CLASS 5, TYPE 2 (YELLOW)

5/16" SPLIT LOCK WASHER,
HIGH ALLOY MECHANICAL
DEPOSITED YELLOW SINK



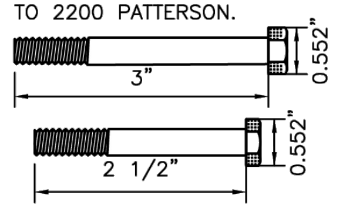
	C		A		D
SIZE	THICKNESS		WIDTH ACROSS FLATS		HEX HEIGHT
	MAX	MIN	MAX	MIN	MIN
0.313"	0.359"	0.329"	0.502"	0.489"	0.250"

DIMENSIONS: ASME B18.16.6
MATERIAL: CARBON STEEL, GRADE 8 PER ASME B18.16.6, NYLON %
THREAD REQUIREMENTS: ASME B1.1 UNC & UNF CLASS 2B

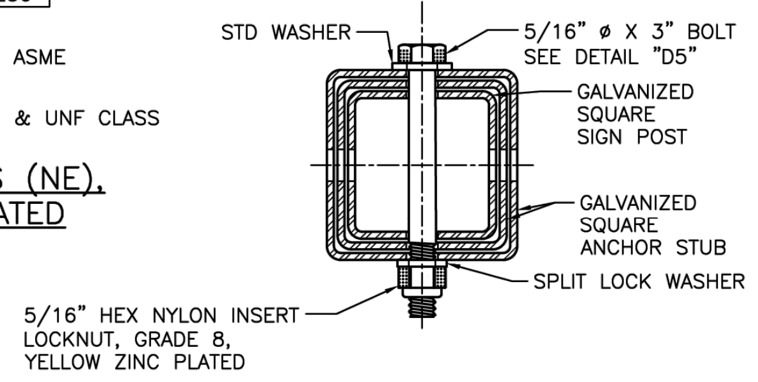
HEX NYLON INSERT LOCKNUTS (NE),
GRADE 8, YELLOW ZINC PLATED

NOTES:

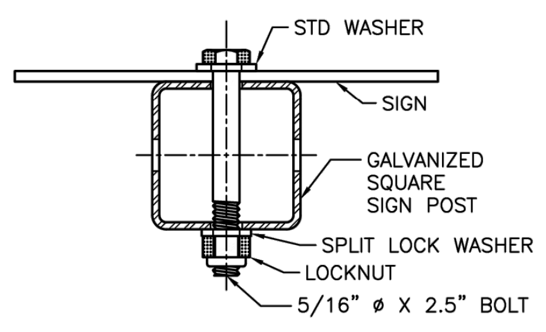
1. THE EXISTING SIGNS LOCATED ON PUBLIC CONSTRUCTION SITE ARE THE PROPERTY OF THE CITY OF HOUSTON. THROUGHOUT THE PERIOD OF THE CONTRACT, THE CONTRACTOR SHALL PROTECT THESE SIGNS SUCH THAT THEY ARE NOT DAMAGED IN THE COURSE OF CONSTRUCTION ACTIVITY. SUCH PROTECTION SHALL INCLUDE THE PERIOD AFTER SIGNS ARE REMOVED FROM INSTALLATION AND STORED BY THE CONTRACTOR OR DELIVERED TO THE TRAFFIC OPERATIONS CENTER (2200 PATTERSON). THE GENERAL TRAFFIC SUPERINTENDENT (832-395-6771) MUST BE NOTIFIED 48 HOURS IN ADVANCE PRIOR TO DELIVERY.
2. AFTER SIGNS ARE REMOVED FROM INSTALLATION AND ARE BEING STORED BY THE CONTRACTOR, THE CONTRACTOR SHALL CONTACT THE TRAFFIC OPERATIONS DIVISION OF HOUSTON PUBLIC WORKS (832-395-6771) AND ARRANGE FOR A CONVENIENT TIME TO DELIVER ONLY CITY SIGNS AND POSTS IDENTIFIED BY TRAFFIC OPERATIONS DIVISION TO 2200 PATTERSON.
3. PRIOR TO THE START OF CONSTRUCTION, ALL EXISTING SIGNS WITHIN THE AREA OF CONSTRUCTION WILL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE CITY INSPECTOR AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING THE SIGN TYPE, SIGN SIZE, SIGN CONDITION, SIGN LOCATION, REFLECTIVITY ADEQUACY, ETC. THE CONTRACTOR IS HELD ACCOUNTABLE FOR THESE SIGNS THROUGHOUT THE PROJECT AND AT THE PROJECTS COMPLETION.
4. ALL GROUND MOUNTED STOP SIGNS, WARNING SIGNS, AND OTHER REGULATORY SIGNS SHALL USE AT A MINIMUM HIGH INTENSITY PRISMATIC REFLECTIVE SHEETING.
5. ALL OVERHEAD SIGNS SHALL USE DIAMOND GRADE REFLECTIVE SHEETING.
6. ALL OTHER SIGNS SHALL USE SUPER ENGINEER GRADE SHEETING.
7. ALL BLANKS TO BE INSTALLED SHALL BE ALUMINUM ALLOY 6061-T-6 OR 5052-H38 IN ACCORDANCE WITH ASTM B209.
8. ALL HOLES SHALL BE ⅜" DIAMETER DRILLED OR PUNCHED AS SHOWN ON EACH BLANK DETAIL AND SHALL BE FREE OF BURRS AND / OR ROUGH EDGES. WHERE NON-STANDARD ORIENTATION OF SIGN IS USED, ENLARGE HOLE IN SIGN POST AT SIGN CONNECTION NOT GREATER THAN 11/16" IN DIAMETER.
9. BOLT SIZE REQUIREMENTS FOR SIGN CONNECTION:
   - 9.1. STANDARD ORIENTATION = 5/16" DIA X 2 1/2" BOLT
   - 9.2. NON STANDARD ORIENTATION = 5/16" DIA X 3" BOLT
10. SIGN BLANK CORNERS TO BE ROUNDED AS SHOWN ON EACH DETAIL ON SHEET 01554-06.
11. ALL SIGN BLANKS ARE TO BE ETCHED, DEGREASED, AND HAVE A COATING MEETING THE REQUIREMENTS OF ASTM B449, CLASS 2, OR ASTM B921, CLASS 2. PRIOR TO APPLICATION OF LEGENDS.
12. ALL SIGNS SHALL BE MANUFACTURED AND INSTALLED IN CONFORMANCE TO THE LATEST TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) AND STANDARD HIGHWAY SIGNS LATEST EDITION.


3"
0.552"
2 1/2"
0.552"

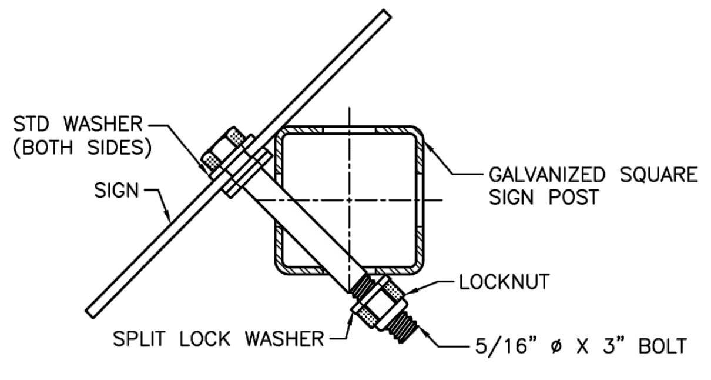
SECTION D5
BOLTS


STD WASHER
5/16" ø X 3" BOLT SEE DETAIL "D5"
GALVANIZED SQUARE SIGN POST
GALVANIZED SQUARE ANCHOR STUB
SPLIT LOCK WASHER
5/16" HEX NYLON INSERT LOCKNUT, GRADE 8, YELLOW ZINC PLATED

SECTION C5
CORNER BOLT


STD WASHER
SIGN
GALVANIZED SQUARE SIGN POST
SPLIT LOCK WASHER
LOCKNUT
5/16" ø X 2.5" BOLT

STANDARD ORIENTATION


STD WASHER (BOTH SIDES)
SIGN
GALVANIZED SQUARE SIGN POST
LOCKNUT
SPLIT LOCK WASHER
5/16" ø X 3" BOLT

NON-STANDARD ORIENTATION

SECTION A3: SIGN CONNECTION DETAILS

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

GENERAL NOTES AND
GROUND MOUNTING SIGN

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...
CITY ENGINEER

DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by: Carol Haddock A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV-27-2023
DWG NO: 01554-01

DISCLAIMER:
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PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 1 OF 11

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

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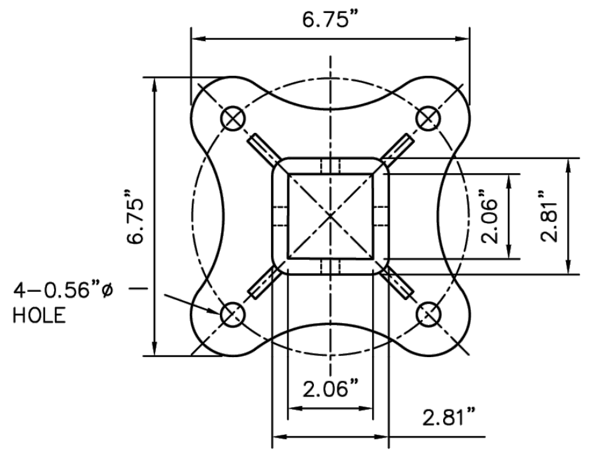
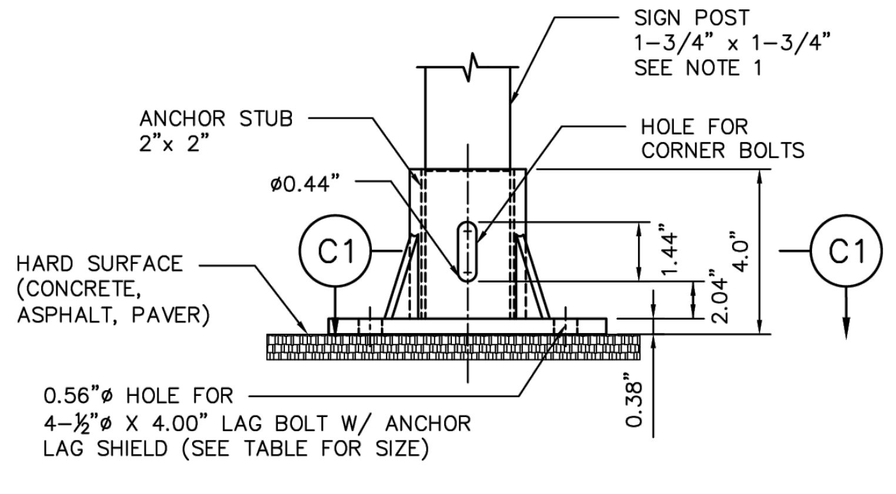

6.75"
6.75"
2.06"
2.81"
4–0.56"ø HOLE
2.06"
2.81"

TOP VIEW


SIGN POST 1–3/4" x 1–3/4" SEE NOTE 1
ANCHOR STUB 2"x 2"
HOLE FOR CORNER BOLTS
ø0.44"
C1
C1
HARD SURFACE (CONCRETE, ASPHALT, PAVER)
1.44"
2.04"
4.0"
0.38"
0.56"ø HOLE FOR 4–½"ø X 4.00" LAG BOLT W/ ANCHOR LAG SHIELD (SEE TABLE FOR SIZE)

SIDE VIEW

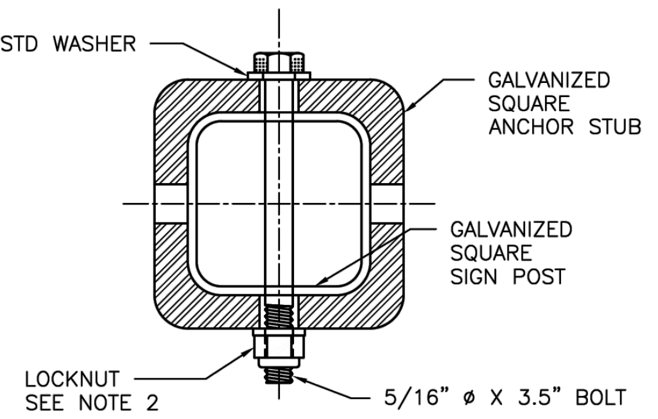
TYPICAL HARD SURFACE INSTALLATION GALVANIZED SIGN BASE

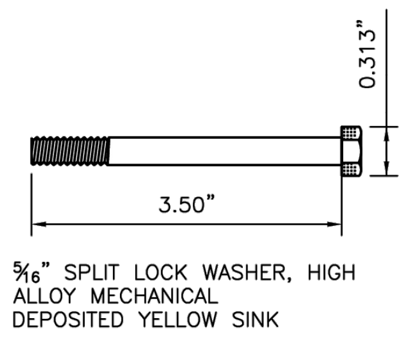
NOTES:

1. REFER TO COH STD DWG 01554–01 FOR SIGN AND POST REQUIREMENTS.
2. REFER TO DETAIL "C5" ON COH STD DWG 01554–01 FOR NUT AND BOLT REQUIREMENTS.

BASE PLATE NOTES:

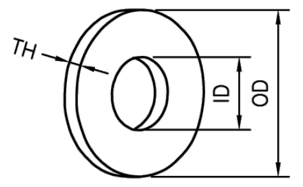
1. MATERIAL: ASTM A–536 GRADE 65–45–12 DUCTILE IRON
2. HOT DIP GALVANIZE PER ASTM A–153
3. ALL DIMENSIONS ARE IN INCHES


STD WASHER
GALVANIZED SQUARE ANCHOR STUB
GALVANIZED SQUARE SIGN POST
LOCKNUT SEE NOTE 2
5/16" ø X 3.5" BOLT



5⁄16" SPLIT LOCK WASHER, HIGH ALLOY MECHANICAL DEPOSITED YELLOW SINK

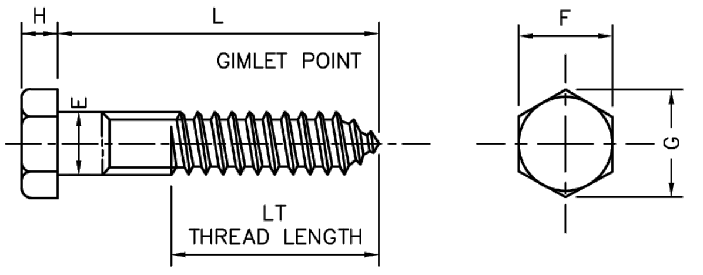
SECTION C1
CORNER BOLT



SAE FLAT WASHERS									
	ID			OD			THICKNESS – TH		
SIZE	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

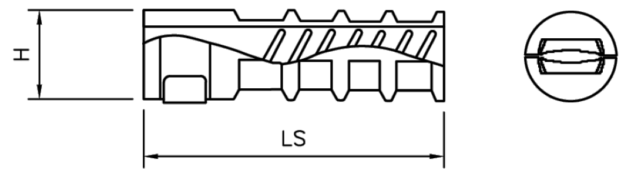
1/2" FLAT WASHERS, LOW CARBON, SAE, ZINC PLATED


H
L
GIMLET POINT
E
LT THREAD LENGTH
F
G

	E		F		G		H		L	LT
DIAMETER	BODY DIAMETER		WIDTH ACROSS FLATS		WIDTH ACRSS CORNERS		HEIGHT		LENGTH	THREAD LENGTH
	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 ⅜" DIAMETER AND LESS

4" HEX LAG SCREWS, HOT DIPPED GALVANIZED



TH	LS	H	L
LAG THREAD SIZE	LENGTH OF SHIELD NOMINAL	DRILLED HOLE SIZE	BOLT LENGTH REQ
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: Suhail Kanwar 9EF8B0C641F5478...
CITY ENGINEER
DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER
DocuSigned by: Carol Haddock A93C410B72B3453...
DIRECTOR OF HPW
EFF DATE: NOV–27–2023
DWG NO: 01554–02

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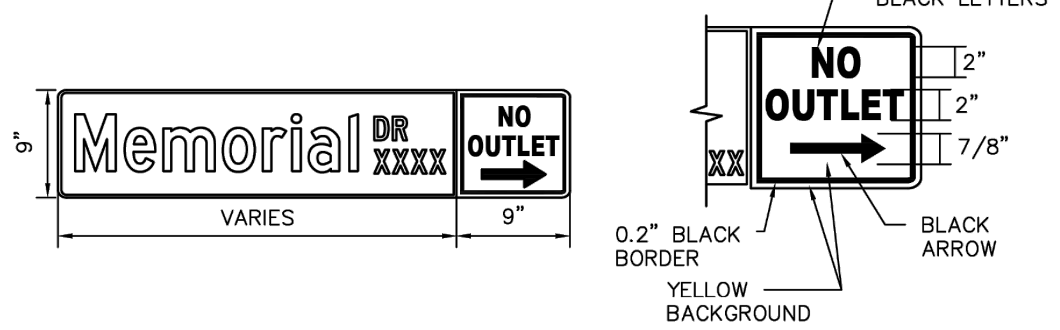
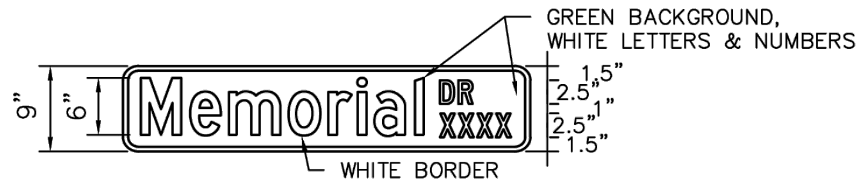
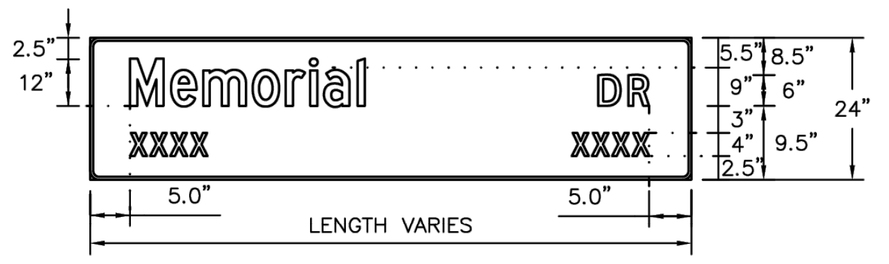
POST MOUNTED STREET NAME SIGN W/ NO OUTLET SIGN


Memorial DR XXXX
NO OUTLET
9"
VARIES
9"
HWY D FONT BLACK LETTERS
2"
2"
7/8"
XX
0.2" BLACK BORDER
YELLOW BACKGROUND
BLACK ARROW

D3 – POST MOUNTED STREET NAME SIGN


GREEN BACKGROUND, WHITE LETTERS & NUMBERS
9"
6"
Memorial DR XXXX
1.5"
2.5"
1"
2.5"
1.5"
WHITE BORDER

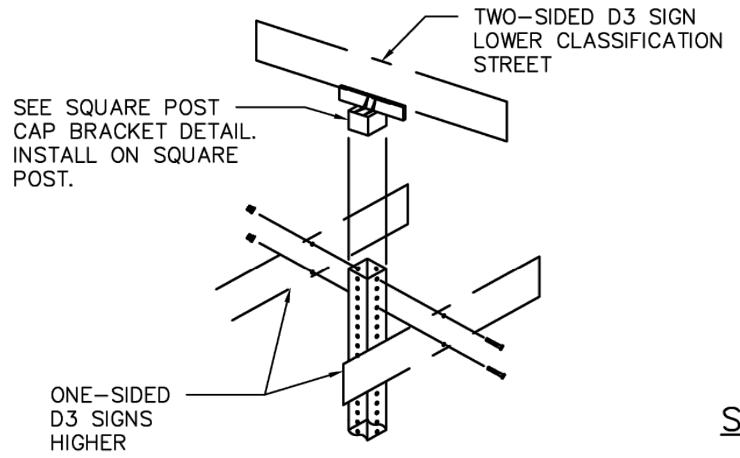
OVERHEAD STREET NAME SIGN DETAIL


2.5"
12"
Memorial
DR
XXXX
XXXX
5.5"
9"
3"
4"
2.5"
8.5"
6"
9.5"
24"
5.0"
5.0"
LENGTH VARIES

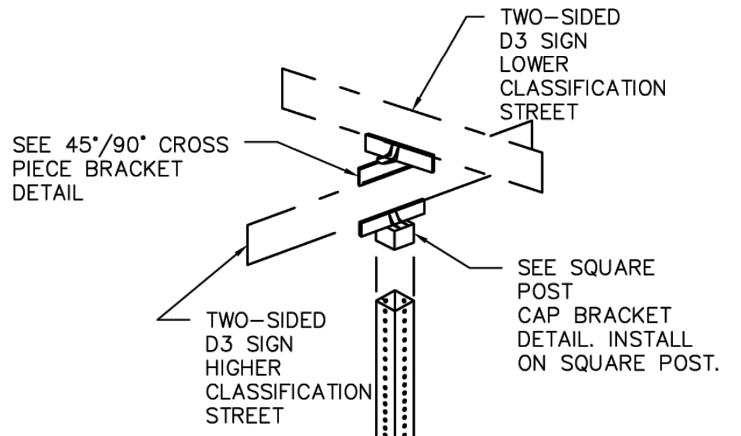
D3 – STREET NAME SIGN

	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"
SUBSTREATE	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	

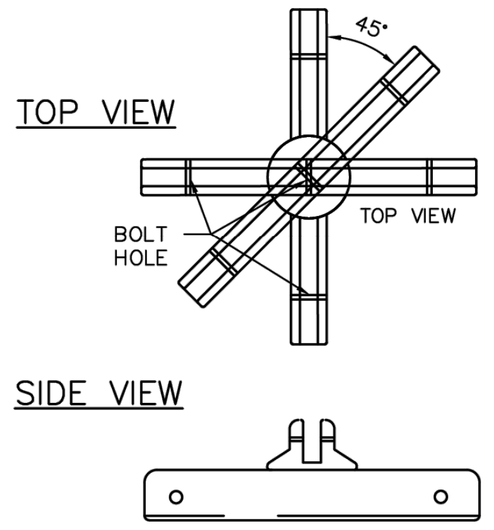
D3 SIGNS GREATER THAN 42" PLATES IN LENGTH


TWO–SIDED D3 SIGN LOWER CLASSIFICATION STREET
SEE SQUARE POST CAP BRACKET DETAIL. INSTALL ON SQUARE POST.
ONE–SIDED D3 SIGNS HIGHER CLASSIFICATION ROADWAY

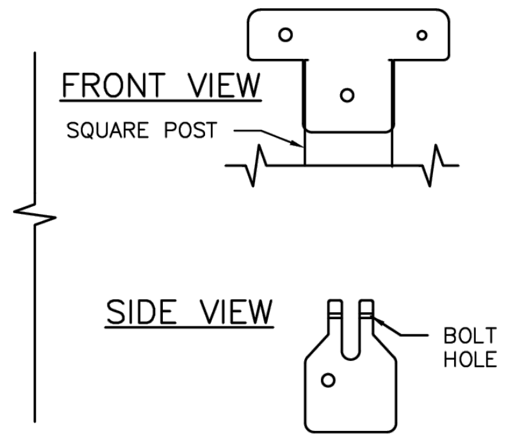
D3 SIGNS LESS THAN OR EQUAL TO 42" PLATES IN LENGTH


TWO–SIDED D3 SIGN LOWER CLASSIFICATION STREET
SEE 45°/90° CROSS PIECE BRACKET DETAIL
SEE SQUARE POST CAP BRACKET DETAIL. INSTALL ON SQUARE POST.
TWO–SIDED D3 SIGN HIGHER CLASSIFICATION STREET

45°/90° CROSS PIECE SIGN BRACKET


TOP VIEW
45°
BOLT HOLE
TOP VIEW
SIDE VIEW

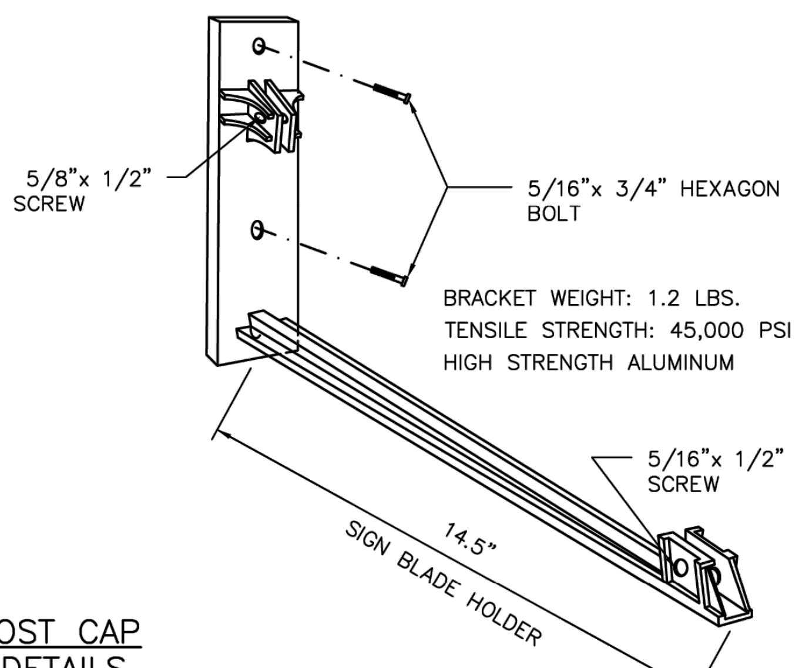
SQUARE POST CAP BRACKET DETAILS


FRONT VIEW
SQUARE POST
SIDE VIEW
BOLT HOLE

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


5/8"x 1/2" SCREW
5/16"x 3/4" HEXAGON BOLT
5/16"x 1/2" SCREW
14.5"
SIGN BLADE HOLDER

BRACKET WEIGHT: 1.2 LBS.
TENSILE STRENGTH: 45,000 PSI
HIGH STRENGTH ALUMINUM

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD
STREET NAME SIGN AND
SIGN MOUNTING
(SCALE: NOT TO SCALE)
APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...
CITY ENGINEER
DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER
DocuSigned by: Carol Haddock A93C410B72B3453...
DIRECTOR OF HPW
EFF DATE: NOV–27–2023
DWG NO: 01554–03

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No.	Revisions	Date	App.

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125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 2 OF 11

WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 219 OF 345

j:\2021\210601.01\cad\dwgs\sheets\13 – signing & pavement marking standards\standards sheets\new\sign base hard surface mounting details.dwg Plotted April 14, 2026 at 9:36 AM by Huml, John

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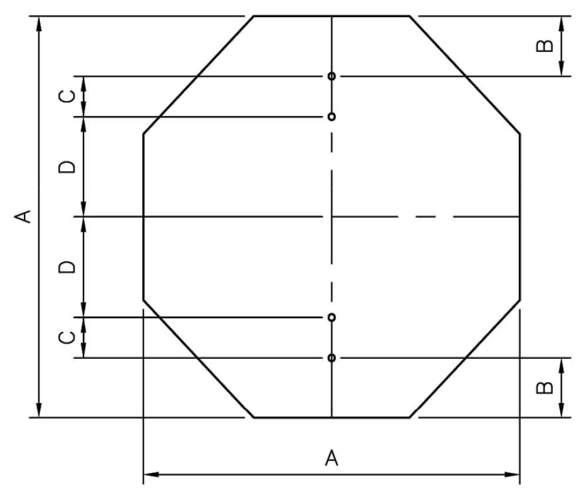
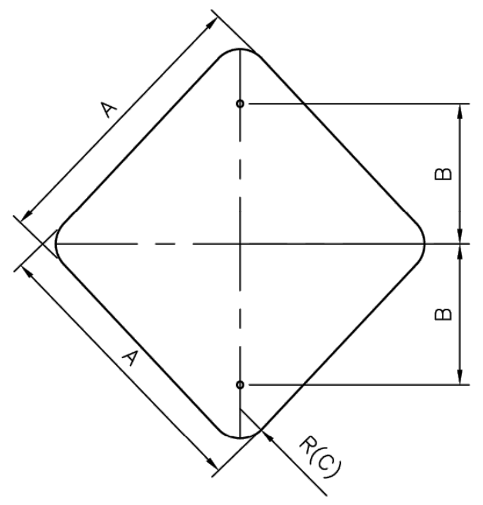


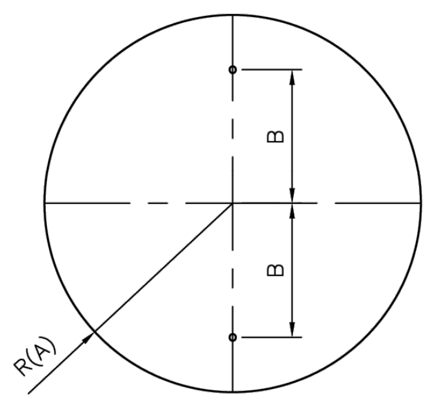
OCTAGONAL

A	B	C	D	T
24	3	3	12	0.08
36	3	3	24	0.08



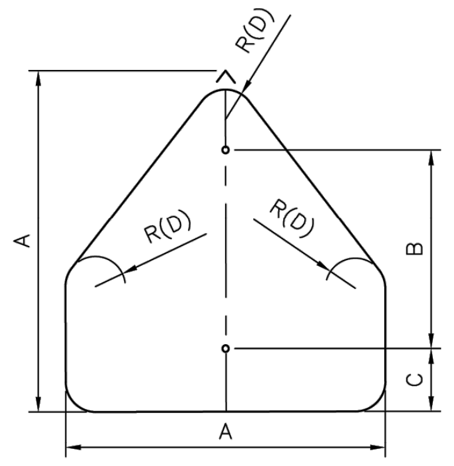
DIAMOND

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



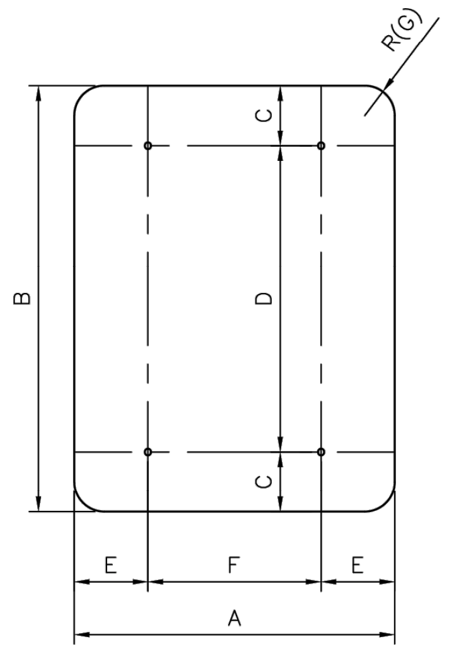
CIRCLE

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

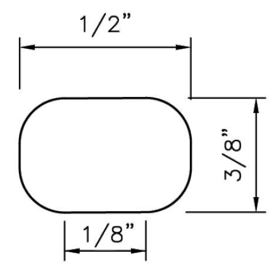


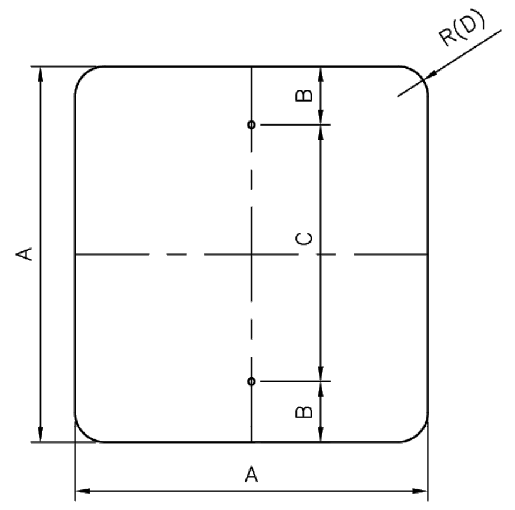
VERTICAL RECTANGLE

A	B	C	D	E	F	G	T
36	48	6	36	6	24	1 1/2	0.08
48	60	6	48	9	30	1 1/2	0.08
18	30	3	24	–	–	1 1/2	0.08

NOTES:

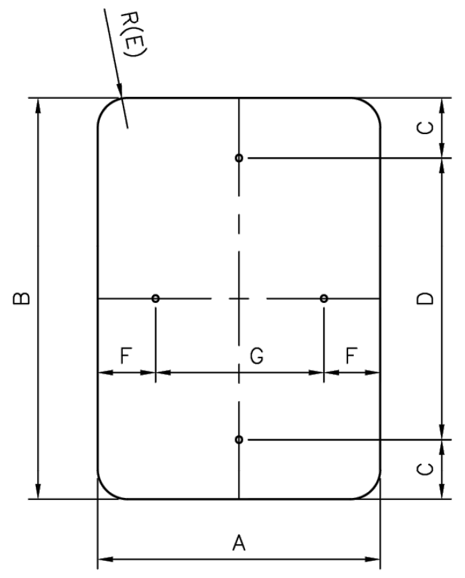
1. A 30" LONG OR GREATER PLATE SHALL BE USED WHEN A "NO OUTLET" SUPPLEMENT IS REQUIRED.
2. THE CITY OF HOUSTON "STOP" AND "YIELD" SIGNS SHALL BE A MINIMUM 36". SPECIAL PERMISSION FROM THE CITY TRAFFIC ENGINEER IS REQUIRED FOR LESS THAN 36" SIGNS.
3. ALL PUNCHED HOLES ARE 3/8"x 1/2" OVAL.
4. ALL CORNER RADII ARE 1 1/2".
5. ALL DIMENSIONS ARE IN INCHES.
6. T = THICKNESS





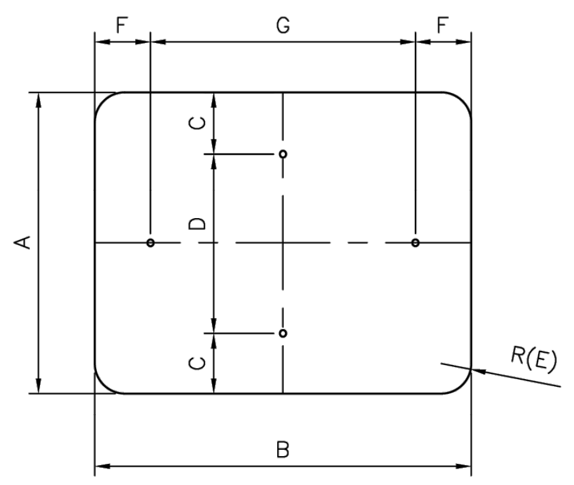
SQUARE (A)

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



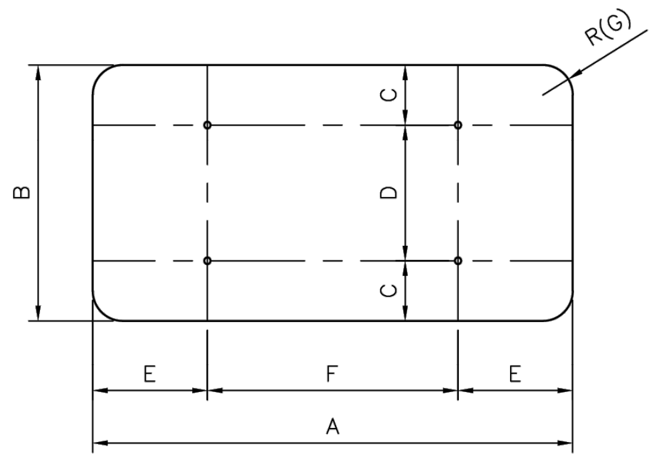
VERTICAL/HORIZONTAL RECTANGLE

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



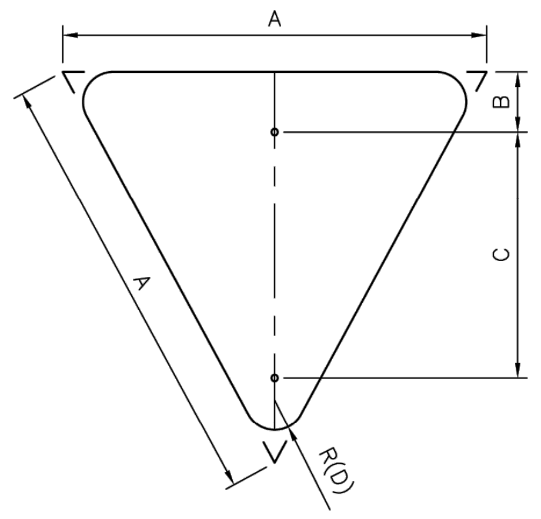
HORIZONTAL/VERTICAL RECTANGLE

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

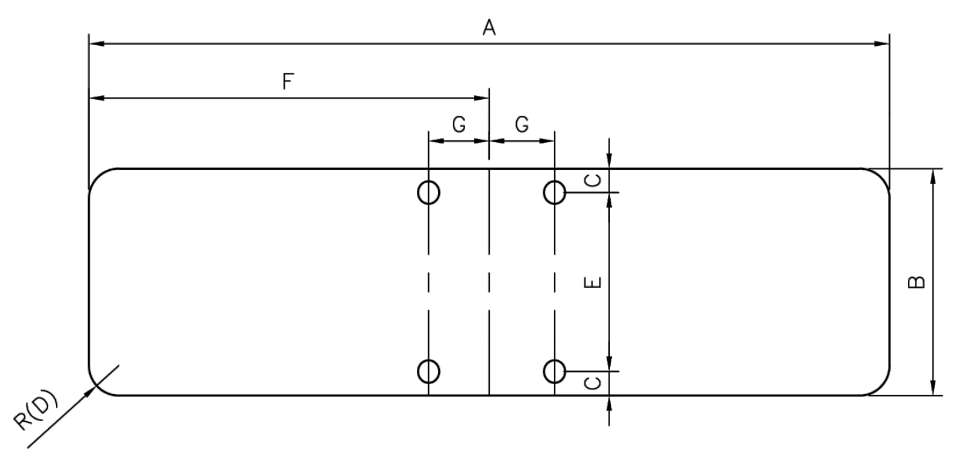


TABLE – D3 SIGNS (BRACKETS)

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

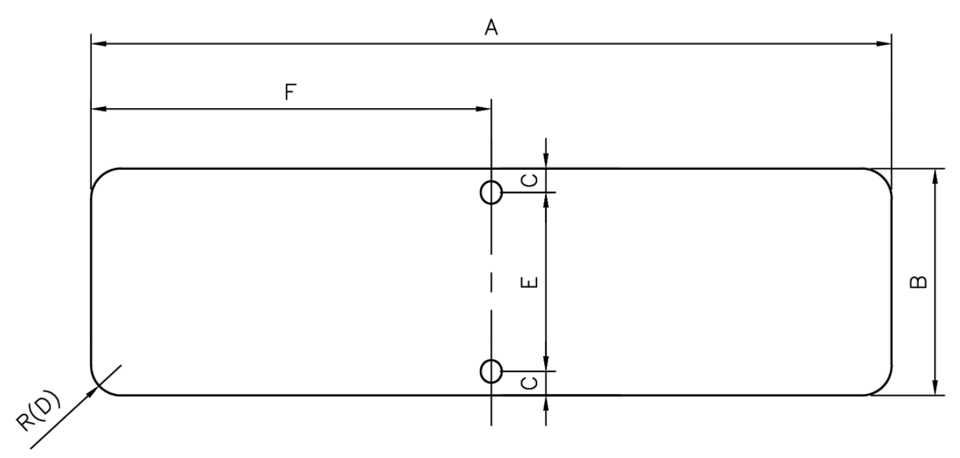


TABLE – D3 SIGNS

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

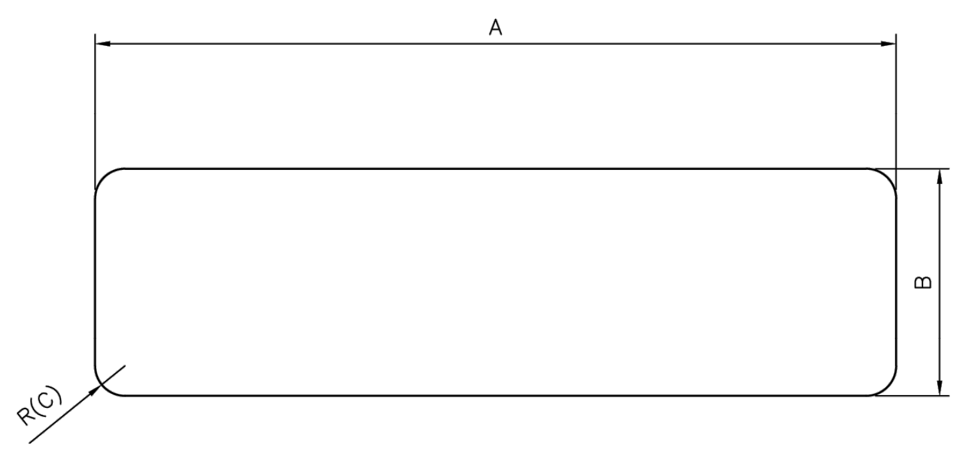


TABLE – D1 SIGNS

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

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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
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DAVID G. GREANEY
125563
4/15/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 3 OF 11

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 220 OF 345

No.	Date	Revisions	App.

j:\2021\210601.01\cad\dwgs\sheets\13 – signing & pavement marking standards\standards sheets\new\ground mounted sign sizes.dwg Plotted April 14, 2026 at 9:39 AM by Huml, John j:\2021\210601.01\cad\dwgs\sheets\13 - signing & pavement marking standards\standards sheets\new\typical city of houston signs.dwg Plotted April 14, 2026 at 9:34 AM by Huml, John

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 PEDISTRIANS	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	R3–9cP	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
ROUNDABOUT DIRECTIONAL (2 CHEVRONS)	R6–4	30x24
ROUNDABOUT 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

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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
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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 ALIGNMNET	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
ROUNDABOUT (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
EMERGENGY VEHICLE	W11–8	30x30
HANDICAPPED	W11–9	30x30
TRUCK	W11–10	30x30
EMERGENGY 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
ROUNDABOUT (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	R9–6	18x18
NO PARKING BIKE LANE	R7–9	12x18
BIKE ROUTE	D11–1	24x18
BIKE ROUTE TO DOWNTOWN	D11–1c	24x18
BIKE SIGN AUXILARY 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)	R9–8 CoH	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 (CoH)	42x30
PEDESTRAIN CROSSING (CUSTOM SIGN)	W11–2 (HAWK)	48x30
LOOK BOTH WAYS (CUSTOM SIGN)	W4–4Pa (BIKE) W4–4Pb (BIKE)	VARIES
TURN WIDE (CUSTOM SIGN)	R3–8 (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:	APPROVED BY:
DocuSigned by: Suhail Kanwar	DocuSigned by: KHANG NGUYEN
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock	
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

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING STANDARD DETAILS

SHEET 4 OF 11

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 221 OF 345

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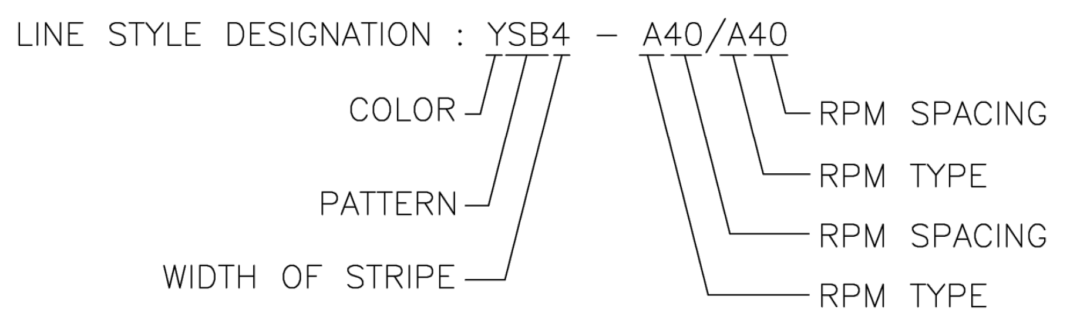
DESCRIPTION AND APPLICATION OF PAVEMENT MARKING LINES

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).
				HATCHING AT HIGH VISIBILITY CROSSWALKS.
			12", 24"	DIAGONAL HATCHING USED IN GORES BETWEEN SAME DIRECTION OF TRAVEL LANES.
WG	WHITE	GUIDE (2' STRIPE W/6' GAP)	6"	GUIDE LINES THROUGH INTERSECTIONS.
				TAPER LINES FOR TURN LANES.
				GUIDE LINES FOR BICYCLE LANES.
YS	YELLOW	SOLID	4"	EDGE LINES TO DELINEATE THE LEFT EDGE OF A DIVIDED ROADWAY, A ONE-WAY ROAD, OR RAMP.
			6"	BIDIRECTIONAL BICYCLE LANE PAVEMENT MARKING.
			12", 24"	DIAGONAL HATCHING USED IN GORES BETWEEN OPPOSING DIRECTION OF TRAVEL LANES.
YDS	YELLOW	DOUBLE SOLID	4" – (4") – 4" (GAP)	CENTERLINE THAT SEPARATES OPPOSING TRAVEL LANES AND DELINEATION OF MEDIAN ISLANDS.
YDB	YELLOW	DOUBLE BROKEN	4" – (4") – 4" (GAP)	DEFINES THE EDGES OF CENTER REVERSIBLE LANES THAT ARE USED AS TWLTLS DURING INTERMITTENT PERIODS.
YB	YELLOW	BROKEN (10' STRIPE W/30' GAP)	4"	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YB (BIKE)	YELLOW	BROKEN (3' STRIPE W/9' GAP)	4"	SEPARATES BICYCLE TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YSB	YELLOW	SOLID & BROKEN BROKEN (10' STRIPE W/30' GAP)	4" – (4") – 4" (GAP)	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN ONE DIRECTION AND PROHIBITED IN THE OPPOSITE DIRECTION.
				USED FOR EDGE OF TWO-WAY LEFT TURN LANES (TWLTL).
BICYCLE GREEN	GREEN	SOLID COLORED PAVEMENT	VARIES	PED/BIKE CROSSING
				VEHICLE / BIKE/ CONFLICT AREA
YIELD LINE	WHITE	TRIANGLE	16" x 24"	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.



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GENERAL PAVEMENT MARKING NOTES:

1. PRIOR TO START OF CONSTRUCTION, ALL EXISTING PAVEMENT MARKINGS WITHIN THE AREA OF CONSTRUCTION SHALL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE CITY INSPECTOR AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING ALL EXISTING PAVEMENT MARKINGS AND LANE CONFIGURATIONS WILL BE DUPLICATED AGAIN. THIS REVIEW CAN BE DONE IN CONJUNCTION WITH SIGN INVENTORY. THE CONTRACTOR IS HELD ACCOUNTABLE FOR EXISTING AND TEMPORARY CONSTRUCTION PAVEMENT MARKINGS THROUGHOUT THE PROJECT AND AT THE PROJECT'S COMPLETION.
2. ALL PAVEMENT MARKINGS SHALL CONFORM TO CITY OF HOUSTON STANDARDS AND SPECIFICATIONS AND GENERAL GUIDELINES OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
3. THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
4. THE DESIGN SPEED FOR THE ROAD IS: ____. THE POSTED SPEED LIMIT IS: ____.
5. ALL LANE DIMENSIONS ARE FROM CENTER OF LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS AND SYMBOLS.
7. THE FINAL LONGITUDINAL STRIPINGS SHALL BE 60 MIL (0.060") 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.
8. 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.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS OF FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET NO MORE THAN 50 FEET APART ALONG THE LINES TO BE IMPLEMENTED. IN TANGENT SECTIONS OF A ROAD WHERE THE PAVEMENT MARKING PATTERN DOES NOT CHANGE, CONTROL POINTS CAN BE SET AT 200 FEET SPACING. THE LAYOUT AND INSPECTION OF ALL PAVEMENT MARKINGS SHALL BE APPROVED BY CITY OF HOUSTON REPRESENTATIVE PRIOR TO THE APPLICATION OF MATERIALS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE STRIPING IS OFFSET NO MORE THAN ONE FOOT CLEAR OF THE CONSTRUCTION JOINT, UNLESS OTHERWISE DIRECTED BY THE CITY TRAFFIC ENGINEER.
11. ALL RAISED PAVEMENT MARKERS (RPMS) SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. TYPE C PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE CLEAR FACE OF EACH MARKER IS FACING THE APPROACHING TRAFFIC FLOW AND PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW.
12. ALL REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED IN ACCORDANCE TO CITY OF HOUSTON STANDARD SPECIFICATION 02762. APPLYING OVER EXISTING PAVEMENT MARKINGS DOES NOT CONSTITUTE AS APPROVED OBLITERATION METHOD.
13. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT OF PAVEMENT MARKING PLANS WITHIN 30 DAYS AFTER COMPLETION OF PAVEMENT MARKING IMPLEMENTATION.
14. BLUE RPMS MAY BE PLACED ADJACENT TO FIRE HYDRANTS WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
15. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID BY THE PROJECT OWNER/DEVELOPER.
16. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY TRANSPORTATION & DRAINAGE OPERATION REPRESENTATIVE (713-803-3054).

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

DRAWING SCALE
NOT TO SCALE

No.	Date	Revisions	App.

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125563
4/15/2026
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 5 OF 11

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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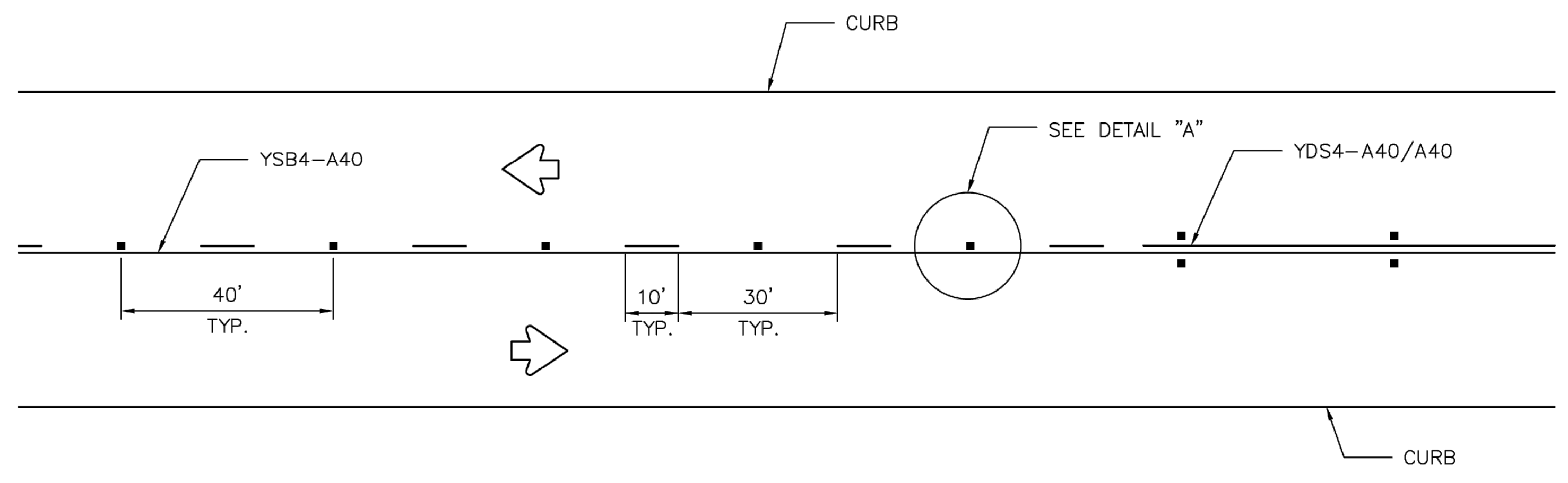
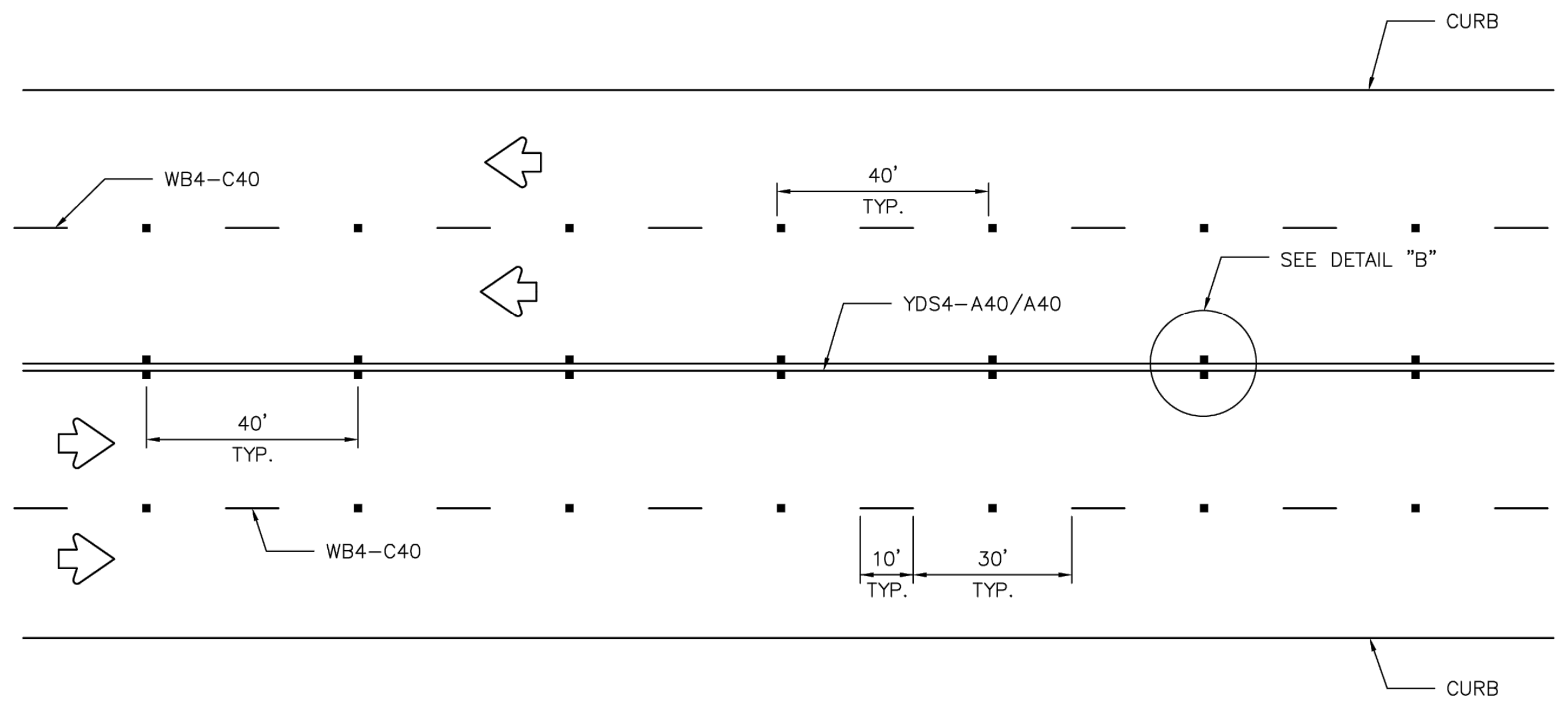
CENTERLINE & FOR ALL TWO LANE STREETS WITH PASSING ZONE

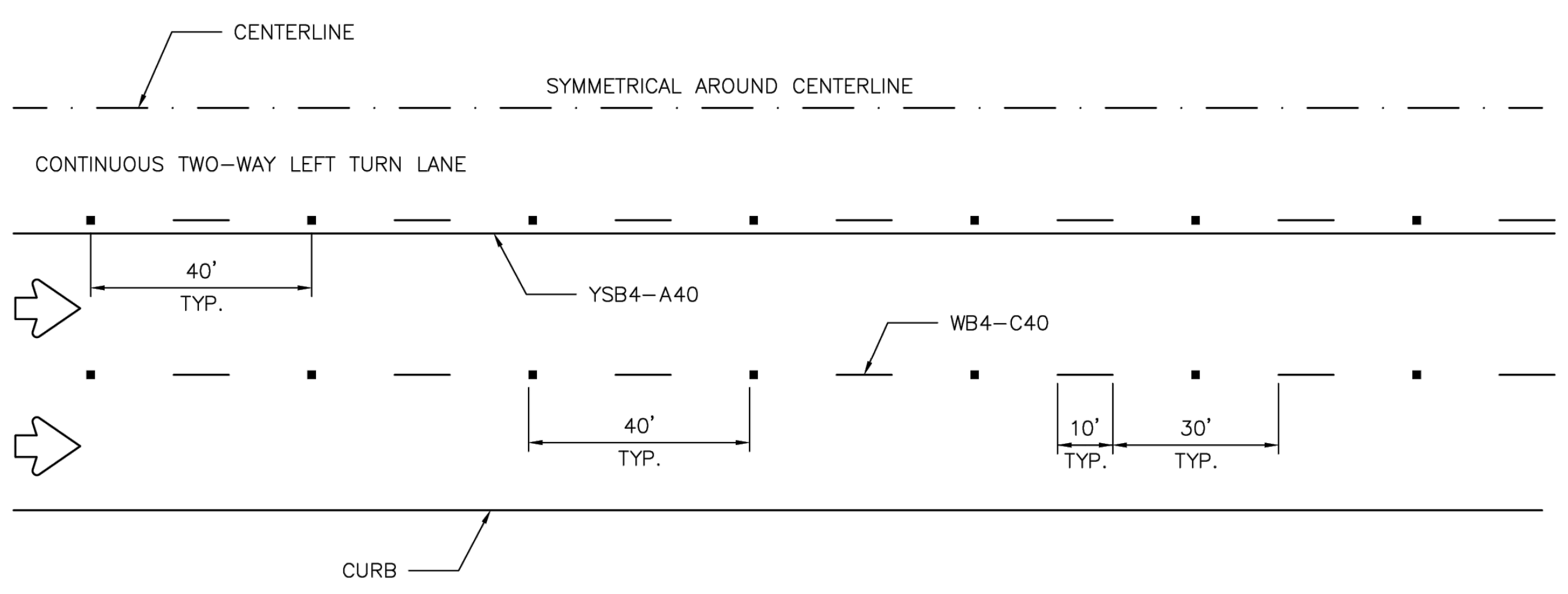

CURB
SEE DETAIL "A"
YSB4-A40
YDS4-A40/A40
40' TYP.
10' TYP.
30' TYP.
CURB

CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY STREETS

RRPM TYPE C, CLEAR FACE TOWARD NORMAL TRAFFIC, SHALL BE PLACED ON 40-FOOT CENTERS.

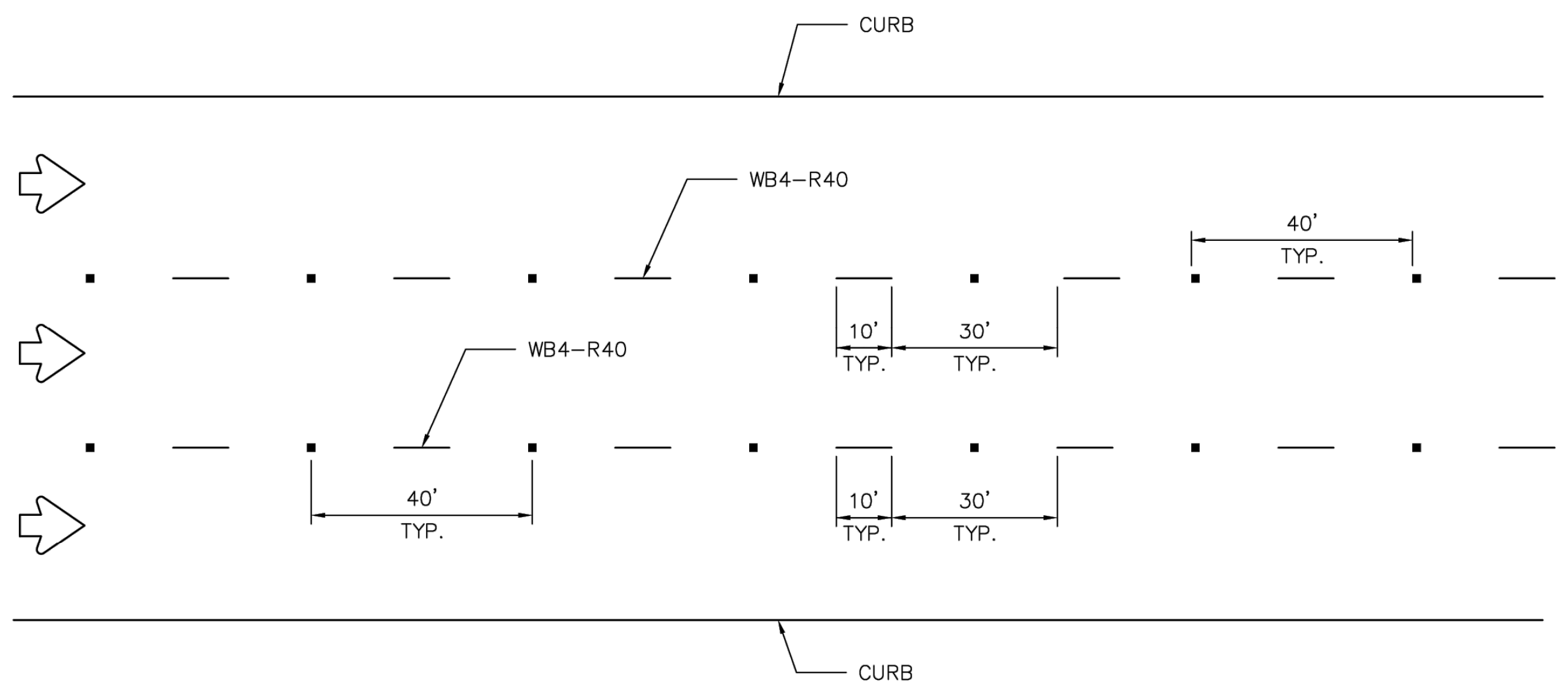

CURB
WB4-C40
40' TYP.
SEE DETAIL "B"
YDS4-A40/A40
40' TYP.
WB4-C40
10' TYP.
30' TYP.
CURB

CENTERLINE & LANE LINES FOR TWO-WAY LEFT TURN LANE


CENTERLINE
SYMMETRICAL AROUND CENTERLINE
CONTINUOUS TWO-WAY LEFT TURN LANE
40' TYP.
YSB4-A40
WB4-C40
40' TYP.
10' TYP.
30' TYP.
CURB

LANE LINES FOR ONE-WAY MULTILANE STREET

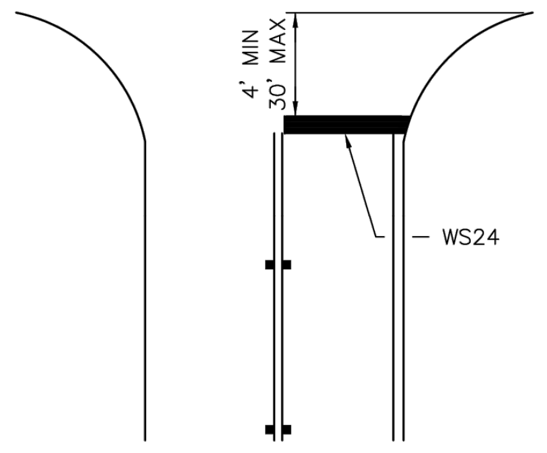
RRPM TYPE R SHALL HAVE CLEAR FACE TOWARD NORMAL TRAFFIC AND RED FACE TOWARD WRONG-WAY TRAFFIC.


CURB
WB4-R40
40' TYP.
10' TYP.
30' TYP.
WB4-R40
40' TYP.
10' TYP.
30' TYP.
CURB

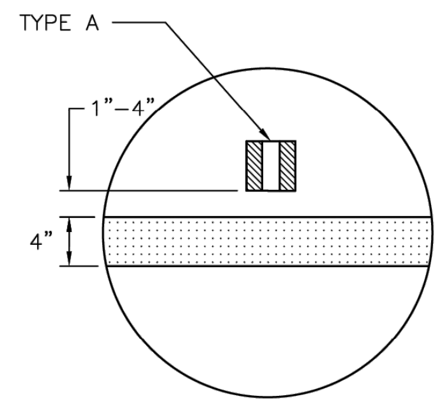
GENERAL NOTES:

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.

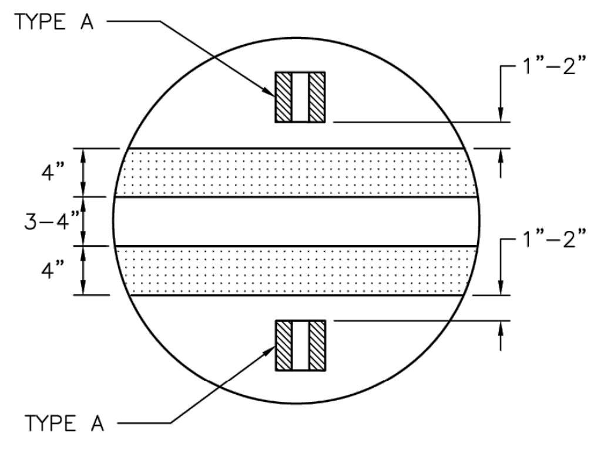
GUIDE FOR PLACEMENT OF STOP LINES & CENTERLINE


4' MIN. 30' MAX.
WS24

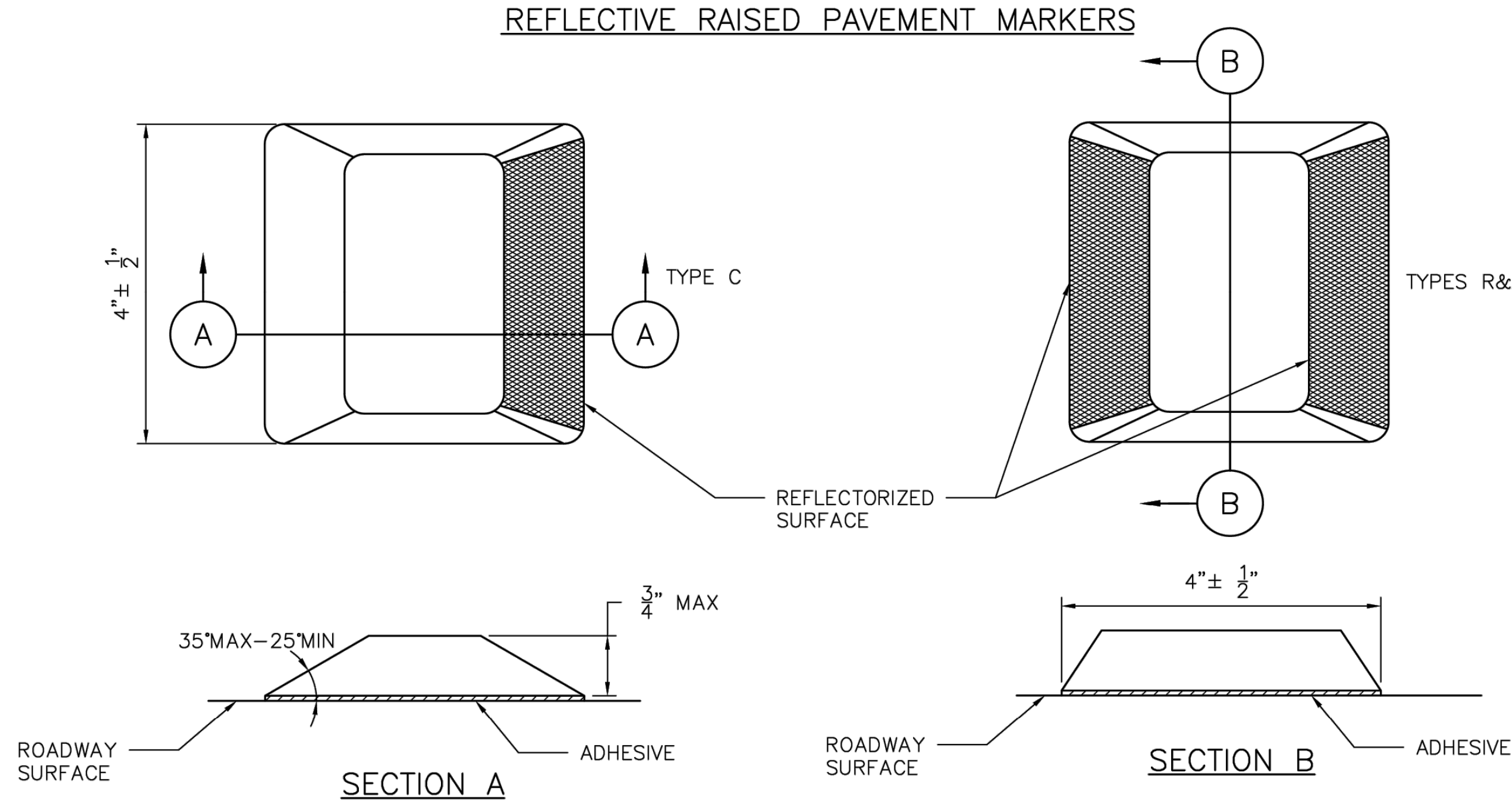
DETAIL "A"



DETAIL "B"


TYPE A
1"-2"
4"
3-4"
4"
1"-2"
TYPE A

REFLECTIVE RAISED PAVEMENT MARKERS


4"± 1/2"
A
A
TYPE C
B
B
TYPES R&A
REFLECTORIZED SURFACE
3/4" MAX
35°MAX-25°MIN
ROADWAY SURFACE
ADHESIVE
SECTION A
4"± 1/2"
ROADWAY SURFACE
ADHESIVE
SECTION B

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CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
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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

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 6 OF 11

WBS NO. M-430296-0017-3
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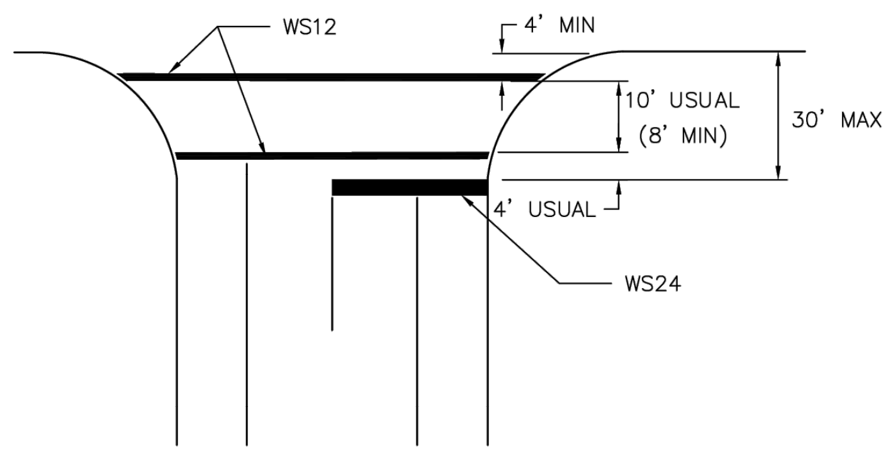
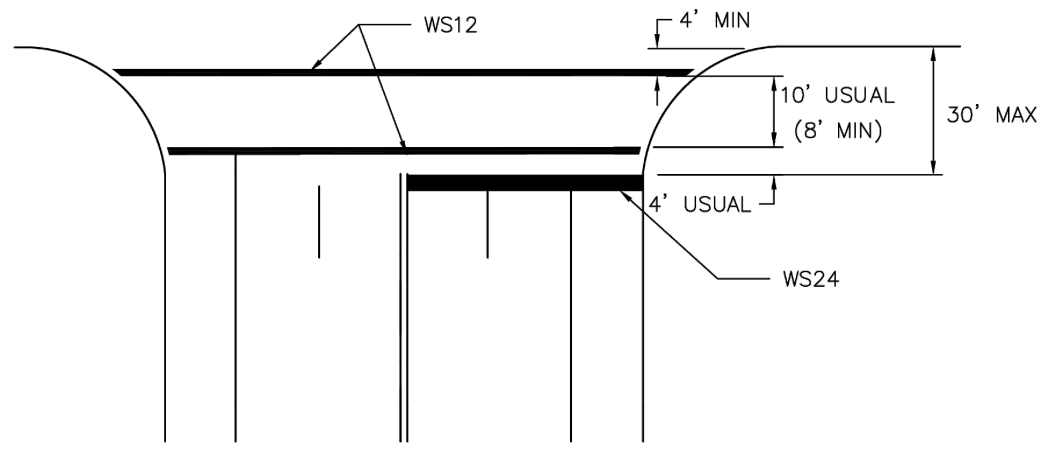
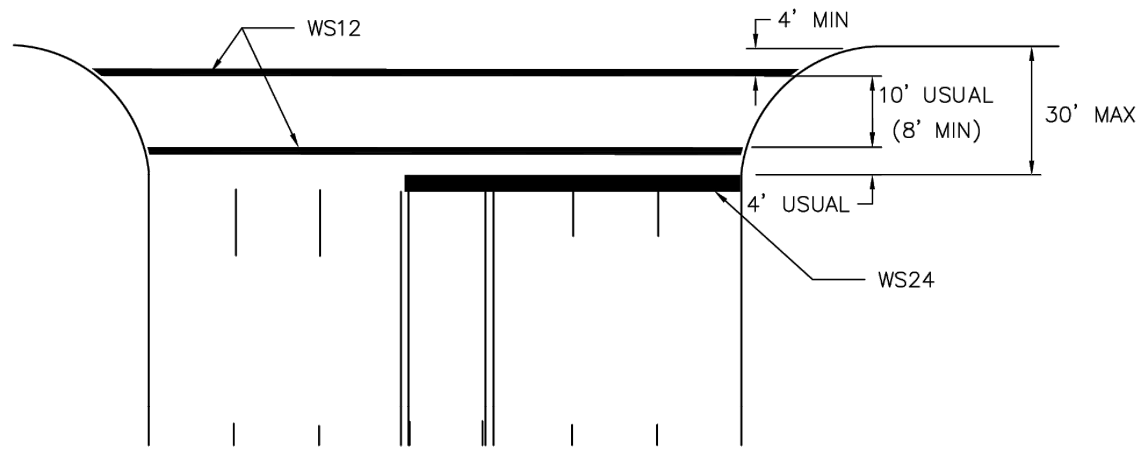
TWO LANES WITH SHOULDERS


WS12
4' MIN
10' USUAL
(8' MIN)
30' MAX
4' USUAL
WS24

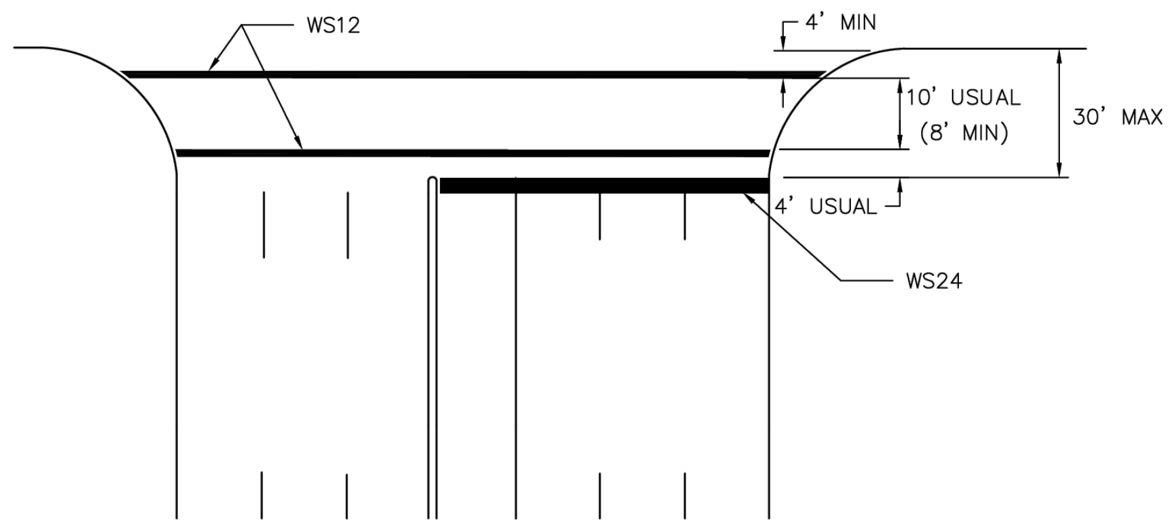
FOUR LANES WITH SHOULDERS


WS12
4' MIN
10' USUAL
(8' MIN)
30' MAX
4' USUAL
WS24

MULTI – LANES


WS12
4' MIN
10' USUAL
(8' MIN)
30' MAX
4' USUAL
WS24

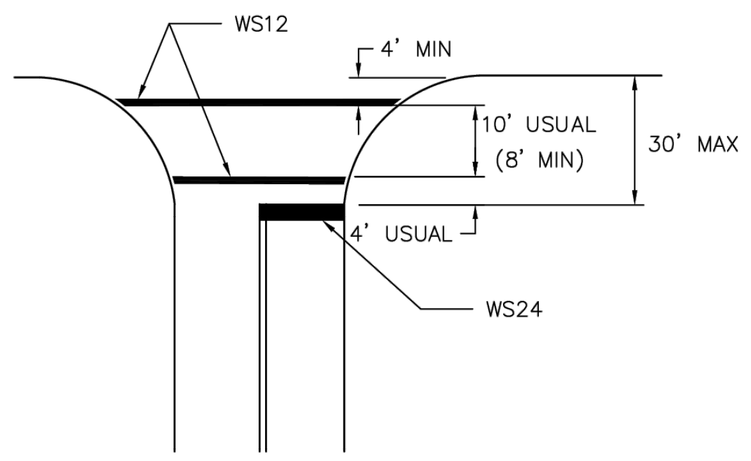
MULTI – LANE WITH MEDIAN


WS12
4' MIN
10' USUAL
(8' MIN)
30' MAX
4' USUAL
WS24

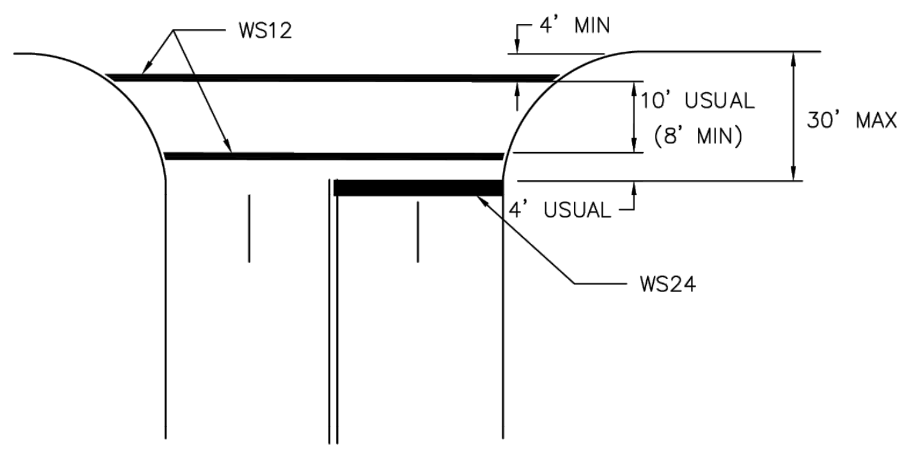
NOTES:

1. CROSSWALKS AND STOP LINES SHALL BE WHITE.
2. "D" IS EQUAL TO ONE HALF THE WIDTH OF TRAVEL LANE.

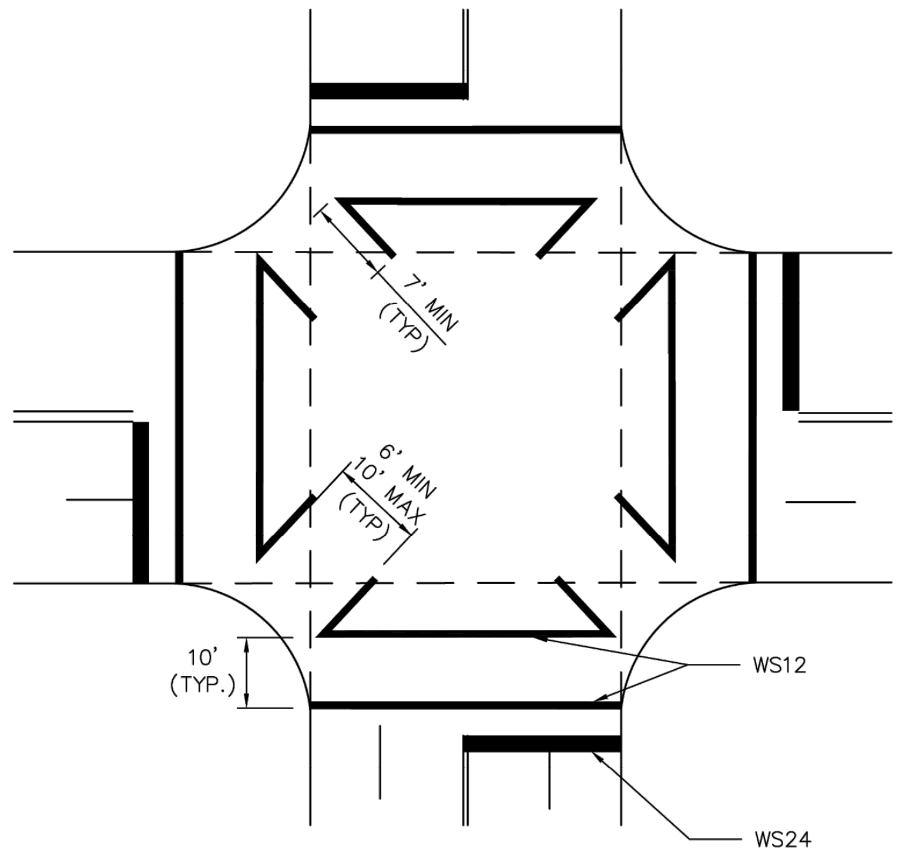
TWO LANES


WS12
4' MIN
10' USUAL
(8' MIN)
30' MAX
4' USUAL
WS24

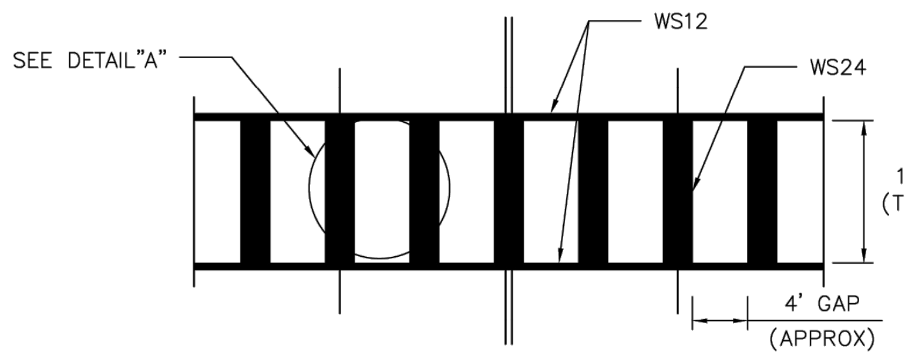
FOUR LANES


WS12
4' MIN
10' USUAL
(8' MIN)
30' MAX
4' USUAL
WS24

EXCLUSIVE PEDESTRIAN PHASE

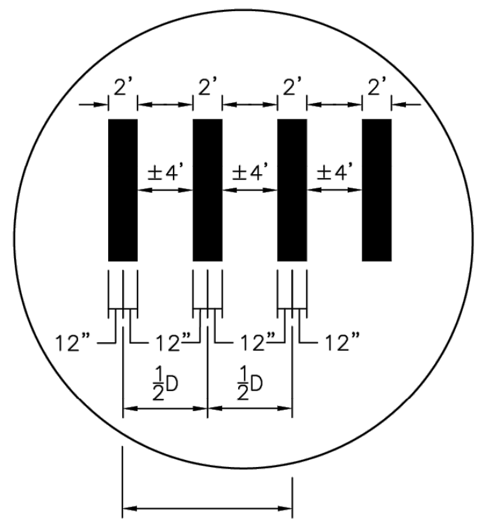

7' MIN
(TYP)
6' MIN
10' MAX
(TYP)
10'
(TYP.)
WS12
WS24

HIGH VISIBILITY CROSSWALK DETAIL


SEE DETAIL"A"
WS12
WS24
10'
(TYP)
4' GAP
(APPROX)

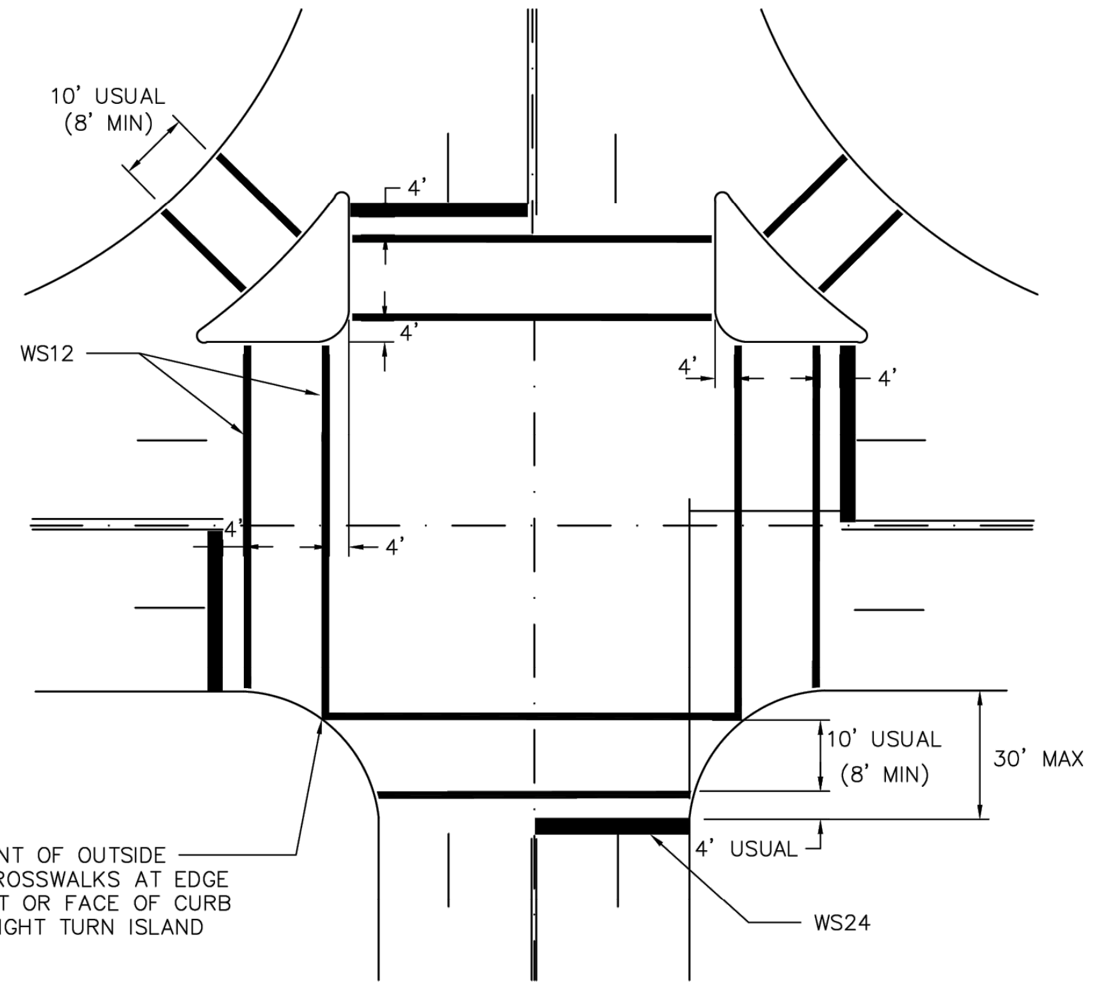
TYPICALLY USED AT SIGNALIZED AND NON–SIGNALIZED CROSSINGS ON COLLECTOR AND ARTERIAL ROADWAYS AND AT LOCATIONS REQUIRING EXTRA EMPHASIS.

DETAIL "A"


2'
2'
2'
2'
±4'
±4'
±4'
12"
12"
12"
12"
½D
½D

D = LANE WIDTH

INTERSECTION WITH RIGHT – TURN ISLANDS


10' USUAL
(8' MIN)
4'
4'
WS12
4'
4'
4'
4'
4'
10' USUAL
(8' MIN)
30' MAX
4' USUAL
WS24

COMMON POINT OF OUTSIDE EDGES OF CROSSWALKS AT EDGE OF PAVEMENT OR FACE OF CURB WHERE NO RIGHT TURN ISLAND EXIST.

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CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by: Carol Haddock
A93C410B72B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023
DWG NO: 02760–12

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TYPICAL CROSSWALK DETAILS

DRAWING SCALE
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 7 OF 11

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 224 OF 345

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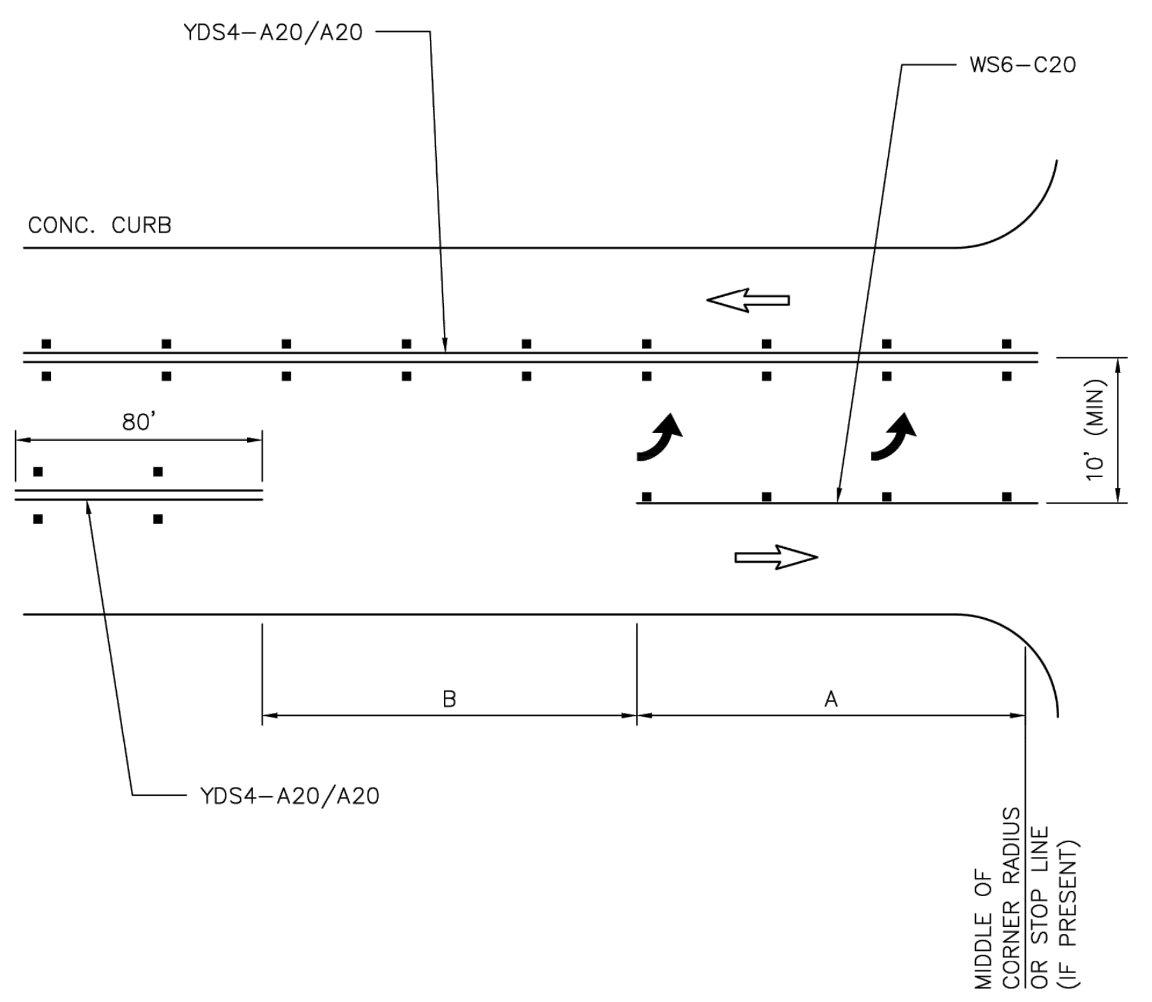
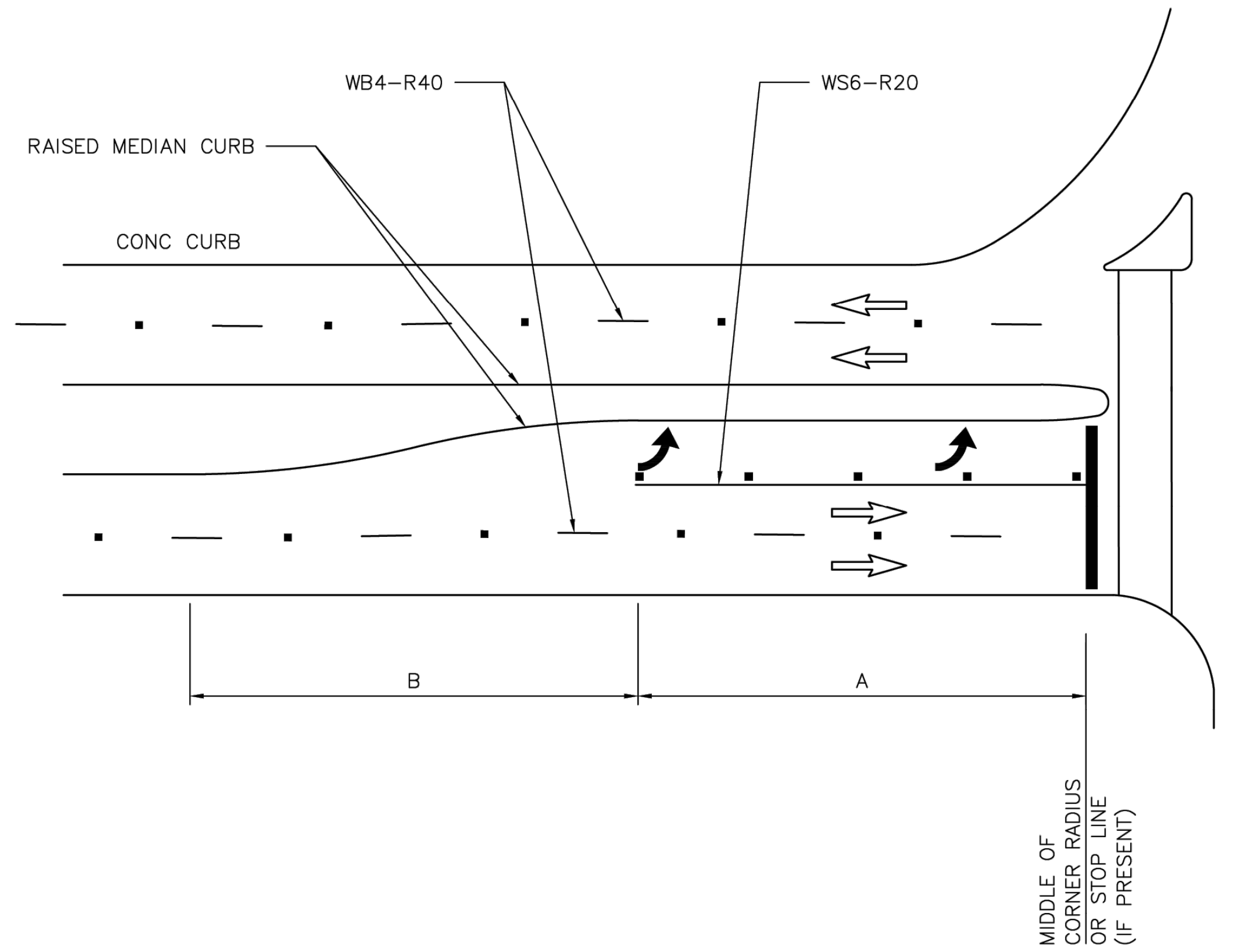
LEFT–TURN LANE



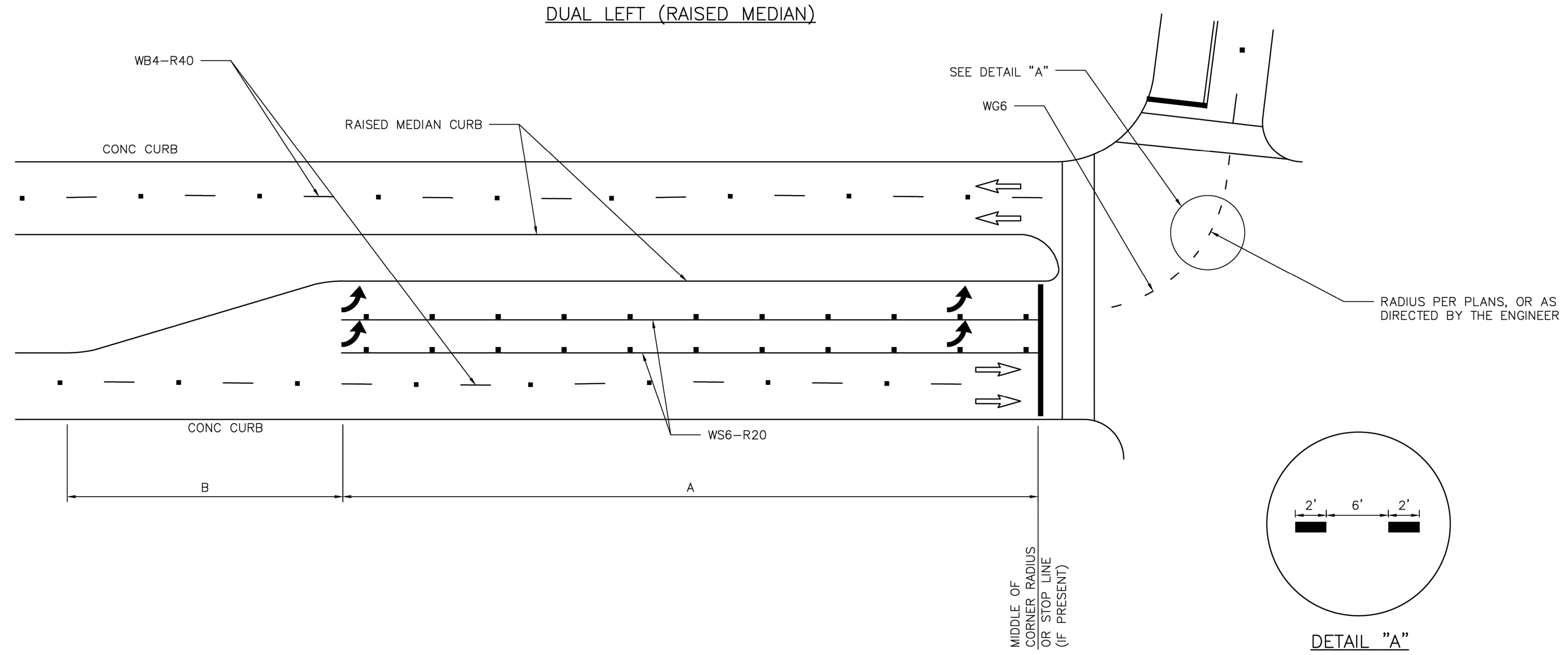
YDS4–A20/A20
WS6–C20
CONC. CURB
80'
10' (MIN)
B
A
YDS4–A20/A20
MIDDLE OF CORNER RADIUS OR STOP LINE (IF PRESENT)

LEFT–TURN LANE (RAISED MEDIAN)



WB4–R40
WS6–R20
RAISED MEDIAN CURB
CONC CURB
B
A
MIDDLE OF CORNER RADIUS OR STOP LINE (IF PRESENT)

DUAL LEFT (RAISED MEDIAN)



WB4–R40
SEE DETAIL "A"
WG6
RAISED MEDIAN CURB
CONC CURB
RADIUS PER PLANS, OR AS DIRECTED BY THE ENGINEER
CONC CURB
WS6–R20
B
A
MIDDLE OF CORNER RADIUS OR STOP LINE (IF PRESENT)
2'
6'
2'

DETAIL "A"

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.

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.

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DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by:
Carol Haddock
A93C410B72B3453...
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

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 8 OF 11

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 225 OF 345

No.	Date	Revisions	App.

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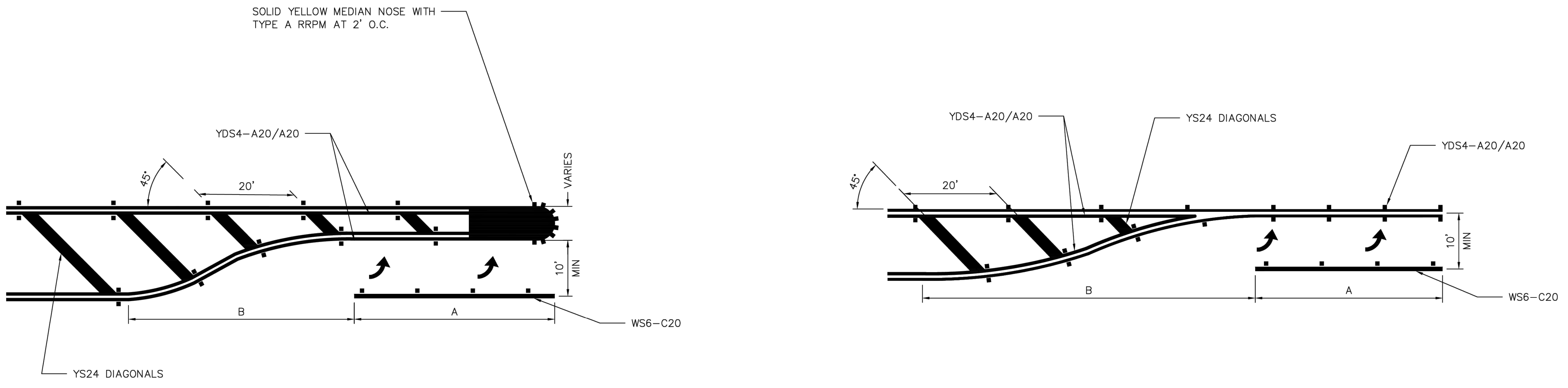
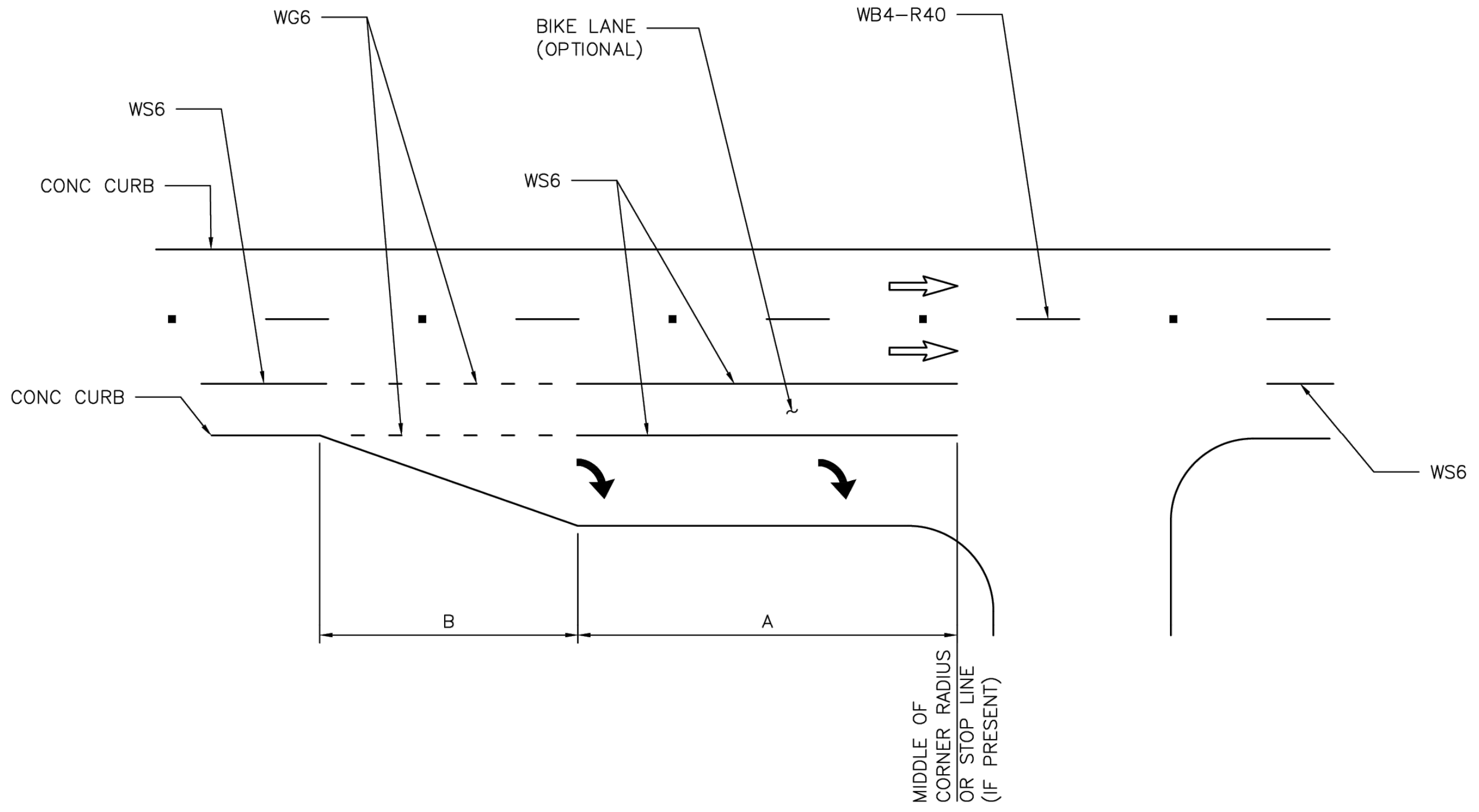
No.	Date	Revisions	App.

PAINTED MEDIAN LEFT TURN BAY DETAILS



UNSIGNALIZED RIGHT–TURN LANE



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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.

GENERAL NOTES:

1. STORAGE LENGTHS LONGER THAN THE MINIMUMS LISTED ON THIS DRAWING MAY BE DETERMINED USING TRAFFIC ENGINEERING ANALYSIS OR APPROXIMATE CALCULATIONS.
2. FOR THE PLACEMENT OF PAVEMENT ARROWS AND WORDS REFER TO 02760–02 – LEFT/RIGHT TURN "ONLY" AND ARROW SPACING.
3. 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.
4. 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.

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

HRGreen
FIRM NO. F–11278
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 9 OF 11

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 226 OF 345

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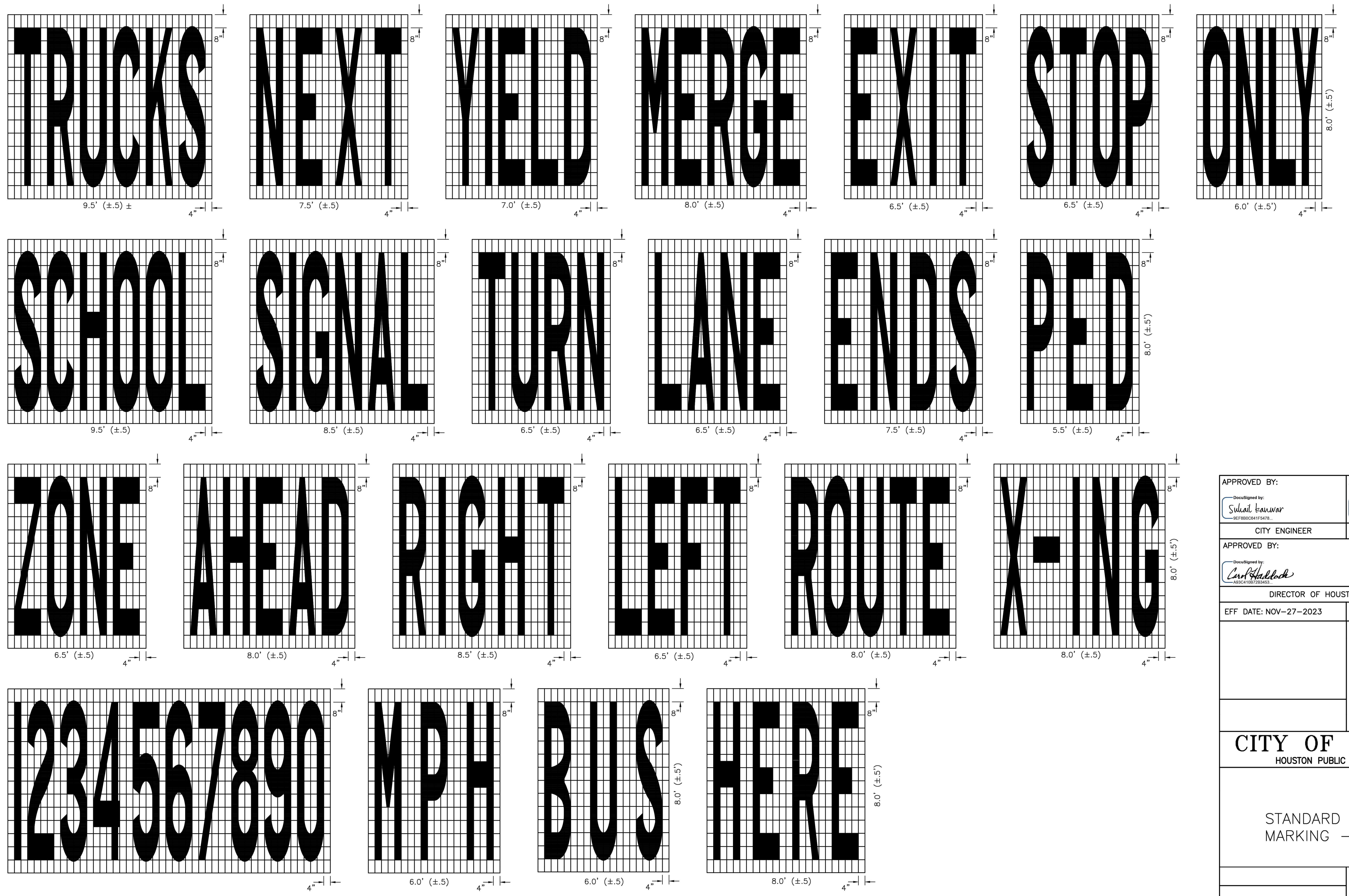
TRUCKS
NEXT
YIELD
MERGE
EXIT
STOP
ONLY
SCHOOL
SIGNAL
TURN
LANE
ENDS
PED
ZONE
AHEAD
RIGHT
LEFT
ROUTE
X-ING
1234567890
MPH
BUS
HERE
9.5' (±.5) ±
7.5' (±.5)
7.0' (±.5)
8.0' (±.5)
6.5' (±.5)
6.5' (±.5)
6.0' (±.5')
8.0' (±.5')
9.5' (±.5)
8.5' (±.5)
6.5' (±.5)
6.5' (±.5)
7.5' (±.5)
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6.5' (±.5)
8.0' (±.5)
8.0' (±.5)
8.0' (±.5')
6.0' (±.5)
6.0' (±.5)
8.0' (±.5)
8.0' (±.5')
8.0' (±.5')
8"
4"

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.

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DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by:
Carol Haddock
A93C410B72B3453...
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

HRGreen
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11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 10 OF 11

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 227 OF 345

No.	Date	Revisions	App.

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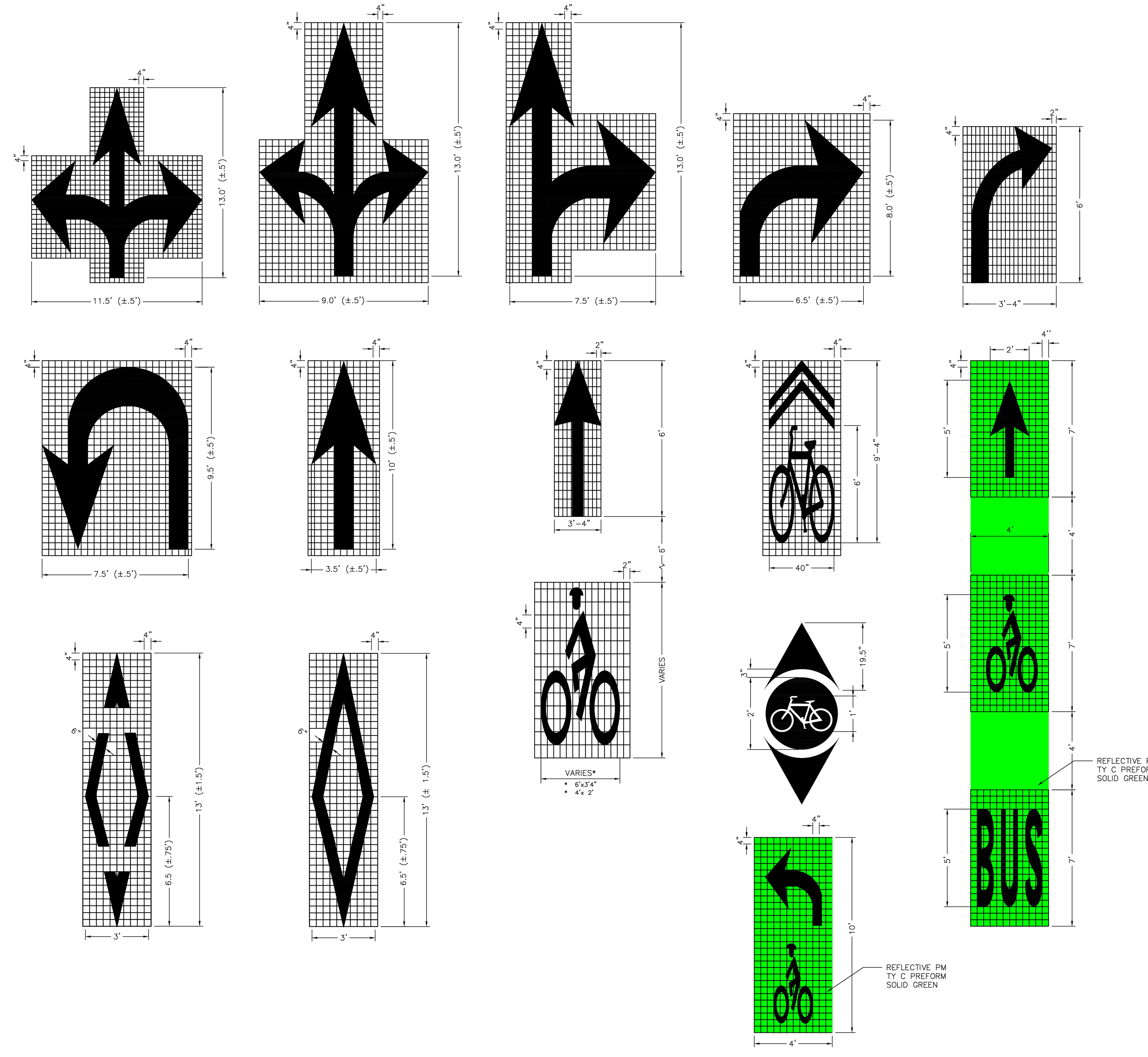


NOTES FOR PAVEMENT MARKINGS "SYMBOLS" AND "ARROWS":

1. MINIMUM 8 FOOT WHITE MARKINGS SHALL BE USED, UNLESS OTHERWISE NOTED. IF MESSAGE CONSISTS OF MORE THAN ONE WORD, IT SHOULD BE PLACED WITH FIRST WORD NEAREST THE DRIVER.

2. THESE DETAILS ARE STANDARD SIZE FOR NORMAL INSTALLATION; SIZES MAY BE REDUCED APPROXIMATELY ONE–THIRD DEPENDING ON CONDITIONS. SPECIAL PERMISSION NEEDED BY CITY TRAFFIC ENGINEER FOR REDUCTION BELOW ONE–THIRD OF STANDARD SIZES.

3. THE LONGITUDINAL SPACE BETWEEN MARKINGS SHOULD BE 30 FEET, OR AS INDICATED ON THE PLANS.

4. MARKINGS CONSIDERED APPROPRIATE FOR USE WHEN WARRANTED INCLUDE THE FOLLOWING:

   A. 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.

5. UNCONTROLLED USE OF PAVEMENT MARKINGS CAN RESULT IN DRIVER CONFUSION. WORD AND SYMBOL MARKINGS SHOULD BE NO MORE THAN THREE LINES.

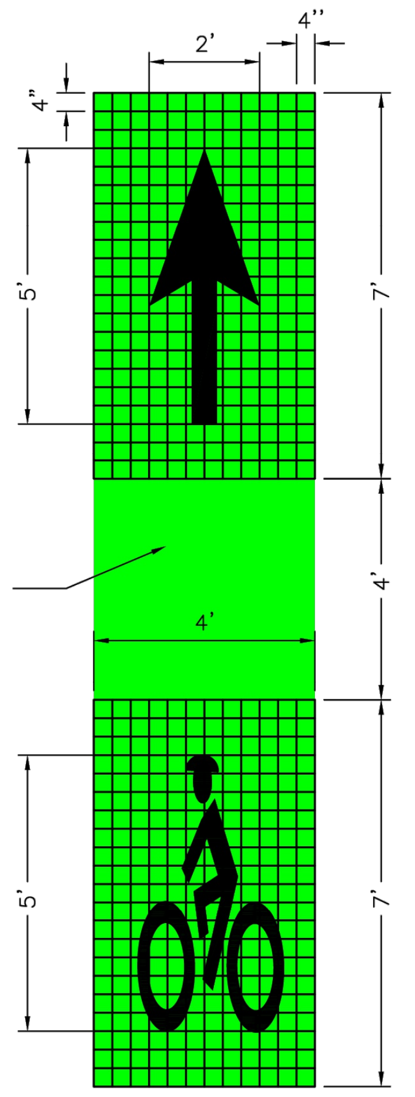
6. THE WORD "STOP" SHALL NOT BE USED ON THE PAVEMENT UNLESS ACCOMPANIED BY A STOP LINE AND STOP SIGN. THE WORD "STOP" SHALL NOT BE PLACED ON THE PAVEMENT IN ADVANCE TO A STOP LINE, UNLESS EVERY VEHICLE IS REQUIRED TO STOP AT ALL TIMES (ALL–WAY STOP).

7. PAVEMENT MARKINGS SHOULD GENERALLY BE NO MORE THAN ONE LANE IN WIDTH, WITH SCHOOL MESSAGES BEING THE EXCEPTION. FOR DETAILS OF SCHOOL AND SCHOOL CROSSING PAVEMENT MARKINGS, REFER TO PART VII OF THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

8. 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".

9. 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".

10. PAVEMENT MARKINGS ARE TO BE LOCATED AS SPECIFIED IN THE DESIGN PLANS.



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CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by:
Carol Haddock
A93C410B72B3453...
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

No.	Date	Revisions	App.

HRGreen
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11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

STATE OF TEXAS
DAVID G. GREANEY
125563
LICENSED PROFESSIONAL ENGINEER
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

SIGNING AND PAVING MARKING
STANDARD DETAILS

SHEET 11 OF 11

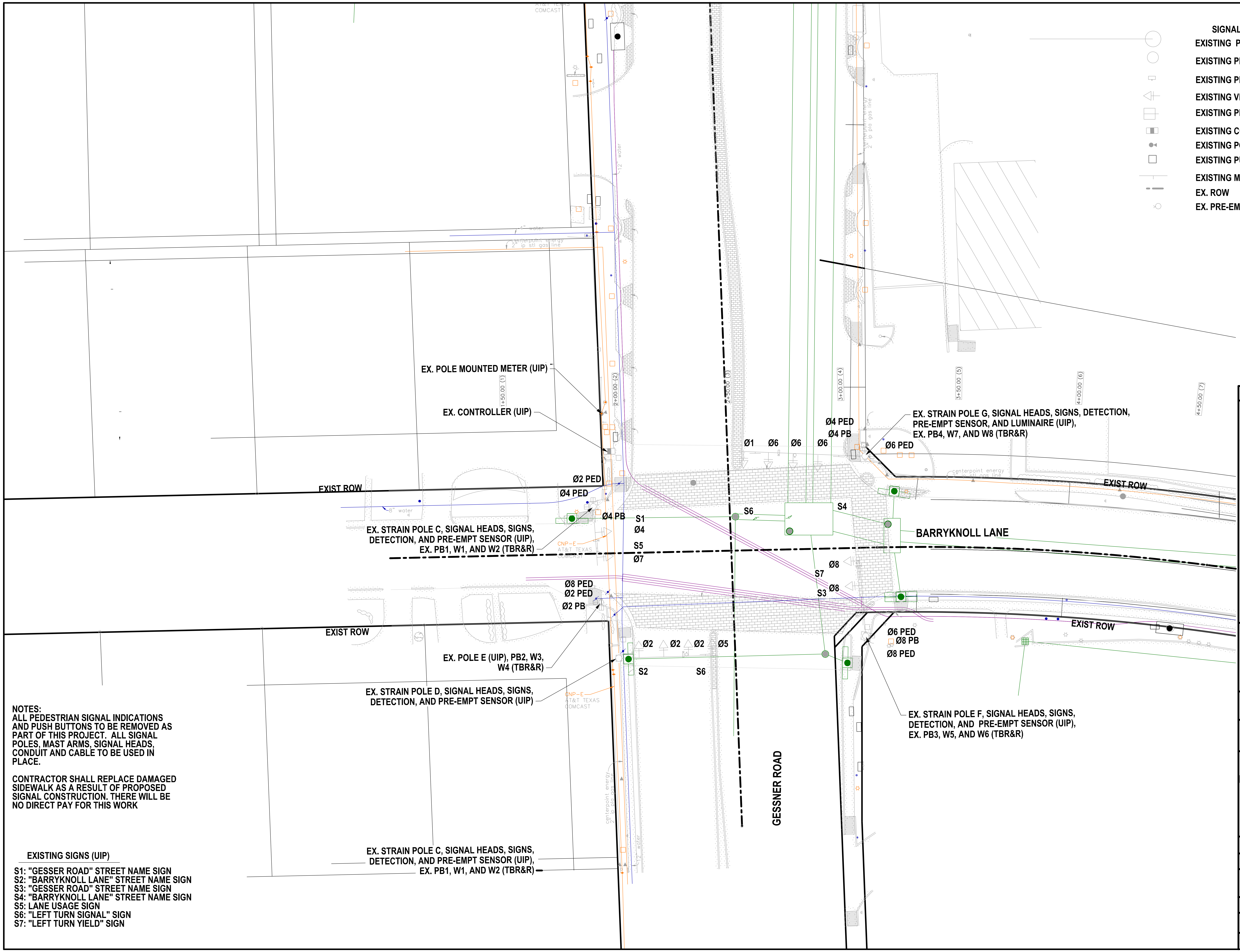
WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 228 OF 345


EX. POLE MOUNTED METER (UIP)
EX. CONTROLLER (UIP)
EXIST ROW
Ø2 PED
Ø4 PED
Ø4 PB
EX. STRAIN POLE C, SIGNAL HEADS, SIGNS, DETECTION, AND PRE-EMPT SENSOR (UIP), EX. PB1, W1, AND W2 (TBR&R)
S1
Ø4
S5
Ø7
Ø8 PED
Ø2 PED
Ø2 PB
EXIST ROW
EX. POLE E (UIP), PB2, W3, W4 (TBR&R)
EX. STRAIN POLE D, SIGNAL HEADS, SIGNS, DETECTION, AND PRE-EMPT SENSOR (UIP)
Ø2
Ø2
Ø2
Ø5
S2
S6
EX. STRAIN POLE C, SIGNAL HEADS, SIGNS, DETECTION, AND PRE-EMPT SENSOR (UIP), EX. PB1, W1, AND W2 (TBR&R)
GESSNER ROAD
Ø1
Ø6
Ø6
Ø6
Ø4 PED
Ø4 PB
Ø6 PED
EX. STRAIN POLE G, SIGNAL HEADS, SIGNS, DETECTION, PRE-EMPT SENSOR, AND LUMINAIRE (UIP), EX. PB4, W7, AND W8 (TBR&R)
S6
S4
BARRYKNOLL LANE
EXIST ROW
S7
Ø8
S3
Ø8
Ø6 PED
Ø8 PB
Ø8 PED
EXIST ROW
EX. STRAIN POLE F, SIGNAL HEADS, SIGNS, DETECTION, AND PRE-EMPT SENSOR (UIP), EX. PB3, W5, AND W6 (TBR&R)
1+50.00 (1)
2+00.00 (2)
2+50.00 (3)
3+00.00 (4)
3+50.00 (5)
4+00.00 (6)
4+50.00 (7)
CNP-E
AT&T TEXAS
COMCAST
centerpoint energy
2" ip stl gas line
8" water
12" water
N
0
20'
1" = 20'

SIGNAL LEGEND

○	EXISTING POLE W/ MAST ARM
○	EXISTING PEDESTAL POLE
▭	EXISTING PEDESTRIAN PUSH BUTTON
◁	EXISTING VEHICLE SIGNAL HEAD W/BLACK PLATE
⊞	EXISTING PEDESTRIAN SIGNAL HEAD
◧	EXISTING CONTROLLER CABINET
●	EXISTING POLE MOUNTED METER
☐	EXISTING PULL BOX - TYPE B
┴	EXISTING MAST ARM SIGN
▬ ▬	EX. ROW
○	EX. PRE-EMPT SENSOR

NOTES:
ALL PEDESTRIAN SIGNAL INDICATIONS AND PUSH BUTTONS TO BE REMOVED AS PART OF THIS PROJECT. ALL SIGNAL POLES, MAST ARMS, SIGNAL HEADS, CONDUIT AND CABLE TO BE USED IN PLACE.

CONTRACTOR SHALL REPLACE DAMAGED SIDEWALK AS A RESULT OF PROPOSED SIGNAL CONSTRUCTION. THERE WILL BE NO DIRECT PAY FOR THIS WORK

EXISTING SIGNS (UIP)

S1: "GESSER ROAD" STREET NAME SIGN
S2: "BARRYKNOLL LANE" STREET NAME SIGN
S3: "GESSER ROAD" STREET NAME SIGN
S4: "BARRYKNOLL LANE" STREET NAME SIGN
S5: LANE USAGE SIGN
S6: "LEFT TURN SIGNAL" SIGN
S7: "LEFT TURN YIELD" SIGN

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

CABLE COMPANY — DATE

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

HRGreen
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
Daniel T. Shane
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING TRAFFIC SIGNAL AT
BARRYKNOLL LANE AND GESSNER
ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

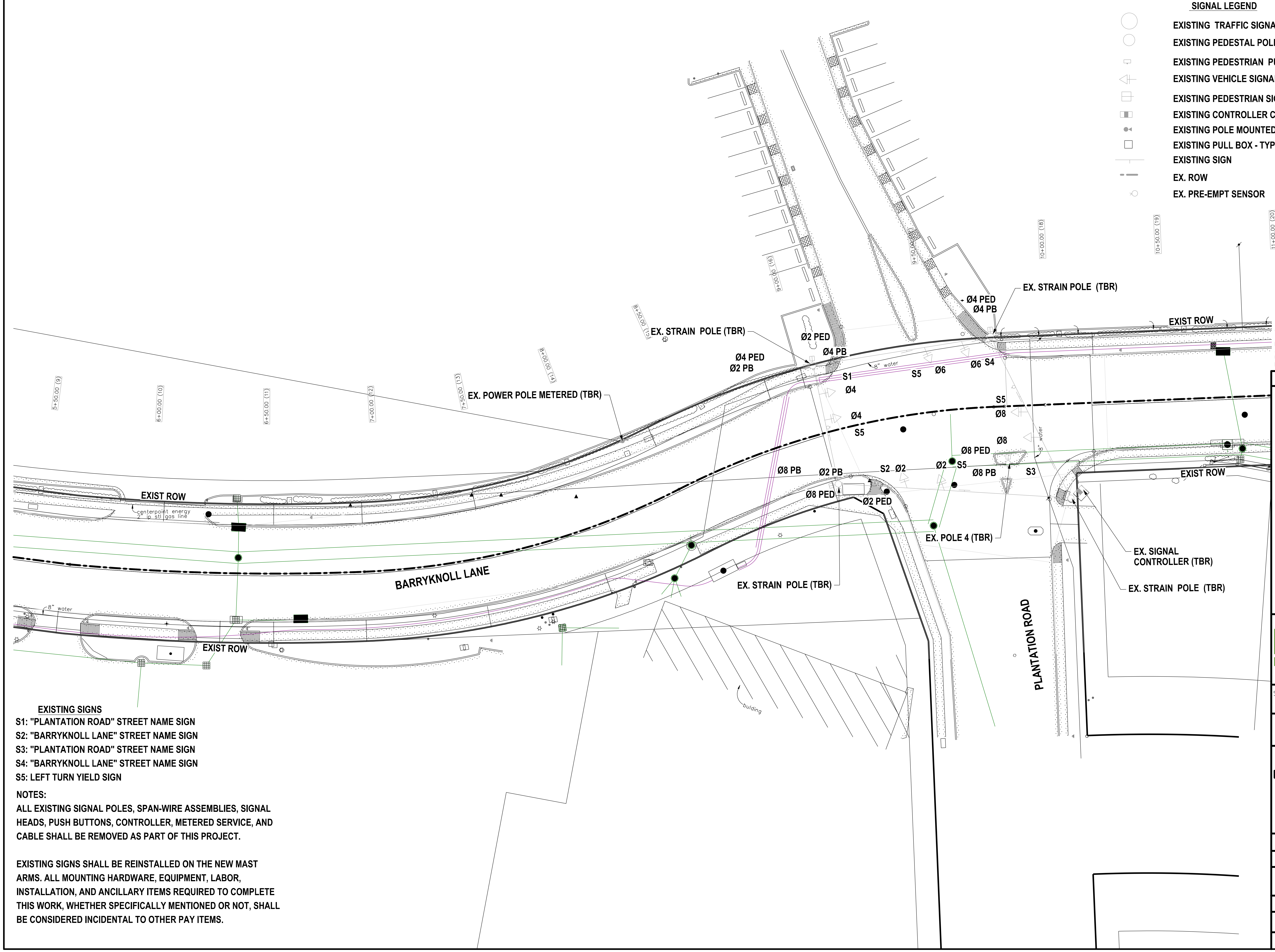
SHEET NO. 229 OF 345

No.	Date	Revisions	App.

No.	Date	Revisions	App.

SIGNAL LEGEND

○	EXISTING TRAFFIC SIGNAL POLE
○	EXISTING PEDESTAL POLE
▭	EXISTING PEDESTRIAN PUSH BUTTON
◁	EXISTING VEHICLE SIGNAL HEAD W/BLACK PLATE
⊟	EXISTING PEDESTRIAN SIGNAL HEAD
▥	EXISTING CONTROLLER CABINET
●	EXISTING POLE MOUNTED METER
□	EXISTING PULL BOX - TYPE B
┼	EXISTING SIGN
— —	EX. ROW
○	EX. PRE-EMPT SENSOR


N
0
20'
1" = 20'
5+50.00 (9)
6+00.00 (10)
6+50.00 (11)
7+00.00 (12)
7+50.00 (13)
8+00.00 (14)
8+50.00 (15)
9+00.00 (16)
9+50.00 (17)
10+00.00 (18)
10+50.00 (19)
11+00.00 (20)
11+50.00 (21)
EX. STRAIN POLE (TBR)
EX. STRAIN POLE (TBR)
Ø4 PED
Ø4 PB
Ø2 PED
Ø4 PB
Ø4 PED
Ø2 PB
EXIST ROW
EX. POWER POLE METERED (TBR)
S1
Ø4
8" water
S5
Ø6
Ø6
S4
S5
Ø8
Ø4
S5
Ø8
8" water
Ø8 PED
Ø8 PB
Ø2 PB
S2
Ø2
Ø2
S5
Ø8 PB
S3
EXIST ROW
Ø8 PED
Ø2 PED
EXIST ROW
centerpoint energy
2" ip stl gas line
EX. POLE 4 (TBR)
EX. SIGNAL CONTROLLER (TBR)
EX. STRAIN POLE (TBR)
EX. STRAIN POLE (TBR)
BARRYKNOLL LANE
8" water
EXIST ROW
PLANTATION ROAD
building

EXISTING SIGNS

S1: "PLANTATION ROAD" STREET NAME SIGN
S2: "BARRYKNOLL LANE" STREET NAME SIGN
S3: "PLANTATION ROAD" STREET NAME SIGN
S4: "BARRYKNOLL LANE" STREET NAME SIGN
S5: LEFT TURN YIELD SIGN

NOTES:

ALL EXISTING SIGNAL POLES, SPAN-WIRE ASSEMBLIES, SIGNAL HEADS, PUSH BUTTONS, CONTROLLER, METERED SERVICE, AND CABLE SHALL BE REMOVED AS PART OF THIS PROJECT.

EXISTING SIGNS SHALL BE REINSTALLED ON THE NEW MAST ARMS. ALL MOUNTING HARDWARE, EQUIPMENT, LABOR, INSTALLATION, AND ANCILLARY ITEMS REQUIRED TO COMPLETE THIS WORK, WHETHER SPECIFICALLY MENTIONED OR NOT, SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

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 VERIFICATION DOES NOT FULFILL YOUR OBLIGATION TO CALL 811.

VERIFICATION OF PRIVATE UTILITY LINES

CENTERPOINT ENERGY/NATURAL GAS FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT YOU HAVE SHOWN CNP NATURAL GAS LINES CORRECTLY – NOT TO BE USED FOR CONFLICT VERIFICATION.) (GAS SERVICE LINES ARE NOT SHOWN.) SIGNATURE VALID FOR SIX MONTHS — DATE

APPROVED FOR AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES ONLY. SIGNATURE VALID FOR ONE YEAR. — DATE

CENTERPOINT ENERGY/UNDERGROUND ELECTRIC FACILITIES VERIFICATION ONLY. (THIS SIGNATURE VERIFIES THAT EXISTING UNDERGROUND FACILITIES – NOT TO BE USED FOR CONFLICT VERIFICATION.) SIGNATURE VALID FOR SIX MONTHS. — DATE

CABLE COMPANY — DATE

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HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

DANIEL T. SHANE
130285
Daniel T. Shane
4/15/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING TRAFFIC SIGNAL AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 230 OF 345

POSTED SPEED LIMIT

BARRYKNOLL LANE - 30 MPH
PLANTATION ROAD - 30 MPH

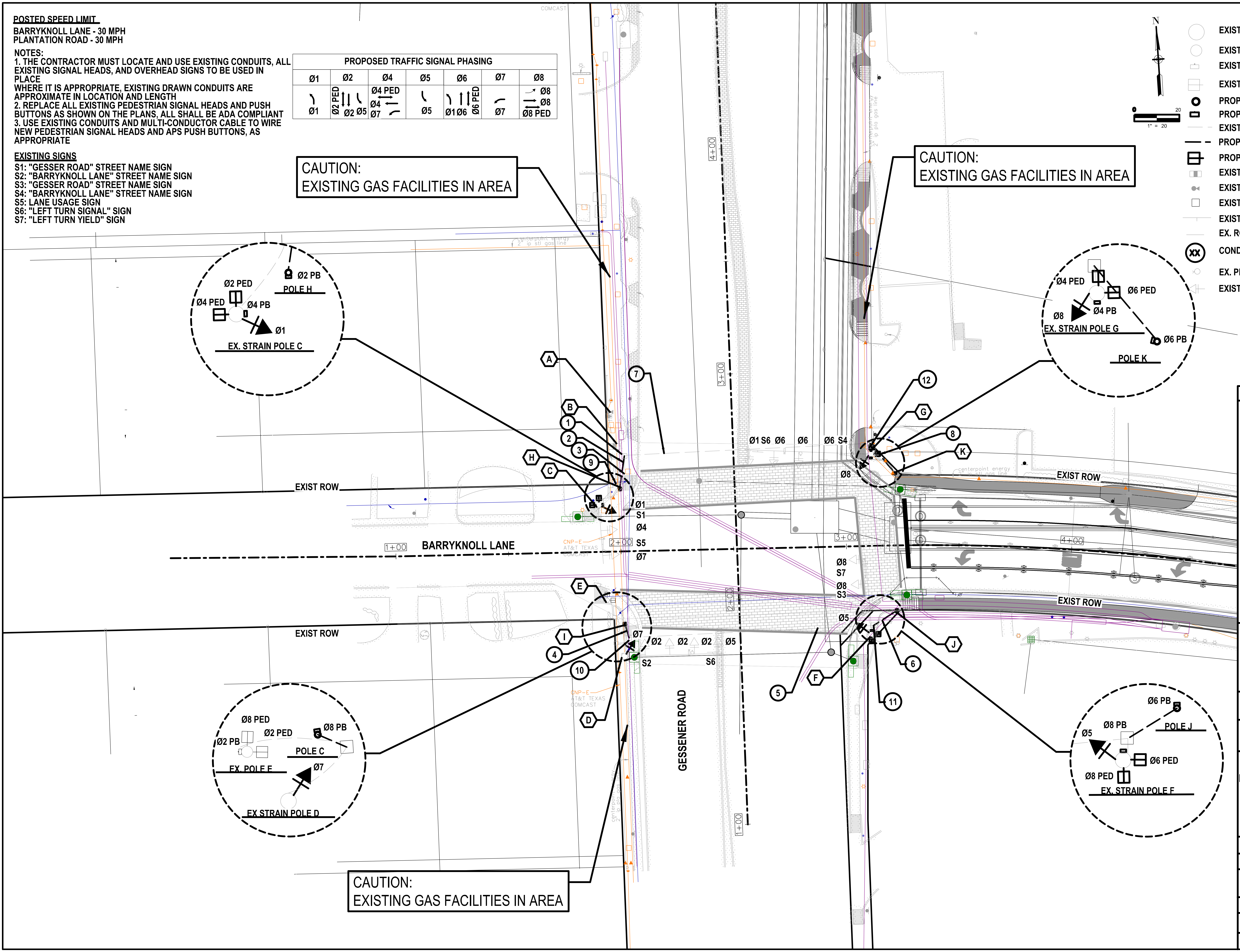
NOTES:
1. THE CONTRACTOR MUST LOCATE AND USE EXISTING CONDUITS, ALL EXISTING SIGNAL HEADS, AND OVERHEAD SIGNS TO BE USED IN PLACE
WHERE IT IS APPROPRIATE, EXISTING DRAWN CONDUITS ARE APPROXIMATE IN LOCATION AND LENGTH
2. REPLACE ALL EXISTING PEDESTRIAN SIGNAL HEADS AND PUSH BUTTONS AS SHOWN ON THE PLANS, ALL SHALL BE ADA COMPLIANT
3. USE EXISTING CONDUITS AND MULTI-CONDUCTOR CABLE TO WIRE NEW PEDESTRIAN SIGNAL HEADS AND APS PUSH BUTTONS, AS APPROPRIATE

EXISTING SIGNS

S1: "GESSER ROAD" STREET NAME SIGN
S2: "BARRYKNOLL LANE" STREET NAME SIGN
S3: "GESSER ROAD" STREET NAME SIGN
S4: "BARRYKNOLL LANE" STREET NAME SIGN
S5: LANE USAGE SIGN
S6: "LEFT TURN SIGNAL" SIGN
S7: "LEFT TURN YIELD" SIGN

PROPOSED TRAFFIC SIGNAL PHASING

Ø1	Ø2	Ø4	Ø5	Ø6	Ø7	Ø8
↰ Ø1	Ø2 PED ↑↓ ↲ Ø2 Ø5	Ø4 PED ↔ Ø4 ← Ø7 ↰	↲ Ø5	↰ ↑↕ Ø1 Ø6 Ø6 PED	↰ Ø7	↗ Ø8 → Ø8 ↔ Ø8 PED


COMCAST
CAUTION:
EXISTING GAS FACILITIES IN AREA
CAUTION:
EXISTING GAS FACILITIES IN AREA
CAUTION:
EXISTING GAS FACILITIES IN AREA
centerpoint energy
2" ip stl gas line
Ø2 PED
Ø2 PB
POLE H
Ø4 PED
Ø4 PB
Ø1
EX. STRAIN POLE C
Ø4 PED
Ø6 PED
Ø4 PB
Ø8
EX. STRAIN POLE G
Ø6 PB
POLE K
Ø8 PED
Ø2 PED
Ø8 PB
Ø2 PB
POLE C
EX. POLE E
Ø7
EX STRAIN POLE D
Ø6 PB
Ø8 PB
POLE J
Ø5
Ø6 PED
Ø8 PED
EX. STRAIN POLE F
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EXIST ROW
EXIST ROW
EXIST ROW
EXIST ROW
BARRYKNOLL LANE
GESSENER ROAD
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4+00
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S7
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S3
Ø5
Ø7
Ø2 Ø2 Ø2 Ø5
S2 S6
CNP-E
AT&T TEXAS
COMCAST
centerpoint energy

SIGNAL LEGEND

- EXISTING POLE W/ MAST ARM
- EXISTING PEDESTAL POLE
- EXISTING PEDESTRIAN PUSH BUTTON
- EXISTING PEDESTRIAN SIGNAL HEAD
- PROPOSED PEDESTAL POLE
- PROPOSED PEDESTRIAN PUSH BUTTON
- EXISTING CONDUIT
- PROPOSED CONDUIT
- PROPOSED PEDESTRIAN SIGNAL HEAD
- EXISTING CONTROLLER CABINET
- EXISTING POLE MOUNTED METER
- EXISTING PULL BOX - TYPE B
- EXISTING MAST ARM SIGN
- EX. ROW
- XX CONDUIT RUN
- EX. PRE-EMPT SENSOR
- EXISTING VEHICLE SIGNAL HEAD W/BLACK PLATE

N

0 20
1" = 20

No.	Date	Revisions	App.

TO ARRANGE FOR LINE TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT (713) 207-2222

NOTICE:

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VERIFICATION OF PRIVATE UTILITY LINES

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CABLE COMPANY DATE

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4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC SIGNAL MODIFICATION AT BARRYKNOLL LANE AND GESSNER ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 231 OF 345

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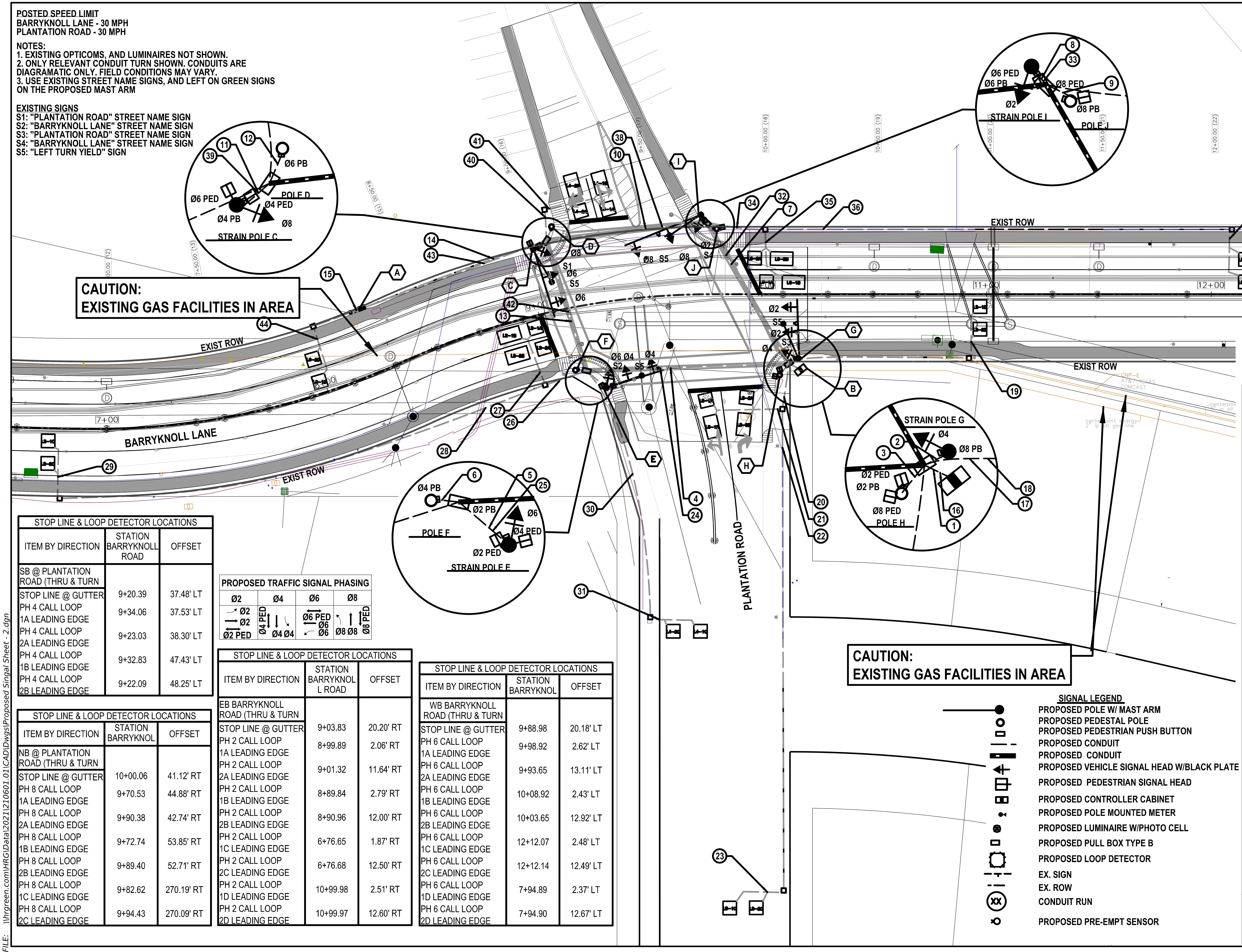
POSTED SPEED LIMIT
BARRYKNOLL LANE - 30 MPH
PLANTATION ROAD - 30 MPH

NOTES:
1. EXISTING OPTICOMS, AND LUMINAIRES NOT SHOWN.
2. ONLY RELEVANT CONDUIT TURN SHOWN. CONDUITS ARE DIAGRAMATIC ONLY. FIELD CONDITIONS MAY VARY.
3. USE EXISTING STREET NAME SIGNS, AND LEFT ON GREEN SIGNS ON THE PROPOSED MAST ARM

EXISTING SIGNS
S1: "PLANTATION ROAD" STREET NAME SIGN
S2: "BARRYKNOLL LANE" STREET NAME SIGN
S3: "PLANTATION ROAD" STREET NAME SIGN
S4: "BARRYKNOLL LANE" STREET NAME SIGN
S5: "LEFT TURN YIELD" SIGN



CAUTION:
EXISTING GAS FACILITIES IN AREA

CAUTION:
EXISTING GAS FACILITIES IN AREA

STOP LINE & LOOP DETECTOR LOCATIONS		
ITEM BY DIRECTION	STATION BARRYKNOLL ROAD	OFFSET
SB @ PLANTATION ROAD (THRU & TURN		
STOP LINE @ GUTTER	9+20.39	37.48' LT
PH 4 CALL LOOP 1A LEADING EDGE	9+34.06	37.53' LT
PH 4 CALL LOOP 2A LEADING EDGE	9+23.03	38.30' LT
PH 4 CALL LOOP 1B LEADING EDGE	9+32.83	47.43' LT
PH 4 CALL LOOP 2B LEADING EDGE	9+22.09	48.25' LT

STOP LINE & LOOP DETECTOR LOCATIONS		
ITEM BY DIRECTION	STATION BARRYKNOL	OFFSET
NB @ PLANTATION ROAD (THRU & TURN		
STOP LINE @ GUTTER	10+00.06	41.12' RT
PH 8 CALL LOOP 1A LEADING EDGE	9+70.53	44.88' RT
PH 8 CALL LOOP 2A LEADING EDGE	9+90.38	42.74' RT
PH 8 CALL LOOP 1B LEADING EDGE	9+72.74	53.85' RT
PH 8 CALL LOOP 2B LEADING EDGE	9+89.40	52.71' RT
PH 8 CALL LOOP 1C LEADING EDGE	9+82.62	270.19' RT
PH 8 CALL LOOP 2C LEADING EDGE	9+94.43	270.09' RT

PROPOSED TRAFFIC SIGNAL PHASING			
Ø2	Ø4	Ø6	Ø8
Ø2 Ø2 Ø2 PED	Ø4 PED Ø4 Ø4	Ø6 PED Ø6 Ø6	Ø8 Ø8 Ø8 PED

STOP LINE & LOOP DETECTOR LOCATIONS		
ITEM BY DIRECTION	STATION BARRYKNOL L ROAD	OFFSET
EB BARRYKNOLL ROAD (THRU & TURN		
STOP LINE @ GUTTER	9+03.83	20.20' RT
PH 2 CALL LOOP 1A LEADING EDGE	8+99.89	2.06' RT
PH 2 CALL LOOP 2A LEADING EDGE	9+01.32	11.64' RT
PH 2 CALL LOOP 1B LEADING EDGE	8+89.84	2.79' RT
PH 2 CALL LOOP 2B LEADING EDGE	8+90.96	12.00' RT
PH 2 CALL LOOP 1C LEADING EDGE	6+76.65	1.87' RT
PH 2 CALL LOOP 2C LEADING EDGE	6+76.68	12.50' RT
PH 2 CALL LOOP 1D LEADING EDGE	10+99.98	2.51' RT
PH 2 CALL LOOP 2D LEADING EDGE	10+99.97	12.60' RT

STOP LINE & LOOP DETECTOR LOCATIONS		
ITEM BY DIRECTION	STATION BARRYKNOL	OFFSET
WB BARRYKNOLL ROAD (THRU & TURN		
STOP LINE @ GUTTER	9+88.98	20.18' LT
PH 6 CALL LOOP 1A LEADING EDGE	9+98.92	2.62' LT
PH 6 CALL LOOP 2A LEADING EDGE	9+93.65	13.11' LT
PH 6 CALL LOOP 1B LEADING EDGE	10+08.92	2.43' LT
PH 6 CALL LOOP 2B LEADING EDGE	10+03.65	12.92' LT
PH 6 CALL LOOP 1C LEADING EDGE	12+12.07	2.48' LT
PH 6 CALL LOOP 2C LEADING EDGE	12+12.14	12.49' LT
PH 6 CALL LOOP 1D LEADING EDGE	7+94.89	2.37' LT
PH 6 CALL LOOP 2D LEADING EDGE	7+94.90	12.67' LT

SIGNAL LEGEND

─●	PROPOSED POLE W/ MAST ARM
○	PROPOSED PEDESTAL POLE
▭	PROPOSED PEDESTRIAN PUSH BUTTON
— –	PROPOSED CONDUIT
▬	PROPOSED CONDUIT
◀┼	PROPOSED VEHICLE SIGNAL HEAD W/BLACK PLATE
⊟	PROPOSED PEDESTRIAN SIGNAL HEAD
◫	PROPOSED CONTROLLER CABINET
●◂	PROPOSED POLE MOUNTED METER
⊗	PROPOSED LUMINAIRE W/PHOTO CELL
▭	PROPOSED PULL BOX TYPE B
▢	PROPOSED LOOP DETECTOR
–┬–	EX. SIGN
- —	EX. ROW
(XX)	CONDUIT RUN
⊸	PROPOSED PRE-EMPT SENSOR

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DANIEL T. SHANE
130285
4/15/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED TRAFFIC SIGNAL AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 232 OF 345

No.	Revisions	Date	App.

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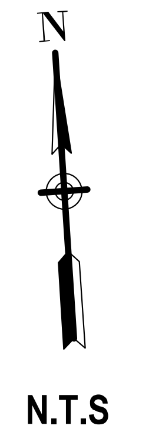
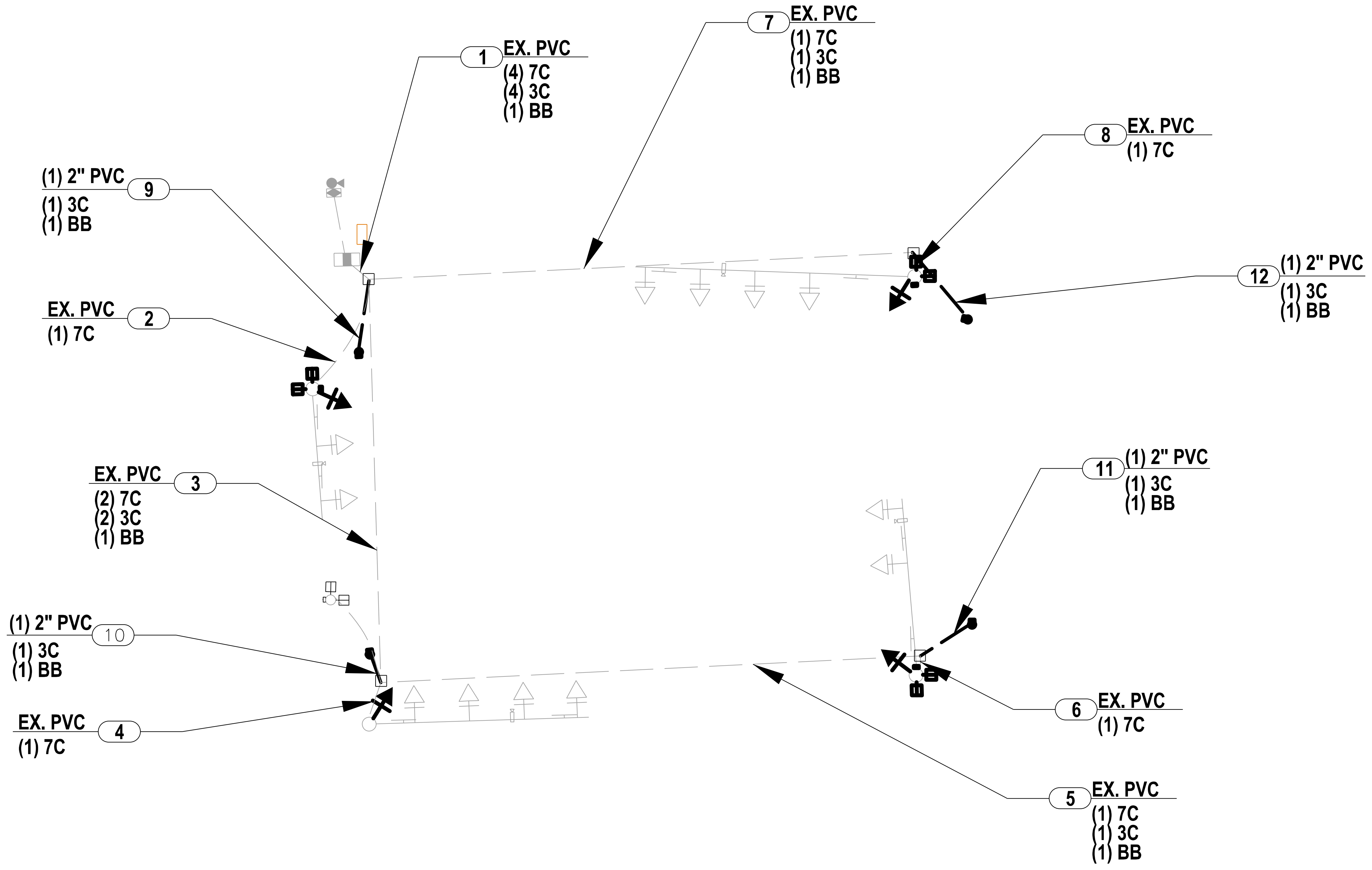
No.	Date	Revisions	App.




1
EX. PVC
(4) 7C
(4) 3C
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EX. PVC
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EX. PVC
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9
(1) 2" PVC
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EX. PVC
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(1) 2" PVC
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(1) 2" PVC
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EX. PVC
(1) 7C
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EX. PVC
(1) 7C
5
EX. PVC
(1) 7C
(1) 3C
(1) BB

HGIH VOLTAGE CIRCUT

(X) Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
(X) = NUMBER OF CABLES (SIGNAL)
XX = #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

NOTE:
ALL OTHER EXISTING SIGNAL CABLE
AND CONDUIT NOT IDENTIFIED ON
THIS SHEET SHALL BE USED IN PLACE

HRGreen
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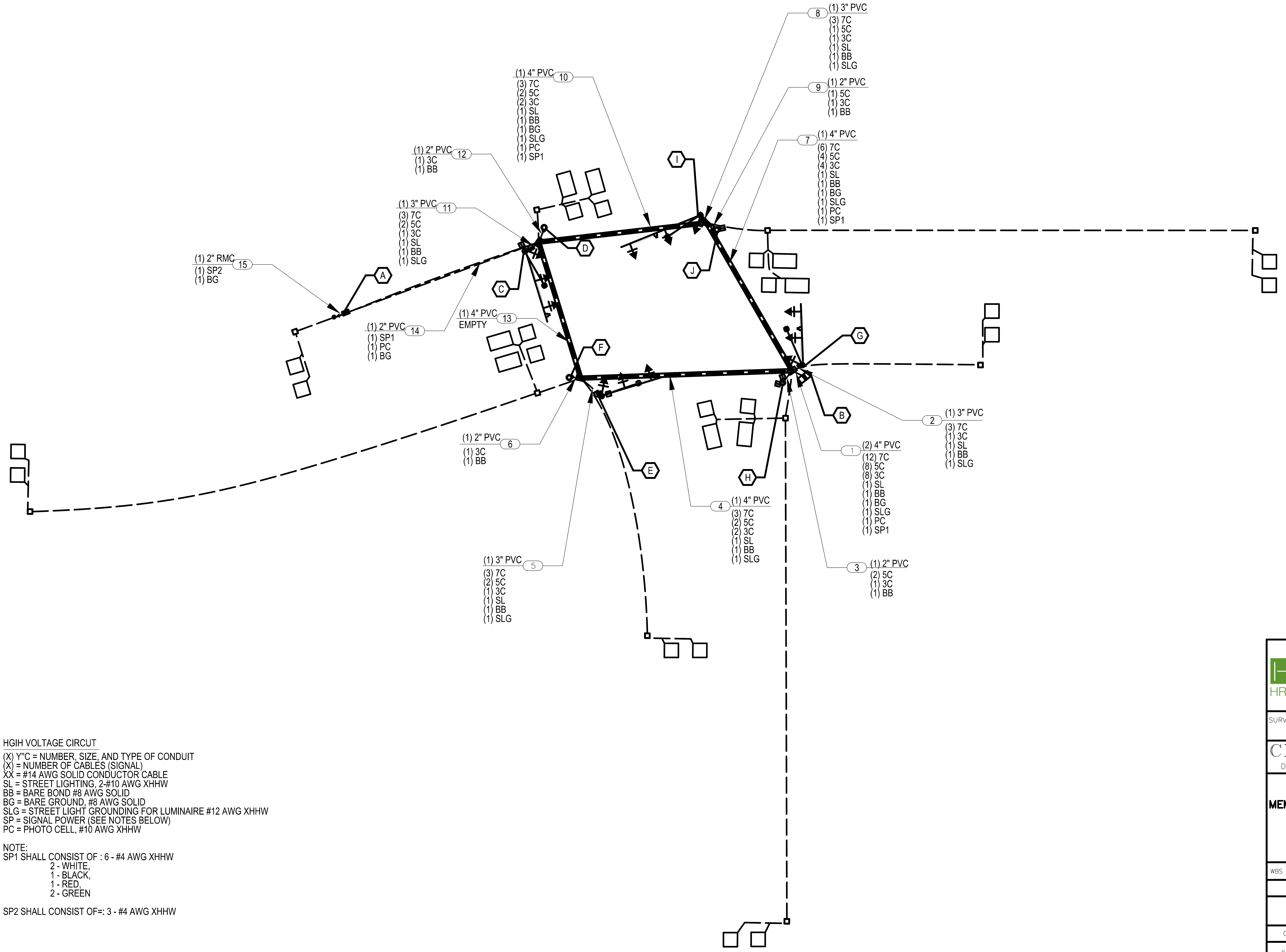
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL AND GESSNER
HIGH VOLTAGE CIRCUIT

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 233 OF 345



(1) 3" PVC 8
(3) 7C
(1) 5C
(1) 3C
(1) SL
(1) BB
(1) SLG
(1) 2" PVC 9
(1) 5C
(1) 3C
(1) BB
(1) 4" PVC 7
(6) 7C
(4) 5C
(4) 3C
(1) SL
(1) BB
(1) BG
(1) SLG
(1) PC
(1) SP1
(1) 4" PVC 10
(3) 7C
(2) 5C
(2) 3C
(1) SL
(1) BB
(1) BG
(1) SLG
(1) PC
(1) SP1
(1) 2" PVC 12
(1) 3C
(1) BB
(1) 3" PVC 11
(3) 7C
(2) 5C
(1) 3C
(1) SL
(1) BB
(1) SLG
(1) 2" RMC 15
(1) SP2
(1) BG
(1) 2" PVC 14
(1) SP1
(1) PC
(1) BG
(1) 4" PVC 13
EMPTY
(1) 2" PVC 6
(1) 3C
(1) BB
(1) 3" PVC 5
(3) 7C
(2) 5C
(1) 3C
(1) SL
(1) BB
(1) SLG
4 (1) 4" PVC
(3) 7C
(2) 5C
(2) 3C
(1) SL
(1) BB
(1) SLG
1 (2) 4" PVC
(12) 7C
(8) 5C
(8) 3C
(1) SL
(1) BB
(1) BG
(1) SLG
(1) PC
(1) SP1
3 (1) 2" PVC
(2) 5C
(1) 3C
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2 (1) 3" PVC
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N.T.S

No.

Date

Revisions

App.

HGIH VOLTAGE CIRCUT

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

SP2 SHALL CONSIST OF=: 3 - #4 AWG XHHW

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL AND PLANTATION
HIGH VOLTAGE CIRCUIT

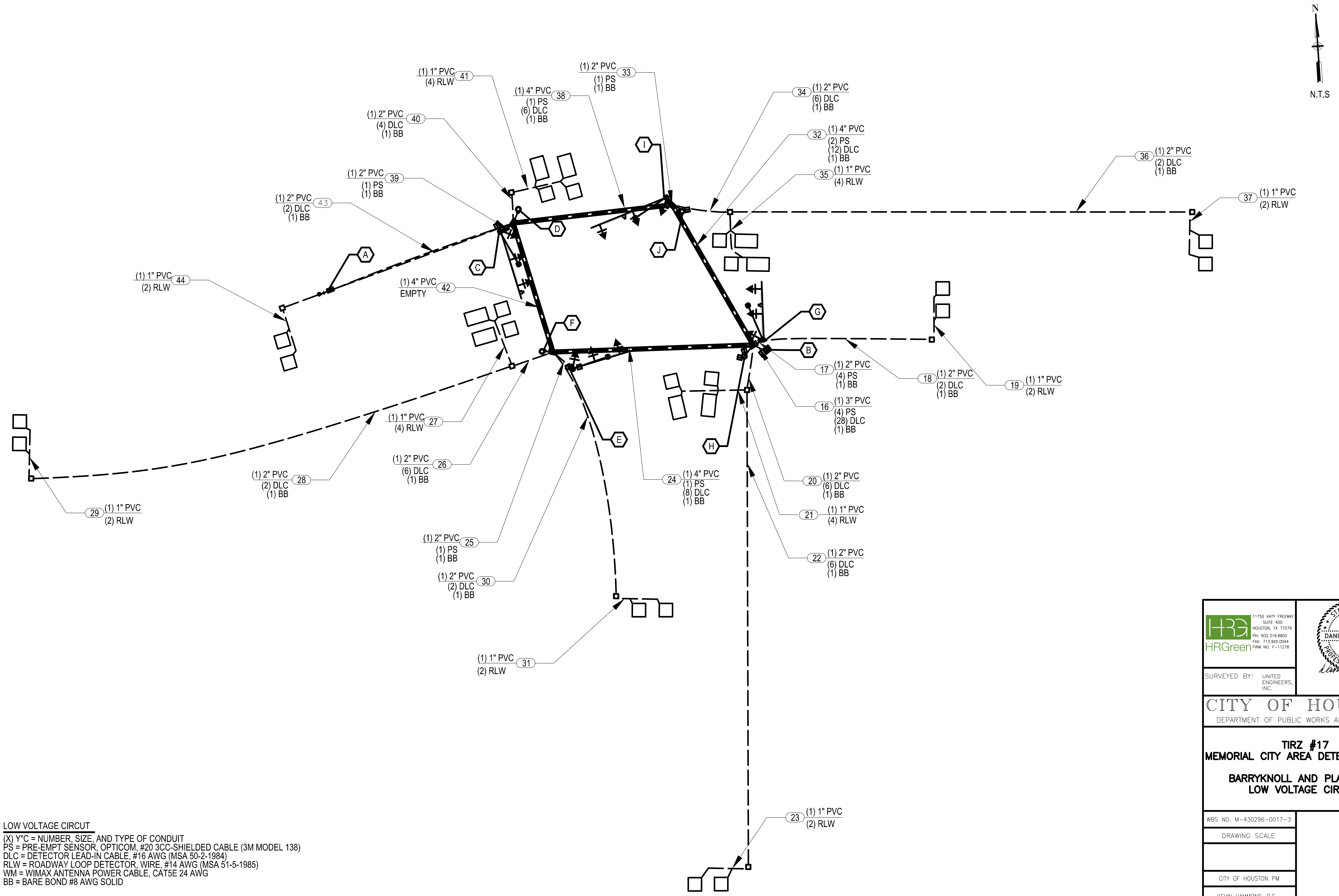
WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 234 OF 345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N.T.S
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(1) 2" PVC 33 (1) PS (1) BB
(1) 4" PVC 38 (1) PS (6) DLC (1) BB
(1) 2" PVC 40 (4) DLC (1) BB
34 (1) 2" PVC (6) DLC (1) BB
32 (1) 4" PVC (2) PS (12) DLC (1) BB
35 (1) 1" PVC (4) RLW
36 (1) 2" PVC (2) DLC (1) BB
37 (1) 1" PVC (2) RLW
(1) 2" PVC 39 (1) PS (1) BB
(1) 2" PVC 43 (2) DLC (1) BB
I
D
J
A
C
(1) 1" PVC 44 (2) RLW
(1) 4" PVC 42 EMPTY
G
F
B
17 (1) 2" PVC (4) PS (1) BB
18 (1) 2" PVC (2) DLC (1) BB
19 (1) 1" PVC (2) RLW
16 (1) 3" PVC (4) PS (28) DLC (1) BB
(1) 1" PVC 27 (4) RLW
(1) 2" PVC 26 (6) DLC (1) BB
E
H
(1) 2" PVC 28 (2) DLC (1) BB
24 (1) 4" PVC (1) PS (8) DLC (1) BB
20 (1) 2" PVC (6) DLC (1) BB
21 (1) 1" PVC (4) RLW
29 (1) 1" PVC (2) RLW
(1) 2" PVC 25 (1) PS (1) BB
22 (1) 2" PVC (6) DLC (1) BB
(1) 2" PVC 30 (2) DLC (1) BB
(1) 1" PVC 31 (2) RLW
23 (1) 1" PVC (2) RLW

No. | Date | Revisions | App.

LOW VOLTAGE CIRCUIT

(X) Y"C = NUMBER, SIZE, AND TYPE OF CONDUIT
PS = PRE-EMPT SENSOR, OPTICOM, #20 3CC-SHIELDED CABLE (3M MODEL 138)
DLC = DETECTOR LEAD-IN CABLE, #16 AWG (MSA 50-2-1984)
RLW = ROADWAY LOOP DETECTOR, WIRE, #14 AWG (MSA 51-5-1985)
WM = WIMAX ANTENNA POWER CABLE, CAT5E 24 AWG
BB = BARE BOND #8 AWG SOLID

DATE: 4/15/2026 4:44:24 PM
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FIRM NO. F-11278

DANIEL T. SHANE
130285
4/15/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BARRYKNOLL AND PLANTATION
LOW VOLTAGE CIRCUIT

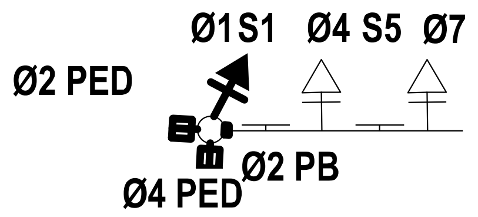
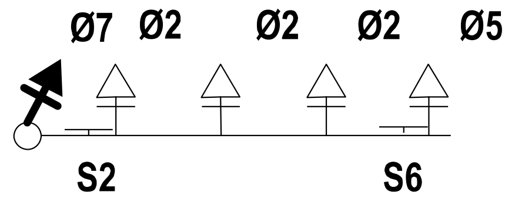
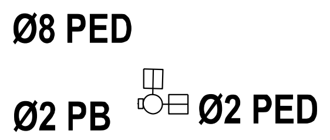
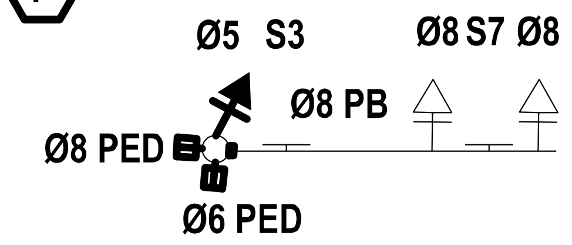
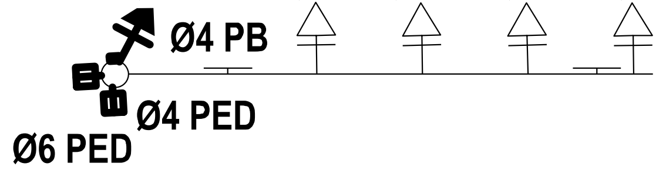
WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 235 OF 345

No.	Date	Revisions	App.

POLE SCHDULE

POLE I.D.	POLE TYPE	ATTACHMENTS		SIGNALS		LUMINAIRE TYPE	PED PB TYPE/SIGN	REMARKS	LOCATION	STANDARDS
		STRAIN	LUMIN	MTG.	FACE					
C 	EXIST	25' ARM (EX.)	-	-	1-H3 (EX.) 1-H5L (EX.) 2-PED (NEW) 1-V4LF (NEW)	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)	EXISTING SIGNAL POLE AND MAST ARM TO BE USED IN PLACE, INSTALL VERTICAL SIGNAL HEAD ON THE POLE. REPLACE EXISTING PEDESTRIAN SIGNAL HEADS, REMOVE EXISTING PUSH BUTTON, AND INSTALL A NEW PUSH BUTTON WHERE IT SHOWS ON THE POLE	1+90.66, 20.89' LT	-
D 	EXIST	44' ARM (EX.)	-	-	3-H3 (EX.) 1-H4LF (EX.) 1-V5L (NEW)	-	-	EXISTING SIGNAL POLE AND MAST ARM TO BE USED IN PLACE, INSTALL VERTICAL SIGNAL HEAD ON THE POLE.	2+00.47, 46.56' RT	-
E 	EXIST 15' PED POLE	-	-	-	2-PED (NEW)	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)	REPLACE EXISTING PEDESTRIAN SIGNAL HEADS, AND PUSH BUTTON	1+93.29, 21.51' RT	-
F 	EXIST	25' ARM (EX.)	-	-	2-H3 (EX.) 2-PED (NEW) 1-V4LF (NEW)	-	POLARA NAVIGATOR R10-3eR SIGN (NEW) ADA PUSH BUTTON (NEW)	EXISTING SIGNAL POLE AND MAST ARM TO BE USED IN PLACE, INSTALL VERTICAL SIGNAL HEAD ON THE POLE. REPLACE EXISTING PEDESTRIAN SIGNAL HEADS, AND PUSH BUTTON	3+10.30, 39.19' RT	-
G  Ø4 S4 Ø6 Ø6 Ø6 S6 Ø1 Ø4 PB Ø4 PED Ø6 PED	EXIST	55' ARM (EX.)	-	-	3-H3 (EX.) 1-H4LF (EX.) 2-PED (NEW) 1-V3 (NEW)	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)	EXISTING SIGNAL POLE AND MAST ARM TO BE USED IN PLACE, INSTALL VERTICAL SIGNAL HEAD ON THE POLE. REPLACE EXISTING PEDESTRIAN SIGNAL HEADS, AND PUSH BUTTON	3+11.90, 40.71' LT	-
H ● Ø4 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eR SIGN (NEW) ADA PUSH BUTTON (NEW)	-	2+00.06, 28.04' LT	-
I ● Ø8 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)		2+00.92, 32.60' RT	-
J ● Ø6 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eL SIGN (NEW) ADA PUSH BUTTON (NEW)	-	3+21.92, 29.28' RT	-
K ● Ø6 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eR SIGN (NEW) ADA PUSH BUTTON (NEW)	-	3+22.07, 31.85' LT	-

TRAFFIC SIGNAL CONTROLLER

CABINET	TYPE	CONTROLLER	AUX. CONTROL	REMARKS	LOCATION	STANDARDS
A ◫	EXISTING	EXISTING	-	INSTALL NEW APS COMPATIBLE PED MODULE	STA 1+698.60, 45.89' LT	-
B ◈	EXISTING	-	-	-	STA 1+95.16, 62.11' LT	-

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Daniel T. Shane
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

EXISTING AND PROPOSED SIGNAL POLE CHART AT BARRYKNOLL LANE AND GESSNER ROAD

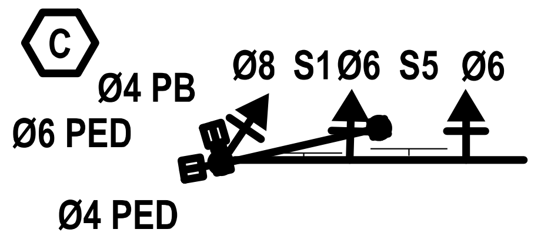
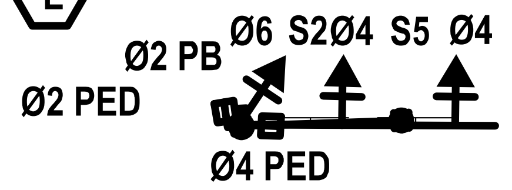
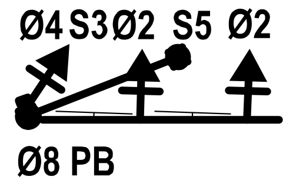
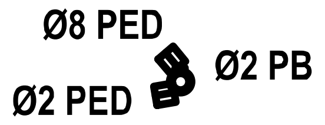
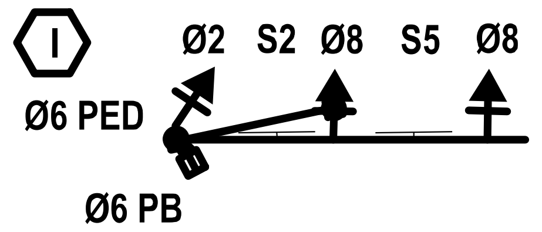
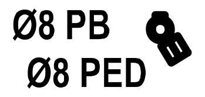
WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

No.	Date	Revisions	App.

POLE SCHDULE

POLE NUMBER	POLE TYPE	ATTACHMENTS		SIGNALS		LUMINAIRE TYPE	PED PB TYPE/SIGN	REMARKS	LOCATION	STANDARDS
		STRAIN	LUMIN	MTG.	FACE					
C 	HOU 1	30	YES	-	2-H3 2-PED 1-V3	115 LED W	POLARA NAVIGATOR R10-3eL SIGN ADA PUSH BUTTON	PRE-EMPT SENSOR EMERGENCY SIGNAL. USE EXISTING STREET NAME SIGN AND "YIELD ON GREEN" SIGN	9+03.94, 28.98' LT	-
D ● Ø6 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eR SIGN ADA PUSH BUTTON	-	9+13.10, 37.10' LT	-
E 	HOU 1	25	YES	-	2-H3 2-PED 1-V3	115 LED W	POLARA NAVIGATOR R10-3eL SIGN ADA PUSH BUTTON	PRE-EMPT SENSOR EMERGENCY SIGNAL. USE EXISTING STREET NAME SIGN AND "YIELD ON GREEN" SIGN	9+24.44, 37.90' RT	-
F ● Ø4 PB	15' PEDESTAL POLE	-	-	-	-	-	POLARA NAVIGATOR R10-3eR SIGN ADA PUSH BUTTON	-	9+10.92,27.59' RT	-
G 	HOU 1	35	YES	-	2-H3 1-V3	115 LED W	POLARA NAVIGATOR R10-3eL SIGN ADA PUSH BUTTON	PRE-EMPT SENSOR EMERGENCY SIGNAL. USE EXISTING STREET NAME SIGN AND "YIELD ON GREEN" SIGN	10+16.22, 28.49' RT	-
H 	15' PEDESTAL POLE	-	NO	-	2-PED	-	POLARA NAVIGATOR R10-3eR SIGN ADA PUSH BUTTON	-	10+07.83, 35.97' RT	-
I 	HOU 1	25	YES	-	2-H3 1-PED 1-V3	115 LED W	POLARA NAVIGATOR R10-3eL SIGN ADA PUSH BUTTON	PRE-EMPT SENSOR EMERGENCY SIGNAL. USE EXISTING STREET NAME SIGN AND "YIELD ON GREEN" SIGN	9+73.33, 35.32 LT	-
J 	15' PEDESTAL POLE	-	-	-	1-PED	-	POLARA NAVIGATOR R10-3eR SIGN ADA PUSH BUTTON	-	9+79.79, 29.12' LT	-

TRAFFIC SIGNAL CONTROLLER

CABINET	TYPE	CONTROLLER	AUX. CONTROL	REMARKS	LOCATION	STANDARDS
A ◆	D (120/240) 70 (NS) SS (E) SP (U)	METERED POLE SERVICE WITH ONE 30 AMP AND ONE 60 AMP BREAKERS	-	PROVIDE METER SOCKET WINDOW, w/ PHOTOCELL	STA 8+22.53, 18.44' LT	-
B ▮	340	2070 L WITH GPS SERIAL COMMUNICATIONS MODULE & UPS BATTERY BACK-UP SYSTEM	-	STANDARD SPECIFICATION 16730, 16731, 16732, 16733, 16734, & 16785	STA 10+16.92, 33.43' RT	-

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130285
Daniel T. Shane
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED POLE CHART AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

ELECTRICAL SCHEDULE
SIGNAL MODIFICATION AT BARRYKNOLL LANE GESSNER ROAD

ITEM	DESCRIPTION	RUN DESIGNATION											
		1	2	3	4	5	6	7	8	9	10	11	12
Power	1/C - #8 BARE BOND	1	1	1	1	1	1	1	1				
	1/C - #4 XHHW												
Luminaire/Sign Lights	2/C #14 (IMSA 20-1)												
Signal Cable	3/C - #14 (IMSA 20-1)	4	1	2	1	1	1	1	1				1
	4/C - #14 (IMSA 20-1)												
	7/C - #14 (IMSA 20-1)	4		2		1		1		1	1	1	1
Loop Detectors	2 - #14 XHHW STRANDED												
	2/C #14 (IMSA 50-2)												
Schedule 40 PVC conduit	1"												
	2"		1		1		1		1				1
	3"												
	4"												

Notes: ALL OTHER MULTI-CONDUCTOR CABLE TO BE USED IN PLACE, CONTRACTOR SHALL RESUE 3C AND 4C PEDESTRIAN CABLE. AS APPROPRIATE

NOTES TO CONTRACTOR:

1. LOCATION OF UTILITIES SHOWN ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PUBLIC AND PRIVATE) PRIOR TO COMMENCING WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS FAILURE TO LOCATE AND PRESERVE THESE UTILITIES. WHETHER UNDERGROUND, ABOVE-GROUND, OR OVERHEAD.

2. CALL THE FOLLOWING NUMBER FOR LOCATION OF UNDERGROUND FACILITIES 72 HOURS PRIOR TO ANY EXCAVATION IN THE AREA:

   UTILITIES: (713) 223-4567 (HOUSTON)

   1-800-669-8344 (OUTSIDE HOUSTON)

   PIPELINES: 1-800-245-4545 AND 1-800-344-8377

3. ALL CONSTRUCTION SIGNS AND BARRICADES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". LATEST EDITION.

4. ALL CONDUITS UNDER ROAD WAYS AND DRIVEWAYS SHALL BE BORED AND JACKED. CONTRACTOR SHALL EXERCISE CAUTION WHEN BORING AND / OR EXCAVATING IN THE VICINITY OF UNDERGROUND UTILITIES.

5. NO LOOP DETECTOR SHALL BE CUT IN A PARALLEL EXPANSION JOINT THAT IS PARALLELING A REQUITED LOOP DETECTOR LOCATION. LOOPS CUT CROSS EXPANSION JOINTS SHALL HAVE SLACK CABLE FOR EXPANSION

6. EXACT LOCATION OF POLES, CONTROLLER, SIGNAL HEADS, PULL BOXES AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD SUBJECT TO FINAL APPROVAL BY ENGINEER IN THE FIELD. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY EXACT LOCATIONS FROM CITY OF HOUSTON ENGINEERING DEPARTMENT. CONSTRUCTION PROGRAMS DIVISION, PRIOR TO CONSTRUCTION.

7. ALL CONDUITS UNDER PAVED SHOULDERS OR NATURAL GROUND SHALL BE TRENCHED AND BURIED. HOWEVER, THE CONTRACTOR SHALL BACKFILL, COMPACT AND RESTORE TRENCHED AREA TO ORIGINAL CONDITION AND WATCH EXISTING SURFACE CONDITION TO THE DENSITY OF ADJACENT AREA.

8. REFER TO SIGNING AND PAVEMENT MARKING PLAN AND PAVING PLAN FOR ADDITIONAL INFORMATION PERTAINING TO NEW WHEELCHAIR RAMPS, STOP LINES, ETC. LOCATIONS.

9. CONTRACTOR SHALL CONTACT 811 AT LEAST 48 HOURS BEFORE DIGGING.

No.	Date	Revisions	App.

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CITY OF HOUSTON
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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ELECTRICAL SCHEDULE AT BARRYKNOLL LANE AND GESSNER ROAD

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 238 OF 345

ELECTRICAL SCHEDULE
BARRYKNOLL LANE AT PLANTATION ROAD (HIGH VOLTAGE)

ITEM	DESCRIPTION	RUN DESIGNATION														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Power	1/C - #4 XHHW SP1	1						1			1				1	
	1/C - #4 XHHW SP2															1
	1/C - #8 BARE BOND	1	1	1	1	1	1	1	1	1	1	1	1			
	1/C - #8 BARE GROUND	1						1			1				1	1
Luminaire/Sign Lights	2/C #10	1	1		1	1		1	1		1	1				
SLG	1/C #12	1	1		1	1		1	1		1	1				
PC	1/C #10	1						1			1				1	
Signal Cable	3/C - #14	8	1	1	2	1	1	4	1	1	2	1	1			
	5/C - #14	8		2	2	2		4	1	1	2	2				
	7/C - #14	12	3		3	3		6	3		3	3				
Schedule 40 PVC conduit	1"															
	2"			1			1			1			1		1	
	3"		1			1			1			1				
	4"	2			1			1			1			1		
Schedule 2" RMC conduit	2"															1

Notes:

ELECTRICAL SCHEDULE
BARRYKNOLL LANE AT PLANTATION ROAD (LOW VOLTAGE)

ITEM	DESCRIPTION	RUN DESIGNATION																												
		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
Power	1/C - #8 BARE BOND	1	1	1		1		1		1	1	1		1		1		1	1	1		1		1	1	1			1	
Loop Detectors	DLC	28		2		6		2		8		6		2		2		12		6		2		8		4			2	
	RLW				2		4		2				4		2		2				4		2				4			2
Pre-emption	PS	4	1							1	1							2	1					1	1					
Schedule 40 PVC conduit	1"				1		1		1				1		1		1				1		1				1			1
	2"		1	1		1		1			1	1		1		1			1	1		1			1	1			1	
	3"	1																												
	4"									1								1						1				1		

Notes:

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6. EXACT LOCATION OF POLES, CONTROLLER, SIGNAL HEADS, PULL BOXES AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD SUBJECT TO FINAL APPROVAL BY ENGINEER IN THE FIELD. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY EXACT LOCATIONS FROM CITY OF HOUSTON ENGINEERING DEPARTMENT. CONSTRUCTION PROGRAMS DIVISION, PRIOR TO CONSTRUCTION.

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ELECTRICAL SERVICE DATA

POLE NO.	ELECTRICAL SERVICE DESCRIPTION (SEE HARRIS COUNTY ELECTRICAL DETAILS)	SERVICE CONDUIT SIZE	SERVICE CONDUCTORS NO./SIZE	SAFETY SWITCH AMPS	MAIN CHT. BRK. POLE / AMP	TWO-POLE CONTACTOR AMPS	PANEL BD./ LOADCENTER AMP RATING	CIRCUIT NO.	BRANCH CKT. BRK. POLE / AMPS	KVA LOAD
9	TY D 120 / 240 070 (NS) SS (E) SP (0)	1 - 1/4	3 / #4	N/A	2P/70	20	70	SIGNAL	1P / 50	<7.1
								LUMINAIRE	1P / 20	

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DANIEL T. SHANE
130285
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

LOOP DETECTOR & ELECTRICAL SCHEDULE AT BARRYKNOLL LANE AND PLANTATION ROAD

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 239 OF 345

No.	Date	Revisions	App.

BASIS OF ESTIMATE

ITEM	DESCRIPTION	UNIT	FINAL
2582-105	4 INCH POLE, ALL STYLES, WITH FOUNDATION	EA	4
2893-300	REMOVE AND SALVAGE EXISTING TRAFFIC SIGNAL EQUIPMENT	LS	1
16711-205	2-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	59
16715-300	3-SECTION VEHICLE SIGNAL HEAD ASSEMBLY	EA	1
16715-400	4-SECTION VEHICLE SIGNAL HEAD ASSEMBLY	EA	2
16715-500	5-SECTION VEHICLE SIGNAL HEAD ASSEMBLY	EA	1
16716-100	COUNTDOWN LED PEDESTRIAN SIGNAL HEAD ASSEMBLY (SYMBOLIC)	EA	8
16720	FURNISH AND INSTALL #8 AWG, BARE COPPER (SOLID) WIRE WITH GROUNDING HARDWARE 1/C - #8 BARE BOND	LF	389
16720-300	3/C-#14 AWG SOLID CABLE	LF	535
16720-705	7/C-#14 AWG SOLID CABLE	LF	629
16750-100	PEDESTRIAN PUSHBUTTON ASSEMBLY, LEFT, RIGHT, OR BOTH ARROWS	EA	8

QUANTITIES SHOWN ON THIS SHEET ARE FOR CONTRACTORS INFORMATION ONLY. ACTUAL BID ITEMS ARE SHOWN ON THE BID SHEETS IN THE PROJECT MANUAL.

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STATE OF TEXAS
DANIEL T. SHANE
130285
LICENSED
PROFESSIONAL ENGINEER
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

QUANTITIES ESTIMATE AT BARRYKNOLL LANE AND GESSNER ROAD

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 240 OF 345

BASIS OF ESTIMATE

ITEM	DESCRIPTION	UNIT	FINAL
2221-301	REMOVE EXISTING POLE FOUNDATION	EA	5
2582-105	4 INCH POLE, ALL STYLES, WITH FOUNDATION	EA	4
2582-201	25-FOOT GALVANIZED MAST ARM POLE WITH FOUNDATION	EA	2
2582-202	30-FOOT GALVANIZED MAST ARM POLE WITH FOUNDATION	EA	1
2582-203	35-FOOT GALVANIZED MAST ARM POLE WITH FOUNDATION	EA	1
2590-100	TRAFFIC SIGNAL POLE LUMINAIRE	EA	4
2893-300	REMOVE AND SALVAGE EXISTING TRAFFIC SIGNAL EQUIPMENT	LS	1
16710-100	TYPE A PULL BOX WITH GRAVEL AND GROUND ROD	EA	4
16710-200	TYPE B PULL BOX WITH GRAVEL AND GROUND ROD	EA	4
16711-105	1-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	269
16711-205	2-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	1,160
16711-207	2-INCH RMC UNDERGROUND, EARTH	LF	5
16711-308	3-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	33
16711-405	4-INCH PVC SCH.80 UNDER PAVEMENT, BORE	LF	592
16711-406	4-INCH PVC SCH.80 UNDERGROUND, EARTH	LF	12
16715-300	3-SECTION VEHICLE SIGNAL HEAD ASSEMBLY	EA	12
16716-100	COUNTDOWN LED PEDESTRIAN SIGNAL HEAD ASSEMBLY (SYMBOLIC)	EA	8
16720	EMERGENCY VEHICLE PREEMPTION CABLE	LF	372
16720	FURNISH AND INSTALL #4 XHHW POWER CABLE 1/C - #4 XHHW SP1	LF	259
16720	FURNISH AND INSTALL #4 XHHW POWER CABLE 1/C - #4 XHHW SP2	LF	13
16720	FURNISH AND INSTALL #8 AWG, BARE COPPER (SOLID) WIRE WITH GROUNDING HARDWARE 1/C - #8 BARE BOND	LF	1,612
16720	FURNISH AND INSTALL #8 AWG, BARE COPPER (SOLID) WIRE WITH GROUNDING HARDWARE 1/C - #8 BARE GROUND	LF	266
XXXX	PHOTOTCELL	EA	1
16720-206	#10 THIN LUMINAIRE WIRE	LF	492
16720-206	#12 THIN LUMINAIRE GROUNDING WIRE	LF	292
16720-206	DETECTOR LEAD-IN CABLE 2/C-14 AWG IMSA 50-2-1984	LF	5,082
16720-206	2/C-#14 AWG SOLID CABLE (Loop Detector Cable)	LF	868
16720-300	3/C-#14 AWG SOLID CABLE	LF	866
16720-505	5/C-#14 AWG SOLID CABLE	LF	901
16720-705	7/C-#14 AWG SOLID CABLE	LF	1,569
16724-100	EMERGENCY VEHICLE PREEMPTION	EA	4
16727-100	LOOP DETECTOR SAWCUT	LF	2,128
16730-110	ITS CONTROLLER CABINET ASSEMBLY (MODEL 340) INCLUDING FOUNDATION AND APRON	EA	1
16731-100	MODEL 2070 CONTROLLER UNIT	EA	1
16732-100	UNINTERRUPTIBLE POWER SUPPLY	EA	1
16734-100	WIMAX	EA	1
16736-100	PRIMARY FIBER DISTRIBUTION UNIT	EA	1
16737-100	COMMUNICATIONS SERVICE BOX	EA	1
16738-100	SPREAD SPECTRUM 900 MHZ ETHERNET RADIO SYSTEM, MOUNTED AND HOOKED UP COMPLETE	EA	1
16739-100	BLUETOOTH EQUIPMENT	EA	1
16747-100	RADAR VEHICLE SENSING DEVICE	EA	1
16750-100	PEDESTRIAN PUSHBUTTON ASSEMBLY, LEFT, RIGHT, OR BOTH ARROWS	EA	8

QUANTITIES SHOWN ON THIS SHEET ARE FOR CONTRACTORS INFORMATION ONLY. ACTUAL BID ITEMS ARE SHOWN ON THE BID SHEETS IN THE PROJECT MANUAL.

No.	Date	Revisions	App.

HRGreen
11750 KATY FREEWAY
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PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

QUANTITIES ESTIMATE AT BARRYKNOLL LANE AND PLANTATION ROAD

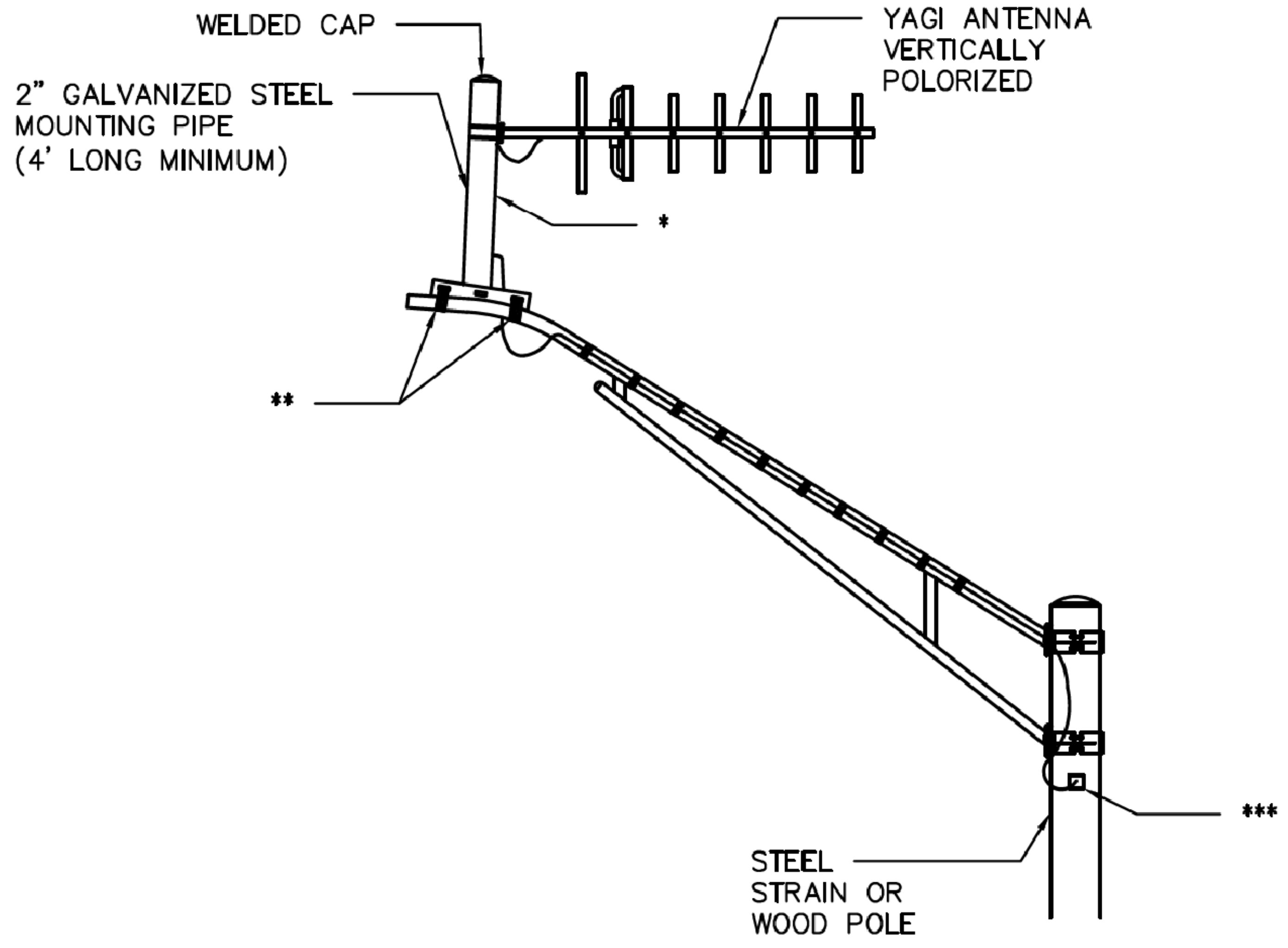
WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

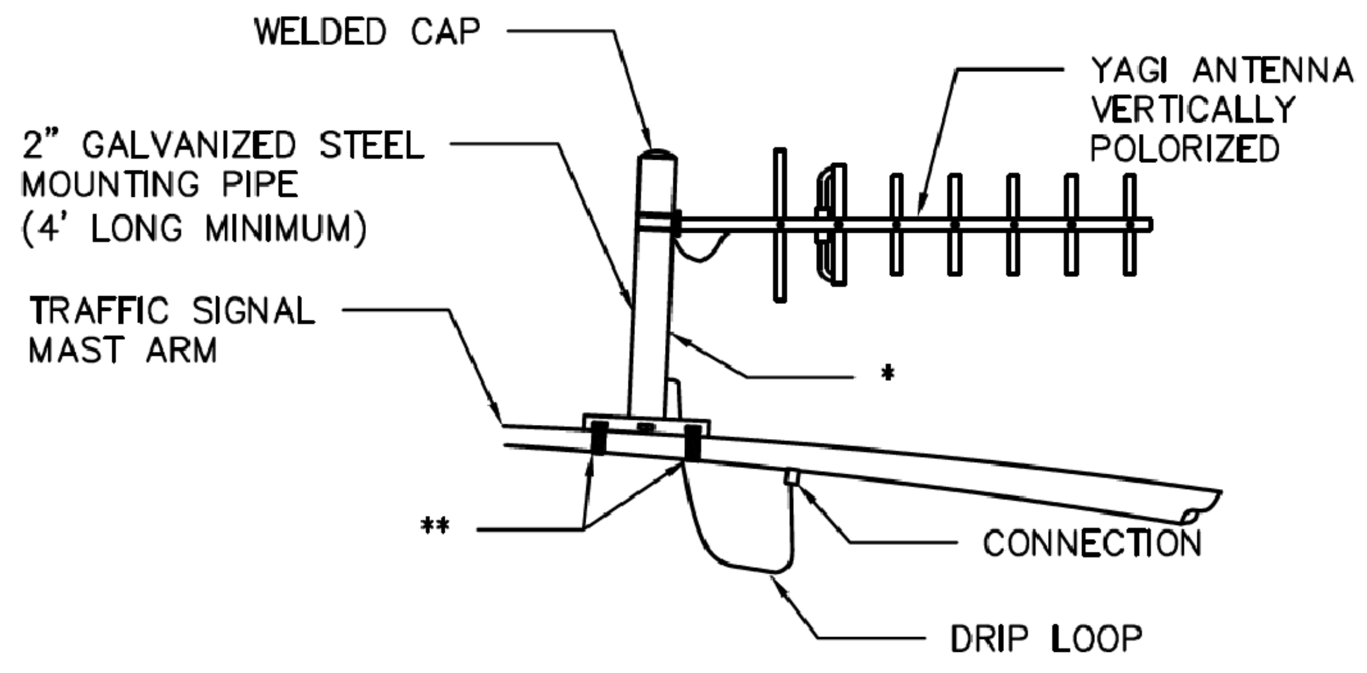
KEVIN HAMMOND, P.E.

SHEET NO. 241 OF 345


WELDED CAP
2" GALVANIZED STEEL MOUNTING PIPE (4' LONG MINIMUM)
YAGI ANTENNA VERTICALLY POLORIZED
*
**
***
STEEL STRAIN OR WOOD POLE

LUMINAIRE ARM MOUNT

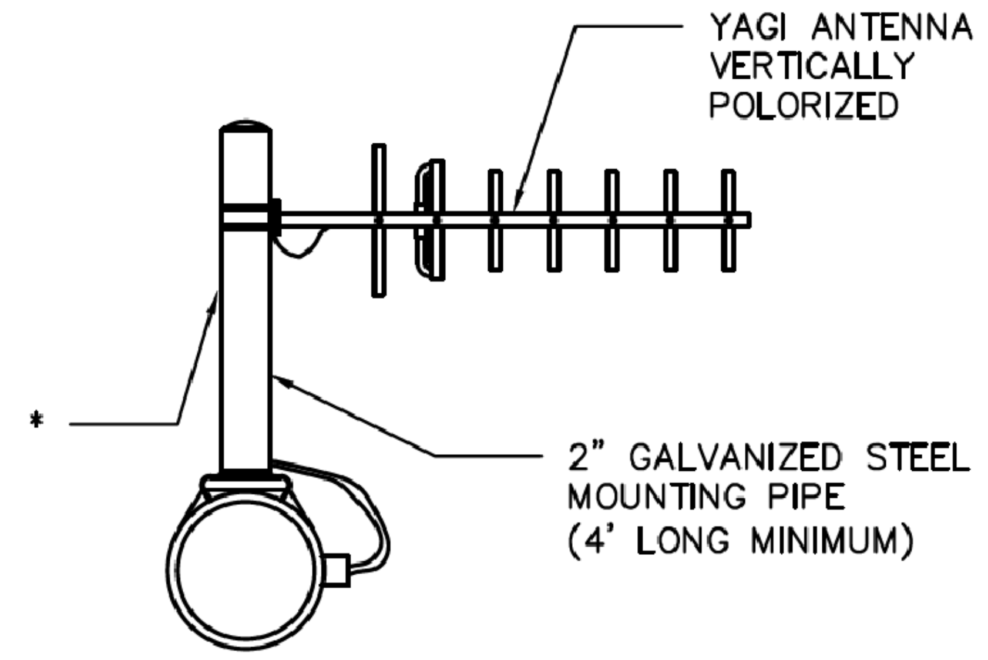
- * 4.0' PIPE EXTENSION WHEN MOUNTED ON TRAFFIC SIGNAL MAST ARM OR LUMINAIRE ARM.
- ** 5/8" (MIN.) STAINLESS STEEL BANDING 2 PLACES MIN.
- *** ENTRY INTO STEEL POLE OR CONDUIT WEATHERHEAD ON WOOD POLE


WELDED CAP
2" GALVANIZED STEEL MOUNTING PIPE (4' LONG MINIMUM)
TRAFFIC SIGNAL MAST ARM
YAGI ANTENNA VERTICALLY POLORIZED
*
**
CONNECTION
DRIP LOOP

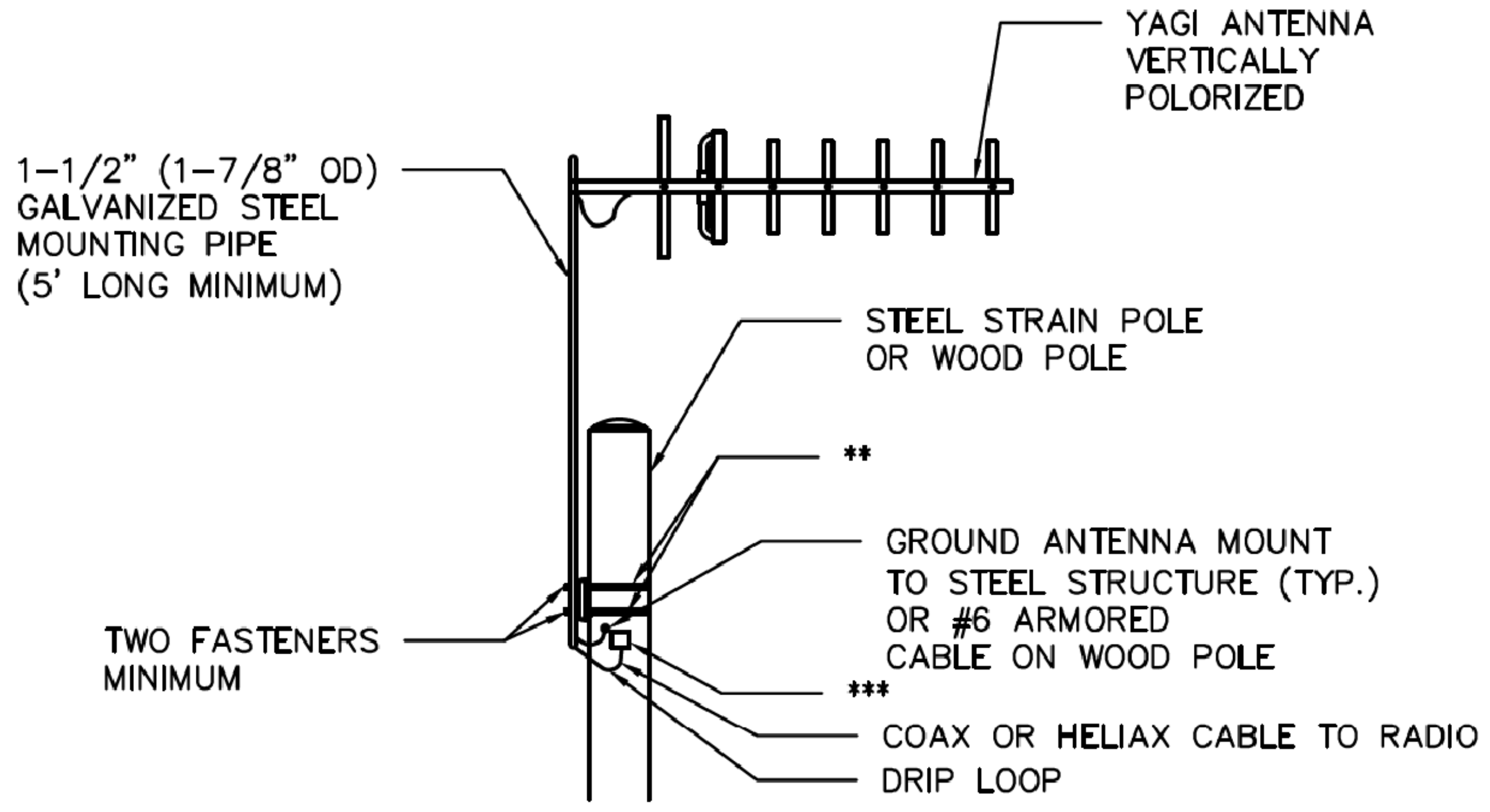
MAST ARM MOUNT

NOTES:

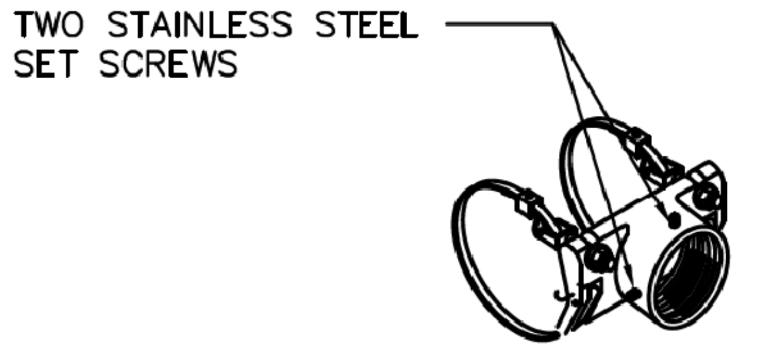
1. MOUNT ANTENNAS TO PROVIDE THE HIGHEST LEVEL OF RELIABILITY BETWEEN SENDING AND RECEIVING UNITS.
2. PERFORM A PATH STUDY TO DETERMINE EXACT MOUNTING LOCATION OF ANTENNAS BY RADIO SUPPLIER.
3. INSTALL ANTENNAS AS DETAILED OR AS DIRECTED BY THE SPREAD SPECTRUM RADIO SUPPLIER.
4. FURNISH MOUNTING BRACKETS FOR ANTENNAS ATTACHED TO VERTICAL PIPE AS RECOMMENDED BY SPREAD SPECTRUM RADIO SUPPLIER.
5. UNLESS NOTED, USE 5/8" STAINLESS STEEL BANDING MATERIAL TO INSTALL ANTENNA MOUNTS.
6. PROVIDE WATER TIGHT CABLE ENTRY AND EXIT POINTS IN THE TRAFFIC SIGNAL MAST ARM AND/OR POLES.
7. FOR SPREAD SPECTRUM COAX OR HELIAX CABLE ATTACHED TO LUMINAIRE ARM, PROVIDE UV STABILIZED TIE-WRAP THAT IS APPROVED FOR OUTDOOR USE.


YAGI ANTENNA VERTICALLY POLORIZED
*
2" GALVANIZED STEEL MOUNTING PIPE (4' LONG MINIMUM)

SIDE VIEW


YAGI ANTENNA VERTICALLY POLORIZED
1-1/2" (1-7/8" OD) GALVANIZED STEEL MOUNTING PIPE (5' LONG MINIMUM)
STEEL STRAIN POLE OR WOOD POLE
**
GROUND ANTENNA MOUNT TO STEEL STRUCTURE (TYP.) OR #6 ARMORED CABLE ON WOOD POLE
***
TWO FASTENERS MINIMUM
COAX OR HELIAX CABLE TO RADIO
DRIP LOOP

POLE MOUNT


TWO STAINLESS STEEL SET SCREWS

BAND MOUNT BRACKET DETAIL

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.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

ANTENNA MOUNTING
DETAILS

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by:
Suhail Kanwar
9EF8B0C641F5478...
CITY ENGINEER

DocuSigned by:
KHANG NGUYEN
95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by:
Carol Haddock
A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV-27-2023
DWG NO: 16738-01

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FIRM NO. F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
4/15/2026

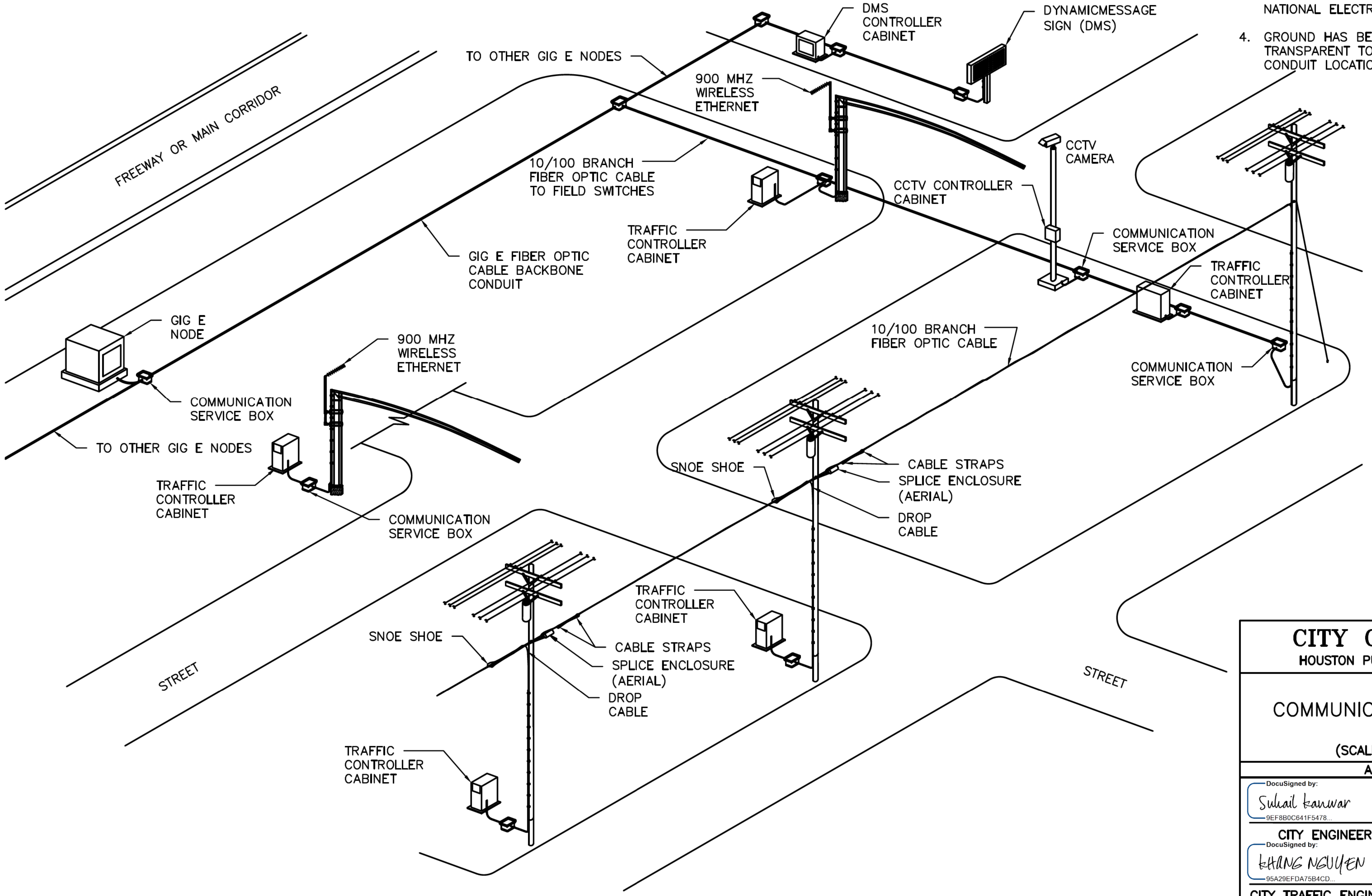
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ANTENNA MOUNTING DETAILS

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.


TO OTHER GIG E NODES
DMS CONTROLLER CABINET
DYNAMICMESSAGE SIGN (DMS)
900 MHZ WIRELESS ETHERNET
FREEWAY OR MAIN CORRIDOR
10/100 BRANCH FIBER OPTIC CABLE TO FIELD SWITCHES
CCTV CAMERA
CCTV CONTROLLER CABINET
TRAFFIC CONTROLLER CABINET
GIG E FIBER OPTIC CABLE BACKBONE CONDUIT
COMMUNICATION SERVICE BOX
TRAFFIC CONTROLLER CABINET
GIG E NODE
10/100 BRANCH FIBER OPTIC CABLE
COMMUNICATION SERVICE BOX
900 MHZ WIRELESS ETHERNET
COMMUNICATION SERVICE BOX
TO OTHER GIG E NODES
CABLE STRAPS
SNOE SHOE
SPLICE ENCLOSURE (AERIAL)
TRAFFIC CONTROLLER CABINET
DROP CABLE
COMMUNICATION SERVICE BOX
TRAFFIC CONTROLLER CABINET
SNOE SHOE
CABLE STRAPS
SPLICE ENCLOSURE (AERIAL)
STREET
DROP CABLE
STREET
TRAFFIC CONTROLLER CABINET

NOTES:

1. GIG E SYSTEM COMPONENT SCHEMATIC OVERVIEW.
2. ROAD REPRESENTATION IS NOT TO SCALE.
3. ALL ILLUSTRATED AERIAL CLEARANCES ARE PER NATIONAL ELECTRICAL CODE (N.E.C.)
4. GROUND HAS BEEN ILLUSTRATED AS TRANSPARENT TO VIEW SERVICE BOX & CONDUIT LOCATION.

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.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

COMMUNICATIONS OVERVIEW

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by:
Suhail Kanwar
9EF8B0C641F5478...
CITY ENGINEER

DocuSigned by:
KHANG NGUYEN
95A29EFDA75B4CD...
CITY TRAFFIC ENGINEER

DocuSigned by:
Carol Haddock
A93C410B72B3453...
DIRECTOR OF HPW

EFF DATE: NOV-27-2023 | **DWG NO: 16700-01**

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FIRM NO. F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

COMMUNICATION OVERVIEW

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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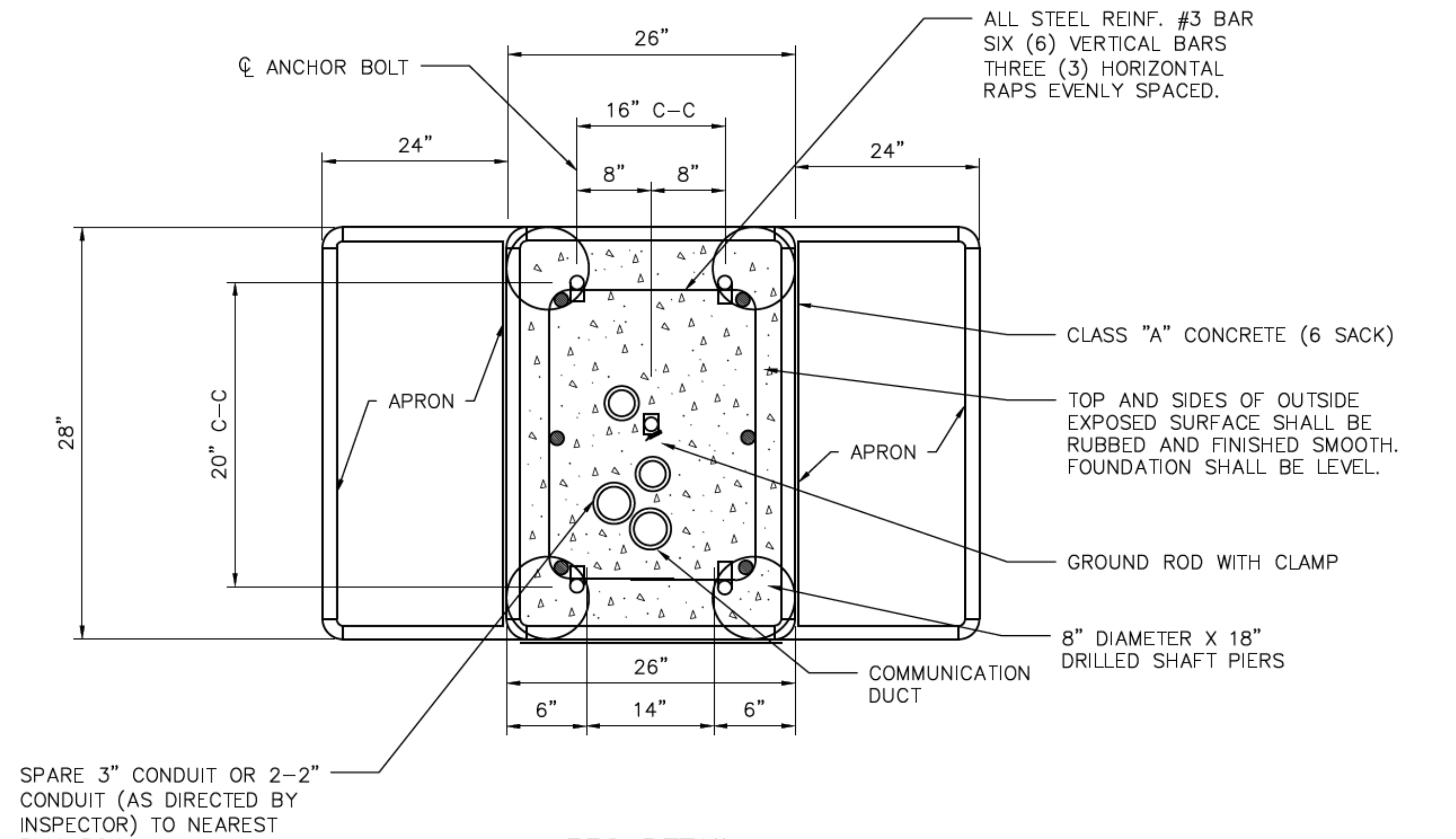
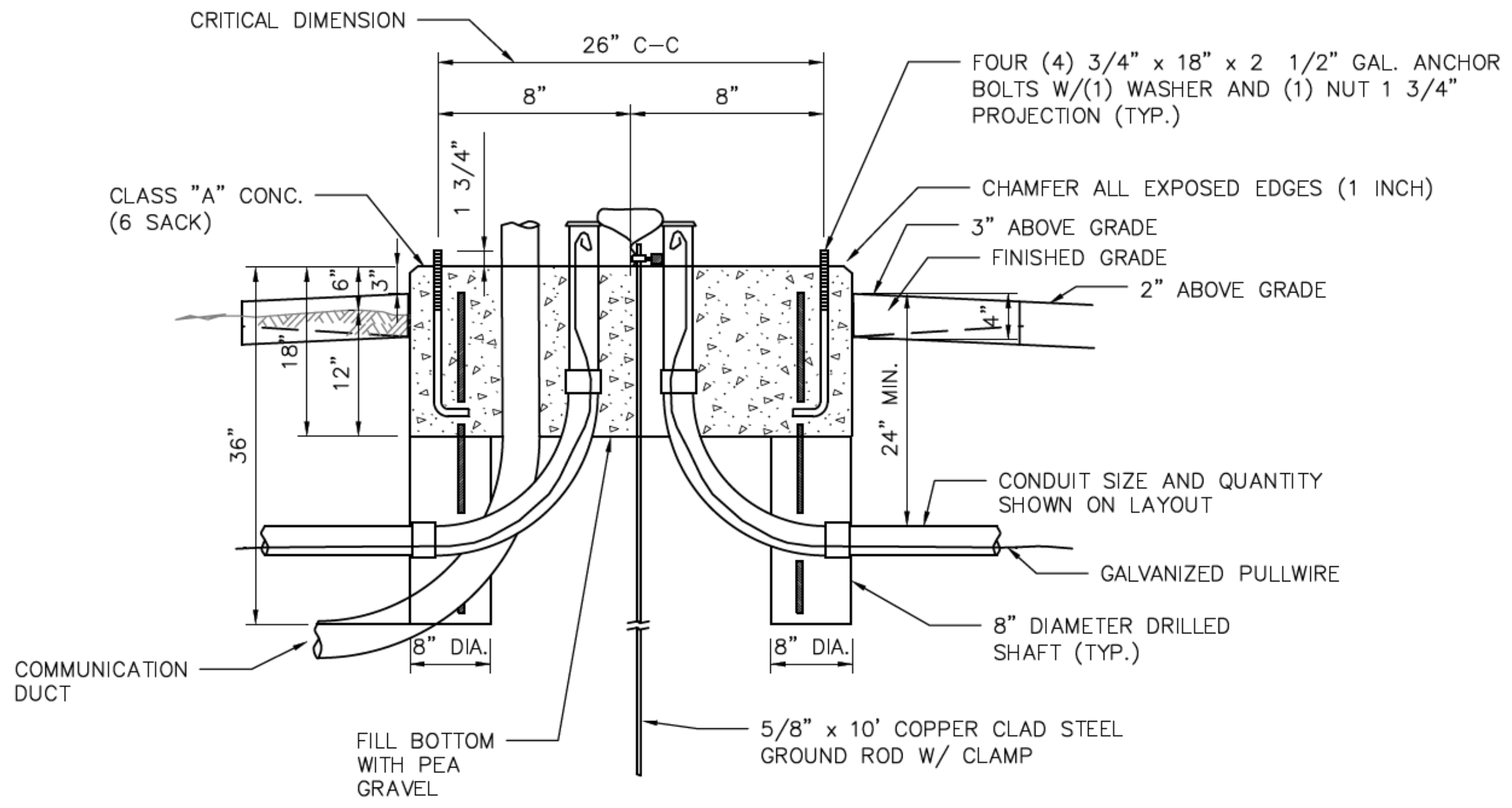
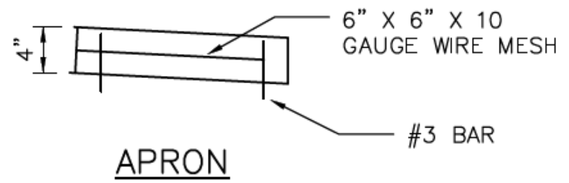

26"
16" C-C
8"
8"
24"
24"
℄ ANCHOR BOLT
ALL STEEL REINF. #3 BAR
SIX (6) VERTICAL BARS
THREE (3) HORIZONTAL
RAPS EVENLY SPACED.
CLASS "A" CONCRETE (6 SACK)
TOP AND SIDES OF OUTSIDE
EXPOSED SURFACE SHALL BE
RUBBED AND FINISHED SMOOTH.
FOUNDATION SHALL BE LEVEL.
APRON
APRON
28"
20" C-C
GROUND ROD WITH CLAMP
8" DIAMETER X 18"
DRILLED SHAFT PIERS
COMMUNICATION
DUCT
26"
6"
14"
6"
SPARE 3" CONDUIT OR 2-2"
CONDUIT (AS DIRECTED BY
INSPECTOR) TO NEAREST
PULL BOX

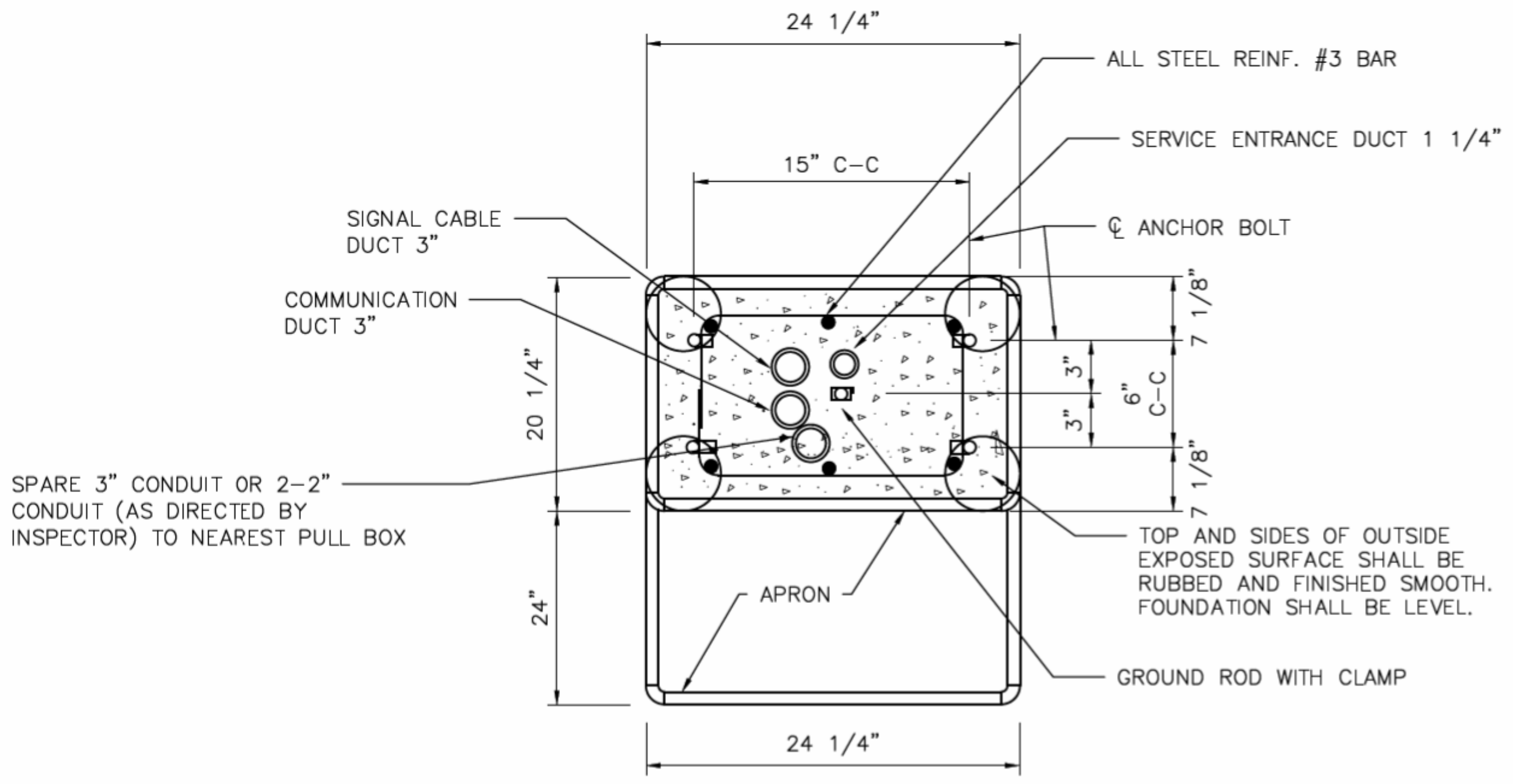
336 DETAIL
TOP VIEW


CRITICAL DIMENSION
26" C-C
8"
8"
FOUR (4) 3/4" x 18" x 2 1/2" GAL. ANCHOR
BOLTS W/(1) WASHER AND (1) NUT 1 3/4"
PROJECTION (TYP.)
CHAMFER ALL EXPOSED EDGES (1 INCH)
3" ABOVE GRADE
FINISHED GRADE
2" ABOVE GRADE
CLASS "A" CONC.
(6 SACK)
1 3/4"
6"
3"
18"
12"
36"
4"
24" MIN.
CONDUIT SIZE AND QUANTITY
SHOWN ON LAYOUT
GALVANIZED PULLWIRE
8" DIAMETER DRILLED
SHAFT (TYP.)
8" DIA.
8" DIA.
COMMUNICATION
DUCT
FILL BOTTOM
WITH PEA
GRAVEL
5/8" x 10' COPPER CLAD STEEL
GROUND ROD W/ CLAMP

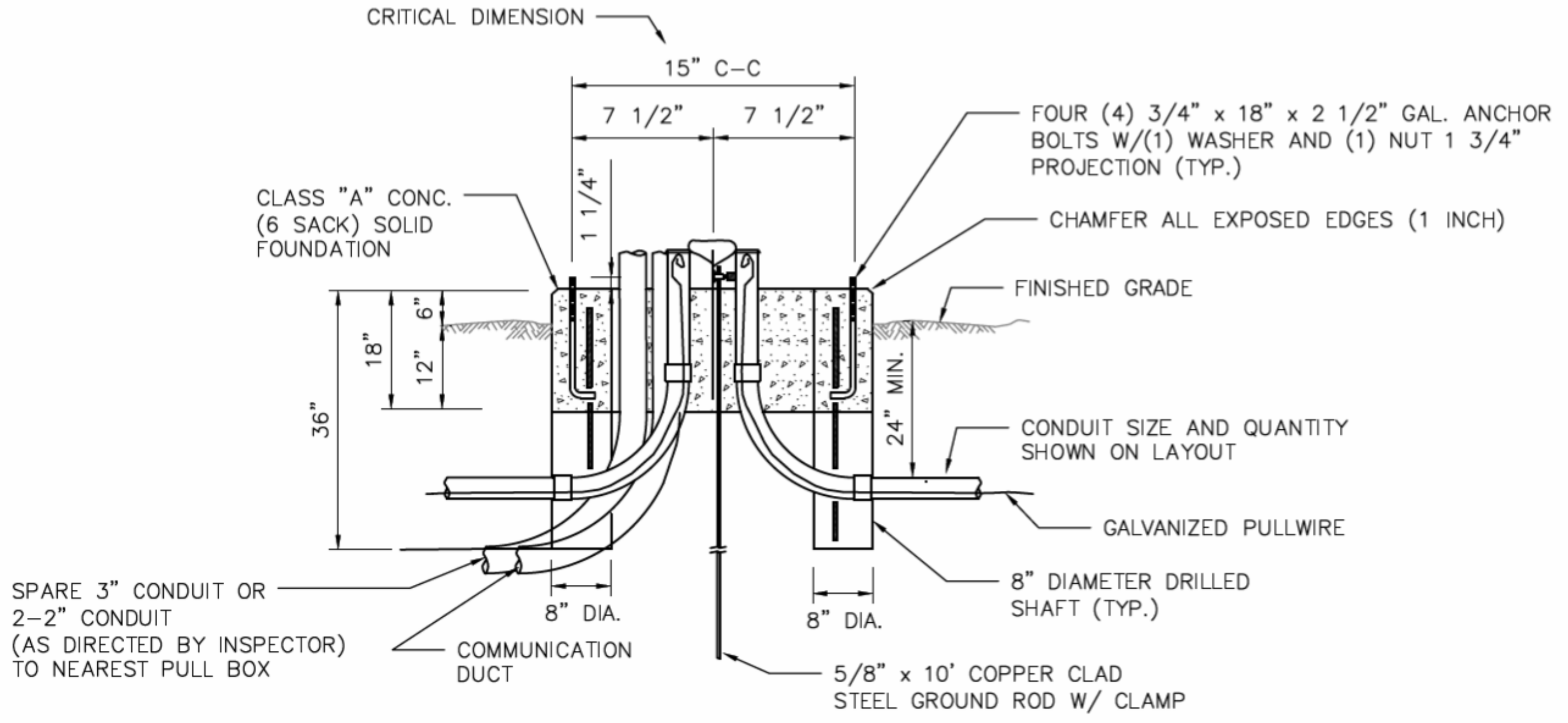
336 DETAIL
SIDE VIEW


4"
6" X 6" X 10
GAUGE WIRE MESH
#3 BAR

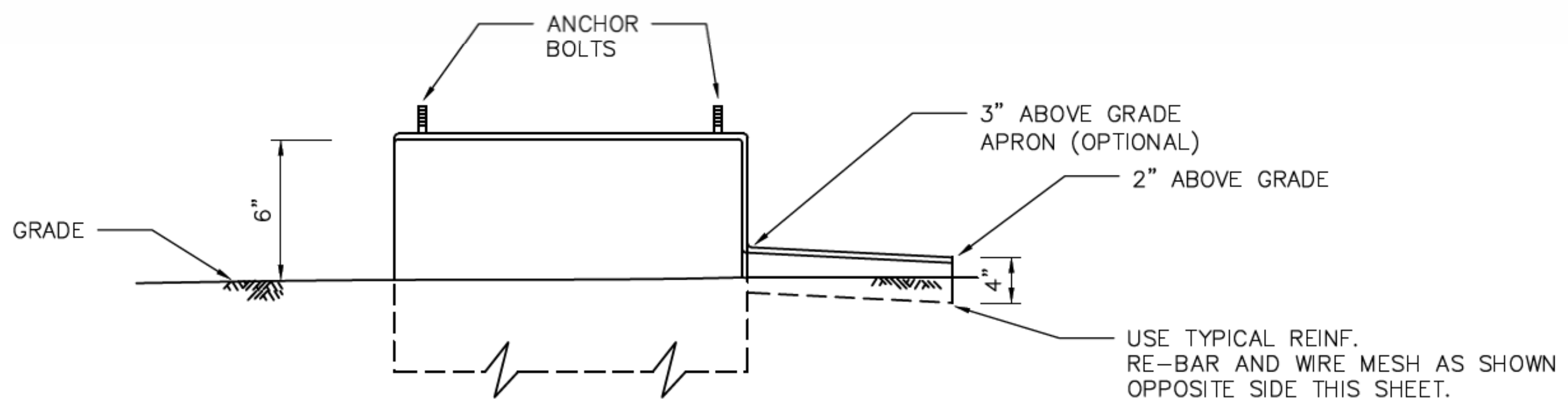
APRON
SIDE VIEW


24 1/4"
15" C-C
ALL STEEL REINF. #3 BAR
SERVICE ENTRANCE DUCT 1 1/4"
℄ ANCHOR BOLT
SIGNAL CABLE
DUCT 3"
COMMUNICATION
DUCT 3"
SPARE 3" CONDUIT OR 2-2"
CONDUIT (AS DIRECTED BY
INSPECTOR) TO NEAREST PULL BOX
20 1/4"
24"
7 1/8"
3"
3"
6" C-C
7 1/8"
TOP AND SIDES OF OUTSIDE
EXPOSED SURFACE SHALL BE
RUBBED AND FINISHED SMOOTH.
FOUNDATION SHALL BE LEVEL.
APRON
GROUND ROD WITH CLAMP
24 1/4"

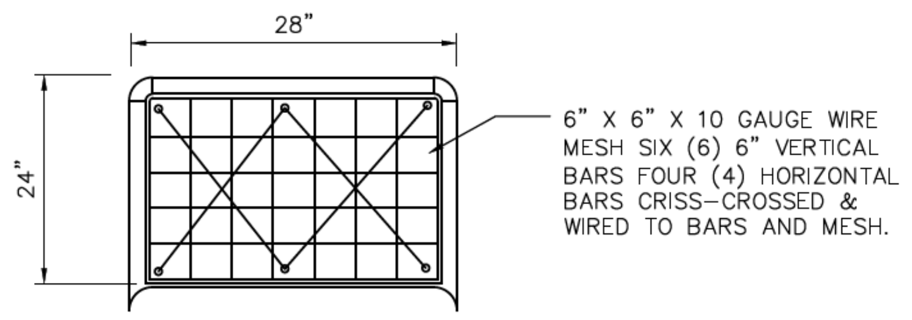
MODEL ITS 346 AND ATC 356i DETAIL
TOP VIEW


CRITICAL DIMENSION
15" C-C
7 1/2"
7 1/2"
FOUR (4) 3/4" x 18" x 2 1/2" GAL. ANCHOR
BOLTS W/(1) WASHER AND (1) NUT 1 3/4"
PROJECTION (TYP.)
CHAMFER ALL EXPOSED EDGES (1 INCH)
CLASS "A" CONC.
(6 SACK) SOLID
FOUNDATION
1 1/4"
FINISHED GRADE
6"
18"
12"
36"
24" MIN.
CONDUIT SIZE AND QUANTITY
SHOWN ON LAYOUT
GALVANIZED PULLWIRE
8" DIAMETER DRILLED
SHAFT (TYP.)
8" DIA.
8" DIA.
SPARE 3" CONDUIT OR
2-2" CONDUIT
(AS DIRECTED BY INSPECTOR)
TO NEAREST PULL BOX
COMMUNICATION
DUCT
5/8" x 10' COPPER CLAD
STEEL GROUND ROD W/ CLAMP

MODEL ITS 346 AND ATC 356i DETAIL
SIDE VIEW


ANCHOR
BOLTS
3" ABOVE GRADE
APRON (OPTIONAL)
2" ABOVE GRADE
GRADE
6"
4"
USE TYPICAL REINF.
RE-BAR AND WIRE MESH AS SHOWN
OPPOSITE SIDE THIS SHEET.

MODEL ITS 346 AND ATC 356i DETAIL


28"
24"
6" X 6" X 10 GAUGE WIRE
MESH SIX (6) 6" VERTICAL
BARS FOUR (4) HORIZONTAL
BARS CRISS-CROSSED &
WIRED TO BARS AND MESH.

APRON DETAIL
TOP VIEW

NOTES:

1. APRON TO BE INSTALLED IF NEEDED.

DISCLAIMER:
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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 16730-02

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONTROLLER FOUNDATIONS

SHEET 02 OF 03

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

HRGreen
11750 KATY FREEWAY
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HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONTROLLER FOUNDATIONS

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

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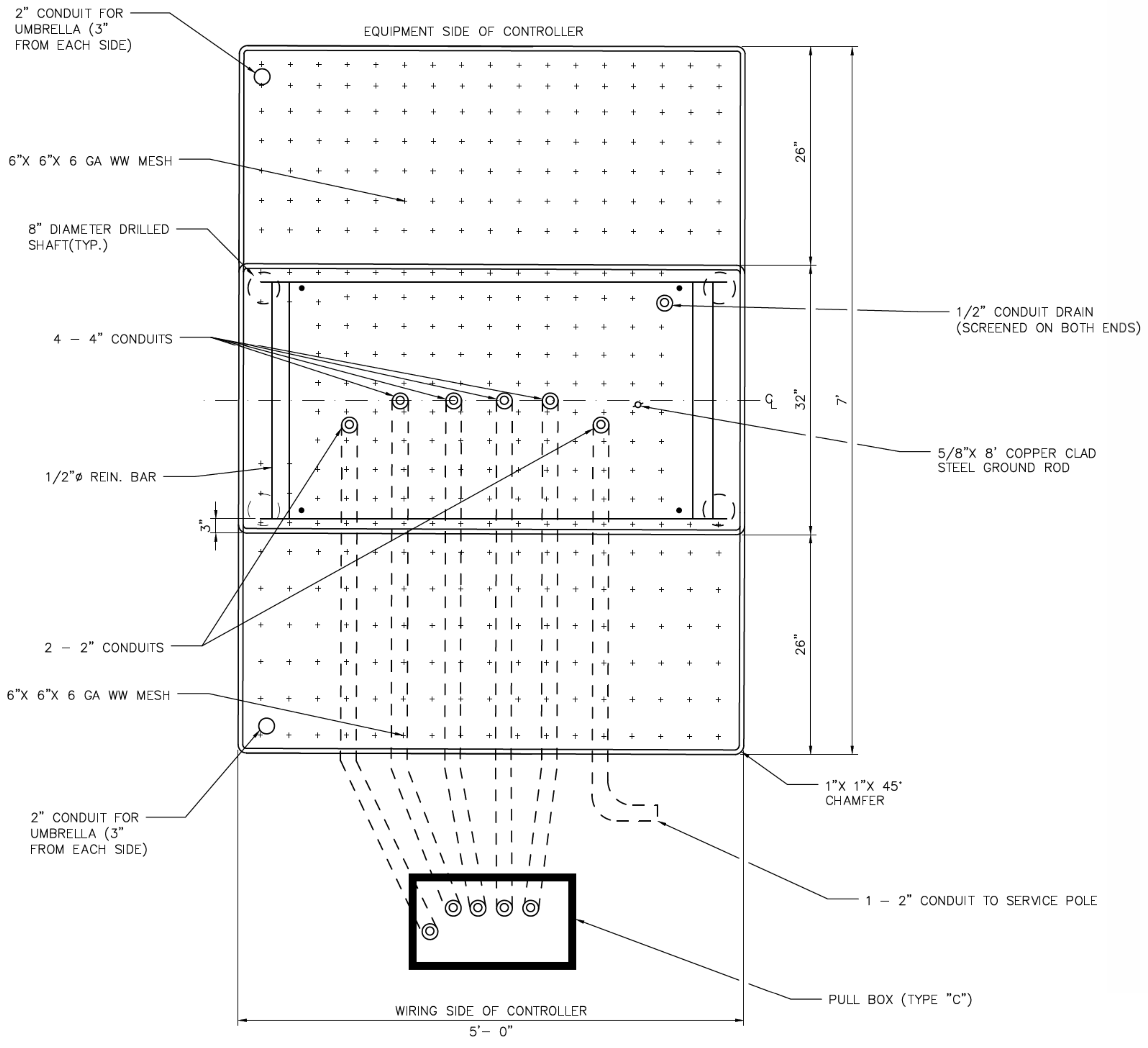
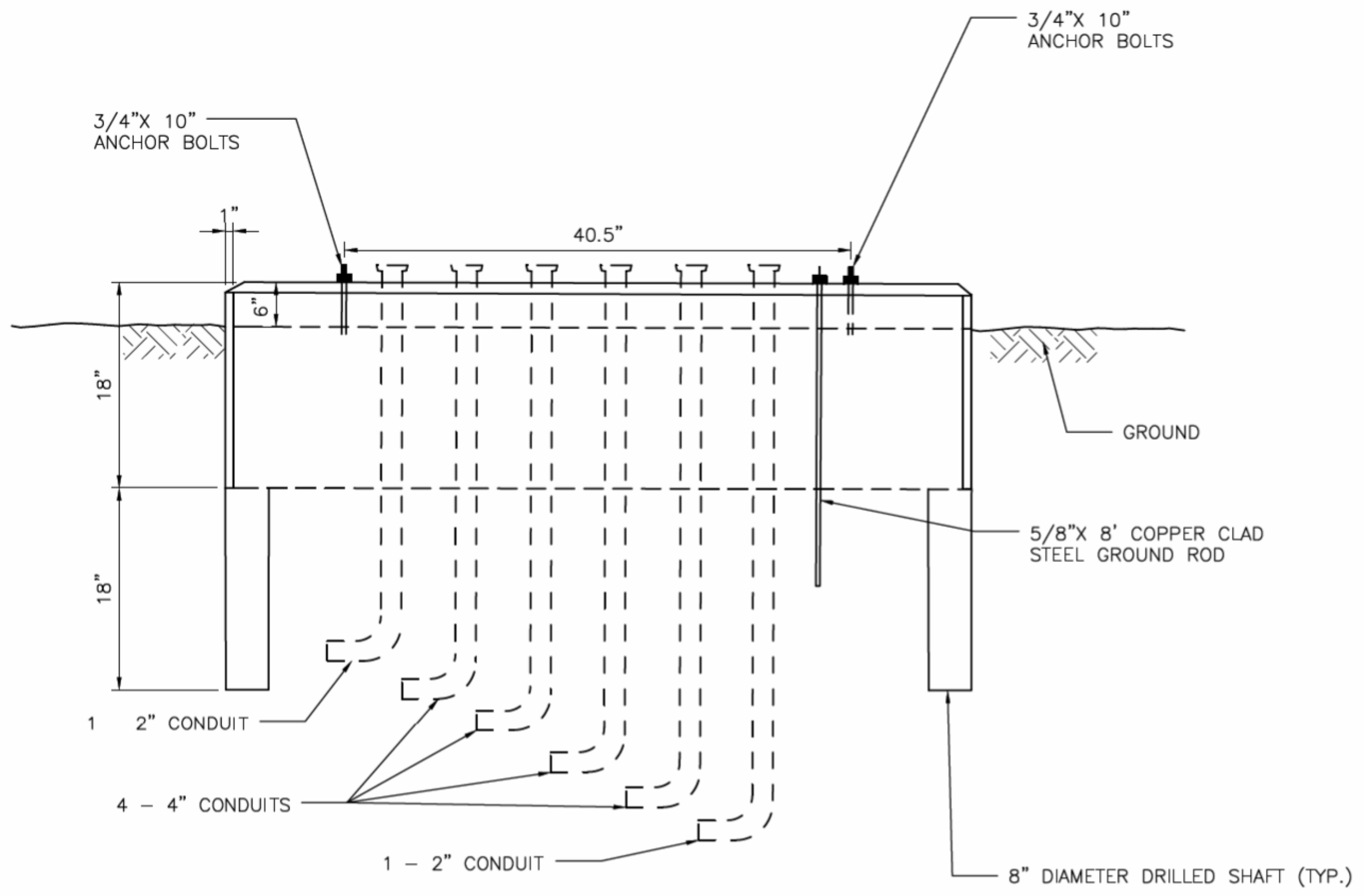
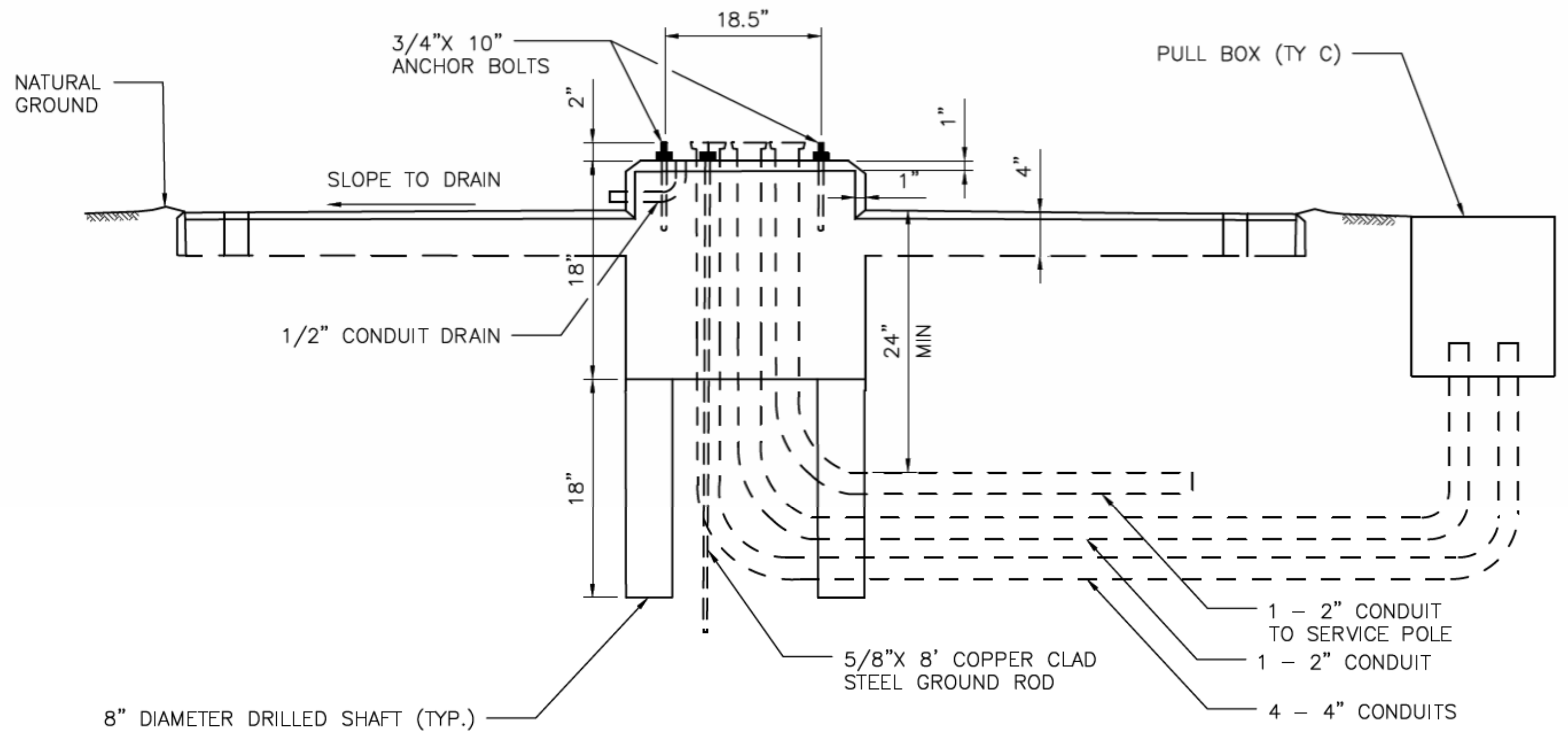

2" CONDUIT FOR UMBRELLA (3" FROM EACH SIDE)
EQUIPMENT SIDE OF CONTROLLER
6"X 6"X 6 GA WW MESH
8" DIAMETER DRILLED SHAFT(TYP.)
4 – 4" CONDUITS
1/2" CONDUIT DRAIN (SCREENED ON BOTH ENDS)
1/2"ø REIN. BAR
5/8"X 8' COPPER CLAD STEEL GROUND ROD
3"
26"
32"
7'
26"
℄
2 – 2" CONDUITS
6"X 6"X 6 GA WW MESH
2" CONDUIT FOR UMBRELLA (3" FROM EACH SIDE)
1"X 1"X 45° CHAMFER
1 – 2" CONDUIT TO SERVICE POLE
PULL BOX (TYPE "C")
WIRING SIDE OF CONTROLLER
5'– 0"

MODEL ITS 340 AND ACT 350i DETAIL
TOP VIEW


3/4"X 10" ANCHOR BOLTS
3/4"X 10" ANCHOR BOLTS
40.5"
6"
18"
18"
GROUND
5/8"X 8' COPPER CLAD STEEL GROUND ROD
1 2" CONDUIT
4 – 4" CONDUITS
1 – 2" CONDUIT
8" DIAMETER DRILLED SHAFT (TYP.)

MODEL ITS 340 AND 350i DETAIL
FRONT VIEW


3/4"X 10" ANCHOR BOLTS
18.5"
NATURAL GROUND
PULL BOX (TY C)
2"
1"
4"
SLOPE TO DRAIN
1"
18"
24" MIN
1/2" CONDUIT DRAIN
18"
1 – 2" CONDUIT TO SERVICE POLE
1 – 2" CONDUIT
5/8"X 8' COPPER CLAD STEEL GROUND ROD
4 – 4" CONDUITS
8" DIAMETER DRILLED SHAFT (TYP.)

MODEL ITS 340 AND 350i DETAIL
SIDE VIEW

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.
5. ALL CONDUIT ELBOWS TO BE RGS.

APPROVED BY: DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	APPROVED BY: DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 16730–03

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONTROLLER FOUNDATIONS

SHEET 3 OF 3

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F–11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONTROLLER FOUNDATIONS

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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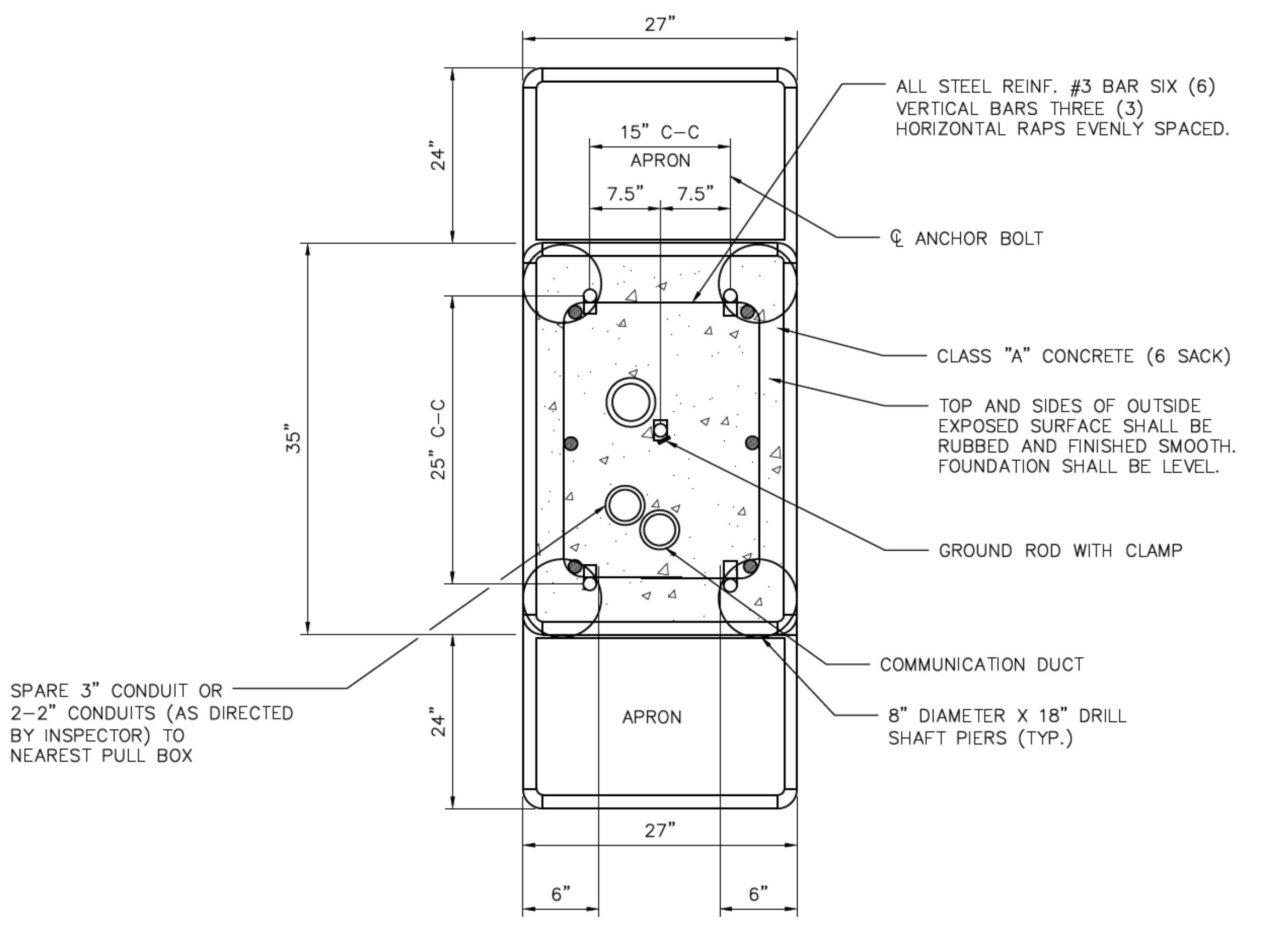
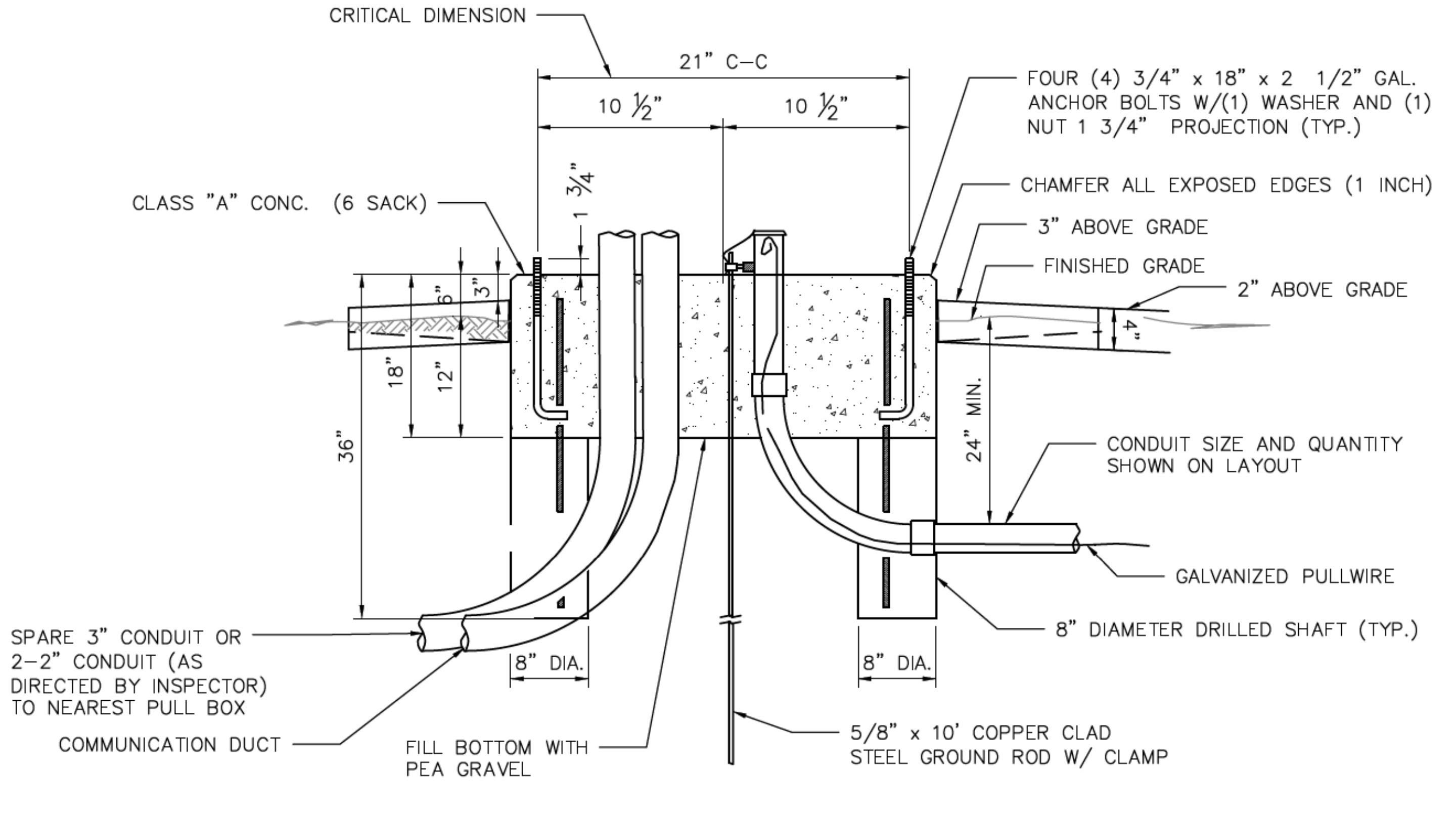
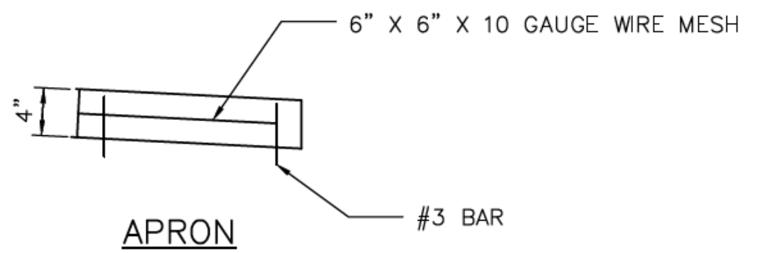

27"
24"
15" C–C
APRON
7.5"
7.5"
35"
25" C–C
24"
APRON
27"
6"
6"
ALL STEEL REINF. #3 BAR SIX (6) VERTICAL BARS THREE (3) HORIZONTAL RAPS EVENLY SPACED.
℄ ANCHOR BOLT
CLASS "A" CONCRETE (6 SACK)
TOP AND SIDES OF OUTSIDE EXPOSED SURFACE SHALL BE RUBBED AND FINISHED SMOOTH. FOUNDATION SHALL BE LEVEL.
GROUND ROD WITH CLAMP
COMMUNICATION DUCT
8" DIAMETER X 18" DRILL SHAFT PIERS (TYP.)
SPARE 3" CONDUIT OR 2–2" CONDUITS (AS DIRECTED BY INSPECTOR) TO NEAREST PULL BOX

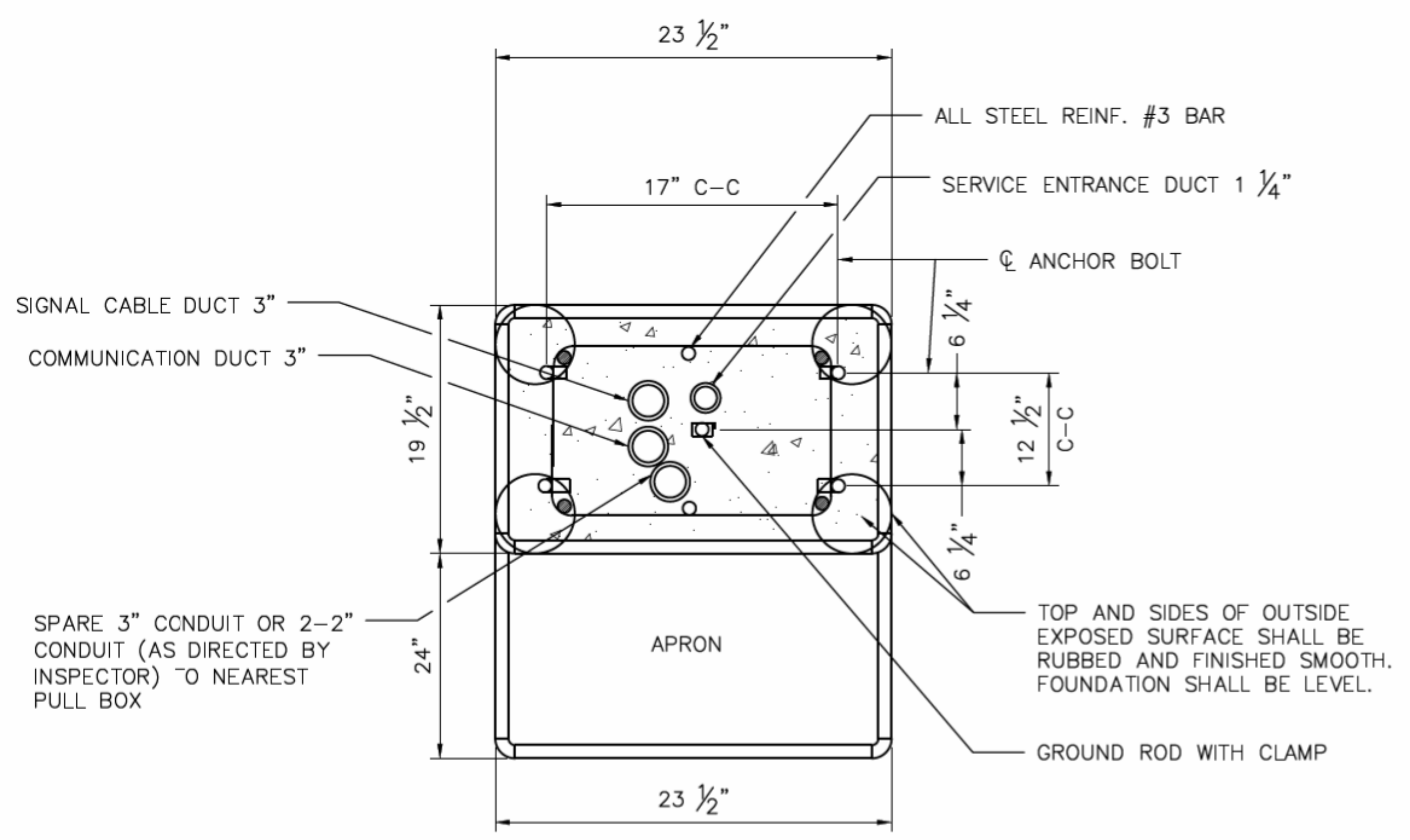
342–HOUSING 1 DETAIL
TOP VIEW


CRITICAL DIMENSION
21" C–C
10 ½"
10 ½"
FOUR (4) 3/4" x 18" x 2 1/2" GAL. ANCHOR BOLTS W/(1) WASHER AND (1) NUT 1 3/4" PROJECTION (TYP.)
CLASS "A" CONC. (6 SACK)
1 ¾"
CHAMFER ALL EXPOSED EDGES (1 INCH)
3" ABOVE GRADE
FINISHED GRADE
2" ABOVE GRADE
4"
3"
6"
18"
12"
36"
24" MIN.
CONDUIT SIZE AND QUANTITY SHOWN ON LAYOUT
GALVANIZED PULLWIRE
8" DIAMETER DRILLED SHAFT (TYP.)
SPARE 3" CONDUIT OR 2–2" CONDUIT (AS DIRECTED BY INSPECTOR) TO NEAREST PULL BOX
8" DIA.
8" DIA.
COMMUNICATION DUCT
FILL BOTTOM WITH PEA GRAVEL
5/8" x 10' COPPER CLAD STEEL GROUND ROD W/ CLAMP

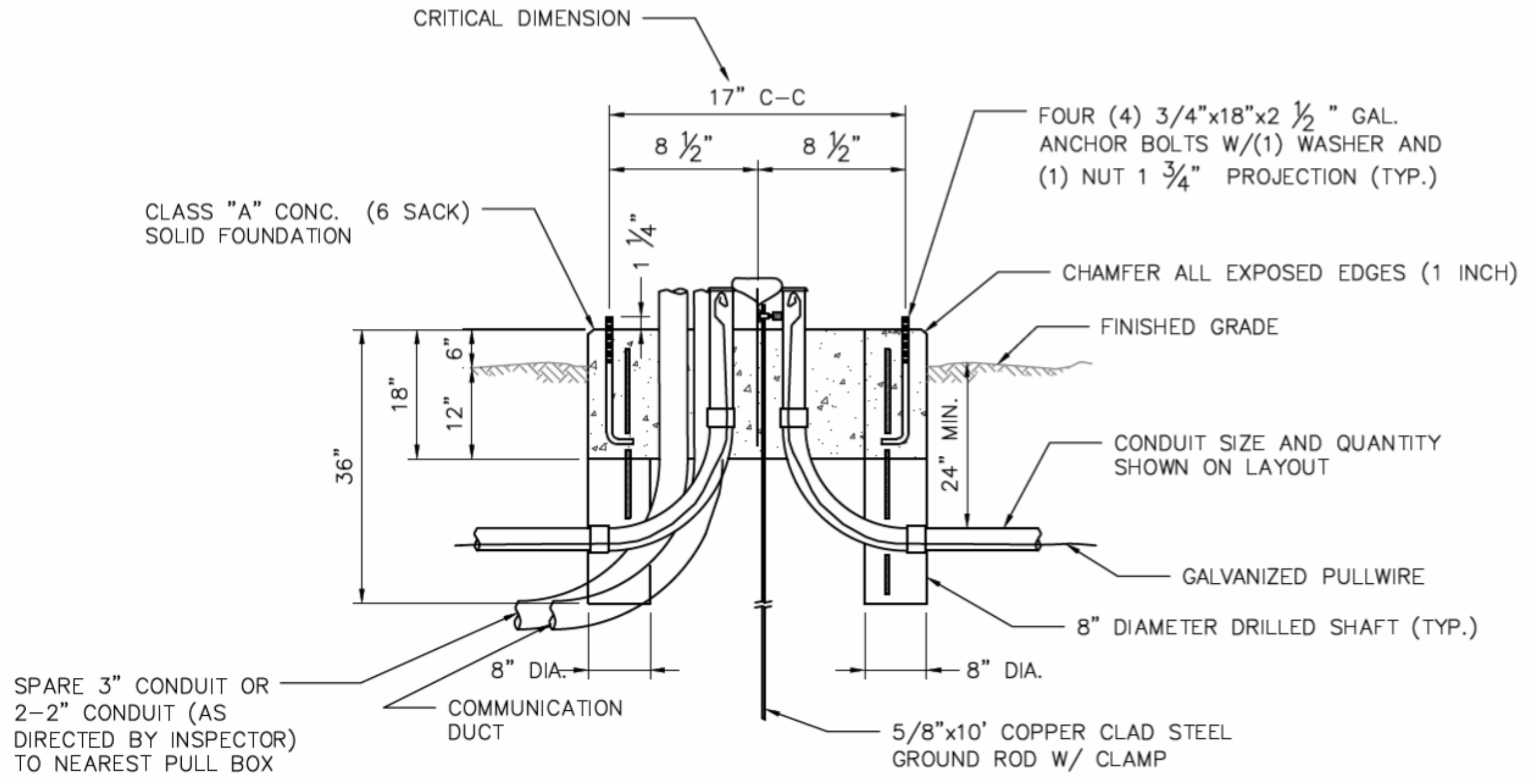
342–HOUSING 1 DETAIL
SIDE VIEW


6" X 6" X 10 GAUGE WIRE MESH
4"
#3 BAR

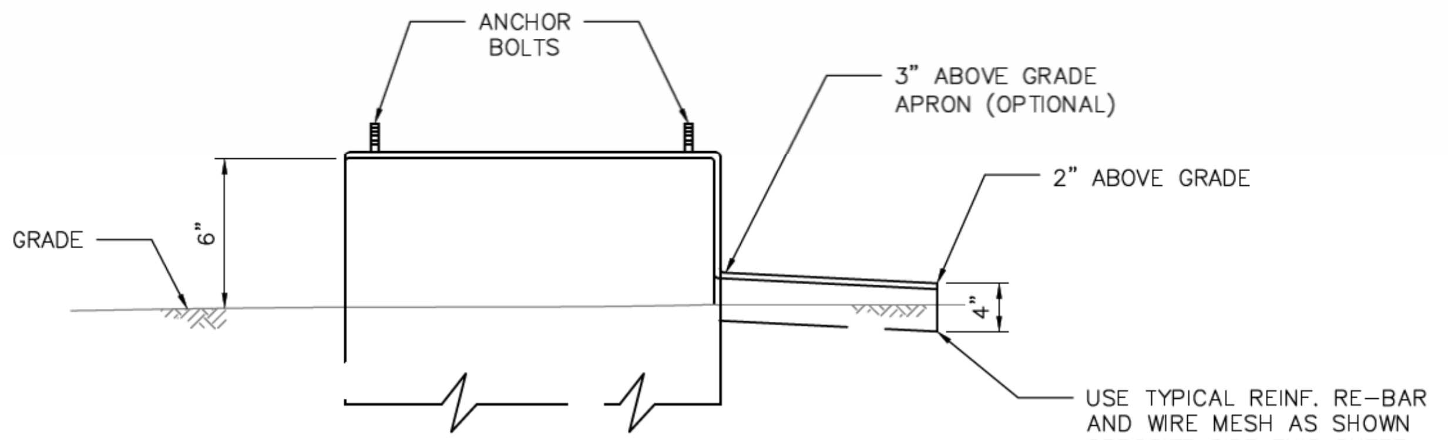
APRON
SIDE VIEW


23 ½"
ALL STEEL REINF. #3 BAR
17" C–C
SERVICE ENTRANCE DUCT 1 ¼"
℄ ANCHOR BOLT
SIGNAL CABLE DUCT 3"
COMMUNICATION DUCT 3"
19 ½"
6 ¼"
12 ½" C–C
6 ¼"
SPARE 3" CONDUIT OR 2–2" CONDUIT (AS DIRECTED BY INSPECTOR) "O NEAREST PULL BOX
24"
APRON
TOP AND SIDES OF OUTSIDE EXPOSED SURFACE SHALL BE RUBBED AND FINISHED SMOOTH. FOUNDATION SHALL BE LEVEL.
GROUND ROD WITH CLAMP
23 ½"

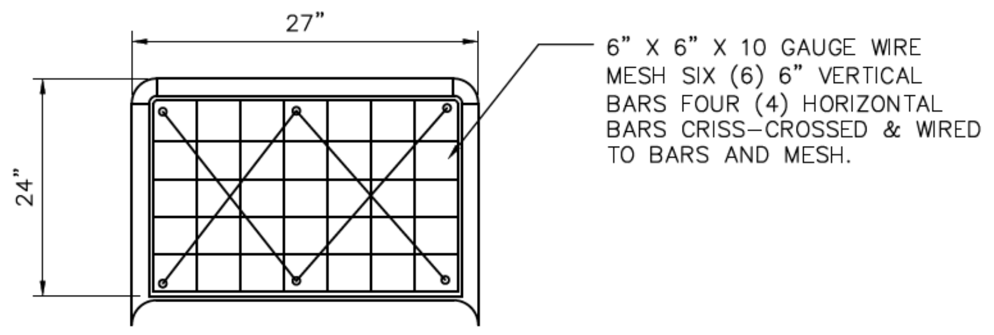
303 DETAIL


CRITICAL DIMENSION
17" C–C
8 ½"
8 ½"
FOUR (4) 3/4"x18"x2 ½ " GAL. ANCHOR BOLTS W/(1) WASHER AND (1) NUT 1 ¾" PROJECTION (TYP.)
CLASS "A" CONC. (6 SACK) SOLID FOUNDATION
1 ¼"
CHAMFER ALL EXPOSED EDGES (1 INCH)
FINISHED GRADE
6"
18"
12"
36"
24" MIN.
CONDUIT SIZE AND QUANTITY SHOWN ON LAYOUT
GALVANIZED PULLWIRE
8" DIAMETER DRILLED SHAFT (TYP.)
SPARE 3" CONDUIT OR 2–2" CONDUIT (AS DIRECTED BY INSPECTOR) TO NEAREST PULL BOX
8" DIA.
8" DIA.
COMMUNICATION DUCT
5/8"x10' COPPER CLAD STEEL GROUND ROD W/ CLAMP

303 DETAIL
SIDE VIEW


ANCHOR BOLTS
3" ABOVE GRADE APRON (OPTIONAL)
2" ABOVE GRADE
GRADE
6"
4"
USE TYPICAL REINF. RE-BAR AND WIRE MESH AS SHOWN OPPOSITE SIDE THIS SHEET.

303 DETAIL


27"
24"
6" X 6" X 10 GAUGE WIRE MESH SIX (6) 6" VERTICAL BARS FOUR (4) HORIZONTAL BARS CRISS-CROSSED & WIRED TO BARS AND MESH.

APRON DETAIL
TOP VIEW

NOTES:

1. ALL CONDUIT ELBOWS TO BE RGS

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by:
Carol Haddock
A93C410B72B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023
DWG NO: 16730–01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONTROLLER FOUNDATIONS

SHEET 01 OF 03

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130285
4/15/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONTROLLER FOUNDATIONS

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 246 OF 345

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FOUDATION DESIGN TABLE

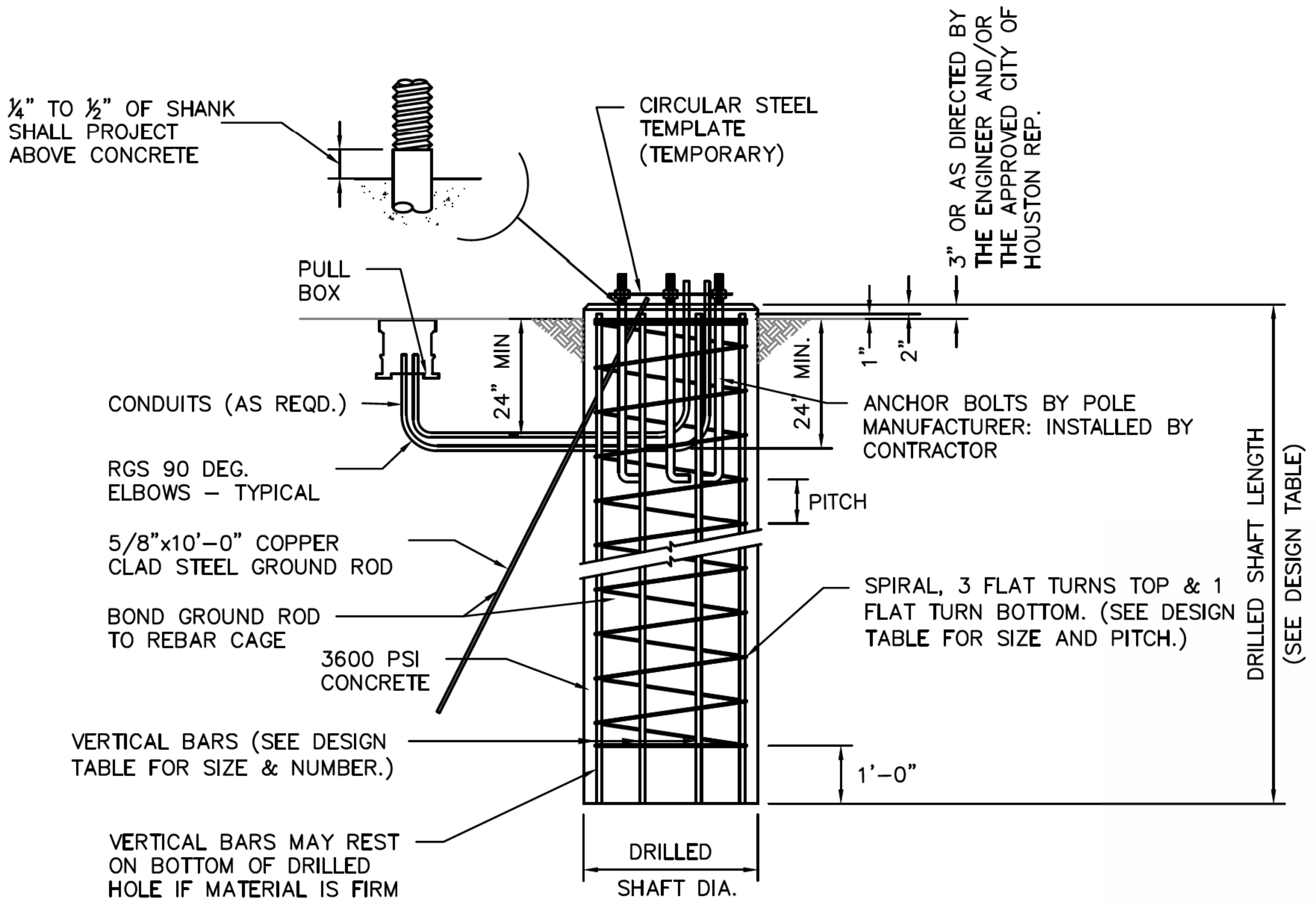
POLE MARK	DRILLED SHAFT DIA.	REINFORCING STEEL		DRILLED SHAFT LENGTH FT.	BOLT CIRCLE DIA.	FOUNDATION DESIGN LOADS (1)			TYPICAL APPLICATION
		VERT. BARS	SPIRAL & PITCH			MOMENT K–FT.	SHEAR KIPS	TORQUE K–FT.	
HOU 1	30"	8–#9 BAR	#3 BAR @9"	14'–0"	18"	72.2	3.4	51.9	MAST ARM ASSEMBLY (25'–35') IN COHESIVE SOILS
HOU 2	30"	8–#9 BAR	#3 BAR @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:

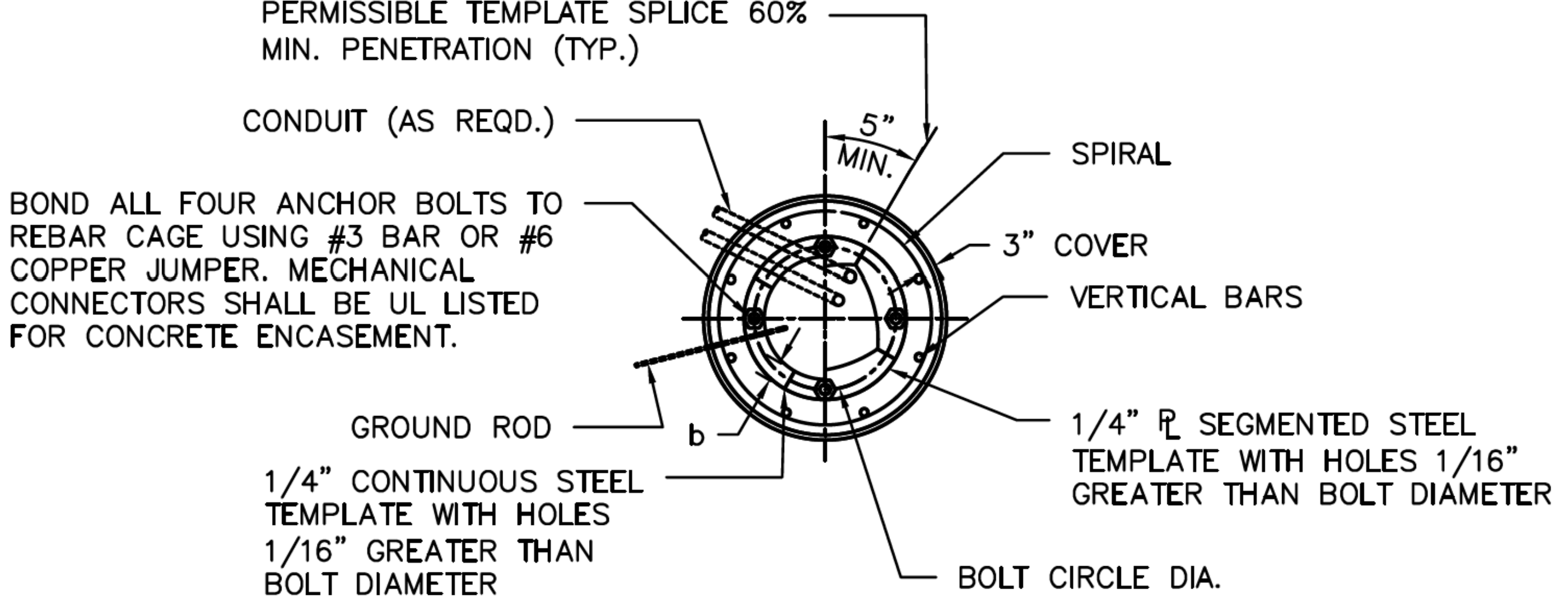
(1) FOUNDATION DESIGN LOADS ARE THE ALLOWABLE MOMENTS, SHEARS AND TORQUES AT THE TOP OF THE FOUNDATION.

(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.


¼" TO ½" OF SHANK SHALL PROJECT ABOVE CONCRETE
CIRCULAR STEEL TEMPLATE (TEMPORARY)
3" OR AS DIRECTED BY THE ENGINEER AND/OR THE APPROVED CITY OF HOUSTON REP.
PULL BOX
24" MIN
24" MIN.
1"
2"
CONDUITS (AS REQD.)
ANCHOR BOLTS BY POLE MANUFACTURER: INSTALLED BY CONTRACTOR
RGS 90 DEG. ELBOWS – TYPICAL
PITCH
5/8"x10'–0" COPPER CLAD STEEL GROUND ROD
BOND GROUND ROD TO REBAR CAGE
SPIRAL, 3 FLAT TURNS TOP & 1 FLAT TURN BOTTOM. (SEE DESIGN TABLE FOR SIZE AND PITCH.)
3600 PSI CONCRETE
DRILLED SHAFT LENGTH (SEE DESIGN TABLE)
VERTICAL BARS (SEE DESIGN TABLE FOR SIZE & NUMBER.)
1'–0"
VERTICAL BARS MAY REST ON BOTTOM OF DRILLED HOLE IF MATERIAL IS FIRM ENOUGH TO DO SO WHEN CONCRETE IS PLACED.
DRILLED SHAFT DIA.

FOUNDATION DETAILS


PERMISSIBLE TEMPLATE SPLICE 60% MIN. PENETRATION (TYP.)
CONDUIT (AS REQD.)
5" MIN.
SPIRAL
BOND ALL FOUR ANCHOR BOLTS TO REBAR CAGE USING #3 BAR OR #6 COPPER JUMPER. MECHANICAL CONNECTORS SHALL BE UL LISTED FOR CONCRETE ENCASEMENT.
3" COVER
VERTICAL BARS
GROUND ROD
b
1/4" ℄ SEGMENTED STEEL TEMPLATE WITH HOLES 1/16" GREATER THAN BOLT DIAMETER
1/4" CONTINUOUS STEEL TEMPLATE WITH HOLES 1/16" GREATER THAN BOLT DIAMETER
BOLT CIRCLE DIA.

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.

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.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

DRILLED SHAFT FOUNDATIONS

(SCALE: NOT TO SCALE)

APPROVED BY:

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Suhail Kanwar
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DocuSigned by:
Carol Haddock
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DIRECTOR OF HPW

EFF DATE: NOV–27–2023 **DWG NO: 02465–01**

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DANIEL T. SHANE
130285
4/15/2026

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

DRILLED SHAFT FOUNDATION

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

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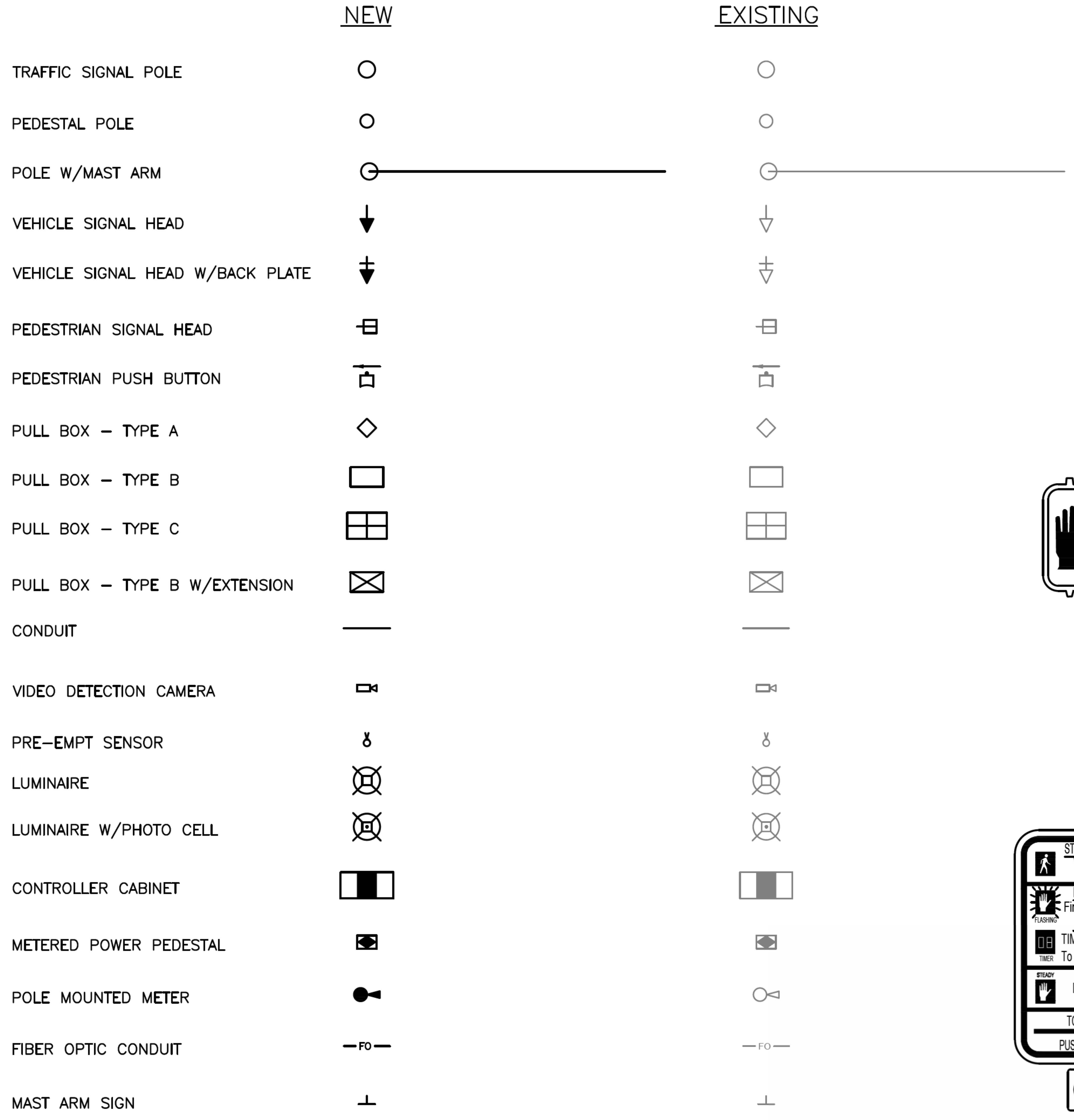
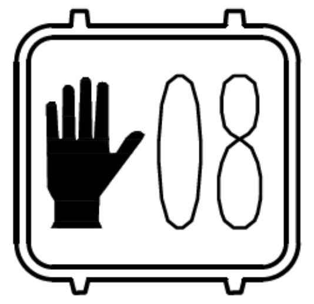
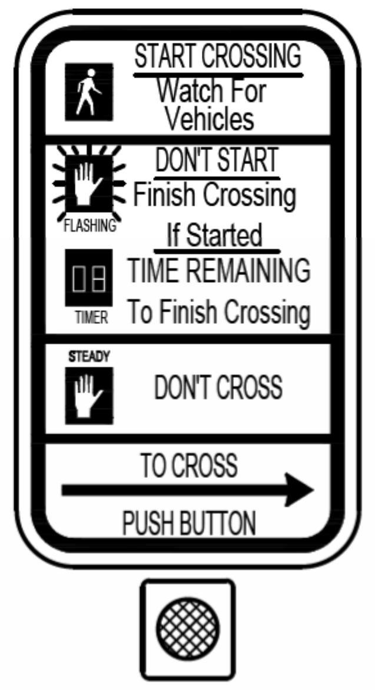

NEW
EXISTING
TRAFFIC SIGNAL POLE
PEDESTAL POLE
POLE W/MAST ARM
VEHICLE SIGNAL HEAD
VEHICLE SIGNAL HEAD W/BACK PLATE
PEDESTRIAN SIGNAL HEAD
PEDESTRIAN PUSH BUTTON
PULL BOX – TYPE A
PULL BOX – TYPE B
PULL BOX – TYPE C
PULL BOX – TYPE B W/EXTENSION
CONDUIT
VIDEO DETECTION CAMERA
PRE–EMPT SENSOR
LUMINAIRE
LUMINAIRE W/PHOTO CELL
CONTROLLER CABINET
METERED POWER PEDESTAL
POLE MOUNTED METER
FIBER OPTIC CONDUIT
FO
MAST ARM SIGN

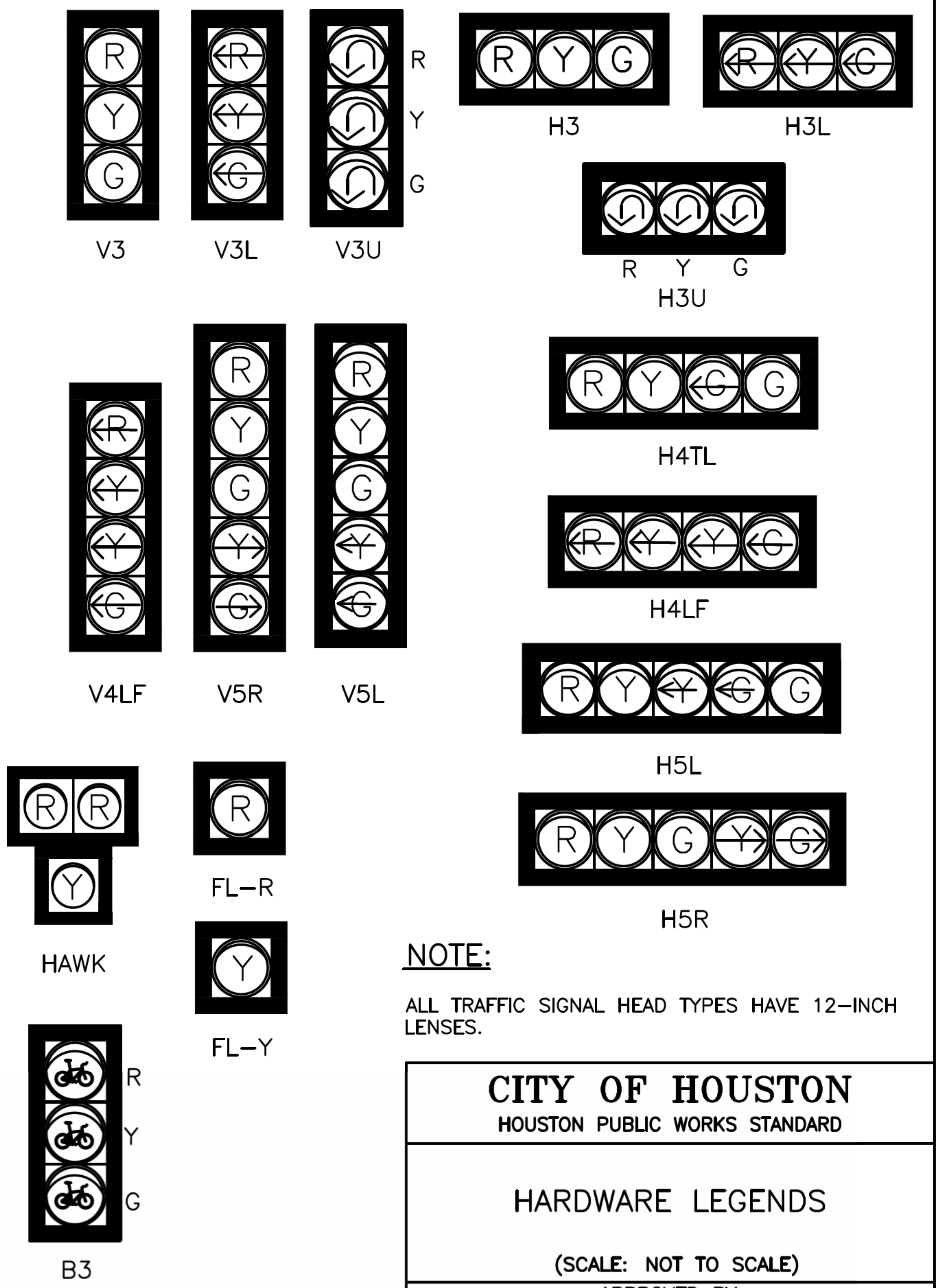
SIGNAL TYPES



CDP


START CROSSING
Watch For Vehicles
FLASHING
DON'T START
Finish Crossing If Started
08
TIMER
TIME REMAINING
To Finish Crossing
STEADY
DON'T CROSS
TO CROSS
PUSH BUTTON

R10–3e


R
Y
G
V3
V3L
R
Y
G
V3U
R
Y
G
H3
H3L
R Y G
H3U
R
Y
G
R
Y
G
R
Y
G
R
Y
G
H4TL
V4LF
V5R
V5L
H4LF
R
Y
G
H5L
R
R
Y
HAWK
R
FL–R
Y
FL–Y
R
Y
G
H5R
R
Y
G
B3

NOTE:

ALL TRAFFIC SIGNAL HEAD TYPES HAVE 12–INCH LENSES.

CITY OF HOUSTON

HOUSTON PUBLIC WORKS STANDARD

HARDWARE LEGENDS

(SCALE: NOT TO SCALE)

APPROVED BY:

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9EF8B0C641F5478...
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HARDWAERE LEGENDS

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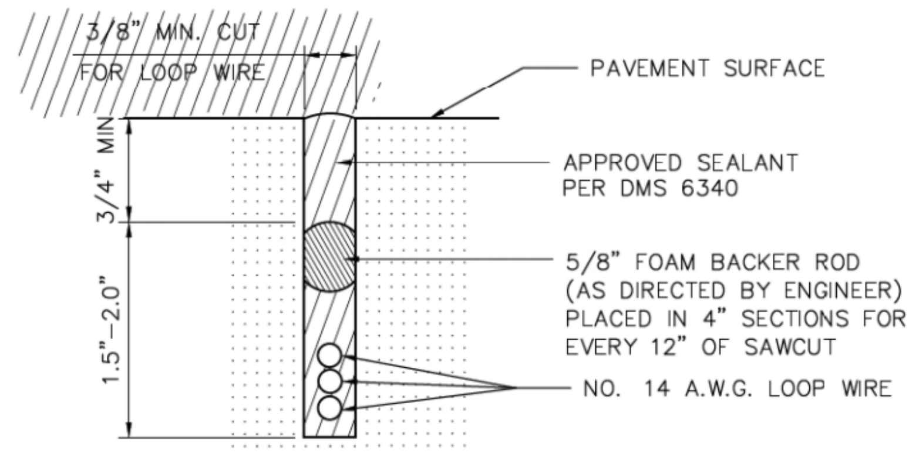
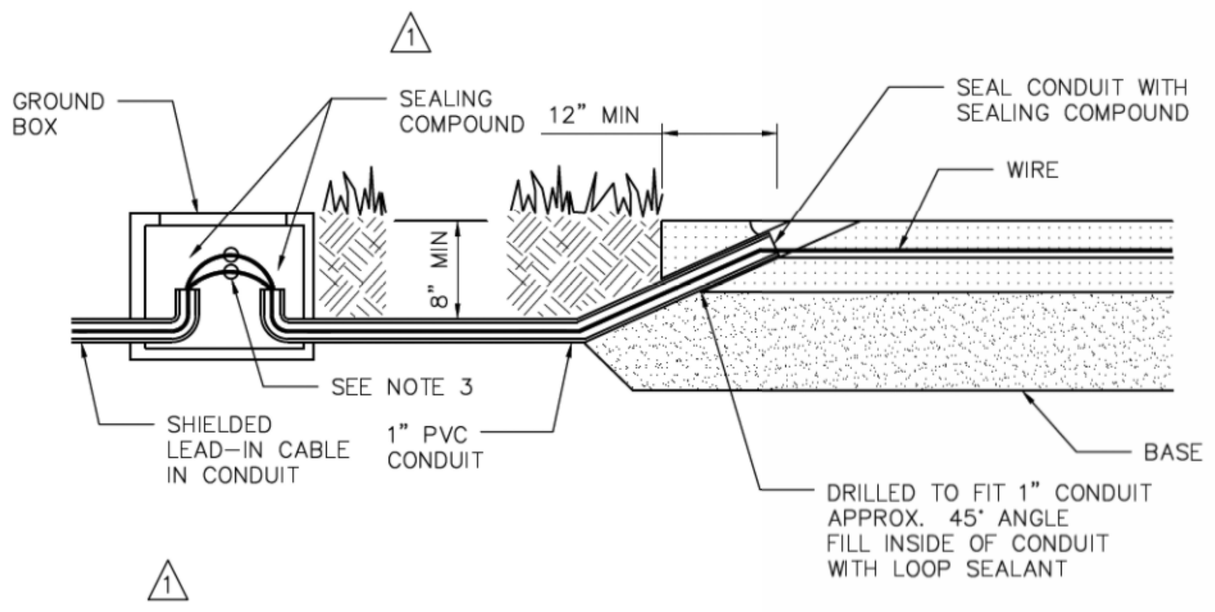
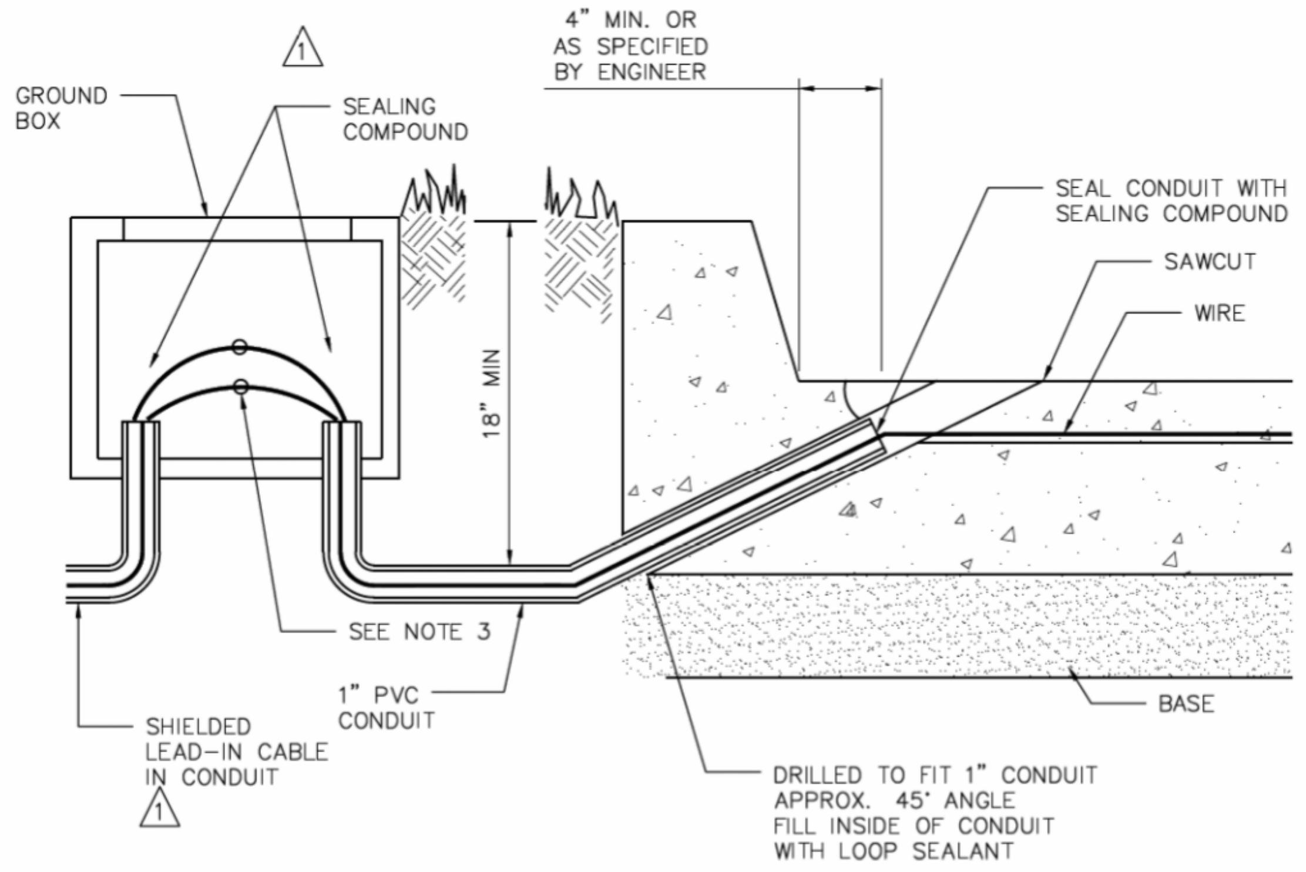

3/8" MIN. CUT FOR LOOP WIRE
PAVEMENT SURFACE
APPROVED SEALANT PER DMS 6340
5/8" FOAM BACKER ROD (AS DIRECTED BY ENGINEER) PLACED IN 4" SECTIONS FOR EVERY 12" OF SAWCUT
NO. 14 A.W.G. LOOP WIRE
3/4" MIN
1.5"-2.0"

LOOP SAW CUT CROSS-SECTION

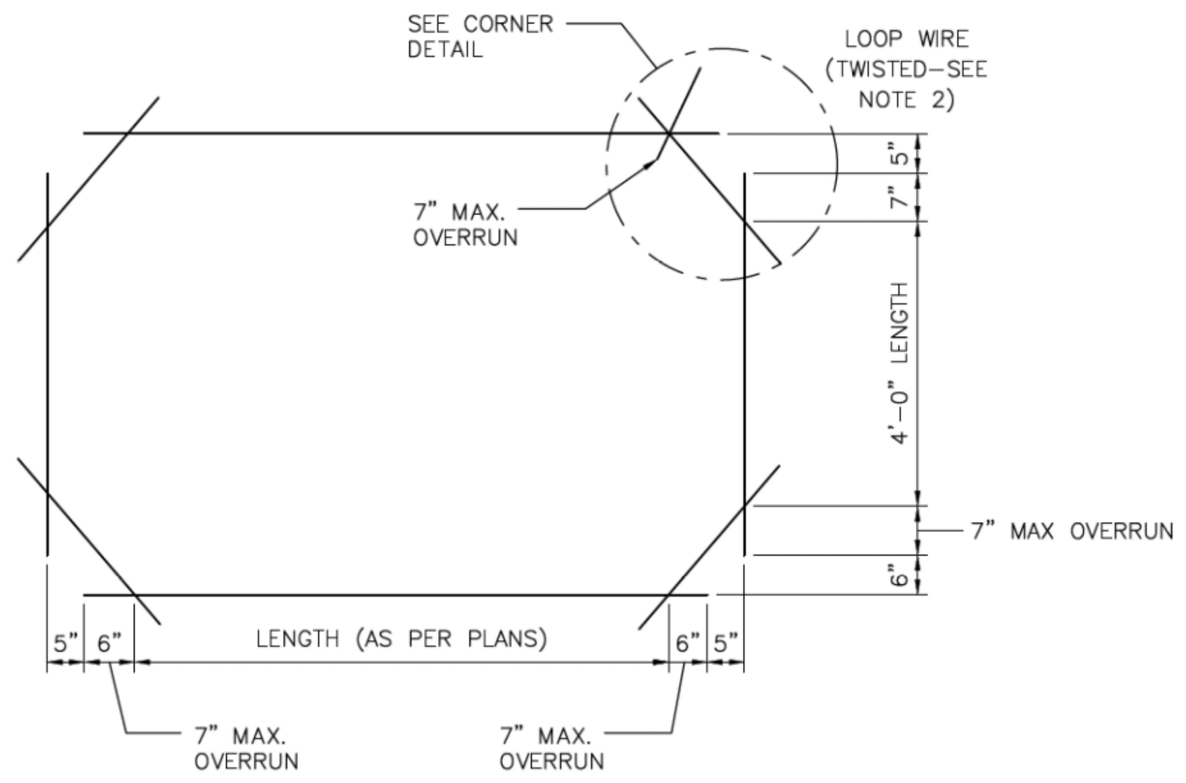
* SAWCUTS IN BRIDGE DECKS ARE TYPICALLY 1" DEPTH MAXIMUM SAWCUTS IN BRIDGE DECKS AND ACROSS EXPANSION JOINTS SHALL BE AS APPROVED BY ENGINEER


1
GROUND BOX
SEALING COMPOUND
12" MIN
SEAL CONDUIT WITH SEALING COMPOUND
WIRE
8" MIN
SEE NOTE 3
SHIELDED LEAD-IN CABLE IN CONDUIT
1" PVC CONDUIT
BASE
DRILLED TO FIT 1" CONDUIT APPROX. 45° ANGLE FILL INSIDE OF CONDUIT WITH LOOP SEALANT
1

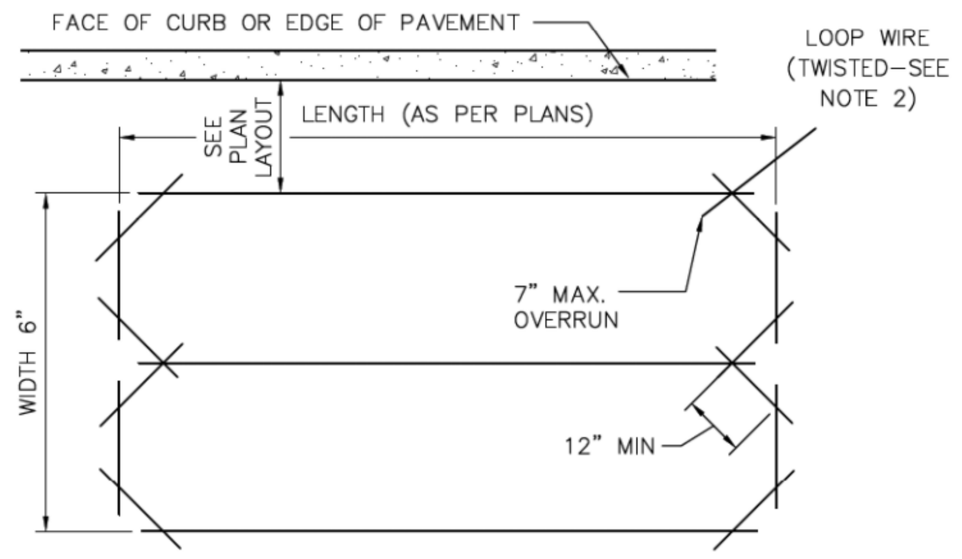
TYPICAL LEAD IN CONFIGURATION
(WITHOUT CURBING)


1
4" MIN. OR AS SPECIFIED BY ENGINEER
GROUND BOX
SEALING COMPOUND
SEAL CONDUIT WITH SEALING COMPOUND
SAWCUT
WIRE
18" MIN
SEE NOTE 3
1" PVC CONDUIT
SHIELDED LEAD-IN CABLE IN CONDUIT
1
BASE
DRILLED TO FIT 1" CONDUIT APPROX. 45° ANGLE FILL INSIDE OF CONDUIT WITH LOOP SEALANT

TYPICAL LEAD IN CONFIGURATION
(WITH CURBING)

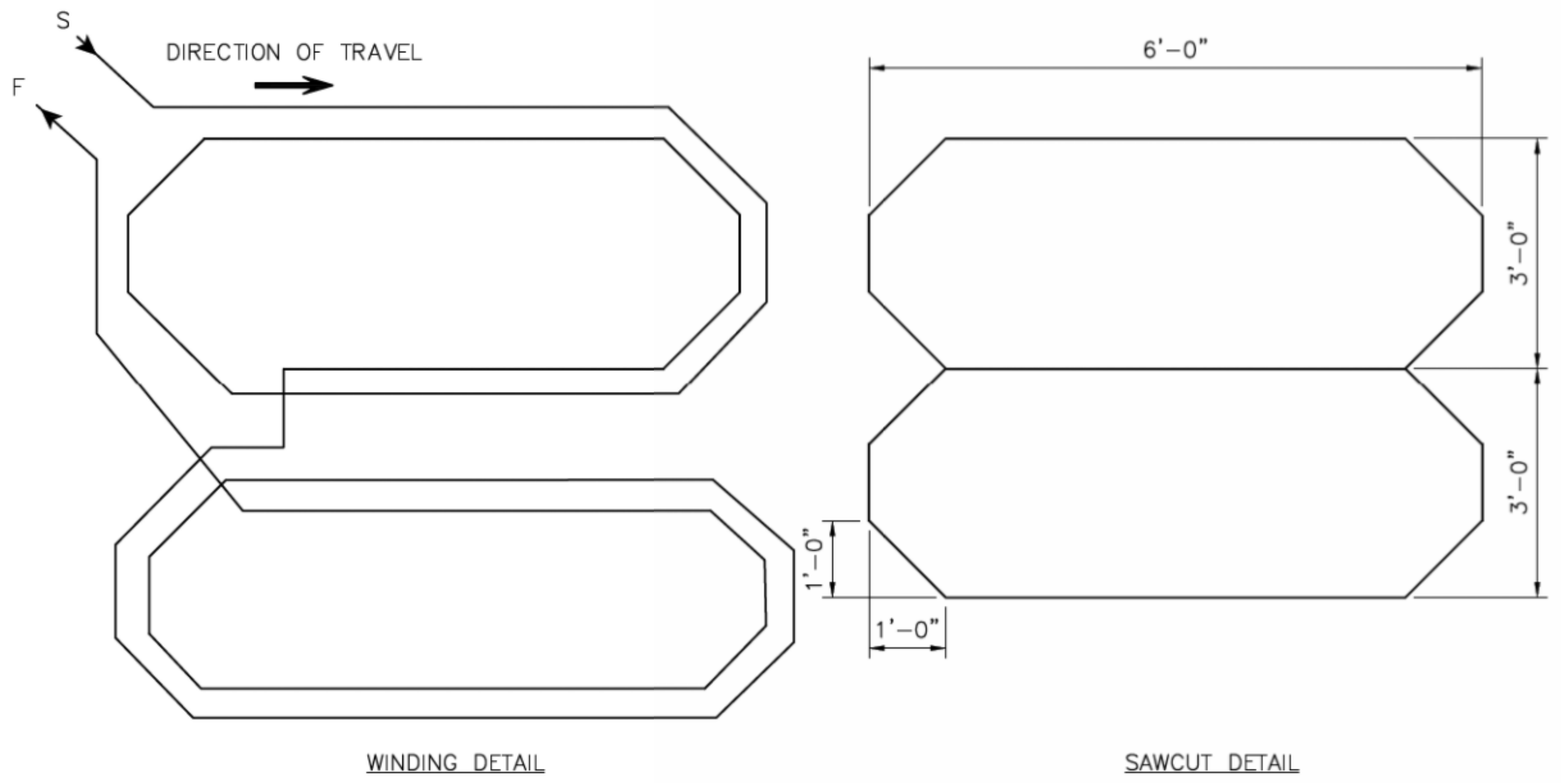

SEE CORNER DETAIL
LOOP WIRE (TWISTED-SEE NOTE 2)
7" MAX. OVERRUN
5"
7"
4'-0" LENGTH
7" MAX OVERRUN
6"
5"
6"
LENGTH (AS PER PLANS)
6"
5"
7" MAX. OVERRUN
7" MAX. OVERRUN

RECTANGULAR


FACE OF CURB OR EDGE OF PAVEMENT
LOOP WIRE (TWISTED-SEE NOTE 2)
SEE PLAN LAYOUT
LENGTH (AS PER PLANS)
7" MAX. OVERRUN
WIDTH 6'
12" MIN

QUADRAPOLE

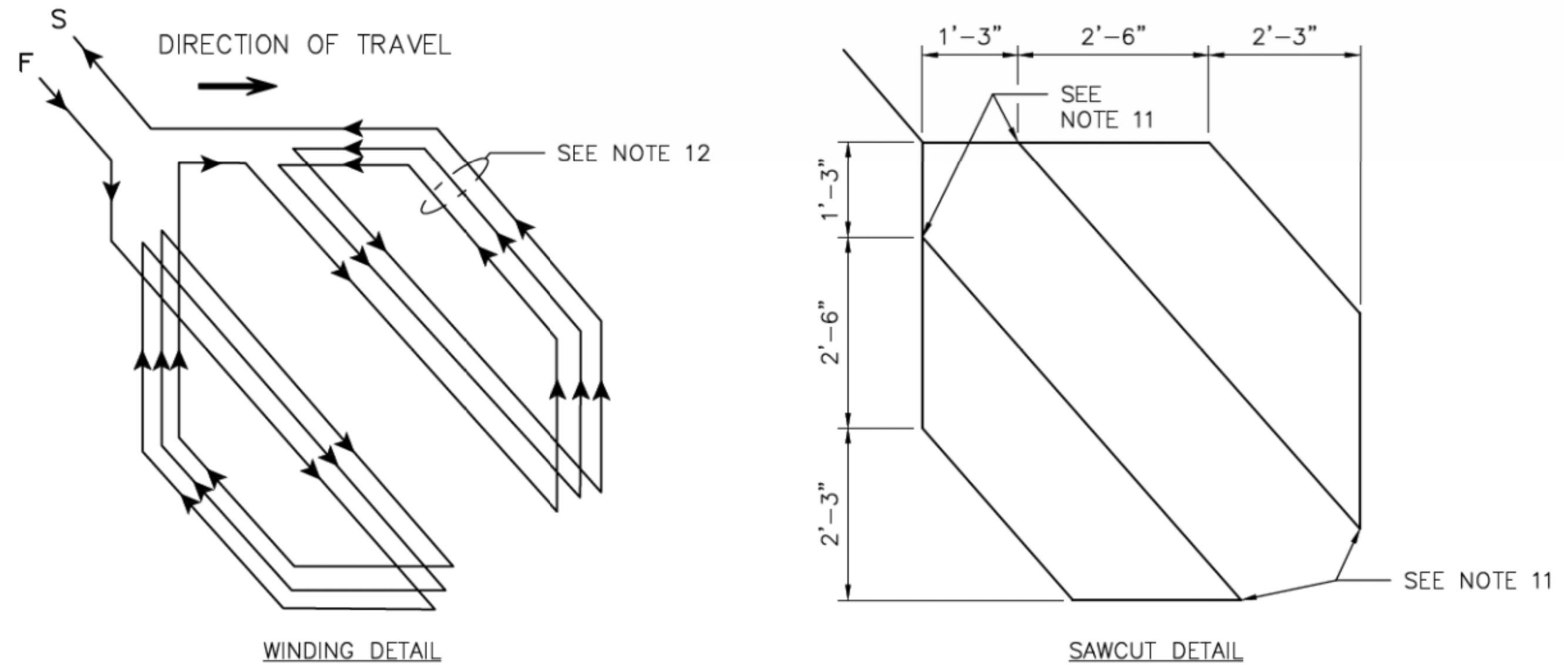
TYPICAL VEHICULAR LOOP DETECTOR LAYOUT
(AS SPECIFIED IN PLANS)


S
F
DIRECTION OF TRAVEL
6'-0"
3'-0"
3'-0"
1'-0"
1'-0"

WINDING DETAIL

SAWCUT DETAIL

QUADRUPOLE (Q) TYPE LOOP DETECTOR CONFIGURATION

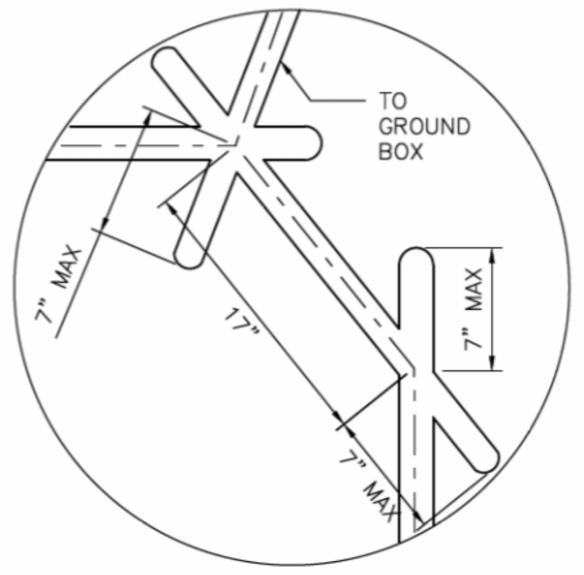

S
F
DIRECTION OF TRAVEL
SEE NOTE 12
1'-3"
2'-6"
2'-3"
SEE NOTE 11
1'-3"
2'-6"
2'-3"
SEE NOTE 11

WINDING DETAIL

SAWCUT DETAIL

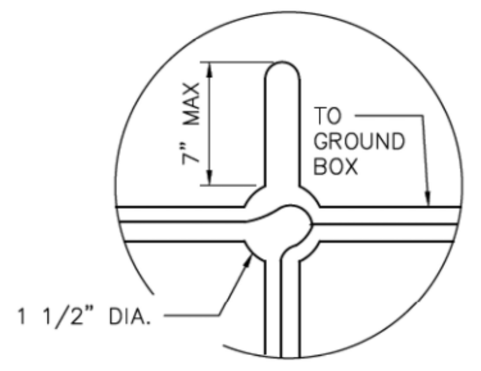
DIAGONAL SLASHED (D) TYPE LOOP DETECTOR CONFIGURATION

TYPICAL BICYCLE LOOP DETECTOR LAYOUT
(AS SPECIFIED IN PLANS. SEE PAVEMENT MARKINGS DETAILS FOR LOCATION RELATIVE TO BICYCLE SYMBOL)


TO GROUND BOX
7" MAX
17"
7" MAX
7" MAX

RECTANGULAR & HEXIGON LOOP

SAWCUT CORNER DETAIL
7" OVERRUN BASED ON
24" DIAMETER SAW BLADE


7" MAX
TO GROUND BOX
1 1/2" DIA.

RECTANGULAR & HEXIGON LOOP (ALT.)

DRILLED CORNER DETAIL

TYPICAL CORNER DETAILS

GENERAL NOTES:

1. THE PAVEMENT CUT IS TO BE MADE WITH A CONCRETE SAW TO NEAT LINES AND LOOSE MATERIAL REMOVED. THE CUT SHALL BE CLEAN AND DRY WHEN THE WIRE AND SEALING COMPOUND IS PLACED.
2. LOOP WIRE SHALL BE 14 AWG STRANDED TYPE XHHW. WIRE FROM THE LOOP TO THE GROUND BOX SHALL BE TWISTED A MINIMUM OF 5 TURNS PER FOOT. NO SPLICES SHALL BE PERMITTED IN THE LOOP OR IN THE RUN TO THE GROUND BOX.
3. THE HOME RUN CABLE FROM THE PULL BOX TO THE CONTROLLER SHALL BE IMSA 50-2 SHIELDED CABLE AND SHALL BE SOLDERED TO THE LOOP WIRE. THE SOLDER JOINTS SHALL BE SEALED WITH SCOTCHCAST OR OTHER METHOD ACCEPTABLE TO THE ENGINEER. THE SHIELD SHALL BE GROUNDED ONLY AT THE CONTROLLER END. LOOP HOME RUN CABLE SHALL BE TWO CONDUCTOR 14 AWG SHIELDED, TYPE XHHW.
4. ALL WIRE PLACED IN THE SAW CUT SHALL BE SEALED BY FULLY ENCAPSULATING IT IN A SEALANT ACCEPTABLE TO THE ENGINEER. SEALING COMPOUND SHALL BE IN ACCORDANCE WITH DMS 6340.
5. THE LOOP LOCATION, CONFIGURATION AND NUMBER OF TURNS SHALL BE AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RECOMMENDED NUMBER OF TURNS FOR LOOP DETECTORS

LOOPS PERIMETER SIZE (FT.)	NUMBER OF TURNS	APPROXIMATE LOOP SIZES INCLUDED
24' or Less	3 or 4	5' x 5', 6' x 6'
25' - 110'	2 or 3	6' x 10', 6' x 45'
110' or More	1 or 2	6' x 50' or Longer

6. A SEPARATE SAW CUT SHALL BE MADE FROM EACH LOOP TO THE EDGE OF PAVEMENT OR AS SPECIFIED BY THE ENGINEER.
7. SPLICES BETWEEN THE LOOP LEAD-IN CABLE AND LOOP DETECTOR SHALL BE MADE ONLY IN THE GROUND BOX NEAR THE LOOP IT IS SERVING.
8. CIRCULAR LOOPS MAY USE PREWOUND LOOPS ENCASED IN CONTINUOUS PVC TUBING. SAWCUT WIDTH MAY BE ADJUSTED TO ACCOMMODATE TUBING.
9. THE LEAD-IN WIRE IN THE CIRCULAR LOOP SHALL BE COILED AT THE 3 INCH DRILLED CORNER TO REDUCE BENDING STRESS.
10. LOOP DUCT MAY BE USED AS SPECIFIED BY ENGINEER. FOR ADDITIONAL INFORMATION REFER TO "TEXAS TRAFFIC SIGNAL DETECTOR" MANUAL, TTI REPORT 1163-1.
11. ROUND CORNERS OF ACUTE ANGLES TO PREVENT DAMAGE TO CONDUCTORS.
12. INSTALL 3 TURNS WHEN ONLY ONE TYPE D LOOP IS ON A SINGLE CHANNEL. INSTALL 5 TURNS WHEN ONE TYPE D IS CONNECTED W/3-6'X6' LOOPS ON. A SINGLE CHANNEL.

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 16727-01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

LOOP DETECTOR
INSTALLATION DETAILS

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

DANIEL T. SHANE
130285
4/15/2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

LOOP DETECTOR
INSTALLATION DETAILS

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 249 OF 345

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.

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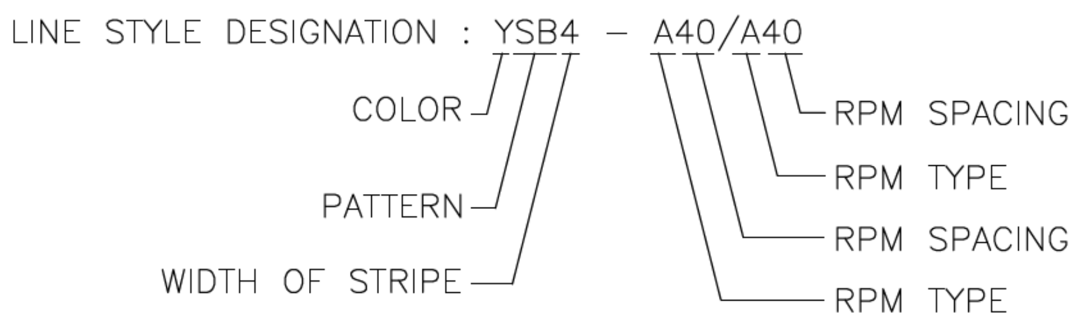
DESCRIPTION AND APPLICATION OF PAVEMENT MARKING LINES

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).
				HATCHING AT HIGH VISIBILITY CROSSWALKS.
			12”, 24”	DIAGONAL HATCHING USED IN GORES BETWEEN SAME DIRECTION OF TRAVEL LANES.
WG	WHITE	GUIDE (2’ STRIPE W/6’ GAP)	6”	GUIDE LINES THROUGH INTERSECTIONS.
				TAPER LINES FOR TURN LANES.
				GUIDE LINES FOR BICYCLE LANES.
YS	YELLOW	SOLID	4”	EDGE LINES TO DELINEATE THE LEFT EDGE OF A DIVIDED ROADWAY, A ONE–WAY ROAD, OR RAMP.
			6”	BIDIRECTIONAL BICYCLE LANE PAVEMENT MARKING.
			12”, 24”	DIAGONAL HATCHING USED IN GORES BETWEEN OPPOSING DIRECTION OF TRAVEL LANES.
YDS	YELLOW	DOUBLE SOLID	4” – (4”) – 4” (GAP)	CENTERLINE THAT SEPARATES OPPOSING TRAVEL LANES AND DELINEATION OF MEDIAN ISLANDS.
YDB	YELLOW	DOUBLE BROKEN	4” – (4”) – 4” (GAP)	DEFINES THE EDGES OF CENTER REVERSIBLE LANES THAT ARE USED AS TWLTLS DURING INTERMITTENT PERIODS.
YB	YELLOW	BROKEN (10’ STRIPE W/30’ GAP)	4”	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YB (BIKE)	YELLOW	BROKEN (3’ STRIPE W/9’ GAP)	4”	SEPARATES BICYCLE TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN BOTH DIRECTIONS OF TRAVEL.
YSB	YELLOW	SOLID & BROKEN BROKEN (10’ STRIPE W/30’ GAP)	4” – (4”) – 4” (GAP)	SEPARATES TRAVEL LANES IN OPPOSITE DIRECTIONS WHERE PASSING IS PERMITTED IN ONE DIRECTION AND PROHIBITED IN THE OPPOSITE DIRECTION.
				USED FOR EDGE OF TWO–WAY LEFT TURN LANES (TWLTL).
BICYCLE GREEN	GREEN	SOLID COLORED PAVEMENT	VARIES	PED/BIKE CROSSING
				VEHICLE / BIKE/ CONFLICT AREA
YIELD LINE	WHITE	TRIANGLE	16” x 24”	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:

1. PRIOR TO START OF CONSTRUCTION, ALL EXISTING PAVEMENT MARKINGS WITHIN THE AREA OF CONSTRUCTION SHALL BE INVENTORIED AND DOCUMENTED JOINTLY BY THE CITY INSPECTOR AND THE CONTRACTOR. THIS DOCUMENT WILL BE JOINTLY SIGNED BY BOTH PARTIES REFLECTING ALL EXISTING PAVEMENT MARKINGS AND LANE CONFIGURATIONS WILL BE DUPLICATED AGAIN. THIS REVIEW CAN BE DONE IN CONJUNCTION WITH SIGN INVENTORY. THE CONTRACTOR IS HELD ACCOUNTABLE FOR EXISTING AND TEMPORARY CONSTRUCTION PAVEMENT MARKINGS THROUGHOUT THE PROJECT AND AT THE PROJECT’S COMPLETION.
2. ALL PAVEMENT MARKINGS SHALL CONFORM TO CITY OF HOUSTON STANDARDS AND SPECIFICATIONS AND GENERAL GUIDELINES OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
3. THE PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE CITY TRAFFIC ENGINEER.
4. THE DESIGN SPEED FOR THE ROAD IS: _____. THE POSTED SPEED LIMIT IS: _____.
5. ALL LANE DIMENSIONS ARE FROM CENTER OF LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
6. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS AND SYMBOLS.
7. THE FINAL LONGITUDINAL STRIPINGS SHALL BE 60 MIL (0.060”) 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.
8. 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.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS OF FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET NO MORE THAN 50 FEET APART ALONG THE LINES TO BE IMPLEMENTED. IN TANGENT SECTIONS OF A ROAD WHERE THE PAVEMENT MARKING PATTERN DOES NOT CHANGE, CONTROL POINTS CAN BE SET AT 200 FEET SPACING. THE LAYOUT AND INSPECTION OF ALL PAVEMENT MARKINGS SHALL BE APPROVED BY CITY OF HOUSTON REPRESENTATIVE PRIOR TO THE APPLICATION OF MATERIALS.
10. IT IS THE CONTRACTOR’S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE STRIPING IS OFFSET NO MORE THAN ONE FOOT CLEAR OF THE CONSTRUCTION JOINT, UNLESS OTHERWISE DIRECTED BY THE CITY TRAFFIC ENGINEER.
11. ALL RAISED PAVEMENT MARKERS (RPMS) SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. TYPE C PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE CLEAR FACE OF EACH MARKER IS FACING THE APPROACHING TRAFFIC FLOW AND PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW.
12. ALL REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED IN ACCORDANCE TO CITY OF HOUSTON STANDARD SPECIFICATION 02762. APPLYING OVER EXISTING PAVEMENT MARKINGS DOES NOT CONSTITUTE AS APPROVED OBLITERATION METHOD.
13. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS–BUILT OF PAVEMENT MARKING PLANS WITHIN 30 DAYS AFTER COMPLETION OF PAVEMENT MARKING IMPLEMENTATION.
14. BLUE RPMS MAY BE PLACED ADJACENT TO FIRE HYDRANTS WITH THE APPROVAL OF THE CITY TRAFFIC ENGINEER.
15. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID BY THE PROJECT OWNER/DEVELOPER.
16. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY TRANSPORTATION & DRAINAGE OPERATION REPRESENTATIVE (713–803–3054).

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
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

DRAWING SCALE
NOT TO SCALE

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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SURVEYED BY: UNITED ENGINEERS, INC.

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Daniel T. Shane
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PAVEMENT MARKINGS GENERAL NOTES AND LEGENDS

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 250 OF 345

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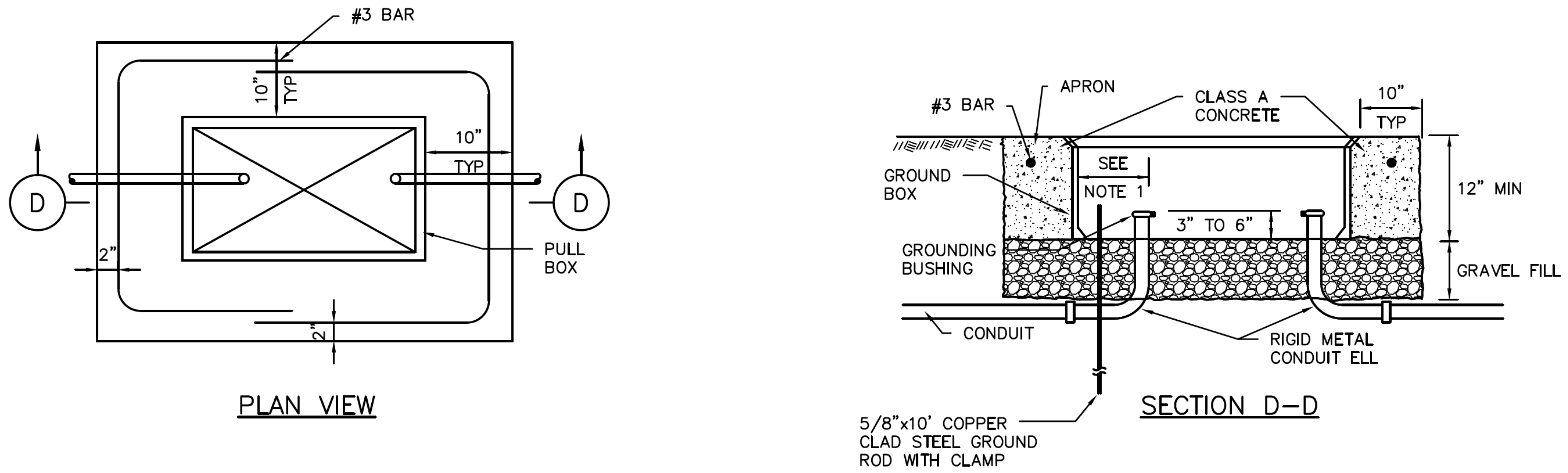


#3 BAR
10" TYP
10" TYP
D
D
2"
2"
PULL BOX
#3 BAR
APRON
CLASS A CONCRETE
10" TYP
GROUND BOX
SEE NOTE 1
3" TO 6"
12" MIN
GROUNDING BUSHING
GRAVEL FILL
CONDUIT
RIGID METAL CONDUIT ELL
5/8"x10' COPPER CLAD STEEL GROUND ROD WITH CLAMP

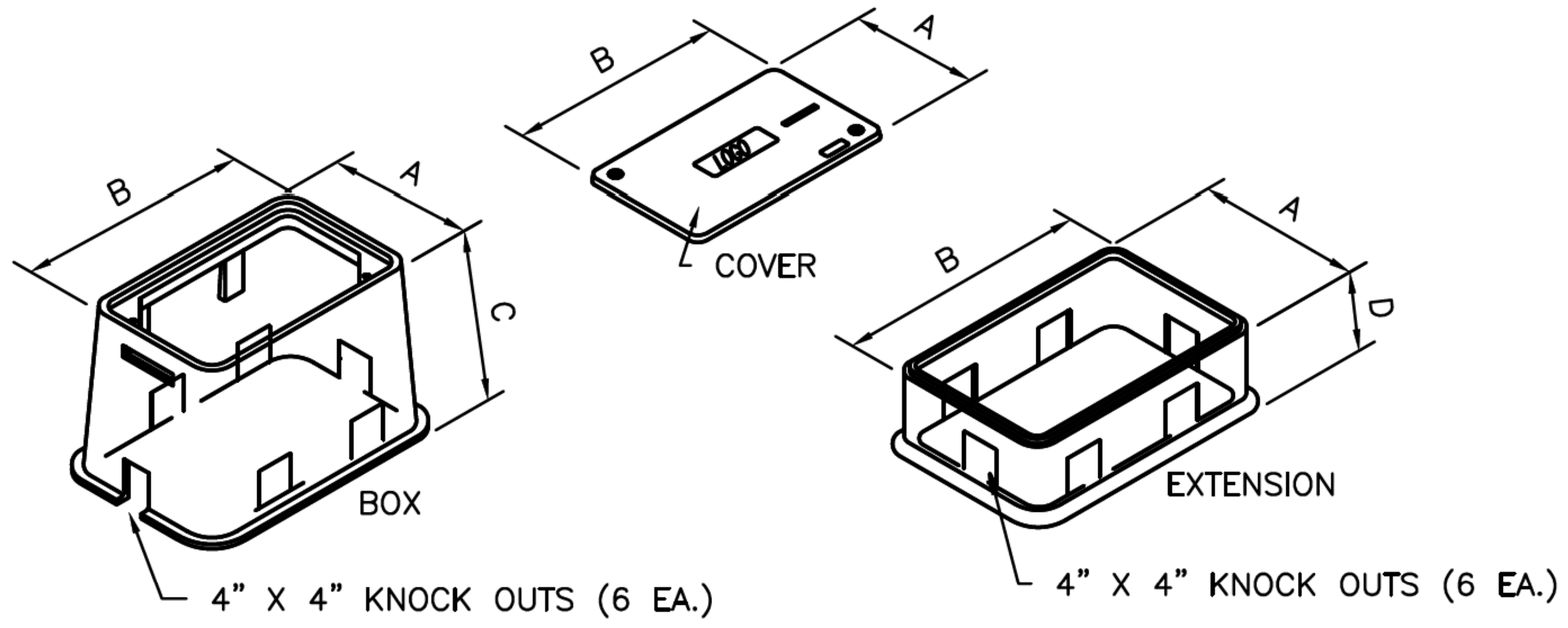
PLAN VIEW

SECTION D–D

APRON FOR PULL BOXES

NOTES:

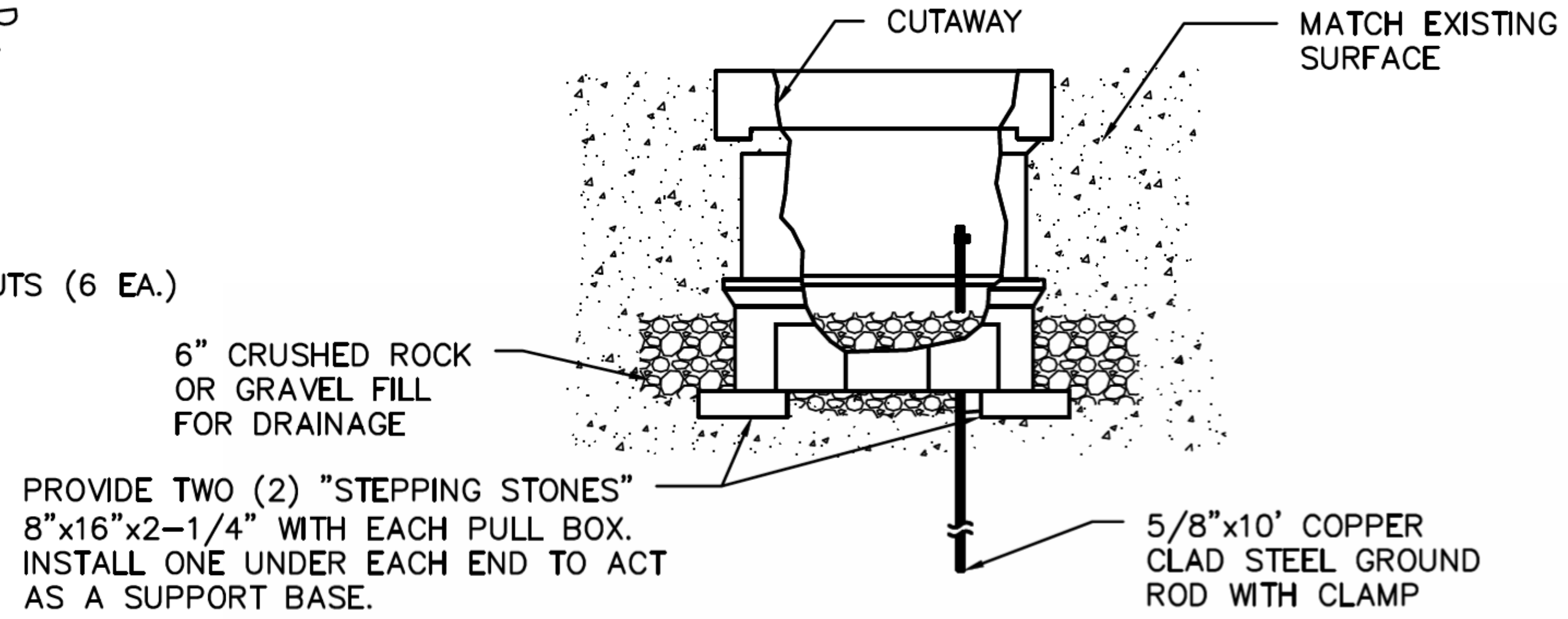
1. FINAL POSITION OF END OF CONDUIT SHALL NOT EXCEED ONE–HALF THE DISTANCE TO THE SIDE OF BOX OPPOSITE THE CONDUIT ENTRY.
2. PLACE GRAVEL "UNDER" THE BOX, NOT "IN" THE BOX. GRAVEL SHOULD NOT ENCROACH ON THE INTERIOR VOLUME OF THE BOX.
3. INSTALL BUSHING ON THE UPPER END OF ALL ELLS.
4. PROVIDE A 5/8" 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.



B
A
C
BOX
B
A
COVER
B
A
D
EXTENSION
4" X 4" KNOCK OUTS (6 EA.)
4" X 4" KNOCK OUTS (6 EA.)

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"



CUTAWAY
MATCH EXISTING SURFACE
6" CRUSHED ROCK OR GRAVEL FILL FOR DRAINAGE
PROVIDE TWO (2) "STEPPING STONES" 8"x16"x2–1/4" WITH EACH PULL BOX. INSTALL ONE UNDER EACH END TO ACT AS A SUPPORT BASE.
5/8"x10' COPPER CLAD STEEL GROUND ROD WITH CLAMP

SIDE VIEW
ELECTRICAL PULL BOX ASSEMBLY

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

PULL BOXES

(SCALE: NOT TO SCALE)

APPROVED BY:

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EFF DATE: NOV–27–2023
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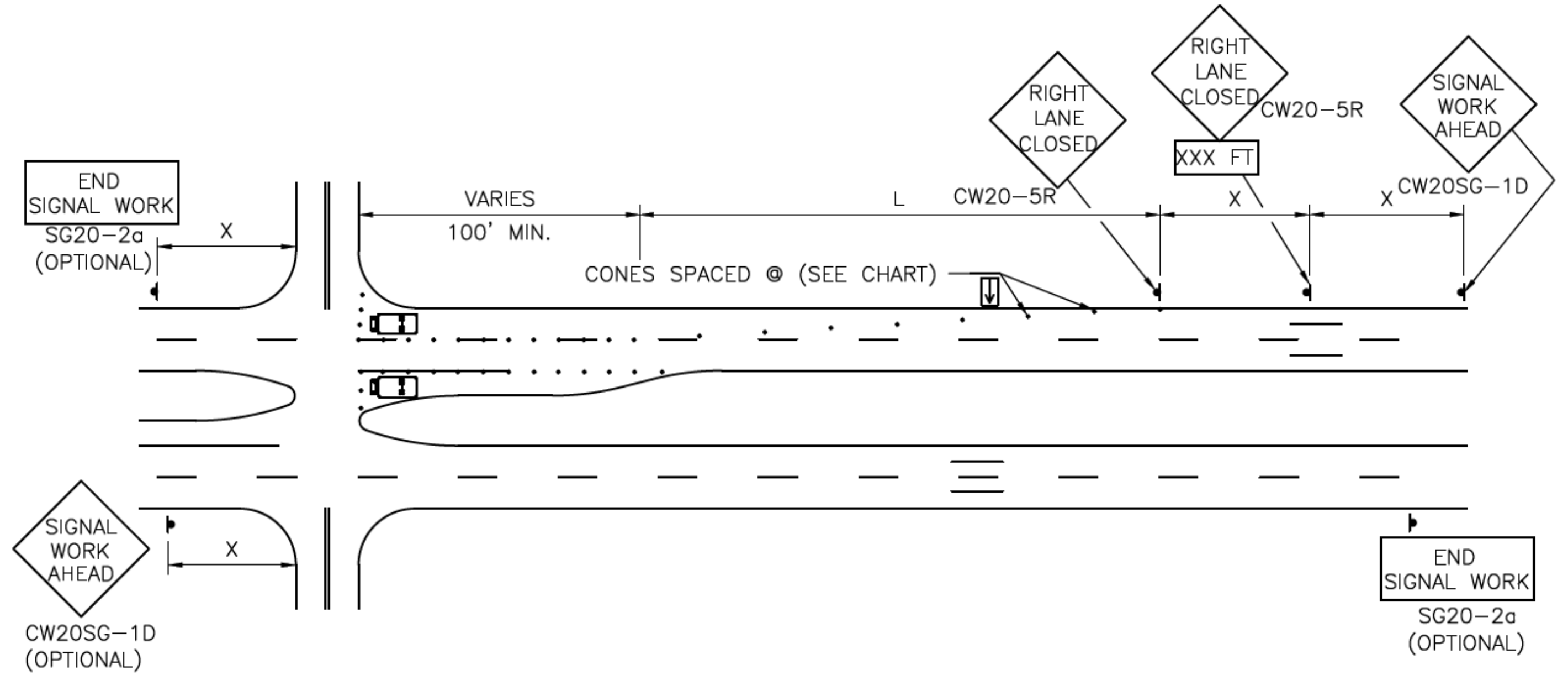
SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

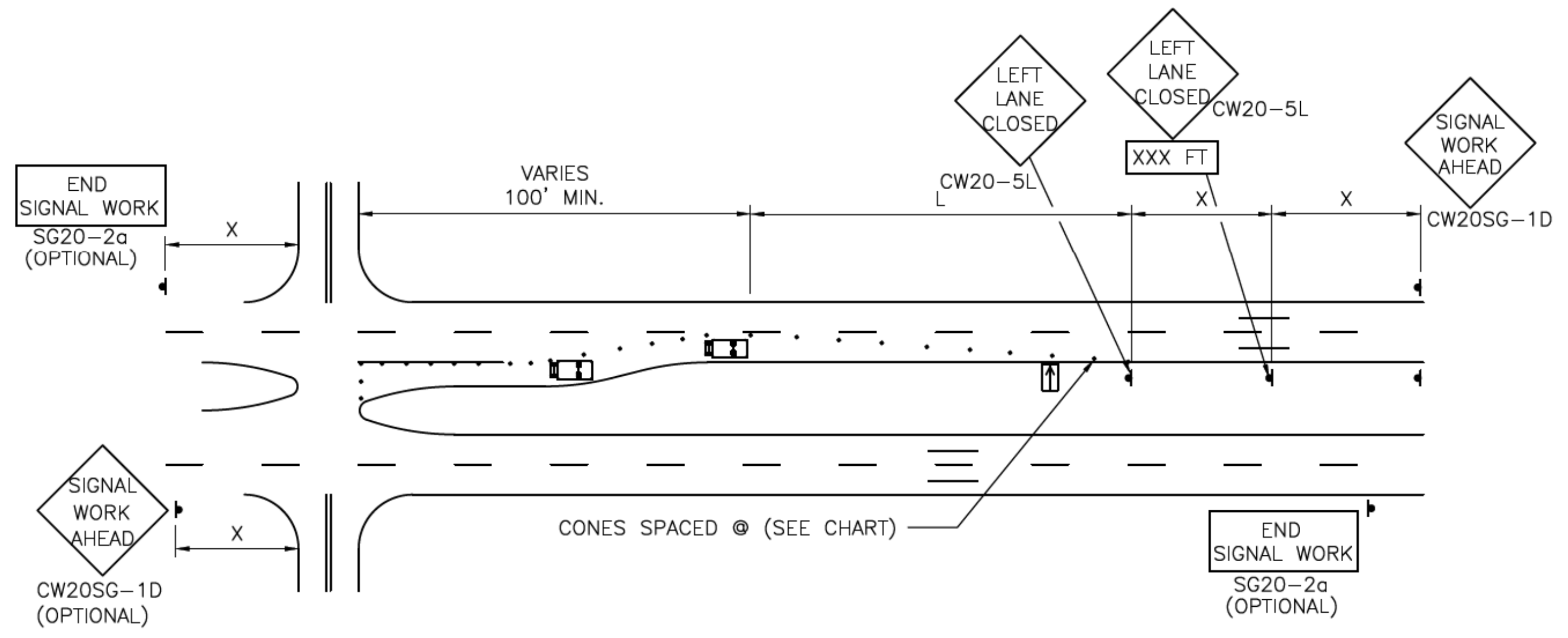
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PULL BOXES

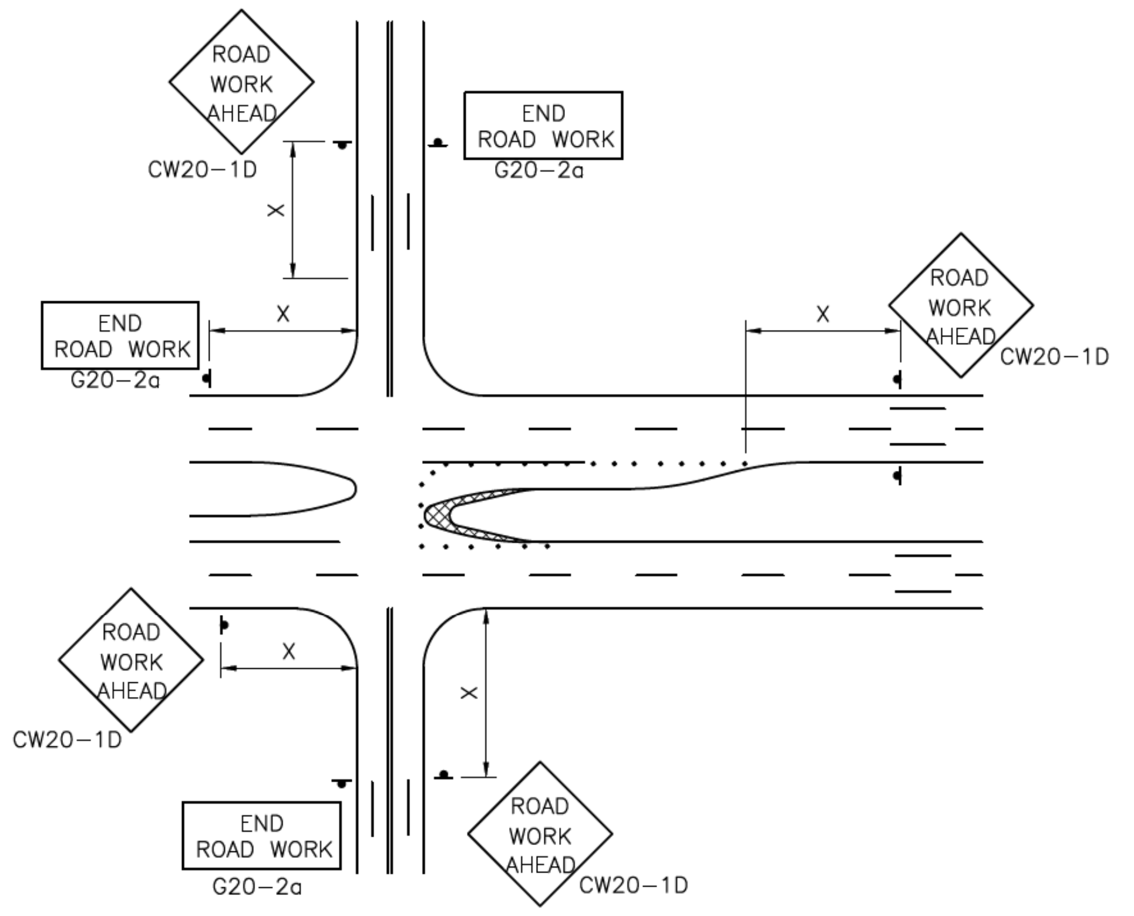
WBS NO. M–430296–0017–3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 251 OF 345


RIGHT LANE CLOSED
RIGHT LANE CLOSED
XXX FT
CW20-5R
SIGNAL WORK AHEAD
CW20SG-1D
END SIGNAL WORK
SG20-2a (OPTIONAL)
X
VARIES
100' MIN.
L
CW20-5R
X
X
CONES SPACED @ (SEE CHART)
SIGNAL WORK AHEAD
CW20SG-1D (OPTIONAL)
END SIGNAL WORK
SG20-2a (OPTIONAL)

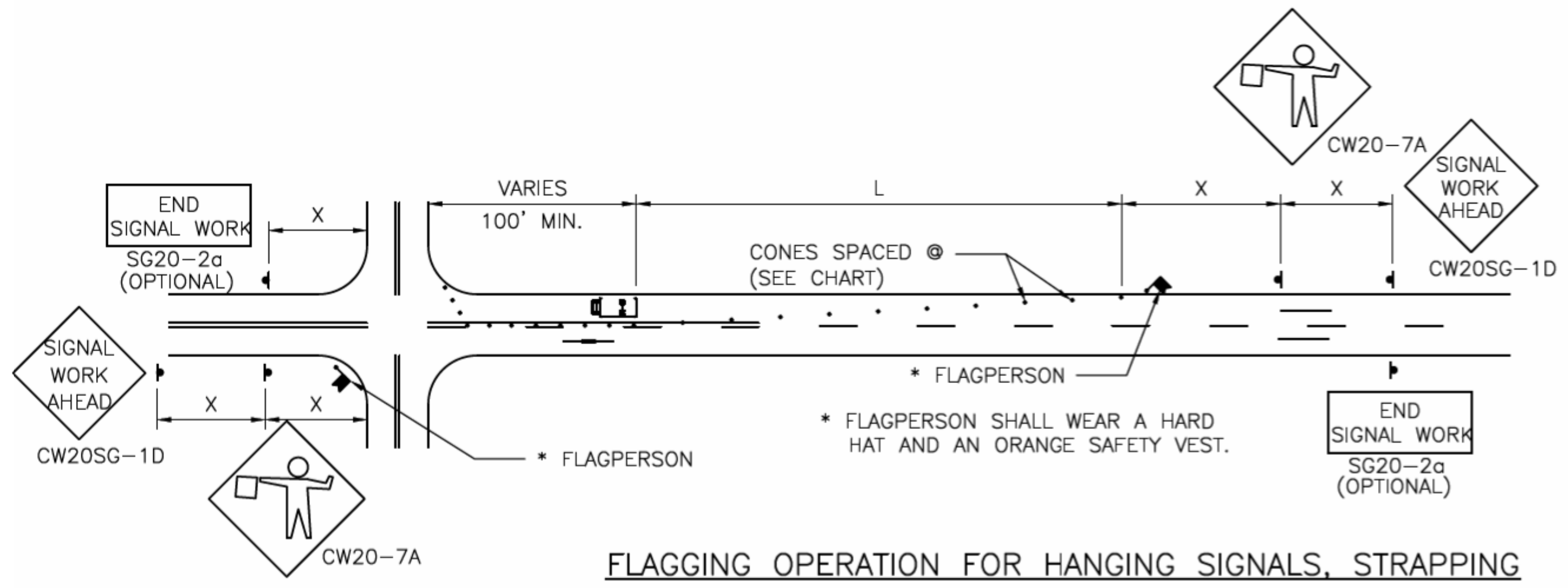
ONE LANE CLOSURE W/ RIGHT LANE AND/OR LEFT TURN LANE CLOSED


LEFT LANE CLOSED
LEFT LANE CLOSED
XXX FT
CW20-5L
SIGNAL WORK AHEAD
CW20SG-1D
END SIGNAL WORK
SG20-2a (OPTIONAL)
X
VARIES
100' MIN.
CW20-5L
L
X
X
SIGNAL WORK AHEAD
CW20SG-1D (OPTIONAL)
CONES SPACED @ (SEE CHART)
END SIGNAL WORK
SG20-2a (OPTIONAL)

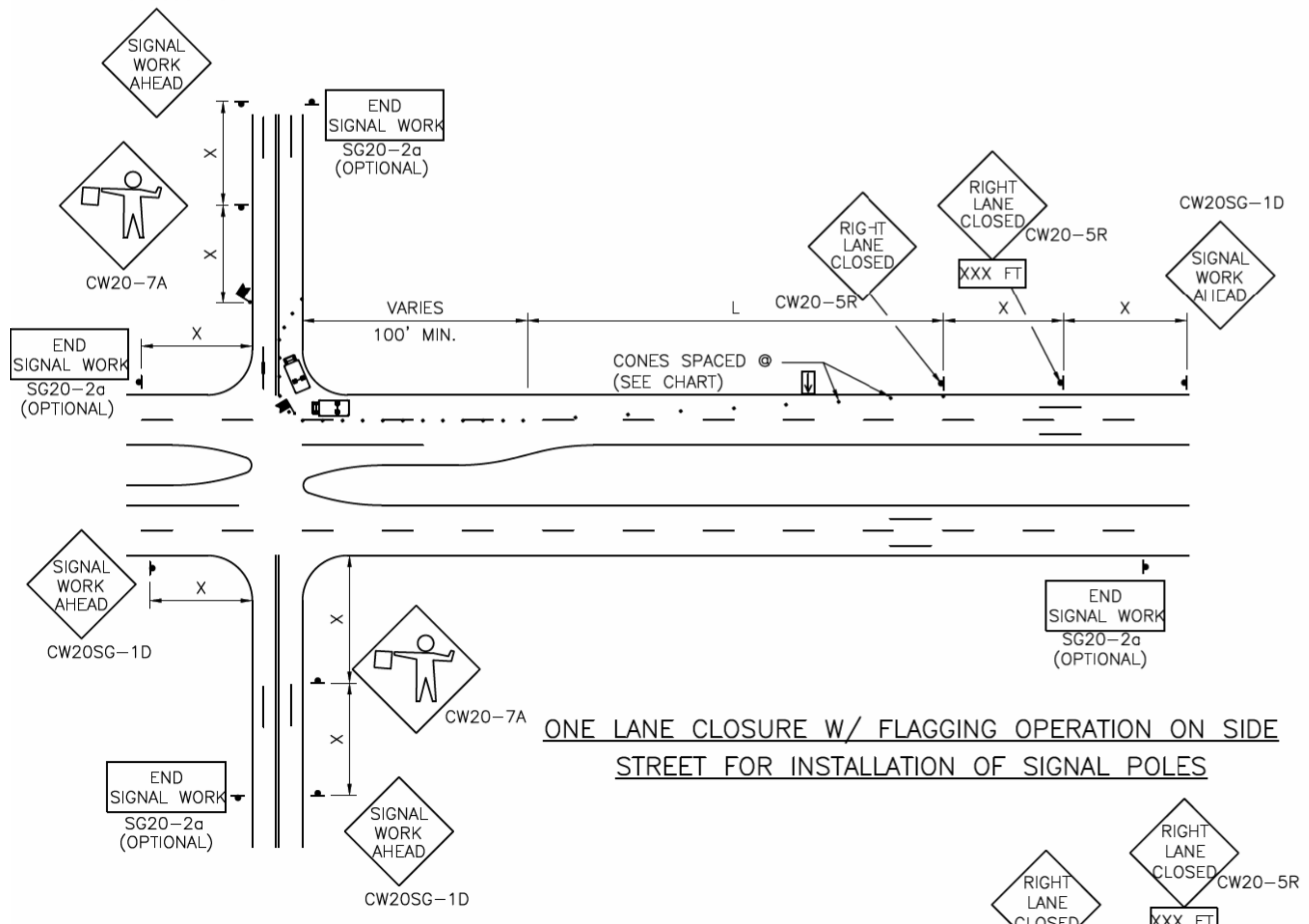
ONE LANE CLOSURE W/ LEFT LANE AND/OR LEFT TURN LANE CLOSED


ROAD WORK AHEAD
CW20-1D
END ROAD WORK
G20-2a
X
END ROAD WORK
G20-2a
X
ROAD WORK AHEAD
CW20-1D
ROAD WORK AHEAD
CW20-1D
X
X
END ROAD WORK
G20-2a
ROAD WORK AHEAD
CW20-1D

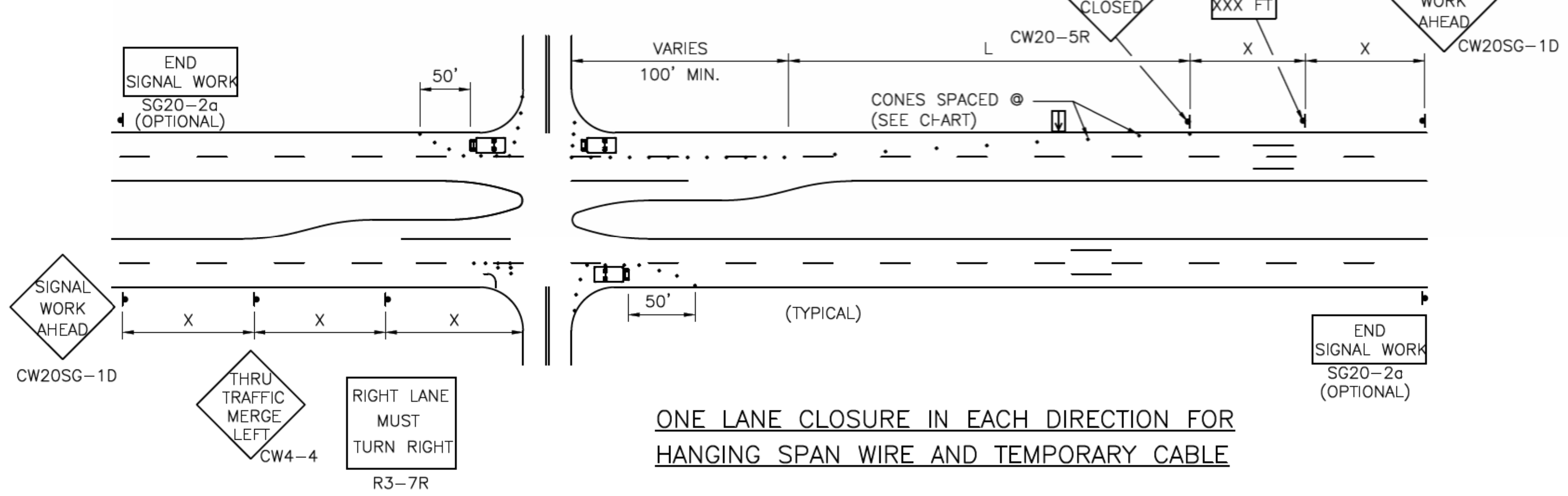
MEDIAN NOSE MODIFICATION


CW20-7A
SIGNAL WORK AHEAD
CW20SG-1D
END SIGNAL WORK
SG20-2a (OPTIONAL)
VARIES
100' MIN.
L
X
X
CONES SPACED @ (SEE CHART)
X
SIGNAL WORK AHEAD
CW20SG-1D
X
X
* FLAGPERSON
* FLAGPERSON
* FLAGPERSON SHALL WEAR A HARD HAT AND AN ORANGE SAFETY VEST.
CW20-7A
END SIGNAL WORK
SG20-2a (OPTIONAL)

FLAGGING OPERATION FOR HANGING SIGNALS, STRAPPING CABLE, OR INSALLING LOOP DETECTORS


CW20SG-1D
SIGNAL WORK AHEAD
END SIGNAL WORK
SG20-2a (OPTIONAL)
X
X
CW20-7A
CW20SG-1D
RIGHT LANE CLOSED
RIGHT LANE CLOSED
XXX FT
CW20-5R
SIGNAL WORK AHEAD
END SIGNAL WORK
SG20-2a (OPTIONAL)
X
VARIES
100' MIN.
CW20-5R
L
X
X
CONES SPACED @ (SEE CHART)
SIGNAL WORK AHEAD
CW20SG-1D
X
END SIGNAL WORK
SG20-2a (OPTIONAL)
X
X
CW20-7A
END SIGNAL WORK
SG20-2a (OPTIONAL)
SIGNAL WORK AHEAD
CW20SG-1D

ONE LANE CLOSURE W/ FLAGGING OPERATION ON SIDE STREET FOR INSTALLATION OF SIGNAL POLES


RIGHT LANE CLOSED
RIGHT LANE CLOSED
XXX FT
CW20-5R
SIGNAL WORK AHEAD
CW20SG-1D
END SIGNAL WORK
SG20-2a (OPTIONAL)
50'
VARIES
100' MIN.
L
CW20-5R
X
X
CONES SPACED @ (SEE CHART)
SIGNAL WORK AHEAD
CW20SG-1D
X
X
X
50'
(TYPICAL)
THRU TRAFFIC MERGE LEFT
CW4-4
RIGHT LANE MUST TURN RIGHT
R3-7R
END SIGNAL WORK
SG20-2a (OPTIONAL)

ONE LANE CLOSURE IN EACH DIRECTION FOR HANGING SPAN WIRE AND TEMPORARY CABLE

NOTES:

1. ALL TRAFFIC CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.
2. THE MINIMUM LANE WIDTH ALLOWED IS 10 FEET. THE MINIMUM BUFFER ZONE BETWEEN THE WORK ZONE AND ADJACENT TRAFFIC IS 2 FEET.
3. FLORESCENT ORANGE SHALL BE THE BACKGROUND COLOR ON ALL WORK ZONE SIGNS.
4. THE CONTRACTOR SHALL REMOVE ADVANCE SIGNS WHEN NO CONSTRUCTION OPERATIONS ARE UNDERWAY.
5. OBSTRUCTIONS OR HAZARDS AT THE WORK AREA SHALL BE CLEARLY MARKED AND DELINEATED AT ALL TIMES.
6. ALL HOLES, TRENCHES OR OTHER HAZARDOUS AREAS SHALL BE ADEQUATELY PROTECTED BY LIGHTS OR OTHER PROTECTIVE DEVICES.
7. TRENCHES SHALL BE COVERED OR SURROUNDED WITH ORANGE PLASTIC CONSTRUCTION FENCE AS DIRECTED BY THE ENGINEER.
8. FLAGGER AND FCW20-7a SIGN MAY BE REQUIRED ACCORDING TO FIELD CONDITIONS.
9. VEHICLES PARKED IN ROADWAY SHALL BE EQUIPPED WITH TWO STROBES.

LEGEND:

▭	HEAVY WORK VEHICLE
⇐	FLASHING ARROW PANEL

TYPICAL TRANSITION LENGTHS

SUGGESTED MAXIMUM SPACING OF DEVICES

POSTED SPEED	FORMULA	MINIMUM DESIRABLE TAPER LENGTHS **			SUGGESTED MAXIMUM SPACING OF DEVICE		MINIMUM SIGN SPACING X DISTANCE
		10' OFFSET	11' OFFSET	12' OFFSET	ON A TAPER	ON A TANGENT	
30	$L=WS^2/60$	150'	165'	180'	30'	60'–75'	120'
35		205'	225'	245'	35'	70'–90'	160'
40		265'	295'	320'	40'	80'100'	240'
45	L=WS	450'	495'	540'	45'	90'–110'	320'
50		500'	550'	600'	50'	100'–125'	400'
55		550'	605'	660'	55'	100'–140'	500'
60		600'	660'	720'	60'	120'–150'	600'

** TAPER LENGTHS HAVE BEEN ROUNDED OFF
L=LENGTH OF TAPER (FT.)
W=WIDTH OF OFFSET (FT.)
S=POSTED SPEED(MPH)

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV-27-2023	DWG NO: 01555-13

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TRAFFIC CONTROL PLAN FOR SIGNAL CONSTRUCTION

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
Daniel T. Shane
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC CONTROL PLAN FOR SIGNAL CONSTRUCTION

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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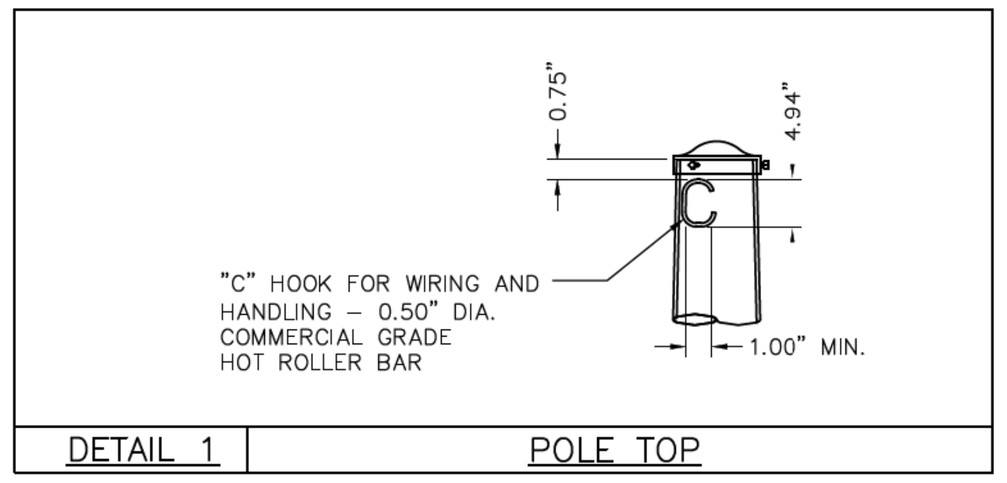
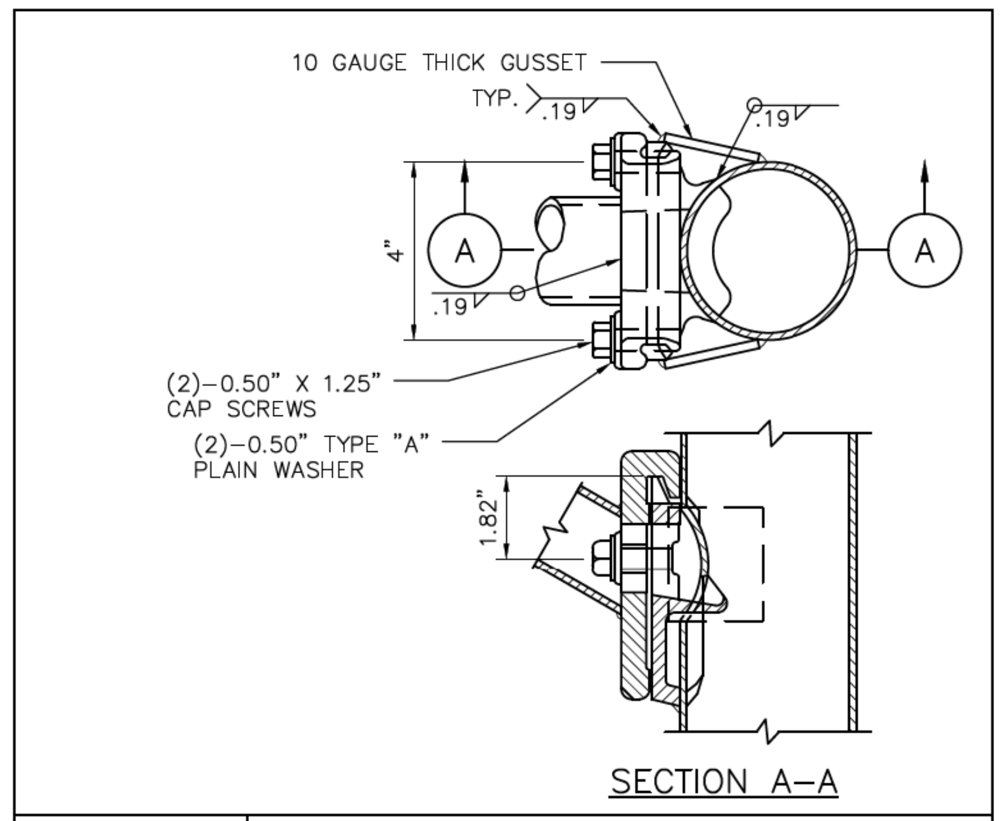
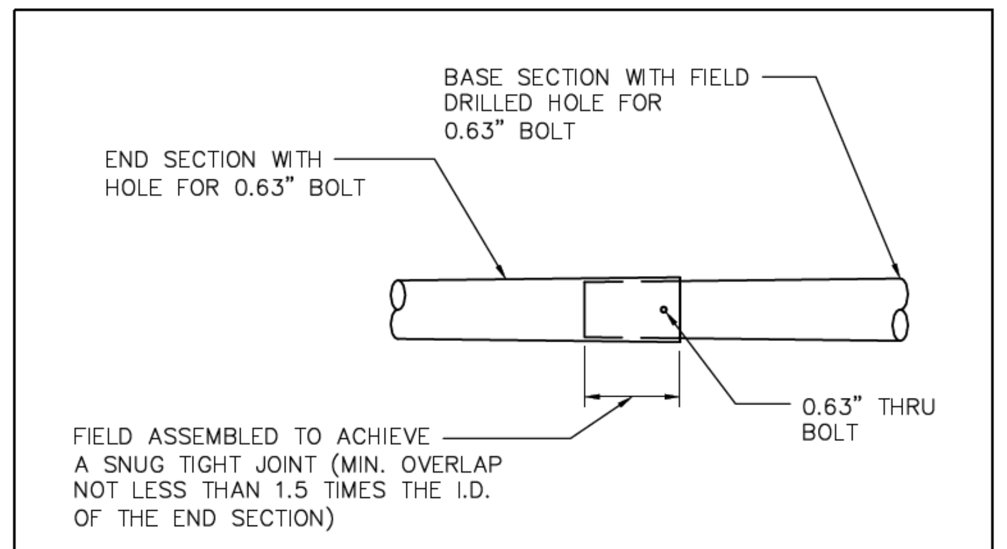

0.75"
4.94"
"C" HOOK FOR WIRING AND HANDLING – 0.50" DIA. COMMERCIAL GRADE HOT ROLLER BAR
1.00" MIN.

DETAIL 1 — POLE TOP

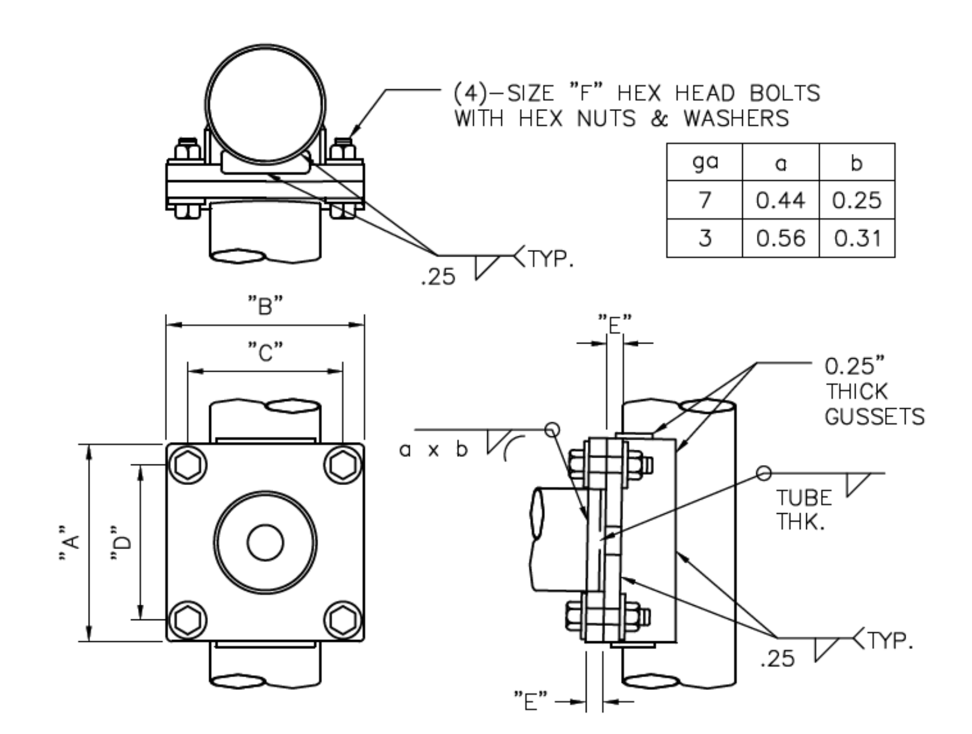

10 GAUGE THICK GUSSET
TYP.
.19
.19
4"
.19
A
A
(2)–0.50" X 1.25" CAP SCREWS
(2)–0.50" TYPE "A" PLAIN WASHER
1.82"
SECTION A–A

DETAIL 2 — LUMINAIRE ARM ATTACHMENT


BASE SECTION WITH FIELD DRILLED HOLE FOR 0.63" BOLT
END SECTION WITH HOLE FOR 0.63" BOLT
0.63" THRU BOLT
FIELD ASSEMBLED TO ACHIEVE A SNUG TIGHT JOINT (MIN. OVERLAP NOT LESS THAN 1.5 TIMES THE I.D. OF THE END SECTION)

ITEM	BASE SECTION		END SECTION	
	LENGTH	GAUGE	LENGTH	GAUGE
55.00'	26.42'	3	30.71'	7

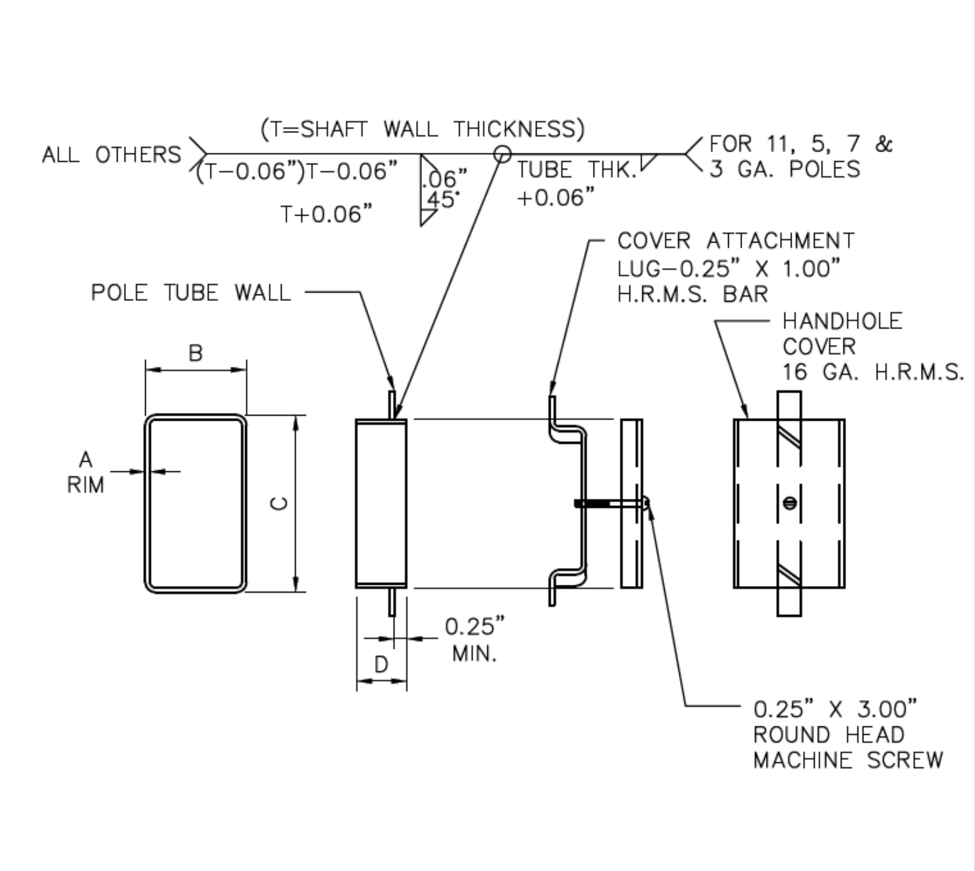
DETAIL 3 — SIGNAL ARM SLIP JOINT


(4)–SIZE "F" HEX HEAD BOLTS WITH HEX NUTS & WASHERS
.25
TYP.
"B"
"C"
"A"
"D"
"E"
a x b
0.25" THICK GUSSETS
TUBE THK.
.25
TYP.
"E"

ga	a	b
7	0.44	0.25
3	0.56	0.31

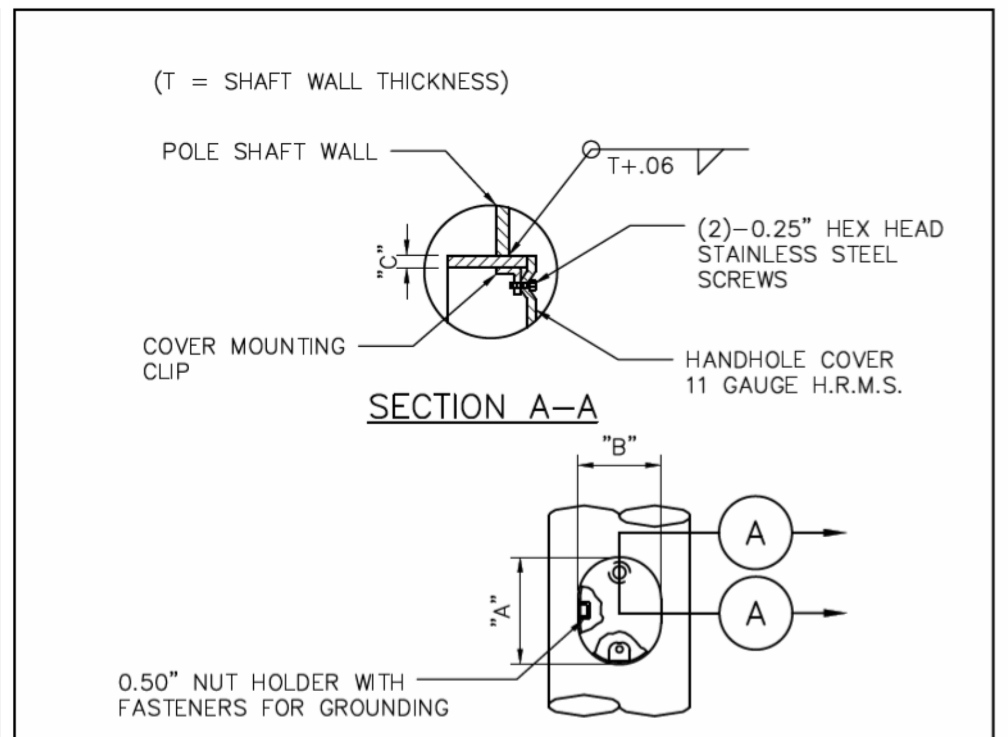
POLE TYPE	"A"	"B"	"C"	"D"	"E"	"F"
1	17.75"	17.75"	14.50"	14.50"	1.50"	1.25" X 4.50"
2	18.75"	18.75"	15.00"	15.00"	1.75"	1.50" X 5.25"

DETAIL 4 — SIGNAL ARM ATTACHMENT


(T=SHAFT WALL THICKNESS)
ALL OTHERS
(T–0.06")T–0.06"
.06"
45°
T+0.06"
TUBE THK. +0.06"
FOR 11, 5, 7 & 3 GA. POLES
POLE TUBE WALL
COVER ATTACHMENT LUG–0.25" X 1.00" H.R.M.S. BAR
HANDHOLE COVER 16 GA. H.R.M.S.
B
A RIM
C
D
0.25" MIN.
0.25" X 3.00" ROUND HEAD MACHINE SCREW

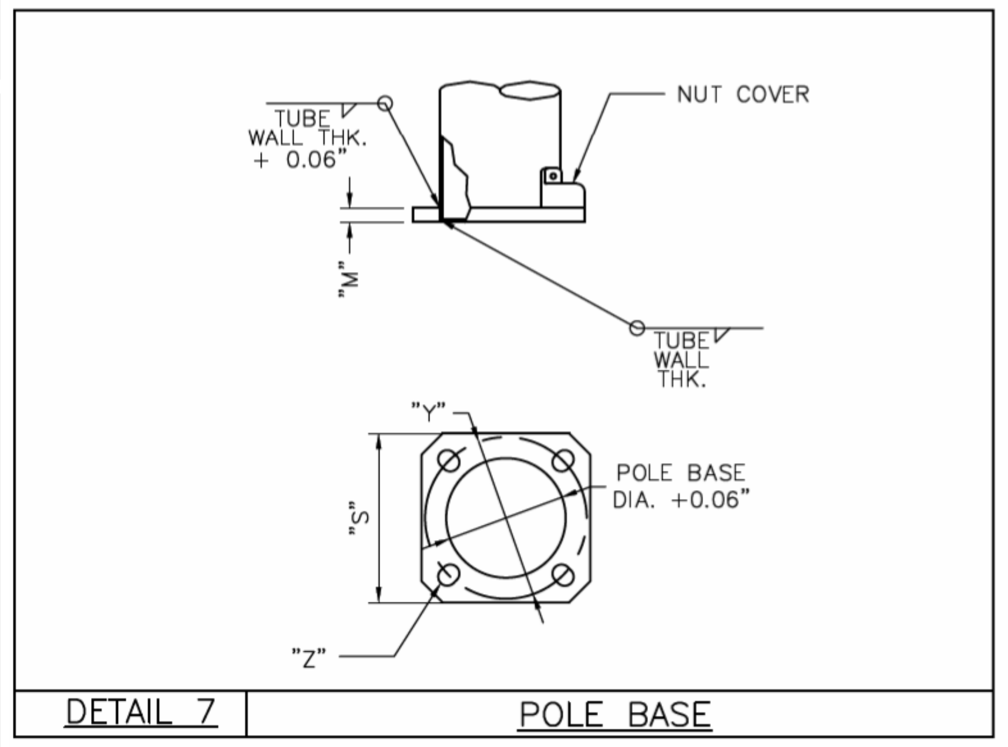
POLE TYPE	A	B	C	D
1	7 GA.	3.00"	5.00"	1.50"
2	0.50"	4.00"	6.00"	2.50"

DETAIL 5 — HANDHOLE

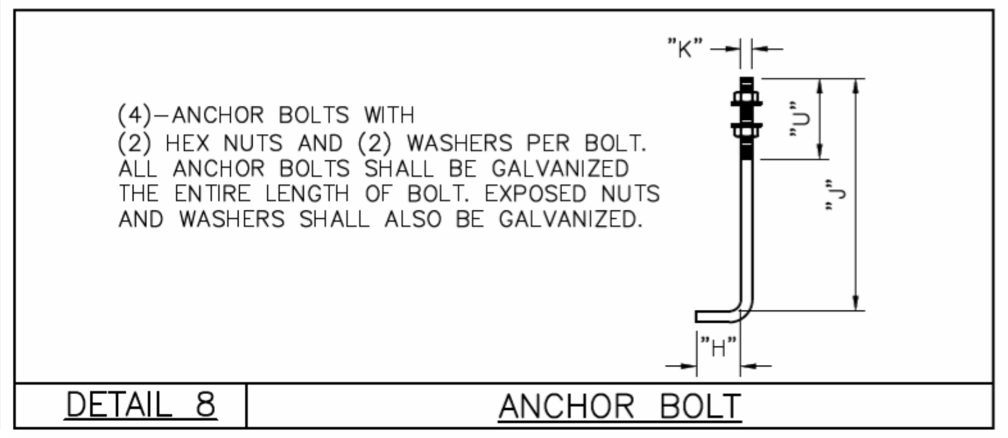

(T = SHAFT WALL THICKNESS)
POLE SHAFT WALL
T+.06
"C"
(2)–0.25" HEX HEAD STAINLESS STEEL SCREWS
COVER MOUNTING CLIP
HANDHOLE COVER 11 GAUGE H.R.M.S.
SECTION A–A
"B"
"A"
A
A
0.50" NUT HOLDER WITH FASTENERS FOR GROUNDING

POLE TYPE	A	B	C
1	7.56"	5.19"	0.280"
2	7.31"	5.63"	0.432"

DETAIL 6 — HANDHOLE

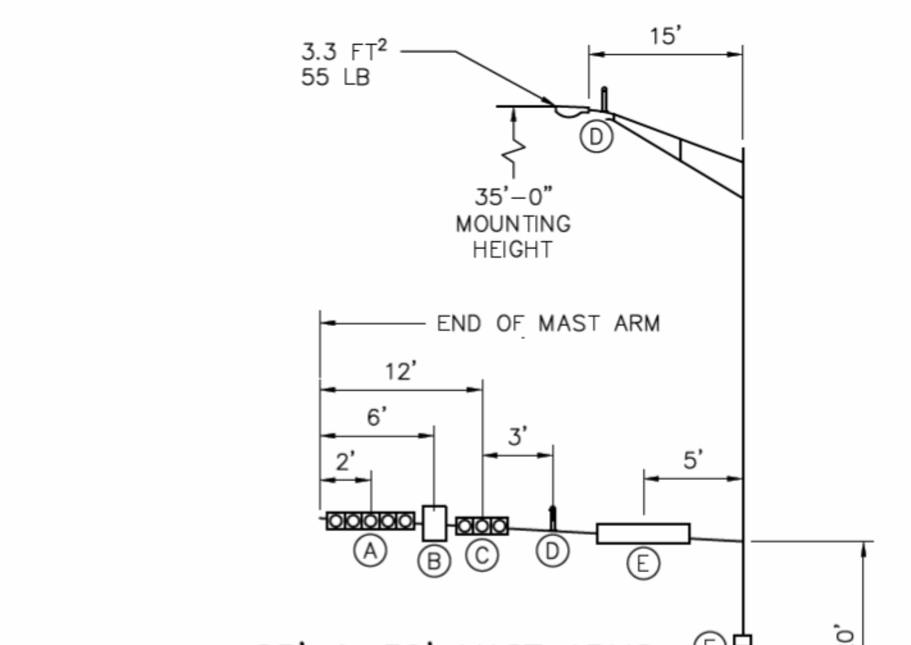

TUBE WALL THK. + 0.06"
NUT COVER
"M"
TUBE WALL THK.
"Y"
"S"
POLE BASE DIA. +0.06"
"Z"

DETAIL 7 — POLE BASE

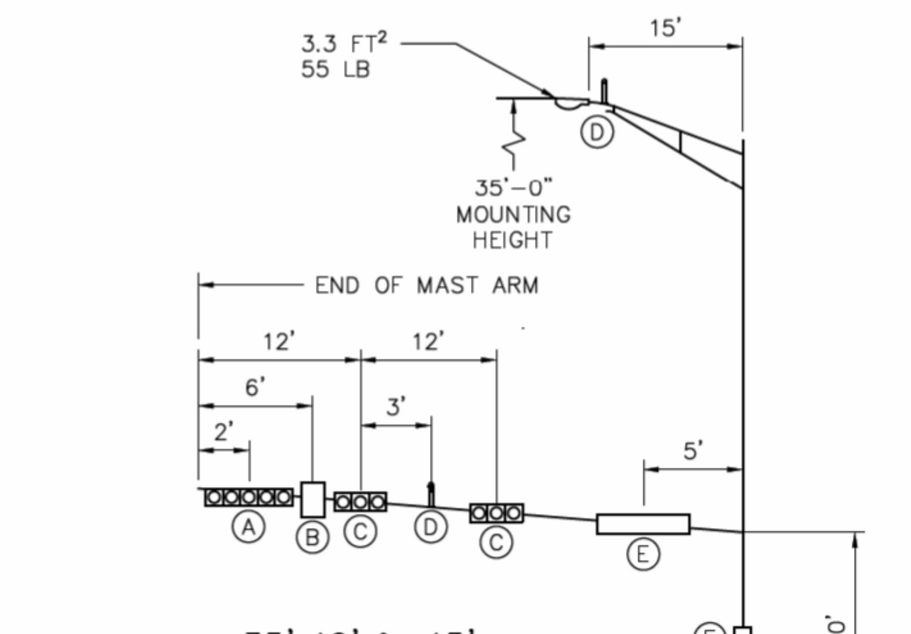


(4)–ANCHOR BOLTS WITH (2) HEX NUTS AND (2) WASHERS PER BOLT. ALL ANCHOR BOLTS SHALL BE GALVANIZED THE ENTIRE LENGTH OF BOLT. EXPOSED NUTS AND WASHERS SHALL ALSO BE GALVANIZED.

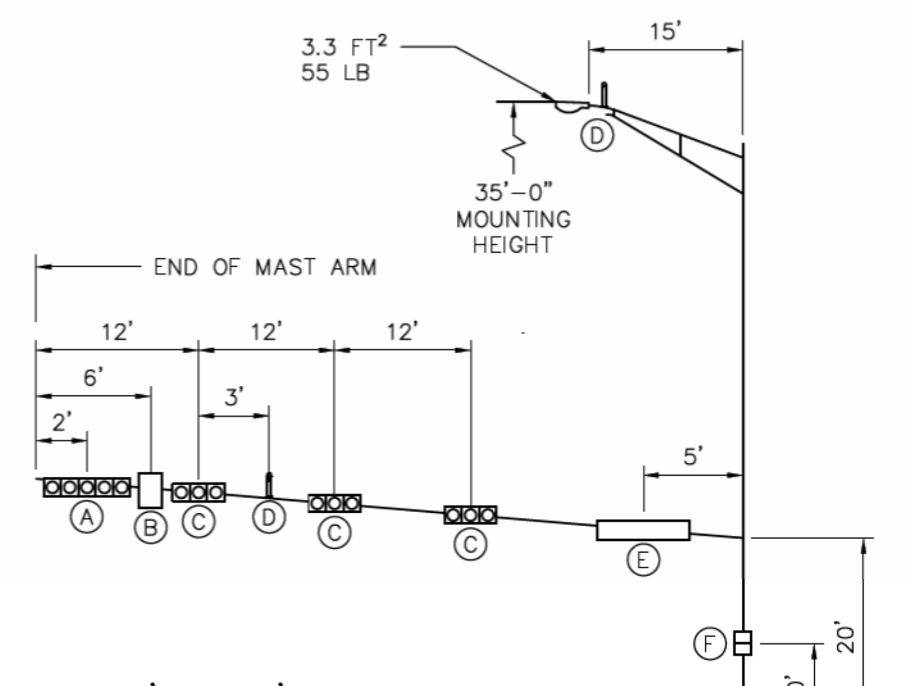
DETAIL 8 — ANCHOR BOLT


3.3 FT²
55 LB
15'
D
35'–0" MOUNTING HEIGHT
END OF MAST ARM
12'
6'
3'
2'
5'
A
B
C
D
E
F
20'
10'

25' & 30' MAST ARMS


3.3 FT²
55 LB
15'
D
35'–0" MOUNTING HEIGHT
END OF MAST ARM
12'
12'
6'
3'
2'
5'
A
B
C
D
C
E
F
20'
10'

35',40',& 45' MAST ARMS


3.3 FT²
55 LB
15'
D
35'–0" MOUNTING HEIGHT
END OF MAST ARM
12'
12'
12'
6'
3'
2'
5'
A
B
C
D
C
C
E
F
20'
10'

50' & 55' MAST ARMS

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.

DEVICE	DESCRIPTION	PROJ. AREA (FT^2)	WEIGHT (LBS)
Ⓐ	12"–5 SEC. SIGNAL WITH BACKPLATES	13.33	96
Ⓑ	30" X 36" SIGNAL ARM MOUNTED SIGN	7.50	15
Ⓒ	12"–3 SEC. SIGNAL WITH BACKPLATES	8.67	53
Ⓓ	VIVDS CAMERA	1.00	15
Ⓔ	24" X 72" STREET NAME SIGN	12.00	30
Ⓕ	PEDESTRIAN SIGNAL	4.00	40

MAXIMUM LOADING INFORMATION

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CITY ENGINEER	CITY TRAFFIC ENGINEER

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DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023
DWG NO: 02582–03

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TRAFFIC SIGNAL STRUCTURES

SHEET 02 OF 02

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FIRM NO. F–11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
Daniel T. Shane
4/15/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC SIGNAL STRUCTURES

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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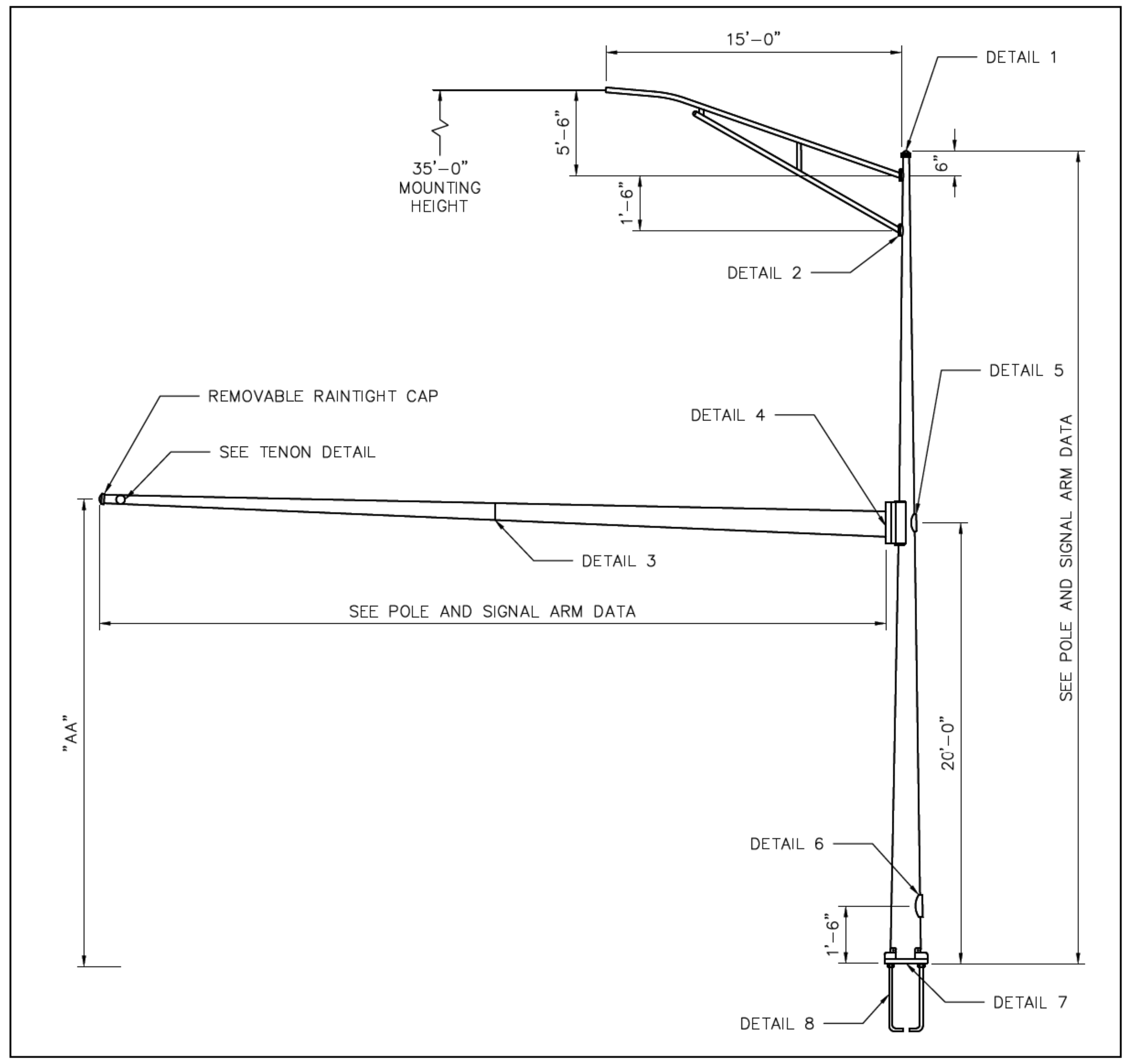
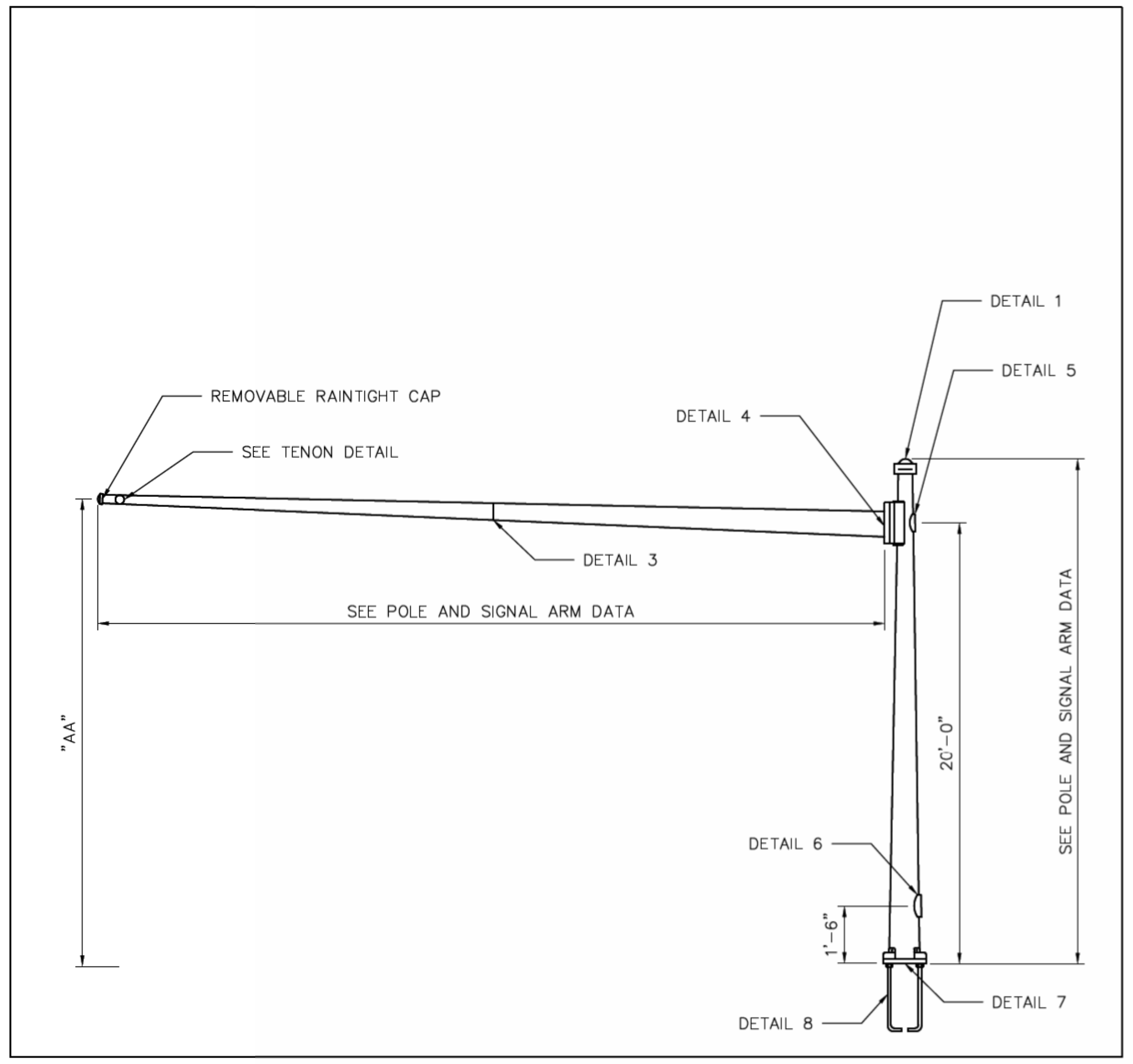
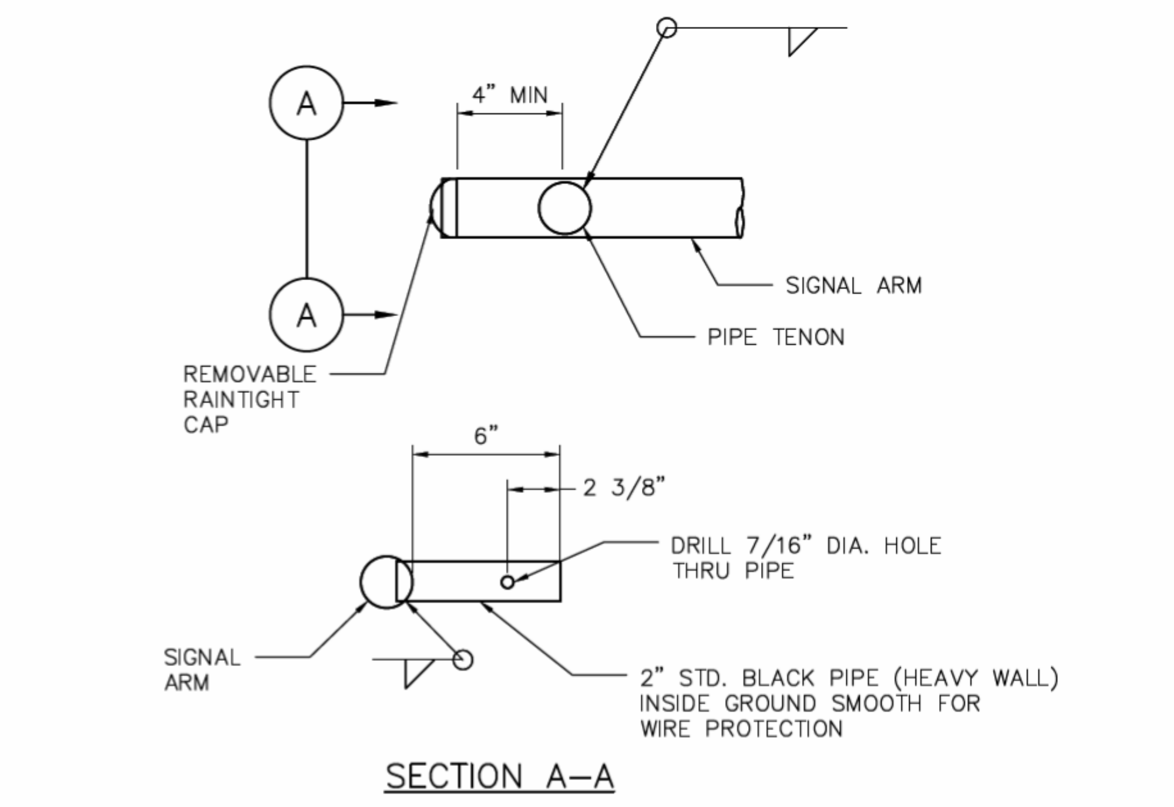

15'–0"
DETAIL 1
35'–0" MOUNTING HEIGHT
5'–6"
6"
1'–6"
DETAIL 2
REMOVABLE RAINTIGHT CAP
SEE TENON DETAIL
DETAIL 4
DETAIL 5
DETAIL 3
SEE POLE AND SIGNAL ARM DATA
"AA"
20'–0"
SEE POLE AND SIGNAL ARM DATA
DETAIL 6
1'–6"
DETAIL 7
DETAIL 8


DETAIL 1
REMOVABLE RAINTIGHT CAP
DETAIL 5
SEE TENON DETAIL
DETAIL 4
DETAIL 3
SEE POLE AND SIGNAL ARM DATA
"AA"
20'–0"
SEE POLE AND SIGNAL ARM DATA
DETAIL 6
1'–6"
DETAIL 7
DETAIL 8


A
A
4" MIN
SIGNAL ARM
PIPE TENON
REMOVABLE RAINTIGHT CAP
6"
2 3/8"
DRILL 7/16" DIA. HOLE THRU PIPE
SIGNAL ARM
2" STD. BLACK PIPE (HEAVY WALL) INSIDE GROUND SMOOTH FOR WIRE PROTECTION
SECTION A–A

TENON DETAIL

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

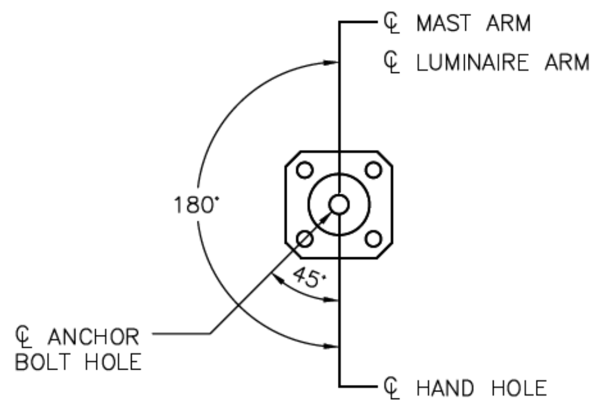
POLE AND MAST ARM DATA

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	9.00	8.00	3.50	7	25.00	20.2
		30															9.00	4.80	7	30.00	20.3
		35															10.00	5.10	7	35.00	20.3
HOU	2	40	13.00	8.80	10.00	30.00	21.50	0.375									10.50	4.90	7	40.00	20.3
		45															10.14	3.84	3	45.00	20.4
		50															11.00	4.00	3	50.00	20.4
		55															11.50	4.16	DET 3	55.00	20.5

MATERIAL DATA

COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)	COMPONENT	ASTM DESIGNATION	MIN. YIELD (KSI)
POLE SHAFT – 3 GAUGE	A595 GR.A	55	MAST ARM CONN. BOLTS	F3125 GR A325*	
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 F3125 GR.A325.


℄ MAST ARM
℄ LUMINAIRE ARM
180°
45°
℄ ANCHOR BOLT HOLE
℄ HAND HOLE

ALL ANGLES MEASURED CLOCKWISE FROM HAND–HOLE AS VIEWED FROM SMALL END OF POLE

RADIAL INDEX

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CITY ENGINEER	CITY TRAFFIC ENGINEER
APPROVED BY: DocuSigned by: Carol Haddock A93C410B72B3453...	
DIRECTOR OF HOUSTON PUBLIC WORKS	
EFF DATE: NOV–27–2023	DWG NO: 02582–02

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TRAFFIC SIGNAL STRUCTURES

SHEET 01 OF 02

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TRAFFIC SIGNAL STRUCTURES

WBS NO. M–430296–0017–3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

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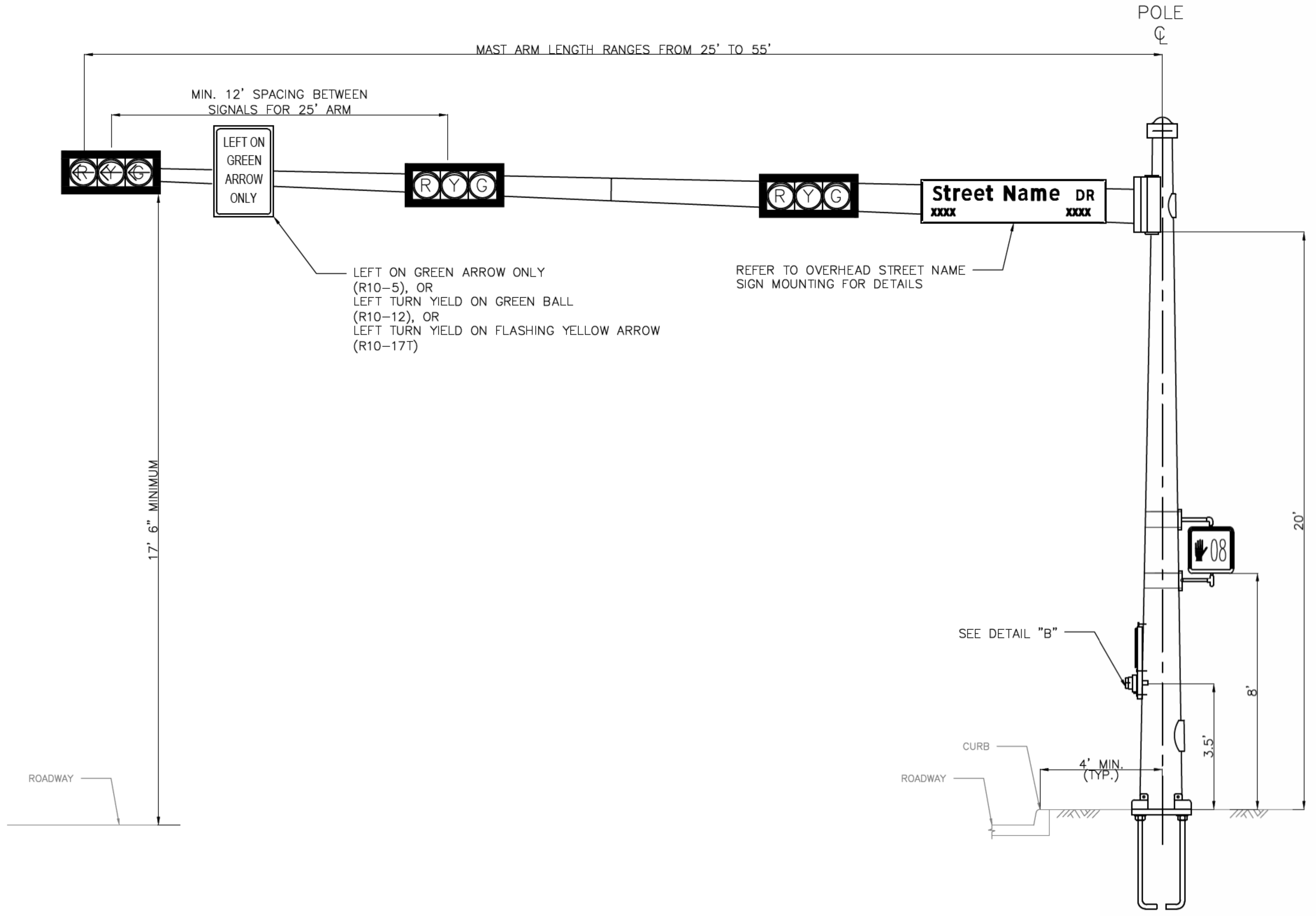
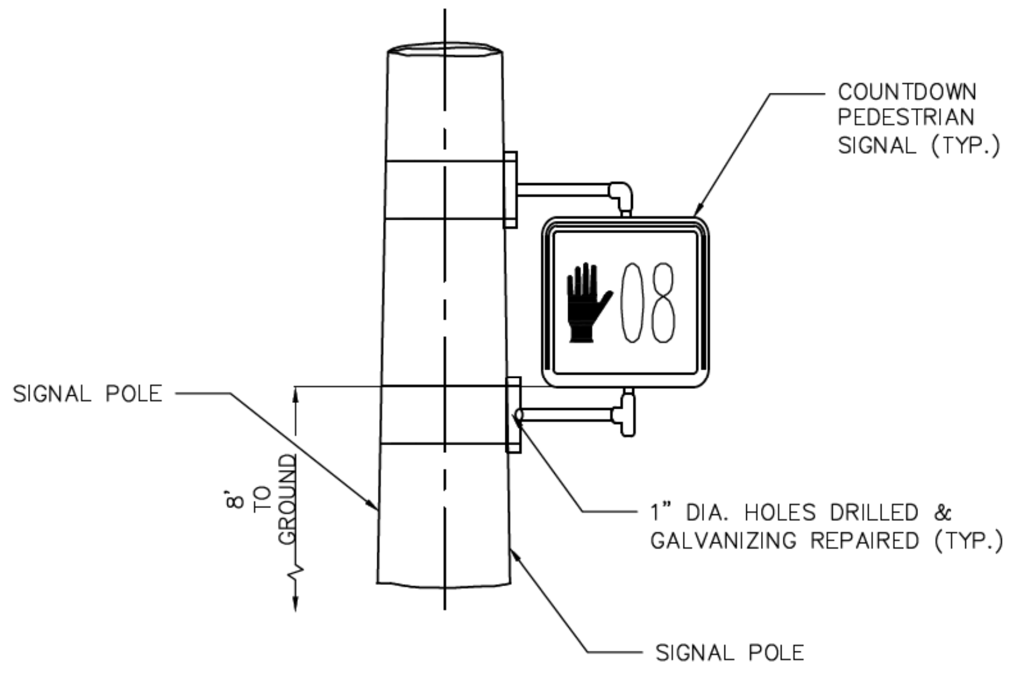
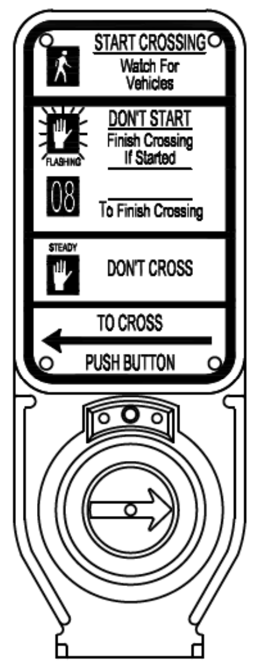

POLE ℄
MAST ARM LENGTH RANGES FROM 25' TO 55'
MIN. 12' SPACING BETWEEN SIGNALS FOR 25' ARM
LEFT ON GREEN ARROW ONLY
R Y G
Street Name DR
XXXX XXXX
LEFT ON GREEN ARROW ONLY (R10–5), OR LEFT TURN YIELD ON GREEN BALL (R10–12), OR LEFT TURN YIELD ON FLASHING YELLOW ARROW (R10–17T)
REFER TO OVERHEAD STREET NAME SIGN MOUNTING FOR DETAILS
17' 6" MINIMUM
20'
08
SEE DETAIL "B"
8'
3.5'
CURB
ROADWAY
4' MIN. (TYP.)


COUNTDOWN PEDESTRIAN SIGNAL (TYP.)
08
SIGNAL POLE
8' TO GROUND
1" DIA. HOLES DRILLED & GALVANIZING REPAIRED (TYP.)
SIGNAL POLE

DETAIL "A"

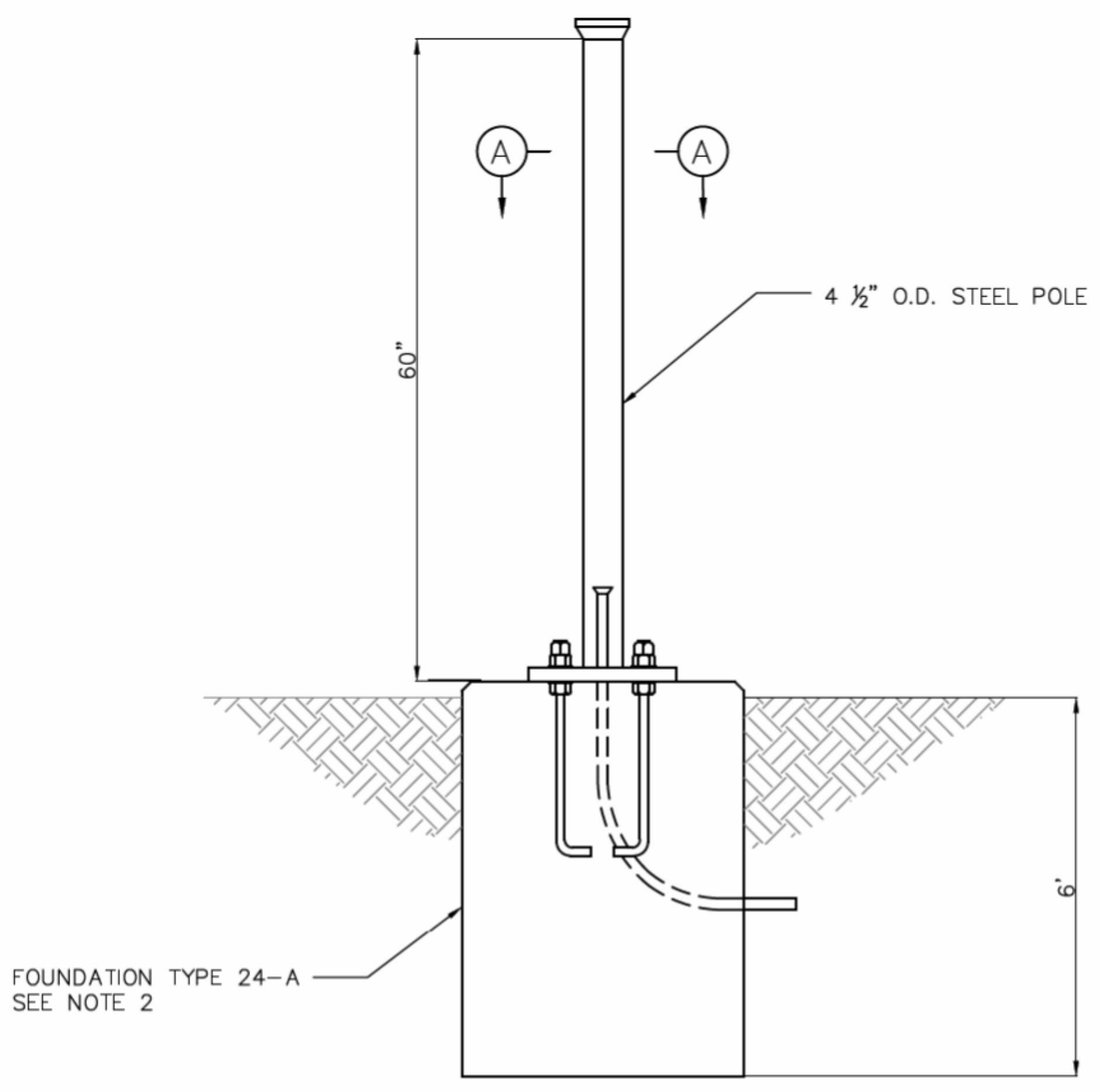
TYPICAL PEDESTRIAN SIGNAL HEAD ON TRAFFIC POLE


START CROSSING
Watch For Vehicles
DON'T START
Finish Crossing If Started
FLASHING
08
To Finish Crossing
STEADY
DON'T CROSS
TO CROSS
PUSH BUTTON

DETAIL "B"

2–WIRE POLARA NAVIGATOR PUSH BUTTON STATION WITH R10–3e SIGN

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.

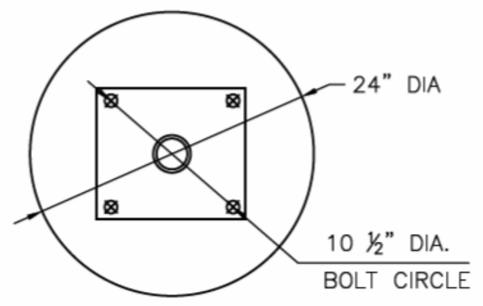

A
A
60"
4 ½" O.D. STEEL POLE
6'
FOUNDATION TYPE 24–A SEE NOTE 2

ELEVATION VIEW

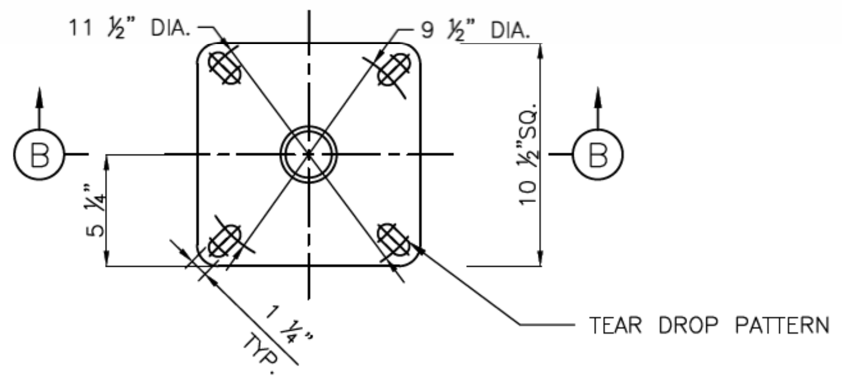
PEDESTRIAN PUSH BUTTON POLE

NOTE:

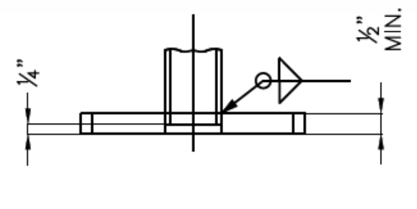
1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS STATED ON CITY OF HOUSTON STANDARD DETAIL 02465–02 "PEDESTAL/PUSH BUTTON POLE DRILLED SHAFT FOUNDATION".
2. REFER TO CITY OF HOUSTON STANDARD DETAIL 02465–02 "PEDESTAL/PUSHBTTON POLE DRILLED SHAFT FOUNDATION" FOR ANCHOR BOLT DETAILS.


24" DIA
10 ½" DIA.
BOLT CIRCLE

FOUNDATION PLAN


11 ½" DIA.
9 ½" DIA.
B
B
5 ¼"
10 ½" SQ.
1 ¼" TYP.
TEAR DROP PATTERN

SECTION A–A



SECTION B–B

APPROVED BY:	APPROVED BY:
DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: KHANG NGUYEN 95A29EFDA75B4CD...
CITY ENGINEER	CITY TRAFFIC ENGINEER

APPROVED BY:
DocuSigned by:
Carol Haddock
A93C410B72B3453...
DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: NOV–27–2023
DWG NO: 02582–01

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TYPICAL MAST ARM/POLE
FIXTURE CONFIGURATION

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
NOT TO SCALE

HRGreen
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044
FIRM NO. F–11278

SURVEYED BY: UNITED ENGINEERS, INC.

DANIEL T. SHANE
130285
4/15/2026

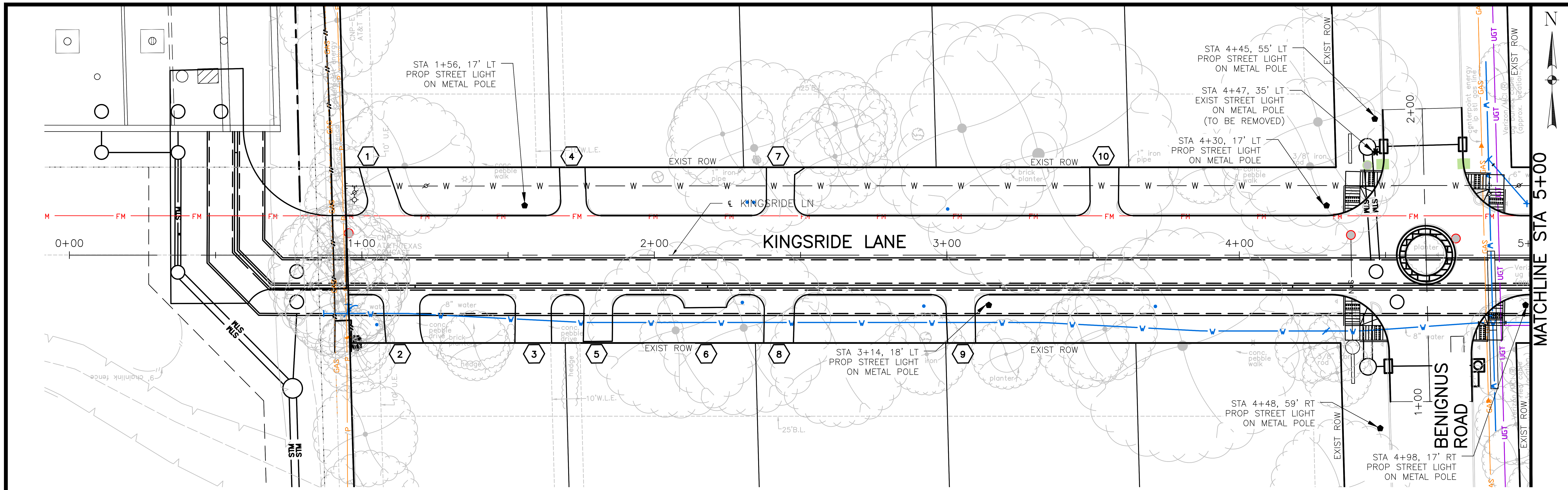
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

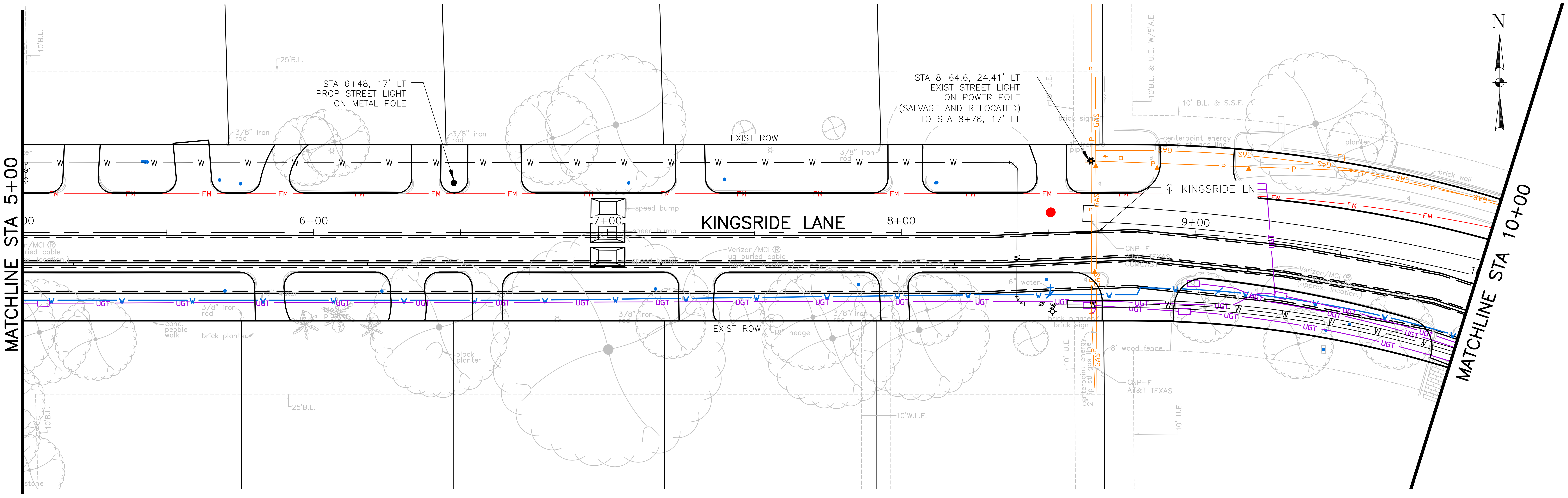
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

TYPICAL MAST ARM/POLE
FIXTURE CONFIGURATION

WBS NO. M–430296–0017–3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.


N
STA 1+56, 17' LT
PROP STREET LIGHT
ON METAL POLE
STA 4+45, 55' LT
PROP STREET LIGHT
ON METAL POLE
STA 4+47, 35' LT
EXIST STREET LIGHT
ON METAL POLE
(TO BE REMOVED)
STA 4+30, 17' LT
PROP STREET LIGHT
ON METAL POLE
STA 3+14, 18' LT
PROP STREET LIGHT
ON METAL POLE
STA 4+48, 59' RT
PROP STREET LIGHT
ON METAL POLE
STA 4+98, 17' RT
PROP STREET LIGHT
ON METAL POLE
EXIST ROW
℄ KINGSRIDE LN
KINGSRIDE LANE
0+00
1+00
2+00
3+00
4+00
5+
2+00
1+00
BENIGNUS ROAD
MATCHLINE STA 5+00
1
2
3
4
5
6
7
8
9
10
FM
W
UGT
GAS
P
STM
WLS
planter
hedge
conc pebble walk
10' U.E.
25'B.L.
10'W.L.E.
3/8" iron rod
8" water


N
STA 6+48, 17' LT
PROP STREET LIGHT
ON METAL POLE
STA 8+64.6, 24.41' LT
EXIST STREET LIGHT
ON POWER POLE
(SALVAGE AND RELOCATED)
TO STA 8+78, 17' LT
EXIST ROW
℄ KINGSRIDE LN
KINGSRIDE LANE
6+00
7+00
8+00
9+00
MATCHLINE STA 5+00
MATCHLINE STA 10+00
speed bump
Verizon/MCI
brick planter
hedge
wood fence
brick wall
centerpoint energy
CNP-E
AT&T TEXAS
10' B.L. & S.S.E.
25'B.L.
10'W.L.E.
FM
W
UGT
GAS
P

LEGEND

●	PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
○	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 STREET LIGHT ON METAL 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, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

No.	Date	Revisions	App.

NOTES:

1. COORDINATE WITH CNP FOR DE-ENERGIZING AND POLE REMOVAL/ DISPOSAL.
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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.

10 0 10 20

(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
7/14/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ILLUMINATION LAYOUT
KINGSRIDE LANE
BEGIN PROJECT TO STA 10+00

SHEET 1 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

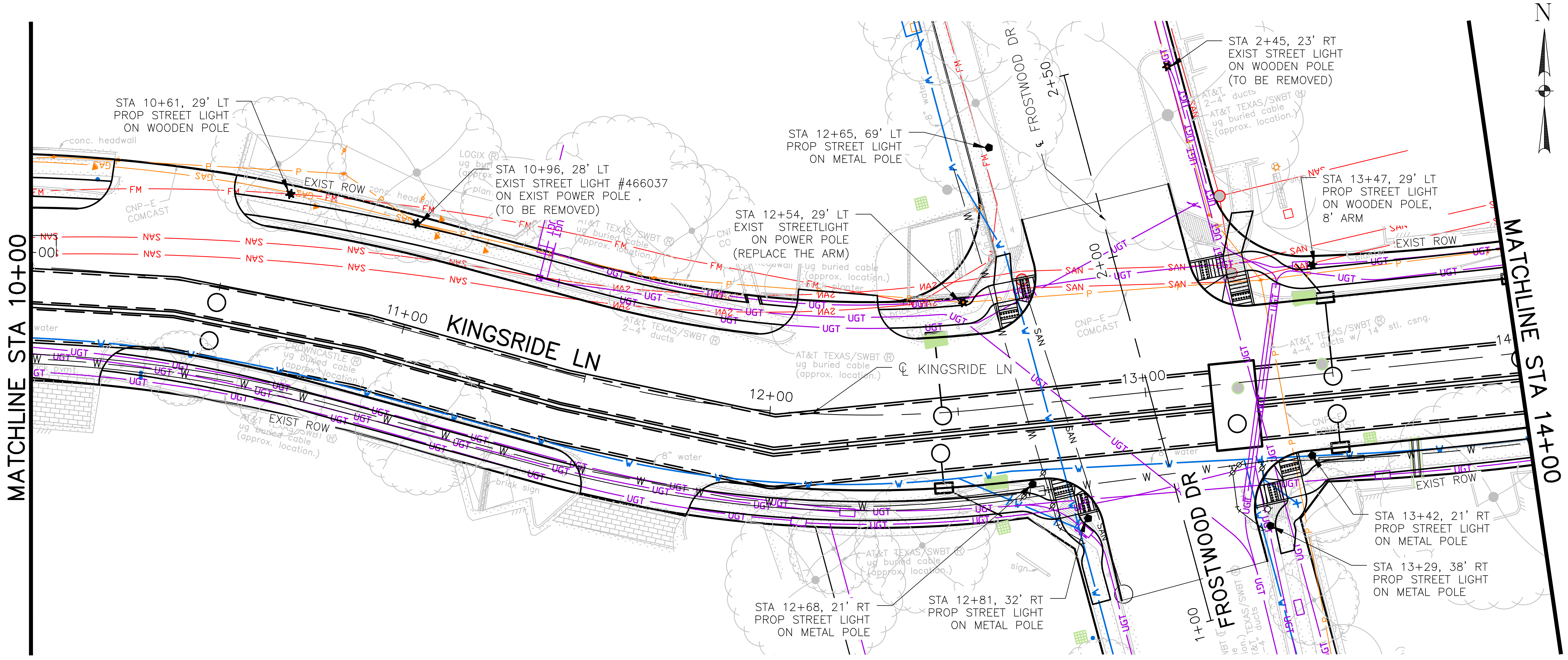
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

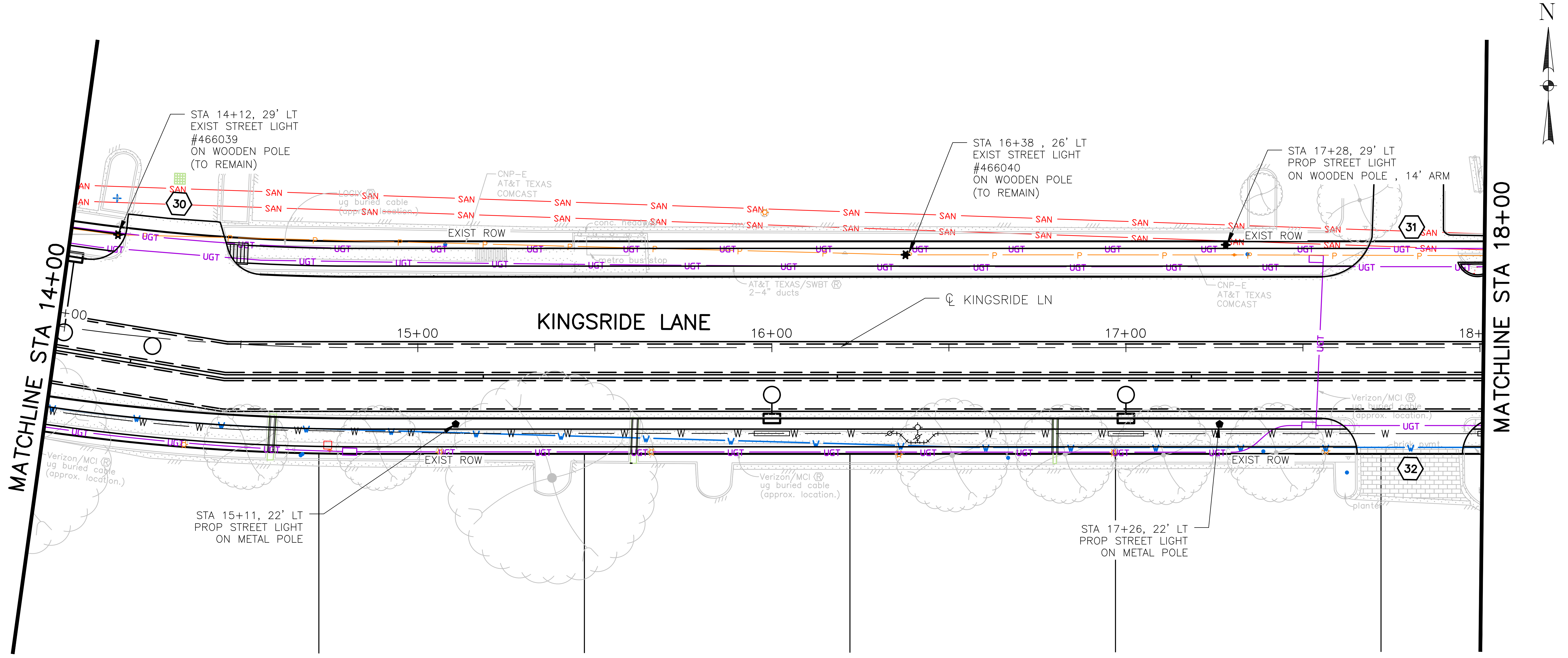
KEVIN HAMMOND, P.E.

SHEET NO. 256 OF 345

j:\2021\210601.01\cad\dwgs\sheets\18 – illumination plans\prop – lighting_kingsride ln_01.dwg Plotted July 10, 2026 at 5:47 PM by McCourt, Jeff



MATCHLINE STA 10+00
STA 10+61, 29' LT PROP STREET LIGHT ON WOODEN POLE
STA 10+96, 28' LT EXIST STREET LIGHT #466037 ON EXIST POWER POLE , (TO BE REMOVED)
EXIST ROW
11+00
KINGSRIDE LN
12+00
STA 12+54, 29' LT EXIST STREETLIGHT ON POWER POLE (REPLACE THE ARM)
STA 12+65, 69' LT PROP STREET LIGHT ON METAL POLE
℄ KINGSRIDE LN
FROSTWOOD DR
2+50
2+00
13+00
1+00
STA 2+45, 23' RT EXIST STREET LIGHT ON WOODEN POLE (TO BE REMOVED)
STA 13+47, 29' LT PROP STREET LIGHT ON WOODEN POLE, 8' ARM
STA 13+42, 21' RT PROP STREET LIGHT ON METAL POLE
STA 13+29, 38' RT PROP STREET LIGHT ON METAL POLE
STA 12+68, 21' RT PROP STREET LIGHT ON METAL POLE
STA 12+81, 32' RT PROP STREET LIGHT ON METAL POLE
AT&T TEXAS/SWBT ug buried cable (approx. location)
CNP-E COMCAST
MATCHLINE STA 14+00
N



MATCHLINE STA 14+00
STA 14+12, 29' LT EXIST STREET LIGHT #466039 ON WOODEN POLE (TO REMAIN)
30
EXIST ROW
KINGSRIDE LANE
15+00
16+00
17+00
18+
STA 16+38 , 26' LT EXIST STREET LIGHT #466040 ON WOODEN POLE (TO REMAIN)
STA 17+28, 29' LT PROP STREET LIGHT ON WOODEN POLE , 14' ARM
31
℄ KINGSRIDE LN
32
STA 15+11, 22' LT PROP STREET LIGHT ON METAL POLE
STA 17+26, 22' LT PROP STREET LIGHT ON METAL POLE
MATCHLINE STA 18+00
N

LEGEND

●	PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
☼	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 STREET LIGHT ON METAL 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, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

NOTES:

1. COORDINATE WITH CNP FOR DE-ENERGIZING AND POLE REMOVAL/ DISPOSAL.
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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.

10 0 10 20

(IN FEET)
1 INCH = 20 FEET

App.
Revisions
Date
No.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

DAVID G. GREANEY
125563
David G. Greaney
7/14/2026 HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ILLUMINATION LAYOUT
KINGSRIDE LANE
STA 10+00 TO STA 18+00

SHEET 2 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

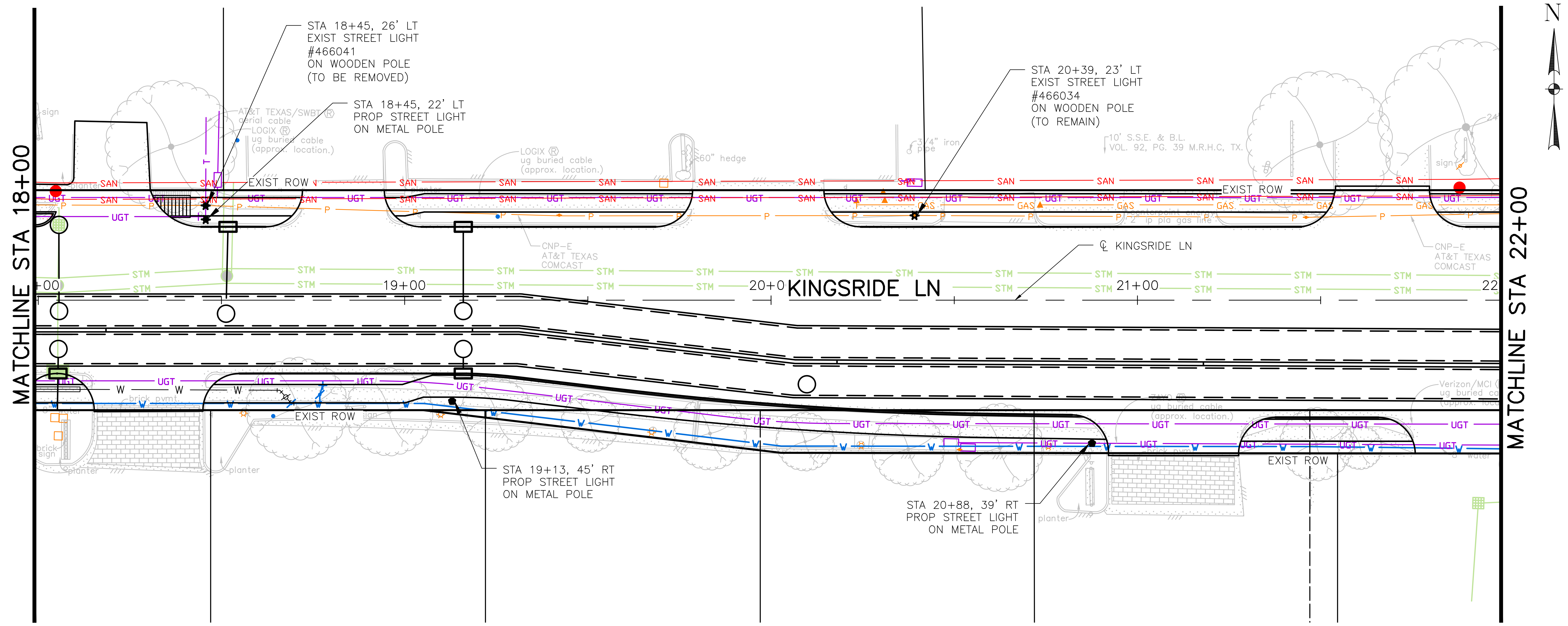
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

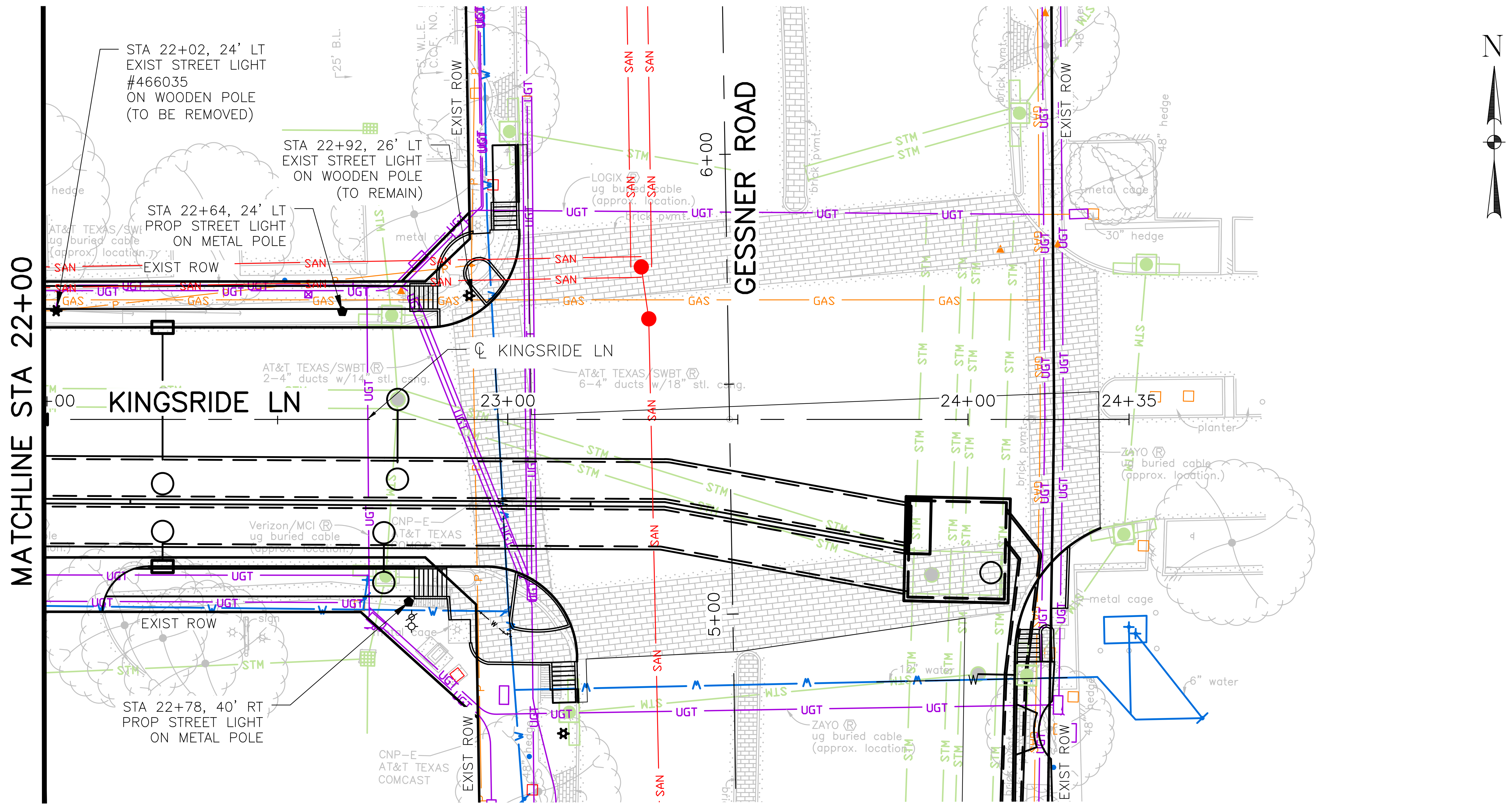
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 257 OF 345

j:\2021\210601.01\cad\dwgs\sheets\18 - illumination plans\prop - lighting_kingsride ln_02.dwg Plotted July 13, 2026 at 2:22 PM by McCourt, Jeff


MATCHLINE STA 18+00
MATCHLINE STA 22+00
N
STA 18+45, 26' LT
EXIST STREET LIGHT
#466041
ON WOODEN POLE
(TO BE REMOVED)
STA 18+45, 22' LT
PROP STREET LIGHT
ON METAL POLE
STA 20+39, 23' LT
EXIST STREET LIGHT
#466034
ON WOODEN POLE
(TO REMAIN)
℄ KINGSRIDE LN
KINGSRIDE LN
19+00
20+00
21+00
EXIST ROW
SAN
UGT
STM
GAS
P
W
CNP-E
AT&T TEXAS
COMCAST
LOGIX
ug buried cable
(approx. location)
60" hedge
10' S.S.E. & B.L.
VOL. 92, PG. 39 M.R.H.C. TX.
STA 19+13, 45' RT
PROP STREET LIGHT
ON METAL POLE
STA 20+88, 39' RT
PROP STREET LIGHT
ON METAL POLE
planter
Verizon/MCI


MATCHLINE STA 22+00
N
STA 22+02, 24' LT
EXIST STREET LIGHT
#466035
ON WOODEN POLE
(TO BE REMOVED)
STA 22+92, 26' LT
EXIST STREET LIGHT
ON WOODEN POLE
(TO REMAIN)
STA 22+64, 24' LT
PROP STREET LIGHT
ON METAL POLE
EXIST ROW
℄ KINGSRIDE LN
KINGSRIDE LN
GESSNER ROAD
6+00
5+00
23+00
24+00
24+35
AT&T TEXAS/SWBT
2-4" ducts
6-4" ducts w/18" stl. csg.
Verizon/MCI
ug buried cable
CNP-E
AT&T TEXAS
COMCAST
ZAYO
ug buried cable
(approx. location)
STA 22+78, 40' RT
PROP STREET LIGHT
ON METAL POLE
hedge
30" hedge
metal cage
6" water
planter
SAN
UGT
STM
GAS
W

LEGEND

●	PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
○	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 STREET LIGHT ON METAL 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, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

No.	Date	Revisions	App.

NOTES:

1. COORDINATE WITH CNP FOR DE-ENERGIZING AND POLE REMOVAL/ DISPOSAL.
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10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

STATE OF TEXAS
DAVID G. GREANEY
125563
LICENSED PROFESSIONAL ENGINEER
David G. Greaney
7/14/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ILLUMINATION LAYOUT
KINGSRIDE LANE
STA 18+00 TO END PROJECT

SHEET 3 OF 3

WBS NO. M-430296-0017-3

DRAWING SCALE

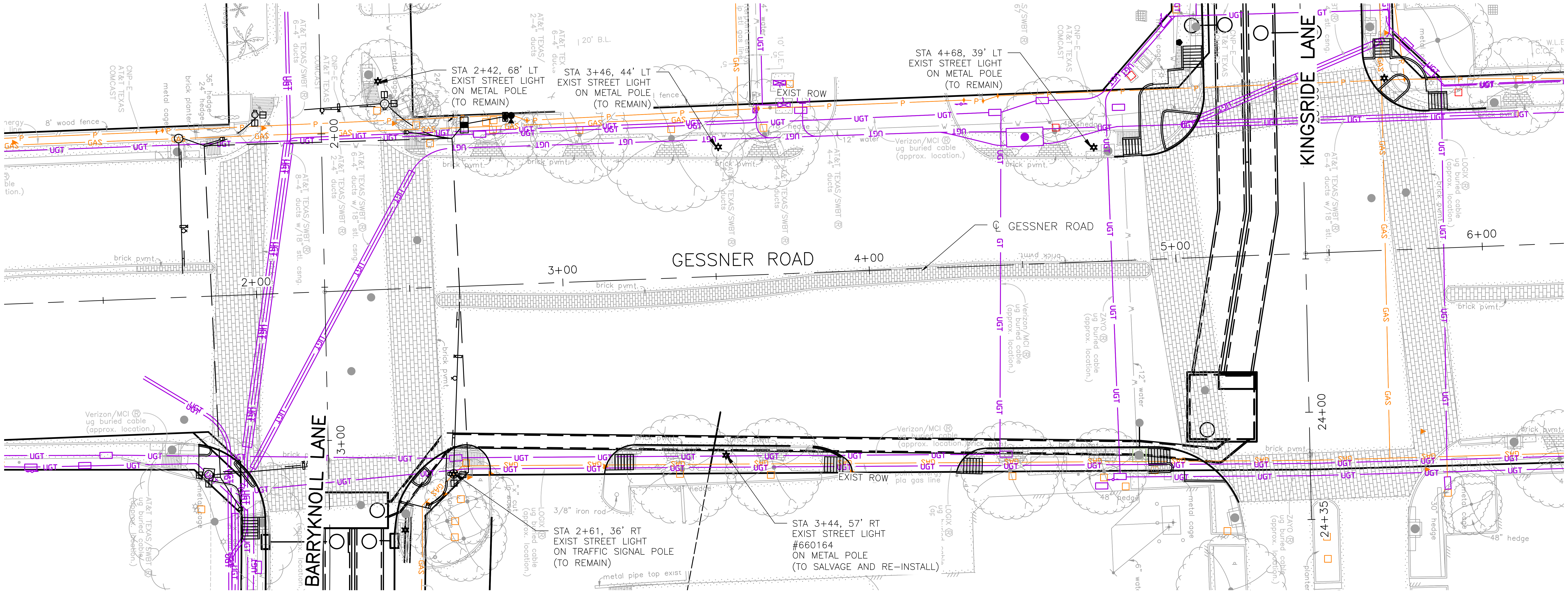
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 258 OF 345

j:\2021\210601.01\cad\dwgs\sheets\18 – illumination plans\prop – lighting_kingsride ln_03.dwg Plotted July 13, 2026 at 2:23 PM by McCourt, Jeff j:\2021\210601.01\cad\dwgs\sheets\18 - illumination plans\prop - lighting_gessner rd.dwg Plotted July 10, 2026 at 5:49 PM by McCourt, Jeff



STA 2+42, 68' LT
EXIST STREET LIGHT
ON METAL POLE
(TO REMAIN)

STA 3+46, 44' LT
EXIST STREET LIGHT
ON METAL POLE
(TO REMAIN)

STA 4+68, 39' LT
EXIST STREET LIGHT
ON METAL POLE
(TO REMAIN)

STA 2+61, 36' RT
EXIST STREET LIGHT
ON TRAFFIC SIGNAL POLE
(TO REMAIN)

STA 3+44, 57' RT
EXIST STREET LIGHT
#660164
ON METAL POLE
(TO SALVAGE AND RE-INSTALL)

GESSNER ROAD
℄ GESSNER ROAD
BARRYKNOLL LANE
KINGSRIDE LANE
EXIST ROW
EXIST ROW
2+00
2+00
3+00
3+00
4+00
5+00
6+00
24+00
24+35
UGT
GAS
P
brick pvmt.
20' B.L.
12" water
Verizon/MCI ug buried cable (approx. location.)
AT&T TEXAS/SWBT
3/8" iron rod
36" hedge
48" hedge
metal pipe top exist
pla gas line
8' wood fence

LEGEND

●	PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
☼	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 STREET LIGHT ON METAL 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, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

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N

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

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FIRM NO. F-11278
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SURVEYED BY: UNITED ENGINEERS, INC.

DAVID G. GREANEY
125563
David G. Greaney
7/14/2026
HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ILLUMINATION LAYOUT
GESSNER ROAD
BEGIN PROJECT TO END PROJET

SHEET 1 OF 1

WBS NO. M-430296-0017-3

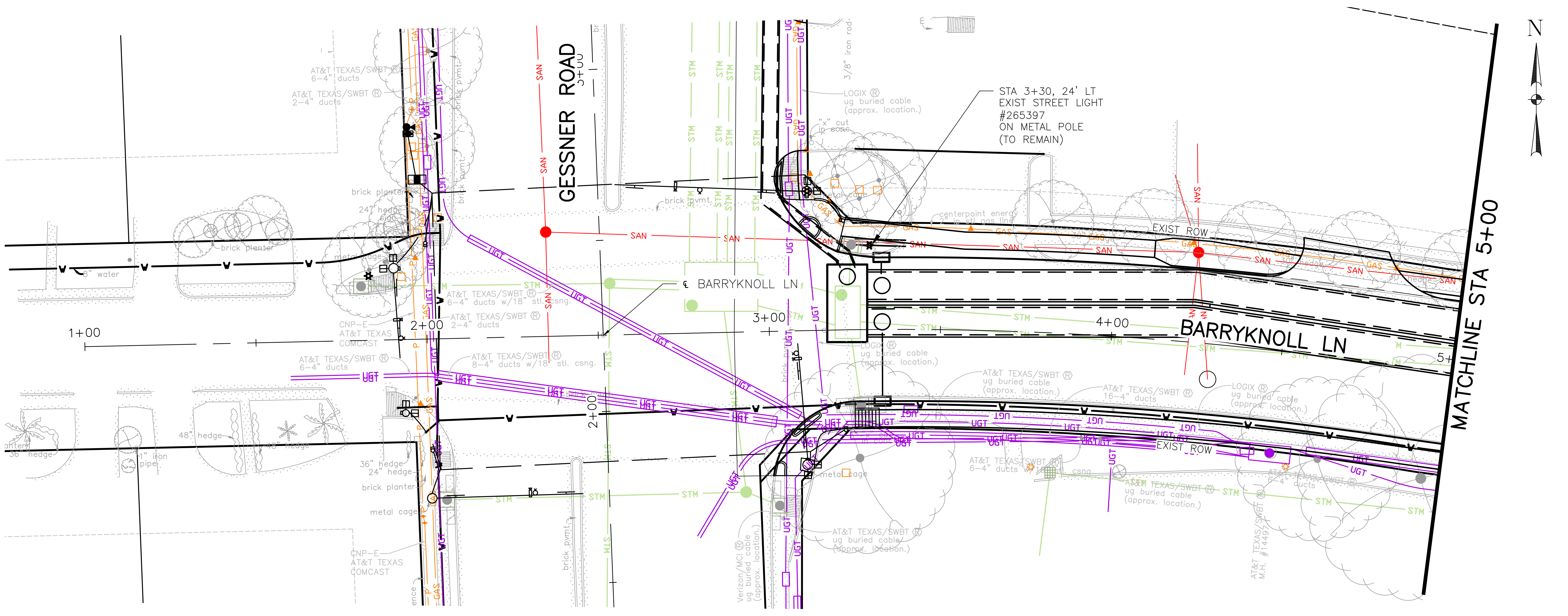
DRAWING SCALE

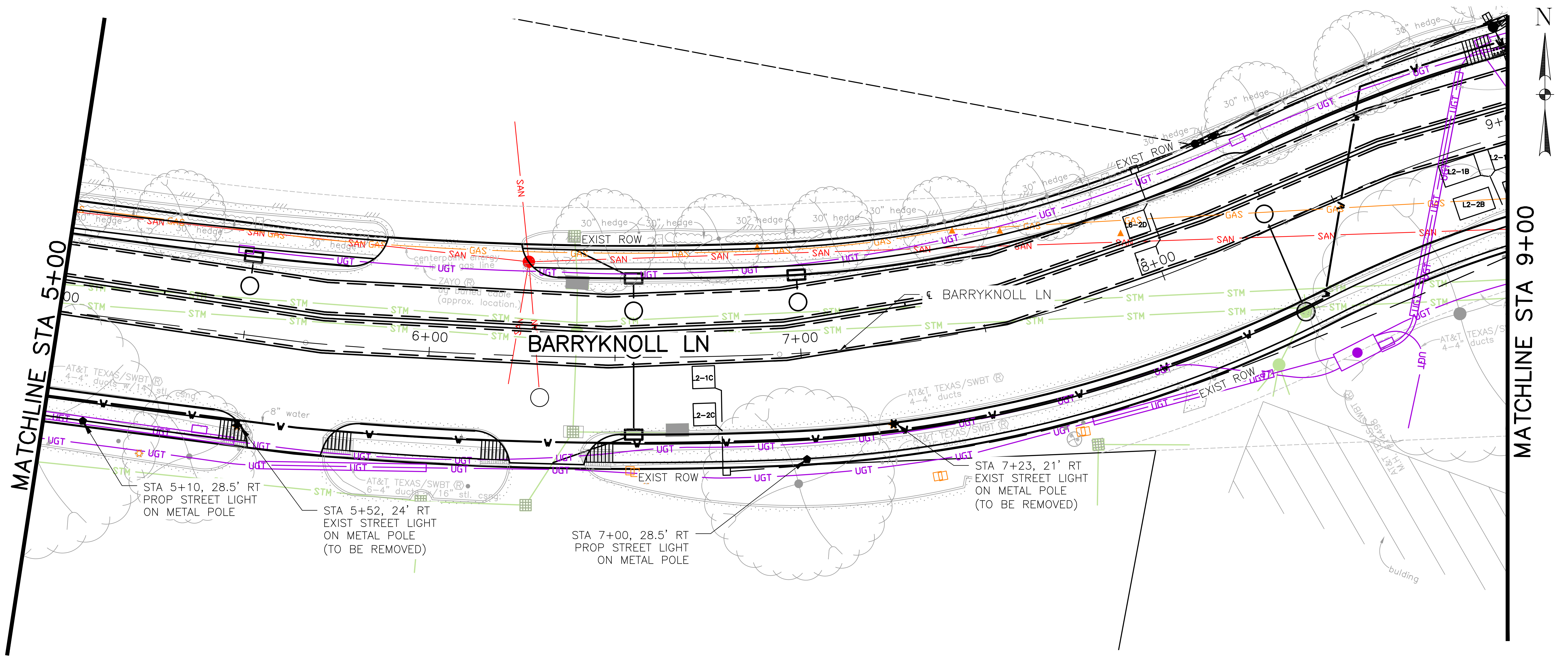
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 259 OF 345


GESSNER ROAD
BARRYKNOLL LN
℄ BARRYKNOLL LN
1+00
2+00
3+00
4+00
MATCHLINE STA 5+00
EXIST ROW
STA 3+30, 24' LT
EXIST STREET LIGHT
#265397
ON METAL POLE
(TO REMAIN)
N
SAN
STM
UGT
GAS
AT&T TEXAS/SWBT
CNP-E
AT&T TEXAS
COMCAST
LOGIX
brick planter
metal cage


MATCHLINE STA 5+00
MATCHLINE STA 9+00
BARRYKNOLL LN
℄ BARRYKNOLL LN
6+00
7+00
8+00
9+00
EXIST ROW
N
STA 5+10, 28.5' RT
PROP STREET LIGHT
ON METAL POLE
STA 5+52, 24' RT
EXIST STREET LIGHT
ON METAL POLE
(TO BE REMOVED)
STA 7+00, 28.5' RT
PROP STREET LIGHT
ON METAL POLE
STA 7+23, 21' RT
EXIST STREET LIGHT
ON METAL POLE
(TO BE REMOVED)
L2-1B
L2-2B
L2-2D
L2-1C
L2-2C
30" hedge
SAN
STM
UGT
GAS

LEGEND

● PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)

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 STREET LIGHT ON METAL 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)

App.	Revisions	Date	No.

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.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

DAVID G. GREANEY
125563
David G. Greaney
7/14/2026 HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ILLUMINATION LAYOUT
BARRYKNOLL LANE
BEGIN PROJECT TO STA 9+00

SHEET 1 OF 2

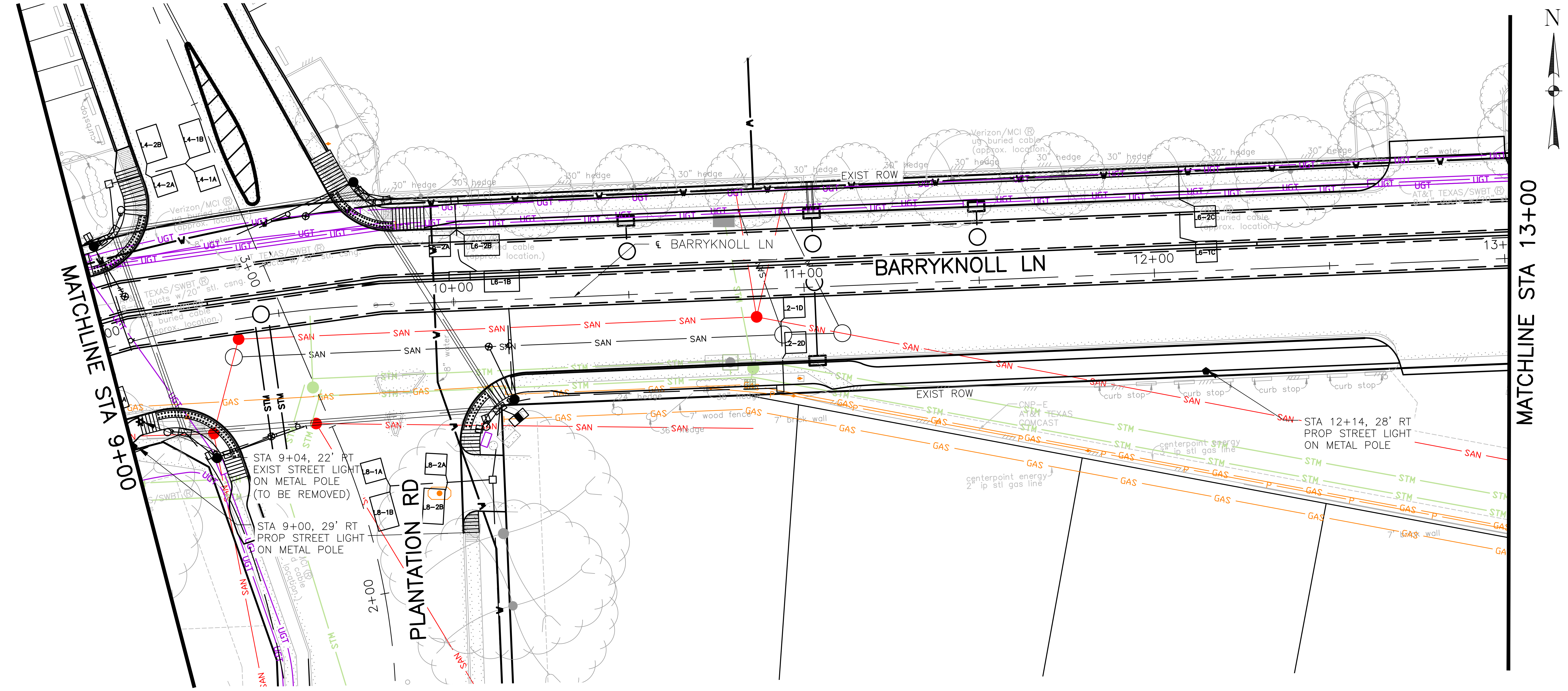
WBS NO. M-430296-0017-3

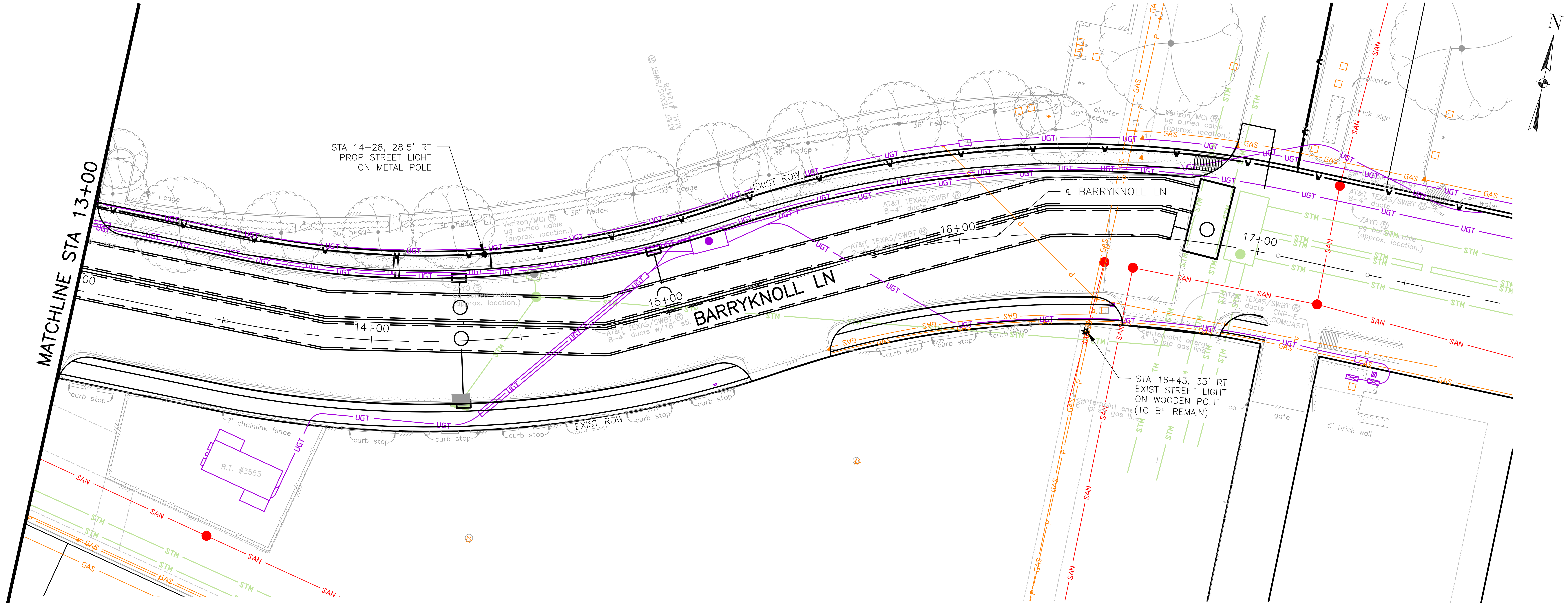
DRAWING SCALE
H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 260 OF 345

j:\2021\210601.01\cad\dwgs\sheets\18 - illumination plans\prop - lighting_barryknoll rd.dwg Plotted July 10, 2026 at 5:49 PM by McCourt, Jeff j:\2021\210601.01\cad\dwgs\sheets\18 - illumination plans\prop - lighting_barryknoll rd.dwg Plotted July 10, 2026 at 5:48 PM by McCourt, Jeff


N
MATCHLINE STA 9+00
MATCHLINE STA 13+00
BARRYKNOLL LN
℄ BARRYKNOLL LN
PLANTATION RD
10+00
11+00
12+00
2+00
EXIST ROW
STA 9+04, 22' RT
EXIST STREET LIGHT
ON METAL POLE
(TO BE REMOVED)
STA 9+00, 29' RT
PROP STREET LIGHT
ON METAL POLE
STA 12+14, 28' RT
PROP STREET LIGHT
ON METAL POLE
SAN
GAS
STM
UGT
30" hedge
curb stop


N
MATCHLINE STA 13+00
BARRYKNOLL LN
℄ BARRYKNOLL LN
14+00
15+00
16+00
17+00
EXIST ROW
STA 14+28, 28.5' RT
PROP STREET LIGHT
ON METAL POLE
STA 16+43, 33' RT
EXIST STREET LIGHT
ON WOODEN POLE
(TO BE REMAIN)
R.T. #3555
7' chainlink fence
5' brick wall
SAN
GAS
STM
UGT

LEGEND

●	PROP STREET LIGHT ON WOODEN POLE WITH 8' OR 14' ARM AND 115 WATT LED FIXTURE (TO BE INSTALLED BY CNP)
☼	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 STREET LIGHT ON METAL 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, SCHEDULED 40, SCHEDULE 80 UNDER PVMT)

No.	Revisions	Date	App.

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.

10 0 10 20
(IN FEET)
1 INCH = 20 FEET

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.

DAVID G. GREANEY
125563
David G. Greaney
7/14/2026 HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ILLUMINATION LAYOUT
BARRYKNOLL LANE
STA 9+00 TO END PROJECT

SHEET 2 OF 2

WBS NO. M-430296-0017-3

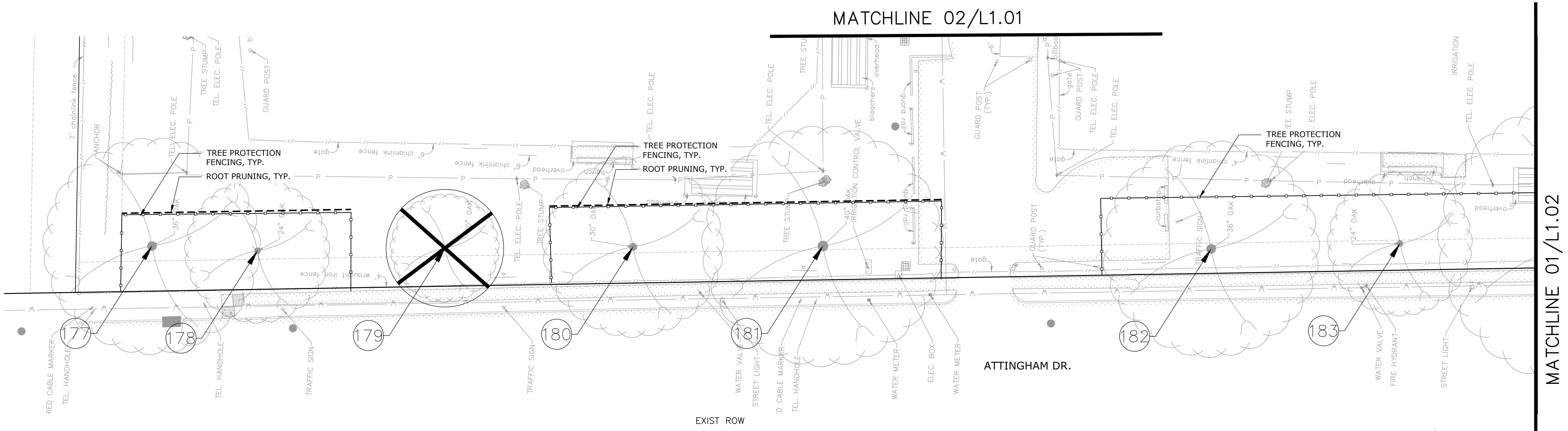
DRAWING SCALE

H: 1"=20' (22'X34')
H: 1"=40' (11'X17')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

No.	Date	Revisions	App.

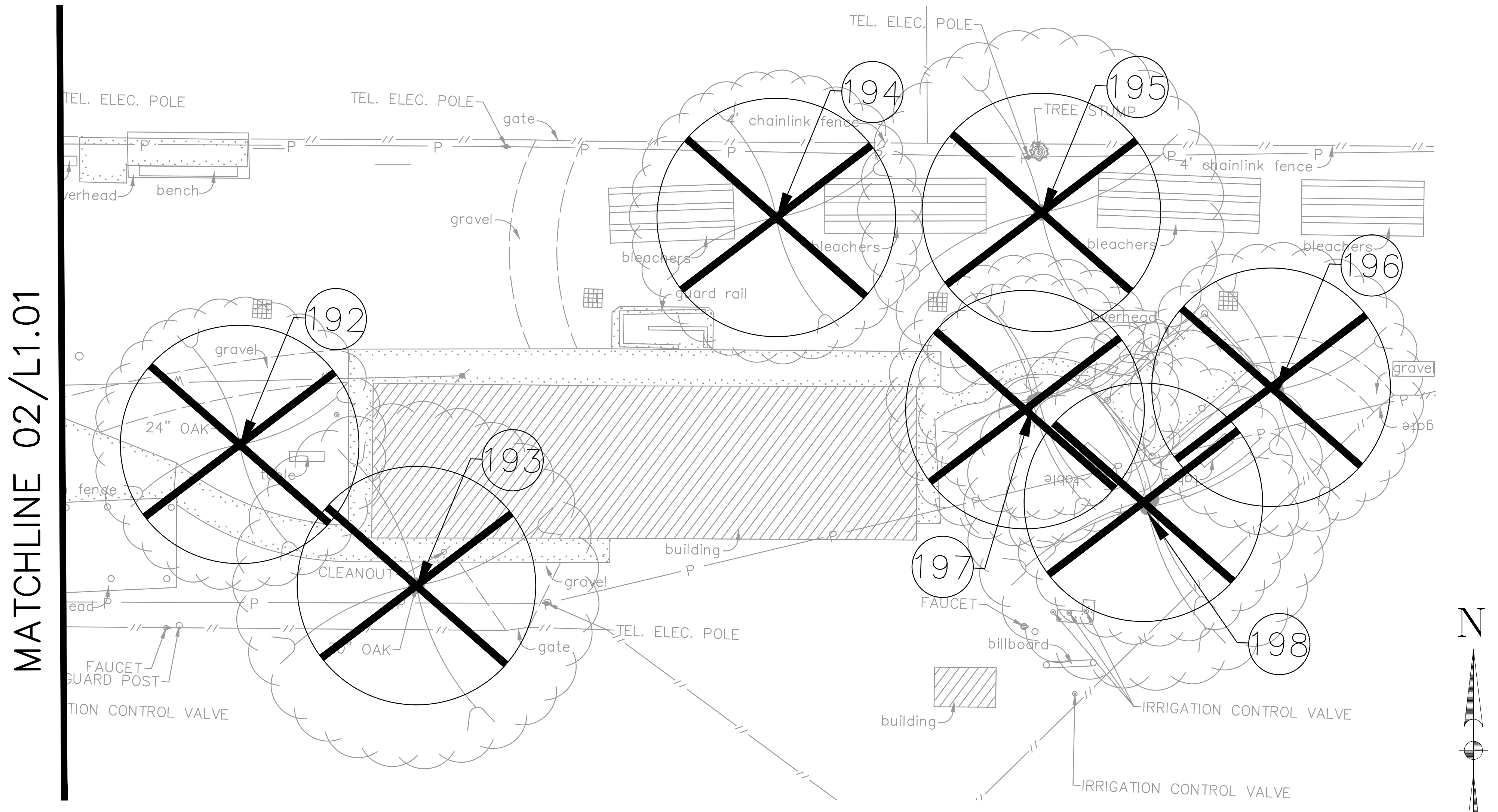

MATCHLINE 02/L1.01
MATCHLINE 01/L1.02
TREE PROTECTION FENCING, TYP.
ROOT PRUNING, TYP.
177
178
179
180
181
182
183
ATTINGHAM DR.
EXIST ROW
TEL. ELEC. POLE
TREE STUMP
GUARD POST
TRAFFIC SIGN
WATER VALVE
STREET LIGHT
TEL. HANDHOLE
WATER METER
ELEC. BOX
FIRE HYDRANT
IRRIGATION CONTROL VALVE
bleachers
6' chainlink fence
wrought iron fence
overhead
gate
bench
36" OAK
24" OAK
30" OAK
40" OAK
N
0
20
40
SCALE IN FEET

1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

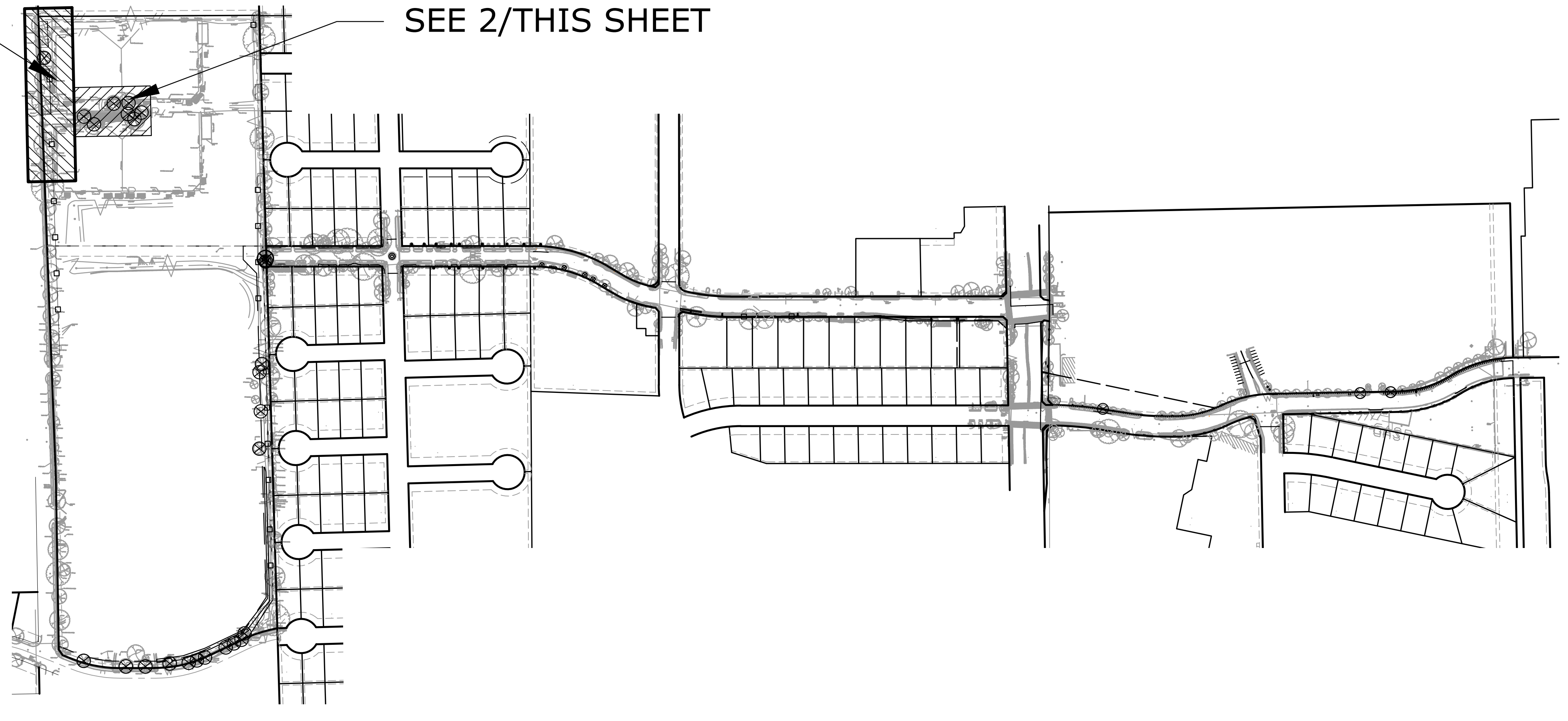
◯	EXISTING TREE TO REMAIN
⊗	EXISTING TREE TO BE REMOVED
▭	EXISTING SHRUB TO REMAIN
◀—(XX)	TREE NUMBER
—○—○—	TREE PROTECTION FENCING
- - - - -	ROOT PRUNING
—·—·—	ZERO CURB CUT
○	TREE BOARDING
▩	CHECKER PLATE


MATCHLINE 02/L1.01
192
193
194
195
196
197
198
TEL. ELEC. POLE
chainlink fence
bleachers
gravel
building
billboard
FAUCET
GUARD POST
CLEANOUT
IRRIGATION CONTROL VALVE
24" OAK
OAK
gate
bench
N
0
20
40
SCALE IN FEET

2 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

KEY MAP


SEE 1/THIS SHEET
SEE 2/THIS SHEET

ASAKURA ROBINSON
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SURVEYED BY: UNITED ENGINEERS, INC.

KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN

L1.01 ATTINGHAM DR.
DETENTION

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

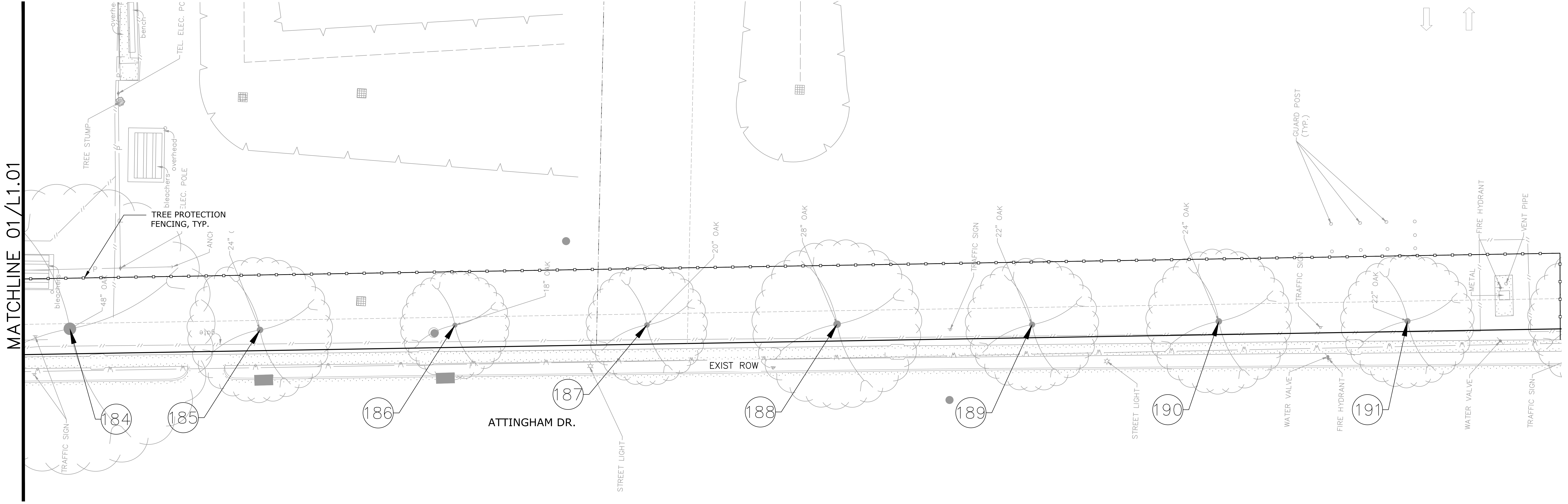
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 262 OF 345

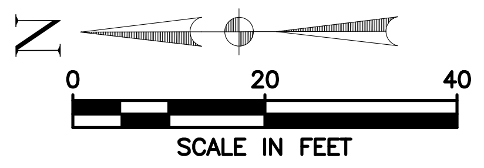
j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:41 PM by Joshua Driscoll

No.	Date	Revisions	App.


MATCHLINE 01/L1.01
TREE PROTECTION FENCING, TYP.
TEL. ELEC. PO
bench
overhe
TREE STUMP
bleachers
overhead
ELEC. POLE
ANCH
24"
48" OAK
bleachers
gate
18" OAK
20" OAK
28" OAK
TRAFFIC SIGN
22" OAK
24" OAK
GUARD POST (TYP.)
TRAFFIC SIGN
22" OAK
METAL
FIRE HYDRANT
VENT PIPE
EXIST ROW
ATTINGHAM DR.
184
185
186
187
188
189
190
191
TRAFFIC SIGN
STREET LIGHT
STREET LIGHT
WATER VALVE
FIRE HYDRANT
WATER VALVE
TRAFFIC SIGN

1 TREE PROTECTION PLAN

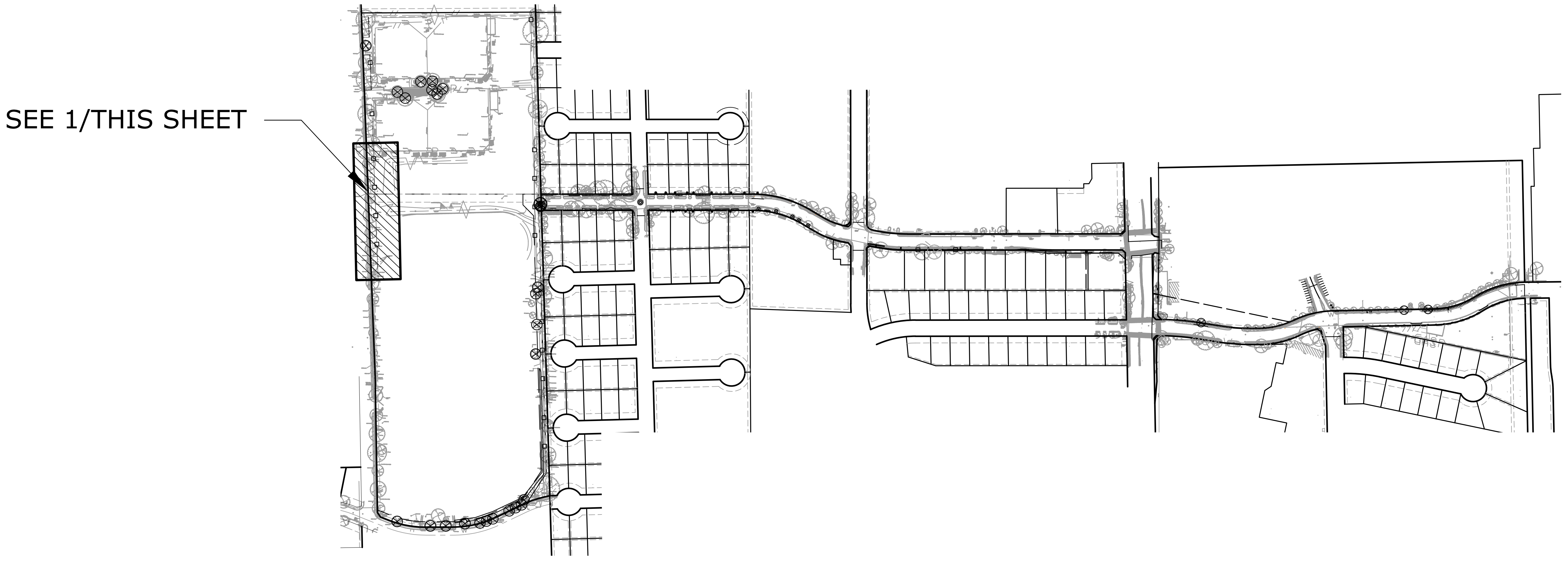
SCALE: 1"=20'-0"


N
0
20
40
SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- ⊗ EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- ◄ (XX) TREE NUMBER
- -o-o- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- -·-·- ZERO CURB CUT
- ○ TREE BOARDING
- ▨ CHECKER PLATE

KEY MAP


SEE 1/THIS SHEET

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SURVEYED BY: UNITED ENGINEERS, INC.

KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.02 ATTINGHAM DR.
DETENTION

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

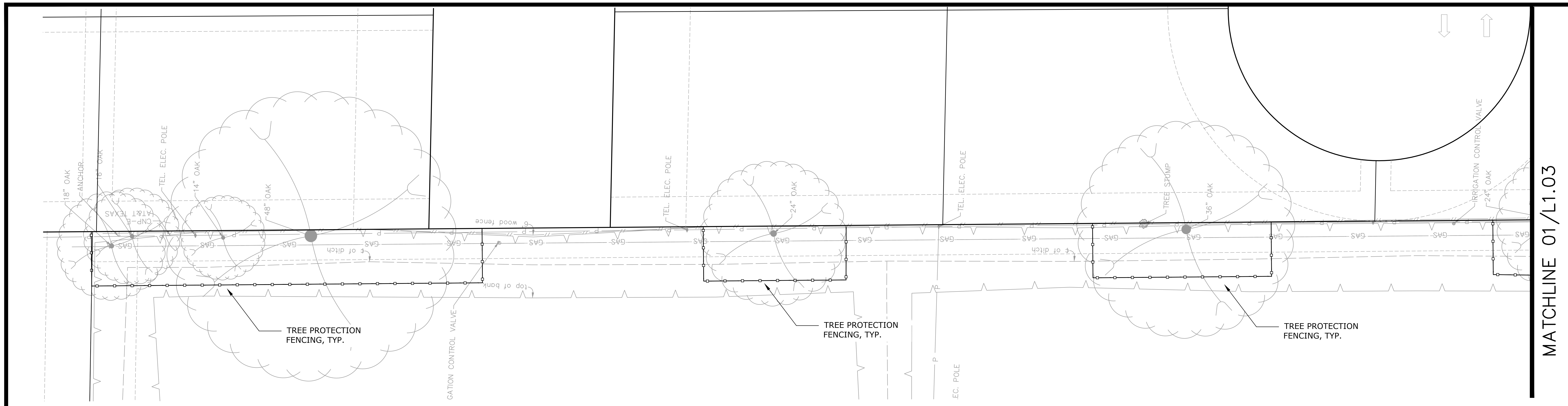
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 263 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:50 PM by Joshua Driscoll

No.	Date	Revisions	App.


18" OAK
ANCHOR
16" OAK
TEL. ELEC. POLE
14" OAK
48" OAK
CNP-E
AT&T TEXAS
GAS
6' wood fence
top of bank
℄ of ditch
TREE PROTECTION FENCING, TYP.
GATION CONTROL VALVE
TEL. ELEC. POLE
24" OAK
TEL. ELEC. POLE
EC. POLE
TREE STUMP
36" OAK
IRRIGATION CONTROL VALVE
24" OAK
MATCHLINE 01/L1.03

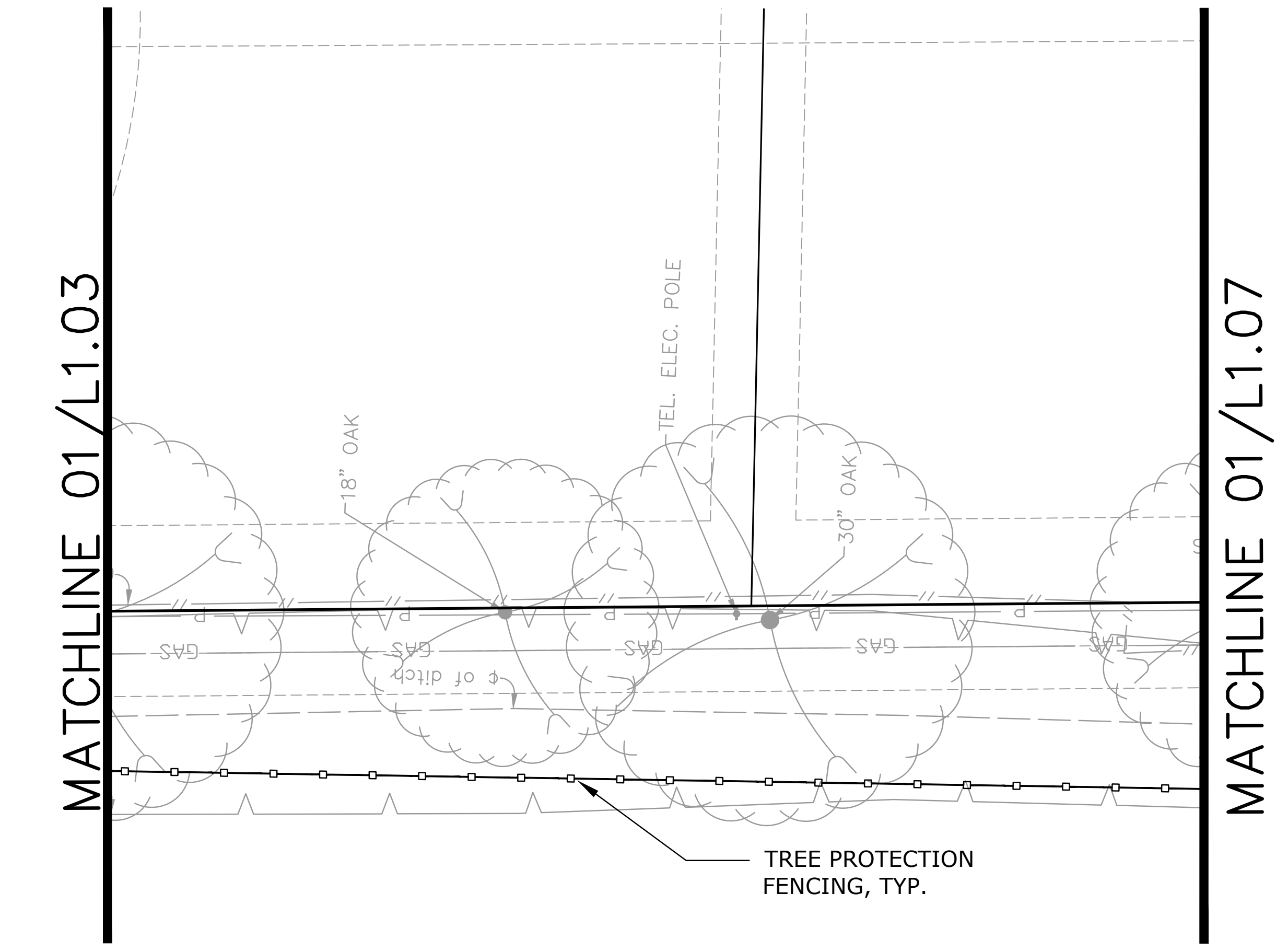
1 TREE PROTECTION PLAN

SCALE: 1"=20'-0"

N
0 20 40
SCALE IN FEET

LEGEND

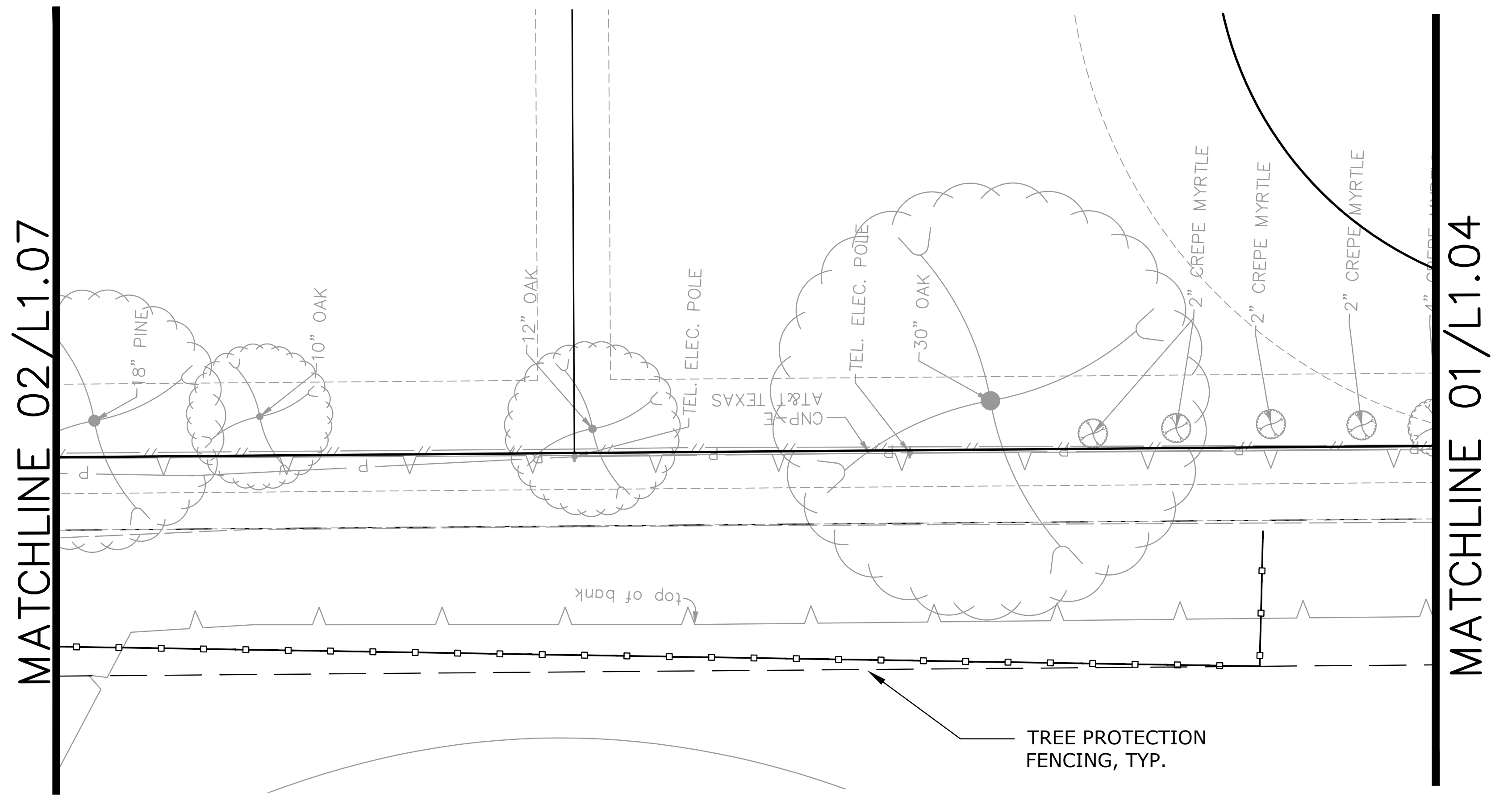
- EXISTING TREE TO REMAIN
- ⊗ EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- ◄─(XX) TREE NUMBER
- ─○─○─ TREE PROTECTION FENCING
- - - - - ROOT PRUNING
- ─·─·─ ZERO CURB CUT
- ○ TREE BOARDING
- ▩ CHECKER PLATE


MATCHLINE 01/L1.03
18" OAK
TEL. ELEC. POLE
30" OAK
GAS
℄ of ditch
TREE PROTECTION FENCING, TYP.
MATCHLINE 01/L1.07

2 TREE PROTECTION PLAN

SCALE: 1"=20'-0"

N
0 20 40
SCALE IN FEET

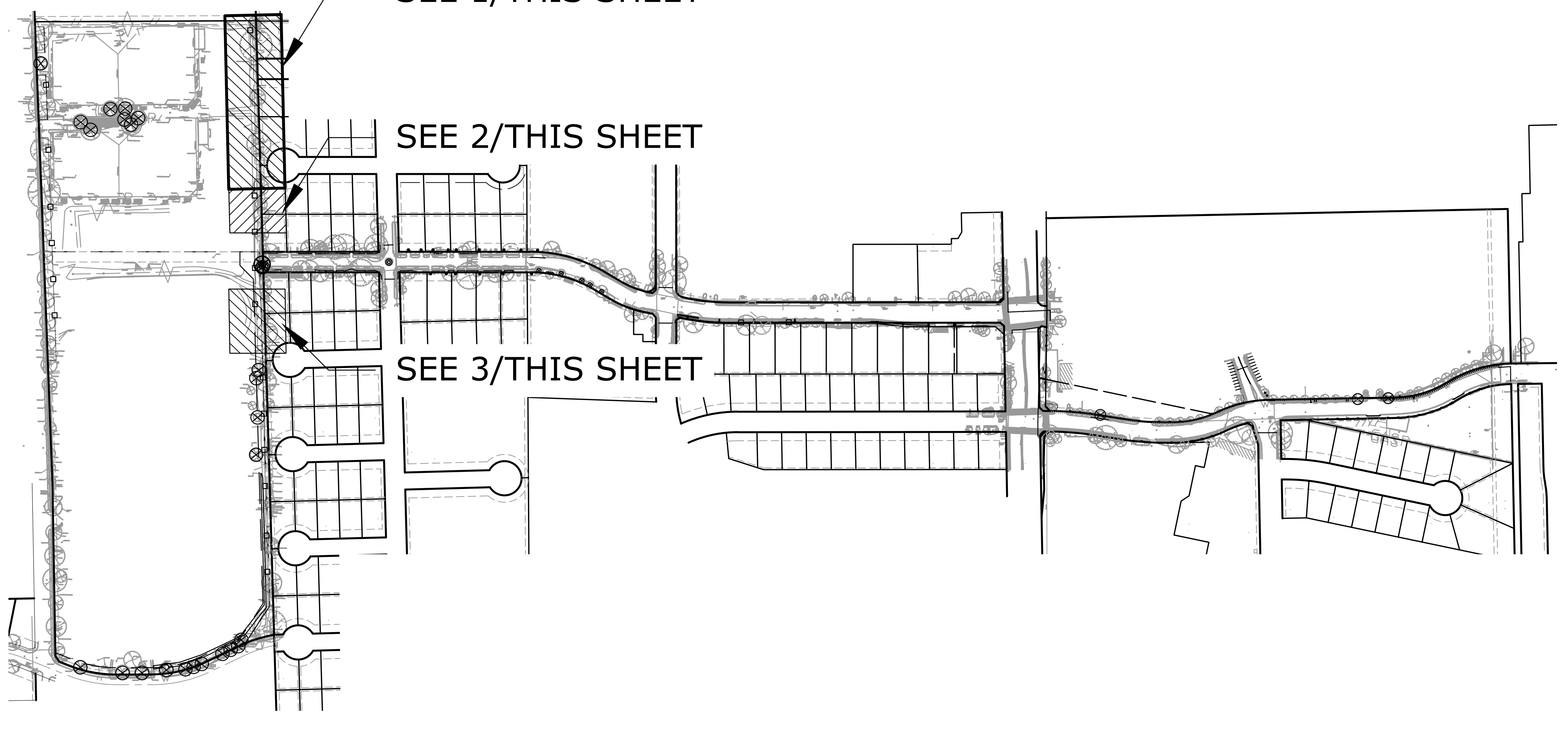

MATCHLINE 02/L1.07
18" PINE
10" OAK
12" OAK
TEL. ELEC. POLE
AT&T TEXAS
CNP-E
TEL. ELEC. POLE
30" OAK
2" CREPE MYRTLE
2" CREPE MYRTLE
2" CREPE MYRTLE
top of bank
TREE PROTECTION FENCING, TYP.
MATCHLINE 01/L1.04

3 TREE PROTECTION PLAN

SCALE: 1"=20'-0"

N
0 20 40
SCALE IN FEET

KEY MAP


SEE 1/THIS SHEET
SEE 2/THIS SHEET
SEE 3/THIS SHEET

ASAKURA ROBINSON
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SURVEYED BY: UNITED ENGINEERS, INC.

KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.03 ATTINGHAM DR.
DETENTION

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

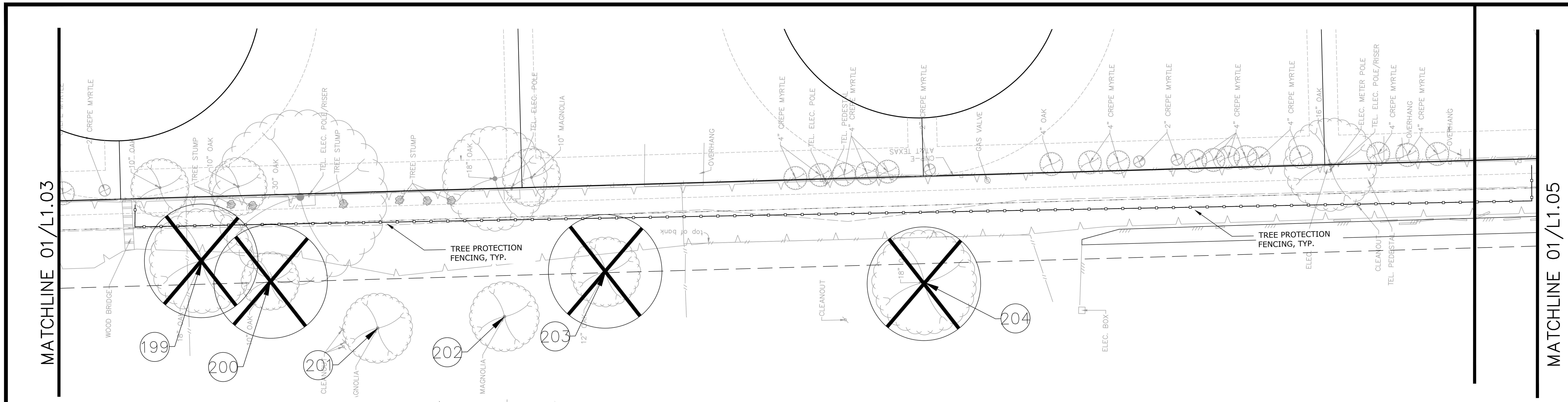
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 264 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:47 PM by Joshua Driscoll

No.	Date	Revisions	App.



MATCHLINE 01/L1.03
MATCHLINE 01/L1.05
2" CREPE MYRTLE
10" OAK
TREE STUMP
10" OAK
30" OAK
TEL. ELEC. POLE/RISER
TREE STUMP
TREE STUMP
18" OAK
TEL. ELEC. POLE
10" MAGNOLIA
OVERHANG
TREE PROTECTION FENCING, TYP.
top of bank
WOOD BRIDGE
18" OAK
10" OAK
CLEANOUT
MAGNOLIA
MAGNOLIA
12" OAK
199
200
201
202
203
204
4" CREPE MYRTLE
TEL. ELEC. POLE
TEL. PEDESTAL
4" CREPE MYRTLE
2" CREPE MYRTLE
CNP-E AT&T TEXAS
GAS VALVE
4" OAK
4" CREPE MYRTLE
2" CREPE MYRTLE
4" CREPE MYRTLE
4" CREPE MYRTLE
16" OAK
ELEC. METER POLE
TEL. ELEC. POLE/RISER
4" CREPE MYRTLE
OVERHANG
4" CREPE MYRTLE
OVERHANG
18" OAK
CLEANOUT
ELEC. BOX
ELEC.
CLEANOUT
TEL. PEDESTAL
TREE PROTECTION FENCING, TYP.
N
0
20
40
SCALE IN FEET

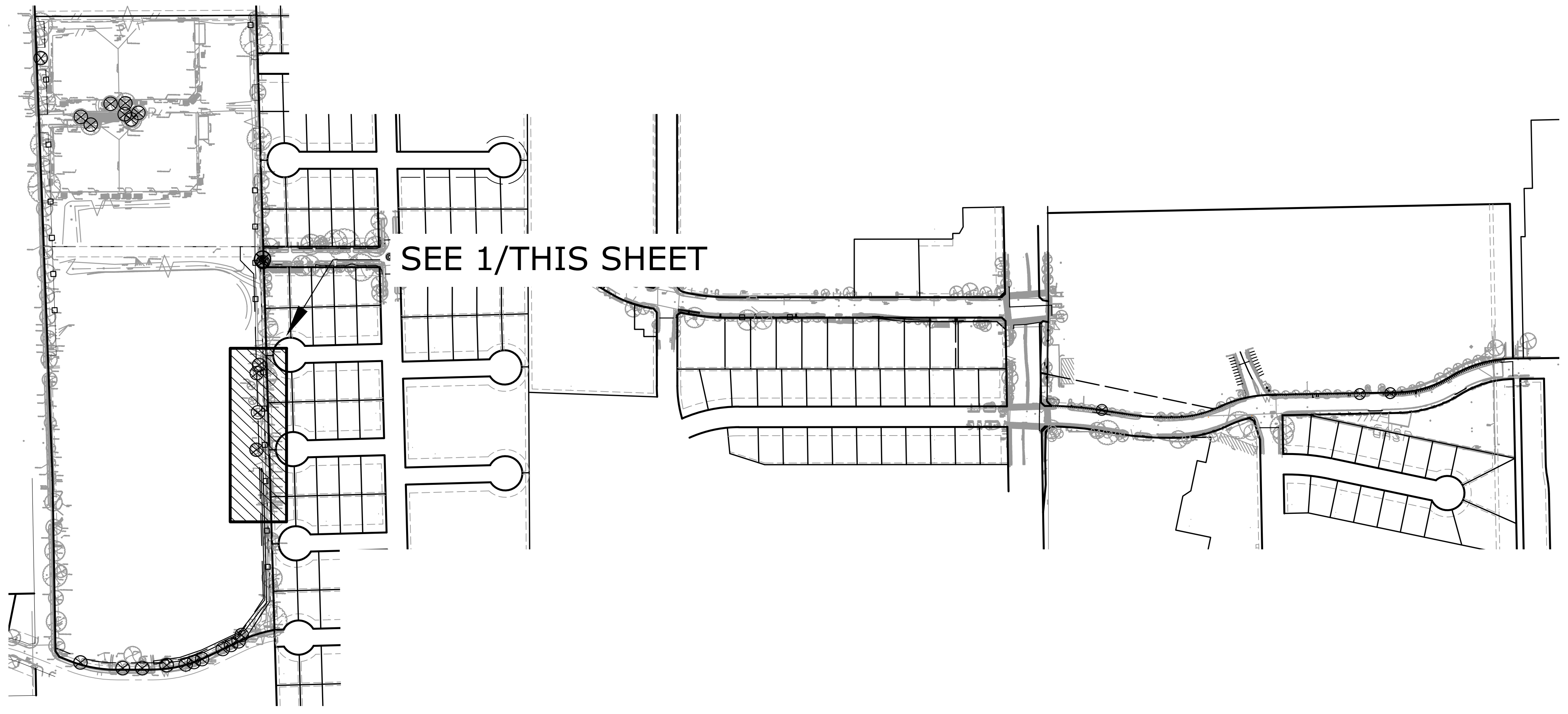
① **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

- ⊛ EXISTING TREE TO REMAIN
- ⊗ EXISTING TREE TO BE REMOVED
- ▭ EXISTING SHRUB TO REMAIN
- ◄—(XX) TREE NUMBER
- —○—○— TREE PROTECTION FENCING
- - - - - ROOT PRUNING
- —·—·— ZERO CURB CUT
- ○ TREE BOARDING
- ▨ CHECKER PLATE

KEY MAP



SEE 1/THIS SHEET

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KEIJI ASAKURA
1170
04.29.2026

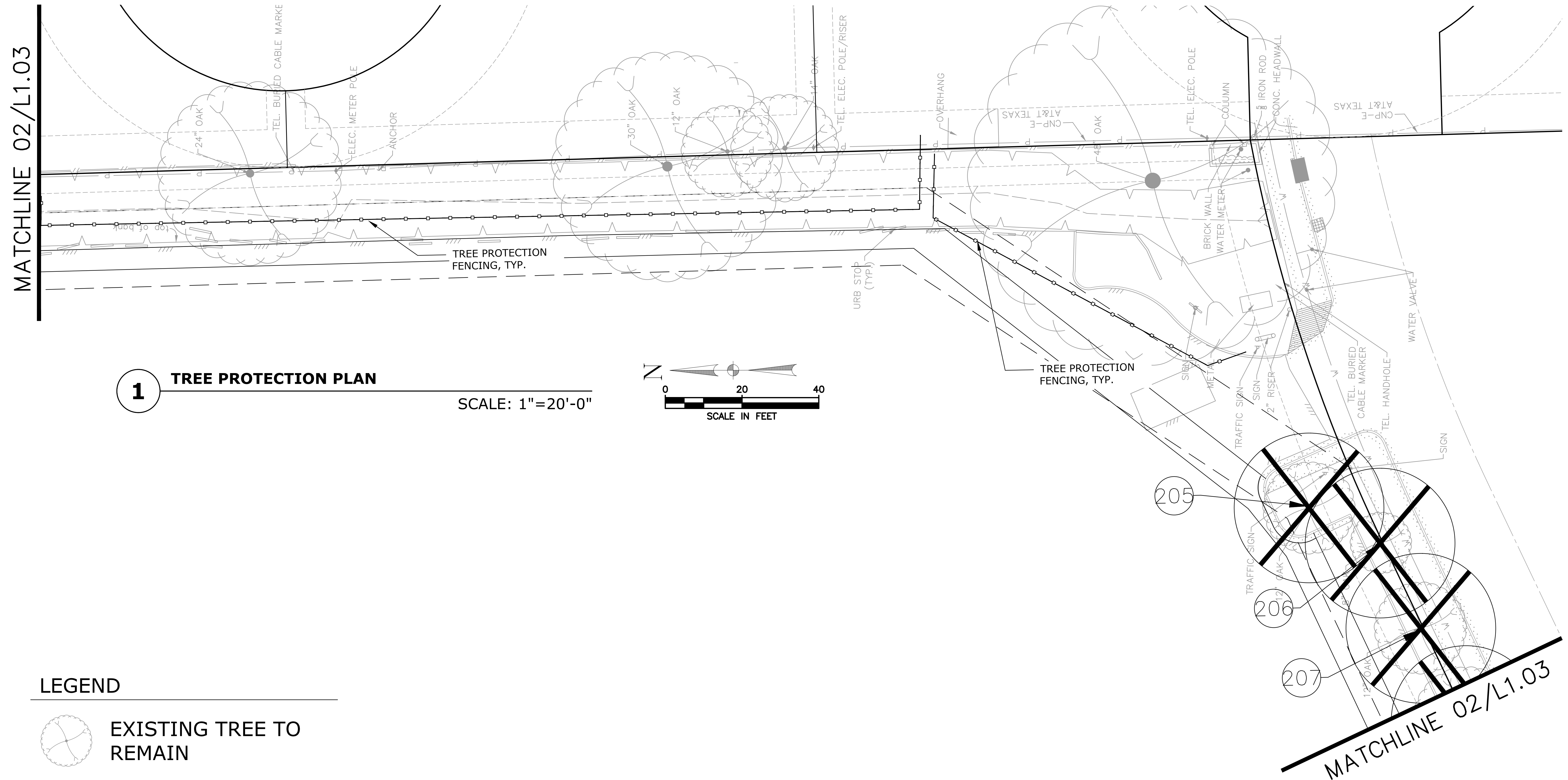
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.04 ATTINGHAM DR.
DETENTION

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 265 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:46 PM by Joshua Driscoll

No.	Date	Revisions	App.



MATCHLINE 02/L1.03
24" OAK
TEL. BURIED CABLE MARKE
ELEC. METER POLE
ANCHOR
top of bank
30" OAK
12" OAK
14" OAK
TEL. ELEC. POLE/RISER
URB STOP (TYP.)
OVERHANG
CNP-E
AT&T TEXAS
48" OAK
TEL. ELEC. POLE
COLUMN
5/8 IRON ROD
CONC. HEADWALL
BRICK WALL
WATER METER
WATER VALVE
SIGN
METAL
TRAFFIC SIGN
2" RISER
TEL. BURIED CABLE MARKER
TEL. HANDHOLE
12" OAK
8" OAK
205
206
207
TREE PROTECTION FENCING, TYP.
TREE PROTECTION FENCING, TYP.
N
0
20
40
SCALE IN FEET
MATCHLINE 02/L1.03

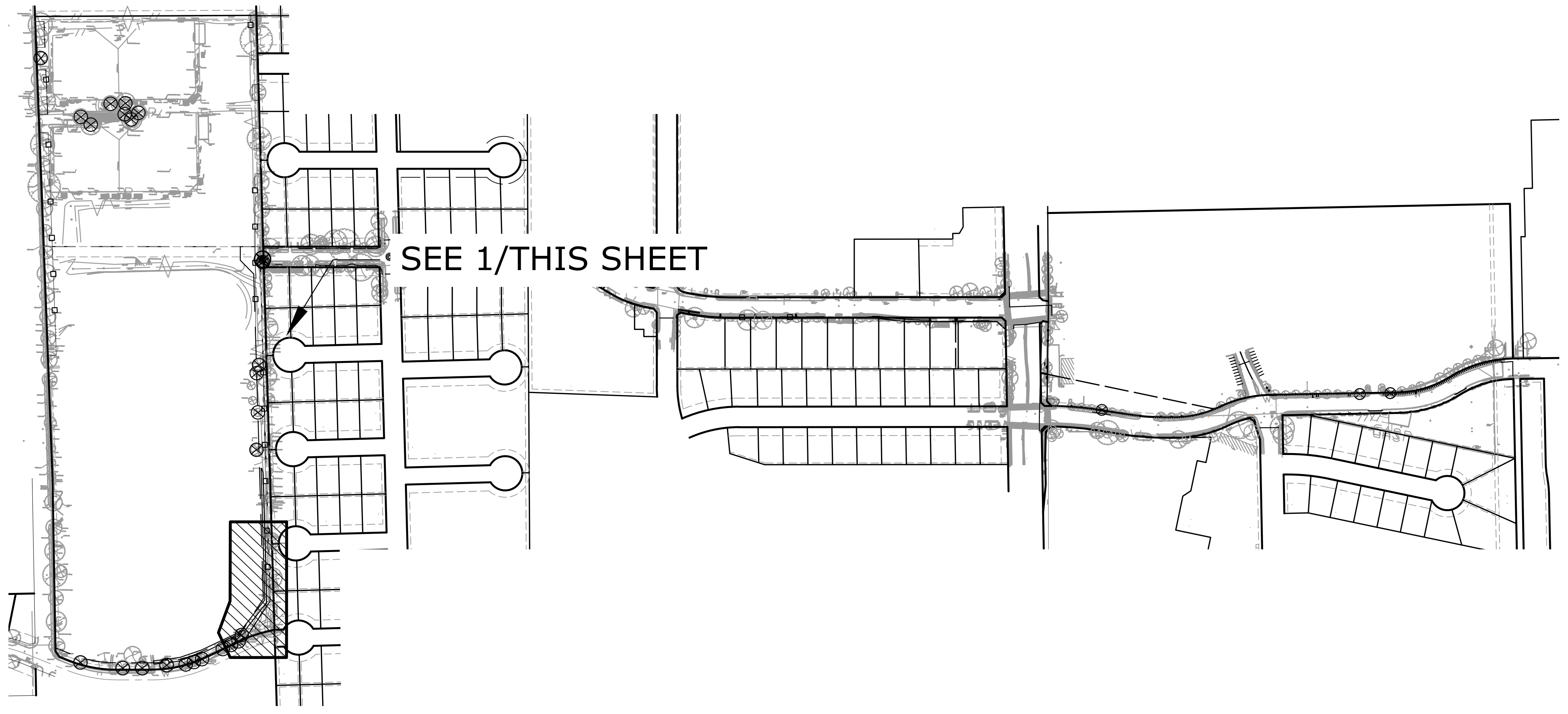
1 TREE PROTECTION PLAN

SCALE: 1"=20'-0"

LEGEND

	EXISTING TREE TO REMAIN
⊗	EXISTING TREE TO BE REMOVED
	EXISTING SHRUB TO REMAIN
XX	TREE NUMBER
-□-□-	TREE PROTECTION FENCING
-----	ROOT PRUNING
-·-·-	ZERO CURB CUT
○	TREE BOARDING
▨	CHECKER PLATE

KEY MAP



SEE 1/THIS SHEET

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SURVEYED BY: UNITED ENGINEERS, INC.

KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.05 ATTINGHAM DR.
DETENTION

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

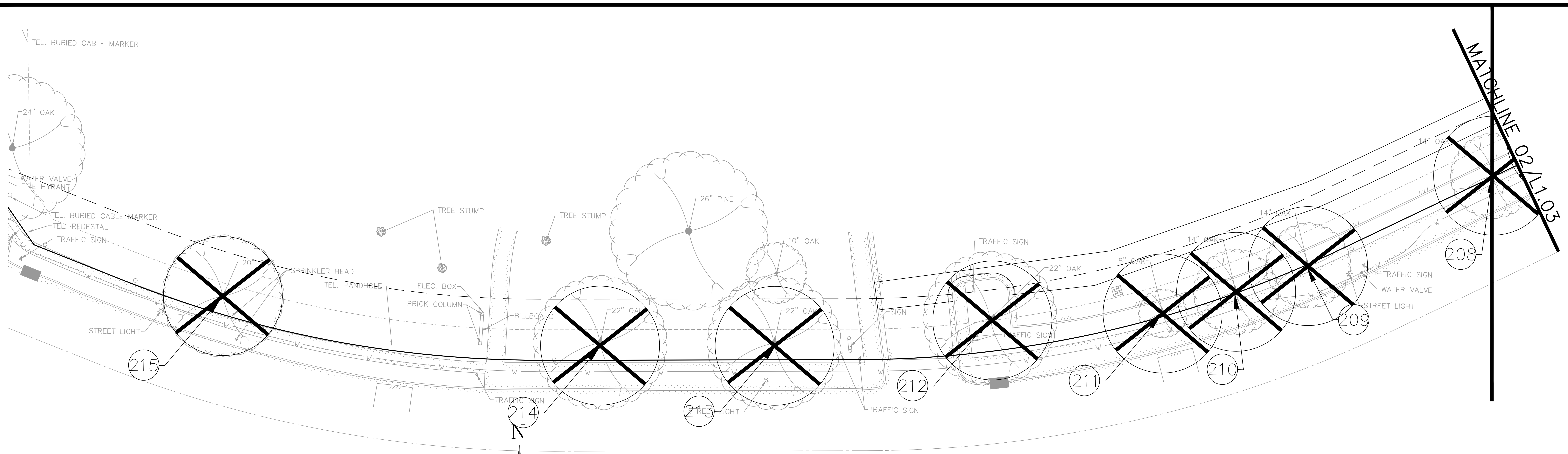
CITY OF HOUSTON PM

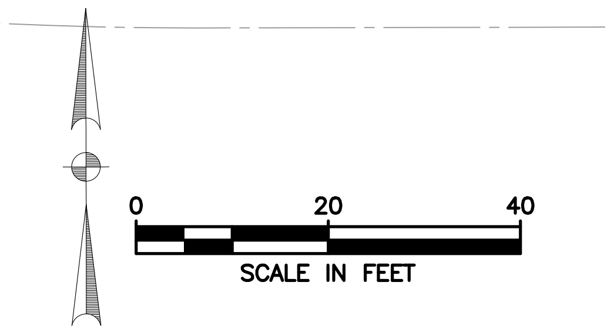
KEVIN HAMMOND, P.E.

SHEET NO. 266 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 3:01 PM by Joshua Driscoll

No.	Date	Revisions	App.


TEL. BURIED CABLE MARKER
24" OAK
WATER VALVE
FIRE HYRANT
TEL. BURIED CABLE MARKER
TEL. PEDESTAL
TRAFFIC SIGN
20" OAK
SPRINKLER HEAD
TEL. HANDHOLE
STREET LIGHT
215
TREE STUMP
TREE STUMP
ELEC. BOX
BRICK COLUMN
BILLBOARD
26" PINE
10" OAK
22" OAK
22" OAK
TRAFFIC SIGN
214
STREET LIGHT
213
SIGN
TRAFFIC SIGN
TRAFFIC SIGN
22" OAK
TRAFFIC SIGN
212
8" OAK
211
14" OAK
210
14" OAK
209
14" OAK
TRAFFIC SIGN
WATER VALVE
STREET LIGHT
208
MATCHLINE 02/L1.03


N
0
20
40
SCALE IN FEET

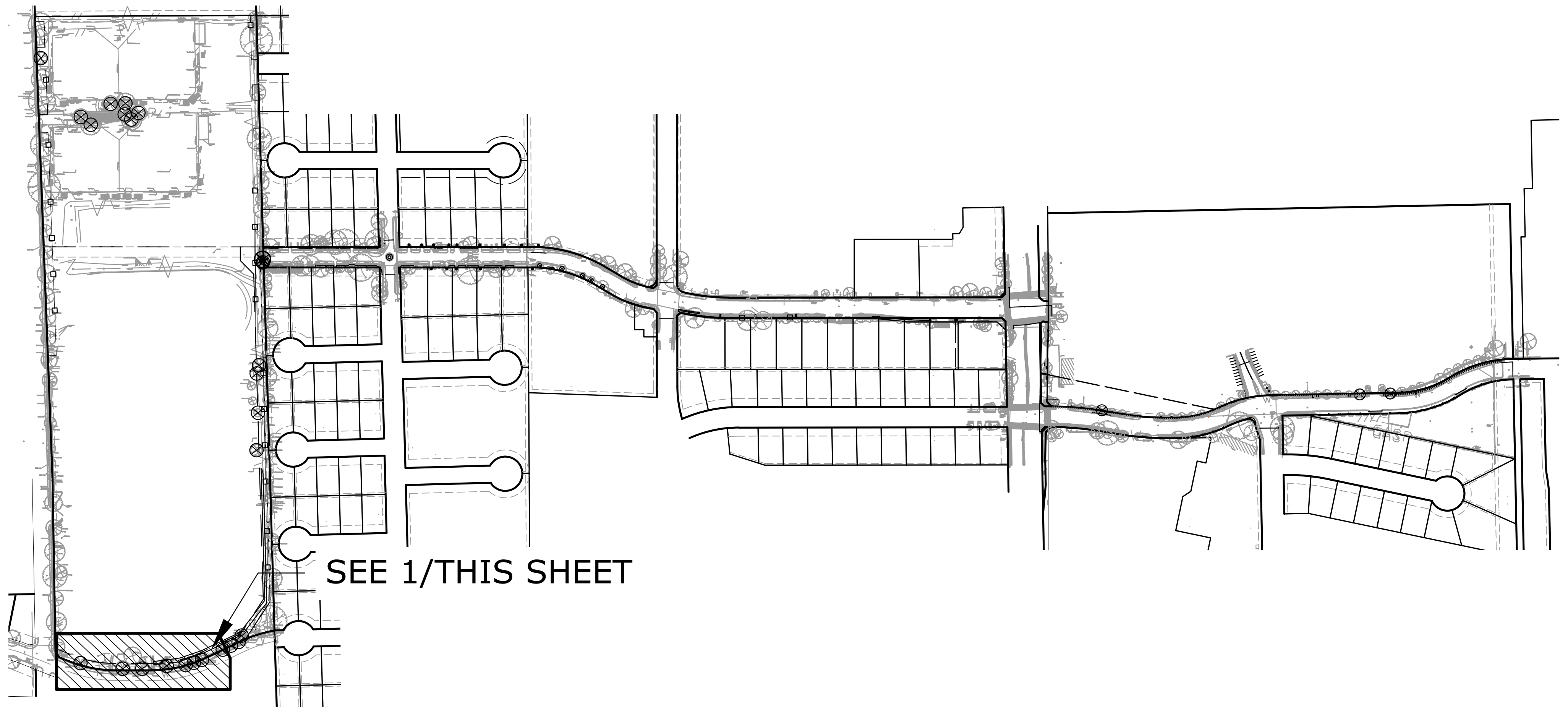
1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- ⊗ EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- XX TREE NUMBER
- TREE PROTECTION FENCING
- ROOT PRUNING
- ZERO CURB CUT
- ○ TREE BOARDING
- ▨ CHECKER PLATE

KEY MAP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KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.06 ATTINGHAM DR.
DETENTION

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

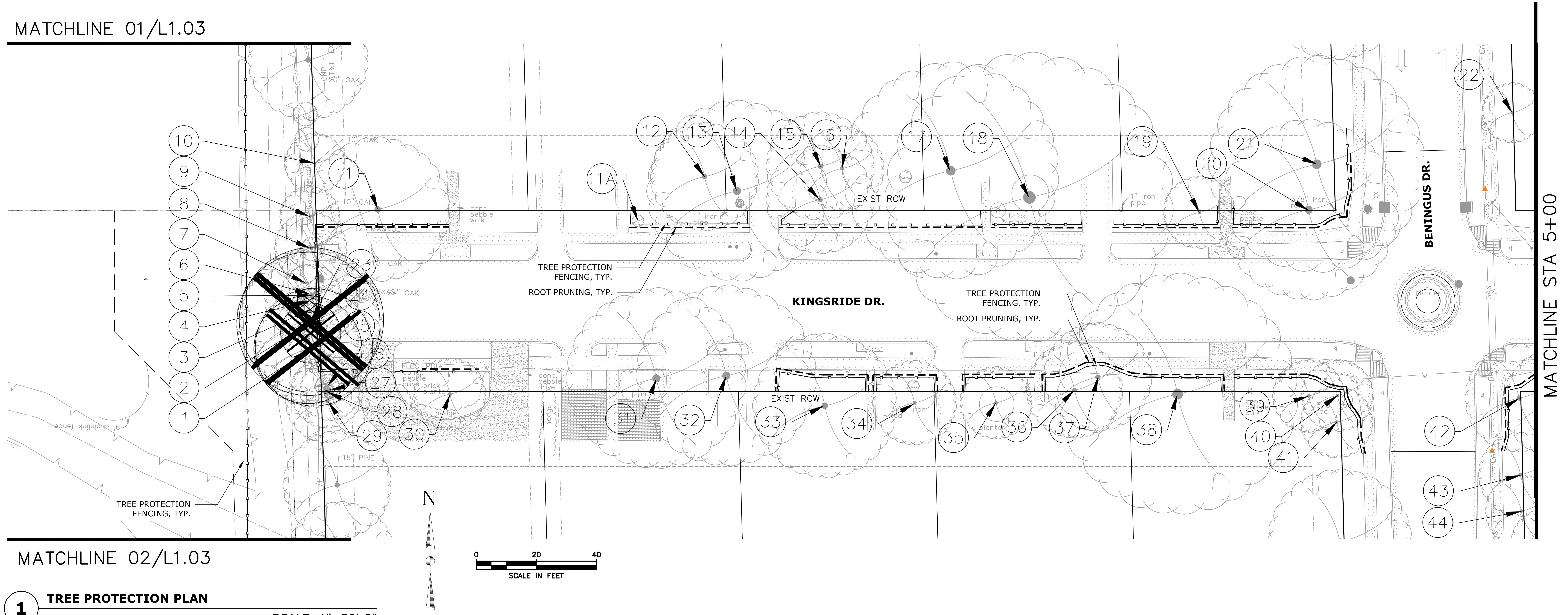
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 267 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:56 PM by Joshua Driscoll

No.	Date	Revisions	App.


MATCHLINE 01/L1.03
MATCHLINE 02/L1.03
MATCHLINE STA 5+00
KINGSRIDE DR.
BENINGUS DR.
EXIST ROW
TREE PROTECTION FENCING, TYP.
ROOT PRUNING, TYP.
1
2
3
4
5
6
7
8
9
10
11
11A
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
OAK
10" OAK
18" PINE
conc pebble walk
brick
1" iron pipe
pebble drive
hedge
GAS
N
0
20
40
SCALE IN FEET

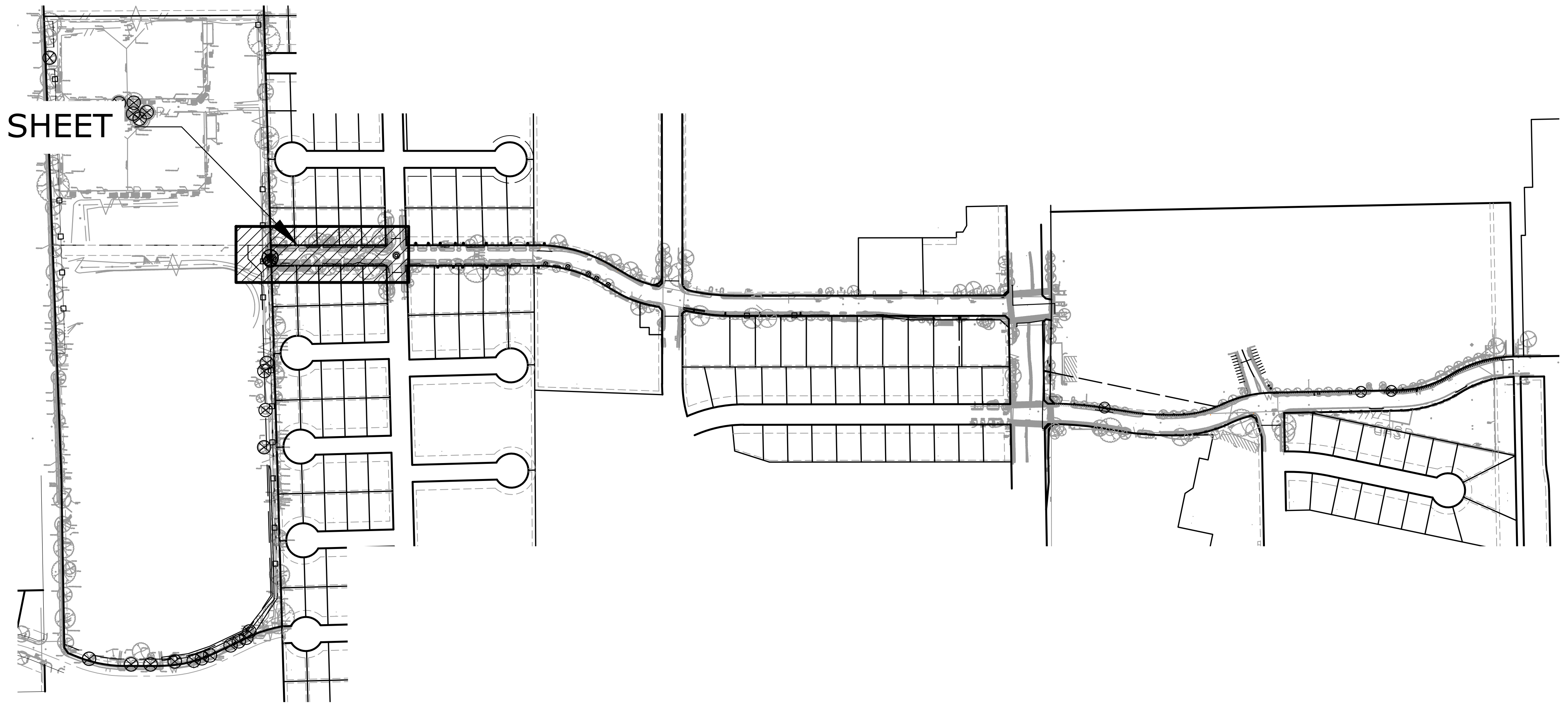
① **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- ⊗ EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- ← (XX) TREE NUMBER
- TREE PROTECTION FENCING
- ----- ROOT PRUNING
- ZERO CURB CUT
- ○ TREE BOARDING
- ▨ CHECKER PLATE

KEY MAP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04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN

L1.07
KINGSRIDE LANE
BEGIN PROJECT TO 5+00

WBS NO. M–430296–0017–3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

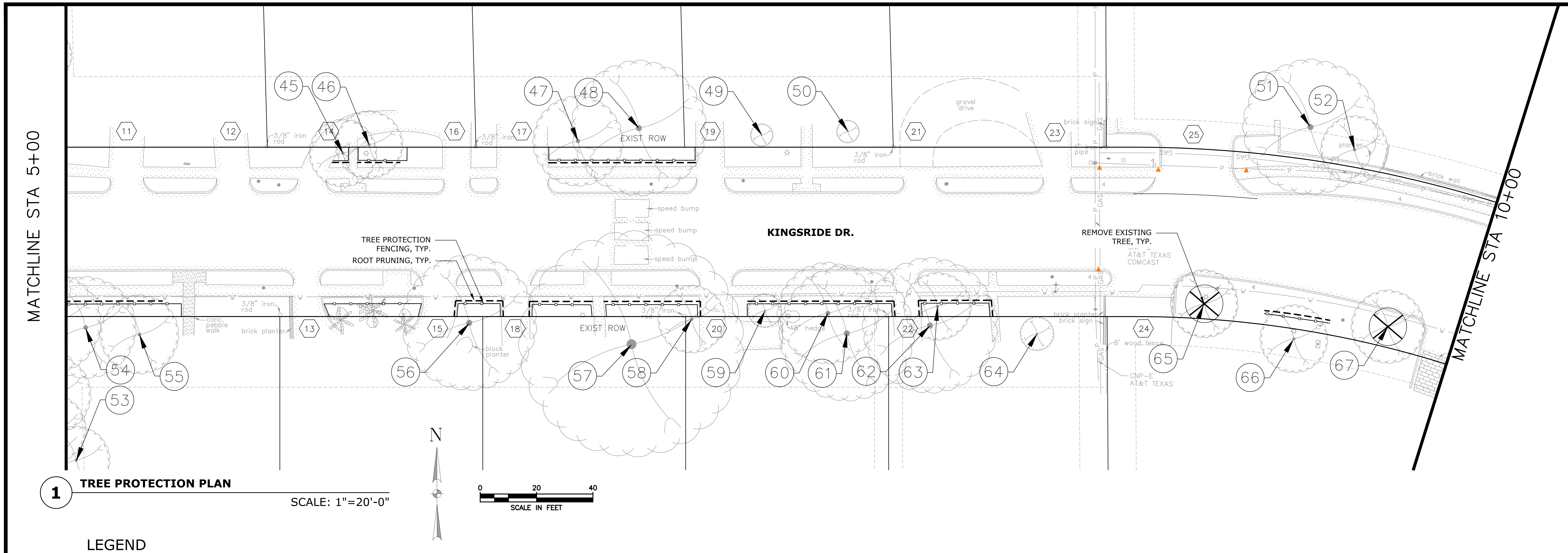
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 268 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:58 PM by Joshua Driscoll

No.	Date	Revisions	App.


MATCHLINE STA 5+00
MATCHLINE STA 10+00
KINGSRIDE DR.
TREE PROTECTION FENCING, TYP.
ROOT PRUNING, TYP.
REMOVE EXISTING TREE, TYP.
EXIST ROW
speed bump
3/8" iron rod
gravel drive
brick sign
brick planter
brick wall
block planter
conc. pebble walk
hedge
planter
pipe
GAS
AT&T TEXAS
COMCAST
8' wood fence
CNP-E
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
N
0
20
40
SCALE IN FEET

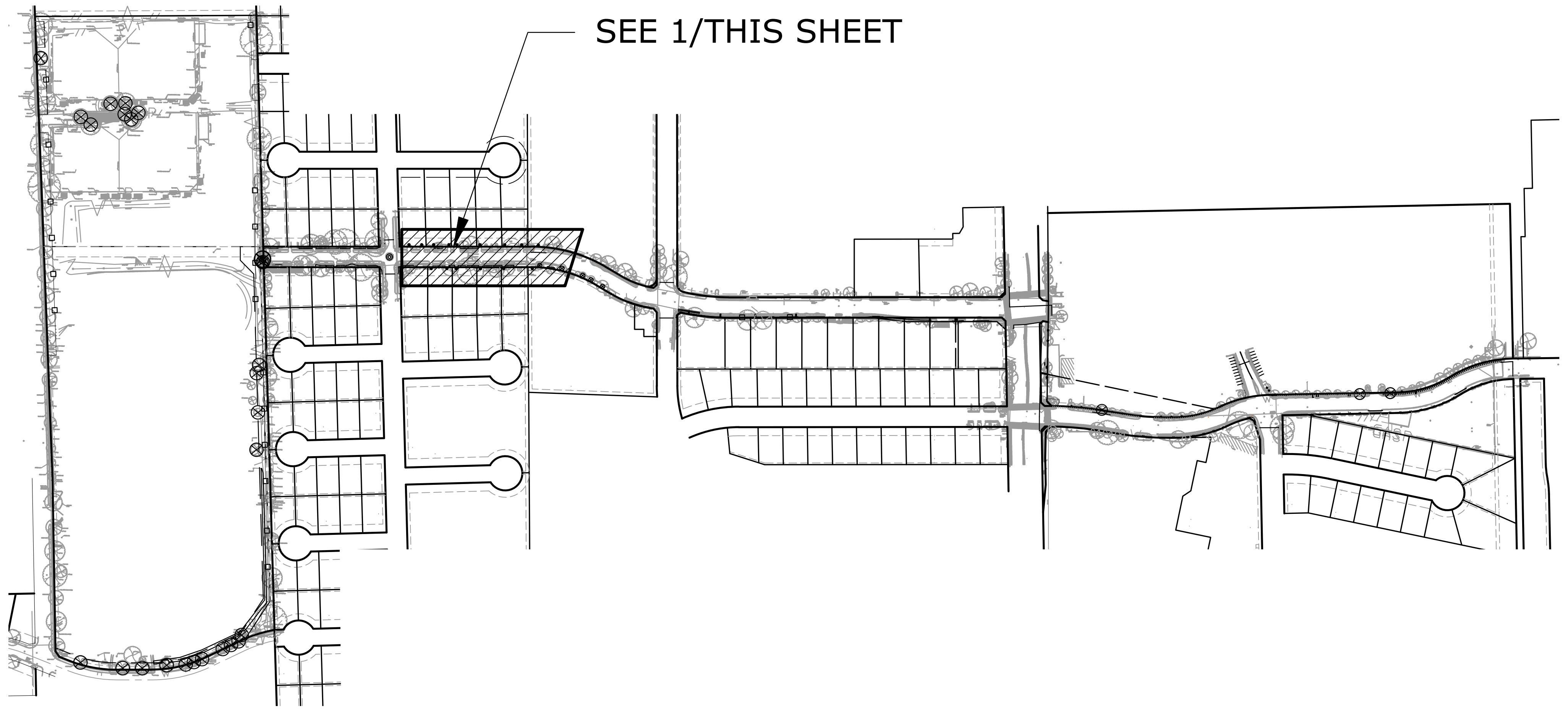
1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

○	EXISTING TREE TO REMAIN
⊗	EXISTING TREE TO BE REMOVED
▭	EXISTING SHRUB TO REMAIN
← XX	TREE NUMBER
-o-o-	TREE PROTECTION FENCING
-----	ROOT PRUNING
-·-·-	ZERO CURB CUT
○	TREE BOARDING
▨	CHECKER PLATE

KEY MAP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04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY

TREE PROTECTION PLAN

L1.08
KINGSRIDE LANE
5+00 TO 10+00

WBS NO. M-430296-0017-3

DRAWING SCALE

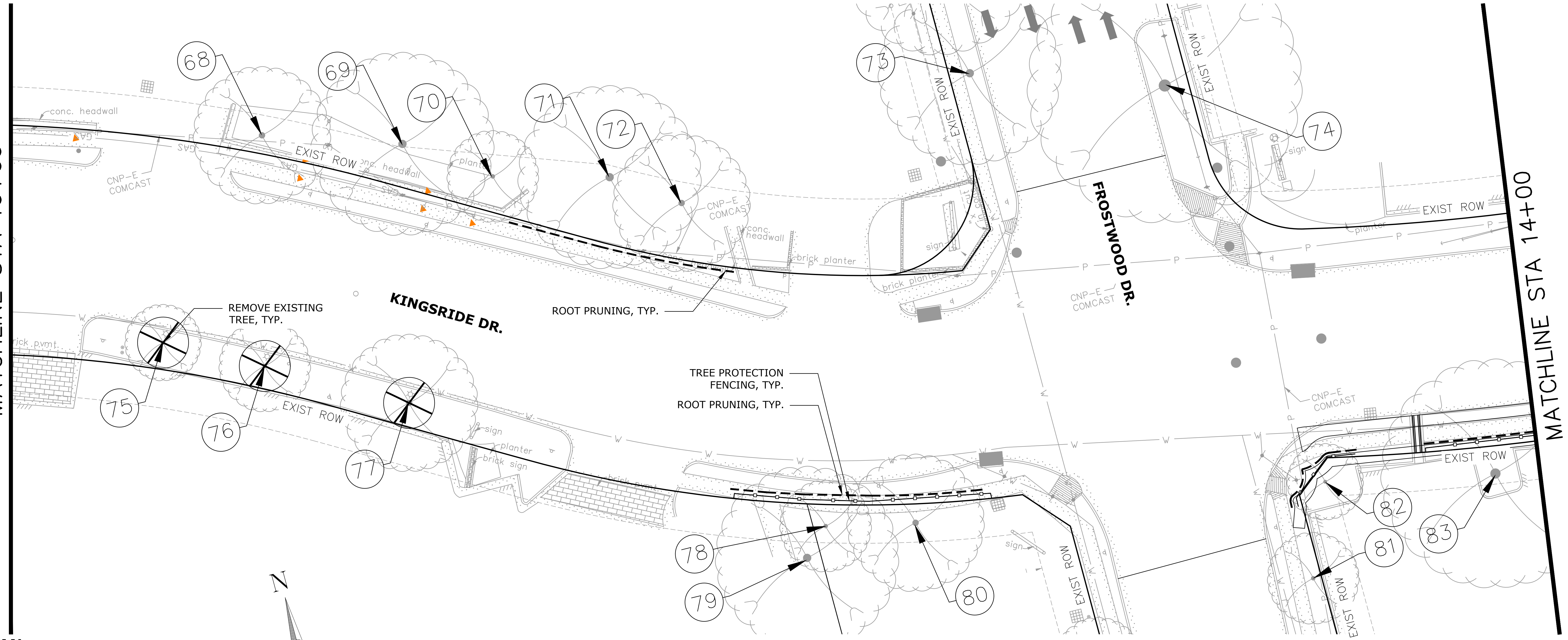
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

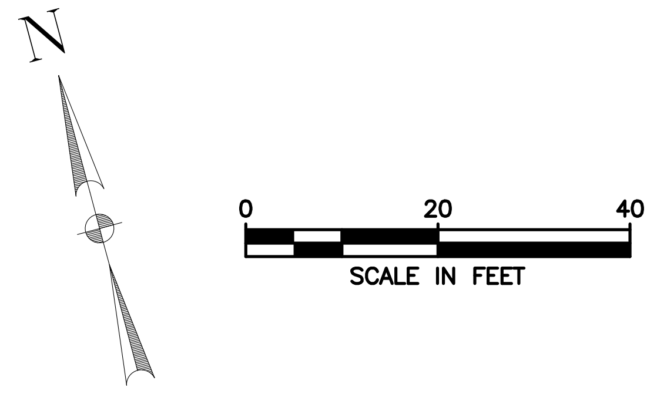
KEVIN HAMMOND, P.E.

SHEET NO. 269 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:55 PM by Joshua Driscoll



MATCHLINE STA 10+00
MATCHLINE STA 14+00
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
conc. headwall
CNP-E COMCAST
EXIST ROW
conc. headwall
planter
conc. headwall
brick planter
sign
FROSTWOOD DR.
KINGSRIDE DR.
REMOVE EXISTING TREE, TYP.
ROOT PRUNING, TYP.
TREE PROTECTION FENCING, TYP.
ROOT PRUNING, TYP.
brick pvmt.
sign
planter
brick sign



N
0
20
40
SCALE IN FEET

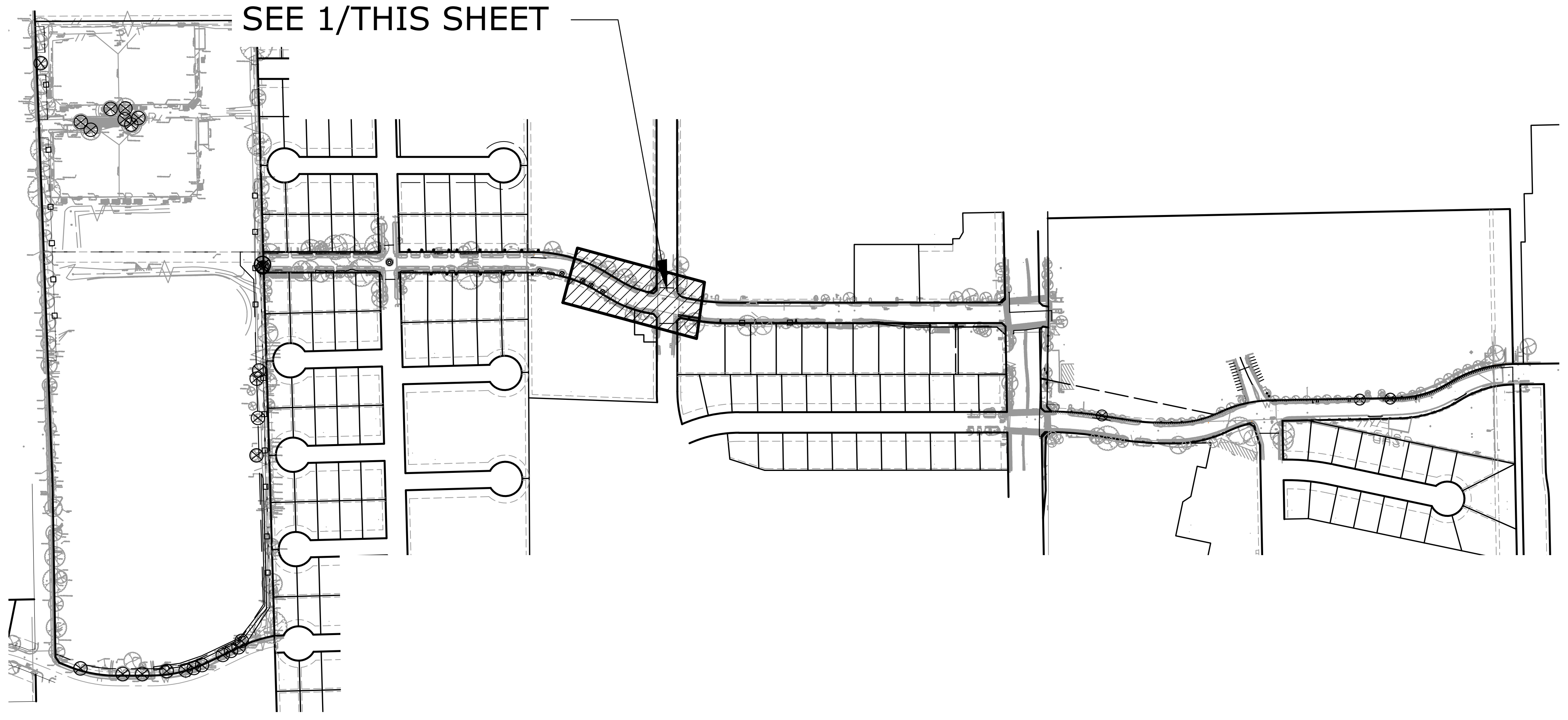
1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- ⊗ EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- ◄— (XX) TREE NUMBER
- —∘—∘— TREE PROTECTION FENCING
- ----- ROOT PRUNING
- —·—·— ZERO CURB CUT
- ○ TREE BOARDING
- ▩ CHECKER PLATE

KEY MAP



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1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY
TREE PROTECTION PLAN

L1.09

KINGSRIDE LANE
10+00 TO 14+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

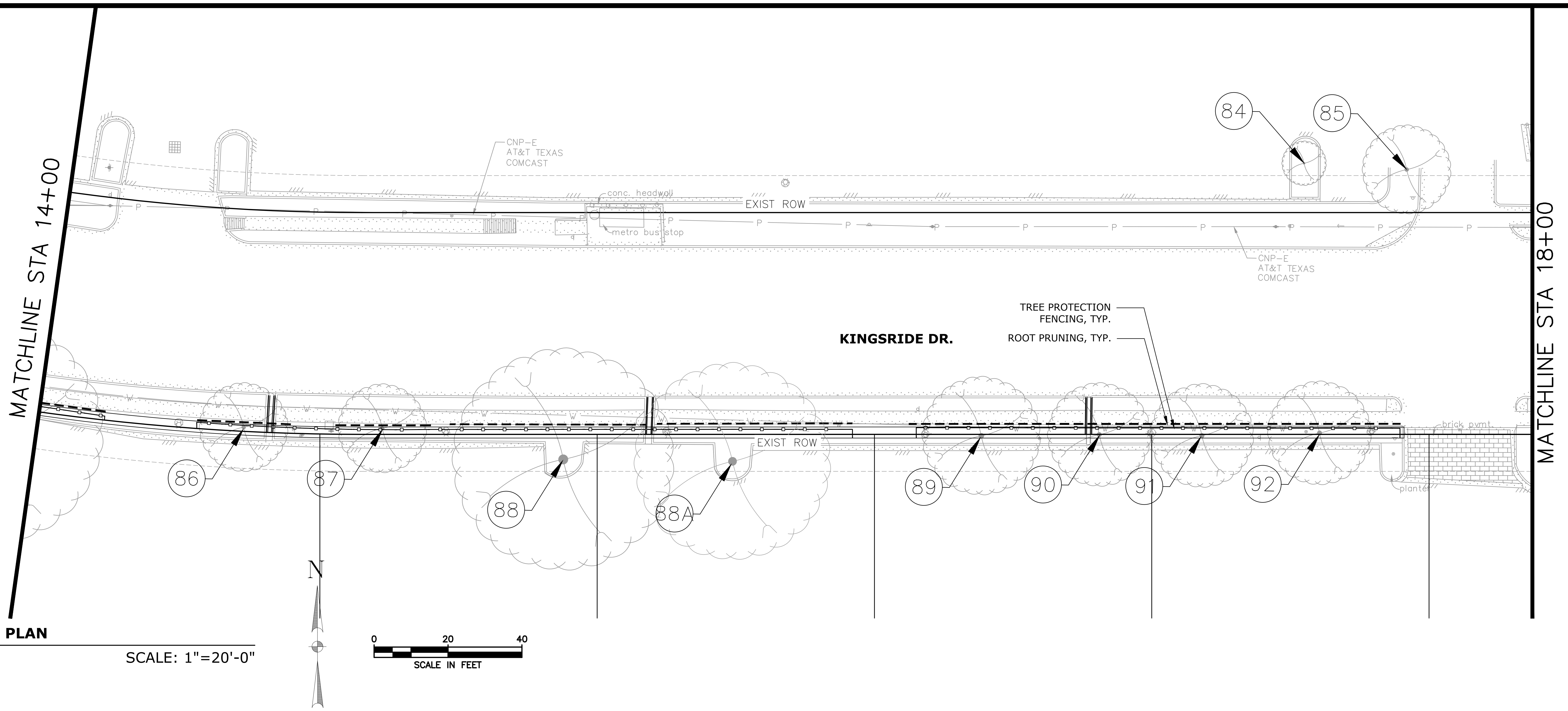
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 270 OF 345

No.	Date	Revisions	App.

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:44 PM by Joshua Driscoll


MATCHLINE STA 14+00
MATCHLINE STA 18+00
CNP-E
AT&T TEXAS
COMCAST
conc. headwall
EXIST ROW
metro bus stop
84
85
KINGSRIDE DR.
TREE PROTECTION FENCING, TYP.
ROOT PRUNING, TYP.
brick pvmt
planter
86
87
88
88A
89
90
91
92
N
0
20
40
SCALE IN FEET

1 TREE PROTECTION PLAN

SCALE: 1"=20'-0"

LEGEND

EXISTING TREE TO REMAIN

EXISTING TREE TO BE REMOVED

EXISTING SHRUB TO REMAIN

XX TREE NUMBER

TREE PROTECTION FENCING

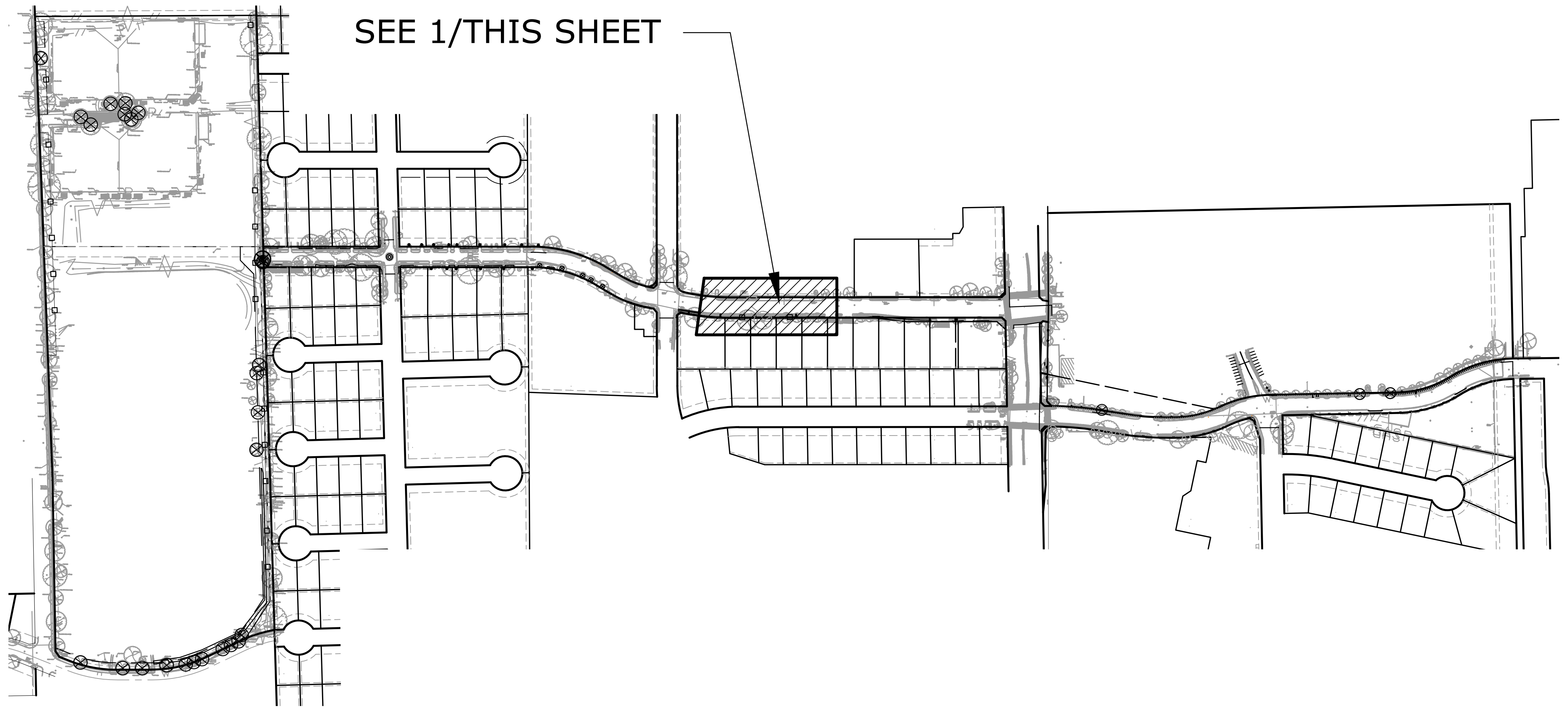
----- ROOT PRUNING

ZERO CURB CUT

○ TREE BOARDING

▨ CHECKER PLATE

KEY MAP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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.10
KINGSRIDE LANE
14+00 TO 18+00

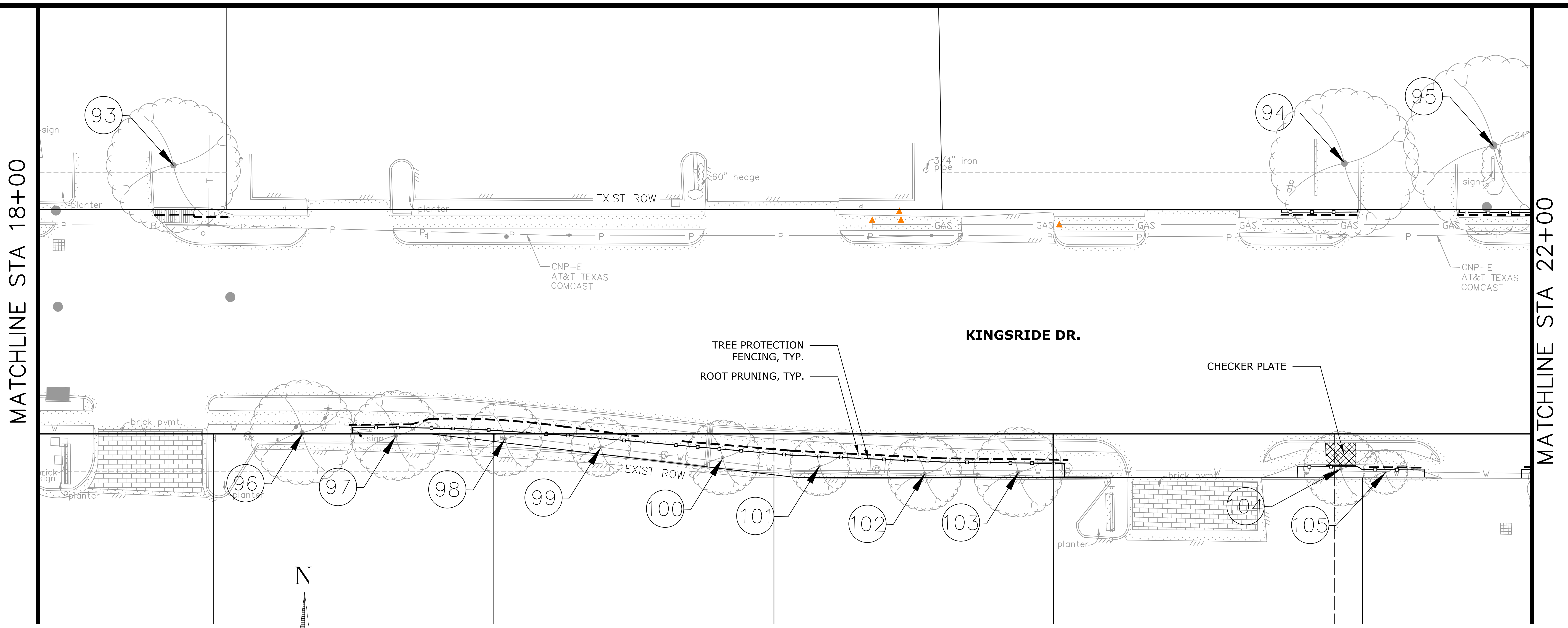
WBS NO. M-430296-0017-3

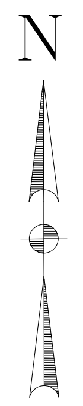
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

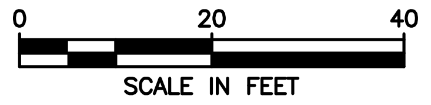
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 271 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:45 PM by Joshua Driscoll


MATCHLINE STA 18+00
MATCHLINE STA 22+00
93
94
95
96
97
98
99
100
101
102
103
104
105
sign
planter
EXIST ROW
60" hedge
3/4" iron pipe
GAS
P
CNP-E
AT&T TEXAS
COMCAST
KINGSRIDE DR.
TREE PROTECTION FENCING, TYP.
ROOT PRUNING, TYP.
CHECKER PLATE
brick pvmt
EXIST ROW
24"




0
20
40
SCALE IN FEET

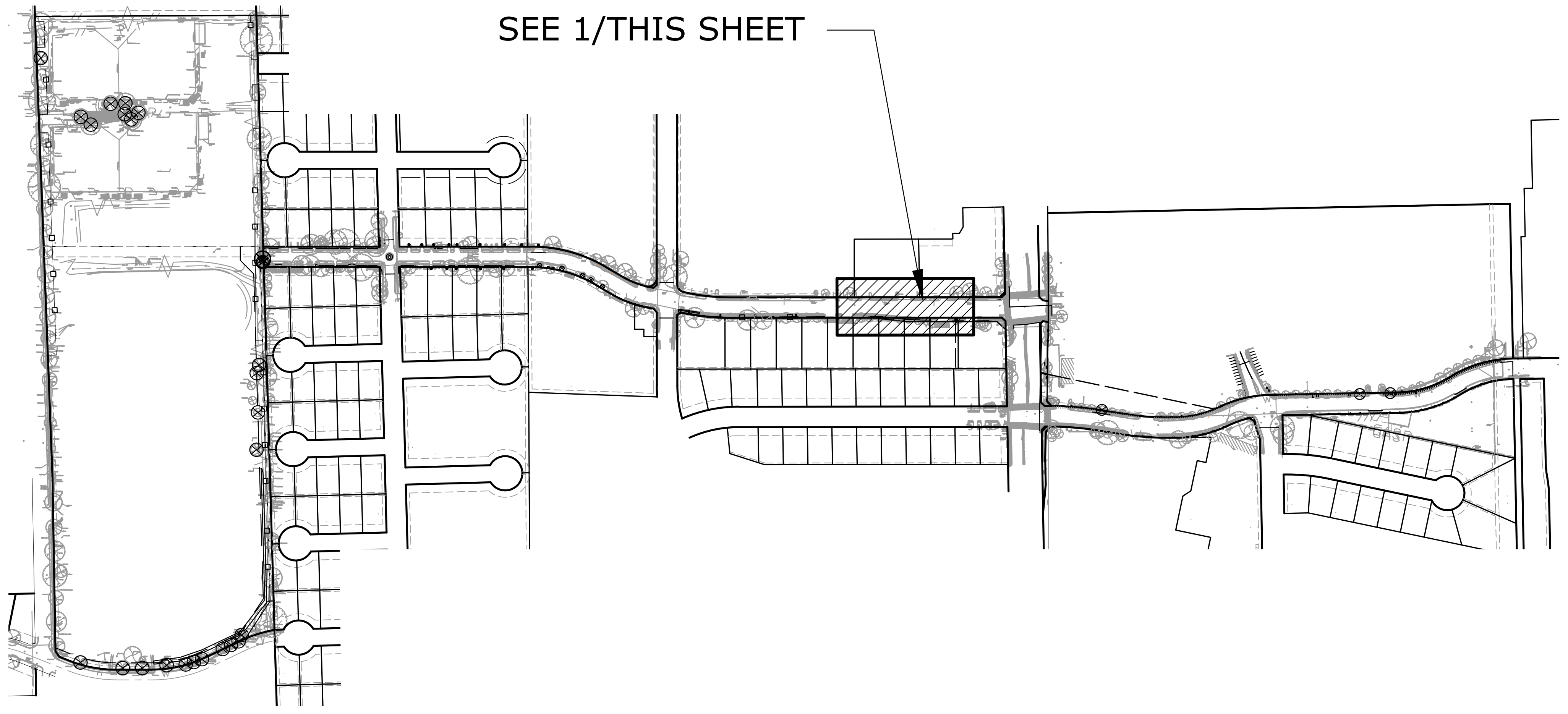
① **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

- ◯ EXISTING TREE TO REMAIN
- ⊗ EXISTING TREE TO BE REMOVED
- EXISTING SHRUB TO REMAIN
- ←(XX) TREE NUMBER
- —∘—∘— TREE PROTECTION FENCING
- - - - - ROOT PRUNING
- —·-·— ZERO CURB CUT
- ○ TREE BOARDING
- ▨ CHECKER PLATE

KEY MAP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04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.11
KINGSRIDE LANE
18+00 TO 22+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

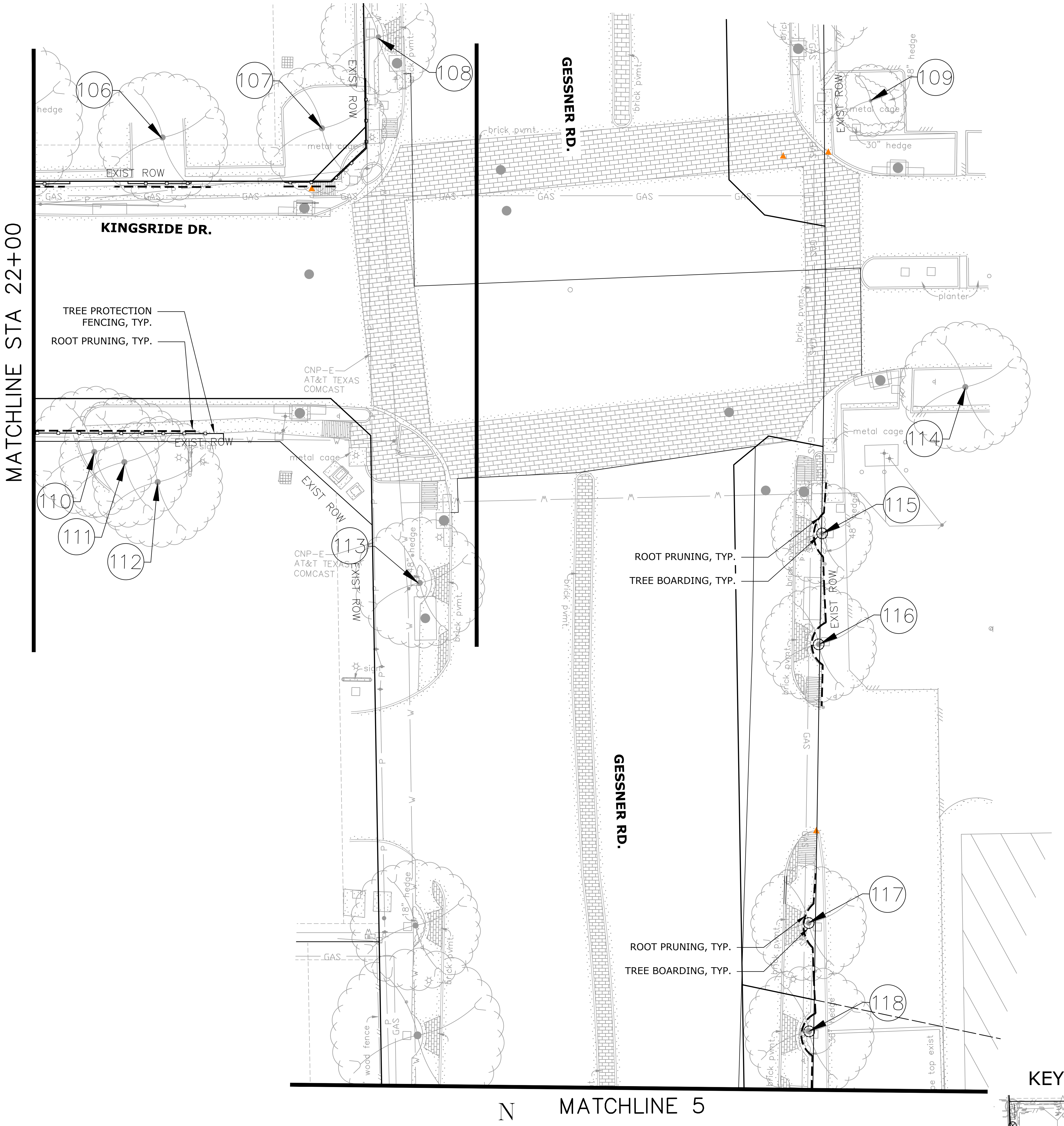
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

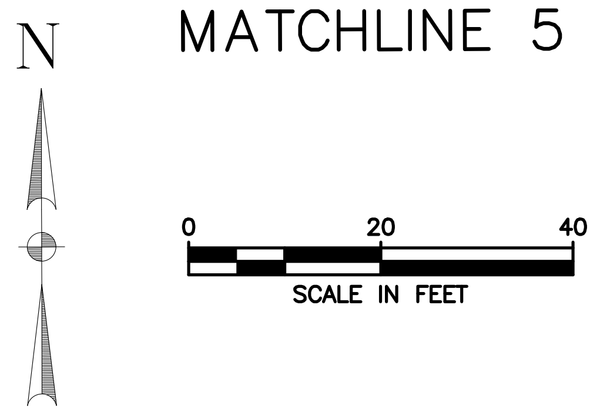
SHEET NO. 272 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:43 PM by Joshua Driscoll

No.	Date	Revisions	App.



106
107
108
109
110
111
112
113
114
115
116
117
118
hedge
metal cage
EXIST ROW
GAS
KINGSRIDE DR.
GESSNER RD.
brick pvmt.
30" hedge
planter
MATCHLINE STA 22+00
TREE PROTECTION FENCING, TYP.
ROOT PRUNING, TYP.
CNP-E AT&T TEXAS COMCAST
ROOT PRUNING, TYP.
TREE BOARDING, TYP.
wood fence
MATCHLINE 5



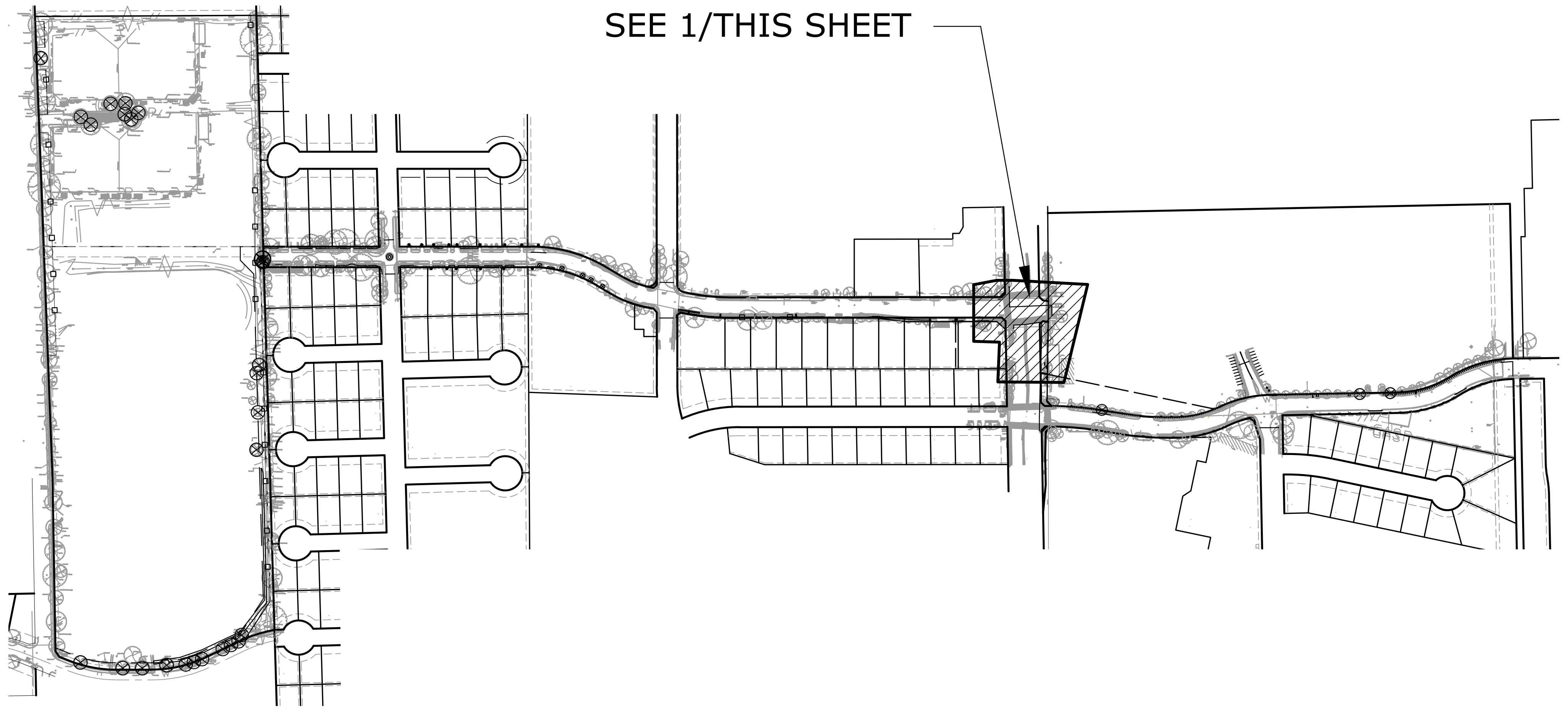
N
0
20
40
SCALE IN FEET

1 **TREE PROTECTION PLAN**
SCALE: 1"=20'-0"

LEGEND

○	EXISTING TREE TO REMAIN
⊗	EXISTING TREE TO BE REMOVED
▭	EXISTING SHRUB TO REMAIN
←(XX)	TREE NUMBER
—○—○—	TREE PROTECTION FENCING
- - - - -	ROOT PRUNING
—·—·—	ZERO CURB CUT
○	TREE BOARDING
▨	CHECKER PLATE

KEY MAP



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04.29.2026

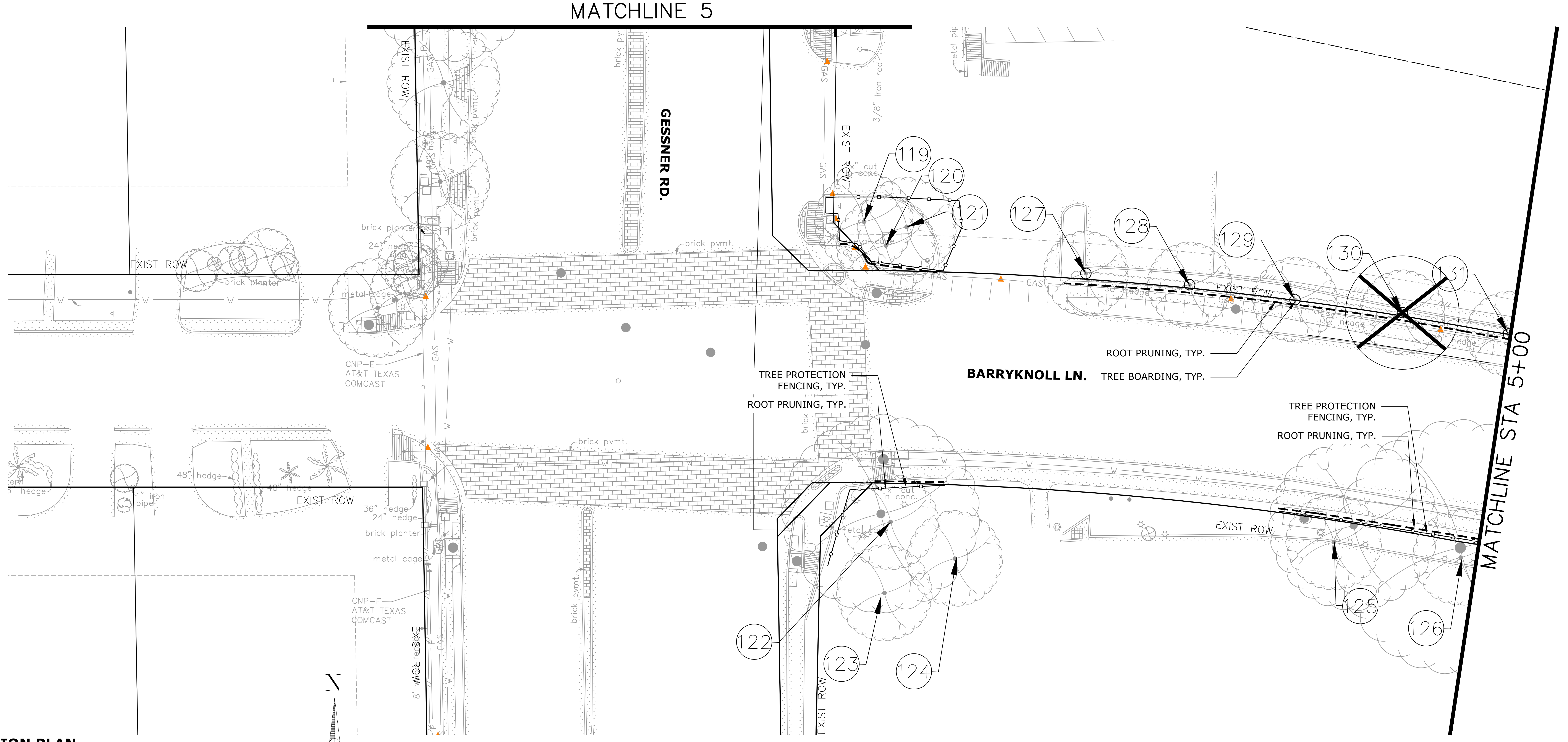
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.12
KINGSRIDE LANE
22+00 TO GESSNER ROAD

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22'X36')
V: 1"=2' (22'X36')
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 273 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:51 PM by Joshua Driscoll

No.	Date	Revisions	App.


MATCHLINE 5
GESSNER RD.
BARRYKNOLL LN.
MATCHLINE STA 5+00
EXIST ROW
brick pvmt.
brick planter
24" hedge
metal cage
CNP-E
AT&T TEXAS
COMCAST
GAS
48" hedge
36" hedge
1" iron pipe
3/8" iron rod
metal pipe
x" cut in conc.
119
120
121
122
123
124
125
126
127
128
129
130
131
TREE PROTECTION FENCING, TYP.
ROOT PRUNING, TYP.
TREE BOARDING, TYP.

① **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

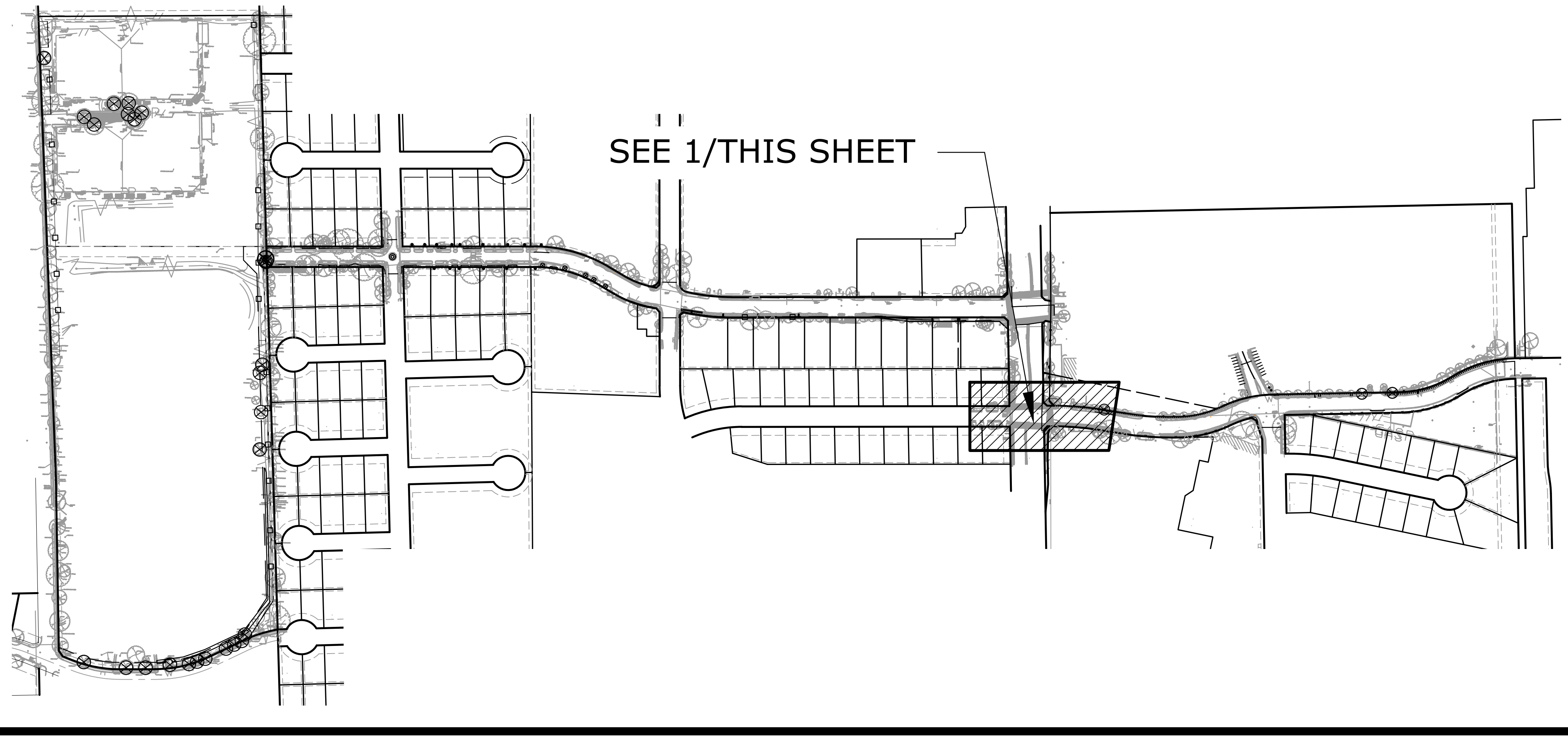
N

0 20 40
SCALE IN FEET

LEGEND

	EXISTING TREE TO REMAIN
⊗	EXISTING TREE TO BE REMOVED
	EXISTING SHRUB TO REMAIN
← (XX)	TREE NUMBER
—o—o—	TREE PROTECTION FENCING
-----	ROOT PRUNING
—·—·—	ZERO CURB CUT
○	TREE BOARDING
▨	CHECKER PLATE

KEY MAP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04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.13
GESSNER ROAD
BARRYKNOLL START TO 5+00

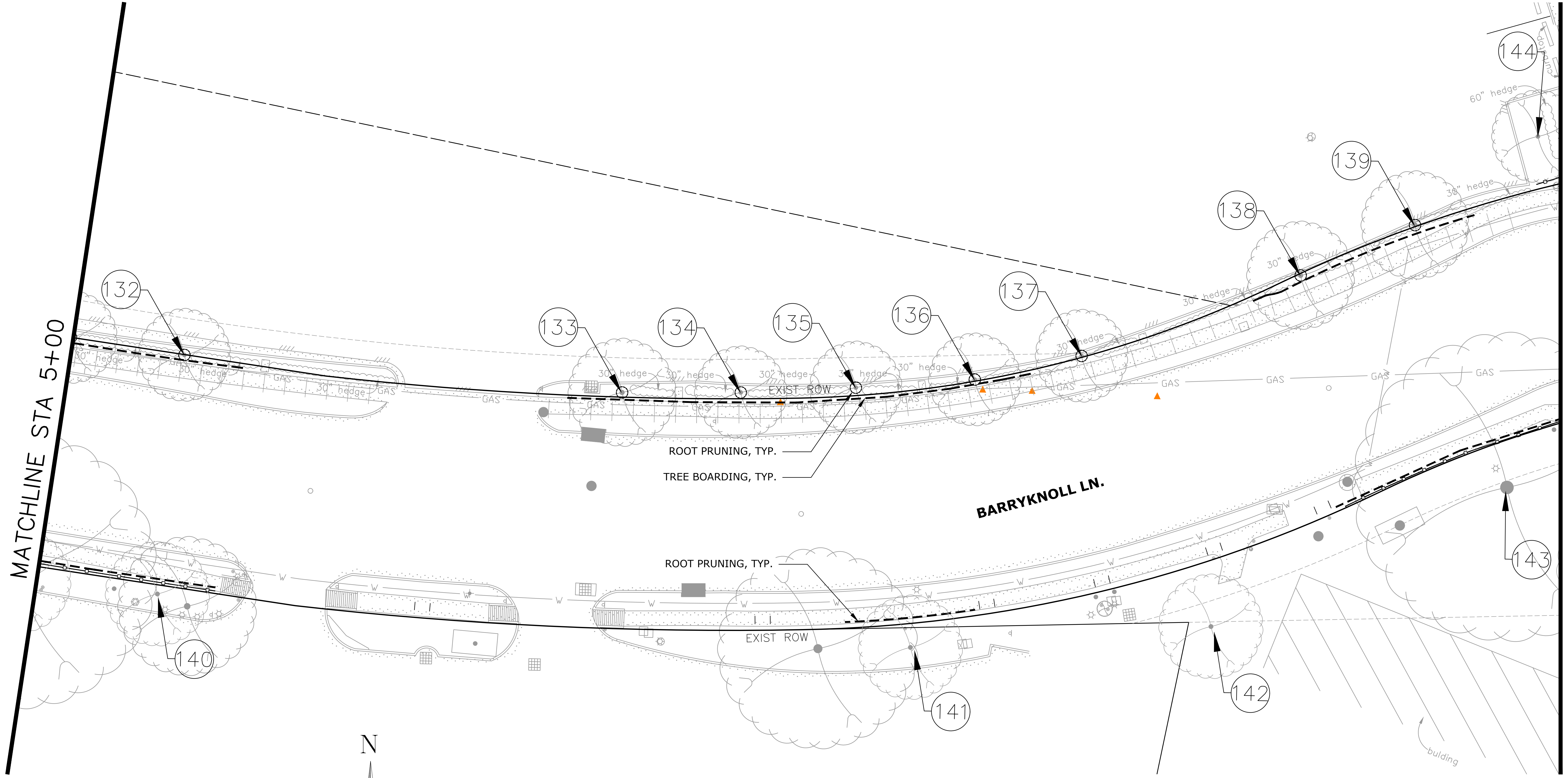
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

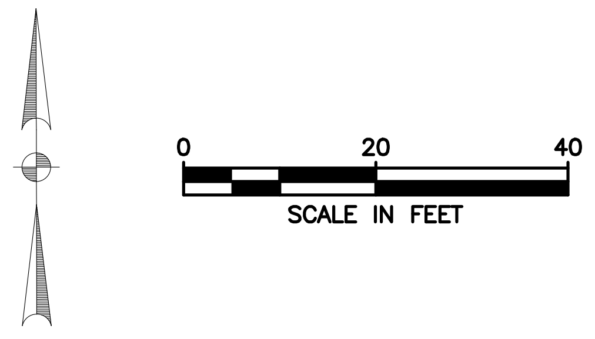
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 274 OF 345

No.	Date	Revisions	App.



144
60" hedge
139
36" hedge
138
30" hedge
137
30" hedge
136
30" hedge
135
30" hedge
134
30" hedge
133
30" hedge
132
30" hedge
GAS
EXIST ROW
ROOT PRUNING, TYP.
TREE BOARDING, TYP.
BARRYKNOLL LN.
MATCHLINE STA 5+00
MATCHLINE STA 9+00
143
ROOT PRUNING, TYP.
EXIST ROW
140
141
142
building



N
0
20
40
SCALE IN FEET

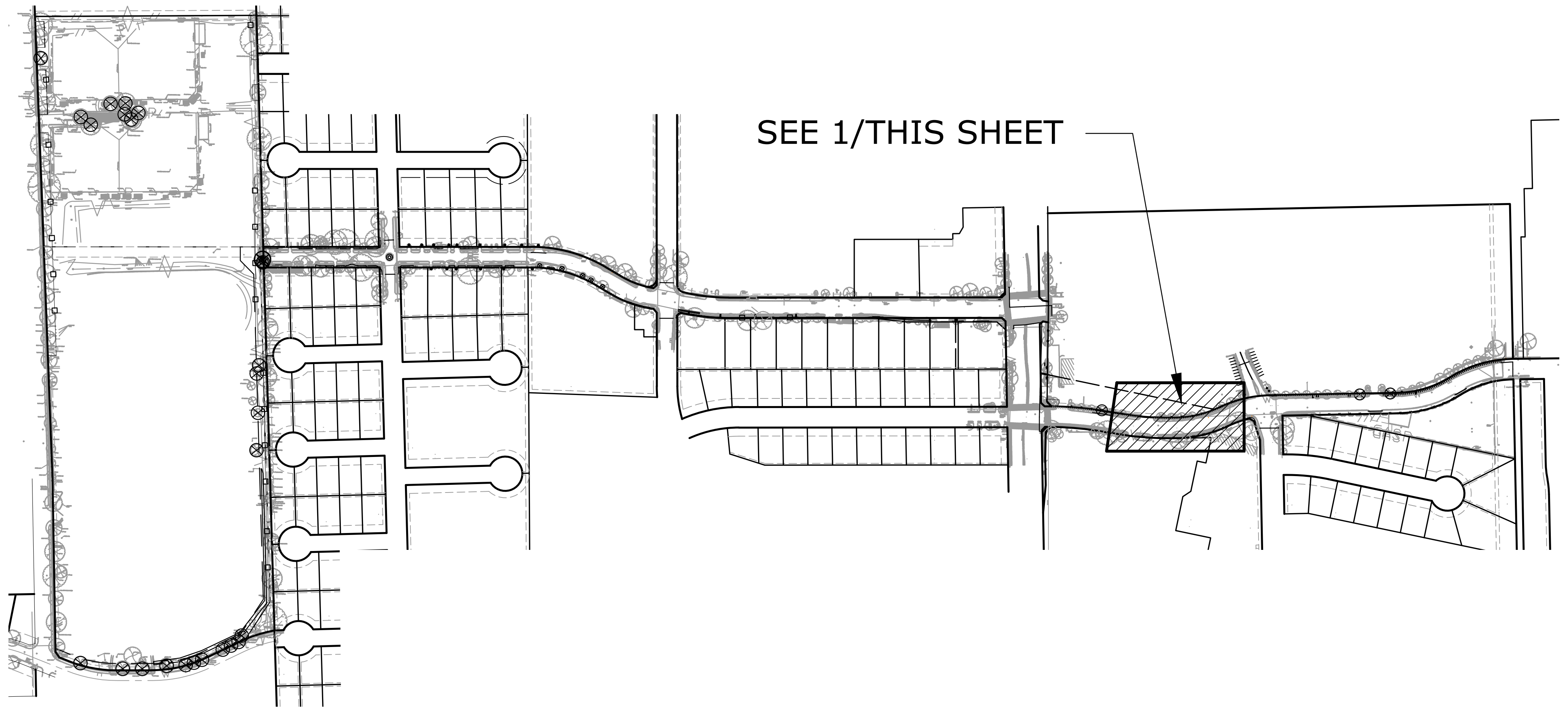
1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

○	EXISTING TREE TO REMAIN
⊗	EXISTING TREE TO BE REMOVED
▭	EXISTING SHRUB TO REMAIN
← (XX)	TREE NUMBER
—○—	TREE PROTECTION FENCING
-----	ROOT PRUNING
—·—·—	ZERO CURB CUT
○	TREE BOARDING
▨	CHECKER PLATE

KEY MAP



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1170
04.29.2026

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN

L1.14 BARRYKNOLL LANE
5+00 TO 9+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

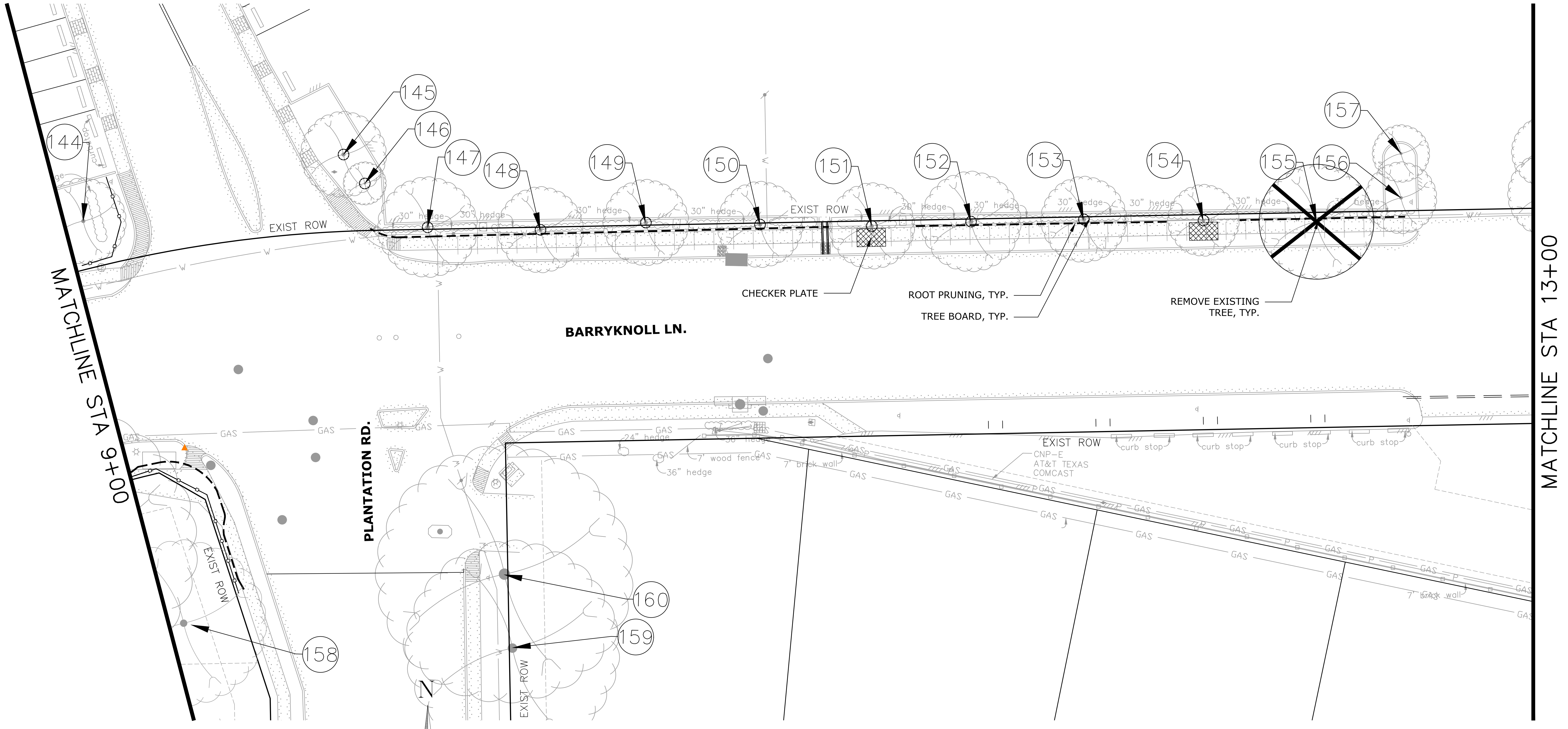
KEVIN HAMMOND, P.E.

SHEET NO. 275 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:59 PM by Joshua Driscoll

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:57 PM by Joshua Driscoll

No.	Date	Revisions	App.


144
145
146
147
148
149
150
151
152
153
154
155
156
157
158
159
160
EXIST ROW
30" hedge
EXIST ROW
CHECKER PLATE
ROOT PRUNING, TYP.
TREE BOARD, TYP.
REMOVE EXISTING TREE, TYP.
BARRYKNOLL LN.
PLANTATION RD.
MATCHLINE STA 9+00
MATCHLINE STA 13+00
GAS
24" hedge
36" hedge
7' wood fence
7' brick wall
EXIST ROW
CNP-E
AT&T TEXAS
COMCAST
curb stop
EXIST ROW
N

① **TREE PROTECTION PLAN**

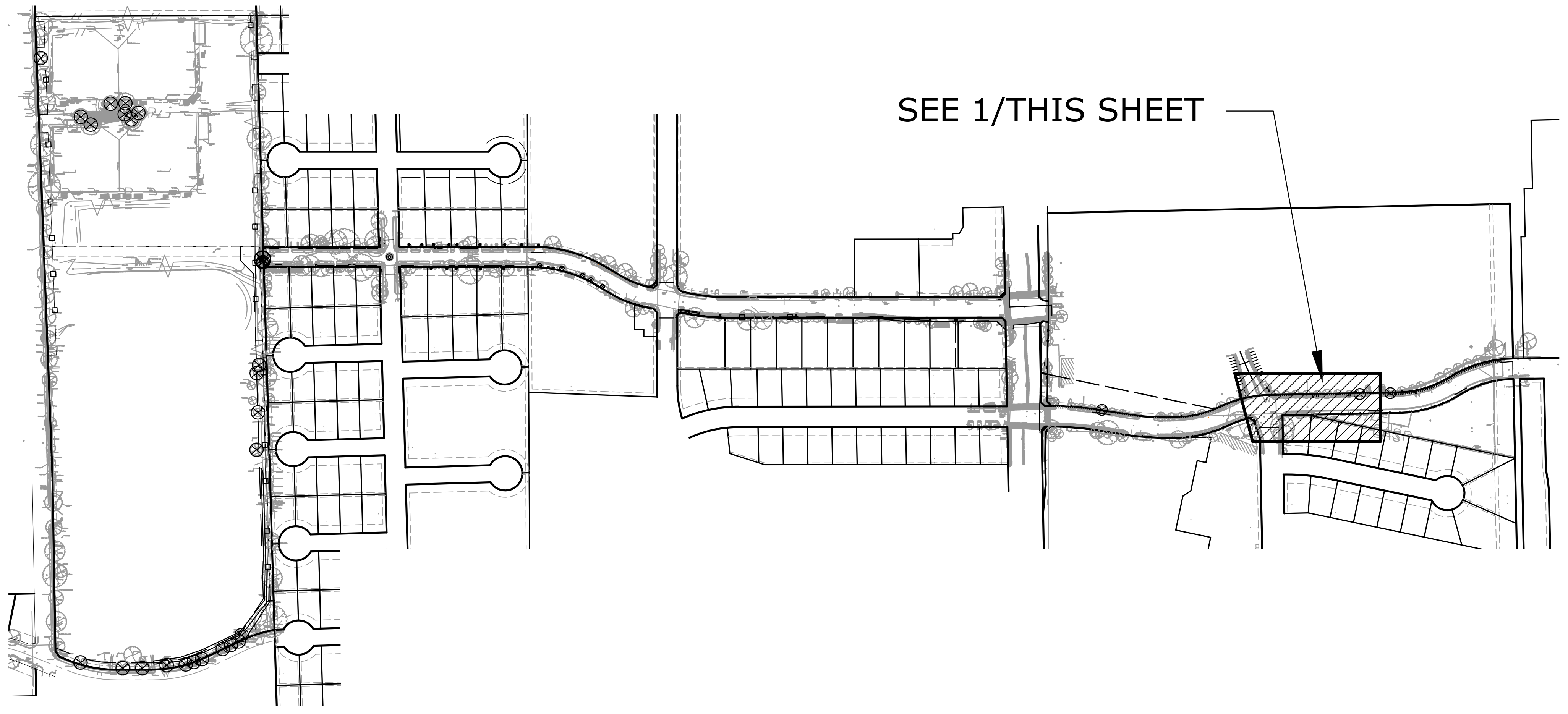
SCALE: 1"=20'-0"

0 20 40
SCALE IN FEET

LEGEND

- ◌ EXISTING TREE TO REMAIN
- ⊗ EXISTING TREE TO BE REMOVED
- ◌ EXISTING SHRUB TO REMAIN
- ← (XX) TREE NUMBER
- —○— TREE PROTECTION FENCING
- ----- ROOT PRUNING
- —·—·— ZERO CURB CUT
- ○ TREE BOARDING
- ▨ CHECKER PLATE

KEY MAP


SEE 1/THIS SHEET

ASAKURA
ROBINSON

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SURVEYED BY: UNITED ENGINEERS, INC.

KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN

L1.15
BARRYKNOLL LANE
9+00 TO 13+00

WBS NO. M-430296-0017-3

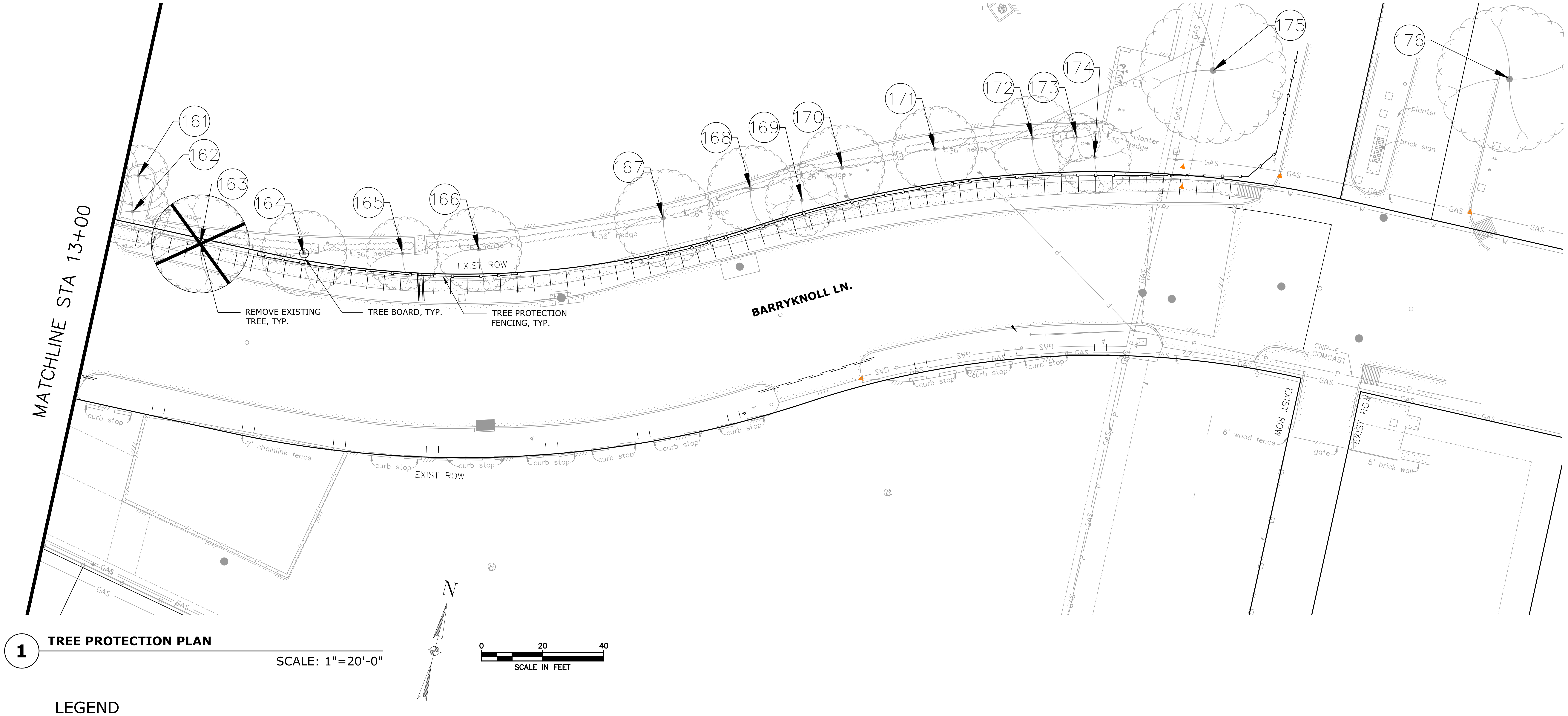
DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 276 OF 345


161
162
163
164
165
166
167
168
169
170
171
172
173
174
175
176
MATCHLINE STA 13+00
REMOVE EXISTING TREE, TYP.
TREE BOARD, TYP.
TREE PROTECTION FENCING, TYP.
BARRYKNOLL LN.
EXIST ROW
36" hedge
30" hedge
planter
brick sign
GAS
curb stop
7' chainlink fence
CNP-E COMCAST
6' wood fence
gate
5' brick wall
N
0
20
40
SCALE IN FEET

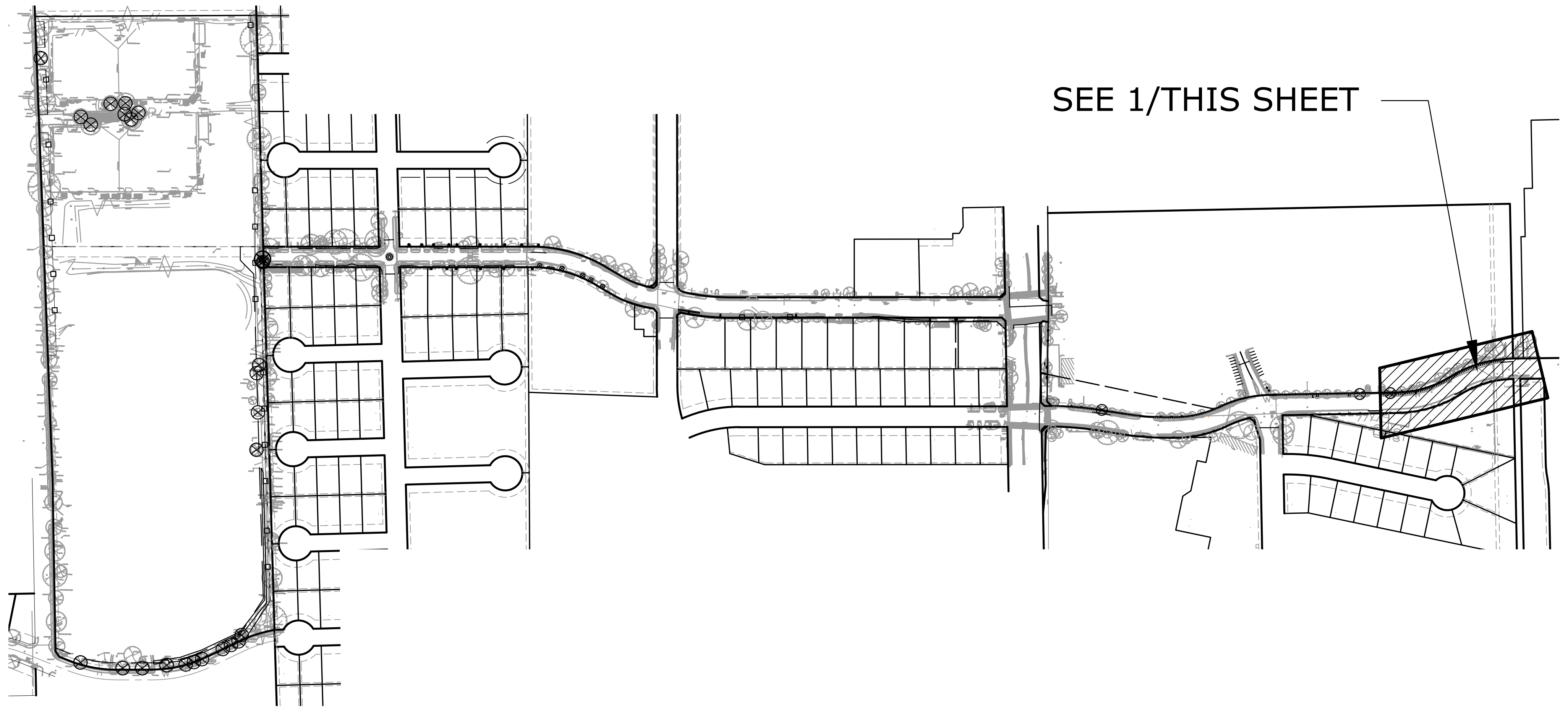
1 **TREE PROTECTION PLAN**

SCALE: 1"=20'-0"

LEGEND

○	EXISTING TREE TO REMAIN
⊗	EXISTING TREE TO BE REMOVED
⬭	EXISTING SHRUB TO REMAIN
← (XX)	TREE NUMBER
—o—o—	TREE PROTECTION FENCING
-----	ROOT PRUNING
—·—·—	ZERO CURB CUT
○	TREE BOARDING
▩	CHECKER PLATE

KEY MAP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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
TREE PROTECTION PLAN
L1.16
BARRYKNOLL LANE
STA 13+00 TO END

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 277 OF 345

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TREE MITIGATION CHART

TREE NO.	CALIPER INCHES	TREATMENT	SPECIES	LOCATION	COMMENTS	MITIGATION INCHES
1	18		Oak	Remove	Need agreement with ISD	18
2	24		Oak	Remove	Need agreement with ISD	24
3	4		Oak	Remove	Need agreement with ISD	4
4	4		Oak	Remove		4
5	16	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
6	10	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
7	6	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
8	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
9	10		Oak	Private		N/A
10	10		Oak	Private		N/A
11	24	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
11A	3	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
12	18	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
13	30	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
14	18	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
15	18	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
16	14	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
17	36	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
18	48	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
19	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
20	30	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
21	36	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
22	10	-	Oak	ROW		N/A
23	24		Oak	Remove	Need agreement with ISD	24
24	10		Oak	Remove	Need agreement with ISD	10
25	20		Oak	Remove	Need agreement with ISD	20
26	4	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
27	10	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
28	12	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
29	14	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
30	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
31	30	-	Crepe Myrtle	ROW		N/A
32	30	-	Crepe Myrtle	ROW		N/A
33	24	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
34	14	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
35	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
36	16	Root Pruning, Tree Protection Fencing	Pine	ROW		N/A
37	18	Root Pruning, Tree Protection Fencing	Pine	ROW		N/A
38	40	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
39	12	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
40	12	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
41	12	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
42	18	Root Pruning, Tree Protection Fencing	Pine	ROW		N/A
43	14	-	Crepe Myrtle	ROW		N/A
44	12	-	Crepe Myrtle	ROW		N/A
45	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
46	12	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
47	16	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
48	24	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
49	4	-	Oak	Private		N/A
50	4	-	Oak	Private		N/A
51	24		Oak	Private		N/A
52	12		Pine	Private		N/A
53	12	-	Magnolia	Private		N/A
54	18	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
55	14	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
56	24	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
57	40	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
58	12	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
59	6	Root Pruning, Tree Protection Fencing	Crepe Myrtle	ROW		N/A
60	18	Root Pruning, Tree Protection Fencing	Magnolia	ROW		N/A
61	24	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
62	24	Root Pruning, Tree Protection Fencing	Pine	Private		N/A
63	12	Root Pruning, Tree Protection Fencing	Pine	ROW		N/A
64	6	-	Oak	Private		N/A
65	12	Remove	Magnolia	ROW		12
66	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
67	13	Remove	Magnolia	ROW		13
68	18	-	Pine	Private		N/A
69	24	-	Pine	Private		N/A
70	12	-	Pine	Private		N/A
71	24	Root Pruning	Oak	Private		N/A
72	18	Root Pruning	Oak	Private		N/A
73	24	-	Oak	ROW		N/A
74	36	-	Oak	ROW		N/A
75	10	Remove	Magnolia	ROW		10
76	12	Remove	Magnolia	ROW		12
77	18	Remove	Oak	ROW		18
78	12	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
79	24	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
80	18	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
81	12	-	Oak	ROW		N/A
82	10	Root Pruning, Tree Protection Fencing	Magnolia	Private		N/A
83	30	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
84	6	-	Oak	Private		N/A
85	12	-	Oak	Private		N/A
86	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
87	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
88	30	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
88A	30	Root Pruning, Tree Protection Fencing	Oak	Private		N/A

TREE NO.	CALIPER INCHES	TREATMENT	SPECIES	LOCATION	COMMENTS	MITIGATION INCHES
94	20	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
95	24	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
96	14	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
97	12	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
98	10	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
99	8	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
100	10	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
101	8	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
102	10	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
103	12	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
104	10	Root Pruning, Tree Protection Fencing, Checker Plate	Oak	ROW		N/A
105	6	Root Pruning, Tree Protection Fencing	Oak	ROW		N/A
106	18	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
107	18	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
108	16	-	Bald Cypress	ROW		N/A
109	10	-	Crepe Myrtle	Private		N/A
110	18	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
111	18	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
112	18	Root Pruning, Tree Protection Fencing	Crepe Myrtle	Private		N/A
113	18	-	Bald Cypress	ROW		N/A
114	18	-	Oak	Private		N/A
115	14	Root Pruning	Bald Cypress	ROW		N/A
116	16	Root Pruning	Bald Cypress	ROW		N/A
117	16	Root Pruning	Bald Cypress	ROW		N/A
118	18	Root Pruning	Bald Cypress	ROW		N/A
119	14	Root Pruning, Tree Protection Fencing	Bald Cypress	Private		N/A
120	14	Root Pruning, Tree Protection Fencing	Bald Cypress	Private		N/A
121	14	Root Pruning, Tree Protection Fencing	Bald Cypress	Private		N/A
122	36	Root Pruning, Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
123	36	Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
124	36	Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
125	36	Root Pruning, Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
126	36	Root Pruning, Tree Protection Fencing	Oak	Private	Trees not included in original survey	N/A
127	12	Root Pruning, Tree Boarding	Holly	Private	Trees not included in original survey	N/A
128	12	Root Pruning, Tree Boarding	Holly	Private	Trees not included in original survey	N/A
129	12	Root Pruning, Tree Boarding	Holly	ROW		N/A
130	12	Remove	Holly	Private		N/A
131	12	Tree Boarding	Holly	ROW		N/A
132	12	Tree Boarding	Holly	ROW		N/A
133	14	Root Pruning, Tree Boarding	Holly	Private		N/A
134	12	Root Pruning, Tree Boarding	Holly	Private		N/A
135	12	Root Pruning, Tree Boarding	Holly	Private		N/A
136	12	Root Pruning, Tree Boarding	Holly	Private		N/A
137	12	Tree Boarding	Holly	ROW		N/A
138	14	Tree Boarding	Holly	ROW		N/A
139	14	Tree Boarding	Holly	Private		N/A
140	36	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
141	36	Root Pruning	Oak	Private		N/A
142	36	-	Oak	Private		N/A
143	40	Root Pruning, Tree Protection Fencing	Oak	Private		N/A
144	12	Tree Protection Fencing	Crepe Myrtle	Private		N/A
145	12	Tree Boarding	Crepe Myrtle	Private		N/A
146	6	Tree Boarding	Crepe Myrtle	Private		N/A
147	14	Root Pruning, Tree Boarding	Holly	Private		N/A
148	12	Root Pruning, Tree Boarding	Holly	ROW		N/A
149	12	Root Pruning, Tree Boarding	Holly	Private		N/A
150	12	Root Pruning, Tree Boarding	Holly	ROW		N/A
151	12	Root Pruning, Tree Boarding, Checker Plate	Holly	ROW		N/A
152	14	Root Pruning, Tree Boarding	Holly	ROW		N/A
153	12	Root Pruning, Tree Boarding	Holly	ROW		N/A
154	10	Root Pruning, Tree Boarding, Checker Plate	Holly	ROW		N/A
155	16	Remove	Holly	ROW		16
156	10	-	Crepe Myrtle	Private		N/A
157	8	-	Crepe Myrtle	Private		N/A
158	36	-	Oak	Private		N/A
159	30	-	Oak	Private		N/A
160	36	-	Oak	ROW		N/A
161	10	-	Crepe Myrtle	Private		N/A
162	12	-	Crepe Myrtle	Private		N/A
163	16	Remove	Holly	ROW		16
164	14	Tree Protection Fencing, Tree Boarding	Holly	Private		N/A
165	12	Tree Protection Fencing	Holly	Private		N/A
166	14	Tree Protection Fencing	Holly	Private		N/A
167	16	Tree Protection Fencing	Holly	Private		N/A
168	14	Tree Protection Fencing	Holly	Private		N/A
169	12	Tree Protection Fencing	Holly	Private		N/A
170	14	Tree Protection Fencing	Holly	Private		N/A
171	14	Tree Protection Fencing	Holly	Private		N/A
172	14	Tree Protection Fencing	Holly	Private		N/A
173	8	Tree Protection Fencing	Crepe Myrtle	Private		N/A
174	12	Tree Protection Fencing	Holly	Private		N/A
175	24	Tree Protection Fencing	Magnolia	Private		N/A
176	24	-	Magnolia	Private		N/A
177	36	Tree Protection Fencing	Oak	ROW		N/A
178	24	Tree Protection Fencing	Oak	ROW		N/A
179	30	Remove	Oak	ROW		30
180	30	Tree Protection Fencing	Oak	ROW		N/A
181	40	Tree Protection Fencing	Oak	ROW		N/A
182	36	Tree Protection Fencing	Oak	ROW		N/A
183	24	Tree Protection Fencing	Oak	ROW		N/A
184	48	Tree Protection Fencing	Oak	ROW		N/A
185	24	Tree Protection Fencing	Oak	ROW		N/A
186	18	Tree Protection Fencing	Oak	ROW		N/A
187	20	Tree Protection Fencing	Oak	ROW		N/A
188	28	Tree Protection Fencing	Oak	ROW		N/A
189	22	Tree Protection Fencing	Oak	ROW		N/A
190	24	Tree Protection Fencing	Oak	ROW		N/A
191	22	Tree Protection Fencing	Oak	ROW		N/A
192	24	Remove	Oak	Private		N/A
193	30	Remove	Oak	Private		N/A
194	24	Remove	Oak	Private		N/A
195	30	Remove	Oak	Private		N/A
196	24	Remove	Oak	Private		N/A
197	24	Remove	Oak	Private		N/A
198	30	Remove	Oak	Private		N/A

TREE NO.	CALIPER INCHES	TREATMENT	SPECIES	LOCATION	COMMENTS	MITIGATION INCHES
199	18	Remove	Oak	Private		N/A
200	10	Remove	Oak	Private		N/A
201	12	Remove	Magnolia	Private		N/A
202	12	Remove	Magnolia	Private		N/A
203	12	Remove	Oak	Private		N/A
204	18	Remove	Oak	Private		N/A
205	12	Remove	Oak	ROW		12
206	8	Remove	Oak	ROW		8
207	12	Remove	Oak	ROW		12
208	14	Remove	Oak	ROW		14
209	14	Remove	Oak	ROW		14
210	14	Remove	Oak	ROW		14
211	8	Remove	Oak	ROW		8
212	22	Remove	Oak	ROW		22
213	22	Remove	Oak	ROW		22
214	22	Remove	Oak	ROW		22
215	20	Remove	Oak	ROW		20
					TOTAL MITIGATION REQUIRED	399

TREE PROTECTION NOTES :

1. IT IS CRUCIAL THAT TREE PROTECTION FENCES MUST BE ERECTED PRIOR TO THE BEGINNING OF ANY SITE DEMOLITION.
2. THE TREE PROTECTION FENCE SHALL BE T-POSTS AT 8'-0" O.C. W/ 4' HT. BRIGHT ORANGE, LIGHT WEIGHT, REUSABLE MESH SAFETY FENCING MADE OF HIGH DENSITY POLYETHYLENE WITH 1 1/2" X 3" SIZE MESH OR SIMILAR MATERIAL.
3. PROTECTION FENCE SHALL BE PLACED AROUND CRITICAL ROOT ZONE OF ALL TREES TO REMAIN. IN LOCATIONS SHOWN ON TREE PROTECTION PLANS. UNDER NO CIRCUMSTANCES SHALL FENCING BE DRAPED AROUND TREES OR AFFIXED TO TREE TRUNKS.
4. UNDER NO CIRCUMSTANCES, SHOULD A CONTRACTOR DRIVE OR PARK MACHINERY ON TREE ROOTS OR UNDER THE DRIPLINE.
5. AVOID DISTURBING ROOTS IN CRITICAL ROOT ZONE. IF ROOT CUTTING IS NECESSARY OR ANY ROOTS ARE DAMAGED, THEY SHALL BE CUT CLEANLY WITH THE APPROPRIATE PRUNING SHEARS OR PRUNING SAWS A FEW INCHES ON THE SIDE CLOSER TO THE TRUNK. ANY EXPOSED OR PRUNED TREE ROOTS MUST BE COVERED IMMEDIATELY WITH DIRT AND MULCH TO PREVENT ROOTS FROM DRYING OUT.
6. NO STORAGE OR CONCRETE DUMPING IS PERMITTED ON TREE ROOTS AND/OR UNDER DRIPLINE.
7. NO BUILDING MATERIALS ARE TO BE STACKED OR STOCKPILED WITHIN THE DRIPLINE OR WITHIN 6 FEET OF ANY TREE TO BE PRESERVED, WHICHEVER DISTANCE IS GREATER.
8. TOPSOIL SHALL NOT BE STOCKPILED WITHIN THE DRIP LINE OR WITHIN 6 FEET OF ANY TREE TO BE PRESERVED, WHICHEVER DISTANCE IS GREATER.
9. TREE BOARDING SHALL BE USED AS SHOWN ON PLAN AND IF WORK IS REQUIRED WITHIN FENCING.
10. ANY UNDERSTORY CLEARING WITHIN SIX FEET OF EXISTING TREE TRUNKS SHOULD BE DONE BY HAND.
11. CONTRACTORS ARE REQUIRED TO HIRE A CERTIFIED ARBORIST TO MONITOR AND ASSIST WITH FIELD LAYOUT (EXACT LOCATIONS OF FENCING, ROOT PRUNING, AND ZERO CURB CUTBACK) OF THE TREE PRESERVATION PROGRAM DURING DEMOLITION AND CONSTRUCTION TO ENSURE TREE PROTECTION PROCEDURES AND TECHNIQUES ARE PRACTICED AS SPECIFIED TO ADDRESS CONCERNS AND CONDITIONS WHICH OCCUR IN THE FIELD. AT A MINIMUM, THE INDIVIDUAL RESPONSIBLE FOR MONITORING AND FIELD LAYOUT OF THE TREE PROTECTION SHALL HAVE A MINIMUM OF 5 YEARS OF EXPERIENCE AS A CONSULTANT, AND SHALL NOT BE AFFILIATED WITH A TREE CARE CONTRACTOR IN THE HARRIS COUNTY AREA. QUALIFICATIONS OF THE SELECTED CERTIFIED ARBORIST SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT.
12. ROOT PRUNING CUT LIMITS SHOWN ON PLANS ARE APPROXIMATE, AND WILL NEED TO FIELD VERIFIED ONCE ROOTS ARE VISIBLE. ALL ROOT PRUNING OVER 1" IN DIAMETER SHALL BE DONE UNDER APPROVAL FROM CITY FORESTER AND PROJECT ARBORIST.

TREE MITIGATION CALCULATION :

• CATHEDRAL LIVE OAK:	27 EA X 4" =	108" TOTAL
• CEDAR ELM:	20 EA X 4" =	80" TOTAL
• REDBUD:	74 EA X 2" =	148" TOTAL
• DAHOON HOLLY:	32 EA X 2" =	64" TOTAL
MITIGATION PROVIDED: (TOTAL INCHES)		**400"**

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MEMORIAL CITY AREA DETENTION BASIN
TREE CHART

L1.17

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 278 OF 345

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No.	Date	Revisions	App.

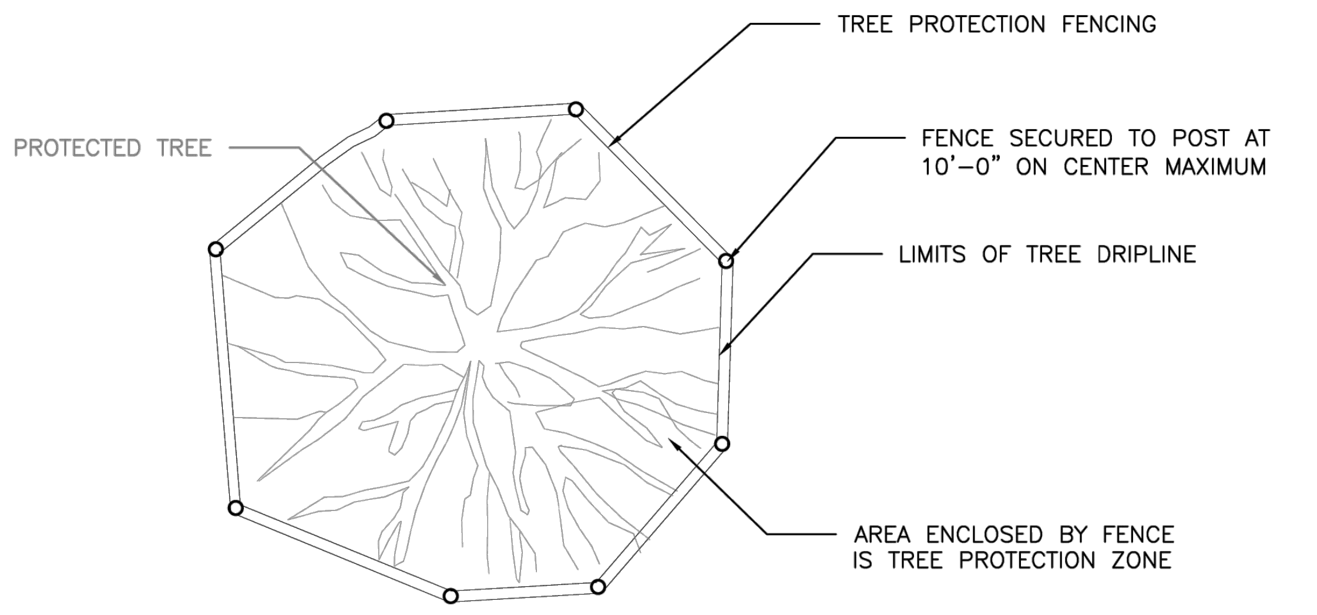
j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:48 PM by Joshua Driscoll

1 TREE PROTECTION GENERAL REQUIREMENTS

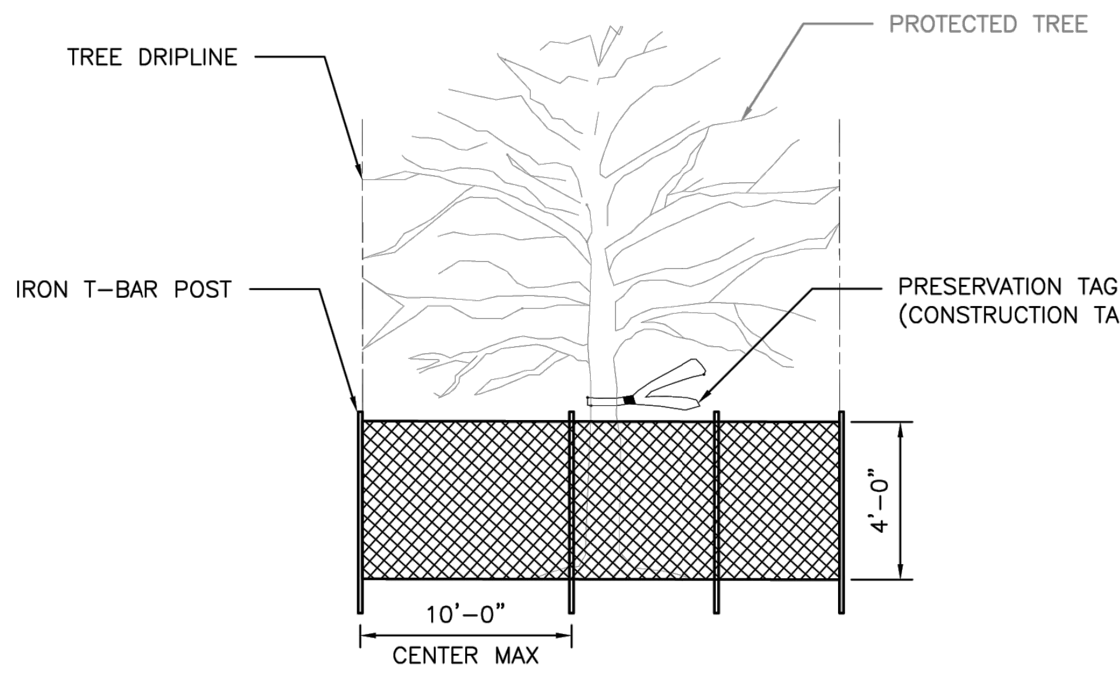
SCALE: N.T.S.

NOTES:

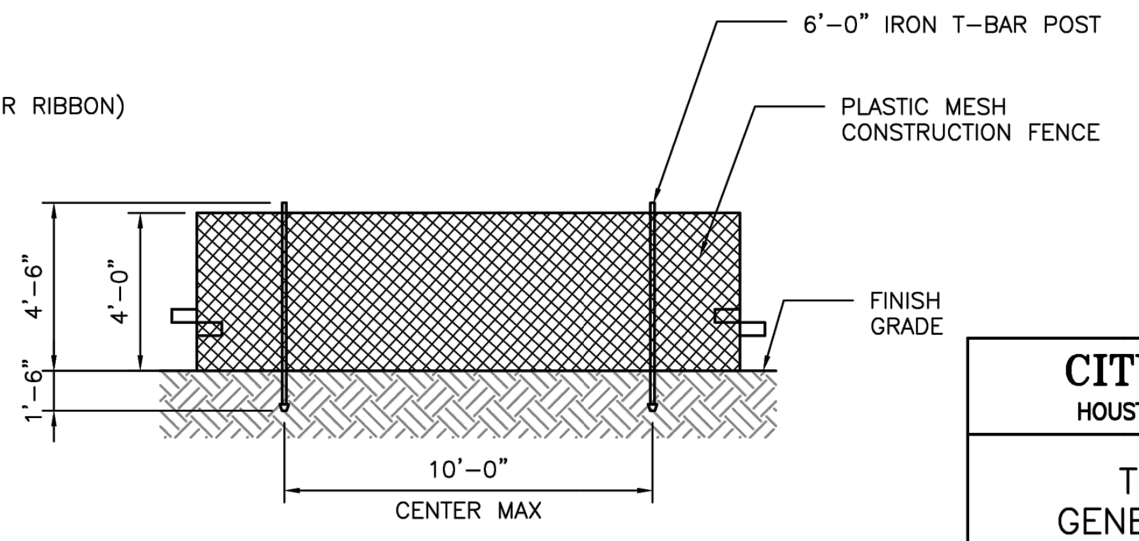
FENCE LOCATION MAY BE ADJUSTED TO ACTUAL SITE CONDITIONS.


PROTECTED TREE
TREE PROTECTION FENCING
FENCE SECURED TO POST AT 10'-0" ON CENTER MAXIMUM
LIMITS OF TREE DRIPLINE
AREA ENCLOSED BY FENCE IS TREE PROTECTION ZONE

PLAN VIEW
TREE PROTECTION FENCING DETAIL


TREE DRIPLINE
PROTECTED TREE
IRON T-BAR POST
PRESERVATION TAG (CONSTRUCTION TAPE OR RIBBON)
4'-0"
10'-0"
CENTER MAX

FRONT VIEW
TREE PROTECTION FENCING DETAIL


6'-0" IRON T-BAR POST
PLASTIC MESH CONSTRUCTION FENCE
FINISH GRADE
4'-6"
4'-0"
1'-6"
10'-0"
CENTER MAX

DETAIL B-4
PROTECTIVE PLASTIC MESH FENCE

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.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION
GENERAL REQUIREMENTS
(SCALE: NOT TO SCALE)

APPROVED BY:

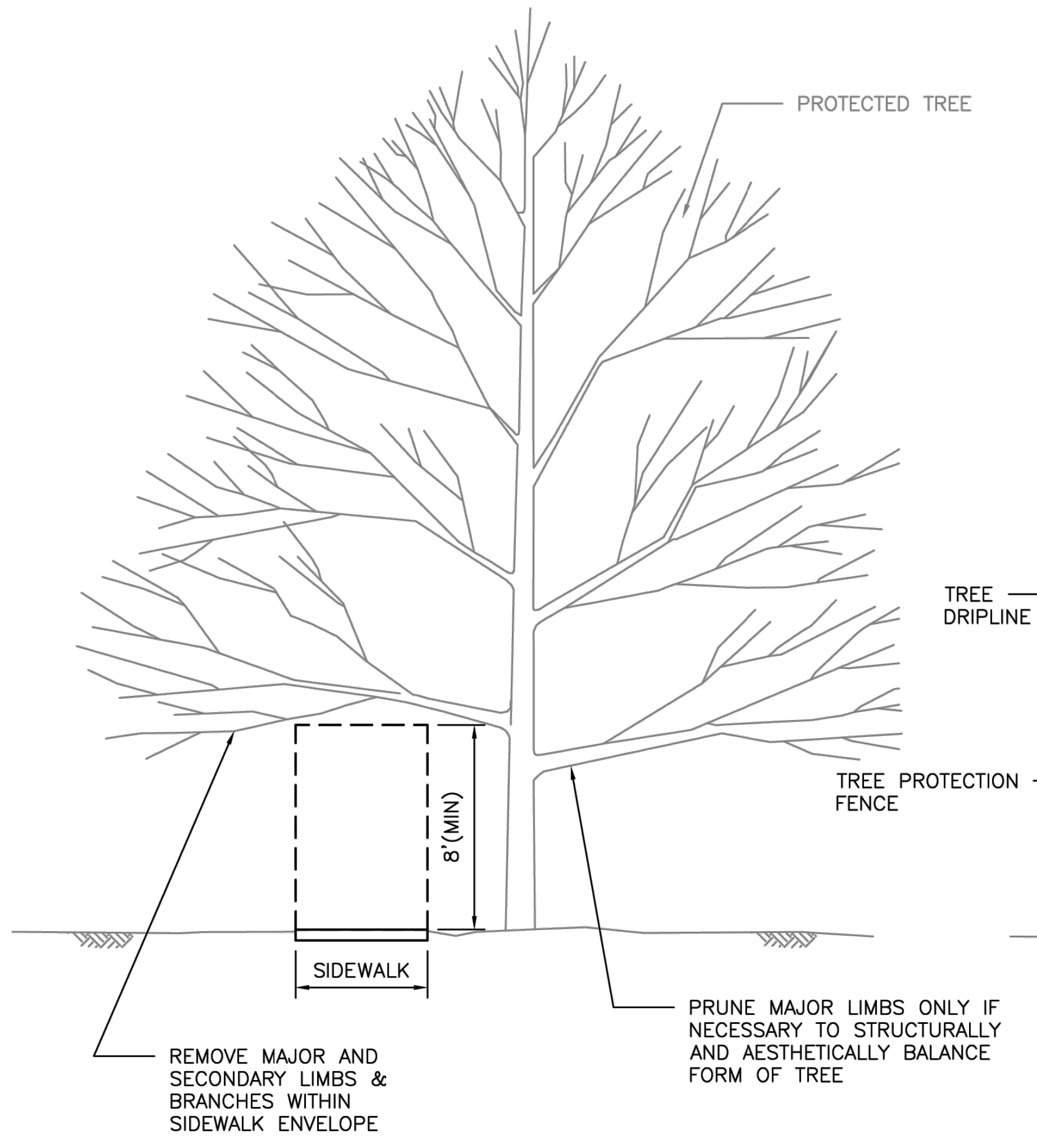
DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: Carol Haddock A93C410B72B3453...
CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV-27-2023	DWG NO: 01562-01

2 TREE PROTECTION ROOT PRUNING

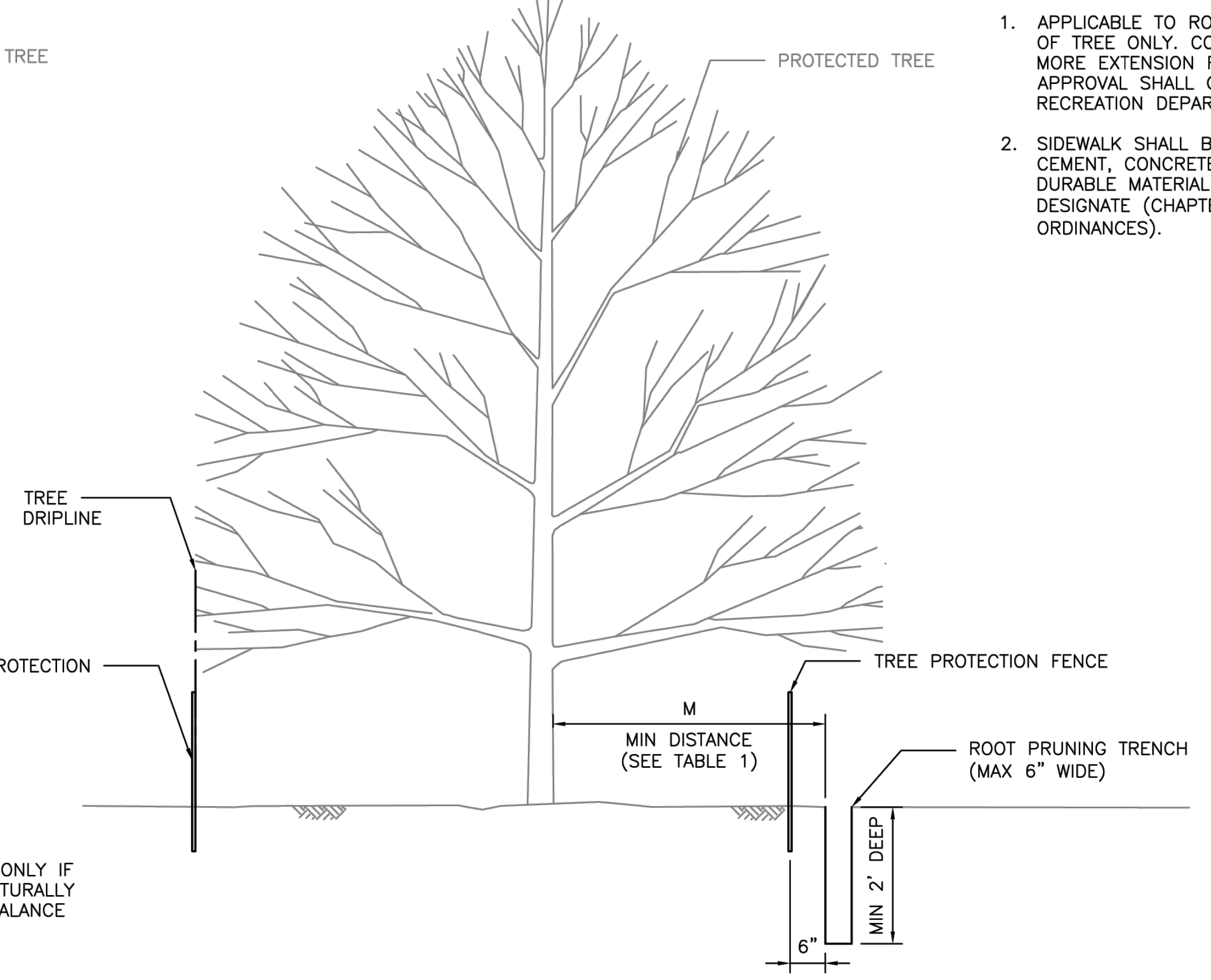
SCALE: N.T.S.

ROOT PRUNING NOTE:

1. APPLICABLE TO ROOT PRUNING ON ONE SIDE OF TREE ONLY. CONSULT CITY ARBORIST FOR MORE EXTENSION ROOT PRUNING. FINAL APPROVAL SHALL COME FROM PARKS AND RECREATION DEPARTMENT.
2. SIDEWALK SHALL BE CONSTRUCTED OF EITHER CEMENT, CONCRETE, ASPHALT OR OTHER DURABLE MATERIAL AS THE COUNCIL MAY DESIGNATE (CHAPTER 40-91, CODE OF ORDINANCES).


PROTECTED TREE
8' (MIN)
SIDEWALK
REMOVE MAJOR AND SECONDARY LIMBS & BRANCHES WITHIN SIDEWALK ENVELOPE
PRUNE MAJOR LIMBS ONLY IF NECESSARY TO STRUCTURALLY AND AESTHETICALLY BALANCE FORM OF TREE

TREE PRUNING


PROTECTED TREE
TREE DRIPLINE
TREE PROTECTION FENCE
TREE PROTECTION FENCE
M
MIN DISTANCE (SEE TABLE 1)
ROOT PRUNING TRENCH (MAX 6" WIDE)
MIN 2' DEEP
6"

ROOT PRUNING DETAIL

TABLE 1
"M" DISTANCE TABLE

TREE TRUNK DIA. (IN)	*MINIMUM DISTANCE 'M'
< 6"	3 FEET
6" ≤ DIA. ≤ 20"	0.75 FEET PER DIA.-INCH
> 20"	CONSULT CITY ARBORIST

*MINIMUM DISTANCE FROM TREE TRUNK TO EDGE OF TRENCH

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CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION
TREE AND ROOT PRUNING
(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: Carol Haddock A93C410B72B3453...
CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV-27-2023	DWG NO: 01562-02

3 TREE PROTECTION IN SIDEWALK REPAIRS

SCALE: N.T.S.

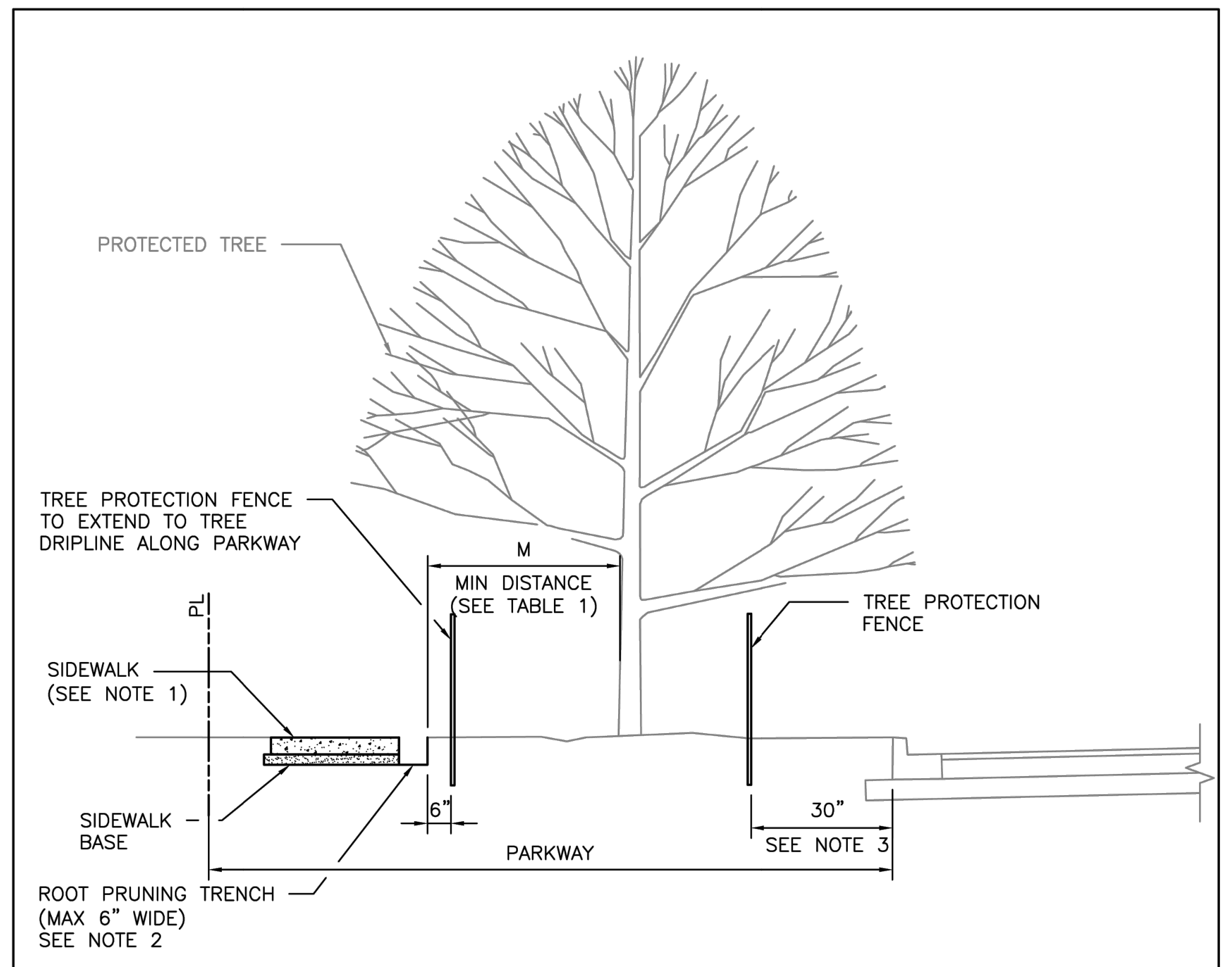
PROTECTED TREE
TREE PROTECTION FENCE TO EXTEND TO TREE DRIPLINE ALONG PARKWAY
M
MIN DISTANCE (SEE TABLE 1)
TREE PROTECTION FENCE
PL
SIDEWALK (SEE NOTE 1)
SIDEWALK BASE
6"
30"
SEE NOTE 3
PARKWAY
ROOT PRUNING TRENCH (MAX 6" WIDE) SEE NOTE 2

TABLE 1
"M" DISTANCE TABLE

TREE TRUNK DIA. (IN)	*MINIMUM DISTANCE 'M'
< 6"	3 FEET
6" ≤ DIA. ≤ 20"	0.75 FEET PER DIA.-INCH
> 20"	CONSULT CITY ARBORIST

*MINIMUM DISTANCE FROM TREE TRUNK TO EDGE OF TRENCH

NOTES:

1. SIDEWALK SHALL BE CONSTRUCTED OF EITHER CEMENT, CONCRETE, ASPHALT OR OTHER DURABLE MATERIAL AS THE COUNCIL MAY DESIGNATE (CHAPTER 40-91, CODE OF ORDINANCES).
2. TRENCHING DEPTH SHALL BE TO THE ANTICIPATED BOTTOM OF SIDEWALK AND BASE MATERIAL FOR SIDEWALK ROOT PRUNING, ROOTS LOWER THAN SIDEWALK SHALL NOT BE PRUNED.
3. FENCES SHALL BE PLACED 30" BACK OF EXISTING CURB OR EDGE OF PAVEMENT WHERE ROOT PRUNING OR ZERO CURB CUT BACK IS NOT SPECIFIED.

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APPROVED BY:

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CITY ENGINEER	DIRECTOR OF HPW

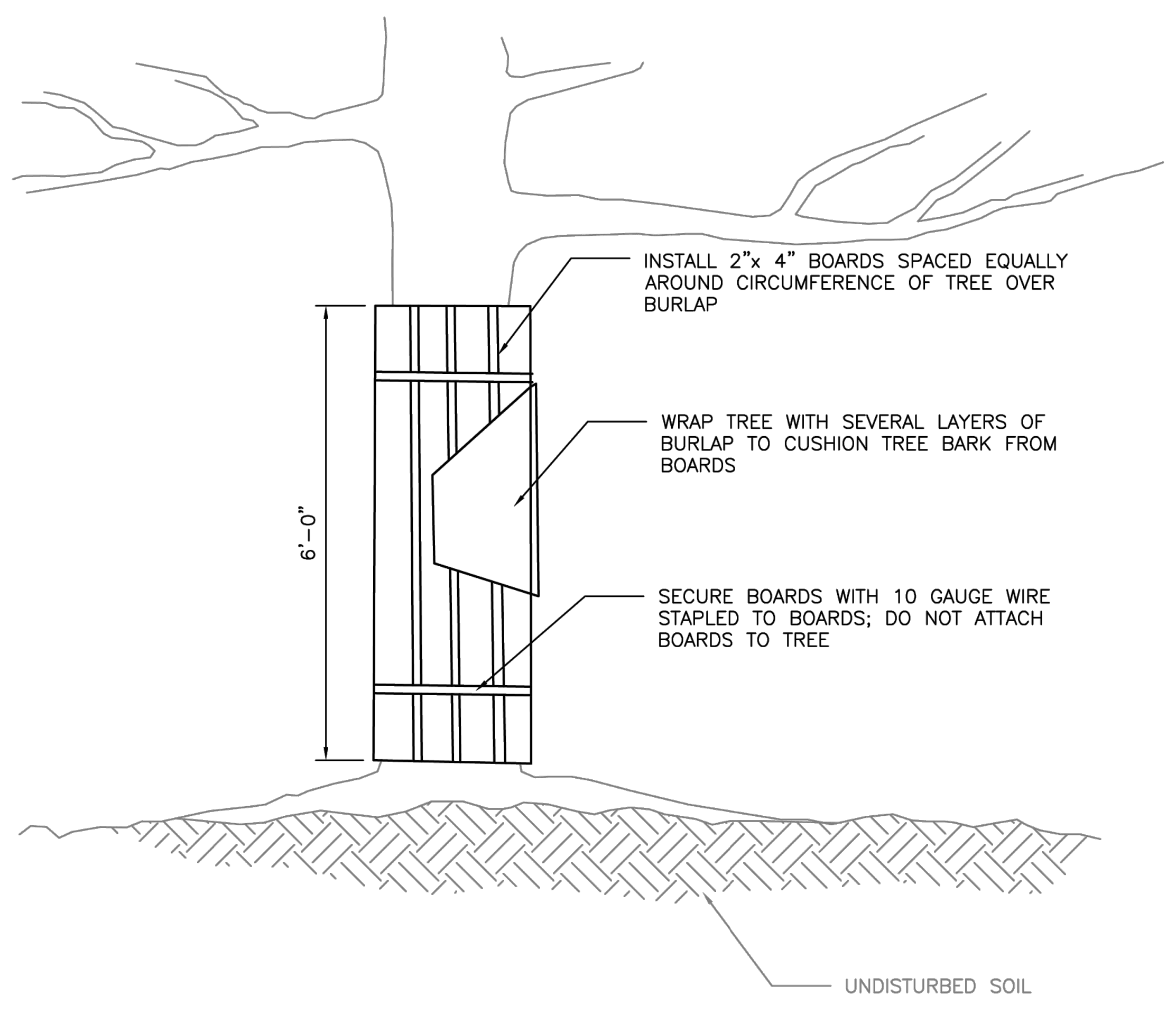
CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE PROTECTION/
IN SIDEWALK REPAIRS
IN PARKWAY AREAS
(SCALE: NOT TO SCALE)

EFF DATE: NOV-27-2023 | DWG NO: 01562-03

4 TREE BOARDING

SCALE: N.T.S.


INSTALL 2"x 4" BOARDS SPACED EQUALLY AROUND CIRCUMFERENCE OF TREE OVER BURLAP
WRAP TREE WITH SEVERAL LAYERS OF BURLAP TO CUSHION TREE BARK FROM BOARDS
SECURE BOARDS WITH 10 GAUGE WIRE STAPLED TO BOARDS; DO NOT ATTACH BOARDS TO TREE
6'-0"
UNDISTURBED SOIL

ELEVATION

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.

APPROVED BY:

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CITY ENGINEER	DIRECTOR OF HPW

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

TREE BOARDING
(SCALE: NOT TO SCALE)

EFF DATE: NOV-27-2023 | DWG NO: 01562-07

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SURVEYED BY: UNITED ENGINEERS, INC.

KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
TREE DETAILS

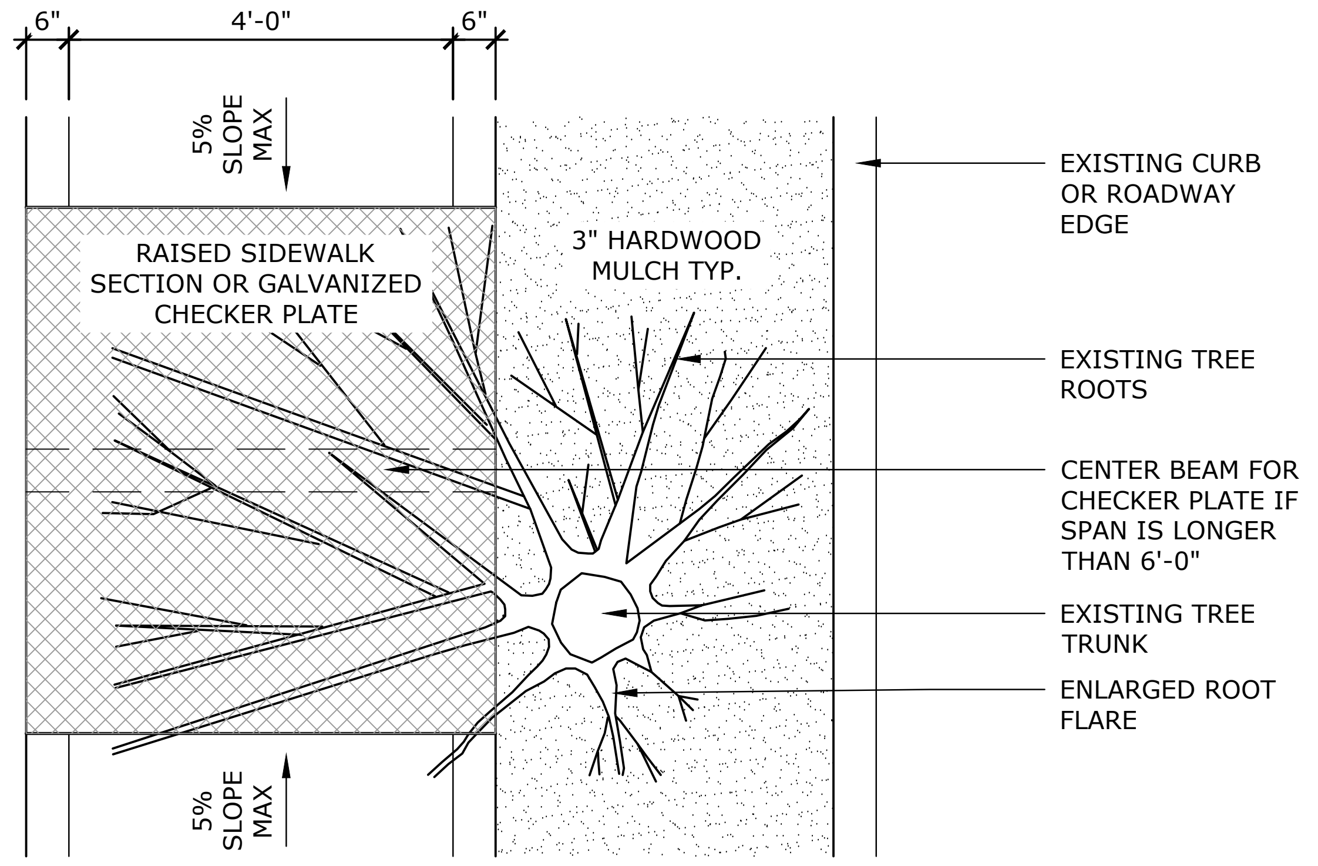
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 279 OF 345

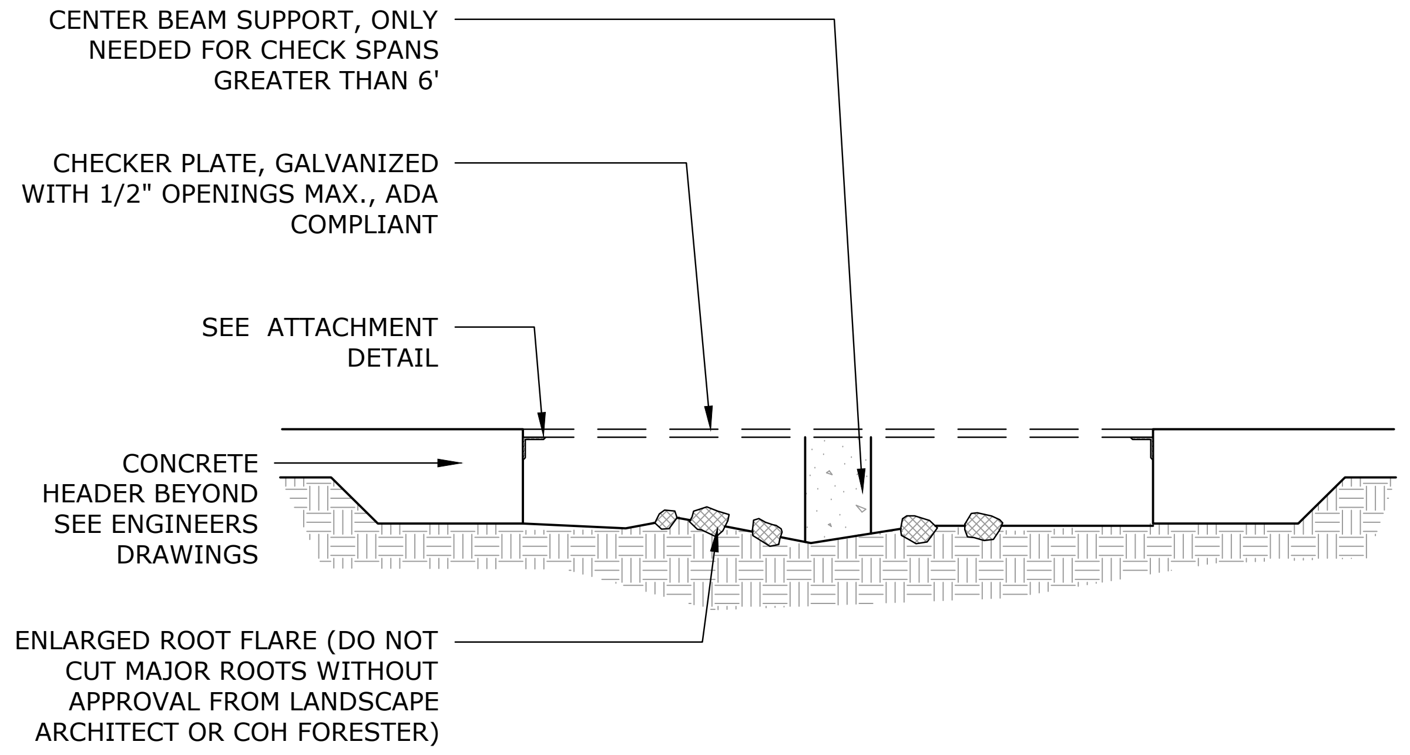
No.	Date	Revisions	App.



6"
4'-0"
6"
5% SLOPE MAX
RAISED SIDEWALK SECTION OR GALVANIZED CHECKER PLATE
3" HARDWOOD MULCH TYP.
EXISTING CURB OR ROADWAY EDGE
EXISTING TREE ROOTS
CENTER BEAM FOR CHECKER PLATE IF SPAN IS LONGER THAN 6'-0"
EXISTING TREE TRUNK
ENLARGED ROOT FLARE
5% SLOPE MAX

1 ROOT FLARE AT SIDEWALK INSTALLATION DETAIL

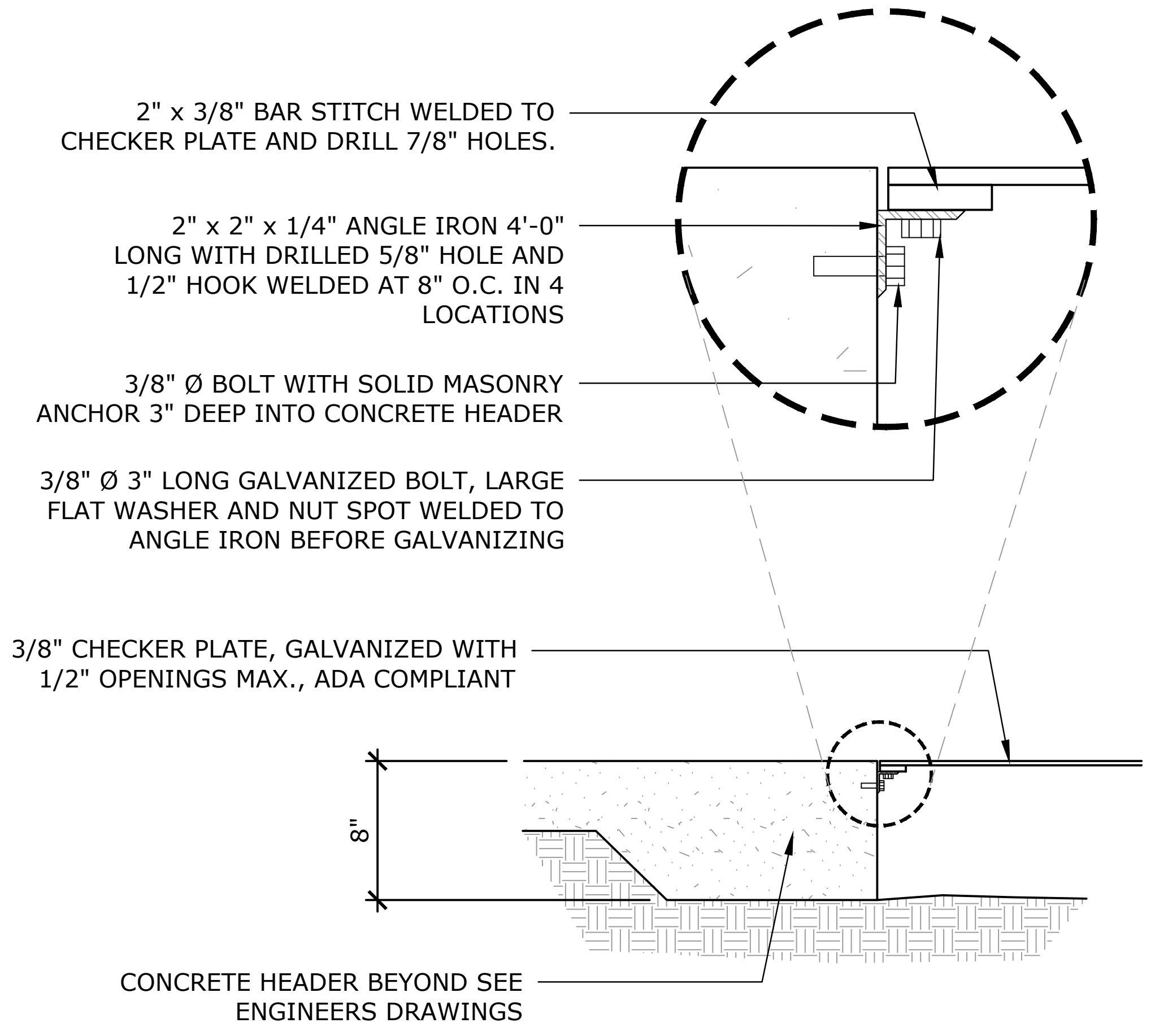
SCALE: 1/2" = 1'-0"



CENTER BEAM SUPPORT, ONLY NEEDED FOR CHECK SPANS GREATER THAN 6'
CHECKER PLATE, GALVANIZED WITH 1/2" OPENINGS MAX., ADA COMPLIANT
SEE ATTACHMENT DETAIL
CONCRETE HEADER BEYOND SEE ENGINEERS DRAWINGS
ENLARGED ROOT FLARE (DO NOT CUT MAJOR ROOTS WITHOUT APPROVAL FROM LANDSCAPE ARCHITECT OR COH FORESTER)

2 CENTER BEAM ATTACHMENT AT SIDEWALK

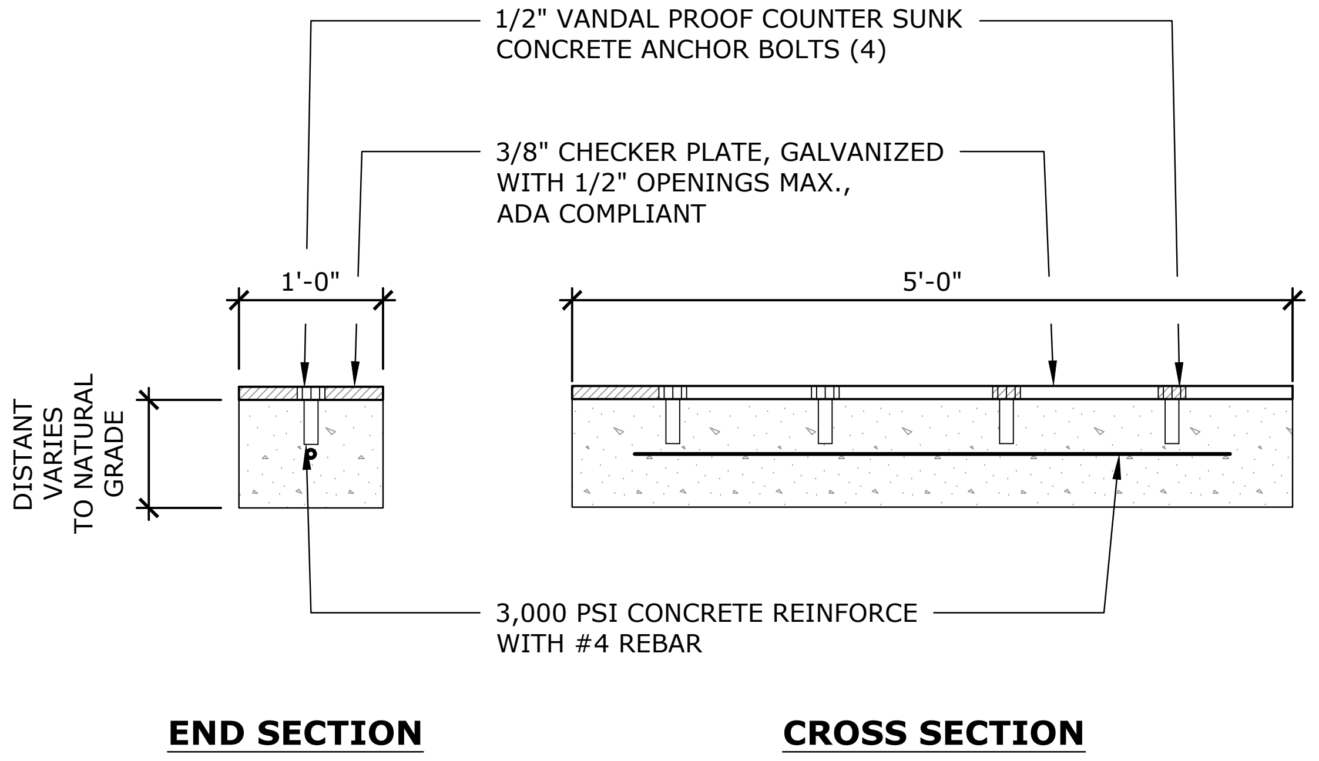
SCALE: 3/4" = 1'-0"



2" x 3/8" BAR STITCH WELDED TO CHECKER PLATE AND DRILL 7/8" HOLES.
2" x 2" x 1/4" ANGLE IRON 4'-0" LONG WITH DRILLED 5/8" HOLE AND 1/2" HOOK WELDED AT 8" O.C. IN 4 LOCATIONS
3/8" Ø BOLT WITH SOLID MASONRY ANCHOR 3" DEEP INTO CONCRETE HEADER
3/8" Ø 3" LONG GALVANIZED BOLT, LARGE FLAT WASHER AND NUT SPOT WELDED TO ANGLE IRON BEFORE GALVANIZING
3/8" CHECKER PLATE, GALVANIZED WITH 1/2" OPENINGS MAX., ADA COMPLIANT
8"
CONCRETE HEADER BEYOND SEE ENGINEERS DRAWINGS

3 CHECKER PLATE ATTACHMENT DETAIL

SCALE: 3/4" = 1'-0"



1/2" VANDAL PROOF COUNTER SUNK CONCRETE ANCHOR BOLTS (4)
3/8" CHECKER PLATE, GALVANIZED WITH 1/2" OPENINGS MAX., ADA COMPLIANT
1'-0"
5'-0"
DISTANT VARIES TO NATURAL GRADE
3,000 PSI CONCRETE REINFORCE WITH #4 REBAR
END SECTION
CROSS SECTION

4 CHECKER PLATE CENTER BEAM SUPPORT

SCALE: 3/4" = 1'-0"

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\tree preservation plan.dwg Plotted August 3, 2026 at 2:54 PM by Joshua Driscoll

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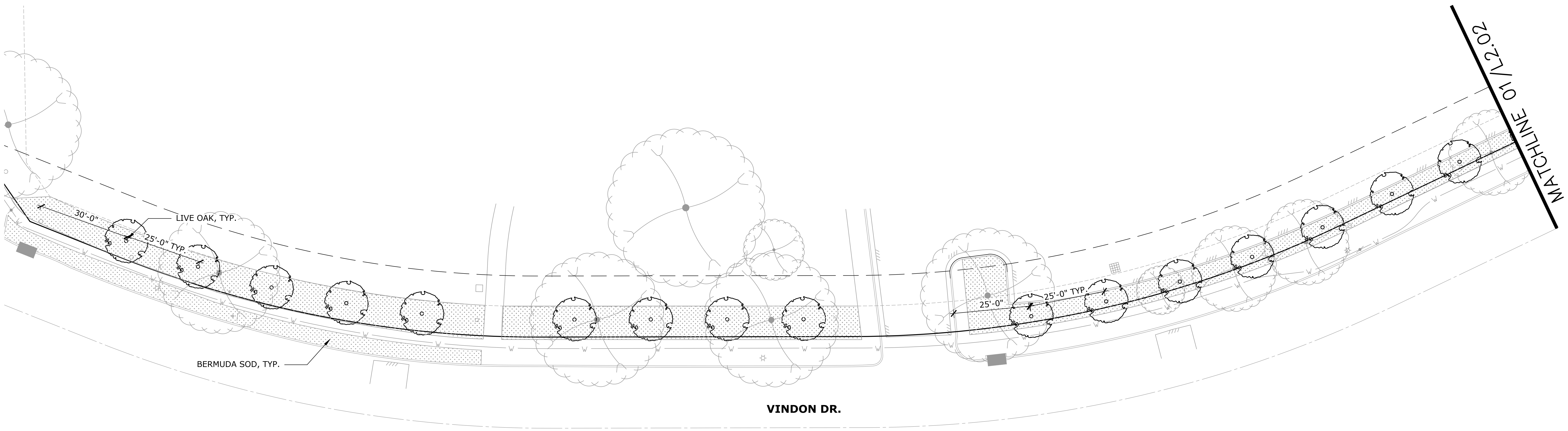
SURVEYED BY: UNITED ENGINEERS, INC.

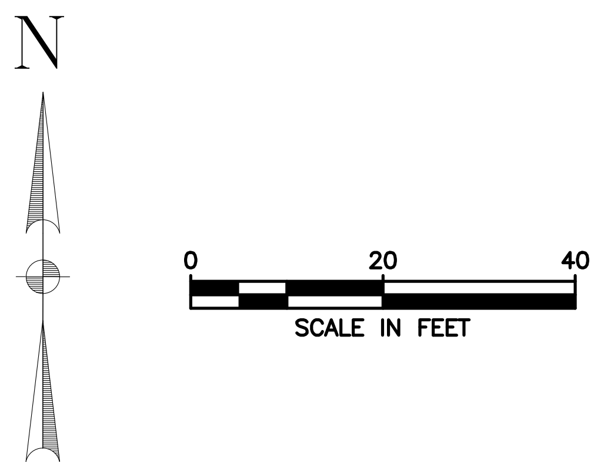
KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
TREE DETAILS

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 280 OF 345


MATCHLINE 01/L2.02
30'-0"
LIVE OAK, TYP.
25'-0" TYP.
25'-0"
25'-0" TYP.
BERMUDA SOD, TYP.
VINDON DR.


N
0
20
40
SCALE IN FEET

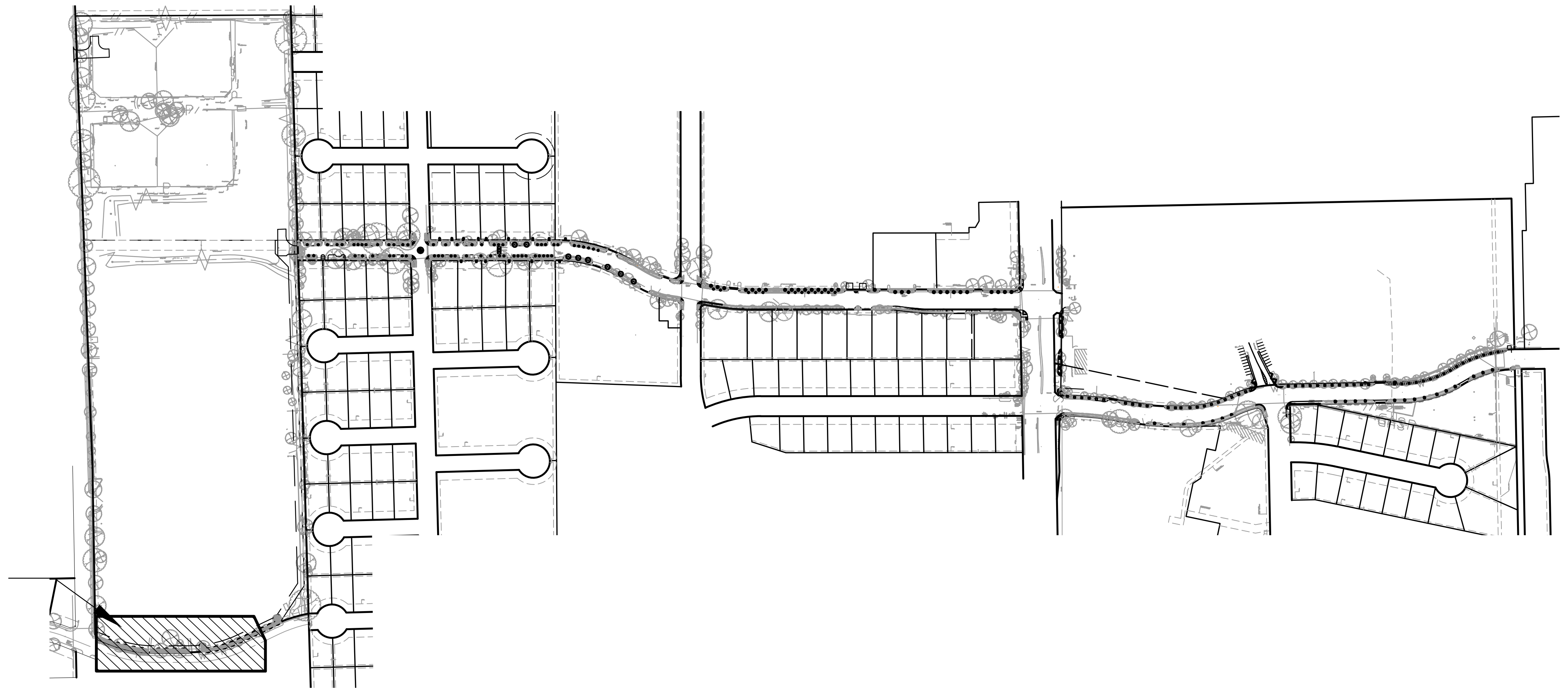
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- ○ EXISTING TREE TO REMAIN
- ○ 4" CATHEDRAL LIVE OAK
- ○ 4" CEDAR ELM
- ✱ 2" DAHOON HOLLY
- ⊛ 2" REDBUD
- ░ BERMUDA SOD
- ▩ GULF MUHLY
- ▤ HARDWOOD MULCH
- ▦ REPLACE EXISTING PAVERS

KEY MAP


SEE 1/THIS SHEET

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ASAKURA
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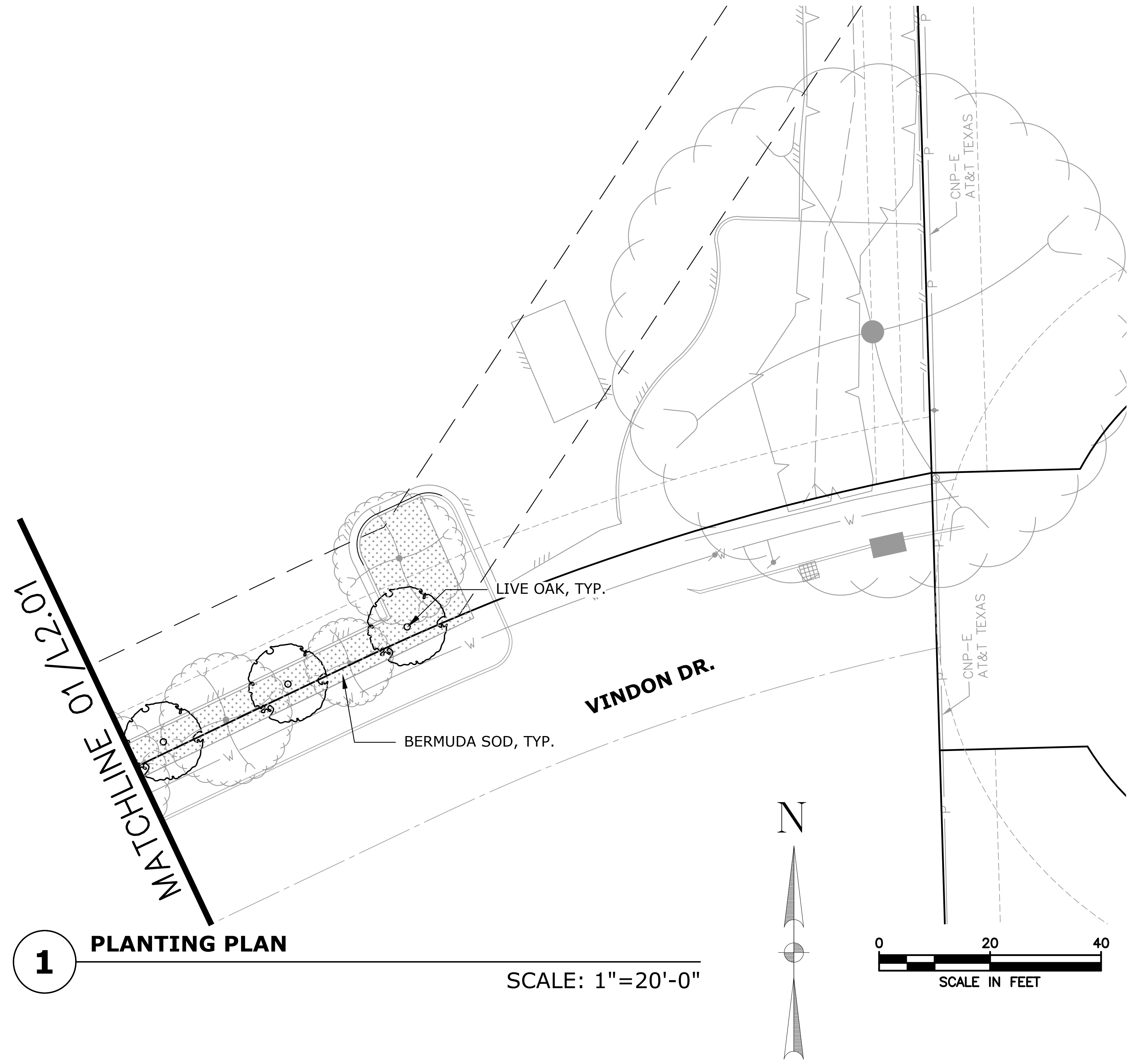
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN
L2.01 VINDON DR.

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 281 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:04 PM by Joshua Driscoll


MATCHLINE 01/L2.01
LIVE OAK, TYP.
BERMUDA SOD, TYP.
VINDON DR.
CNP-E
AT&T TEXAS
CNP-E
AT&T TEXAS
N
0
20
40
SCALE IN FEET

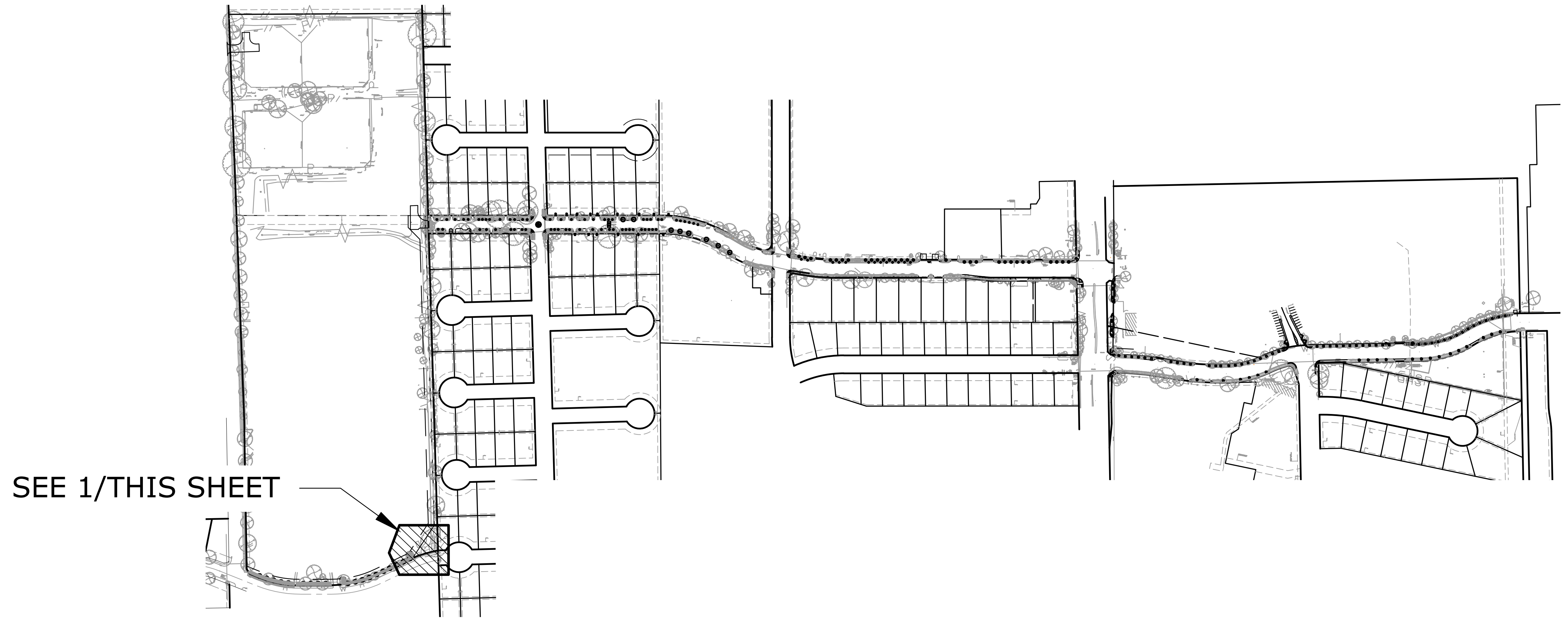
① **PLANTING PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" CEDAR ELM
- 2" DAHOON HOLLY
- 2" REDBUD
- ░ BERMUDA SOD
- ▨ GULF MUHLY
- ░ HARDWOOD MULCH
- ░ REPLACE EXISTING PAVERS

KEY MAP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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN
L2.02 VINDAN DR.

WBS NO. M-430296-0017-3
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 282 OF 345

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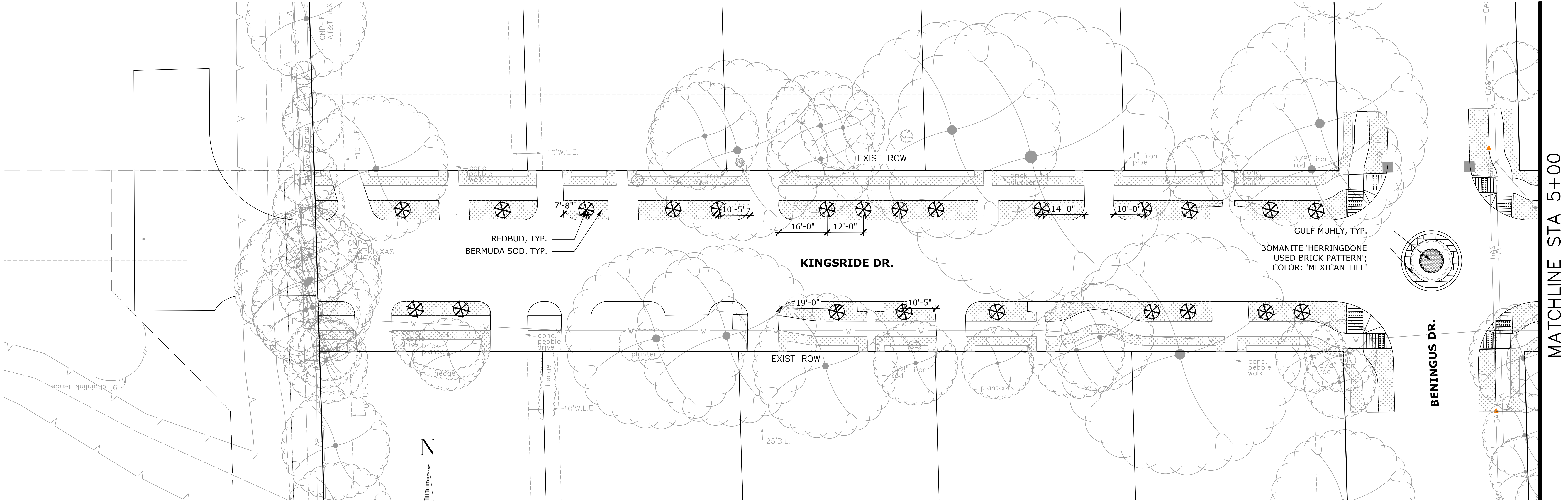

EXIST ROW
REDBUD, TYP.
BERMUDA SOD, TYP.
7'-8"
10'-5"
16'-0"
12'-0"
14'-0"
10'-0"
19'-0"
10'-5"
KINGSRIDE DR.
GULF MUHLY, TYP.
BOMANITE 'HERRINGBONE USED BRICK PATTERN'; COLOR: 'MEXICAN TILE'
BENINGUS DR.
MATCHLINE STA 5+00
10'W.L.E.
25'B.L.
conc. pebble walk
brick
planter
hedge
3/8" iron rod
1" iron pipe
GAS
N
0
20
40
SCALE IN FEET

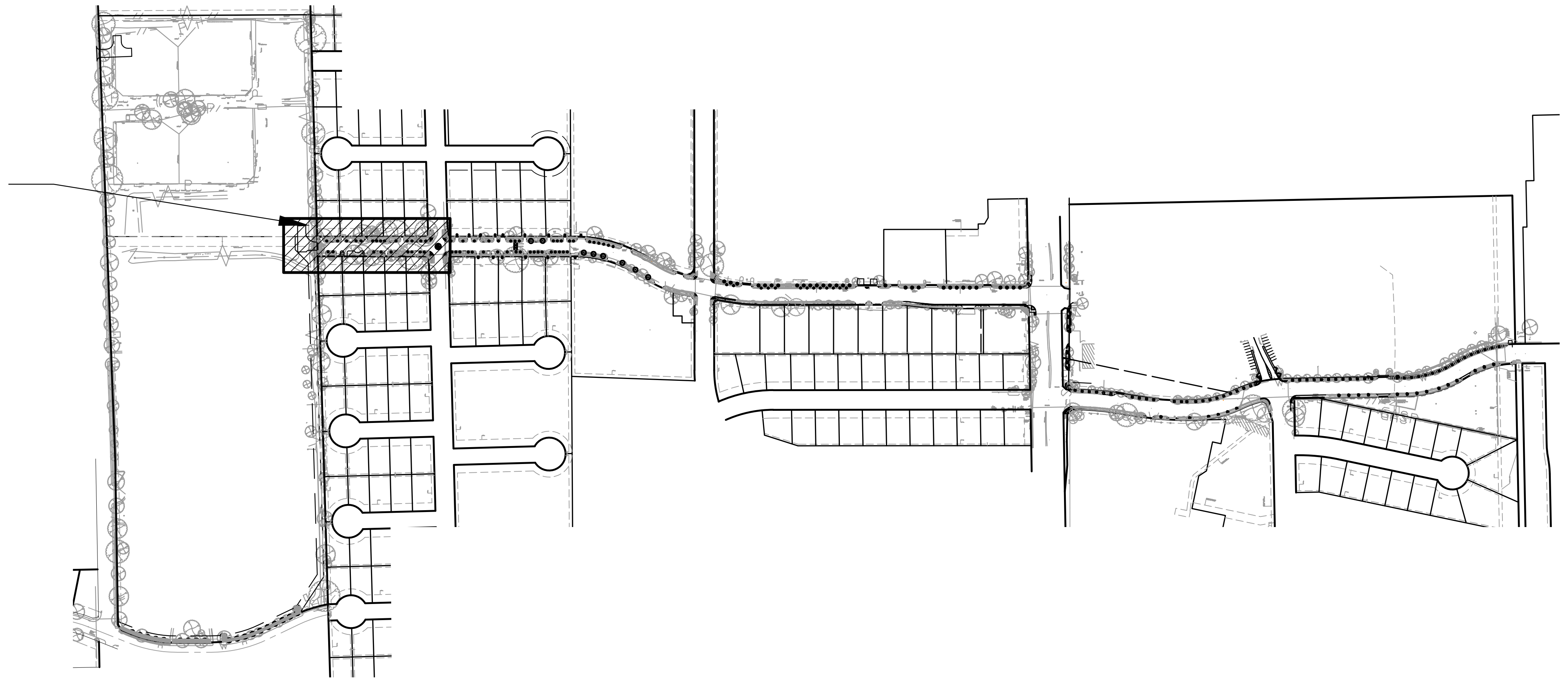
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- ◌ EXISTING TREE TO REMAIN
- ◌ 4" CATHEDRAL LIVE OAK
- ◌ 4" CEDAR ELM
- ✩ 2" DAHOON HOLLY
- ✻ 2" REDBUD
- ░ BERMUDA SOD
- ▦ GULF MUHLY
- ▨ HARDWOOD MULCH
- ▤ REPLACE EXISTING PAVERS

KEY MAP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04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

L2.03
KINGSRIDE LANE
BEGIN PROJECT TO 5+00

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 283 OF 345

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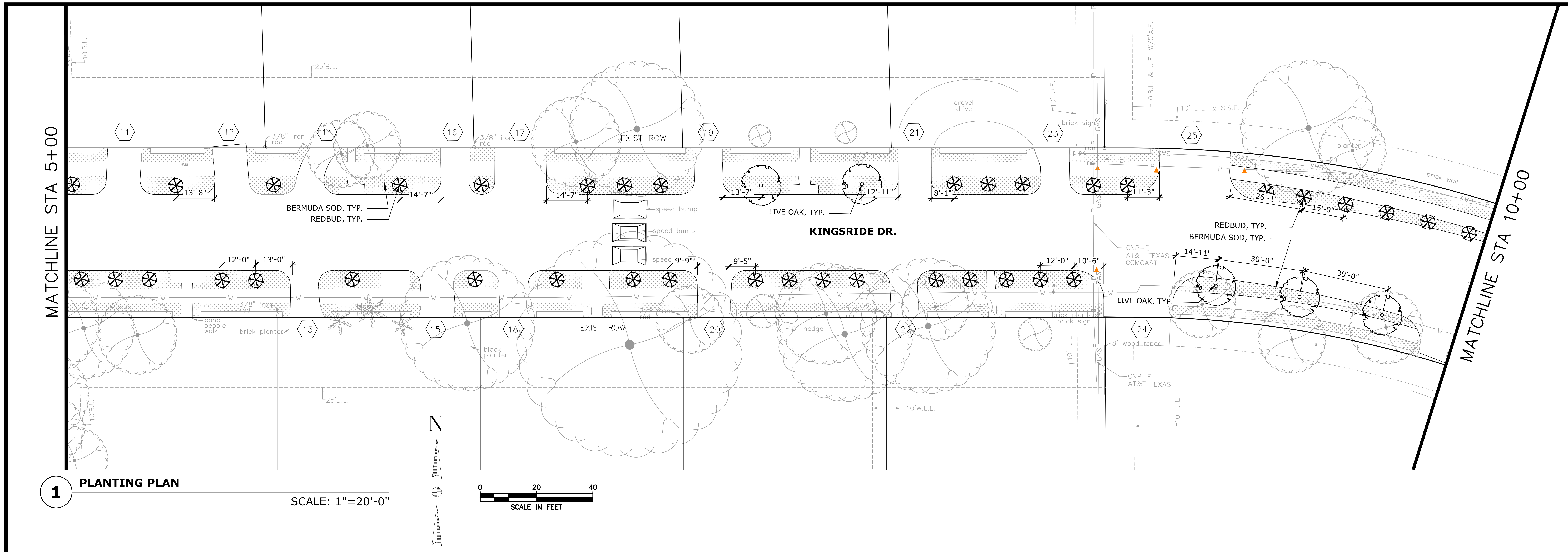

MATCHLINE STA 5+00
MATCHLINE STA 10+00
KINGSRIDE DR.
11
12
14
16
17
19
21
23
25
13
15
18
20
22
24
10'B.L.
25'B.L.
3/8" iron rod
EXIST ROW
speed bump
gravel drive
10' U.E.
brick sign
GAS
P
10'B.L. & U.E. W/5'A.E.
10' B.L. & S.S.E.
planter
brick wall
13'-8"
14'-7"
13'-7"
12'-11"
8'-1"
11'-3"
26'-1"
15'-0"
12'-0"
13'-0"
9'-9"
9'-5"
10'-6"
14'-11"
30'-0"
BERMUDA SOD, TYP.
REDBUD, TYP.
LIVE OAK, TYP.
CNP-E
AT&T TEXAS
COMCAST
conc. pebble walk
brick planter
block planter
18" hedge
brick sign
8' wood fence
10'W.L.E.
W
N
0
20
40
SCALE IN FEET

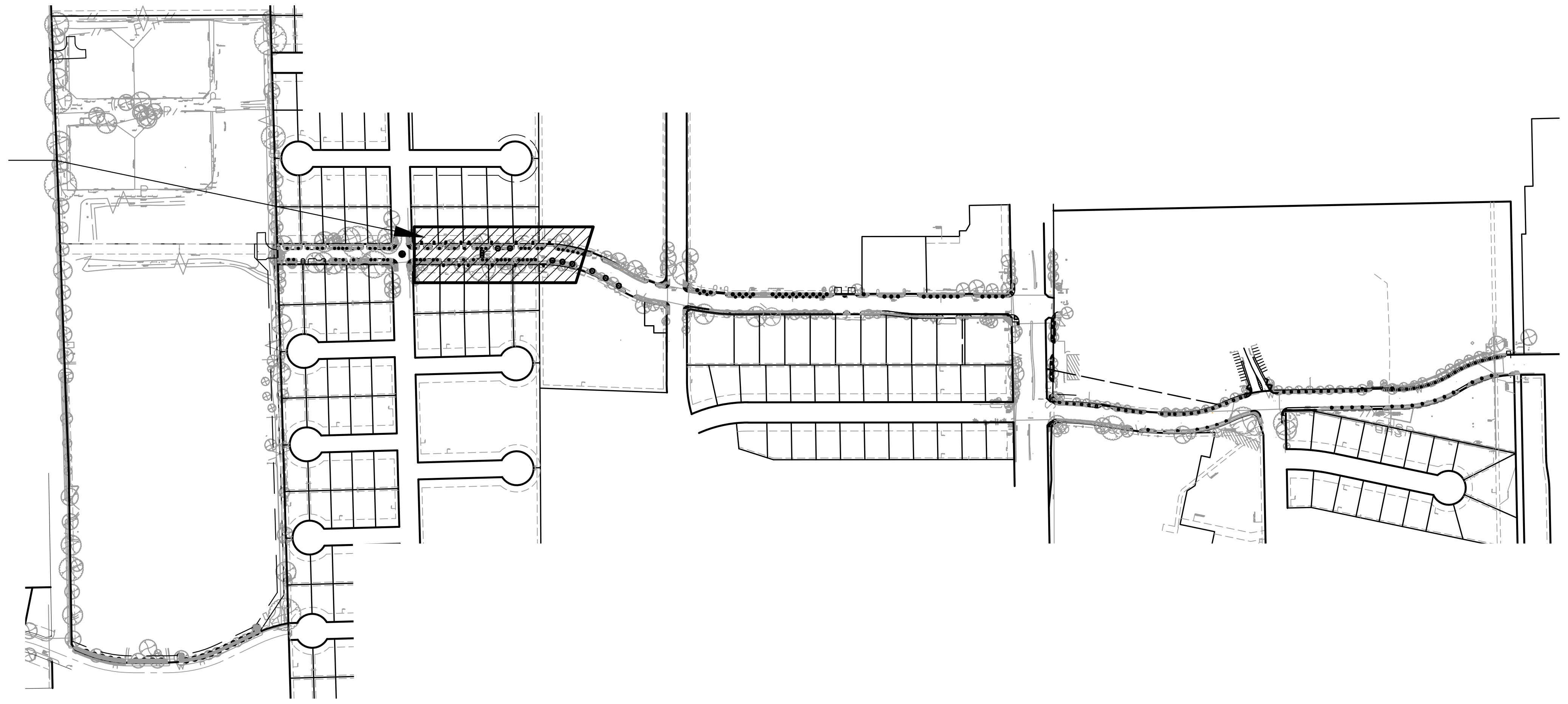
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- ◌ EXISTING TREE TO REMAIN
- ◌ 4" CATHEDRAL LIVE OAK
- ◌ 4" CEDAR ELM
- ✲ 2" DAHOON HOLLY
- ⊛ 2" REDBUD
- ░ BERMUDA SOD
- ▭ HARDWOOD MULCH
- ▨ PAVERS

KEY MAP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SURVEYED BY: UNITED ENGINEERS, INC.

KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY

HARDSCAPE AND PLANTING PLAN

L2.04

KINGSRIDE LANE
5+00 TO 10+00

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 284 OF 345

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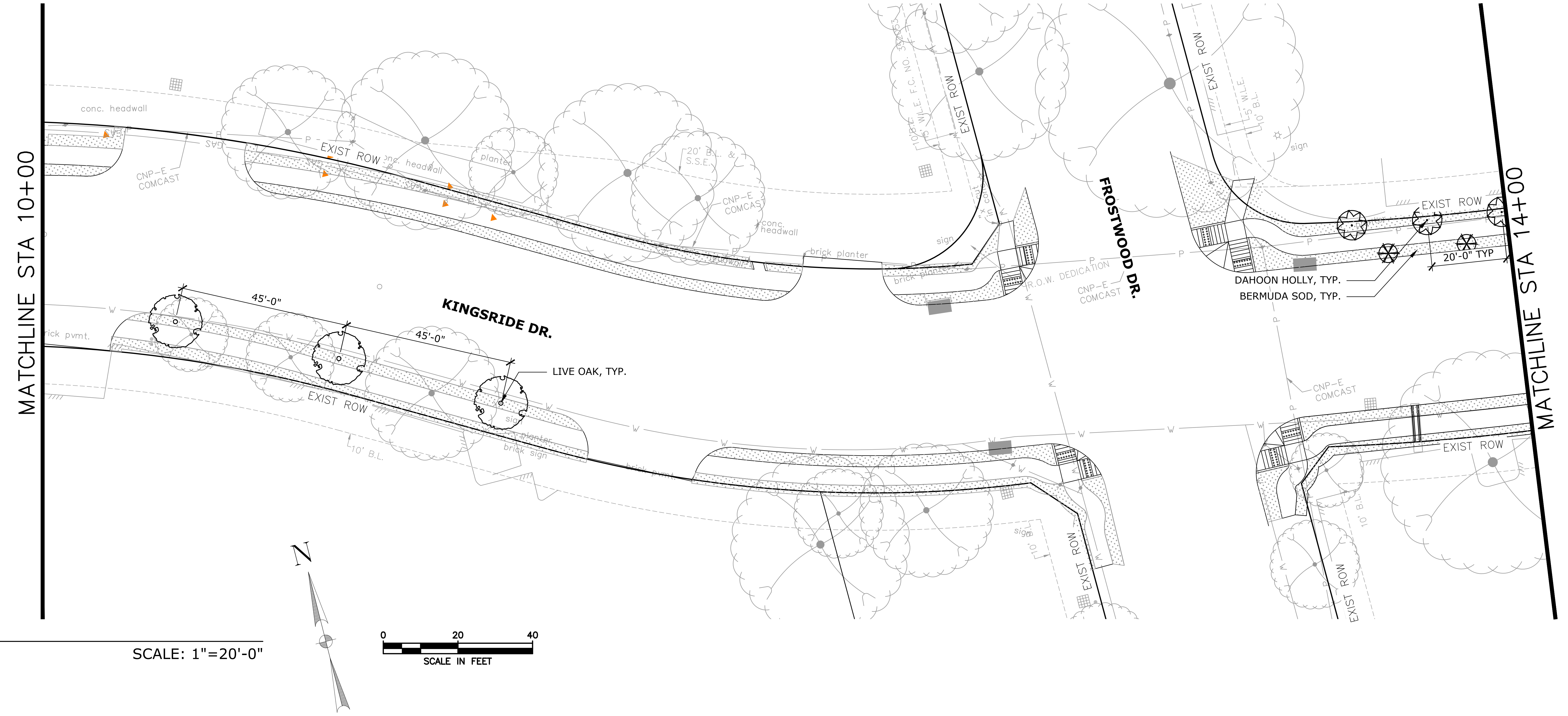

MATCHLINE STA 10+00
MATCHLINE STA 14+00
KINGSRIDE DR.
FROSTWOOD DR.
EXIST ROW
conc. headwall
CNP-E COMCAST
GAS
planter
20' B.L. & S.S.E.
brick planter
brick pvmt.
45'-0"
45'-0"
LIVE OAK, TYP.
10' B.L.
brick sign
sign
R.O.W. DEDICATION
10' B.L. 5' W.L.E. F.C. NO. 352053
5' W.L.E.
DAHOON HOLLY, TYP.
BERMUDA SOD, TYP.
20'-0" TYP
N
0
20
40
SCALE IN FEET

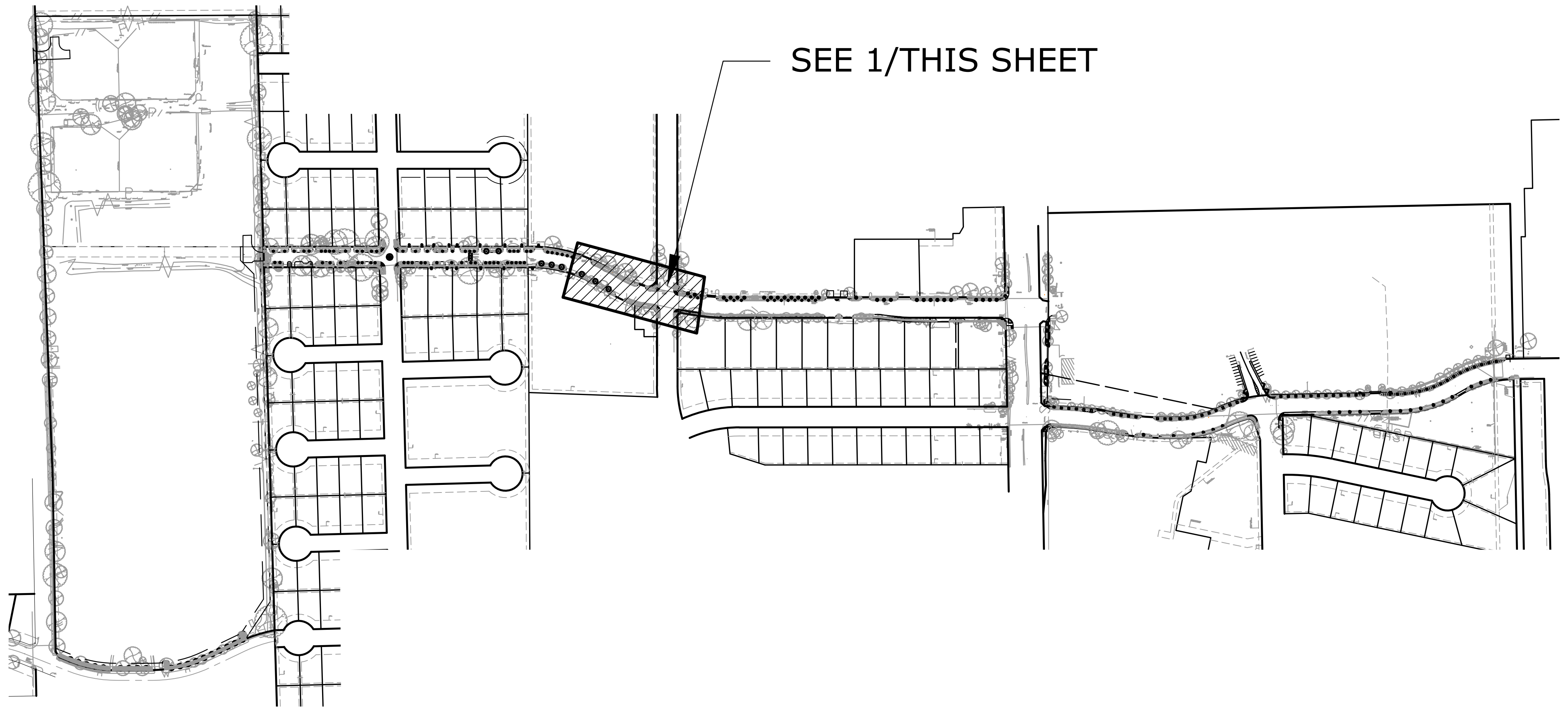
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

◯	EXISTING TREE TO REMAIN
◯	4" CATHEDRAL LIVE OAK
◌	4" CEDAR ELM
✷	2" DAHOON HOLLY
⊛	2" REDBUD
░	BERMUDA SOD
▒	HARDWOOD MULCH
▦	PAVERS

KEY MAP


SEE 1/THIS SHEET

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:14 PM by Joshua Driscoll

ASAKURA
ROBINSON
2500 Summer Street, Suite 3228 Houston Texas 77007
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KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

ROADWAY
HARDSCAPE AND PLANTING PLAN

L2.05

KINGSRIDE LANE
10+00 TO 14+00

WBS NO. M-430296-0017-3

DRAWING SCALE

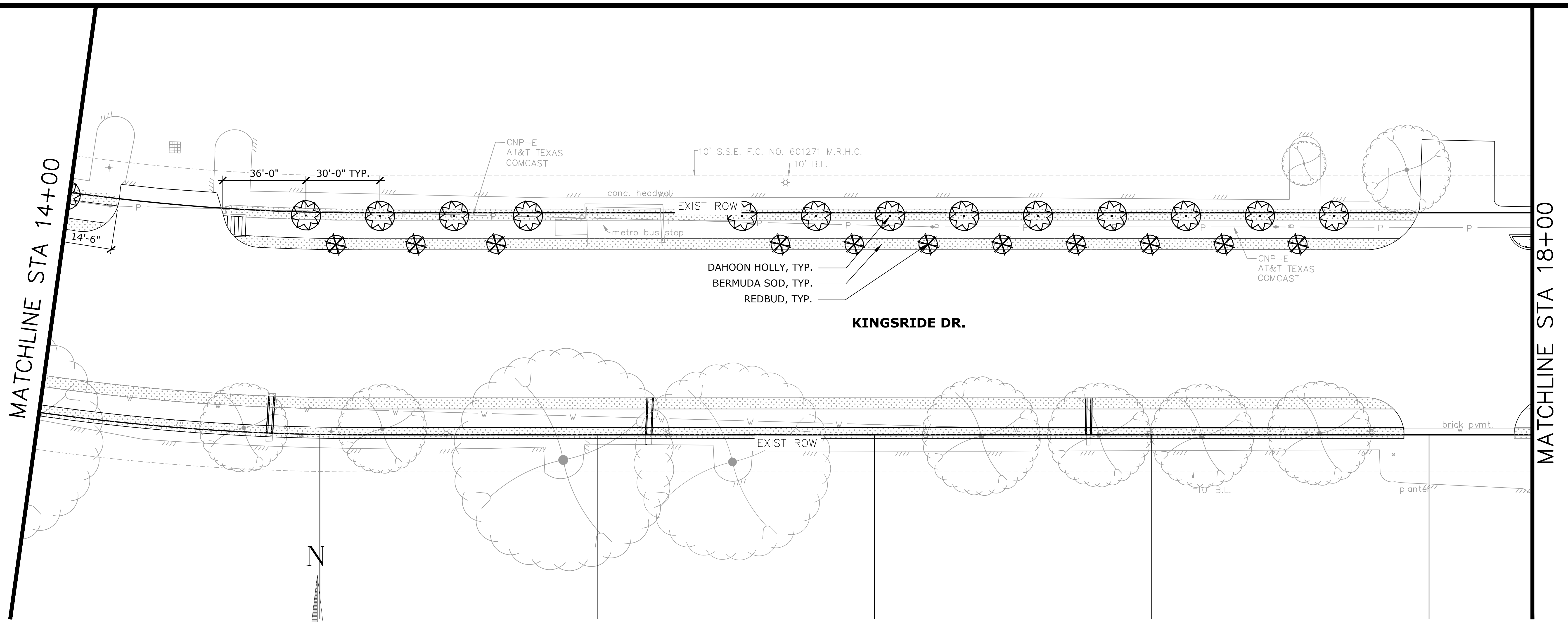
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

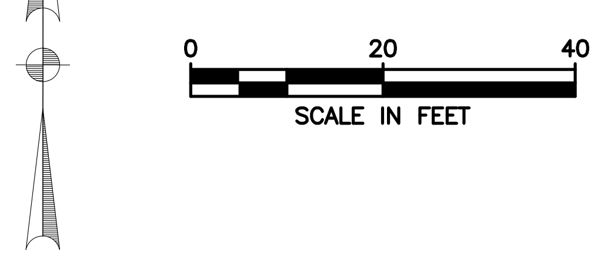
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 285 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:09 PM by Joshua Driscoll


MATCHLINE STA 14+00
36'-0"
30'-0" TYP.
14'-6"
CNP-E
AT&T TEXAS
COMCAST
10' S.S.E. F.C. NO. 601271 M.R.H.C.
10' B.L.
conc. headwall
EXIST ROW
metro bus stop
P
DAHOON HOLLY, TYP.
BERMUDA SOD, TYP.
REDBUD, TYP.
CNP-E
AT&T TEXAS
COMCAST
KINGSRIDE DR.
EXIST ROW
W
brick pvmt.
10' B.L.
planter
MATCHLINE STA 18+00


N
0
20
40
SCALE IN FEET

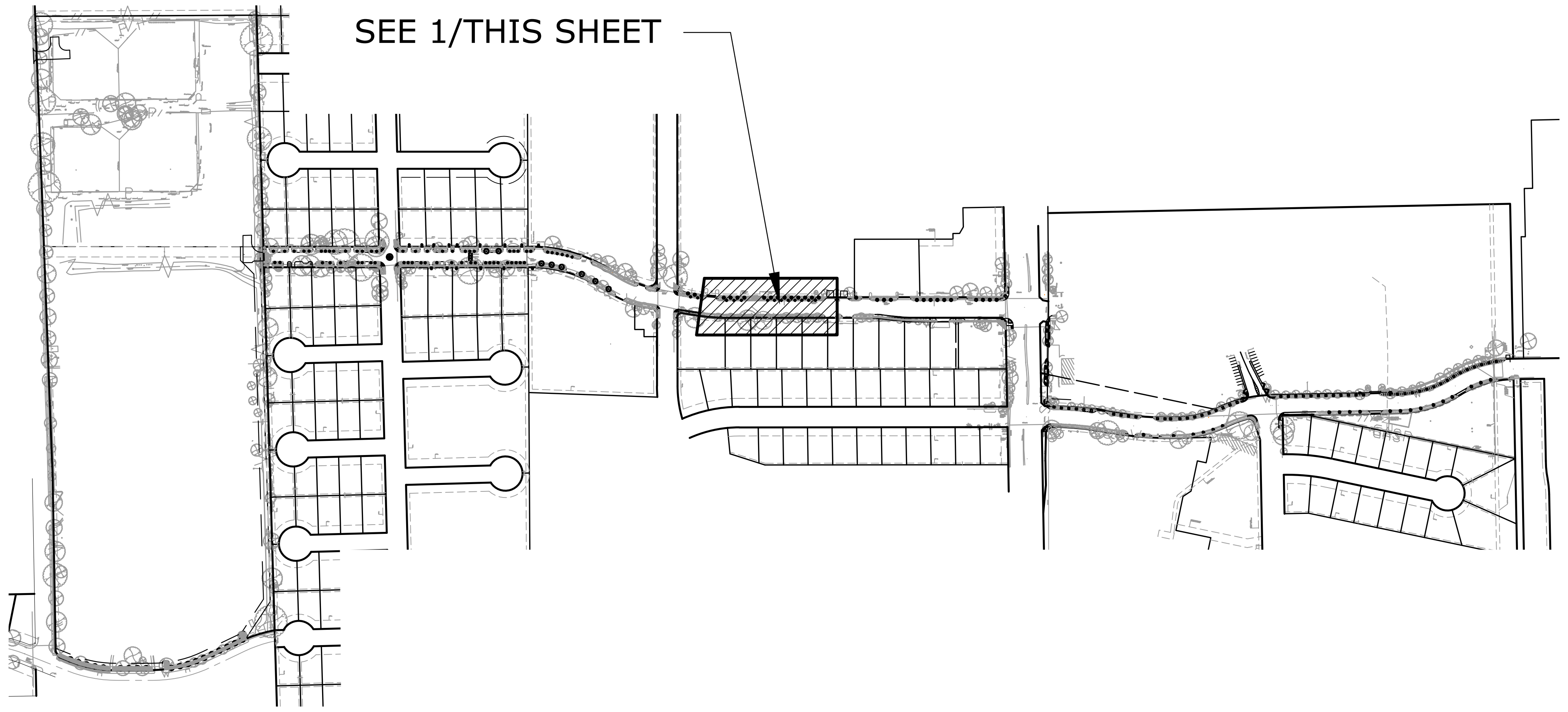
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

◌	EXISTING TREE TO REMAIN
◎	4" CATHEDRAL LIVE OAK
⊙	4" CEDAR ELM
✪	2" DAHOON HOLLY
✳	2" REDBUD
▒	BERMUDA SOD
▒	HARDWOOD MULCH
▨	PAVERS

KEY MAP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KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

L2.06
KINGSRIDE LANE
14+00 TO 18+00

WBS NO. M-430296-0017-3

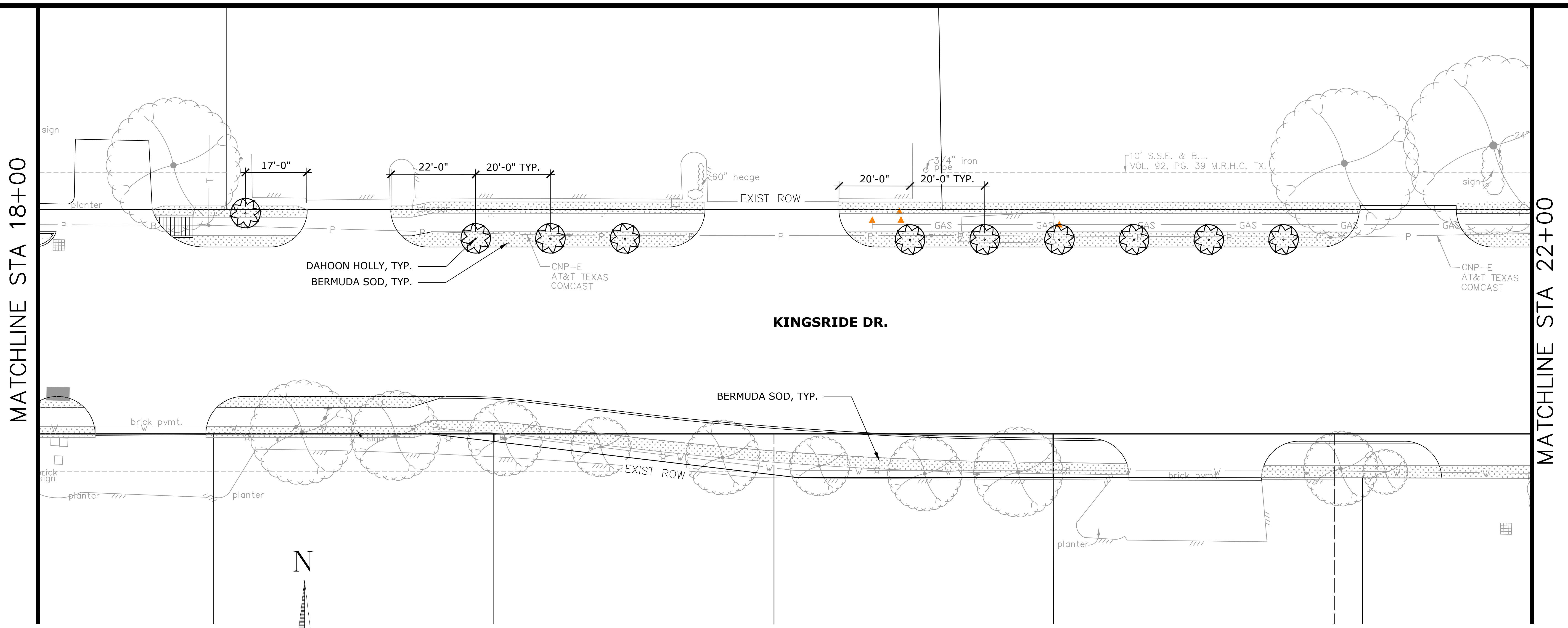
DRAWING SCALE

H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

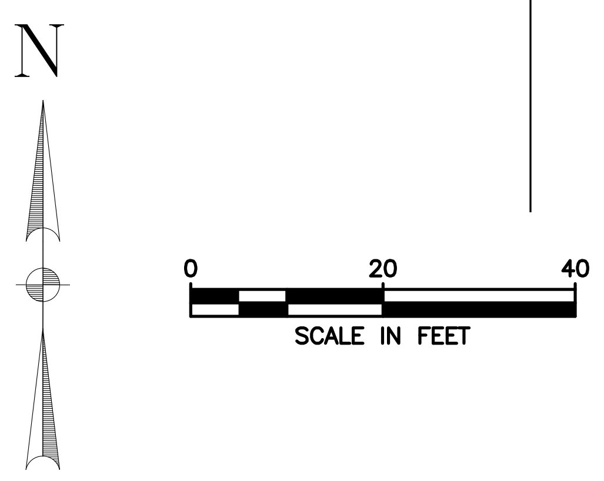
SHEET NO. 286 OF 345



MATCHLINE STA 18+00
MATCHLINE STA 22+00
sign
planter
17'-0"
22'-0"
20'-0" TYP.
60" hedge
EXIST ROW
20'-0"
20'-0" TYP.
3/4" iron pipe
10' S.S.E. & B.L. VOL. 92, PG. 39 M.R.H.C., TX.
24"
GAS
P
DAHOON HOLLY, TYP.
BERMUDA SOD, TYP.
CNP-E
AT&T TEXAS
COMCAST
KINGSRIDE DR.
BERMUDA SOD, TYP.
brick pvmt.
EXIST ROW
planter
stick sign

① **PLANTING PLAN**

SCALE: 1"=20'-0"

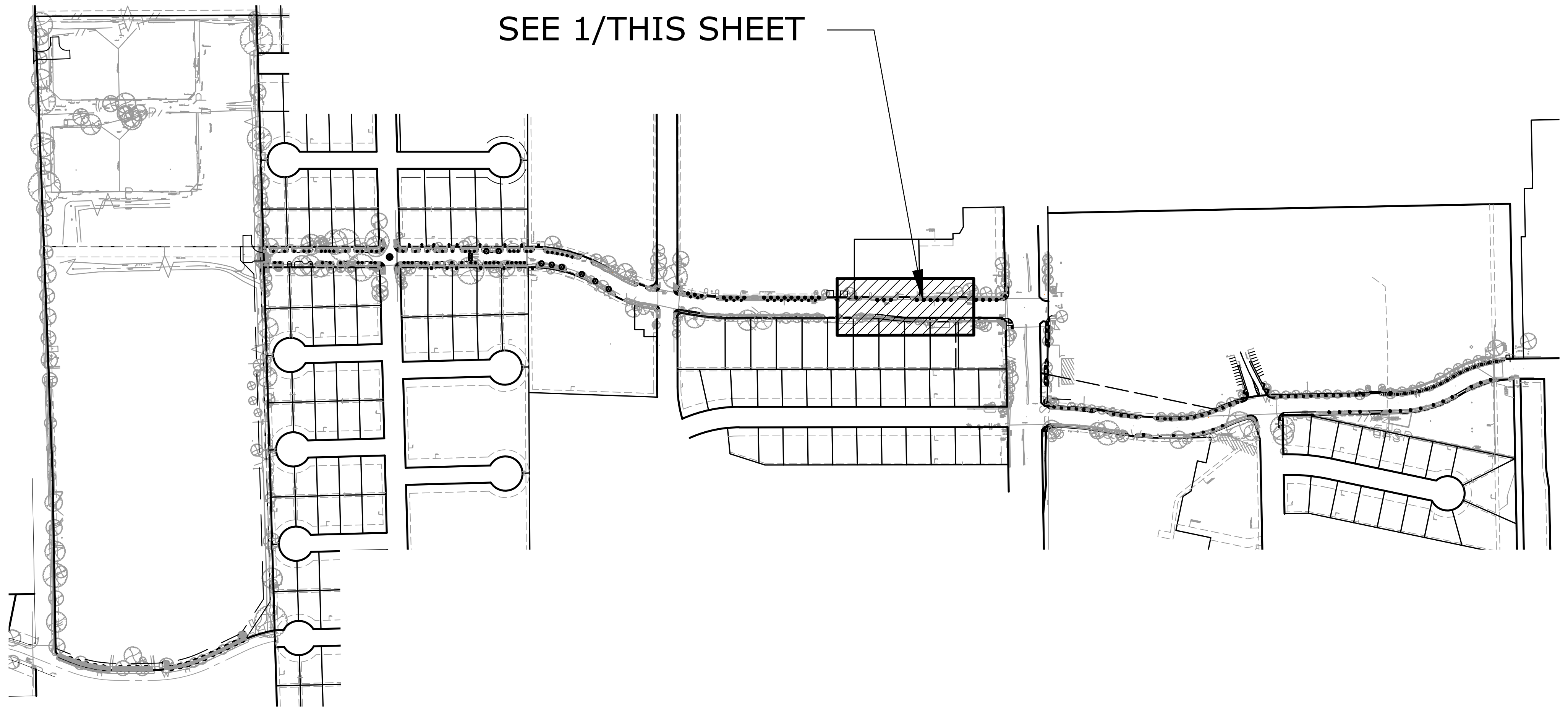


N
0
20
40
SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" CEDAR ELM
- 2" DAHOON HOLLY
- 2" REDBUD
- ▨ BERMUDA SOD
- ▨ HARDWOOD MULCH
- ▨ PAVERS

KEY MAP



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04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

L2.07
KINGSRIDE LANE
18+00 TO 22+00

WBS NO. M-430296-0017-3

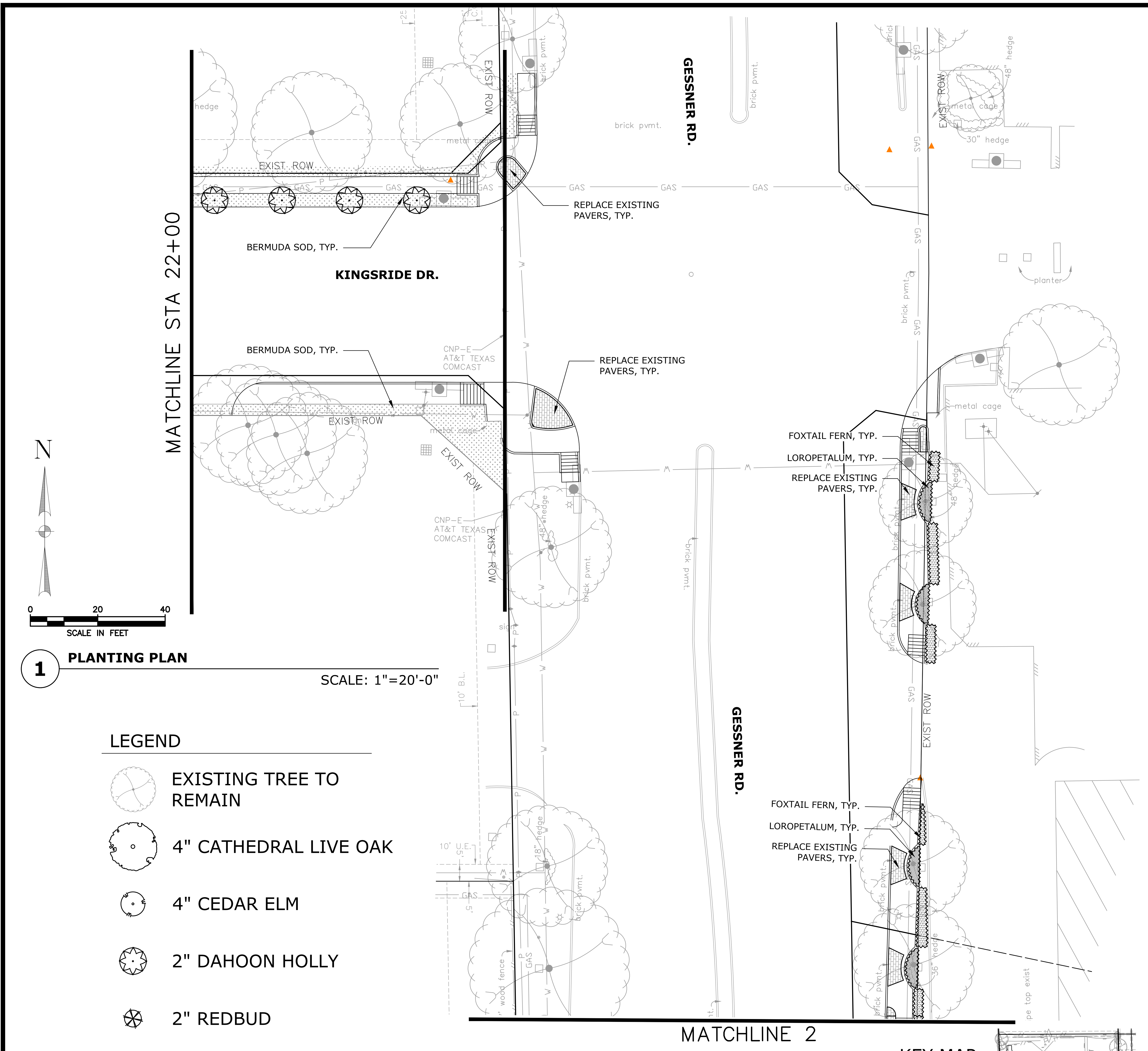
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 287 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:21 PM by Joshua Driscoll

No.	Date	Revisions	App.


MATCHLINE STA 22+00
N
0
20
40
SCALE IN FEET
KINGSRIDE DR.
GESSNER RD.
GESSNER RD.
BERMUDA SOD, TYP.
BERMUDA SOD, TYP.
REPLACE EXISTING PAVERS, TYP.
REPLACE EXISTING PAVERS, TYP.
EXIST. ROW
EXIST ROW
CNP-E AT&T TEXAS COMCAST
brick pvmt.
GAS
hedge
metal cage
30" hedge
planter
FOXTAIL FERN, TYP.
LOROPETALUM, TYP.
REPLACE EXISTING PAVERS, TYP.
FOXTAIL FERN, TYP.
LOROPETALUM, TYP.
REPLACE EXISTING PAVERS, TYP.
10' U.E.
10' B.L.
wood fence
pe top exist
MATCHLINE 2

1 **PLANTING PLAN**

SCALE: 1"=20'-0"

▨ FOXTAIL FERN

▨ LOROPETALUM

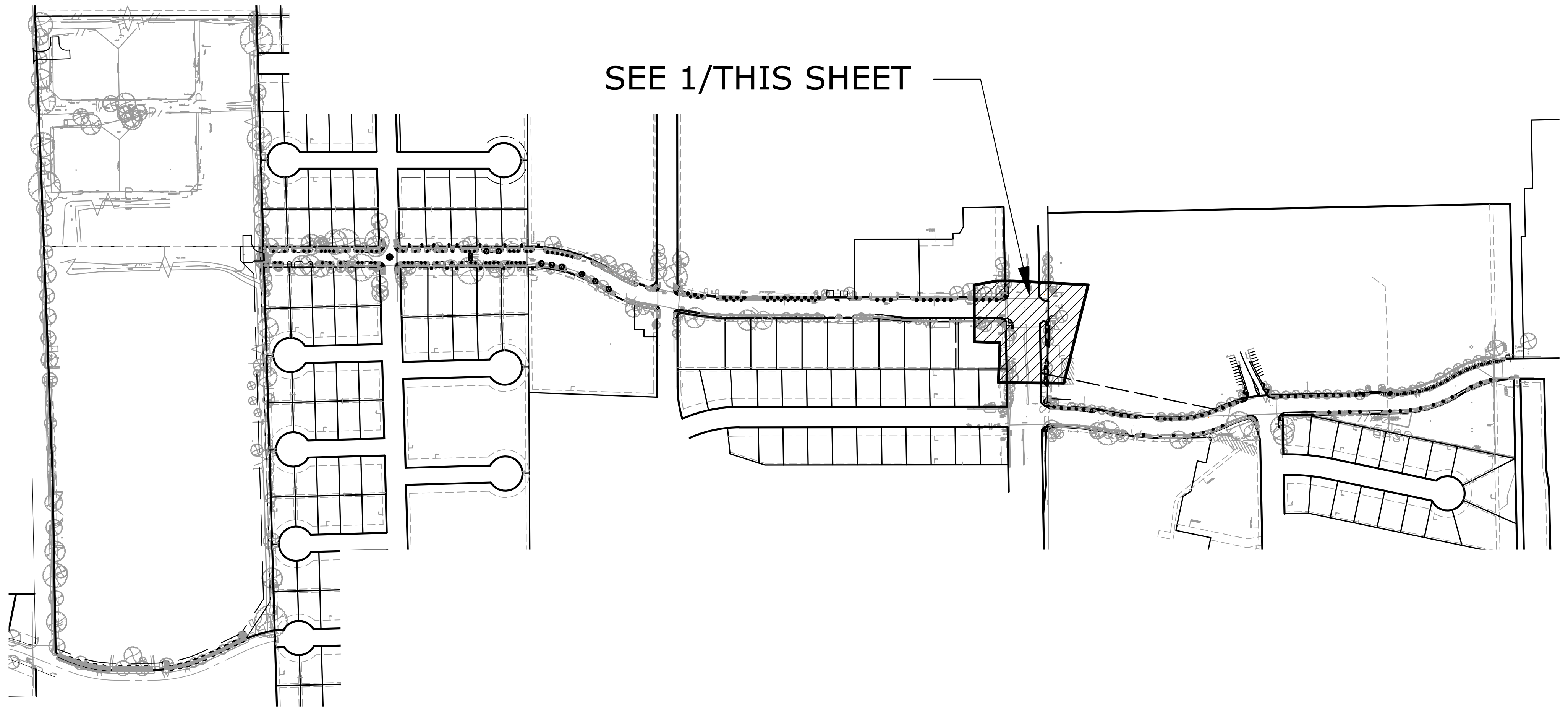
▨ HARDWOOD MULCH

▨ PAVERS

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" CEDAR ELM
- 2" DAHOON HOLLY
- 2" REDBUD
- ▨ BERMUDA SOD
- ▨ ASIAN JASMINE
- ▨ FOXTAIL FERN

KEY MAP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KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

L2.08
KINGSRIDE LANE
22+00 TO GESSNER ROAD

WBS NO. M-430296-0017-3

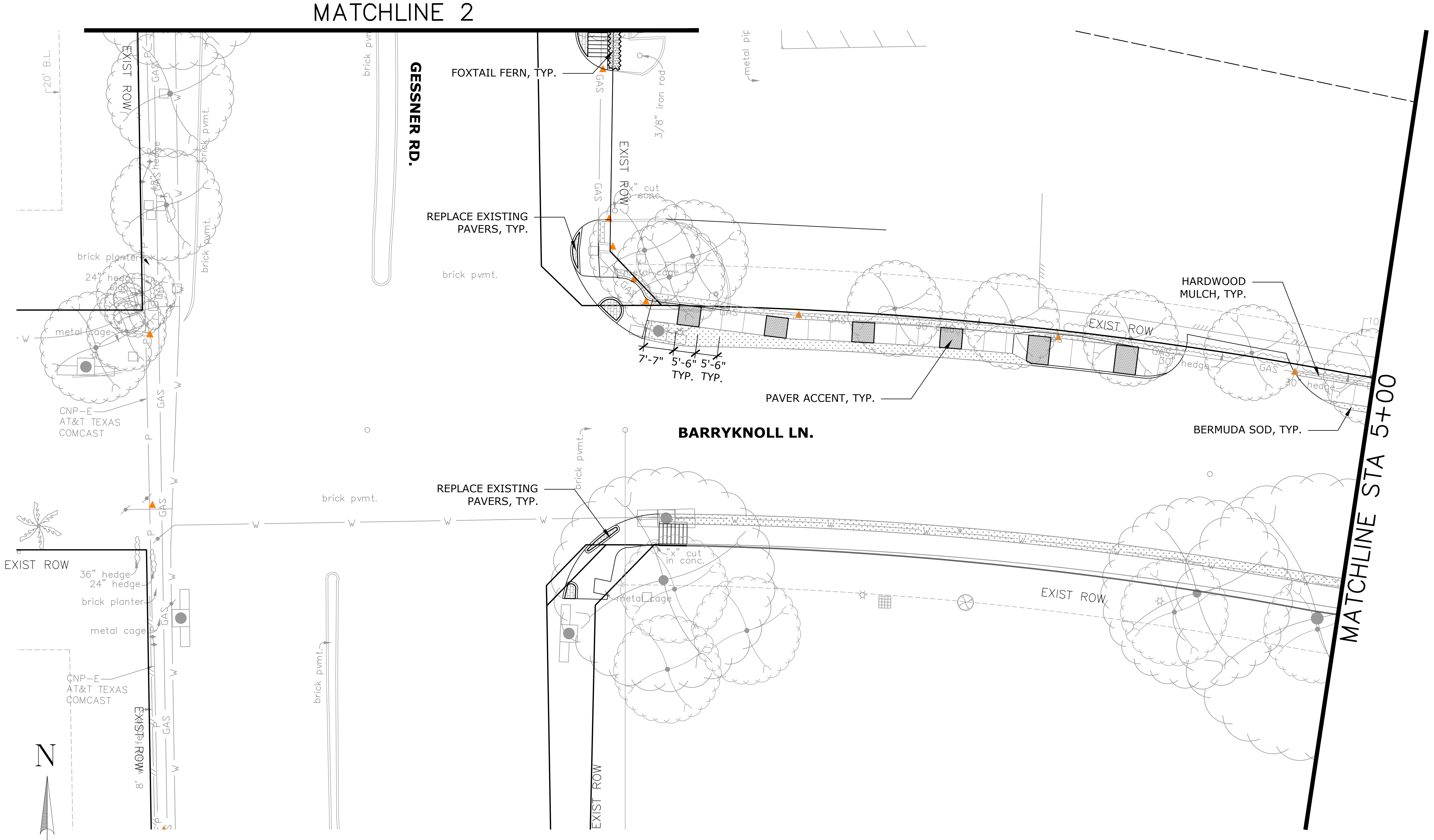
DRAWING SCALE

H: 1"=20' (22'X36')
V: 1"=2' (22'X36')

CITY OF HOUSTON PM

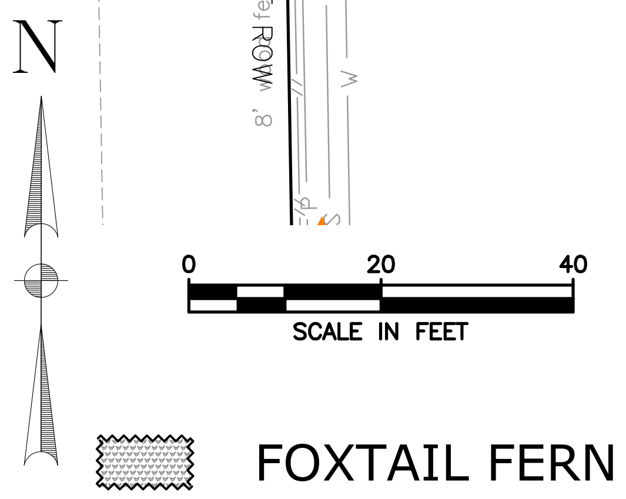
KEVIN HAMMOND, P.E.

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:12 PM by Joshua Driscoll


MATCHLINE 2
GESSNER RD.
FOXTAIL FERN, TYP.
REPLACE EXISTING PAVERS, TYP.
HARDWOOD MULCH, TYP.
7'-7"
5'-6" TYP.
5'-6" TYP.
PAVER ACCENT, TYP.
BARRYKNOLL LN.
BERMUDA SOD, TYP.
MATCHLINE STA 5+00
REPLACE EXISTING PAVERS, TYP.
EXIST ROW
brick pvmt.
brick planter
24" hedge
36" hedge
metal cage
CNP-E
AT&T TEXAS
COMCAST
GAS
20' B.L.
3/8" iron rod
x cut in conc.

1 **PLANTING PLAN**

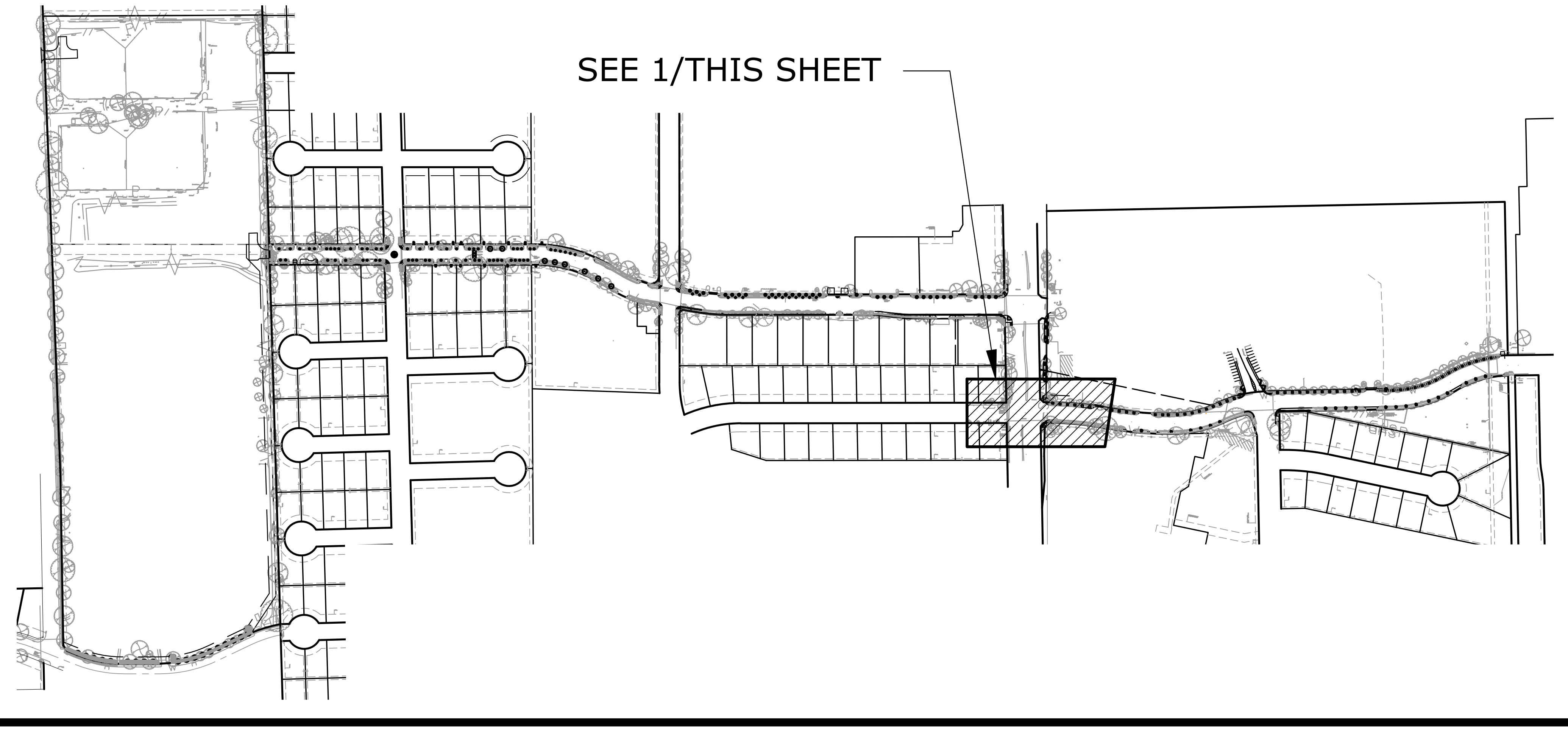
SCALE: 1"=20'-0"


N
0
20
40
SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" CEDAR ELM
- 2" DAHOON HOLLY
- 2" REDBUD
- ░ BERMUDA SOD
- ▩ ASIAN JASMINE
- ▨ FOXTAIL FERN
- ▨ FOXTAIL FERN
- ▩ LOROPETALUM
- ░ HARDWOOD MULCH
- ▦ PAVERS

KEY MAP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1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

L2.09 GESSNER ROAD
BARRYKNOLL START TO 5+00

WBS NO. M-430296-0017-3

DRAWING SCALE

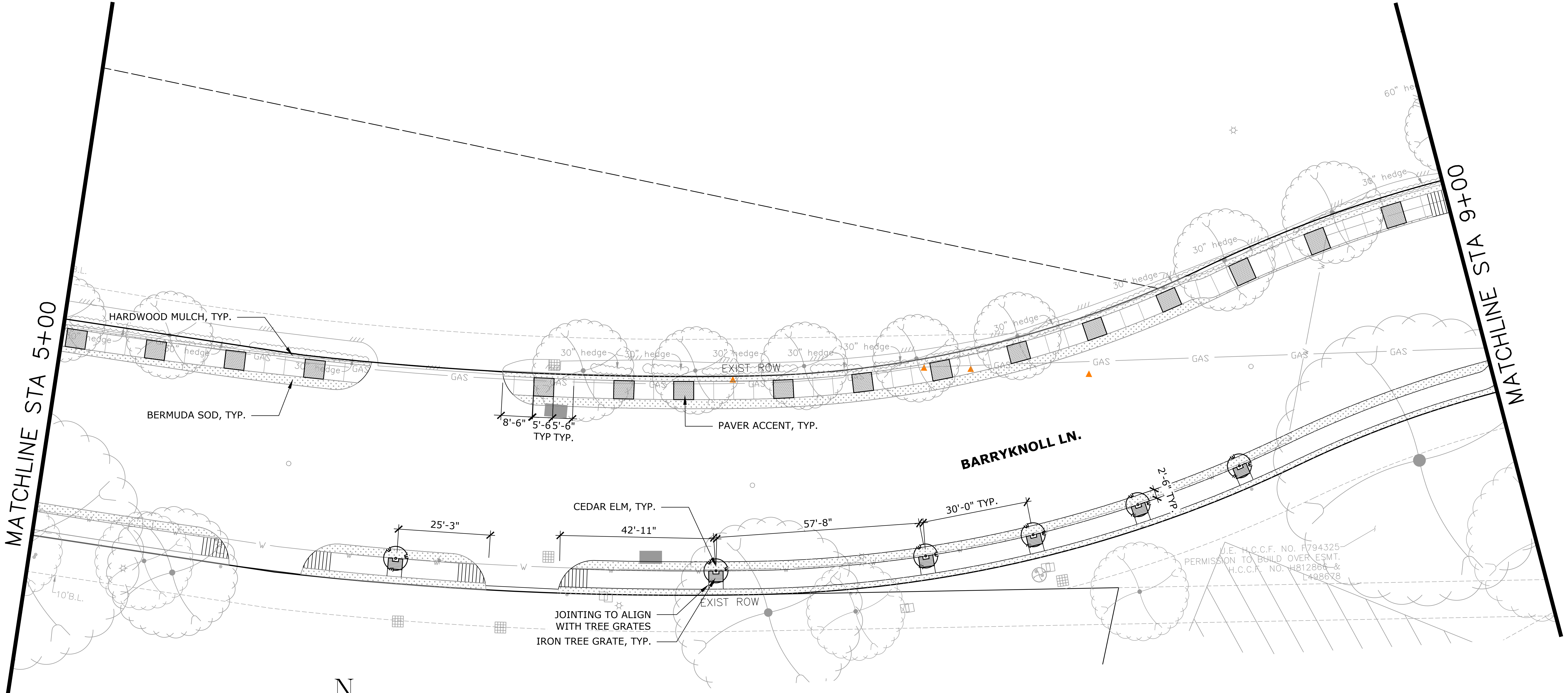
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

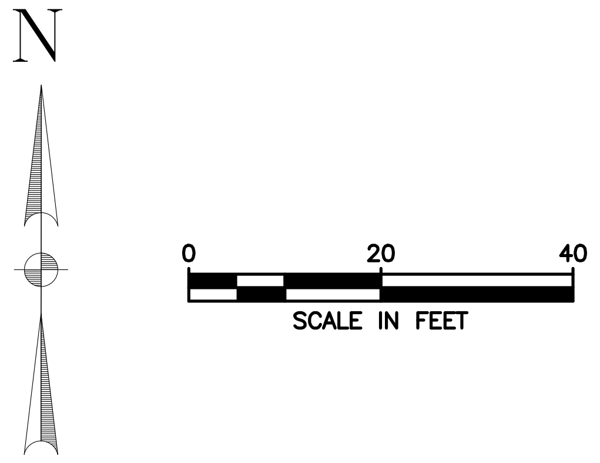
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 289 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:08 PM by Joshua Driscoll


MATCHLINE STA 5+00
MATCHLINE STA 9+00
HARDWOOD MULCH, TYP.
BERMUDA SOD, TYP.
8'-6"
5'-6 TYP
5'-6" TYP.
PAVER ACCENT, TYP.
30" hedge
60" hedge
EXIST ROW
GAS
W
BARRYKNOLL LN.
CEDAR ELM, TYP.
25'-3"
42'-11"
57'-8"
30'-0" TYP.
2'-6" TYP.
JOINTING TO ALIGN WITH TREE GRATES
IRON TREE GRATE, TYP.
10'B.L.
U.E. H.C.C.F. NO. F794325
PERMISSION TO BUILD OVER ESMT.
H.C.C.F. NO. H812866 &
L498678


N
0
20
40
SCALE IN FEET

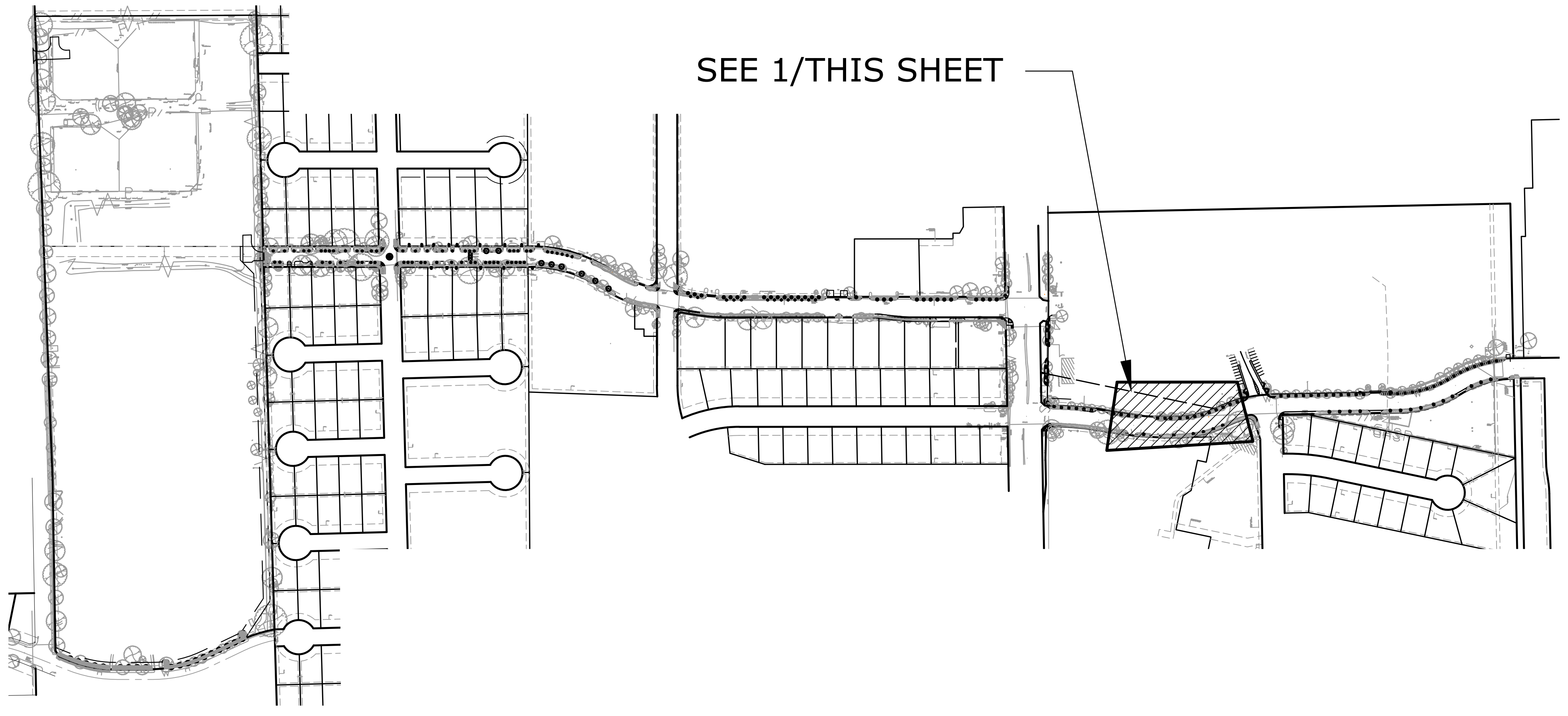
1 PLANTING PLAN

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" CEDAR ELM
- 2" DAHOON HOLLY
- 2" REDBUD
- BERMUDA SOD
- HARDWOOD MULCH
- PAVERS

KEY MAP


SEE 1/THIS SHEET

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:06 PM by Joshua Driscoll

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KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

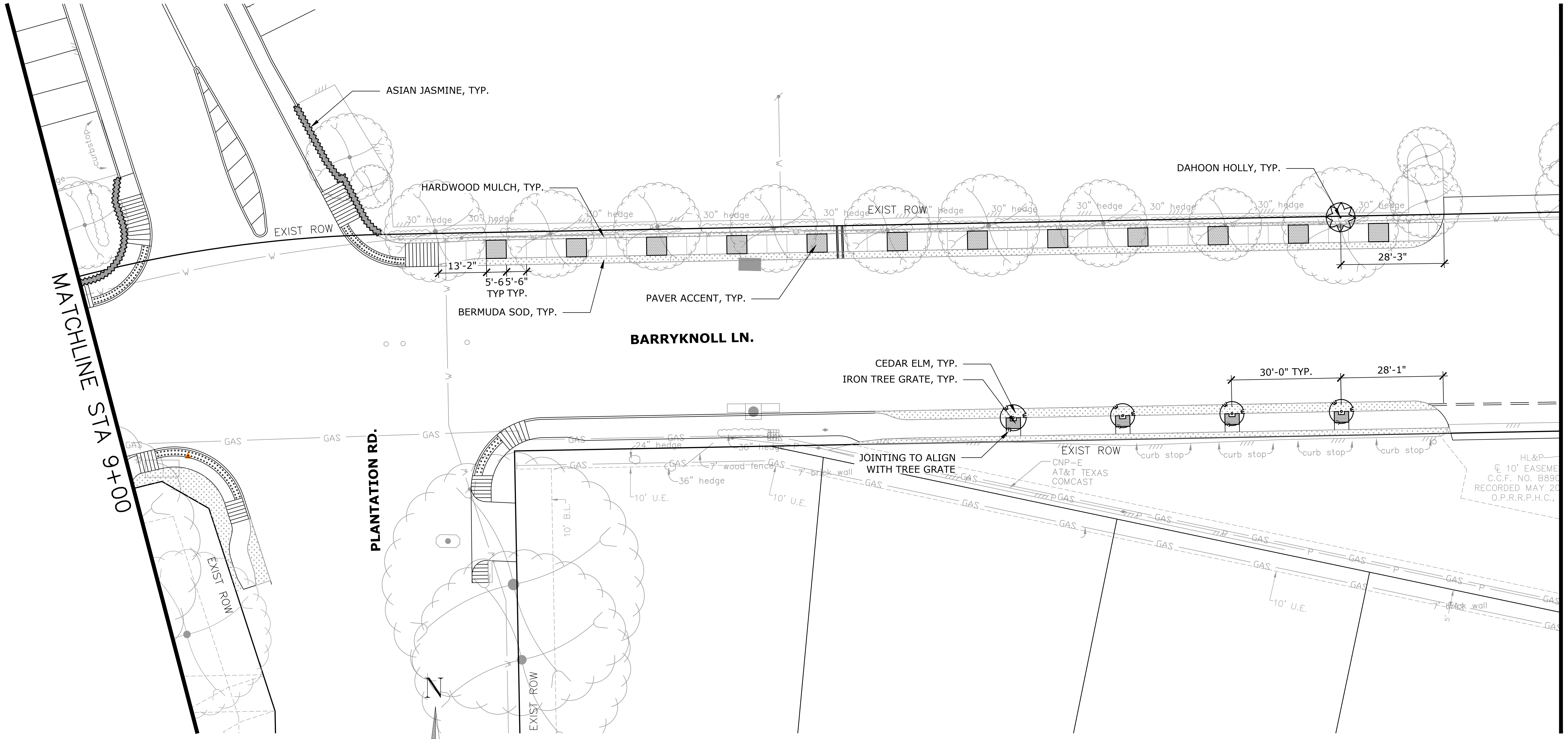
TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN
L2.10
BARRYKNOLL LANE
5+00 TO 9+00

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

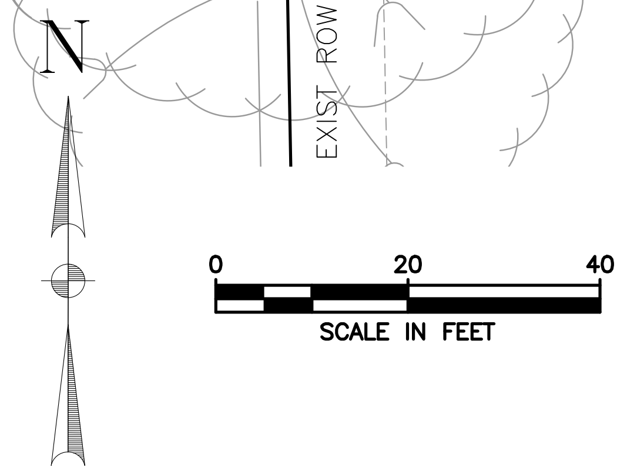
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 290 OF 345


ASIAN JASMINE, TYP.
HARDWOOD MULCH, TYP.
DAHOON HOLLY, TYP.
30" hedge
EXIST ROW
13'-2"
5'-6
5'-6"
TYP
TYP.
28'-3"
BERMUDA SOD, TYP.
PAVER ACCENT, TYP.
BARRYKNOLL LN.
CEDAR ELM, TYP.
IRON TREE GRATE, TYP.
30'-0" TYP.
28'-1"
JOINTING TO ALIGN WITH TREE GRATE
curb stop
CNP-E
AT&T TEXAS
COMCAST
GAS
10' U.E.
24" hedge
36" hedge
7' wood fence
7' brick wall
10' B.L.
PLANTATION RD.
MATCHLINE STA 9+00
MATCHLINE STA 13+00
HL&P
10' EASEMENT
C.C.F. NO. B89
RECORDED MAY 2
O.P.R.R.P.H.C.

① **PLANTING PLAN**

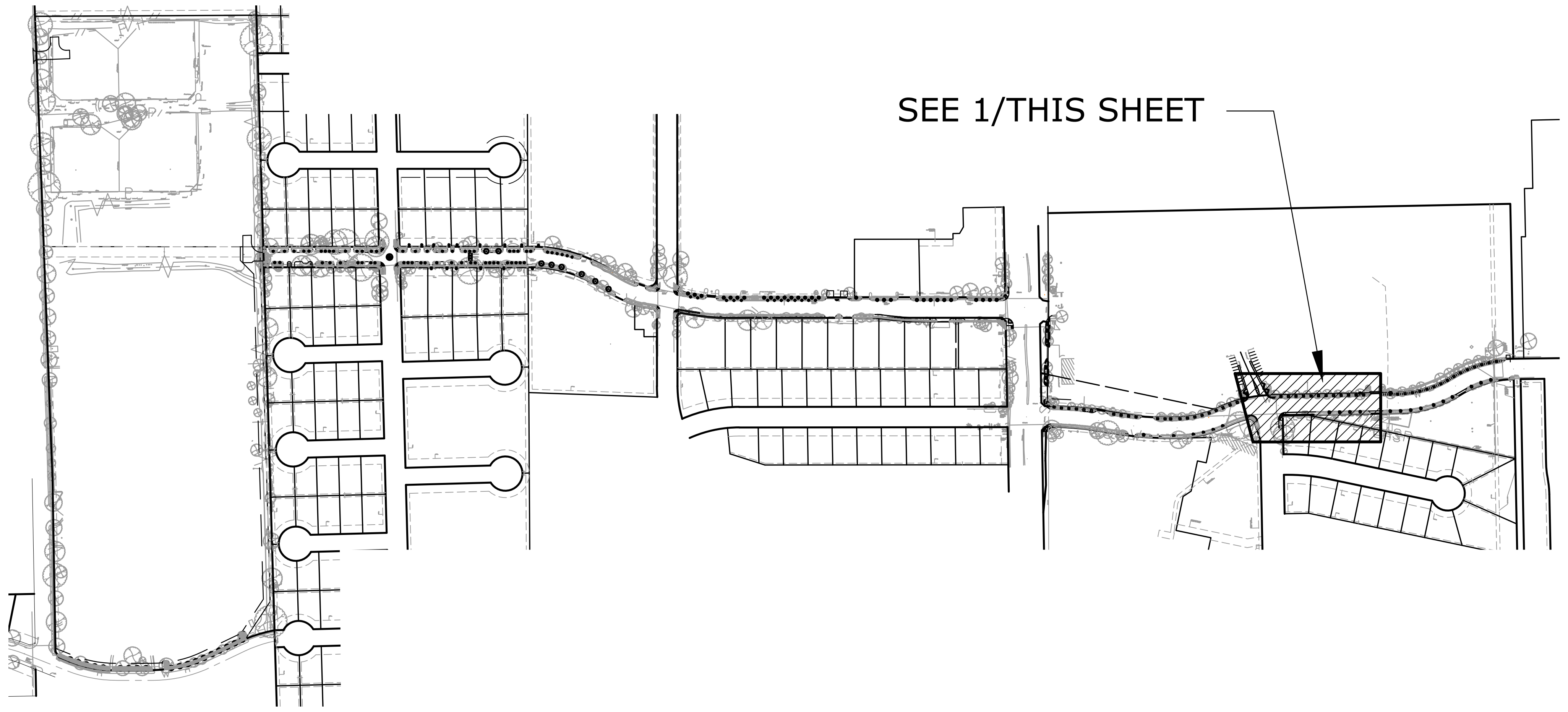
SCALE: 1"=20'-0"


N
0
20
40
SCALE IN FEET

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" CEDAR ELM
- 2" DAHOON HOLLY
- 2" REDBUD
- ▨ BERMUDA SOD
- ▨ HARDWOOD MULCH
- ▨ PAVERS

KEY MAP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04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN

L2.11
BARRYKNOLL LANE
9+00 TO 13+00

WBS NO. M-430296-0017-3

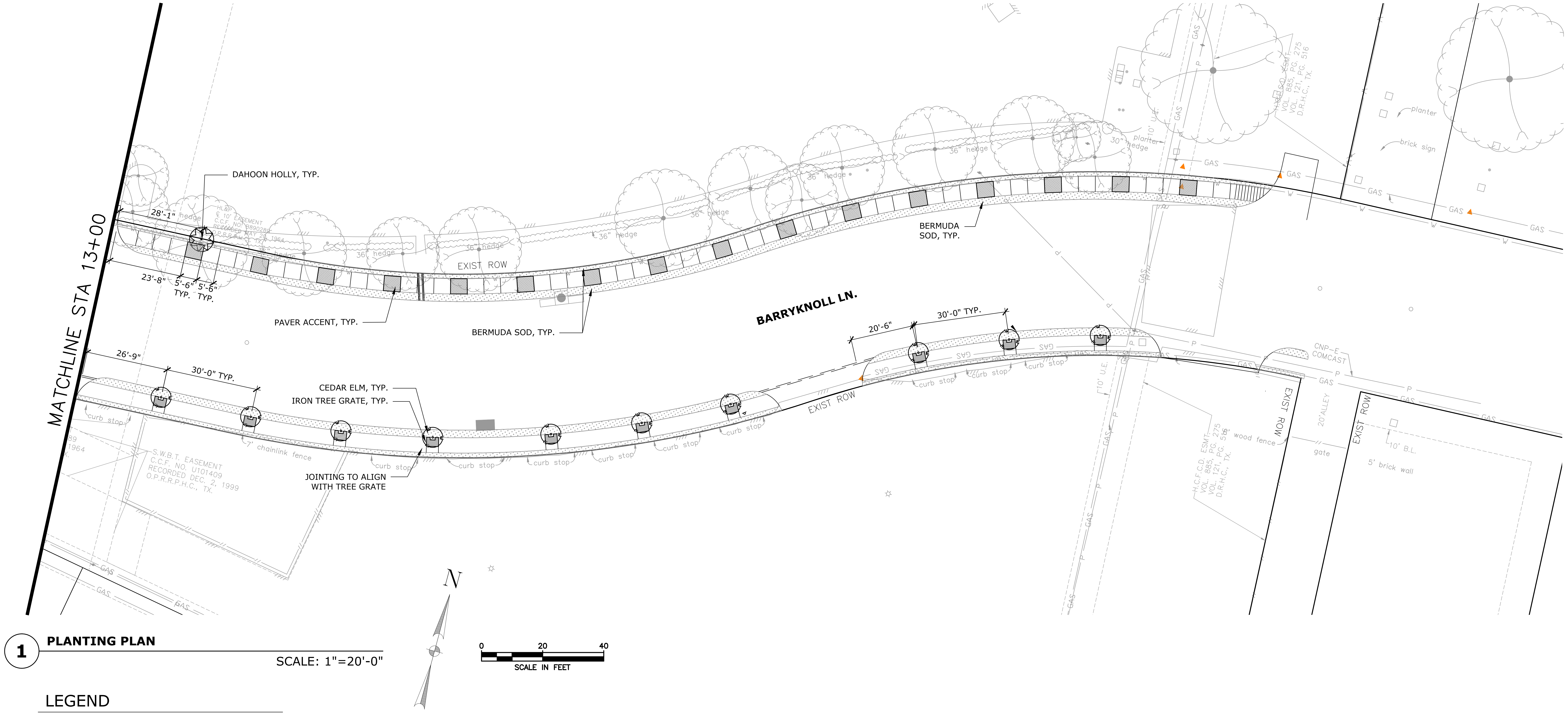
DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 291 OF 345

No.	Date	Revisions	App.

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:25 PM by Joshua Driscoll


DAHOON HOLLY, TYP.
28'-1"
23'-8"
5'-6" TYP.
5'-6" TYP.
PAVER ACCENT, TYP.
BERMUDA SOD, TYP.
BERMUDA SOD, TYP.
EXIST ROW
BARRYKNOLL LN.
MATCHLINE STA 13+00
26'-9"
30'-0" TYP.
20'-6"
30'-0" TYP.
CEDAR ELM, TYP.
IRON TREE GRATE, TYP.
JOINTING TO ALIGN WITH TREE GRATE
7' chainlink fence
curb stop
S.W.B.T. EASEMENT C.C.F. NO. U101409 RECORDED DEC. 2, 1999 O.P.R.R.P.H.C., TX.
36" hedge
EXIST ROW
N
0
20
40
SCALE IN FEET

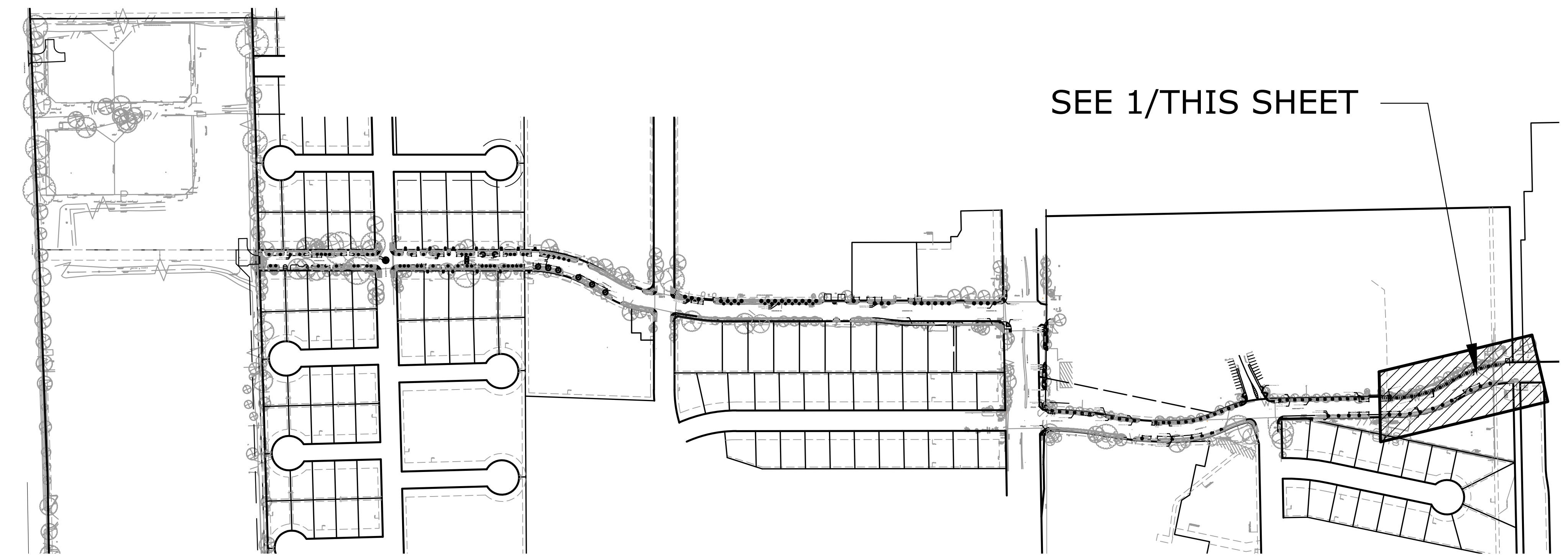
① **PLANTING PLAN**

SCALE: 1"=20'-0"

LEGEND

- EXISTING TREE TO REMAIN
- 4" CATHEDRAL LIVE OAK
- 4" CEDAR ELM
- 2" DAHOON HOLLY
- 2" REDBUD
- ▨ BERMUDA SOD
- ▨ HARDWOOD MULCH
- ▨ PAVERS

KEY MAP


SEE 1/THIS SHEET

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
ROADWAY
HARDSCAPE AND PLANTING PLAN
L2.12
BARRYKNOLL LANE
STA 13+00 TO END

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=20' (22'X34')
V: 1"=2' (22'X34')

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 292 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:22 PM by Joshua Driscoll

PLANTING SCHEDULE

QTY	COMMON NAME/BOTANICAL NAME	CALIPER / CONT.SIZE	HEIGHT	SPREAD	COMMENTS
TREES					
27 EA	CATHEDRAL LIVE OAK *Quercus virginiana 'Cathedral Oak'*	4" 100 GAL.	14'-16'	8' - 10'	SINGLE TRUNK W/ STRONG CENTRAL LEADER. FULL, WELL-BRANCHED, CONTRACTOR TO TRIM CANOPY TO ALLOW 8' CLEARANCE
20 EA	CEDAR ELM *Ulmus crassifolia*	4" 100 GAL.	12'-14'	10'-12'	SINGLE TRUNK W/ STRONG CENTRAL LEADER. FULL, WELL-BRANCHED, CONTRACTOR TO TRIM CANOPY TO ALLOW 8' CLEARANCE
ORNAMENTAL/SMALL TREES					
32 EA	DAHOON HOLLY *Ilex cassine*	2" 45 GAL.	4' - 5'	3' - 4'	MULTI-TRUNK W/ 3 TRUNKS MAX, FULL AND WELL BRANCHED, MIN TRUNK DIAMETER 1"
74 EA	REDBUD *Cercis canadensis*	2" 45 GAL.	4' - 5'	3' - 4'	SINGLE TRUNK W/ STRONG CENTRAL LEADER. FULL, WELL-BRANCHED
SHRUBS					
210 SF	FOXTAIL FERN *Asparagus aethiopicus*	1 GAL	10" - 12"	8" - 12"	CONTAINER GROWN, FULL & WELL ROOTED, PLANTED 24" O.C., TRIANGULATED SPACING
125 SF	LOROPETALUM *Loropetalum chinese 'Plum Delight'*	7 GAL	24"-30"	24"-30"	CONTAINER GROWN, FULL & WELL ROOTED, PLANTED 24" O.C., TRIANGULATED SPACING
ORNAMENTAL GRASSES					
50 SF	'REGAL MIST' MUHLY *Muhlenbergia capillaris 'Regal Mist'*	3 GAL	12" - 18"	12" - 18"	CONTAINER GROWN, FULL & WELL ROOTED, PLANTED 24" O.C., TRIANGULATED SPACING
GROUNDCOVERS AND ANNUALS					
120 SF	ASIAN JASMINE *Trachelospermum asiaticum*	1 GAL	6" - 8"	8" - 12"	CONTAINER GROWN, FULL & WELL ROOTED, PLANTED 18" O.C., TRIANGULATED SPACING
TURF AND GRASSES					
31,755 SF	COMMON BERMUDA *Cynodon dactylon*	NA	NA	NA	SOLID SOD, AS SHOWN PER PLAN
MULCH					
1,005 SF	HARDWOOD MULCH	NA	NA	NA	3" DEPTH

HARDSCAPE MATERIALS SCHEDULE

QTY	DESCRIPTION	COLOR	FINISH	CONTACT	COMMENTS
PAVERS/BRICK					
370 SF	REPLACE EXISTING PAVERS KEYSTONE, COBBLESTONE TW/SQ/REC 60MM	TO MATCH EXISTING	______		TO MATCH EXISTING PAVERS; EXISTING PAVERS MAY BE REUSED. CHIPPED PAVERS SHALL NOT BE INSTALLED. OWNER TO PROVIDE ADDITIONAL PAVERS AS NEEDED.
1475 SF	PAVER ACCENT KEYSTONE, COBBLESTONE TW/SQ/REC 60MM	TO MATCH EXISTING	______		TO MATCH EXISTING PAVERS
204 SF	CONCRETE STAMP - TRUCK APRON BOMANITE, COBBLESTONE TW/SQ/REC 60MM	MEXICAN TILE	HARRINGBONE USED BRICK	NAME / COMPANY:ERIC ORTIZ, BOMANITE EMAIL: EORTIZ@BOMANITEHOUSTON.COM	

PLANTING NOTES :

1. CONTRACTOR SHALL BE RESPONSIBLE FOR BECOMING FAMILIAR WITH ALL UNDERGROUND UTILITIES, PIPES, AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE OF THESE UTILITIES.
2. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT UNKNOWN OBSTRUCTIONS AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING THE DESIGN. SUCH CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND THE OWNER'S AUTHORIZED REPRESENTATIVE.
3. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING.
5. CONTRACTOR SHALL NOTIFY OWNER'S AUTHORIZED REPRESENTATIVE 72 HOURS (WEEKENDS NOT INCLUDED) PRIOR TO COMMENCEMENT OF WORK TO COORDINATE PROJECT OBSERVATION SCHEDULE.
6. IF CONFLICTS ARISE BETWEEN SIZE OF AREAS ON PLANS OR LAYOUT OF PLANS, CONTRACTOR SHALL CONTACT LANDSCAPE ARCHITECT FOR RESOLUTION. FAILURE TO MAKE SUCH CONFLICTS KNOWN TO LANDSCAPE ARCHITECT WILL RESULT IN CONTRACTOR'S LIABILITY TO RELOCATE THE MATERIAL.
7. PROTECT ALL EXISTING TREES TO REMAIN. CONTRACTOR SHALL REPLACE ANY TREES DAMAGED DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE FENCING, IF NECESSARY, AT THE TREE CANOPY DRIP LINE TO PROTECT TRUNK AND ROOTS AND TO PREVENT COMPACTION FROM VEHICLE TRAFFIC AND/OR MATERIAL STORAGE BELOW TREES.
8. CONTRACTOR SHALL PROVIDE FOR THE FEEDING, WATERING, AND GENERAL MAINTENANCE OF TREES TO KEEP THEM IN A HEALTHY CONDITION DURING CONSTRUCTION DURATION.
9. CONTRACTOR SHALL SUBMIT PHOTOS/PDFS OF REPRESENTATIVE TREES, SHRUBS, GRASSES, GROUNDCOVERS, AND VINES SHOWN ON THE PLANTING PLAN AND SCHEDULE, WITH INDICATION OF SPECIES, HEIGHT, WIDTH, AND CALIPER/CONTAINER SIZE. IF A NURSERY VISIT IS REQUIRED, THE CONTRACTOR WILL ARRANGE TO HAVE THE PARTICULAR NURSERIES PREPARED TO SHOW PLANT MATERIAL. SHOULD CONTRACTOR INSTALL PLANT MATERIAL INFERIOR TO INDUSTRY STANDARD OR DRAWING SPECIFICATIONS, IT IS AT CONTRACTOR'S RISK. ALL SUBMITTALS ARE TO BE APPROVED PRIOR TO PLANTING. NO UNAPPROVED MATERIAL IS TO BE INSTALLED.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH PLANT MATERIALS FREE OF PESTS AND DISEASES. PRE-SELECTED OR "TAGGED" MATERIAL MUST BE INSPECTED BY CONTRACTOR AND CERTIFIED PEST AND DISEASE FREE. IT IS THE CONTRACTOR'S OBLIGATION TO GUARANTEE ALL PLANT MATERIALS PER THE SPECIFICATIONS. TAGS PLACED BY THE LANDSCAPE ARCHITECT MUST REMAIN ON MATERIAL THROUGHOUT THE DURATION OF CONSTRUCTION.
11. CONTRACTOR SHALL STAKE ALL FINAL TREE LOCATIONS AND PLANTING BED LIMITS IN THE FIELD FOR APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
12. STEEL EDGING SHALL BE PLACED BETWEEN ALL SHRUB BEDS AND TURF AREAS, AS WELL AS BETWEEN GRAVEL BED AND PLANTING BEDS.
13. UPON INSTALLATION, ALL TREE MATERIALS SHALL BE STAKED BY THE METHOD INDICATED IN THE SPECIFICATIONS AND PLANTING DETAILS.
14. IF REQUESTED BY OWNER, CONTRACTOR SHALL INSTALL DEEP ROOT BARRIERS AT ALL TREES WITHIN 5'-0" OF CONCRETE WALKWAYS, STRUCTURES, WALLS, CURBS, ETC.
15. ALL PLANTS SHALL BE TRIANGULARLY SPACED, UNLESS OTHERWISE INDICATED.
16. ALL PLANTING BEDS SHALL RECEIVE A MINIMUM OF 3" OF APPROVED SHREDDED MULCH.
17. CONTRACTOR SHALL FINE GRADE ALL DISTURBED AREAS TO PROVIDE FOR PROPER DRAINAGE.

GENERAL CONSTRUCTION NOTES :

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE PLANS AND SPECIFICATIONS TO DETERMINE THE TOTAL SCOPE OF WORK AND REQUIRED COORDINATION. THE CONTRACTOR SHALL CONSULT WITH SITE SUPERINTENDENT AND APPROPRIATE AGENCIES IN ORDER TO DETERMINE THE LOCATION OF ALL UNDERGROUND UTILITIES, PIPES, AND STRUCTURES. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR ANY COST INCURRED DUE TO DAMAGE OF SAID UTILITIES.
2. ALL SITE IMPROVEMENTS ARE BASED UPON DRAWINGS PROVIDED BY CIVIL ENGINEER THE LANDSCAPE ARCHITECT BEARS NO RESPONSIBILITY FOR THE ACCURACY OF THE DRAWINGS PROVIDED.CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE ACCURATE LOCATION OF PROPERTY LINES AND EASEMENTS, AND SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.
3. CONTRACTOR SHALL NOT WILLFULLY PROCEED WITH CONSTRUCTION AS DESIGNED WHEN IT IS OBVIOUS THAT CONSTRUCTION AREA DISCREPANCIES AND/OR GRADE DIFFERENCES EXIST THAT MAY NOT HAVE BEEN KNOWN DURING DESIGN. SUCH CONDITIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE OWNER'S AUTHORIZED REPRESENTATIVE. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL NECESSARY REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATIONS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH ALL CONSTRUCTION OPERATIONS. ALL PIPING, CONDUIT, SLEEVES, ETC., SHALL BE SET IN PLACE PRIOR TO INSTALLATION OF CONSTRUCTION ITEMS.
5. ALL EXISTING TREES AND TREE PRESERVATION AREAS SHALL BE PROTECTED PRIOR AND DURING CONSTRUCTION WITH TEMPORARY FENCING AS SHOWN ON DETAILS SHEET.
6. CONTRACTOR IS RESPONSIBLE FOR REPLACEMENT OF ANY EXISTING MATERIALS THAT ARE DAMAGED DURING CONSTRUCTION OPERATIONS, INSIDE OR OUTSIDE OF THE PROPERTY LINE. MATERIALS INCLUDE BOTH HARDSCAPE AND LANDSCAPE.
7. ALL DIMENSIONS ARE MEASURED FROM FACE OF VERTICAL ELEMENTS. DIMENSIONS TAKEN FROM ROAD EDGE ARE FROM BACK OF CURB (B.O.C.) UNLESS OTHERWISE NOTED ON PLANS.
8. ALL CONSTRUCTION ITEMS FORMED WITH A COMPACTED SUBGRADE AND/OR STEEL REINFORCEMENT SHALL BE OBSERVED AND APPROVED PRIOR TO INSTALLATION BY THE OWNER'S AUTHORIZED REPRESENTATIVE.
9. CONTRACTOR SHALL STAKE THE LOCATIONS OF ALL SIDEWALKS, WALLS, AND ANY HARDSCAPE ELEMENT FOR APPROVAL BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO COMMENCING CONSTRUCTION.
10. WHEN REQUIRED BY OWNER, CONTRACTOR SHALL SUBMIT 4' x 4' SAMPLES (OR SIZE AS REQUESTED BY OWNER), OF ALL PAVING WITH JOINTS IN PLACE, PAVING ALTERNATES, FINISHES, AND COLORS. ALL SAMPLES SHALL BE APPROVED BY OWNER'S AUTHORIZED REPRESENTATIVE, PRIOR T0 CONSTRUCTION.
11. EXPANSION JOINTS SHALL BE PLACED IN ALL CASES WHERE CONCRETE OR NEW PAVING ABUTS VERTICAL STRUCTURES OR CONCRETE CURBS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING THE LOCATIONS OF ANY EXISTING SITE ELEMENTS (REQUIRING REMOVAL FOR CONSTRUCTION)TO BE RE-SET IN THE PREVIOUS HORIZONTAL LOCATION.
13. AT ALL LOCATIONS WHERE EXISTING CURBING, ASPHALT, OR CONCRETE PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE.

No.	Date	Revisions	App.

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1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HARDSCAPE AND PLANTING SCHEDULE

L2.13

WBS NO. M-430296-0017-3

DRAWING SCALE

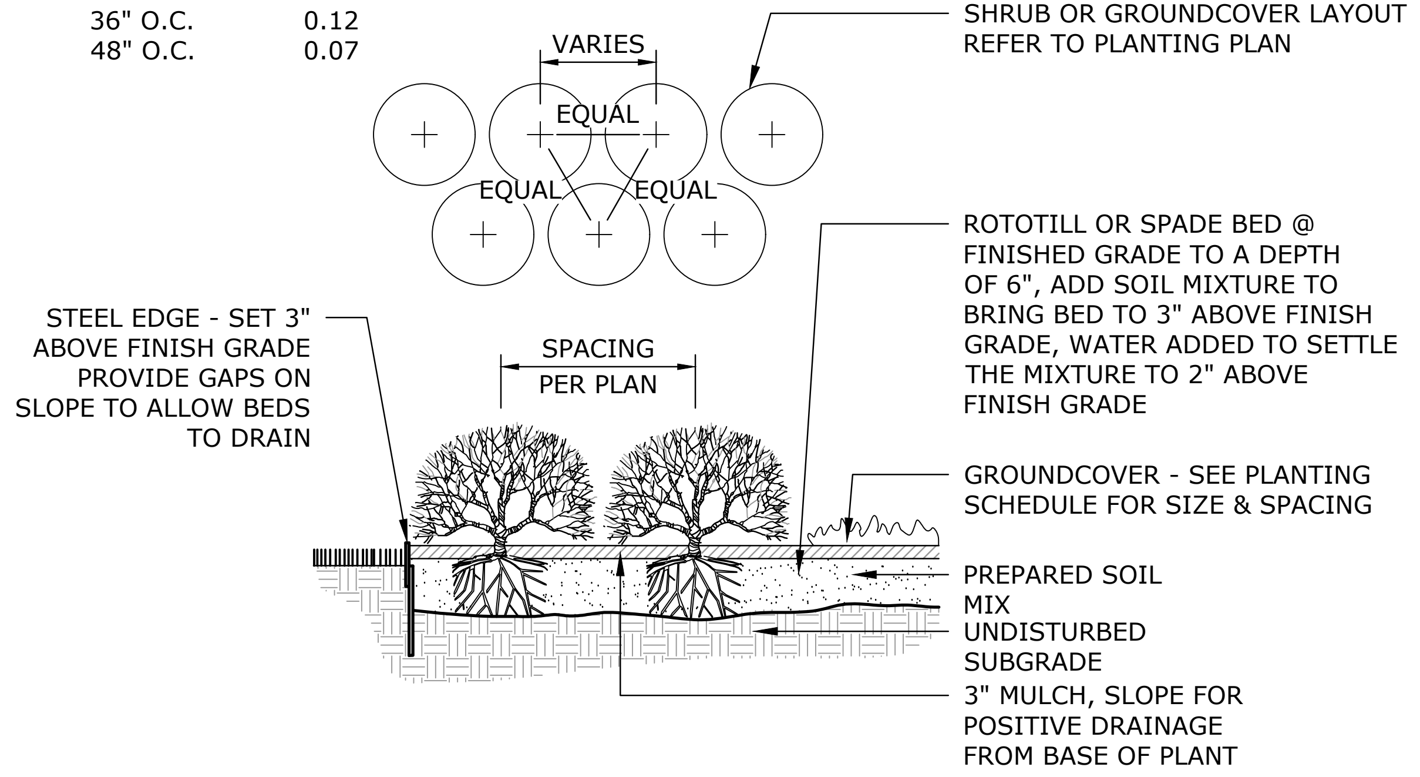
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 293 OF 345

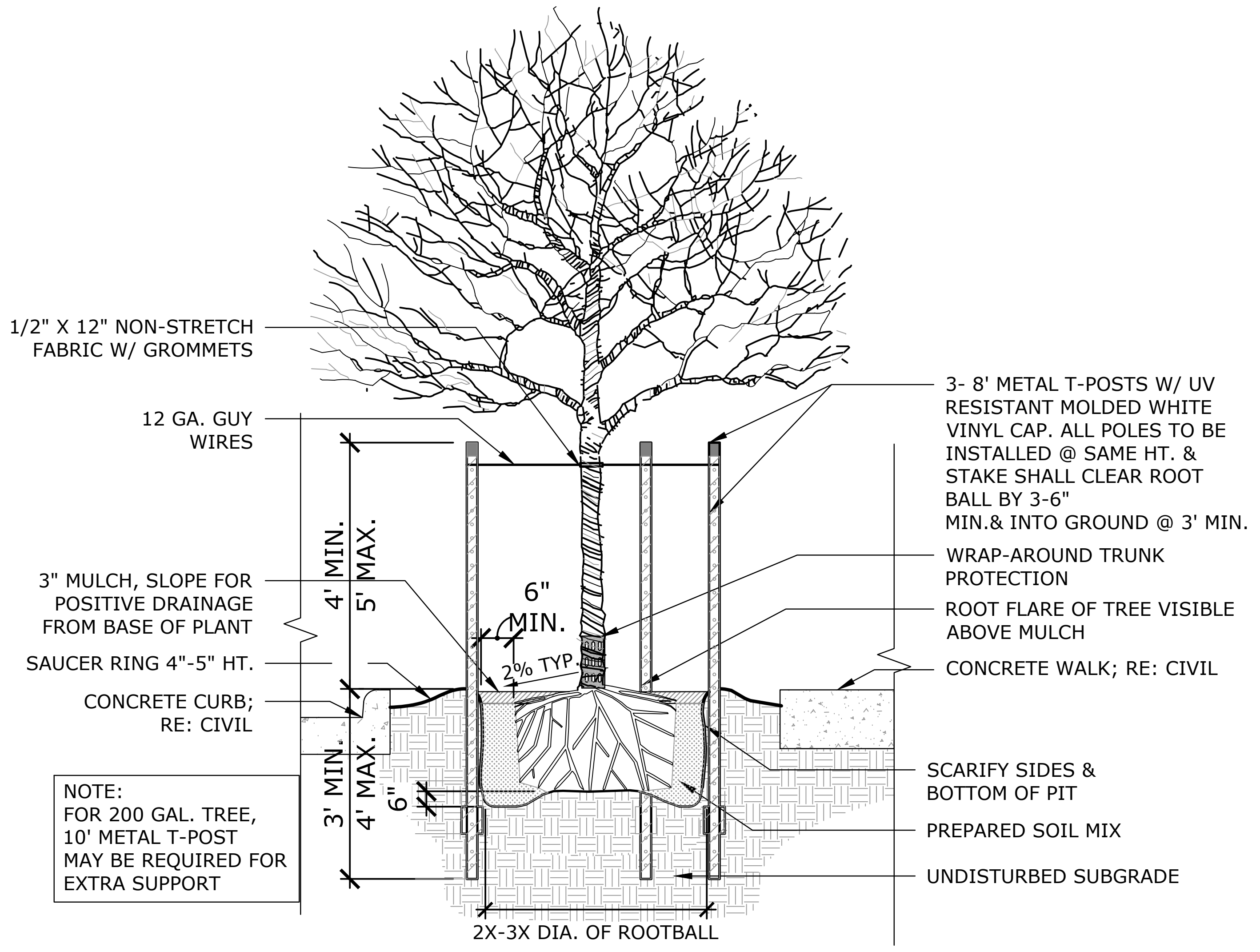
No.	Date	Revisions	App.

SPACING	PLANTS/SF
6" O.C.	4.61
8" O.C.	2.60
9" O.C.	1.78
10" O.C.	1.66
12" O.C.	1.15
18" O.C.	0.50
24" O.C.	0.28
30" O.C.	0.18
36" O.C.	0.12
48" O.C.	0.07


VARIES
EQUAL
EQUAL
EQUAL
SHRUB OR GROUNDCOVER LAYOUT REFER TO PLANTING PLAN
ROTOTILL OR SPADE BED @ FINISHED GRADE TO A DEPTH OF 6", ADD SOIL MIXTURE TO BRING BED TO 3" ABOVE FINISH GRADE, WATER ADDED TO SETTLE THE MIXTURE TO 2" ABOVE FINISH GRADE
STEEL EDGE - SET 3" ABOVE FINISH GRADE PROVIDE GAPS ON SLOPE TO ALLOW BEDS TO DRAIN
SPACING PER PLAN
GROUNDCOVER - SEE PLANTING SCHEDULE FOR SIZE & SPACING
PREPARED SOIL MIX
UNDISTURBED SUBGRADE
3" MULCH, SLOPE FOR POSITIVE DRAINAGE FROM BASE OF PLANT

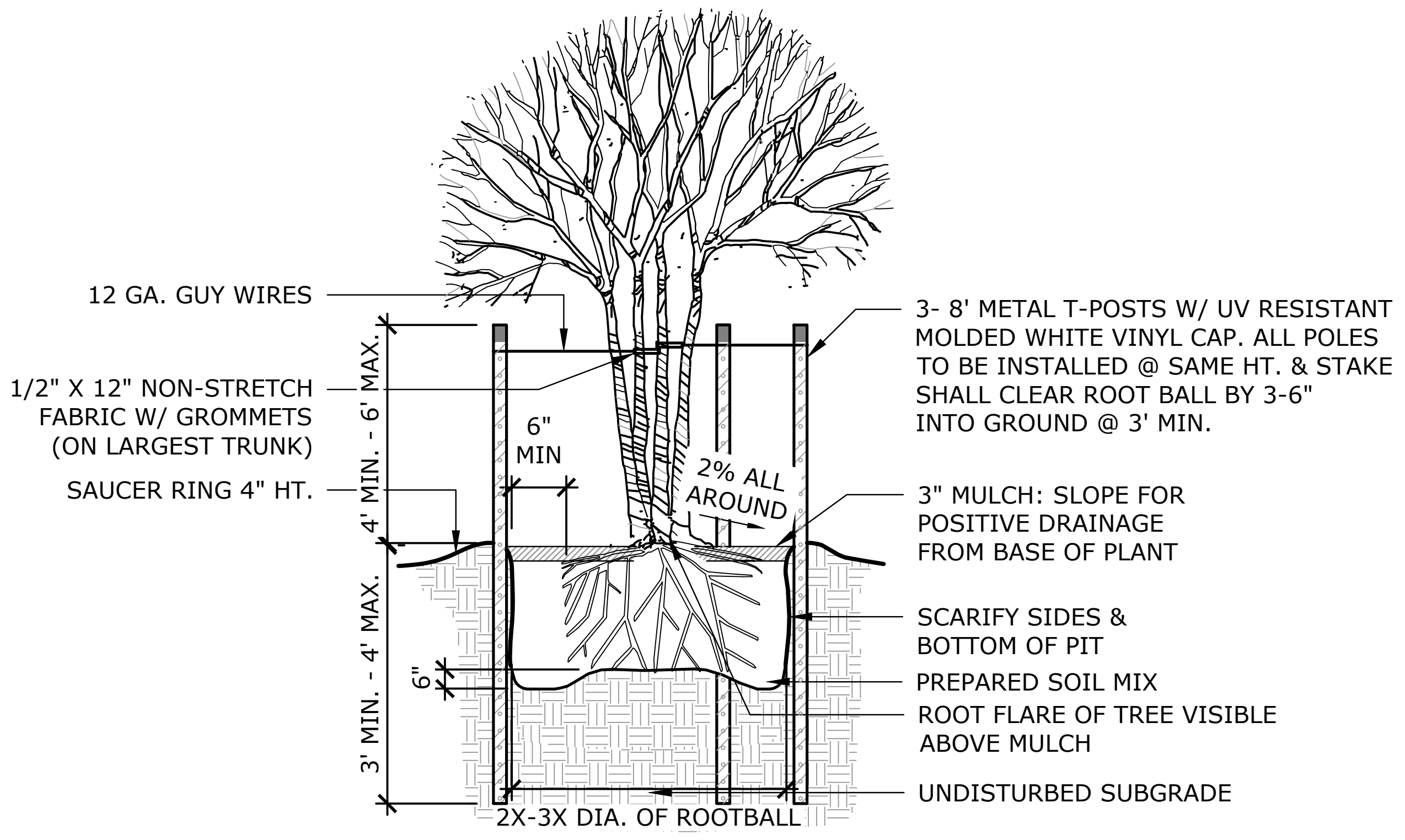
1 **TYPICAL SHRUB / GROUND COVER PLANTING DETAIL & SPACING CHART**

SCALE: 3/8" = 1'-0"


1/2" X 12" NON-STRETCH FABRIC W/ GROMMETS
12 GA. GUY WIRES
3- 8' METAL T-POSTS W/ UV RESISTANT MOLDED WHITE VINYL CAP. ALL POLES TO BE INSTALLED @ SAME HT. & STAKE SHALL CLEAR ROOT BALL BY 3-6" MIN.& INTO GROUND @ 3' MIN.
WRAP-AROUND TRUNK PROTECTION
ROOT FLARE OF TREE VISIBLE ABOVE MULCH
CONCRETE WALK; RE: CIVIL
3" MULCH, SLOPE FOR POSITIVE DRAINAGE FROM BASE OF PLANT
SAUCER RING 4"-5" HT.
CONCRETE CURB; RE: CIVIL
4' MIN. 5' MAX.
6" MIN.
2% TYP.
3' MIN. 4' MAX.
6"
NOTE: FOR 200 GAL. TREE, 10' METAL T-POST MAY BE REQUIRED FOR EXTRA SUPPORT
SCARIFY SIDES & BOTTOM OF PIT
PREPARED SOIL MIX
UNDISTURBED SUBGRADE
2X-3X DIA. OF ROOTBALL

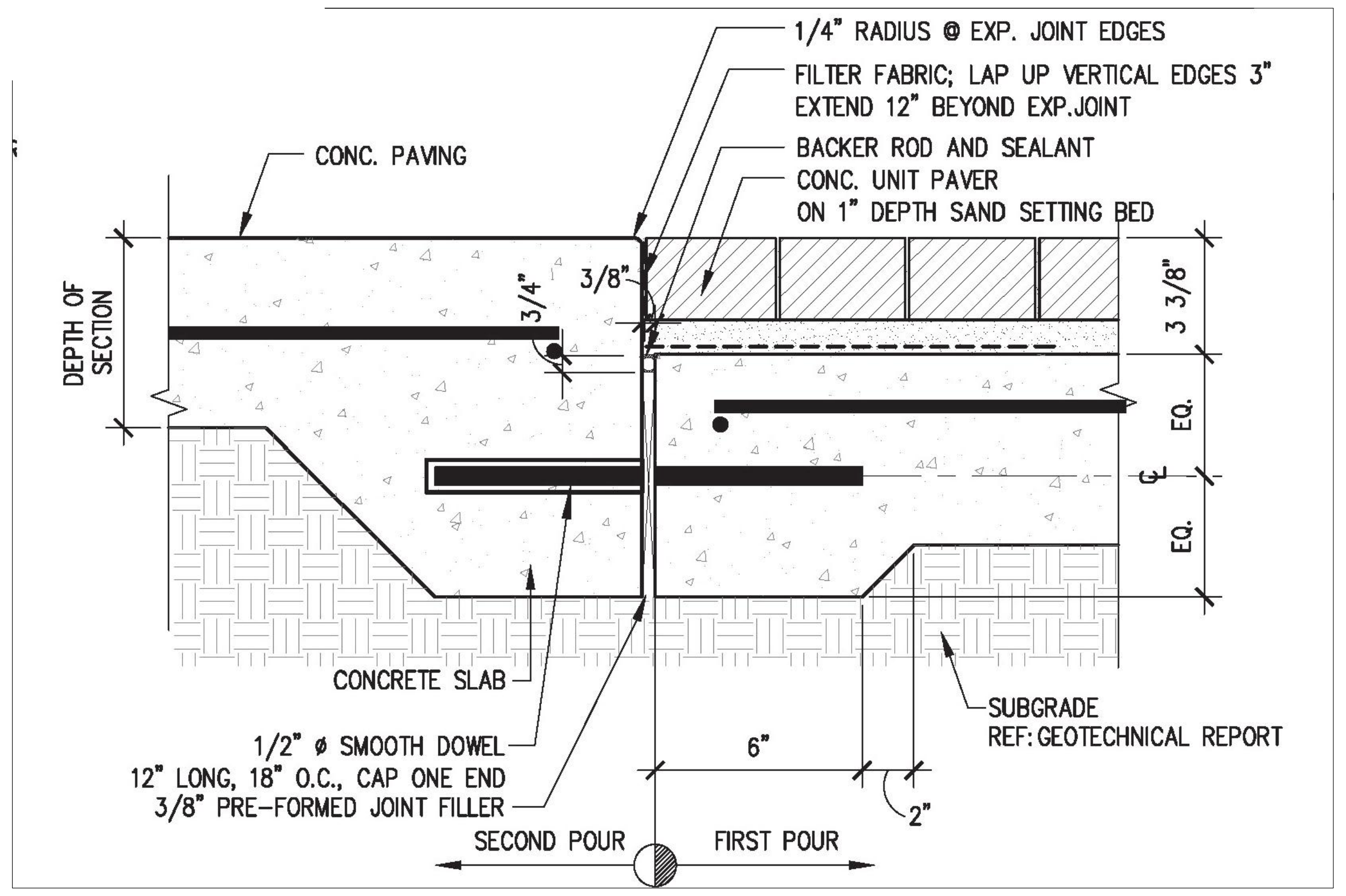
2 **TYPICAL CANOPY TREE PLANTING DETAIL**

SCALE: 3/8" = 1'-0"


12 GA. GUY WIRES
1/2" X 12" NON-STRETCH FABRIC W/ GROMMETS (ON LARGEST TRUNK)
SAUCER RING 4" HT.
4' MIN. - 6' MAX.
6" MIN
2% ALL AROUND
3' MIN. - 4' MAX.
6"
3- 8' METAL T-POSTS W/ UV RESISTANT MOLDED WHITE VINYL CAP. ALL POLES TO BE INSTALLED @ SAME HT. & STAKE SHALL CLEAR ROOT BALL BY 3-6" INTO GROUND @ 3' MIN.
3" MULCH: SLOPE FOR POSITIVE DRAINAGE FROM BASE OF PLANT
SCARIFY SIDES & BOTTOM OF PIT
PREPARED SOIL MIX
ROOT FLARE OF TREE VISIBLE ABOVE MULCH
UNDISTURBED SUBGRADE
2X-3X DIA. OF ROOTBALL

3 **TYPICAL MULTI-TRUNK TREE PLANTING DETAIL**

SCALE: 3/8" = 1'-0"


1/4" RADIUS @ EXP. JOINT EDGES
FILTER FABRIC; LAP UP VERTICAL EDGES 3" EXTEND 12" BEYOND EXP.JOINT
CONC. PAVING
BACKER ROD AND SEALANT
CONC. UNIT PAVER ON 1" DEPTH SAND SETTING BED
DEPTH OF SECTION
3/4"
3/8"
3 3/8"
EQ.
℄
EQ.
CONCRETE SLAB
1/2" ø SMOOTH DOWEL 12" LONG, 18" O.C., CAP ONE END
3/8" PRE-FORMED JOINT FILLER
SUBGRADE REF:GEOTECHNICAL REPORT
6"
2"
SECOND POUR
FIRST POUR

4 **TYPICAL PAVER (PER TIRZ 17 STREETSCAPE STANDARDS)**

SCALE: NTS

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:24 PM by Joshua Driscoll

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

HARDSCAPE AND PLANTING DETAILS

L2.14

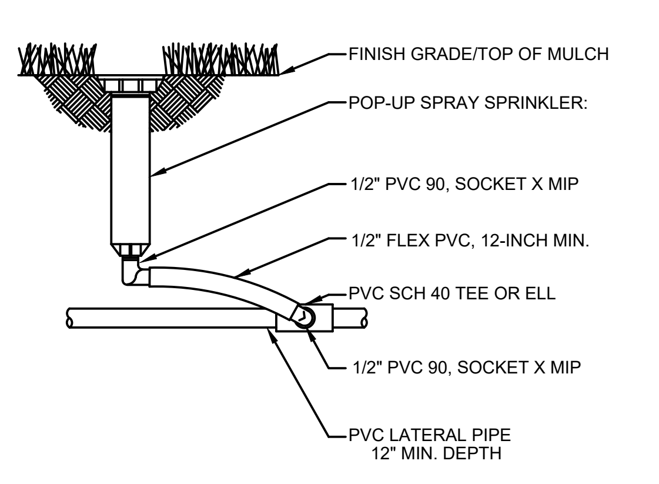
WBS NO. M-430296-0017-3

DRAWING SCALE

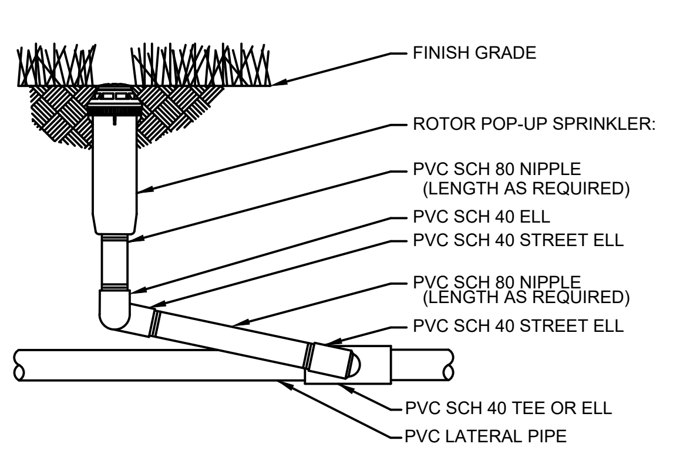
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

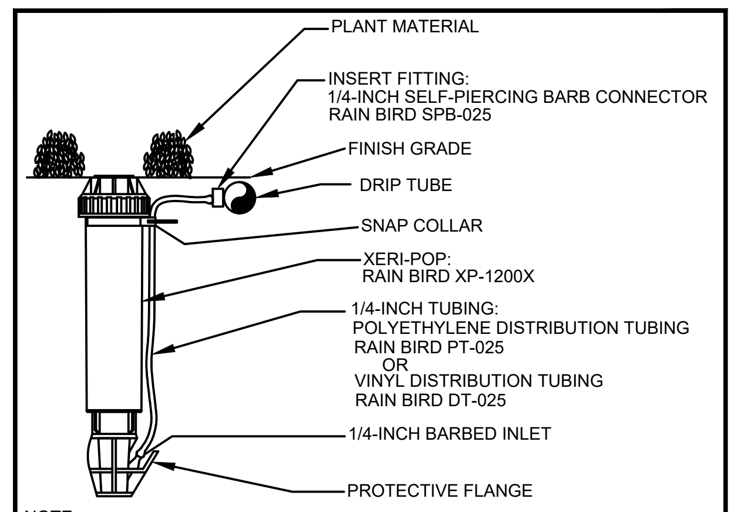
SHEET NO. 294 OF 345


FINISH GRADE/TOP OF MULCH
POP-UP SPRAY SPRINKLER:
1/2" PVC 90, SOCKET X MIP
1/2" FLEX PVC, 12-INCH MIN.
PVC SCH 40 TEE OR ELL
1/2" PVC 90, SOCKET X MIP
PVC LATERAL PIPE 12" MIN. DEPTH

POP-UP SPRAY HEAD

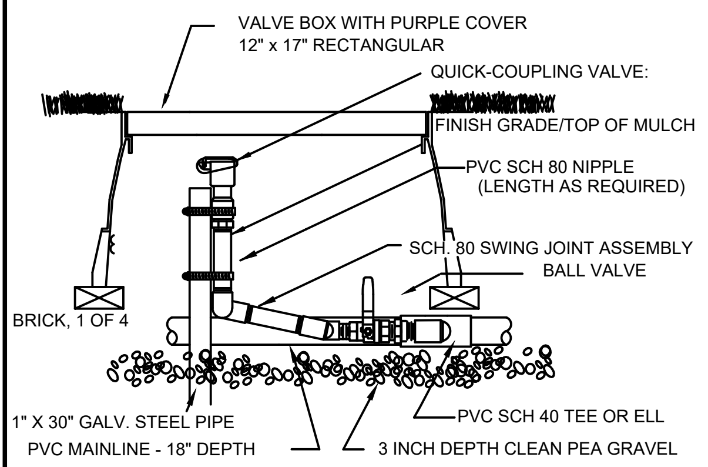

FINISH GRADE
ROTOR POP-UP SPRINKLER:
PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
PVC SCH 40 ELL
PVC SCH 40 STREET ELL
PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
PVC SCH 40 STREET ELL
PVC SCH 40 TEE OR ELL
PVC LATERAL PIPE

ROTOR POP-UP SPRINKLER

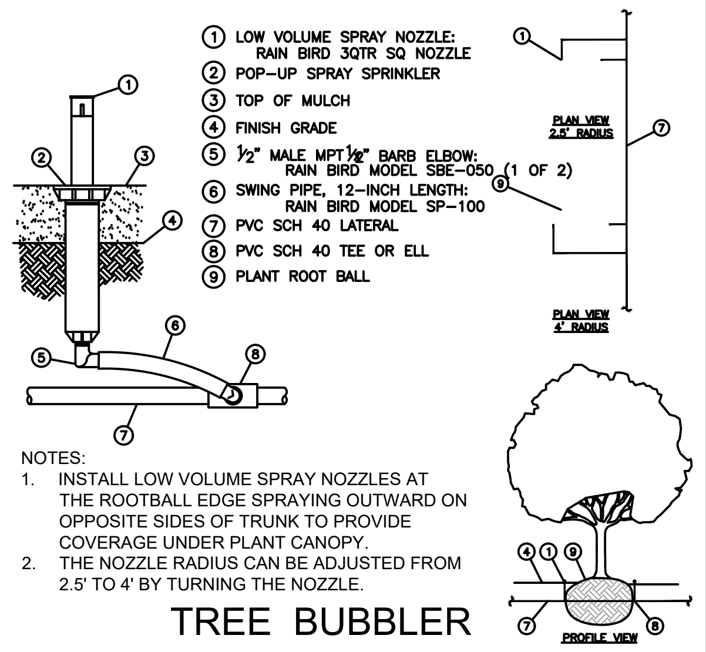

PLANT MATERIAL
INSERT FITTING: 1/4-INCH SELF-PIERCING BARB CONNECTOR RAIN BIRD SPB-025
FINISH GRADE
DRIP TUBE
SNAP COLLAR
XERI-POP: RAIN BIRD XP-1200X
1/4-INCH TUBING: POLYETHYLENE DISTRIBUTION TUBING RAIN BIRD PT-025 OR VINYL DISTRIBUTION TUBING RAIN BIRD DT-025
1/4-INCH BARBED INLET
PROTECTIVE FLANGE

NOTE:
USE XERIMAN TOOL XM-TOOL TO INSERT BARB CONNECTOR DIRECTLY INTO 1/2-INCH POLYETHYLENE TUBING.
LOCATE AT FURTHEST DISTANCE FROM DRIP VALVE ASSEMPLY, ADJACENT TO EDGING OR WITHIN LOW PLANTINGS FOR OPTIMUM VIEWING. WITH CLOSED SPRAY NOZZLE.

DRIP ZONE INDICATOR


VALVE BOX WITH PURPLE COVER 12" x 17" RECTANGULAR
QUICK-COUPLING VALVE:
FINISH GRADE/TOP OF MULCH
PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
SCH. 80 SWING JOINT ASSEMBLY
BALL VALVE
BRICK, 1 OF 4
1" X 30" GALV. STEEL PIPE
PVC MAINLINE - 18" DEPTH
PVC SCH 40 TEE OR ELL
3 INCH DEPTH CLEAN PEA GRAVEL

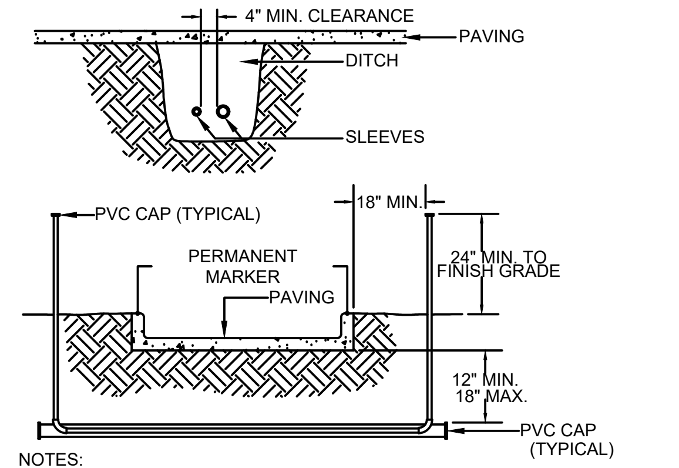
QUICK COUPLER VALVE
WITH PVC BALL VALVE


PLAN VIEW 2.5' RADIUS
PLAN VIEW 4' RADIUS
PROFILE VIEW
①
②
③
④
⑤
⑥
⑦
⑧
⑨

① LOW VOLUME SPRAY NOZZLE: RAIN BIRD 3QTR SQ NOZZLE
② POP-UP SPRAY SPRINKLER
③ TOP OF MULCH
④ FINISH GRADE
⑤ 1/2" MALE MPT 1/2" BARB ELBOW: RAIN BIRD MODEL SBE-050 (1 OF 2)
⑥ SWING PIPE, 12-INCH LENGTH: RAIN BIRD MODEL SP-100
⑦ PVC SCH 40 LATERAL
⑧ PVC SCH 40 TEE OR ELL
⑨ PLANT ROOT BALL

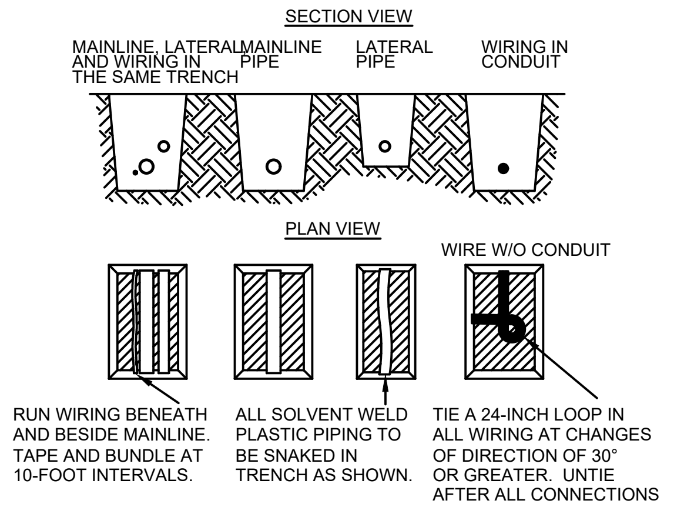
NOTES:
1. INSTALL LOW VOLUME SPRAY NOZZLES AT THE ROOTBALL EDGE SPRAYING OUTWARD ON OPPOSITE SIDES OF TRUNK TO PROVIDE COVERAGE UNDER PLANT CANOPY.
2. THE NOZZLE RADIUS CAN BE ADJUSTED FROM 2.5' TO 4' BY TURNING THE NOZZLE.

TREE BUBBLER


4" MIN. CLEARANCE
PAVING
DITCH
SLEEVES
PVC CAP (TYPICAL)
18" MIN.
PERMANENT MARKER
PAVING
24" MIN. TO FINISH GRADE
12" MIN. 18" MAX.
PVC CAP (TYPICAL)

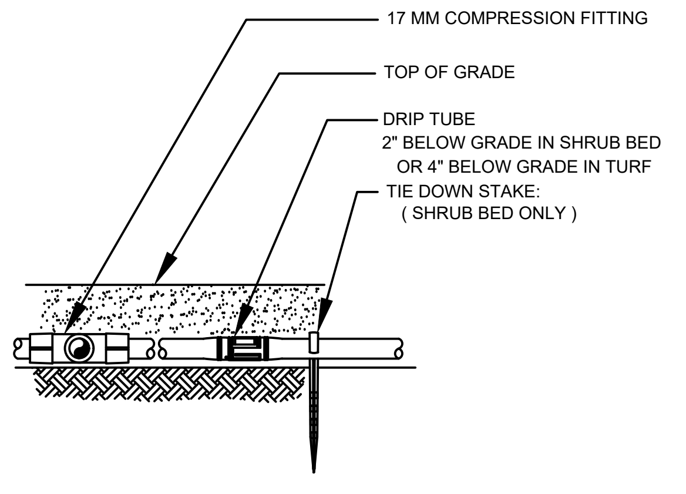
NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE CLASS 200 PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24-INCHES MINIMUM ABOVE FINISH GRADE.
4. MECHANICALLY TAMP TO 95% PROCTOR.
5. SLEEVE LOCATIONS SHALL BE MARKED ONTO THE TOP OF CURB WITH A SAWCUT OF TWO PARALLEL LINES THAT ARE 2" LONG AND 1" APART.

SLEEVING

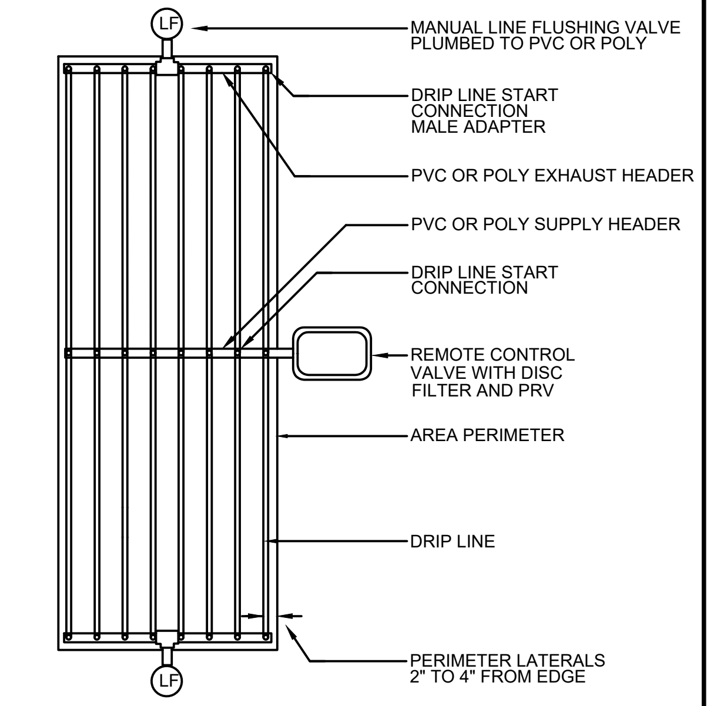

SECTION VIEW
MAINLINE, LATERAL AND WIRING IN THE SAME TRENCH
MAINLINE PIPE
LATERAL PIPE
WIRING IN CONDUIT
PLAN VIEW
WIRE W/O CONDUIT
RUN WIRING BENEATH AND BESIDE MAINLINE. TAPE AND BUNDLE AT 10-FOOT INTERVALS.
ALL SOLVENT WELD PLASTIC PIPING TO BE SNAKED IN TRENCH AS SHOWN.
TIE A 24-INCH LOOP IN ALL WIRING AT CHANGES OF DIRECTION OF 30° OR GREATER. UNTIE AFTER ALL CONNECTIONS HAVE BEEN MADE.

NOTES:
1. SLEEVE BELOW ALL HARDSCAPE ELEMENTS WITH CLASS 200 PVC TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN.
2. FOR PIPE AND WIRE BURIAL DEPTHS SEE SPECIFICATIONS.

TRENCH DETAIL


17 MM COMPRESSION FITTING
TOP OF GRADE
DRIP TUBE 2" BELOW GRADE IN SHRUB BED OR 4" BELOW GRADE IN TURF
TIE DOWN STAKE: (SHRUB BED ONLY)

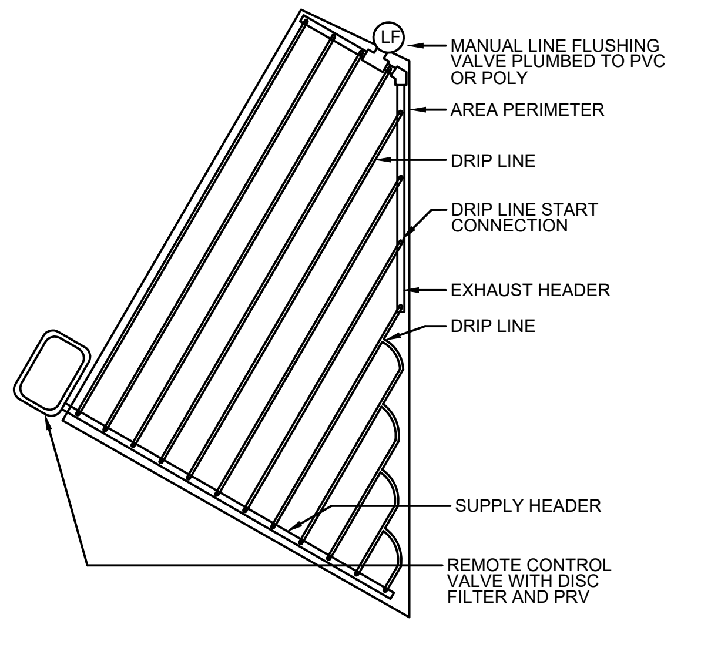
DRIP TUBE


LF
MANUAL LINE FLUSHING VALVE PLUMBED TO PVC OR POLY
DRIP LINE START CONNECTION MALE ADAPTER
PVC OR POLY EXHAUST HEADER
PVC OR POLY SUPPLY HEADER
DRIP LINE START CONNECTION
REMOTE CONTROL VALVE WITH DISC FILTER AND PRV
AREA PERIMETER
DRIP LINE
PERIMETER LATERALS 2" TO 4" FROM EDGE
LF

SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.

USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

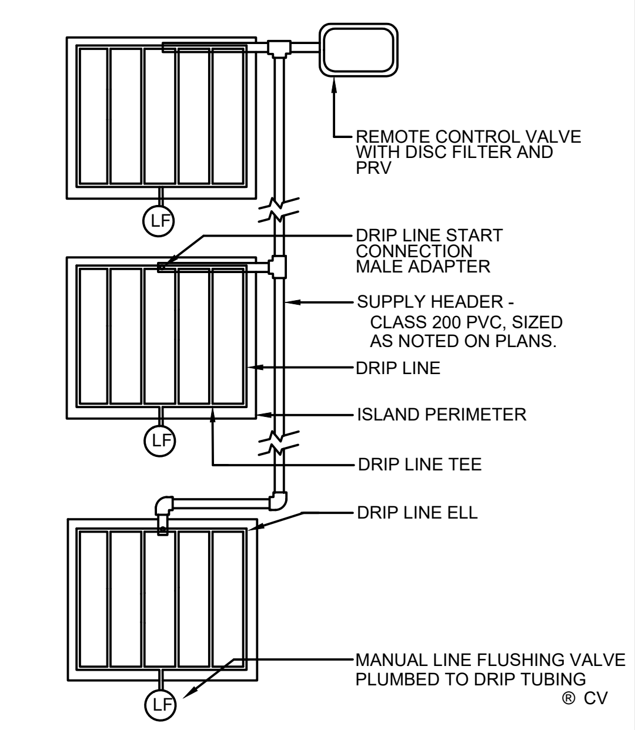
DRIP CENTER FEED LAYOUT


LF
MANUAL LINE FLUSHING VALVE PLUMBED TO PVC OR POLY
AREA PERIMETER
DRIP LINE
DRIP LINE START CONNECTION
EXHAUST HEADER
DRIP LINE
SUPPLY HEADER
REMOTE CONTROL VALVE WITH DISC FILTER AND PRV

SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.

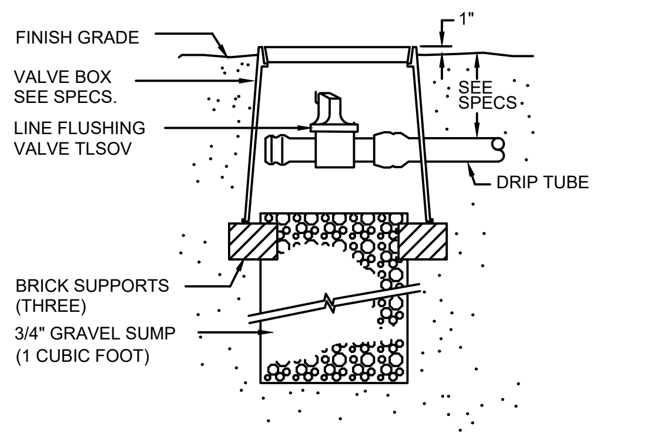
USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

IRREGULAR AREA DRIP LAYOUT

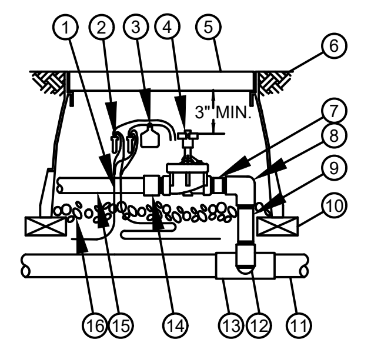

REMOTE CONTROL VALVE WITH DISC FILTER AND PRV
LF
DRIP LINE START CONNECTION MALE ADAPTER
SUPPLY HEADER - CLASS 200 PVC, SIZED AS NOTED ON PLANS.
DRIP LINE
ISLAND PERIMETER
LF
DRIP LINE TEE
DRIP LINE ELL
MANUAL LINE FLUSHING VALVE PLUMBED TO DRIP TUBING
® CV
LF

USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

DRIP ISLAND LAYOUT


FINISH GRADE
1"
VALVE BOX SEE SPECS.
SEE SPECS
LINE FLUSHING VALVE TLSOV
DRIP TUBE
BRICK SUPPORTS (THREE)
3/4" GRAVEL SUMP (1 CUBIC FOOT)

MANUAL LINE FLUSH VALVE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3" MIN.
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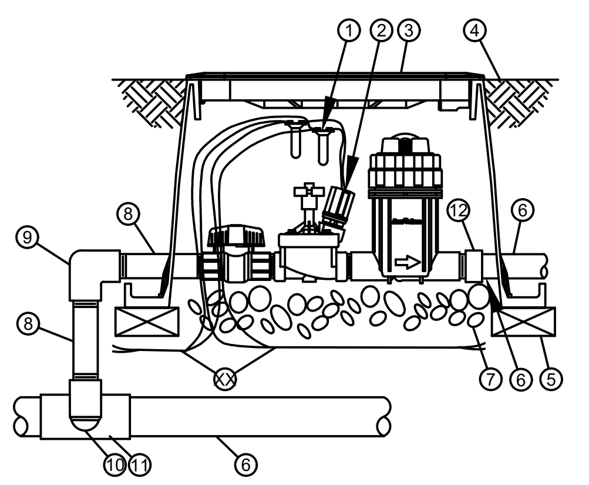
ISOLATION VALVE NOT SHOWN IN DETAIL AND IS TO BE INSTALLED AS NOTED ON PLANS

① 36-INCH LENGTH OF 2-WIRE CABLE
② WATERPROOF CONNECTION RAIN BIRD WC20 (TWO REQUIRED)
③ ID TAG: RAIN BIRD VID SERIES
④ REMOTE CONTROL VALVE: RAIN BIRD PEB/PESB/PESB-R WITH IVM
⑤ VALVE BOX WITH COVER: RAIN BIRD VB-STD
⑥ FINISH GRADE/TOP OF MULCH
⑦ PVC SCH 80 NIPPLE (CLOSE)
⑧ PVC SCH 40 ELL
⑨ PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
⑩ BRICK (1 OF 4)
⑪ PVC MAINLINE PIPE
⑫ SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND SCH 40 ELL
⑬ PVC SCH 40 TEE OR ELL
⑭ PVC SCH 40 MALE ADAPTER
⑮ PVC LATERAL PIPE
⑯ 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL

ELECTRIC REMOTE-CONTROL VALVE
PEB OR PESB SERIES WITH IVM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NOTE:
1. COIL AN ADDITIONAL 3-FEET OF TWO-WIRE CABLE IN VALVE BOX FOR EASY SERVICING.

① WATERPROOF SPLICE CONNECTION: RAIN BIRD WC20 (TWO REQUIRED)
② RAIN BIRD DRIP KIT: XCZ WITH IVM-SOL
③ VALVE BOX WITH COVER: RAIN BIRD VB-STD
④ FINISH GRADE OR TOP OF MULCH
⑤ BRICK (1 OF 4)
⑥ PVC PIPE
⑦ 3-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
⑧ PVC SCH 80 NIPPLE 1"
⑨ PVC SCH 80 ELBOW
⑩ PVC SCH 80 NIPPLE (2" LENGTH, HIDDEN) AND PVC SCH 80 ELBOW
⑪ PVC SCH 80 TEE OR ELBOW
⑫ PVC SCH 40 MALE ADAPTER
⑬ TWO-WIRE CABLE BETWEEN DEVICES (FIELD DECODER, SENSOR DECODER, LINE SURGE PROTECTOR CONTROLLER)

XCZ-WITH IVM-SOL

IRRIGATION EQUIPMENT

TREE BUBBLERS
RAINBIRD 1806-SAM-PRS SERIES POP UP SPRAY HEADS WITH RAINBIRD SQ NOZZLES, MODEL #3QTR, SET TO 2.5' THROW (TWO PER LARGE CANOPY TREE)

TURF SPRAY HEADS
RAINBIRD 1804-SAM-PRS SERIES POP UP SPRAY HEAD

TURF ROTORS
RAINBIRD 5004PCSAMR, ADJUSTABLE ARC 4" POP UP ROTARY HEAD

DRIP TUBE
RAINBIRD XFS-CV-06-12 SERIES DRIP TUBE IN SHRUB BED INSTALLED AT 2" DEPTH
RAINBIRD XFS-CV-06-12 SERIES DRIP TUBE IN NARROW TURF AREAS INSTALLED AT 4" DEPTH

VALVES
RAINBIRD PESB SERIES ELECTRIC REMOTE CONTROL VALVE AND IVM-SOL SOLENOID
RAINBIRD PESB SERIES ELECTRIC REMOTE CONTROL, "TREE BUBBLER ZONE" VALVE AND IVM-SOL SOLENOID
RAINBIRD XCZ-100-PRB-COM / XCZ-150-LCS SERIES AUTOMATIC DRIP VALVE ASSEMBLY WITH 40 PSI PRESSURE REGULATOR AND COMMERCIAL BASKET FILTER WITH STAINLESS STEEL SCREEN AND IVM-SOL SOLENOID
RAINBIRD 33-DNP QUICK COUPLING VALVE WITH LOCKING PURPLE COVER AND 3/4" PVC BALL VALVE

ISOLATION VALVE
WHERE MAINLINE IS 3" OR SMALLER, INSTALL LASCO "V" SERIES SCH. 80 PVC TRUE UNION BALL VALVE, MAINLINE SIZE
2" SUPERIOR CONTROLS, 3000 SERIES "MASTER" ELECTRIC VALVE AND
RAINBIRD FLOW SENSOR MODEL #FS200P SERIES WITH #LXIVMSEN SERIES SENSOR DECODER.

PIPE
CLASS 200 PVC MAINLINE PIPE
CLASS 200 (EXCEPT 1/2 INCH #315) PVC LATERAL PIPE
4" CLASS 200 SLEEVE PIPE

AT EACH IRRIGATION SLEEVE LOCATION UNDER CONCRETE, PROVIDE A BRASS CARRIAGE BOLT, SET IN BED OF EPOXY, IN CONCRETE ABOVE SLEEVE.

L.I.C. SHALL SELECT SPRAY NOZZLES FOR "HEAD-TO-HEAD" COVERAGE, ADJUSTED FOR NO OVERSPRAY ONTO WALLS AND WALKS. NO OVERSPRAY INTO STREETS IS PERMITTED.

COORDINATION WITH EXISTING TREES

NO MACHINE TRENCHING SHALL BE PERMITTED WITHIN THE ROOT ZONE OF EXISTING TREES. HAND-DIG ONLY, WITHIN THE ROOT ZONES OF EXISTING TREES. NO ROOTS OVER 1" DIAMETER SHALL BE CUT. STAKE ALL PROPOSED TRENCH ROUTES NEAR EXISTING TREES FOR APPROVAL BY THE LANDSCAPE ARCHITECT BEFORE DIGGING BEGINS.

APPROX. ZONE RUN TIMES

APPROX. TOTAL RUN TIMES PER WEEK / PEAK WATERING WEEKS
TURF DRIP = 72 MINUTES PER WEEK
SHRUB DRIP = 60 MINUTES PER WEEK (LOW TO MEDIUM WATER USE)
TURF ROTORS / MP ROTATORS = 90 MINUTES PER WEEK
TURF SPRAYS = 45 MINUTES PER WEEK
SHRUB SPRAYS = 35 MINUTES
TREE BUBBLERS = 30 MINUTES
LONGER RUN TIMES SHALL BE REQUIRED DURING ESTABLISHMENT PERIOD
RUN TIMES MAY VERY BASED ON PLANT / TURF MATERIAL.

No.	Date	Revisions	App.

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KEIJI ASAKURA
1170
04.29.2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

IRRIGATION DETAILS

L2.15

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 295 OF 345

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:14 PM by Joshua Driscoll

IRRIGATION NOTES :

1. THE CONTRACTOR SHALL PROVIDE A DESIGN-BUILD IRRIGATION SYSTEM FOR THE PROJECT.
2. THE SYSTEM SHALL BE DESIGNED AS AN EXTENSION OF THE EXISTING IRRIGATION SYSTEM.
3. OWNER TO PROVIDE AS-BUILT IRRIGATION PLANS OF THE EXISTING SYSTEM.
4. ALL PROPOSED TURF, TREES AND PLANT BED AREAS SHALL RECEIVE IRRIGATION.
5. ALL TREES SHALL BE IRRIGATED WITH AN ADJUSTABLE BUBBLER.
6. ALL PLANT BED AREAS SHALL BE IRRIGATED WITH DRIP TUBING.
7. ALL TURF AREAS LESS THAN 48" IN WIDTH SHALL BE IRRIGATED WITH DRIP TUBING.
8. ALL TURF AREAS GREATER THAN 48" IN WIDTH SHALL BE IRRIGATED WITH SPRAYS HEADS OR ROTORS.
9. SPRAY HEAD AND ROTOR IRRIGATION SHALL HAVE HEAD TO HEAD COVERAGE AND MATCHED PRECIPITATION RATES.
10. ALL IRRIGATION VALVES, MAINLINES, QUICK COUPLERS, HEADS, ETC. ARE TO BE PLACED IN PLANTING AREAS. GATE VALVES AND REMOTE CONTROL VALVES SHALL BE PLACED IN SHRUB OR TALL GRASS AREAS WHERE POSSIBLE.
11. EQUIPMENT TYPE AND INSTALLATION DETAILS CAN BE FOUND ON THE PLANTING PLANS.
12. BEFORE CONSTRUCTION BEGINS THE IRRIGATION CONTRACTOR SHALL PREPARE IRRIGATION PLANS AND SUBMIT THEM TO THE LANDSCAPE ARCHITECT FOR APPROVAL.
13. UPON APPROVAL OF THE PLANS THE CONTRACTOR'S IRRIGATION PLAN SHALL BE USED TO OBTAIN THE IRRGATION INSTALLATION PERMIT.
14. THE IRRIGATION PLAN SHALL BE PREPARED BY A LICENSED IRRIGATION PROFESSIONAL IN THE STATE OF TEXAS.
15. LOCATE AND STAKE ALL UNDERGROUND CONDUITS AND UTILITIES ASSOCIATED WITH BUT NOT LIMITED TO: CTMS, CTMS POWER SUPPLY, LIGHTING, SIGNAL WIRES AND DETECTORS, GAS, ELECTRICAL, TELEPHONE, FIBER OPTICS, ETC.
16. LOCATE AND STAKE EXISTING GROUND BOXES, INLETS, CULVERTS, MANHOLES, ETC. WITHIN THE PROJECT AREA WITH A 4' WOODEN STAKE PAINTED ORANGE. MAINTAIN THE STAKES IN PLACE FOR DURATION OF CONTRACT. REMOVE STAKES AS DIRECTED BY LANDSCAPE ARCHITECT.
17. CONDUCT A COMPLETE INVENTORY AND ANALYSIS OF SITE CONDITIONS. INCIDENTAL CONSTRUCTION SUCH AS BORING, MAINLINE ADJUSTMENT, SIDEWALK REMOVAL AND REPLACEMENT, UTILITY ADJUSTMENTS, ETC., WILL NOT BE PAID FOR SEPARATELY UNLESS SHOWN ON PLANS.
18. SEE IRRIGATION SCHEDULE AND DETAILS SHEETS FOR MATERIALS SPECIFICATIONS, SIZES AND REQUIREMENTS.
19. AT ANY TIME DURING ALL PHASES OF THE CONTRACT, ANY MATERIALS OR WORK PERFORMED NOT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS WILL BE REPLACED AND/OR REWORKED UNTIL IN COMPLIANCE.
20. DO NOT WILLFULLY INSTALL THE IRRIGATION SYSTEM AS ILLUSTRATED ON THE PLAN WHEN FIELD ANALYSIS REVEALS CONDITIONS AND/OR DIFFERENCES THAT MIGHT NOT HAVE BEEN CONSIDERED IN THE ENGINEERING. ANY ADJUSTMENTS DUE TO THE FAILURE TO COMPLY WITH PLANS AND SPECIFICATIONS SHOWN WILL BE AT THE CONTRACTORS EXPENSE.
21. THE CONTRACTOR SHALL AT ALL TIMES PROTECT WORK FROM DAMAGE AND THEFT AND REPLACE ALL DAMAGED OR STOLEN PARTS AT THE CONTRACTOR'S EXPENSE UNTIL RECEIPT OF CERTIFICATION OF SUBSTANTIAL COMPLETION.
22. THE CONTRACTOR SHALL PROVIDE AND COORDINATE THE INSTALLATION OF 4" AND 6" SCH. 40 P.V.C. SLEEVES, AS REQUIRED WITH GENERAL CONTRACTOR. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF METALLIC SLEEVE FEATURES SUCH AS CURB, WALKS, WALLS, ETC.
23. ALL LATERAL LINE PIPING UNDER PAVING SHALL BE RUN THROUGH SCHEDULE 40 PVC INSTALLED PRIOR TO INSTALLATION OF PAVING.
24. PIPE SIZES SHALL CONFORM TO THOSE SHOWN ON THE DRAWINGS. NO SUBSTITUTIONS OF SMALLER SIZES WILL BE PERMITTED. ALL DAMAGED OR REJECTED PIPES SHALL BE REMOVED FROM SITE AND REPLACED IMMEDIATELY UPON REJECTION.
25. CONTRACTOR SHALL FLUSH AND ADJUST THE SYSTEM FOR OPTIMUM PERFORMANCE. THIS INCLUDES ADJUSTING THE PRESSURE REGULATING VALVE TO OBTAIN OPTIMUM PRESSURE, AND ADJUSTING NOZZLES FOR PROPER COVERAGE.
26. ADJUST RADIUS & ANGLE OF HEADS SO THAT WATER DOES NOT HIT BUILDINGS, WALLS, OR STREETS AS MUCH AS POSSIBLE.
27. ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE UNLESS OTHERWISE SPECIFIED.
28. CONTRACTOR SHALL REVISE AND REPAIR PARTS OF THE SYSTEM DISTURBED DURING CONSTRUCTION BEFORE FINAL INSPECTION BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE.
29. FILL AND GRADE SMOOTH ALL HOLES, DEPRESSIONS, AND RUTS THAT ARE THE RESULT OF WORK PERFORMED UNDER THIS CONTRACT. ALL AREAS ARE TO PROVIDE POSITIVE DRAINAGE AND OUTFALL.
30. THE CONTRACTOR SHALL CONSULT WITH LANDSCAPE ARCHITECT BEFORE INITIATING ANY PROPOSED MODIFICATIONS TO THE SYSTEM AS SHOWN ON THE PLANS.
31. ALL MATERIALS AND EQUIPMENT SHALL CONFORM TO APPLICABLE CODES AND REQUIREMENTS OF THE STATE OF TEXAS, CITY OF HOUSTON AND/OR THE HARRIS COUNTY.
32. EXTREME CARE SHALL BE EXERCISED WHEN EXCAVATING NEAR TREES. NO MECHANICAL TRENCHING SHALL BE PERMITTED BELOW THE CANOPY OF EXISTING TREES. CONTRACTOR SHALL ADJUST TRENCH PATH/OR EXCAVATE BY HAND TO AVOID DAMAGE TO EXISTING TREE ROOTS.
33. ALL SPRINKLER EQUIPMENT NOT OTHERWISE DETAILED OR SPECIFIED SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.
34. MAINLINE SHALL BE CAPPED AT LIMIT OF WORK AND CONTROLLER WIRES SHALL RUN FROM CONTROLLER TO LIMIT OF WORK AND PLACED IN PULL BOX FOR FUTURE PHASES IF APPLICABLE.
35. IRRIGATION IN TEXAS IS REGULATED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) (MC-178) P.O. BOX 13087 AUSTIN TX, 78711-3087. WWW.TCEQ.STATE.TX.US
36. CONTRACTOR TO INSTALL IRRIGATION HEADS AT 12" AWAY FROM ANY FOUNDATION. ALL SHRUB/GROUND COVER HEADS SHALL (IF USED) BE ON 18" POPUP RISER.
37. CONTRACTOR TO PROVIDE AS BUILT DRAWINGS AFTER INSTALLATION. THE DRAWING SHOULD OUTLINE EACH ZONE CLEARLY.
38. ALL WIRED SPLICE SHALL BE PLACED IN A VALVE BOX.
39. LOCATE MOISTURE SENSOR WITHIN 3' DIAMETER OF WIRED SPLICE BOX. MARKED MOISTURE SENSOR LOCATIONS WITH A COLOR MARKER ON SITE.
40. CONTRACTOR TO PROVIDE ONE EXTRA RED WIRE FROM CONTROLLER TO FURTHEST VALVE.
41. FURNISH THE LANDSCAPE ARCHITECT A SET OF AS-BUILT DRAWINGS UPON COMPLETION OF THE INSTALLATION OF THE IRRIGATION SYSTEM. THE AS-BUILT DRAWINGS WILL BE VERIFIED THAT THEY ARE A TRUE RECORD OF THE PROJECT CONDITIONS. SHOW ALL VALVE LOCATIONS ON DRAWINGS BY TRIANGULATION FROM A FIXED OBJECT . SHOW ACTUAL LOCATION OF MAIN AND LATERAL LINES FROM A FIXED OBJECT.
42. PROVIDE INSTRUCTIONS COVERING FULL OPERATION, CARE AND MAINTENANCE OF THE EQUIPMENT, INCLUDING A SCHEDULE SHOWING TIME EACH VALVE IS OPEN TO PROVIDE DETERMINED AMOUNT OF WATER, AND INSTRUCT PERSONNEL DESIGNATED BY ARCHITECT IN PROPER OPERATION OF THE SYSTEM.
43. CONTRACTOR TO PROVIDE A FULLY OPERABLE, FUNCTIONING SYSTEM.
44. PRIOR TO FILLING, TEST SYSTEM FOR LEAKAGE FOR WHOLE SYSTEM TO MAINTAIN 100 PSI PRESSURE FOR ONE HOUR.

j:\hrg2401 tirz 17 memorial city area detention basin\ar\03 cd\planting plan.dwg Plotted August 3, 2026 at 3:11 PM by Joshua Driscoll

No.	Date	Revisions	App.

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KEIJI ASAKURA
1170
04.29.2026

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

IRRIGATION NOTES

L2.16

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

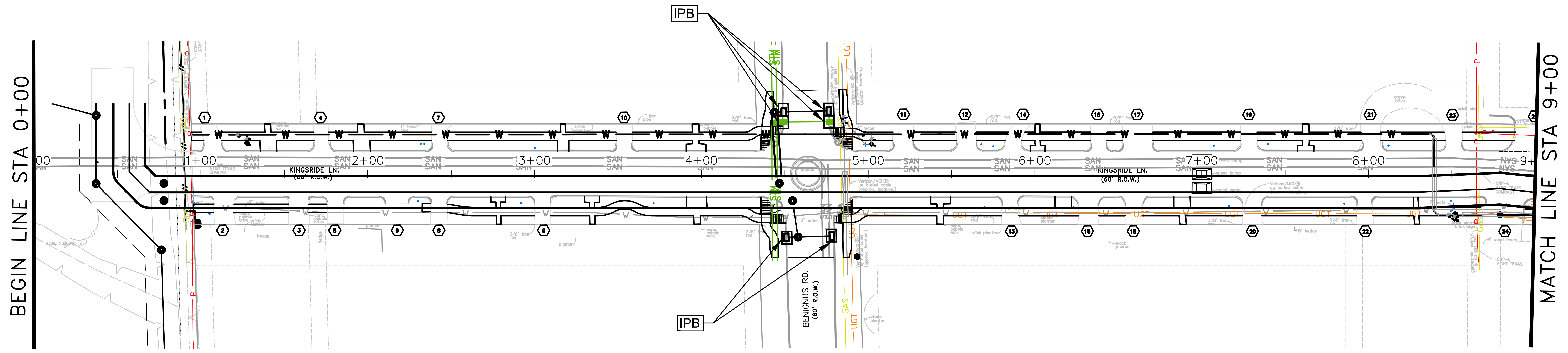
SHEET NO. 296 OF 345

NOTE:

1. SEE SHEET 4 OF 4 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
2. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

LEGEND

IPB	INLET PROTECTION BARRIER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MATCH LINE STA 9+00
IPB
IPB
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BENIGNUS RD. (60' R.O.W.)
1+00
2+00
3+00
4+00
5+00
6+00
7+00
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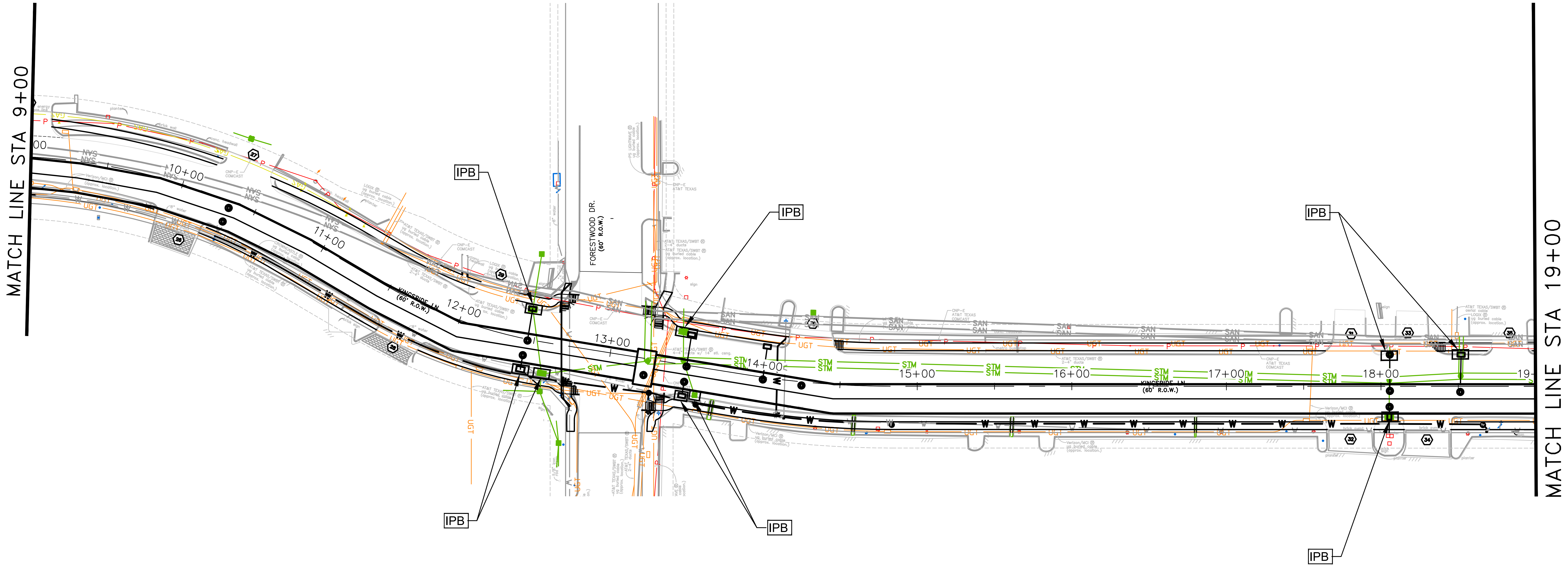
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FORESTWOOD DR. (60' R.O.W.)
KINGSRIDE LN (60' R.O.W.)
10+00
11+00
12+00
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NVS
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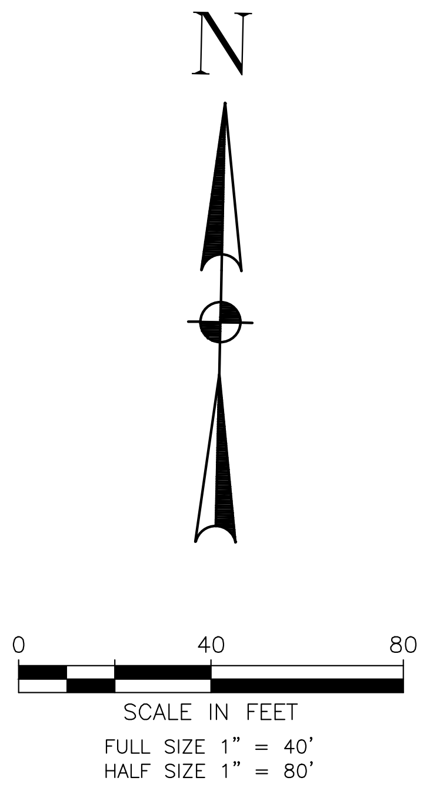
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80
SCALE IN FEET
FULL SIZE 1" = 40'
HALF SIZE 1" = 80'

No.	Date	Revisions	App.

HRGreen
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Tx Firm No. 13481

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108363
3/19/2026

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION PERVENTION PLAN

KINGSRIDE LN STA 0+00 TO STA 19+00

SHEET 1 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

SCALE= 1"= 40'-0"

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 297 OF 345

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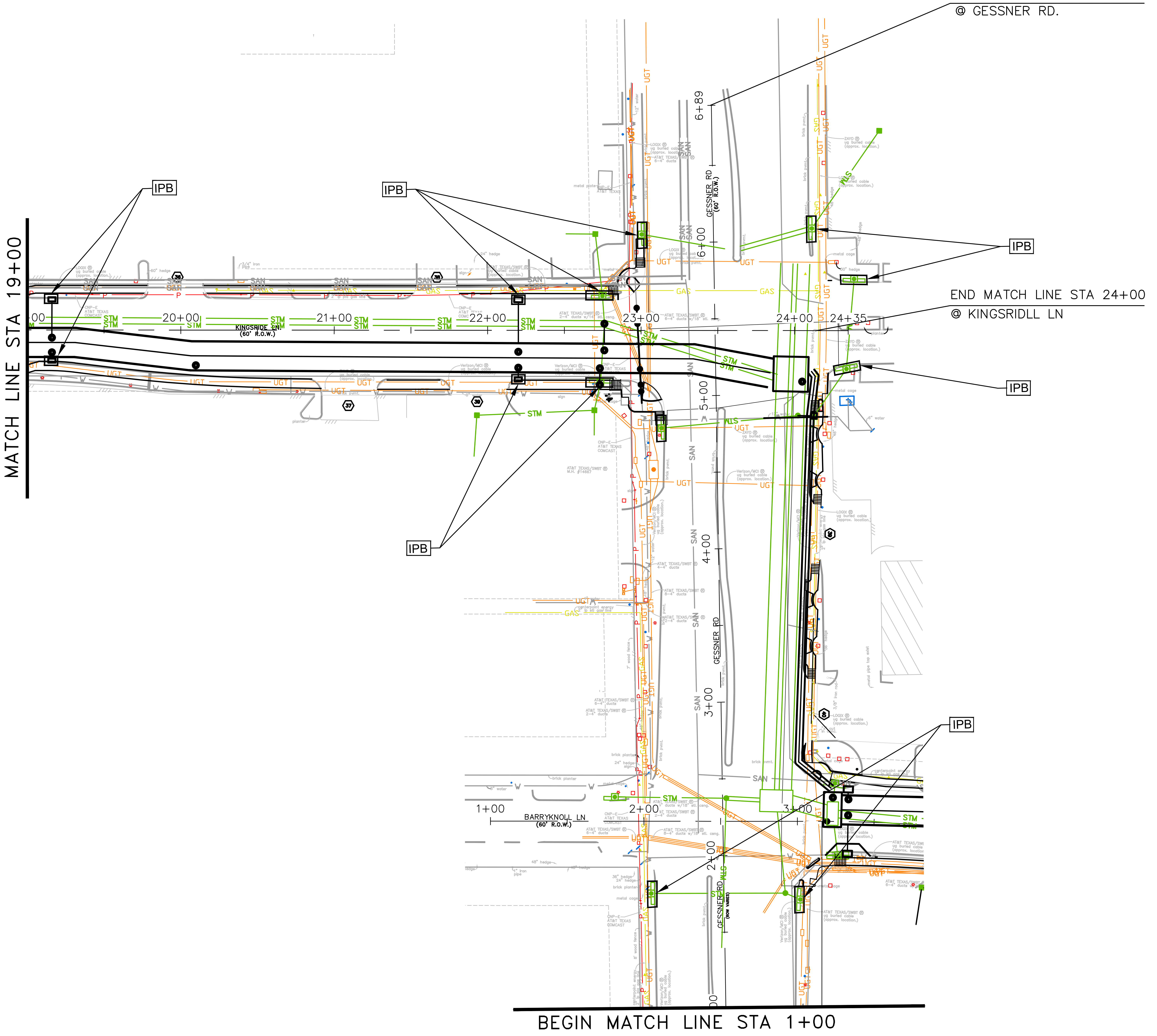
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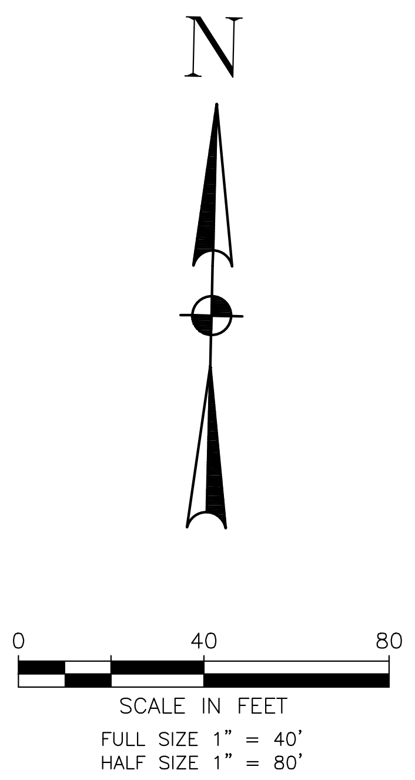
END MATCH LINE STA 6+89
@ GESSNER RD.
END MATCH LINE STA 24+00
@ KINGSRIDLL LN
BEGIN MATCH LINE STA 1+00
IPB
KINGSRIDE LN (60' R.O.W.)
GESSNER RD (60' R.O.W.)
BARRYKNOLL LN (60' R.O.W.)
20+00
21+00
22+00
23+00
24+00
24+35
6+89
6+00
5+00
4+00
3+00
2+00
1+00
STM
SAN
UGT
GAS

NOTE:

1. SEE SHEET 4 OF 4 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
2. CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION EXIT, INCLUDING TRUCK WASHING AREA, VERIFIED IN THE FIELD AND AUTHORIZED BY ENGINEER.

LEGEND

IPB	INLET PROTECTION BARRIER



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CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION
PERVENTION PLAN

KINGSRIDE LN STA 19+00 TO END STA 24+00
GESSNER RD TO STA 1+00 TO END STA 6+89

SHEET 2 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

SCALE= 1"= 40'-0"

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 298 OF 345

No.	Date	Revisions	App

NOTE:

1. SEE SHEET 4 OF 4 FOR STORM WATER POLLUTION PREVENTION PLAN NOTES AND DETAILS.
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LEGEND

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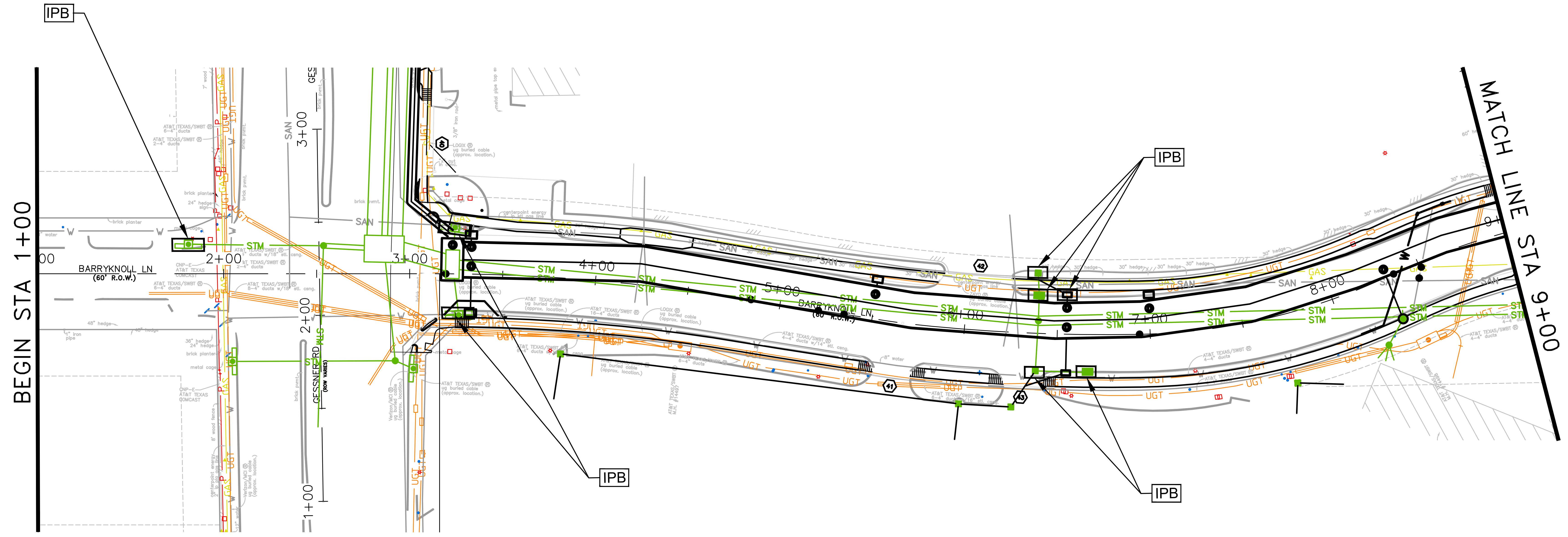
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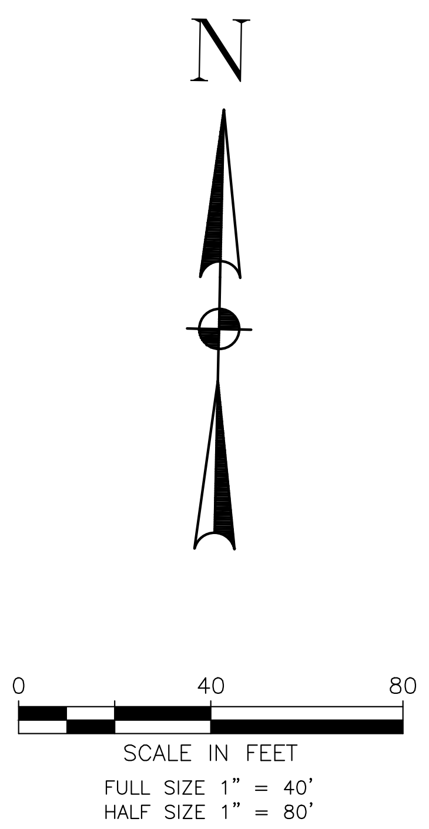
BEGIN STA 1+00
BARRYKNOLL LN
(60' R.O.W.)
2+00
3+00
4+00
5+00
7+00
8+00
1+00
GESSNER RD.
STM
SAN
UGT
GAS
IPB
IPB
IPB
MATCH LINE STA 9+00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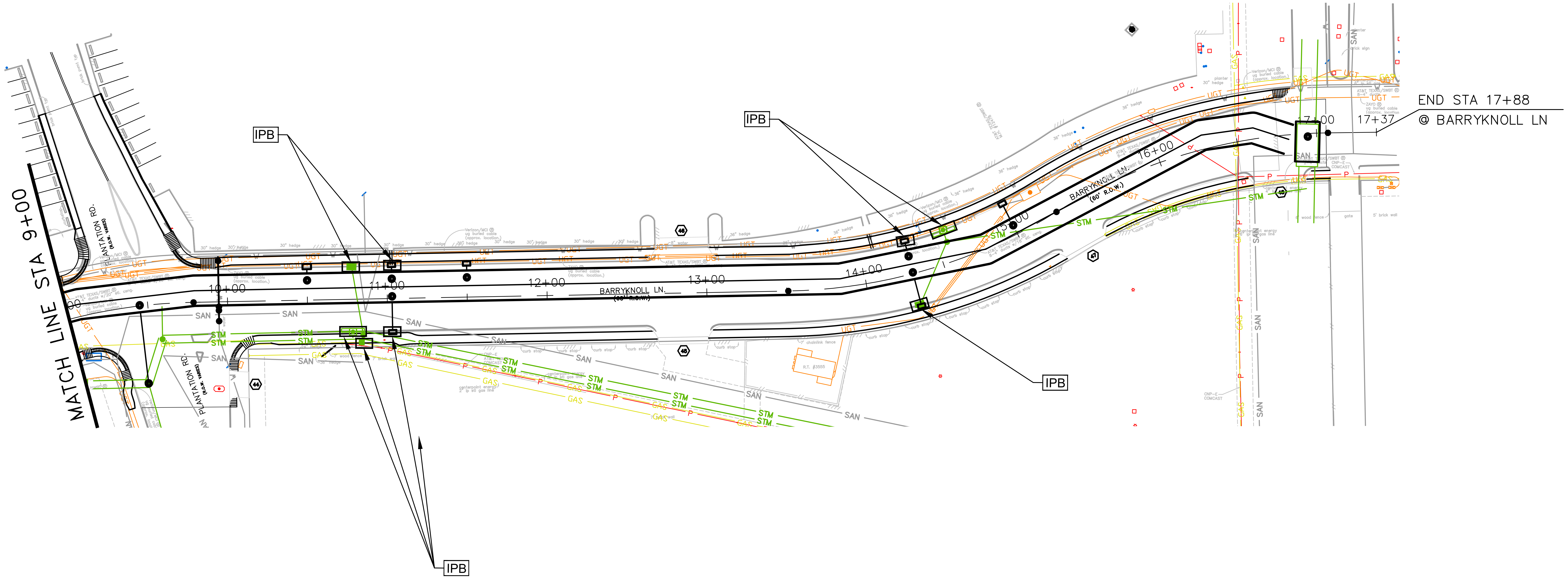
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PLANTATION RD.
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IPB
10+00
11+00
12+00
13+00
14+00
16+00
17+00
17+37
BARRYKNOLL LN.
(60' R.O.W.)
STM
SAN
GAS
UGT
END STA 17+88
@ BARRYKNOLL LN
IPB
IPB

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3/19/2026

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
STROMWATER POLLUTION PERVENTION PLAN

BARRYKNOLL LN
STA 1+00 TO END STA 17+88

SHEET 3 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

SCALE= 1"= 40'-0"

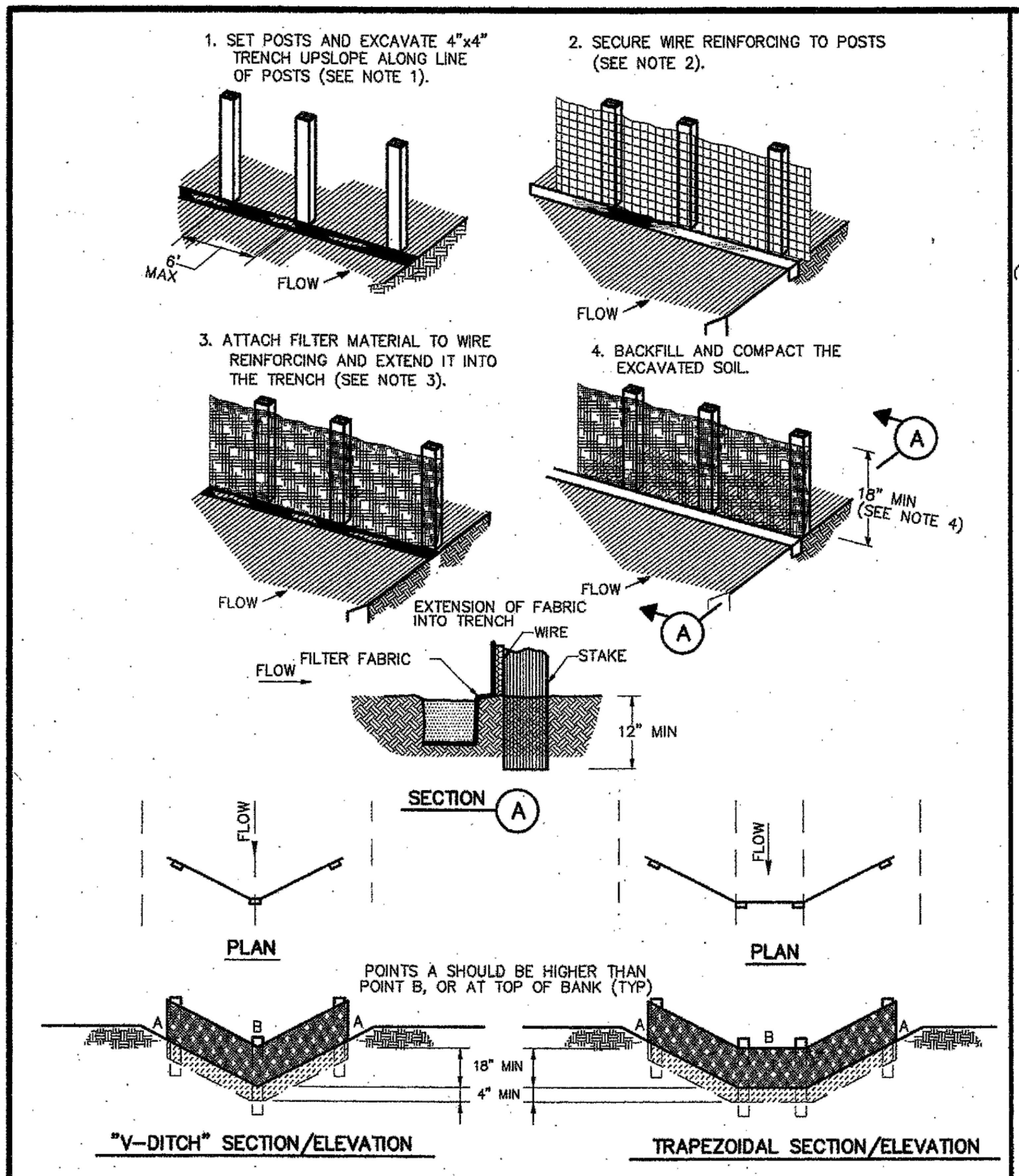
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 299 OF 345

Y:\2022081 TIRZ No. 17 Detention\Memorial City Tirz 17 -ph 2 Final Design\FCM SW3P - KINGSRIDE LN - SW3p (1).dwg, 3/23/2026 9:46:23 AM, _DWG To PDF.pc3

y:\2022081 tirz no. 17 detention\memorial city tirz 17 -ph 2 final design\fcm sw3p - kingsride ln - sw3p (1).dwg Plotted March 23, 2026 at 9:46 AM by George Williams


1. SET POSTS AND EXCAVATE 4"x4" TRENCH UPSLOPE ALONG LINE OF POSTS (SEE NOTE 1).
2. SECURE WIRE REINFORCING TO POSTS (SEE NOTE 2).
6' MAX
FLOW
FLOW
3. ATTACH FILTER MATERIAL TO WIRE REINFORCING AND EXTEND IT INTO THE TRENCH (SEE NOTE 3).
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.
A
18" MIN (SEE NOTE 4)
FLOW
EXTENSION OF FABRIC INTO TRENCH
FLOW
A
FLOW
FILTER FABRIC
WIRE
STAKE
12" MIN
SECTION A
FLOW
PLAN
FLOW
PLAN
POINTS A SHOULD BE HIGHER THAN POINT B, OR AT TOP OF BANK (TYP)
A
B
A
18" MIN
4" MIN
A
B
A
"V-DITCH" SECTION/ELEVATION
TRAPEZOIDAL SECTION/ELEVATION

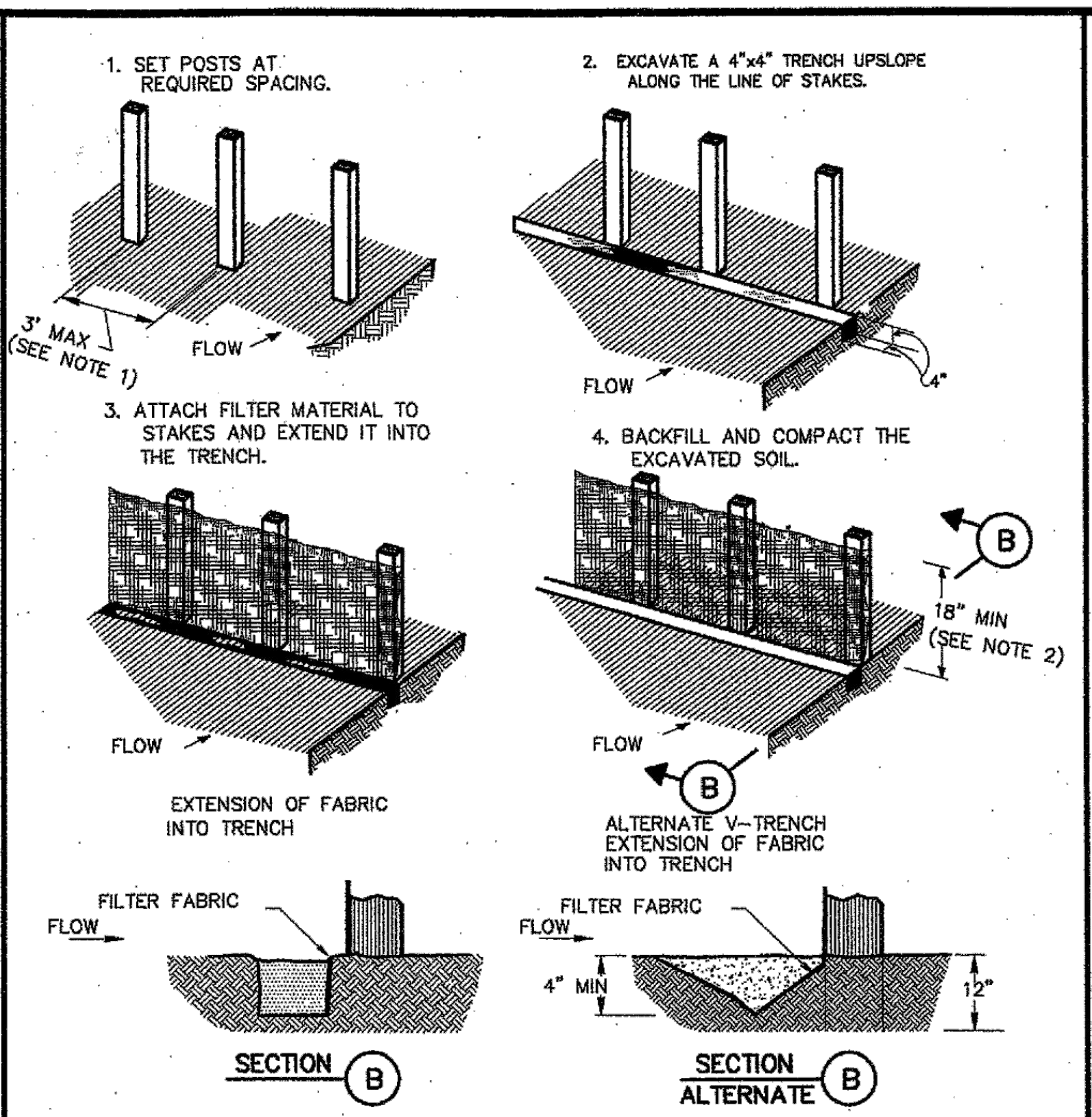
CONSTRUCTION NOTES:

1. SET 2 INCH BY 2 INCH WOODEN STAKES SPACED A MAX OF 6 FEET APART AND EMBEDDED A MIN OF 12 INCHES.
2. WOVEN WIRE REINFORCING TO BE FASTENED SECURELY TO BARRIER POSTS WITH STAPLES.
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE REINFORCING, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
4. MINIMUM HEIGHT OF FILTER SHOULD BE 18 INCHES AND A MAXIMUM OF 36 INCHES ABOVE NATURAL GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
6. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

×—RFB—×

SYMBOL

REINFORCED FILTER FABRIC BARRIER


1. SET POSTS AT REQUIRED SPACING.
2. EXCAVATE A 4"x4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.
3' MAX (SEE NOTE 1)
FLOW
FLOW
4"
4"
3. ATTACH FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.
B
18" MIN (SEE NOTE 2)
FLOW
EXTENSION OF FABRIC INTO TRENCH
FLOW
B
ALTERNATE V-TRENCH EXTENSION OF FABRIC INTO TRENCH
FILTER FABRIC
FLOW
FILTER FABRIC
FLOW
4" MIN
12"
SECTION B
SECTION ALTERNATE B

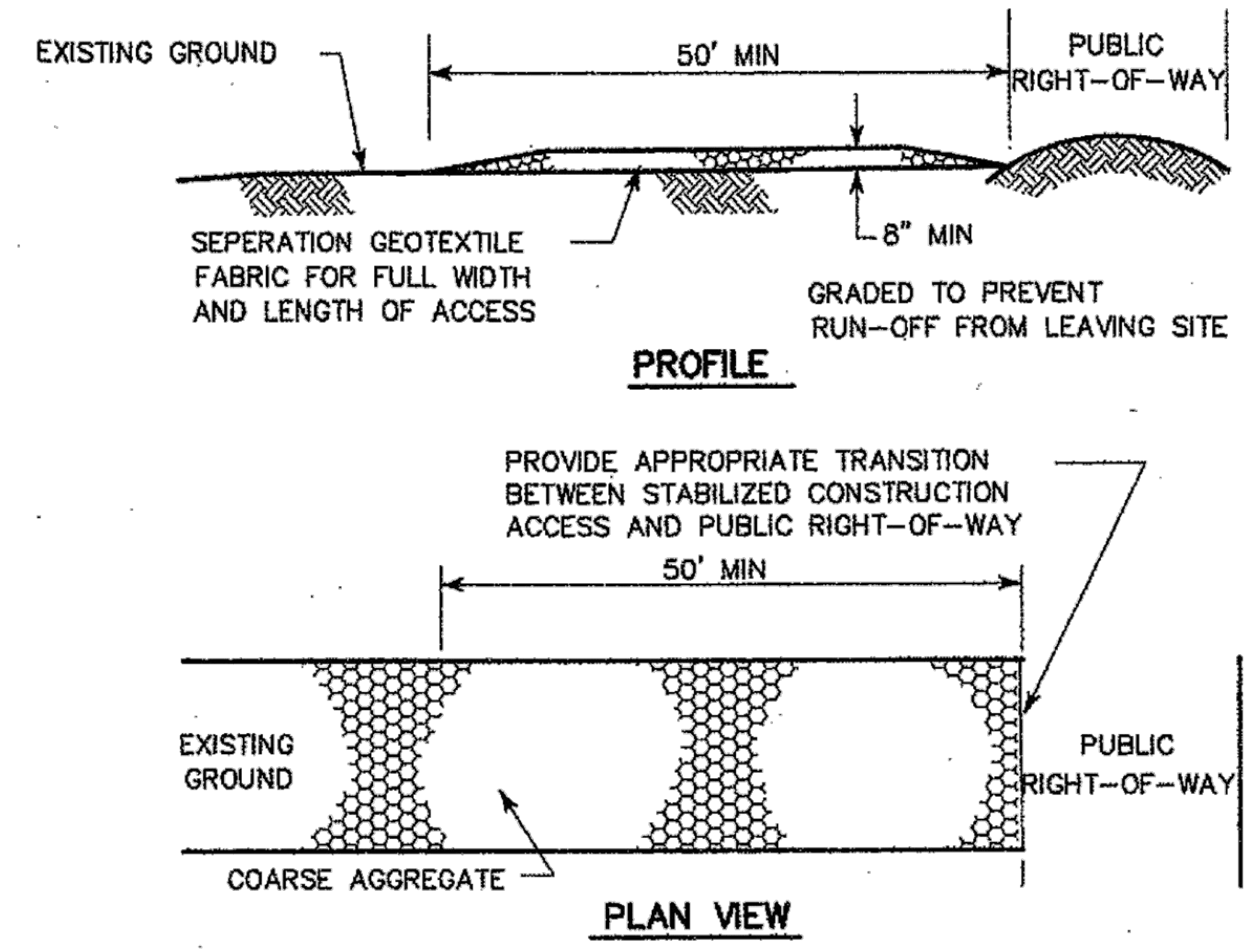
CONSTRUCTION NOTES:

1. 2 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 INCHES. IF PREASSEMBLED BARRIER WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC BARRIER SHALL HAVE A MIN HEIGHT OF 18 INCHES AND MAX HEIGHT OF 36 INCHES ABOVE NATURAL GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
4. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

×—FF—×

SYMBOL

FILTER FABRIC BARRIER


EXISTING GROUND
50' MIN
PUBLIC RIGHT-OF-WAY
SEPERATION GEOTEXTILE FABRIC FOR FULL WIDTH AND LENGTH OF ACCESS
8" MIN
GRADED TO PREVENT RUN-OFF FROM LEAVING SITE
PROFILE
PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ACCESS AND PUBLIC RIGHT-OF-WAY
50' MIN
EXISTING GROUND
PUBLIC RIGHT-OF-WAY
COARSE AGGREGATE
PLAN VIEW

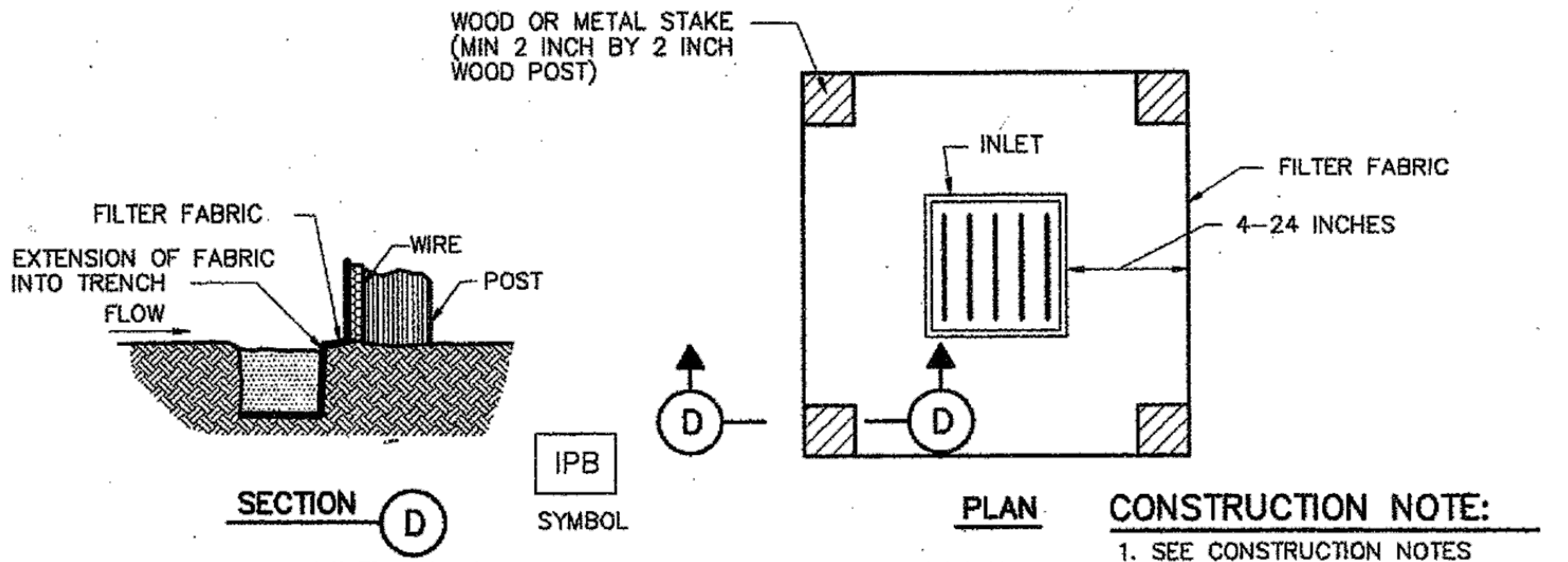
CONSTRUCTION NOTES:

1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION ACCESS, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE WASHING AREA.
6. COH STANDARD SPECIFICATION FOR STABILIZED CONSTRUCTION ACCESS.
7. STABILIZED CONSTRUCTION ACCESS SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.

SC

SYMBOL

STABILIZED CONSTRUCTION ACCESS


WOOD OR METAL STAKE (MIN 2 INCH BY 2 INCH WOOD POST)
INLET
FILTER FABRIC
4-24 INCHES
FILTER FABRIC
EXTENSION OF FABRIC INTO TRENCH
FLOW
WIRE
POST
D
D
SECTION D
PLAN

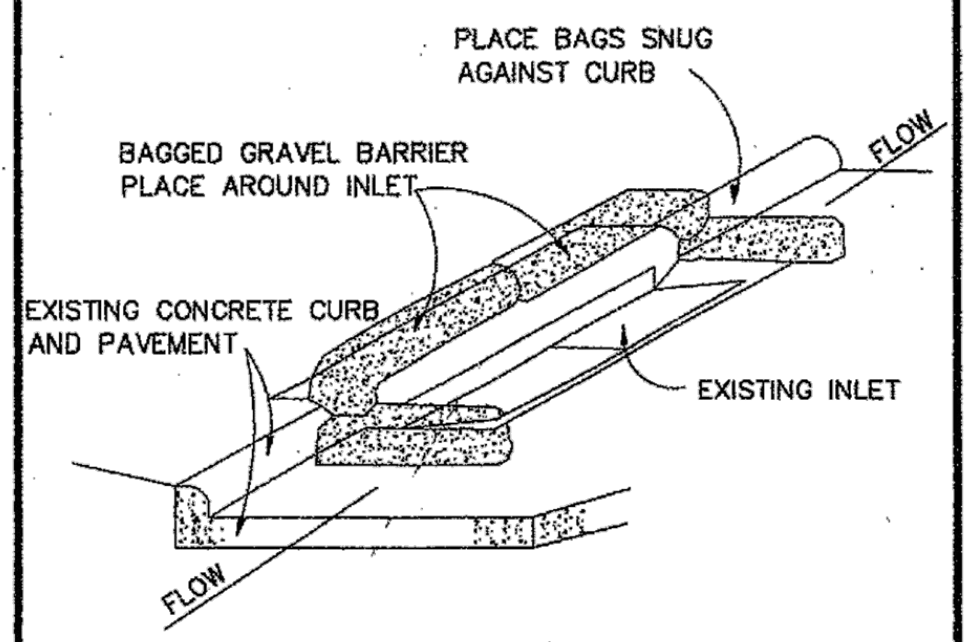
IPB

SYMBOL

SILT FENCE INLET PROTECTION BARRIER

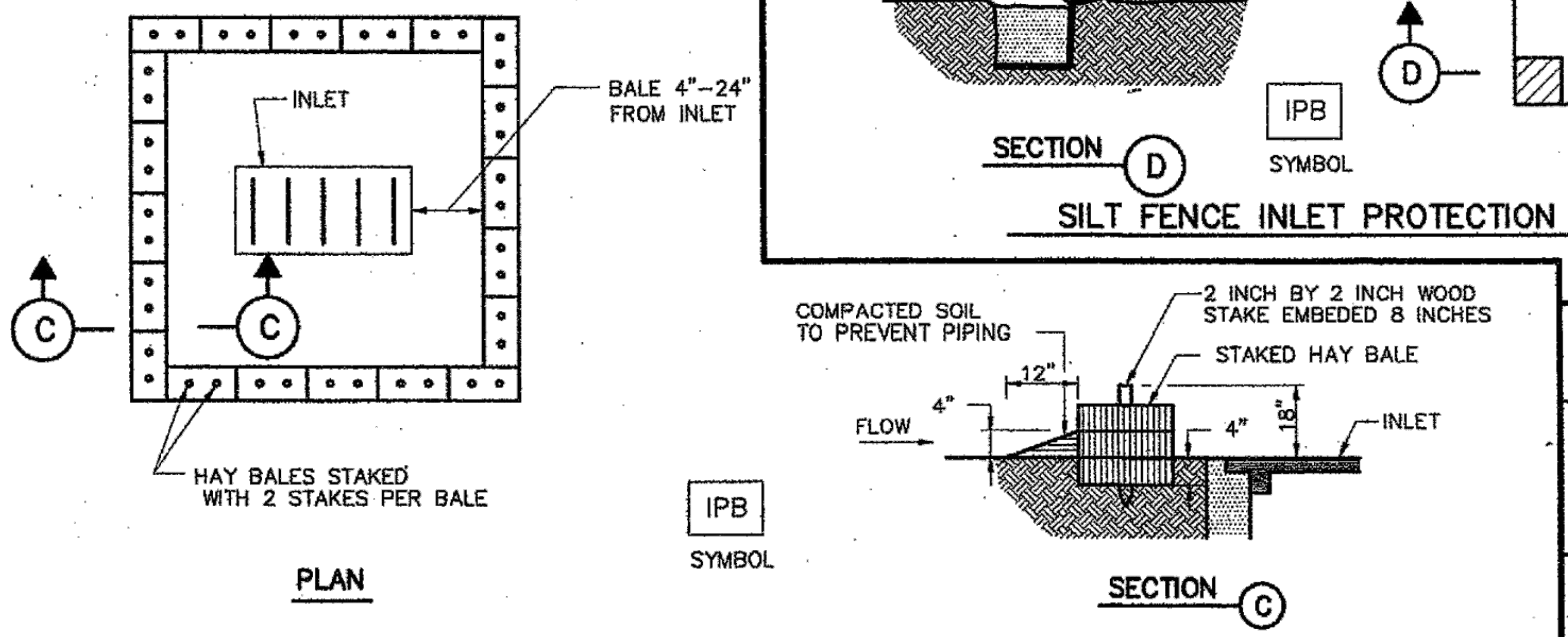
CONSTRUCTION NOTE:

1. SEE CONSTRUCTION NOTES FOR RFB.


PLACE BAGS SNUG AGAINST CURB
FLOW
BAGGED GRAVEL BARRIER PLACE AROUND INLET
EXISTING CONCRETE CURB AND PAVEMENT
EXISTING INLET
FLOW

INLET PROTECTION BARRIER

(FOR STAGE II INLETS)
BAGGED GRAVEL BARRIER


INLET
BALE 4"-24" FROM INLET
C
C
HAY BALES STAKED WITH 2 STAKES PER BALE
PLAN
COMPACTED SOIL TO PREVENT PIPING
2 INCH BY 2 INCH WOOD STAKE EMBEDDED 8 INCHES
STAKED HAY BALE
12"
4"
FLOW
4"
18"
INLET
SECTION C

IPB

SYMBOL

HAY BALE INLET PROTECTION BARRIER

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STORM WATER POLLUTION
PREVENTION PLAN DETAILS

(NOT TO SCALE)

APPROVED BY:
CITY ENGINEER

APPROVED BY:
DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010
DWG NO: 01571-01

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FAX: 713.965.0044

SURVEYED BY: UNITED ENGINEERS, INC.
FB NO. xxxxx

FCM Engineers, P.C.

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Suite 249
Houston, Texas 77063
T- 713-706-4412
F- 713-706-4410
Tx Firm No. 13481

FRANK C. MBACHU
108363
3/19/2026

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN
STORM WATER POLLUTION
PREVENTION PLAN DETAILS

SHEET 4 OF 4

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

No.	Date	Revisions	App.

SHEET NO. 300 OF 345

Y:\2022081 TIRZ No. 17 Detention\Memorial City Tirz 17 -ph 2 Final Design\FCM_SW3P - DET_STAN.dwg, 3/23/2026 9:46:33 AM, _DWG To PDF.pc3

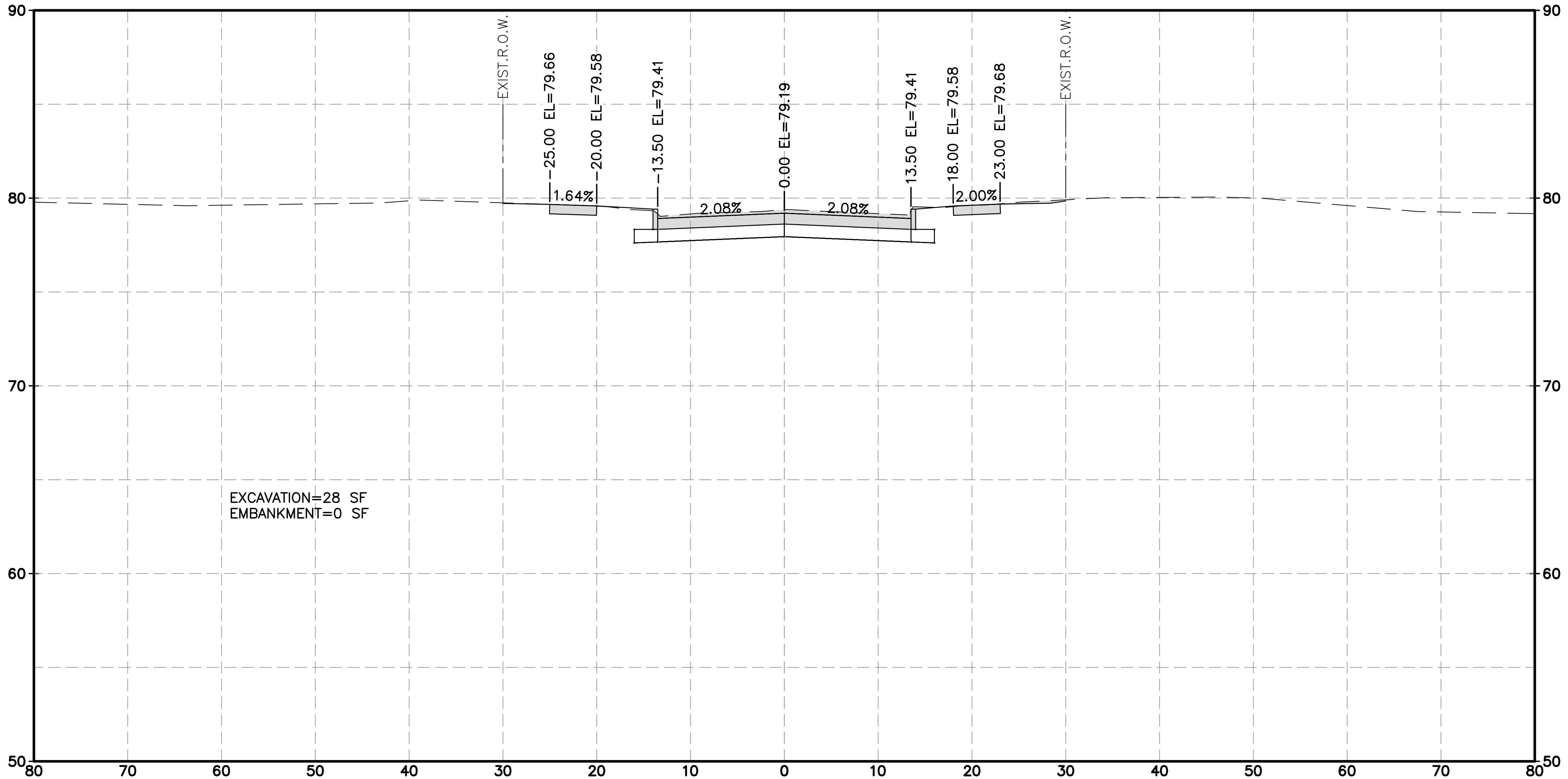
y:\2022081 tirz no. 17 detention\memorial city tirz 17 -ph 2 final design\fcm_sw3p -- det_stan.dwg Plotted March 23, 2026 at 9:46 AM by George Williams

No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨


90
80
70
60
50
EXIST.R.O.W.
25.00 EL=79.66
20.00 EL=79.58
13.50 EL=79.41
0.00 EL=79.19
13.50 EL=79.41
18.00 EL=79.58
23.00 EL=79.68
EXIST.R.O.W.
1.64%
2.08%
2.08%
2.00%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=28 SF
EMBANKMENT=0 SF

KINGSRIDE LN 1+00.00

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125563

David G. Greaney
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Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 1 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

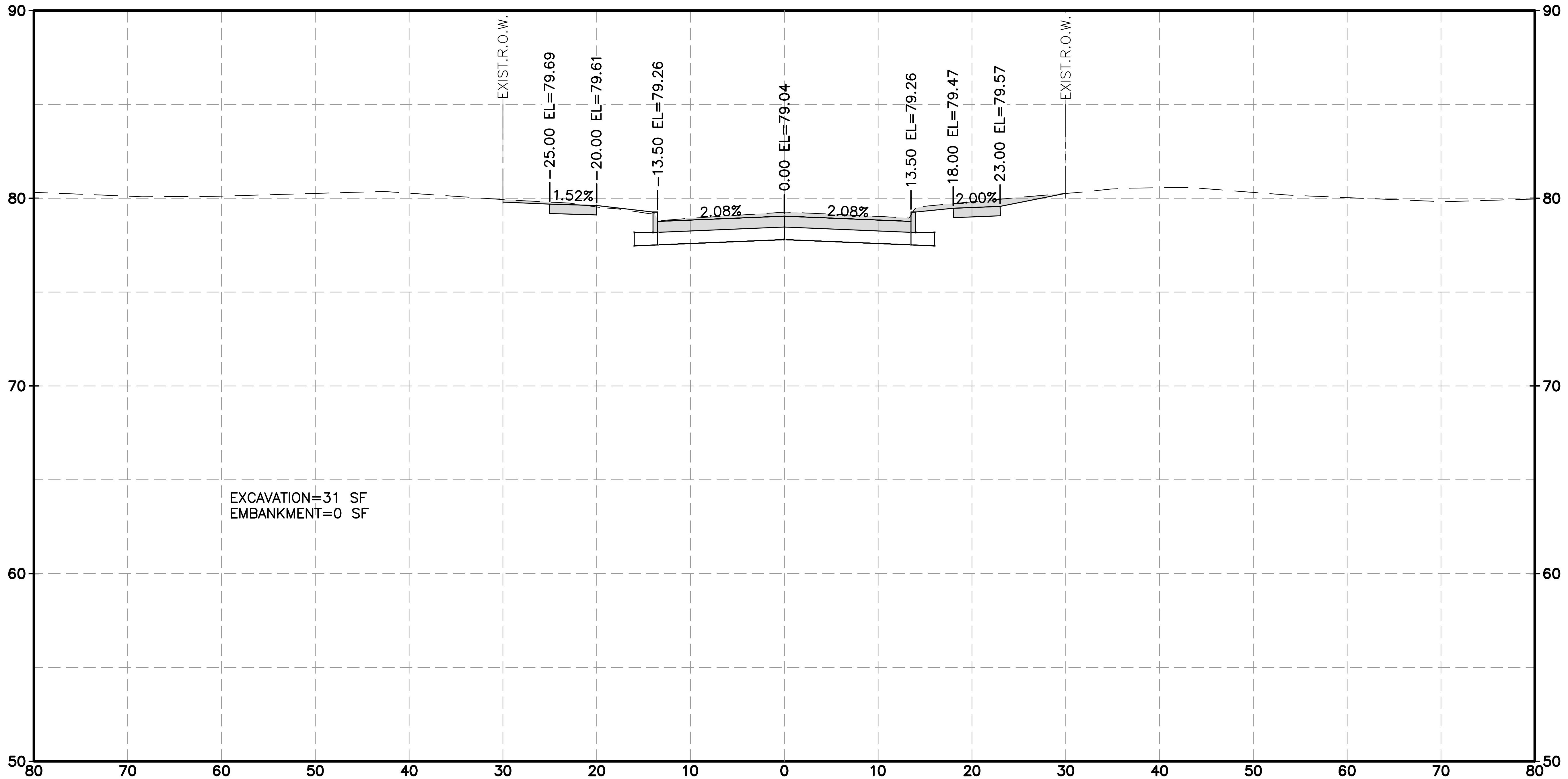
SHEET NO. 301 OF 345

No.	Date	Revisions	App.

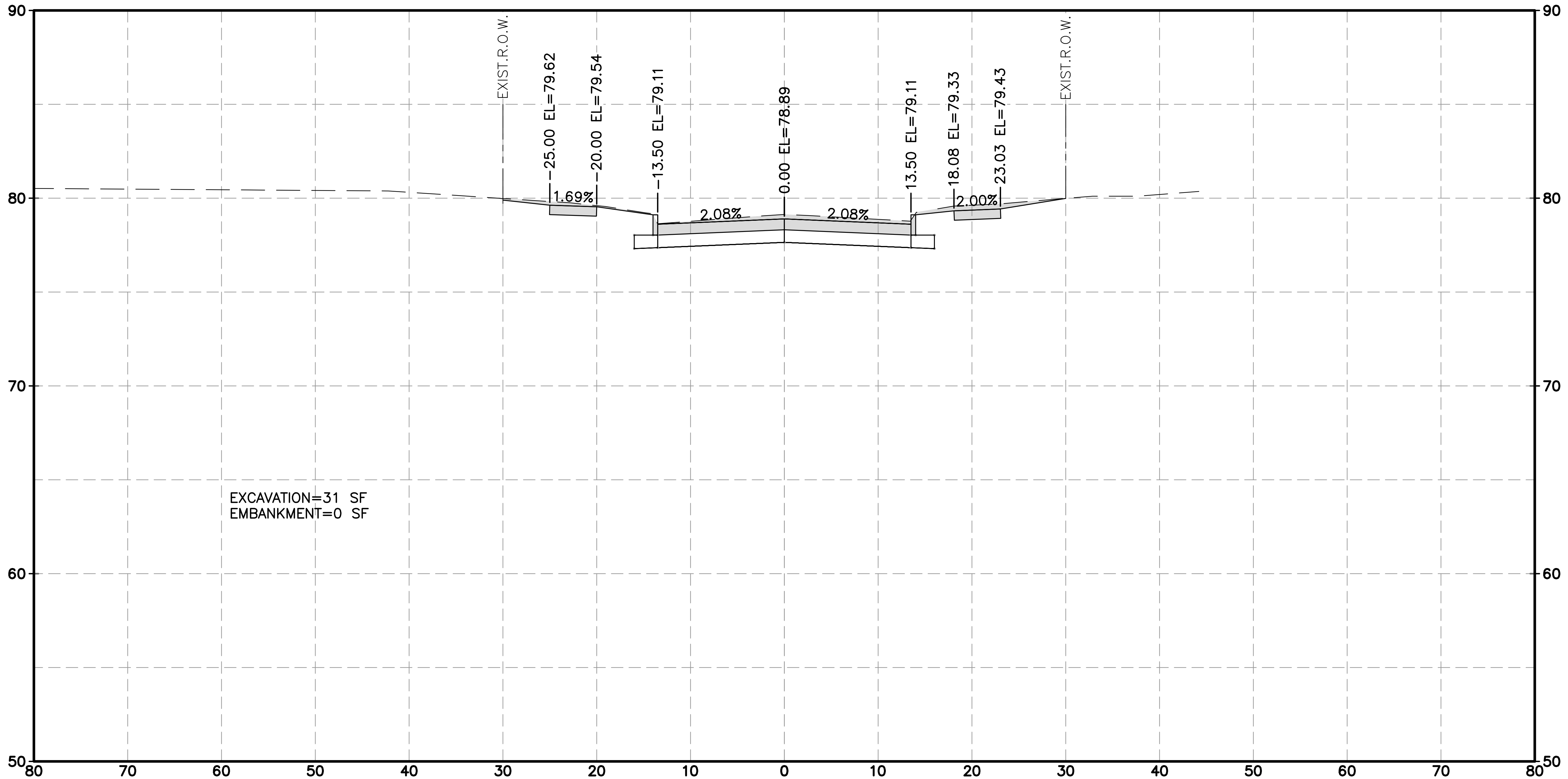
HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨


90
80
70
60
50
EXIST.R.O.W.
25.00 EL=79.69
20.00 EL=79.61
13.50 EL=79.26
0.00 EL=79.04
13.50 EL=79.26
18.00 EL=79.47
23.00 EL=79.57
EXIST.R.O.W.
1.52%
2.08%
2.08%
2.00%
EXCAVATION=31 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 1+50.00


90
80
70
60
50
EXIST.R.O.W.
25.00 EL=79.62
20.00 EL=79.54
13.50 EL=79.11
0.00 EL=78.89
13.50 EL=79.11
18.08 EL=79.33
23.03 EL=79.43
EXIST.R.O.W.
1.69%
2.08%
2.08%
2.00%
EXCAVATION=31 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 2+00.00

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 2 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

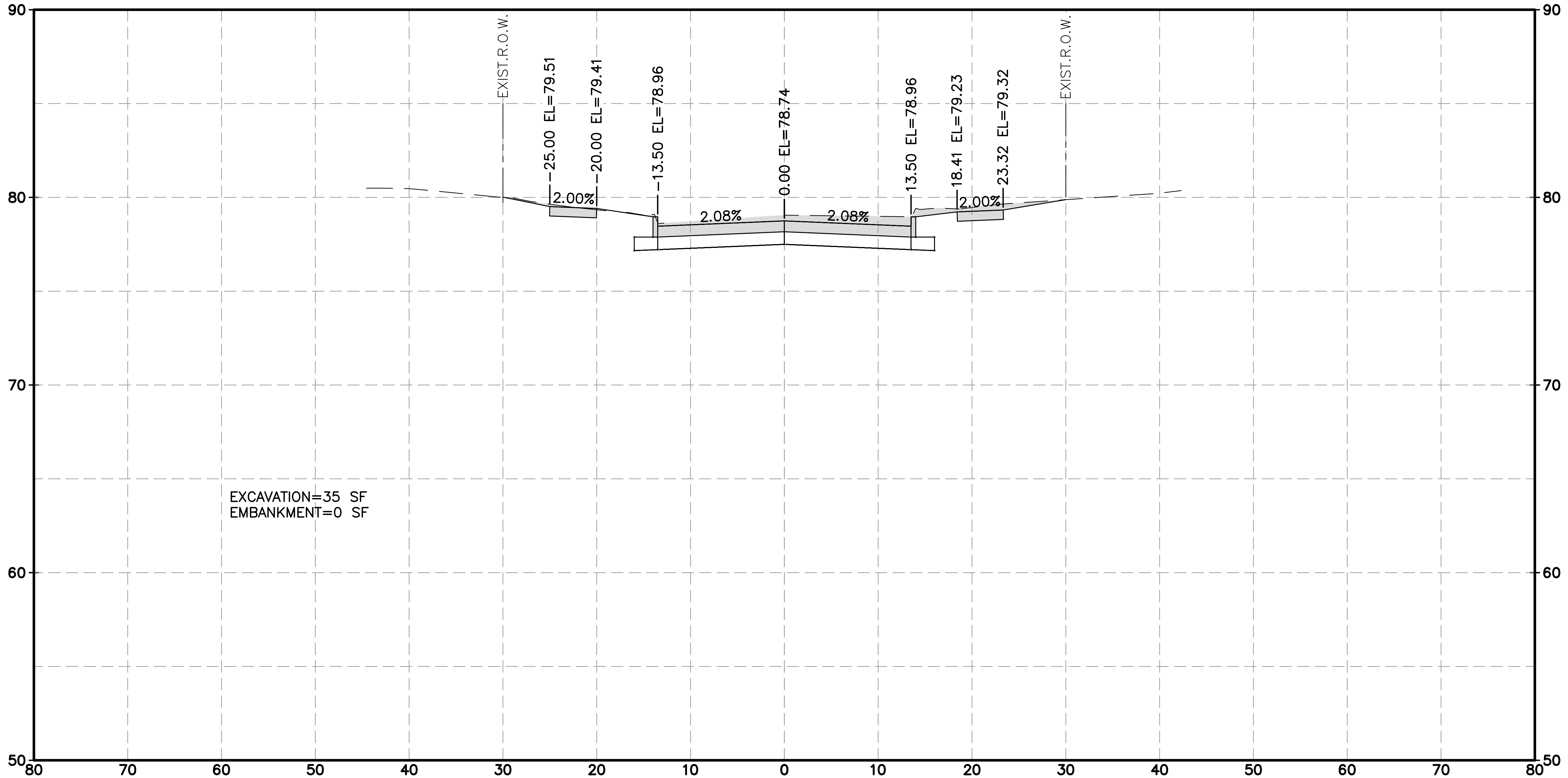
SHEET NO. 302 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:51 AM by Huml, John

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨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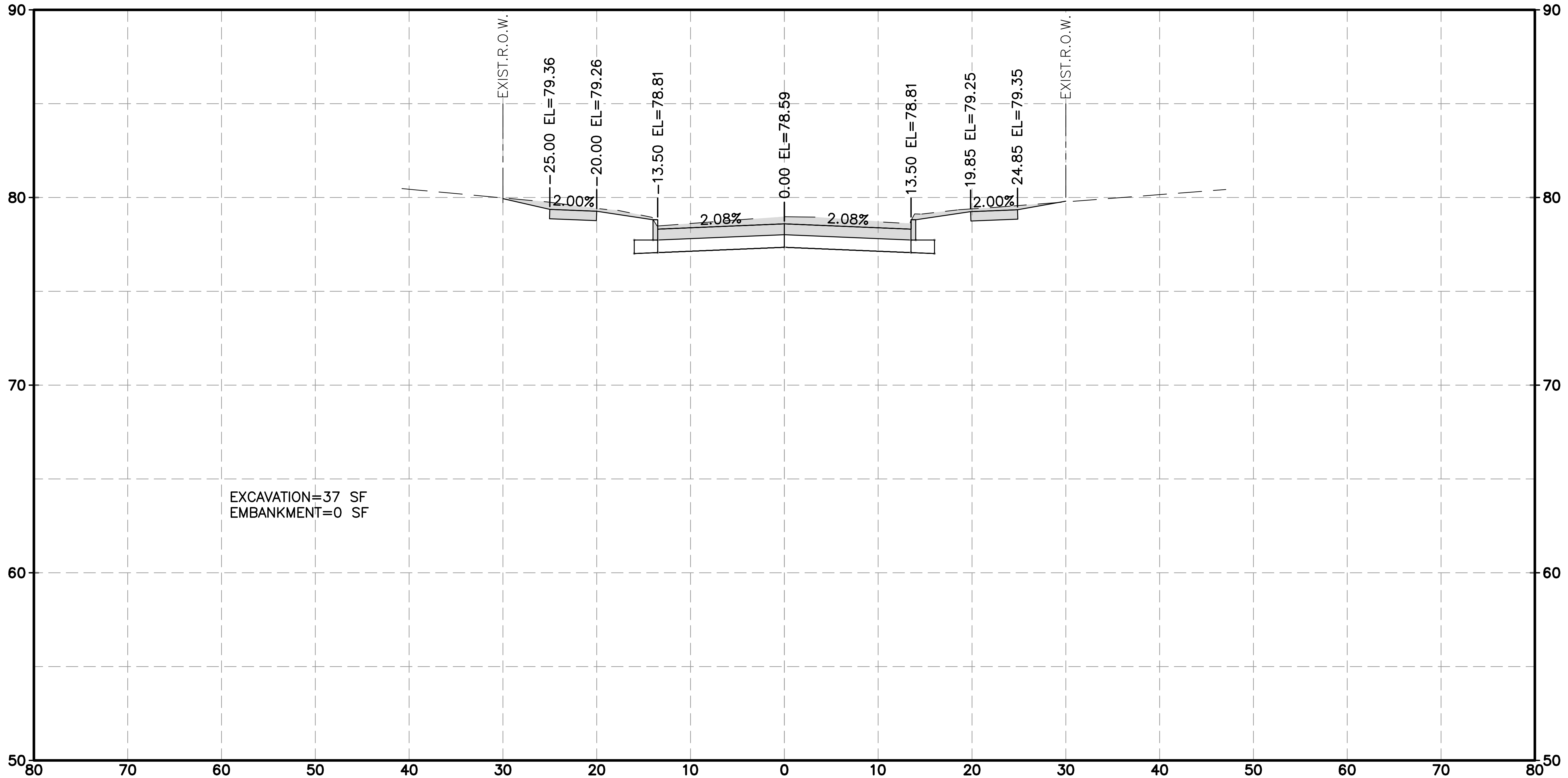
-20.00 EL=79.41
-13.50 EL=78.96
0.00 EL=78.74
13.50 EL=78.96
18.41 EL=79.23
23.32 EL=79.32
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
90
80
70
60
50
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

EXCAVATION=35 SF
EMBANKMENT=0 SF

KINGSRIDE LN 2+50.00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-20.00 EL=79.26
-13.50 EL=78.81
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13.50 EL=78.81
19.85 EL=79.25
24.85 EL=79.35
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
90
80
70
60
50
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

EXCAVATION=37 SF
EMBANKMENT=0 SF

KINGSRIDE LN 3+00.00

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:43 AM by Huml, John

No. Date Revisions App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 3 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 303 OF 345

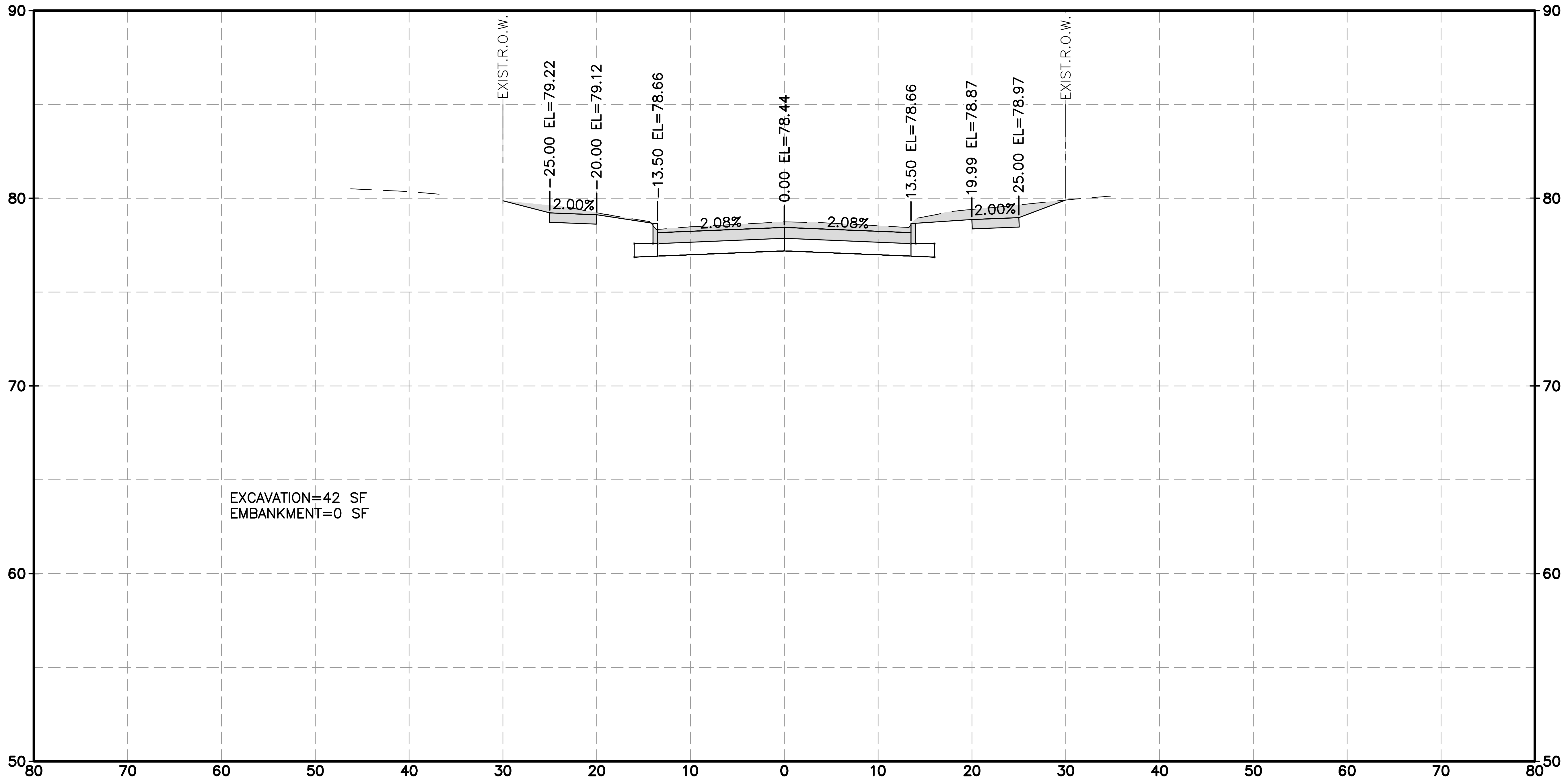
HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF ▭

EMBANKMENT=XX SF ▨

No.	Date	Revisions	App.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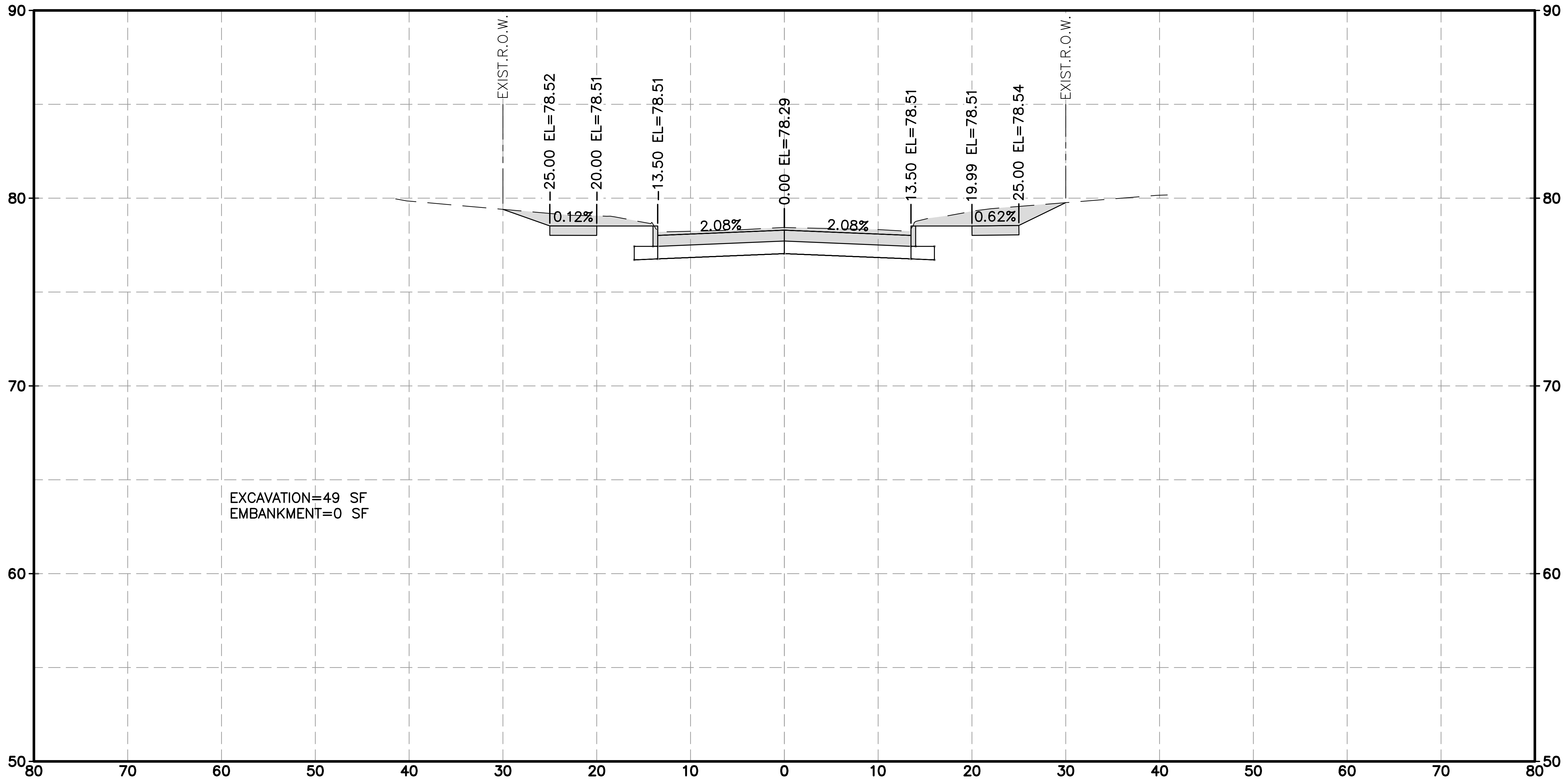
80
70
60
50
EXIST.R.O.W.
25.00 EL=79.22
20.00 EL=79.12
13.50 EL=78.66
0.00 EL=78.44
13.50 EL=78.66
19.99 EL=78.87
25.00 EL=78.97
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=42 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 3+50.00


90
80
70
60
50
EXIST.R.O.W.
25.00 EL=78.52
20.00 EL=78.51
13.50 EL=78.51
0.00 EL=78.29
13.50 EL=78.51
19.99 EL=78.51
25.00 EL=78.54
EXIST.R.O.W.
0.12%
2.08%
2.08%
0.62%
EXCAVATION=49 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 4+00.00

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:51 AM by Huml, John

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 4 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

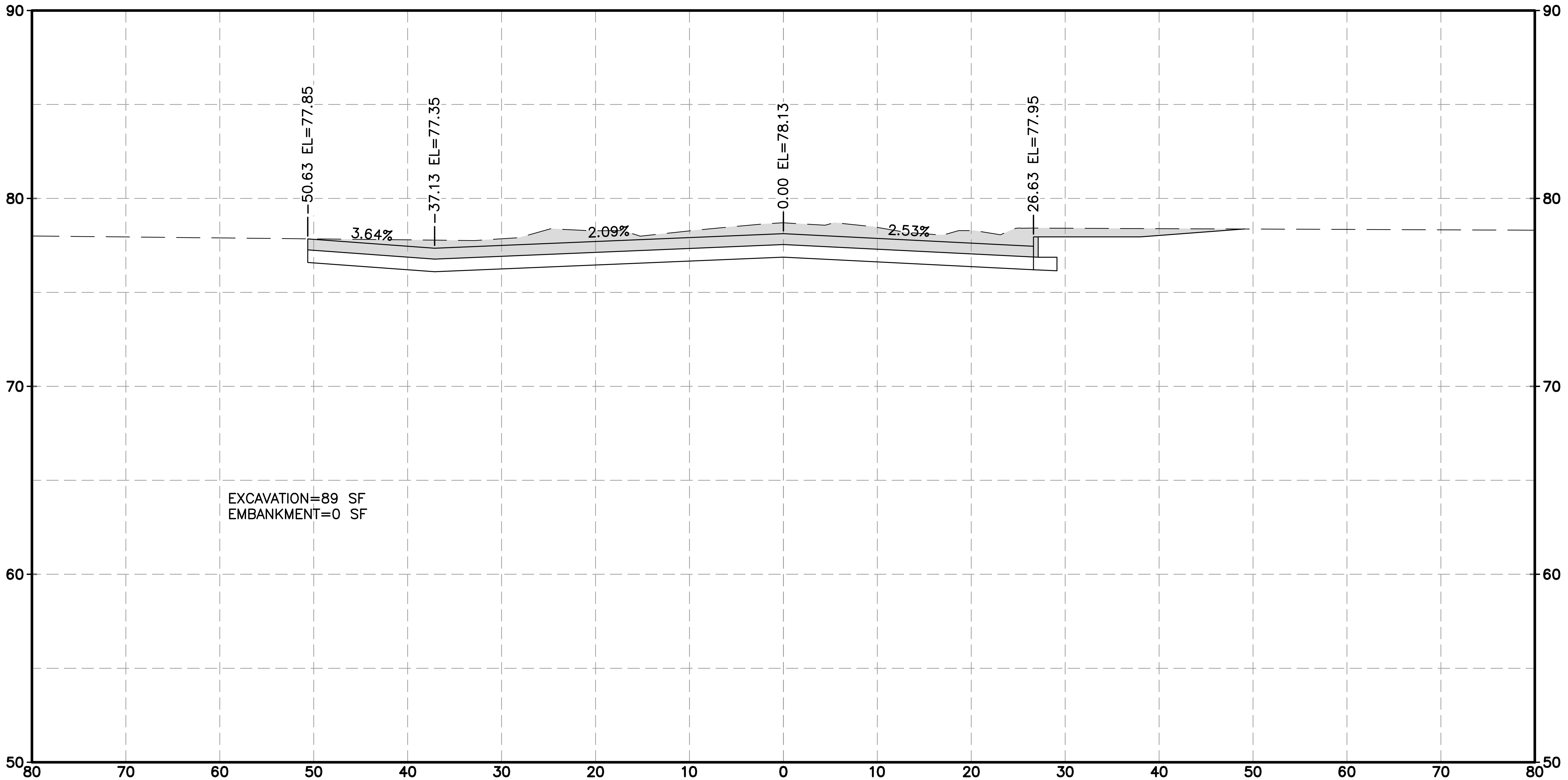
KEVIN HAMMOND, P.E.

SHEET NO. 304 OF 345

No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨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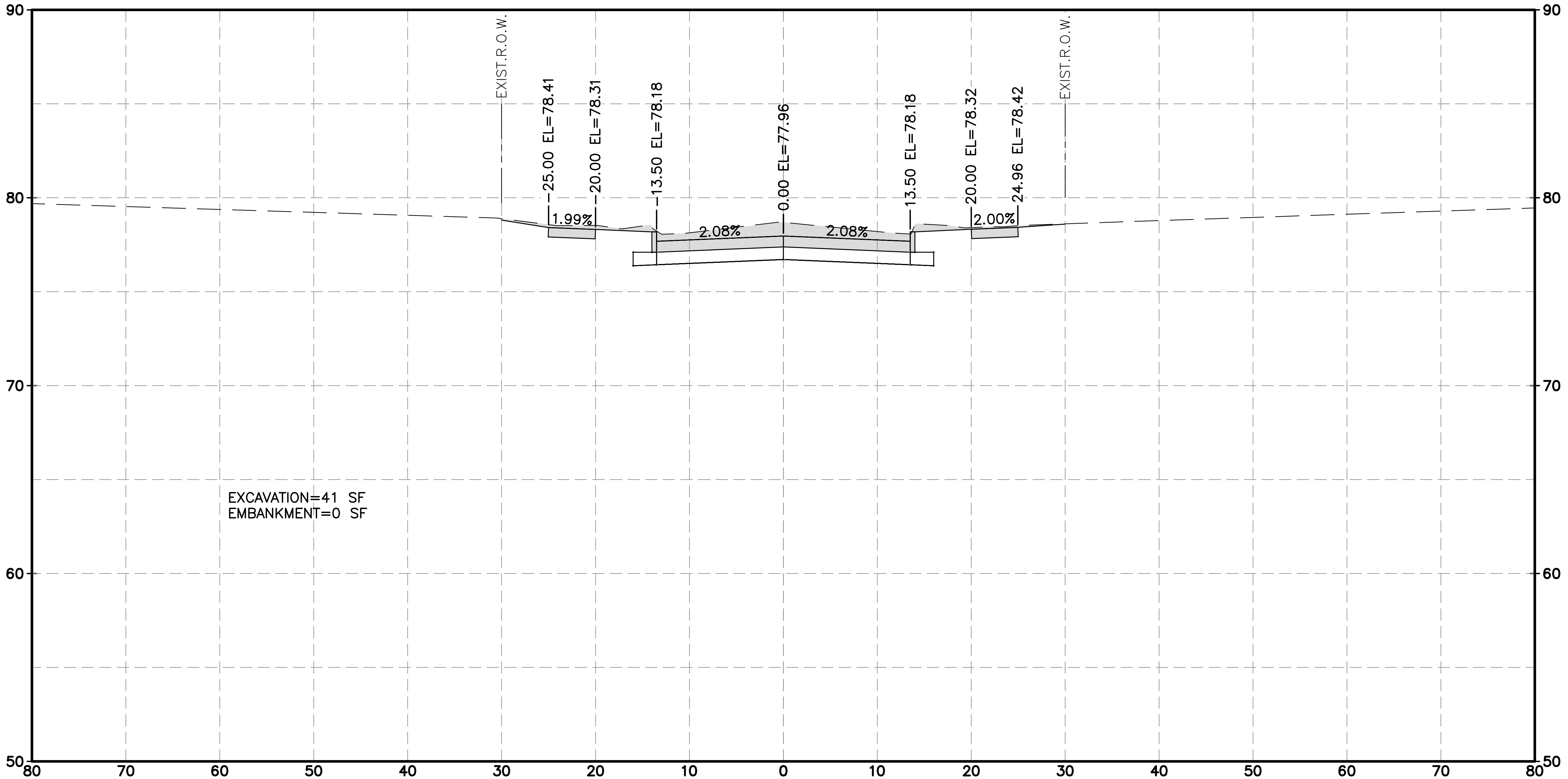
50
50.63 EL=77.85
37.13 EL=77.35
0.00 EL=78.13
26.63 EL=77.95
3.64%
2.09%
2.53%
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

EXCAVATION=89 SF
EMBANKMENT=0 SF

KINGSRIDE LN 4+50.00


90
80
70
60
50
EXIST.R.O.W.
25.00 EL=78.41
20.00 EL=78.31
13.50 EL=78.18
0.00 EL=77.96
13.50 EL=78.18
20.00 EL=78.32
24.96 EL=78.42
EXIST.R.O.W.
1.99%
2.08%
2.08%
2.00%
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

EXCAVATION=41 SF
EMBANKMENT=0 SF

KINGSRIDE LN 5+00.00

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 5 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

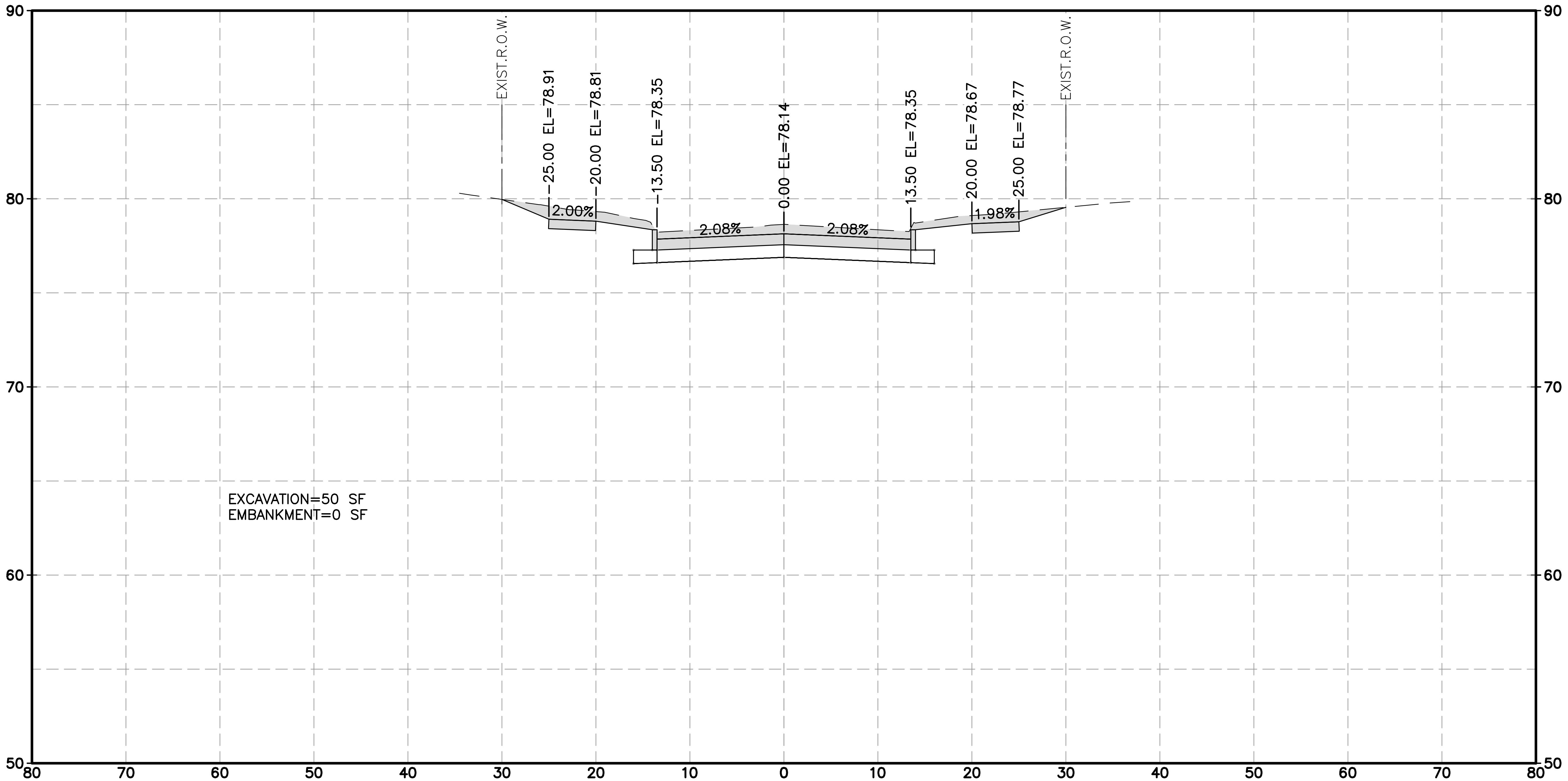
SHEET NO. 305 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:44 AM by Huml, John

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨


90
80
70
60
50
EXIST.R.O.W.
25.00 EL=78.91
20.00 EL=78.81
13.50 EL=78.35
0.00 EL=78.14
13.50 EL=78.35
20.00 EL=78.67
25.00 EL=78.77
EXIST.R.O.W.
2.00%
2.08%
2.08%
1.98%
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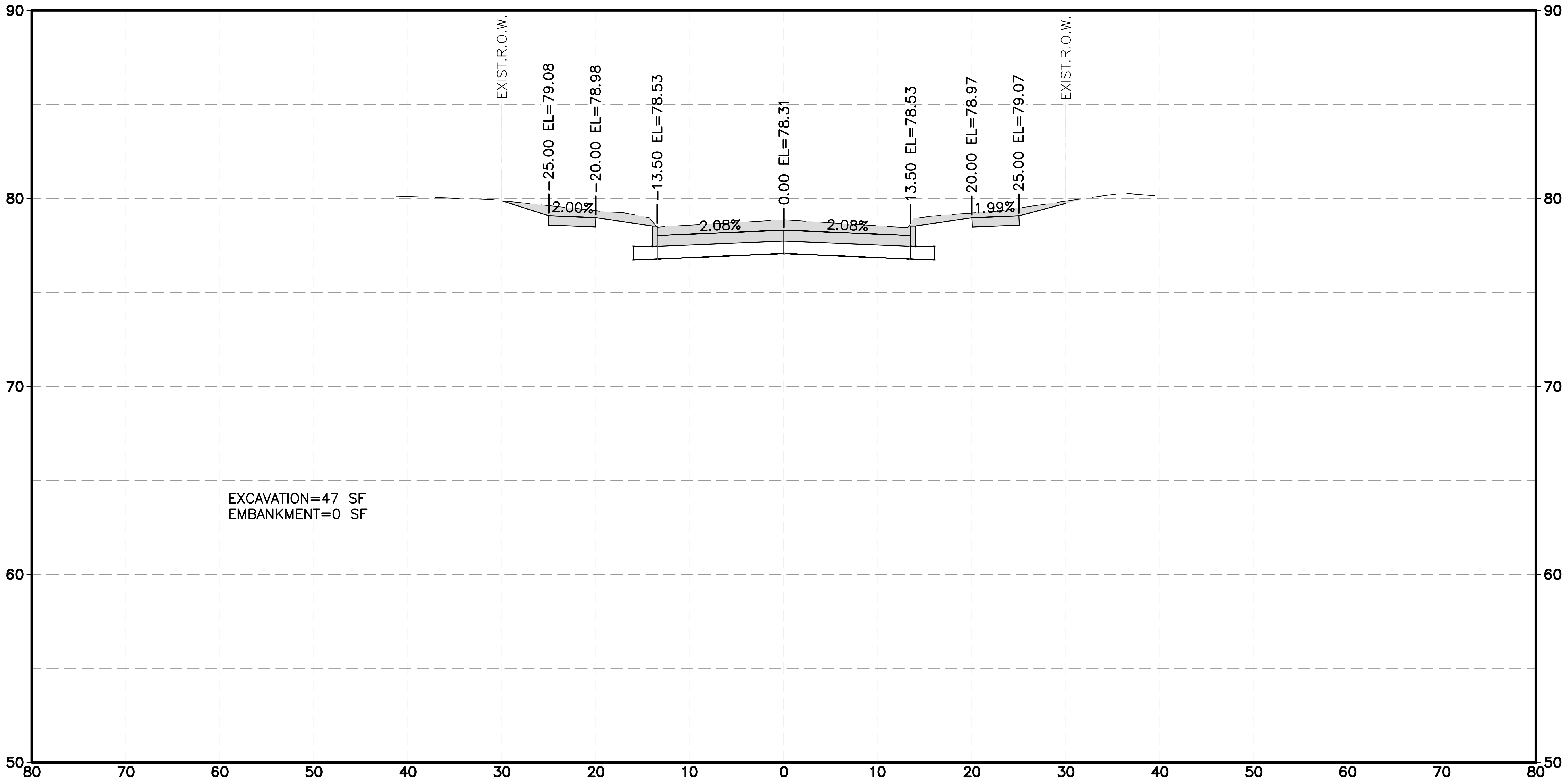
EXCAVATION=50 SF
EMBANKMENT=0 SF

KINGSRIDE LN 5+50.00


90
80
70
60
50
EXIST.R.O.W.
25.00 EL=79.08
20.00 EL=78.98
13.50 EL=78.53
0.00 EL=78.31
13.50 EL=78.53
20.00 EL=78.97
25.00 EL=79.07
EXIST.R.O.W.
2.00%
2.08%
2.08%
1.99%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=47 SF
EMBANKMENT=0 SF

KINGSRIDE LN 6+00.00

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:49 AM by Huml, John

No.	Date	Revisions	App.

HRGreen
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 6 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

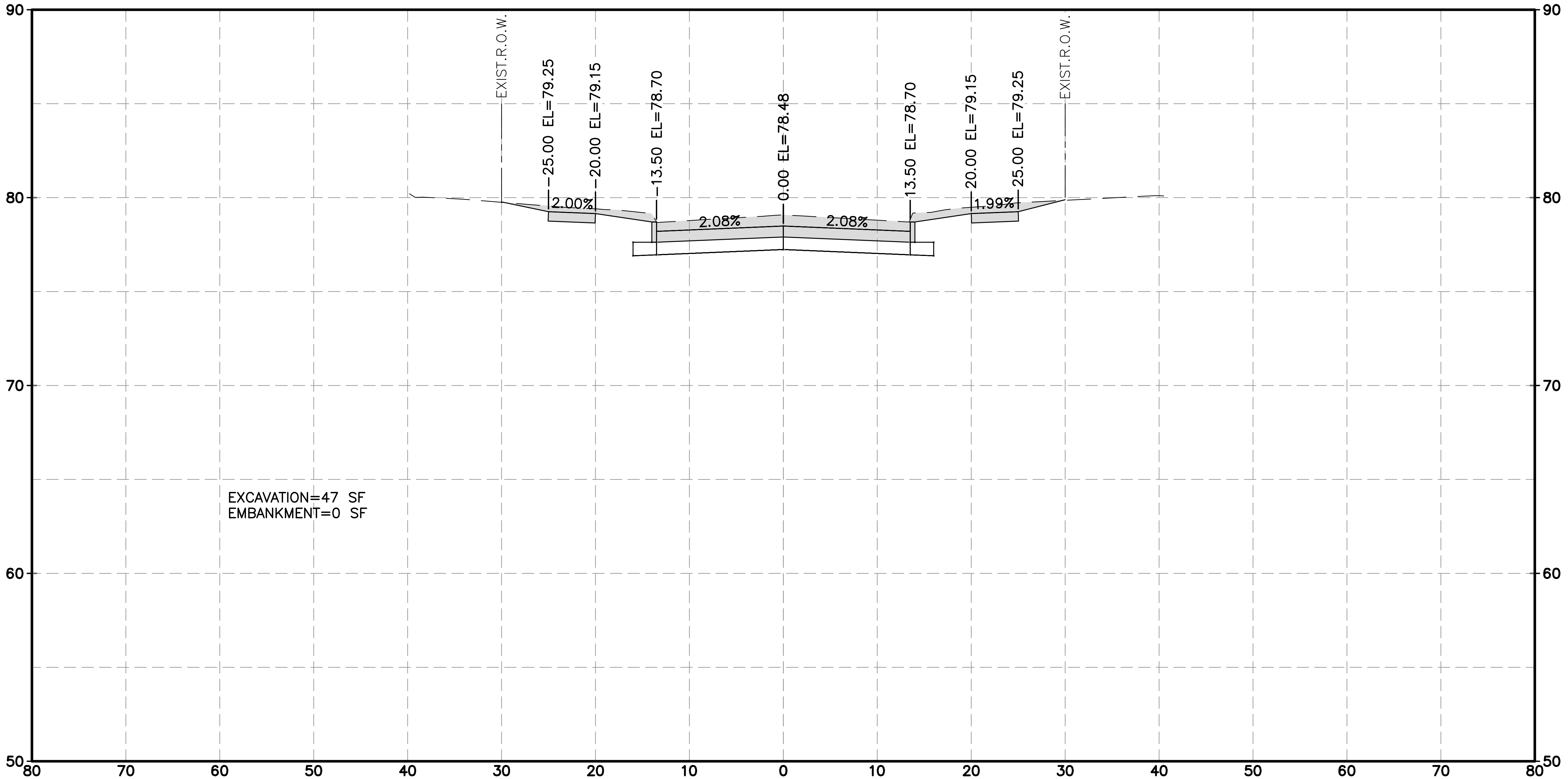
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 306 OF 345

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

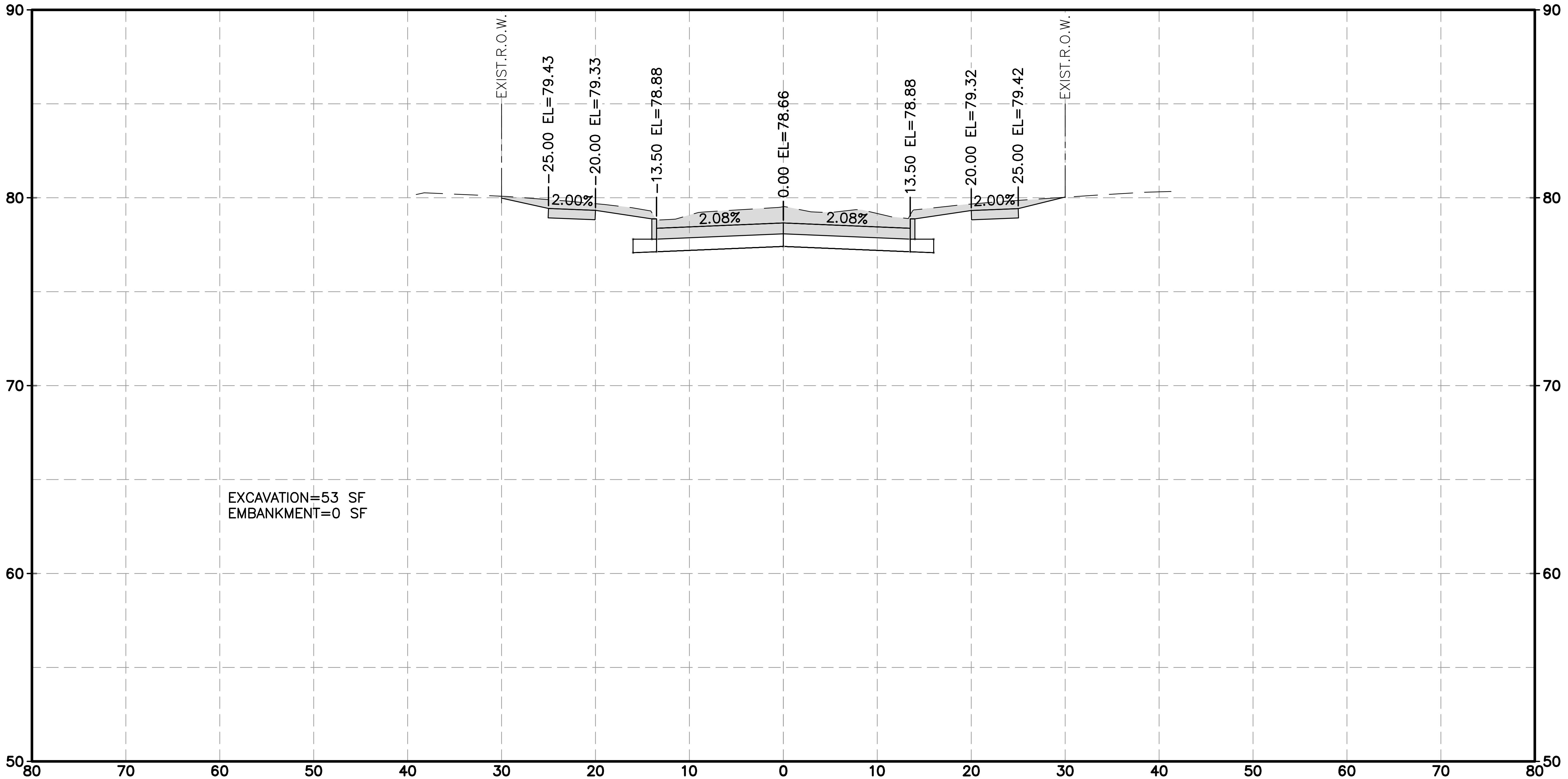
LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨



EXIST.R.O.W.
-25.00 EL=79.25
-20.00 EL=79.15
-13.50 EL=78.70
0.00 EL=78.48
13.50 EL=78.70
20.00 EL=79.15
25.00 EL=79.25
EXIST.R.O.W.
2.00%
2.08%
2.08%
1.99%
EXCAVATION=47 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 6+50.00



EXIST.R.O.W.
-25.00 EL=79.43
-20.00 EL=79.33
-13.50 EL=78.88
0.00 EL=78.66
13.50 EL=78.88
20.00 EL=79.32
25.00 EL=79.42
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=53 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 7+00.00

App
Revisions
Date
No.

HRGreen
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 7 OF 24

WBS NO. M-430296-0017-3

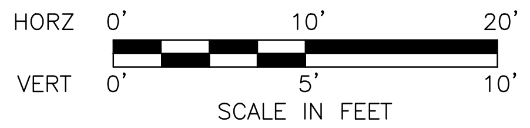
DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

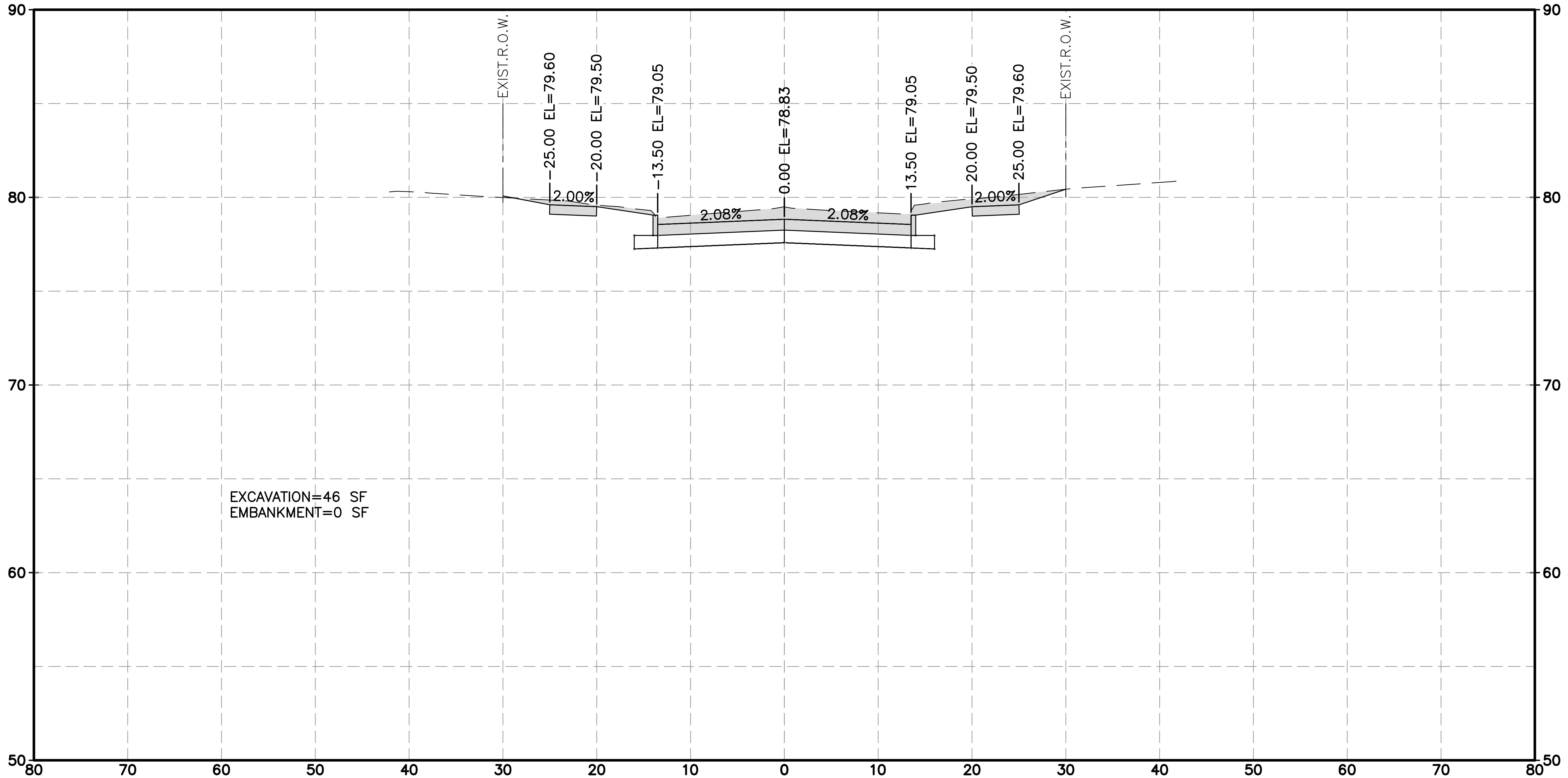
j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:44 AM by Huml, John


HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

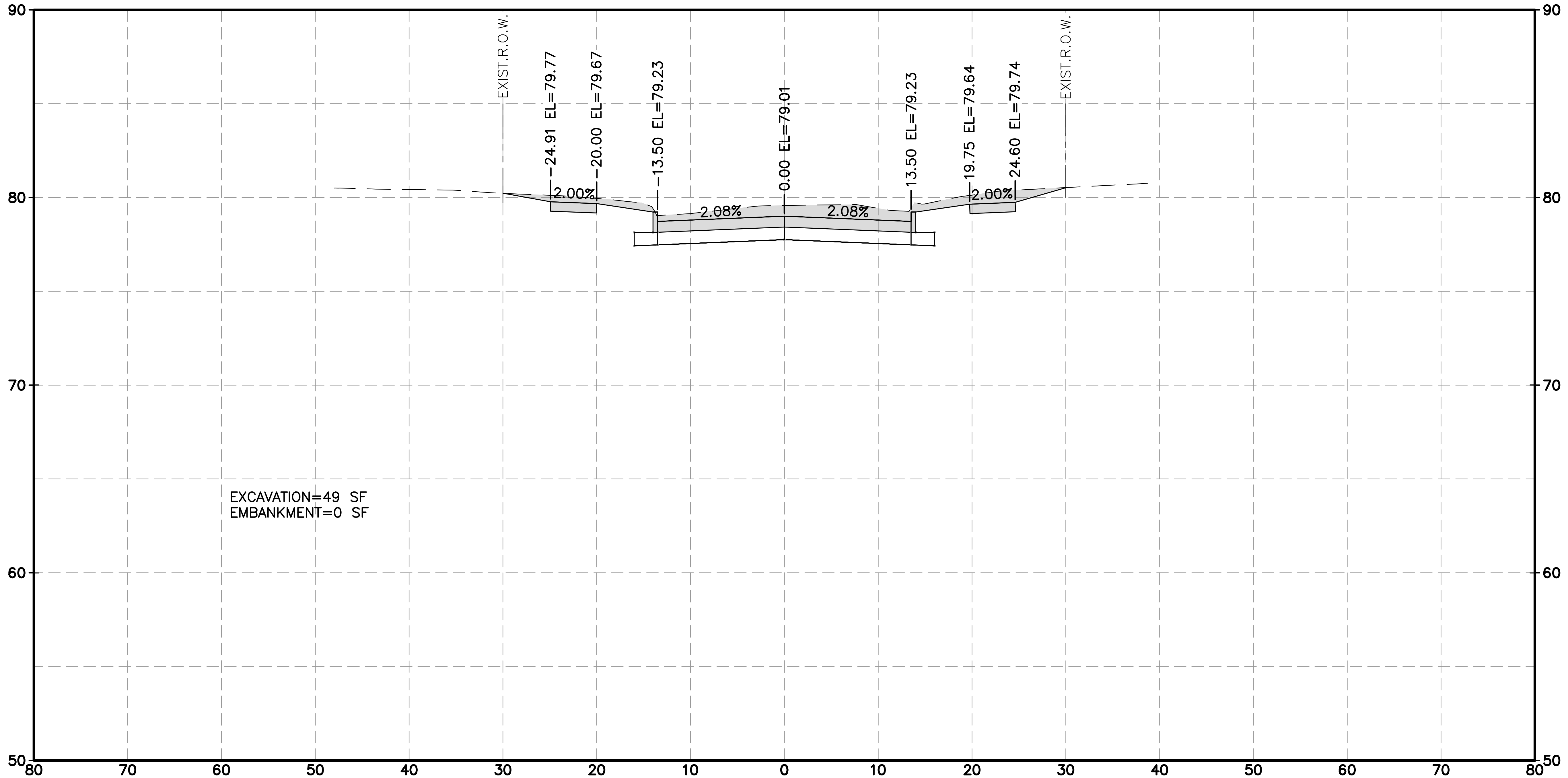
LEGEND

EXCAVATION=XX SF ▭

EMBANKMENT=XX SF ▨


EXIST.R.O.W.
25.00 EL=79.60
20.00 EL=79.50
13.50 EL=79.05
0.00 EL=78.83
13.50 EL=79.05
20.00 EL=79.50
25.00 EL=79.60
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=46 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 7+50.00


EXIST.R.O.W.
24.91 EL=79.77
20.00 EL=79.67
13.50 EL=79.23
0.00 EL=79.01
13.50 EL=79.23
19.75 EL=79.64
24.60 EL=79.74
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=49 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 8+00.00

No.	Date	Revisions	App.

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 8 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 308 OF 345

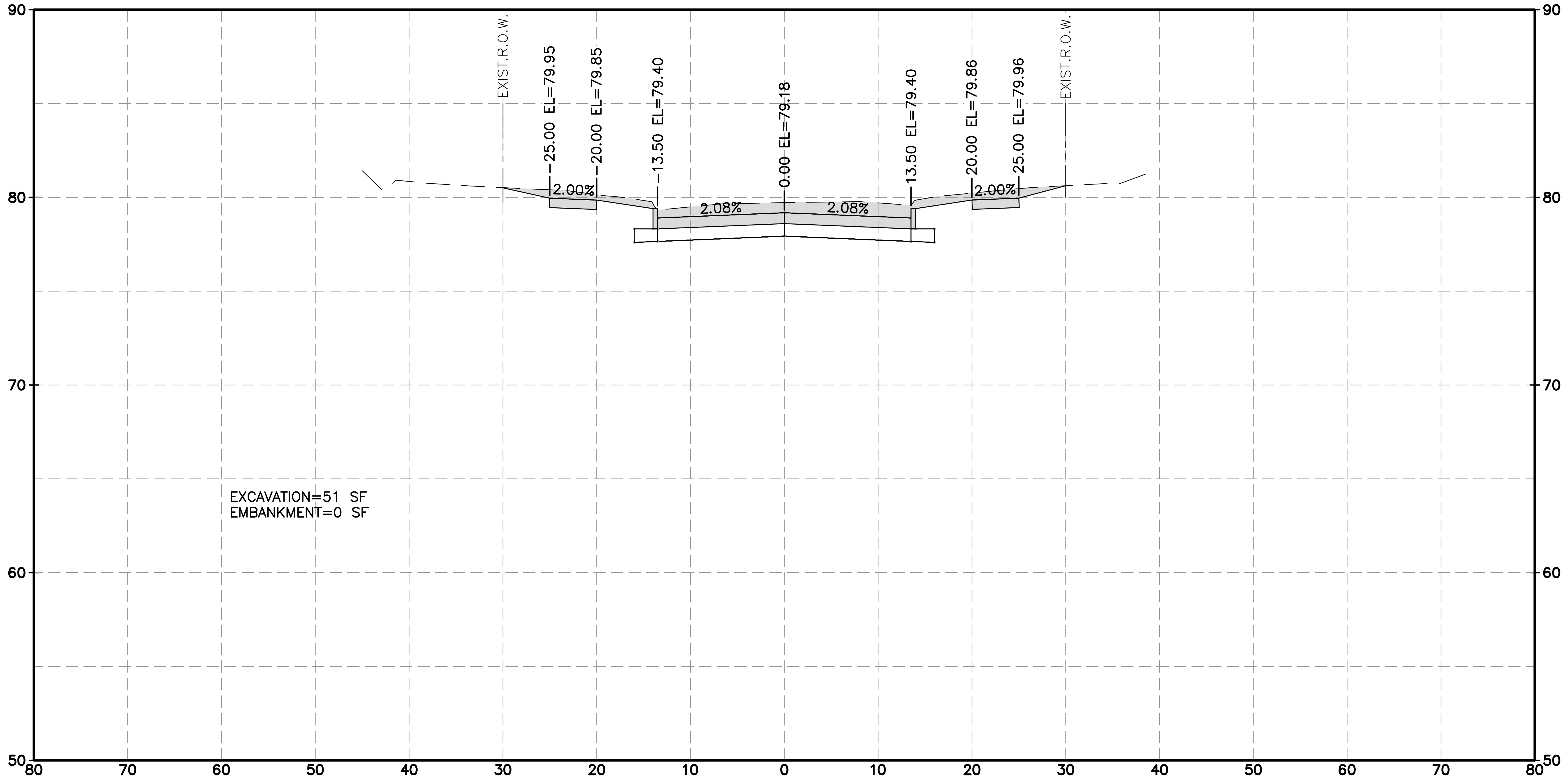
j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:53 AM by Huml, John

No.	Date	Revisions	App.

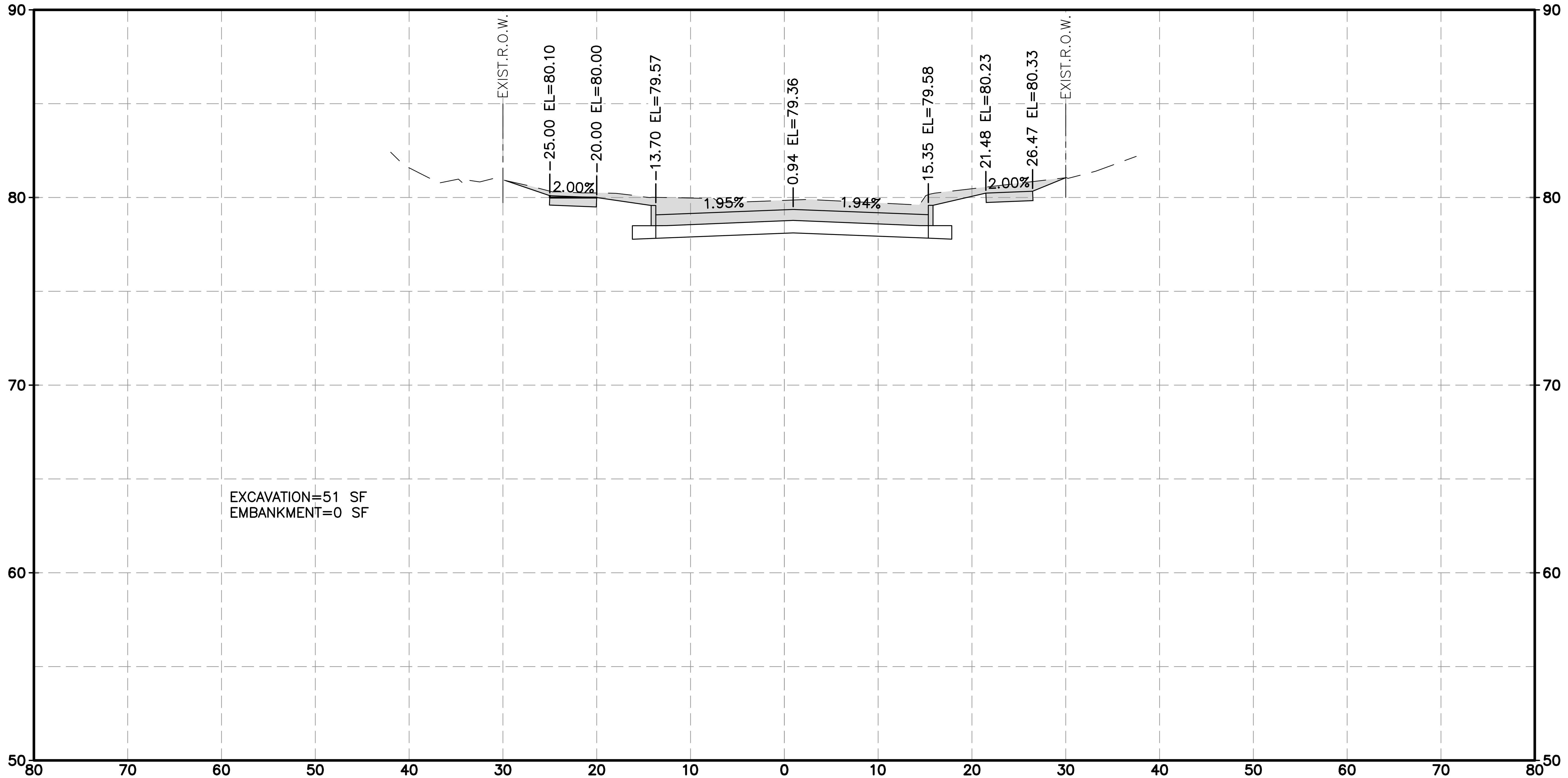
HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨


EXIST.R.O.W.
25.00 EL=79.95
20.00 EL=79.85
13.50 EL=79.40
0.00 EL=79.18
13.50 EL=79.40
20.00 EL=79.86
25.00 EL=79.96
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=51 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 8+50.00


EXIST.R.O.W.
25.00 EL=80.10
20.00 EL=80.00
13.70 EL=79.57
0.94 EL=79.36
15.35 EL=79.58
21.48 EL=80.23
26.47 EL=80.33
EXIST.R.O.W.
2.00%
1.95%
1.94%
2.00%
EXCAVATION=51 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 9+00.00

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:42 AM by Huml, John

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 9 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

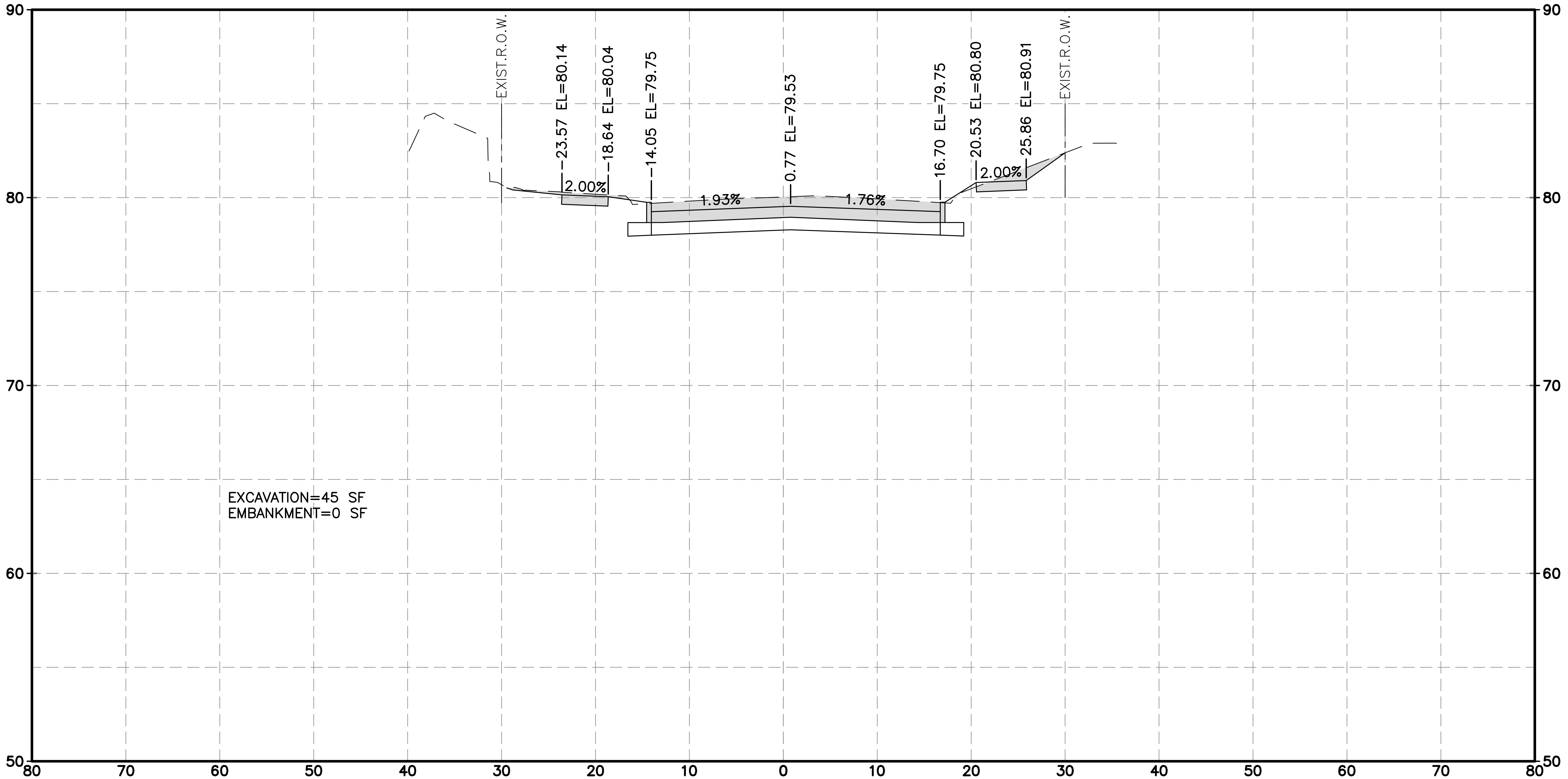
KEVIN HAMMOND, P.E.

SHEET NO. 309 OF 345

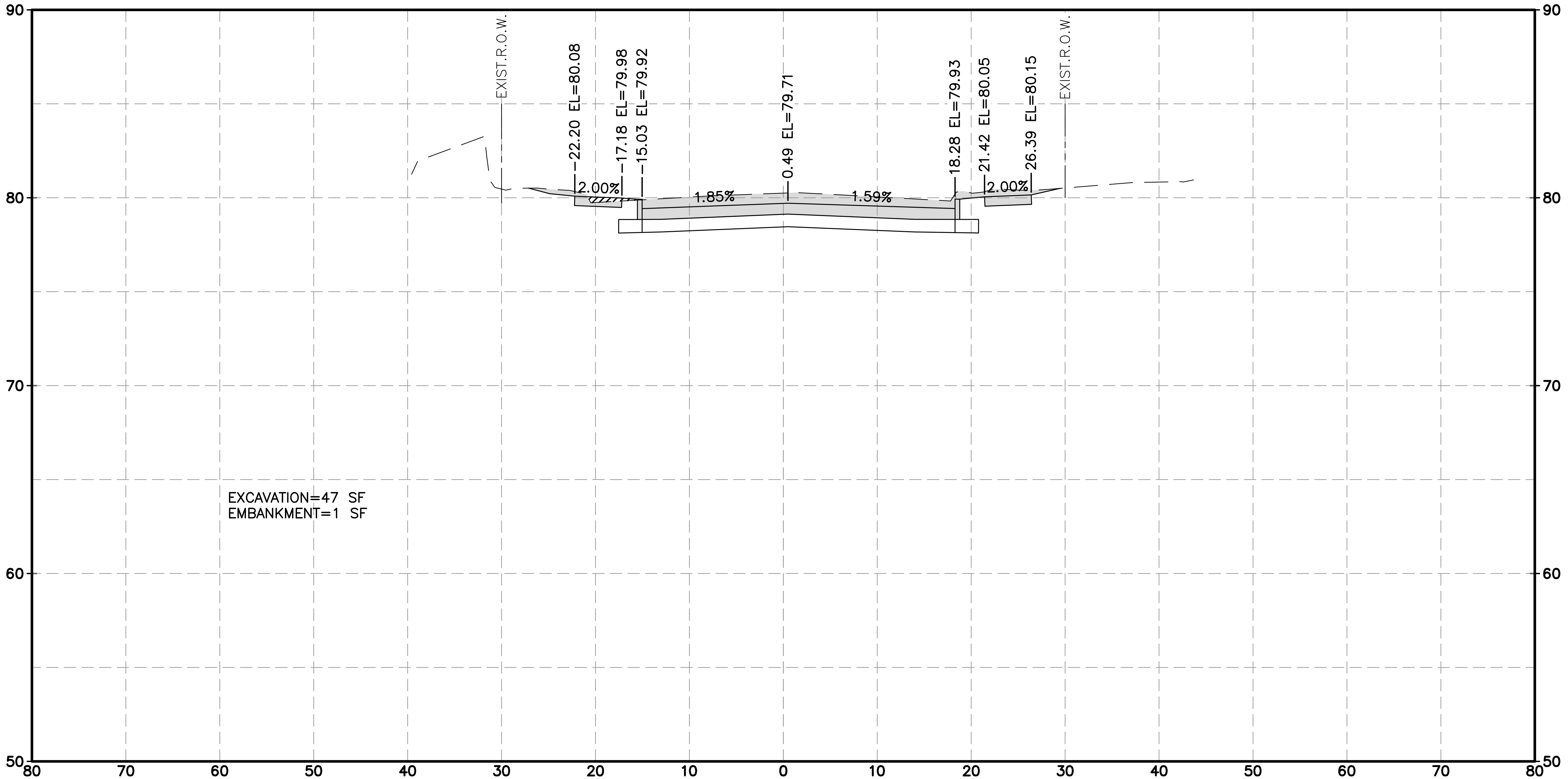
HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨


90
80
70
60
50
EXIST.R.O.W.
23.57 EL=80.14
18.64 EL=80.04
14.05 EL=79.75
0.77 EL=79.53
16.70 EL=79.75
20.53 EL=80.80
25.86 EL=80.91
EXIST.R.O.W.
2.00%
1.93%
1.76%
2.00%
EXCAVATION=45 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 9+50.00


90
80
70
60
50
EXIST.R.O.W.
22.20 EL=80.08
17.18 EL=79.98
15.03 EL=79.92
0.49 EL=79.71
18.28 EL=79.93
21.42 EL=80.05
26.39 EL=80.15
EXIST.R.O.W.
2.00%
1.85%
1.59%
2.00%
EXCAVATION=47 SF
EMBANKMENT=1 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 10+00.00

No.	Date	Revisions	App.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 10 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

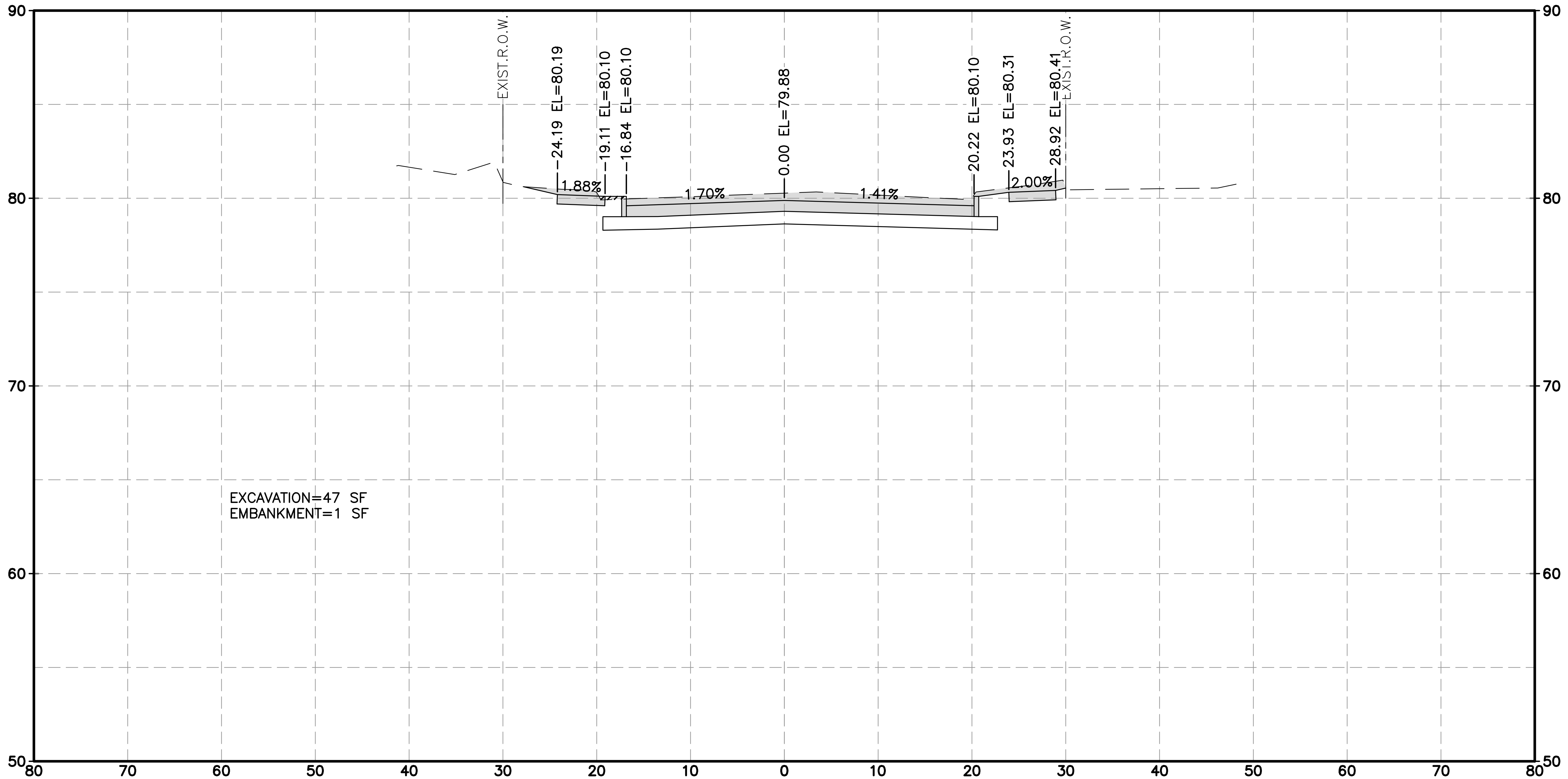
KEVIN HAMMOND, P.E.

No.
Date
Revisions
App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

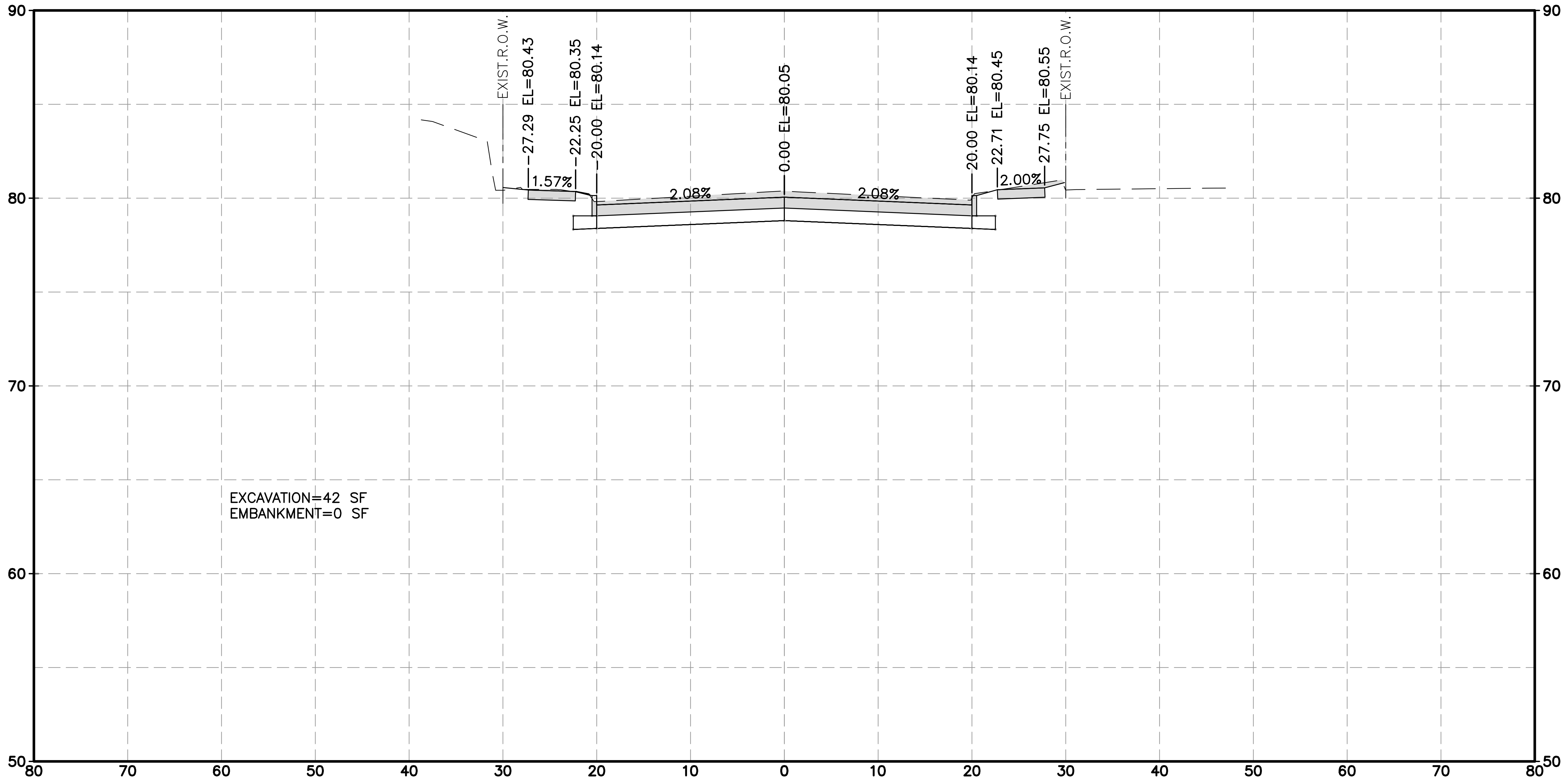
LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨


90
80
70
60
50
EXIST.R.O.W.
24.19 EL=80.19
19.11 EL=80.10
16.84 EL=80.10
0.00 EL=79.88
20.22 EL=80.10
23.93 EL=80.31
28.92 EL=80.41
EXIST.R.O.W.
1.88%
1.70%
1.41%
2.00%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=47 SF
EMBANKMENT=1 SF

KINGSRIDE LN 10+50.00


90
80
70
60
50
EXIST.R.O.W.
27.29 EL=80.43
22.25 EL=80.35
20.00 EL=80.14
0.00 EL=80.05
20.00 EL=80.14
22.71 EL=80.45
27.75 EL=80.55
EXIST.R.O.W.
1.57%
2.08%
2.08%
2.00%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=42 SF
EMBANKMENT=0 SF

KINGSRIDE LN 11+00.00

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 11 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 311 OF 345

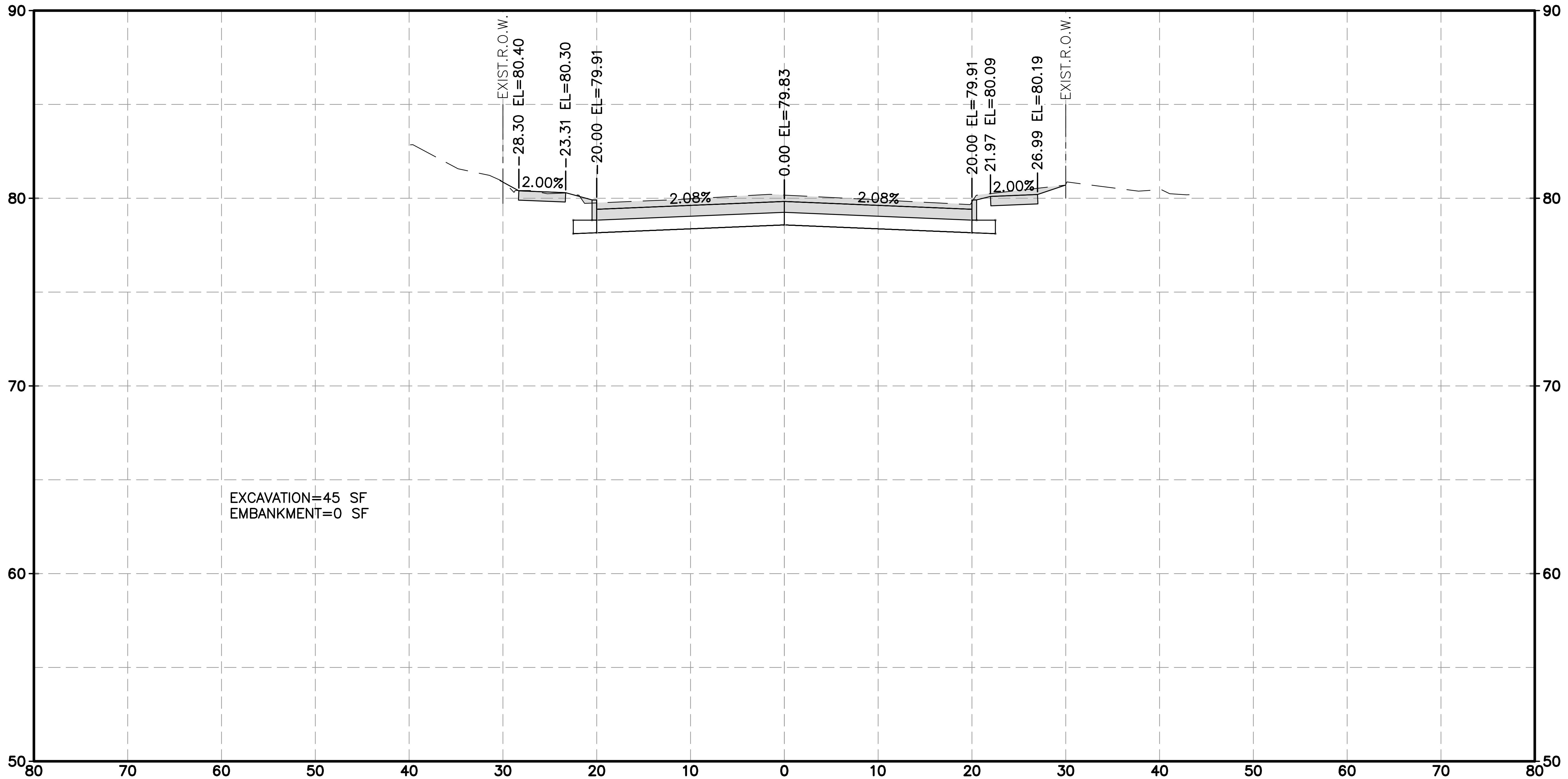
No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

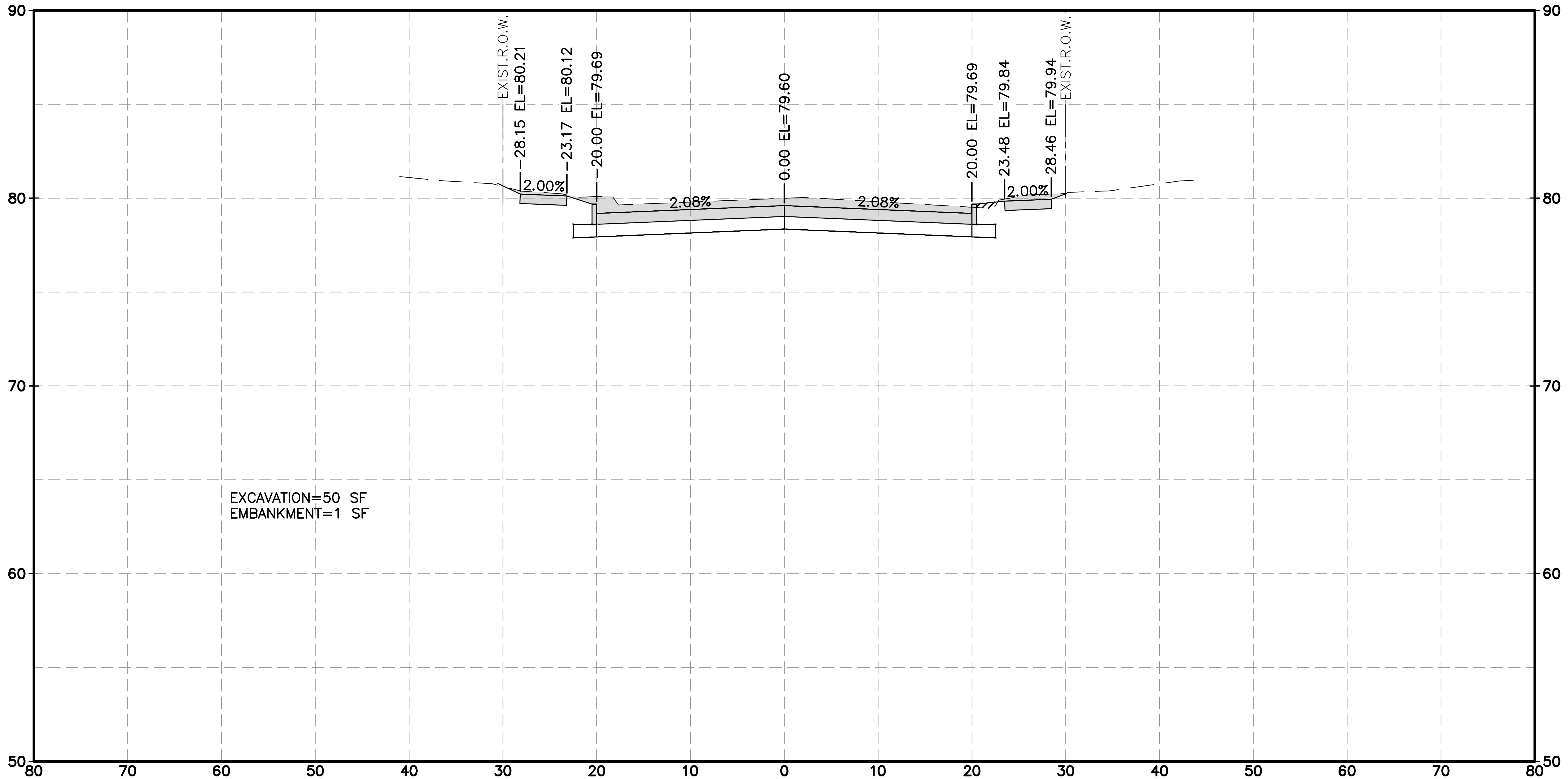
EXCAVATION=XX SF ▭

EMBANKMENT=XX SF ▨



90
80
70
60
50
EXIST.R.O.W.
28.30 EL=80.40
23.31 EL=80.30
20.00 EL=79.91
0.00 EL=79.83
20.00 EL=79.91
21.97 EL=80.09
26.99 EL=80.19
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=45 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 11+50.00



90
80
70
60
50
EXIST.R.O.W.
28.15 EL=80.21
23.17 EL=80.12
20.00 EL=79.69
0.00 EL=79.60
20.00 EL=79.69
23.48 EL=79.84
28.46 EL=79.94
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=50 SF
EMBANKMENT=1 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 12+00.00

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 12 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

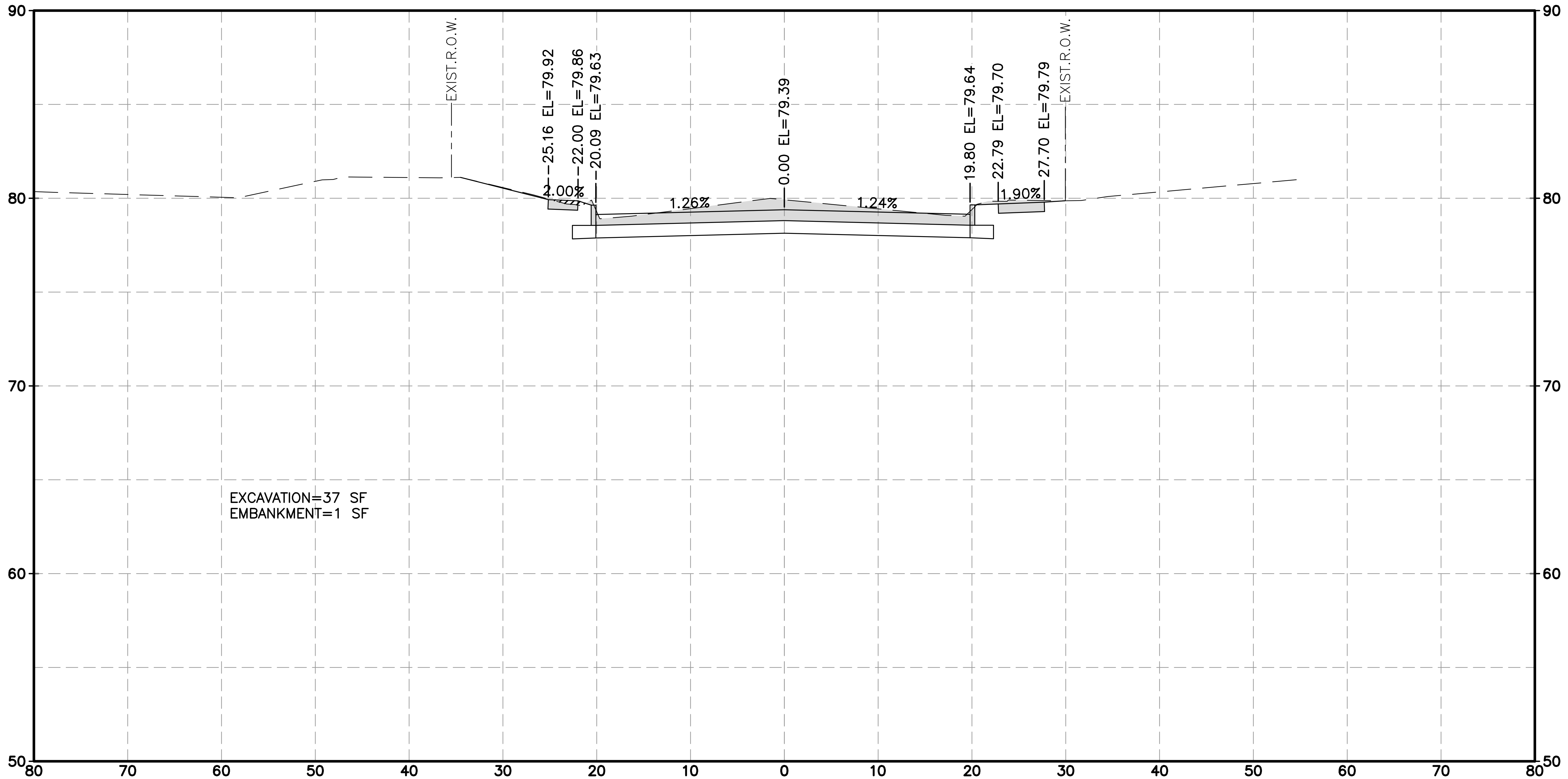
SHEET NO. 312 OF 345

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

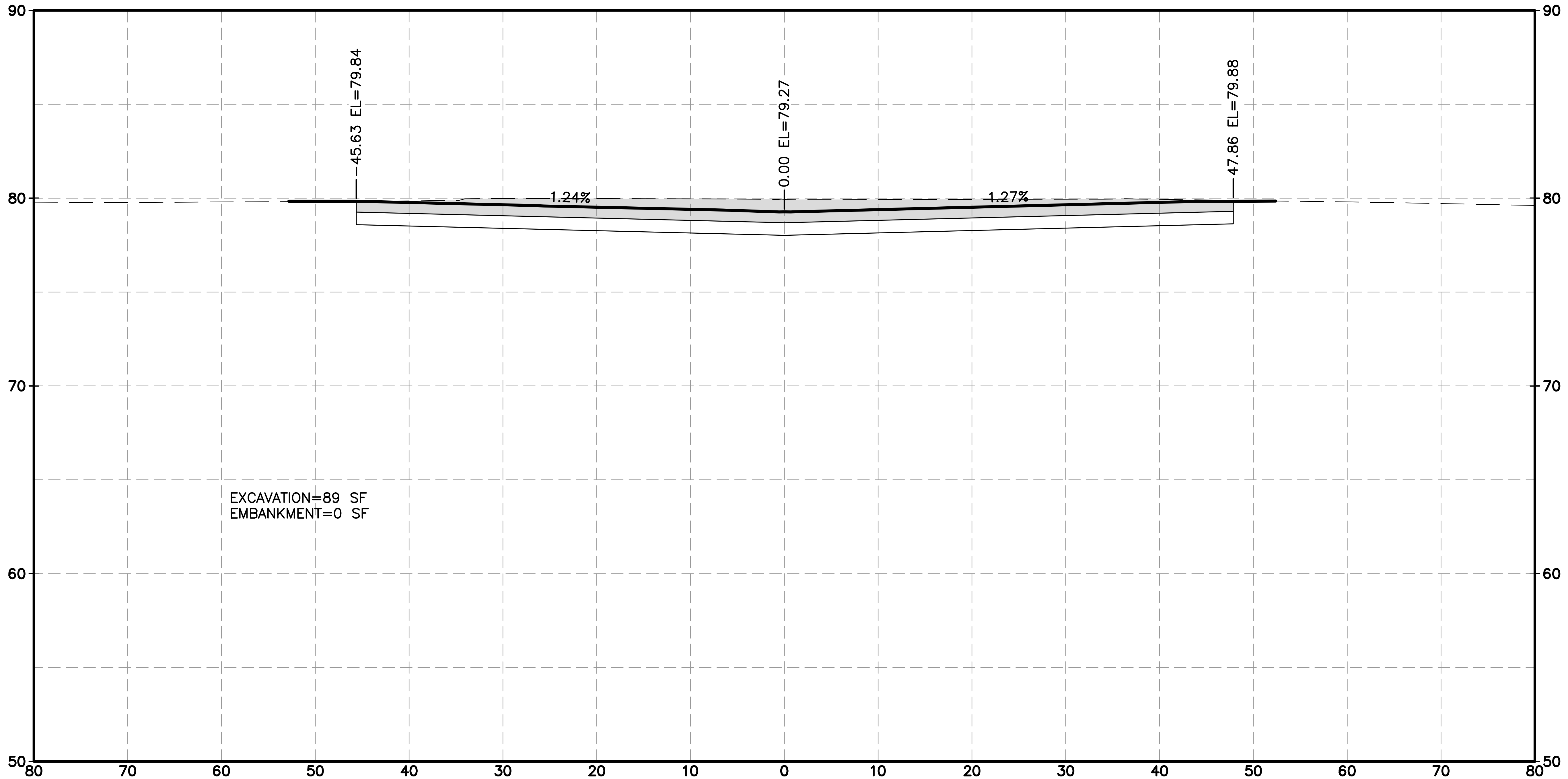
LEGEND

EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨

No.	Date	Revisions	App.


90
80
70
60
50
EXIST.R.O.W.
25.16 EL=79.92
22.00 EL=79.86
20.09 EL=79.63
0.00 EL=79.39
19.80 EL=79.64
22.79 EL=79.70
27.70 EL=79.79
EXIST.R.O.W.
2.00%
1.26%
1.24%
1.90%
EXCAVATION=37 SF
EMBANKMENT=1 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 12+50.00


90
80
70
60
50
45.63 EL=79.84
0.00 EL=79.27
47.86 EL=79.88
1.24%
1.27%
EXCAVATION=89 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 13+00.00

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 13 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 313 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:48 AM by Huml, John

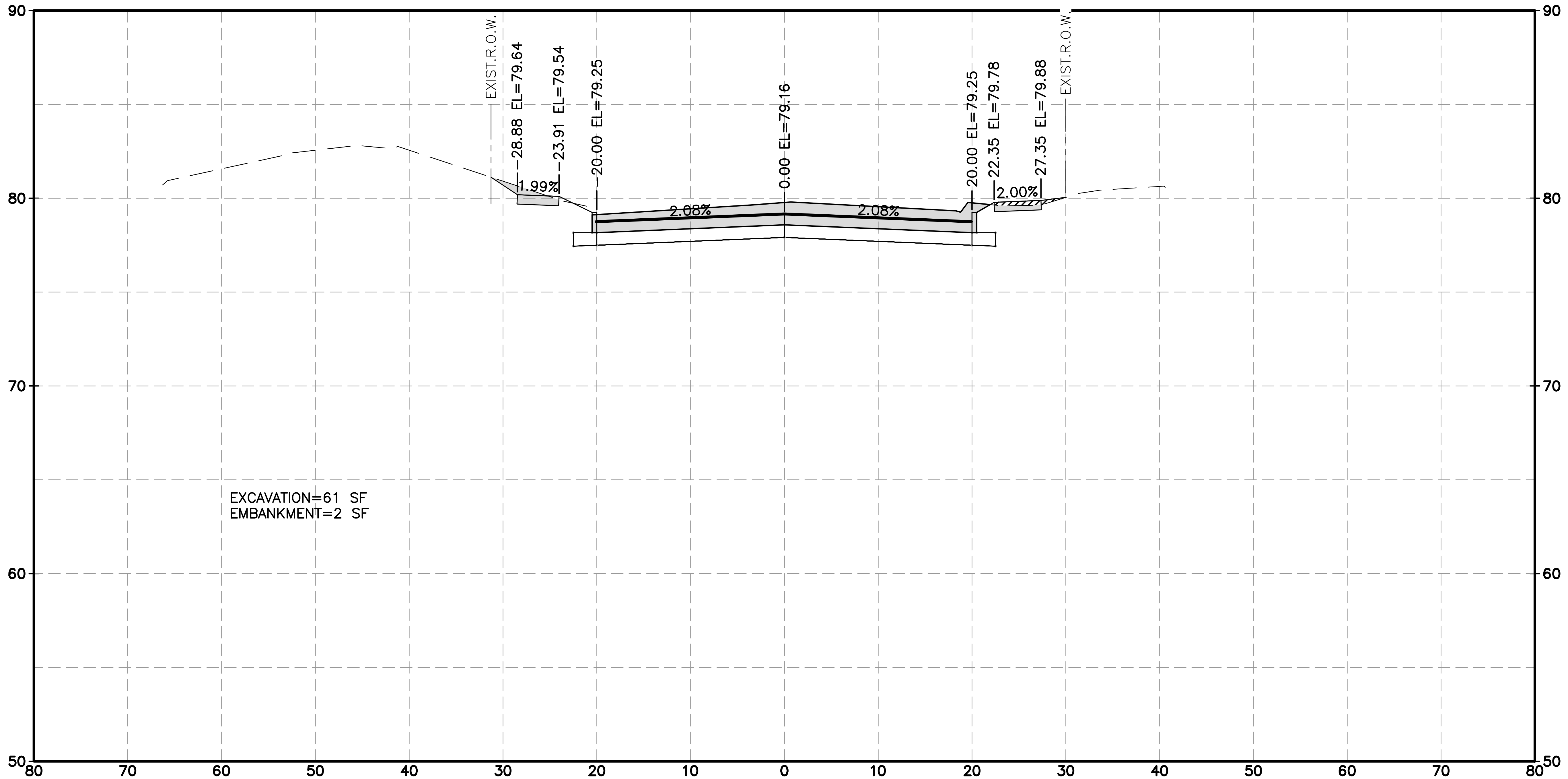
HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF ▭

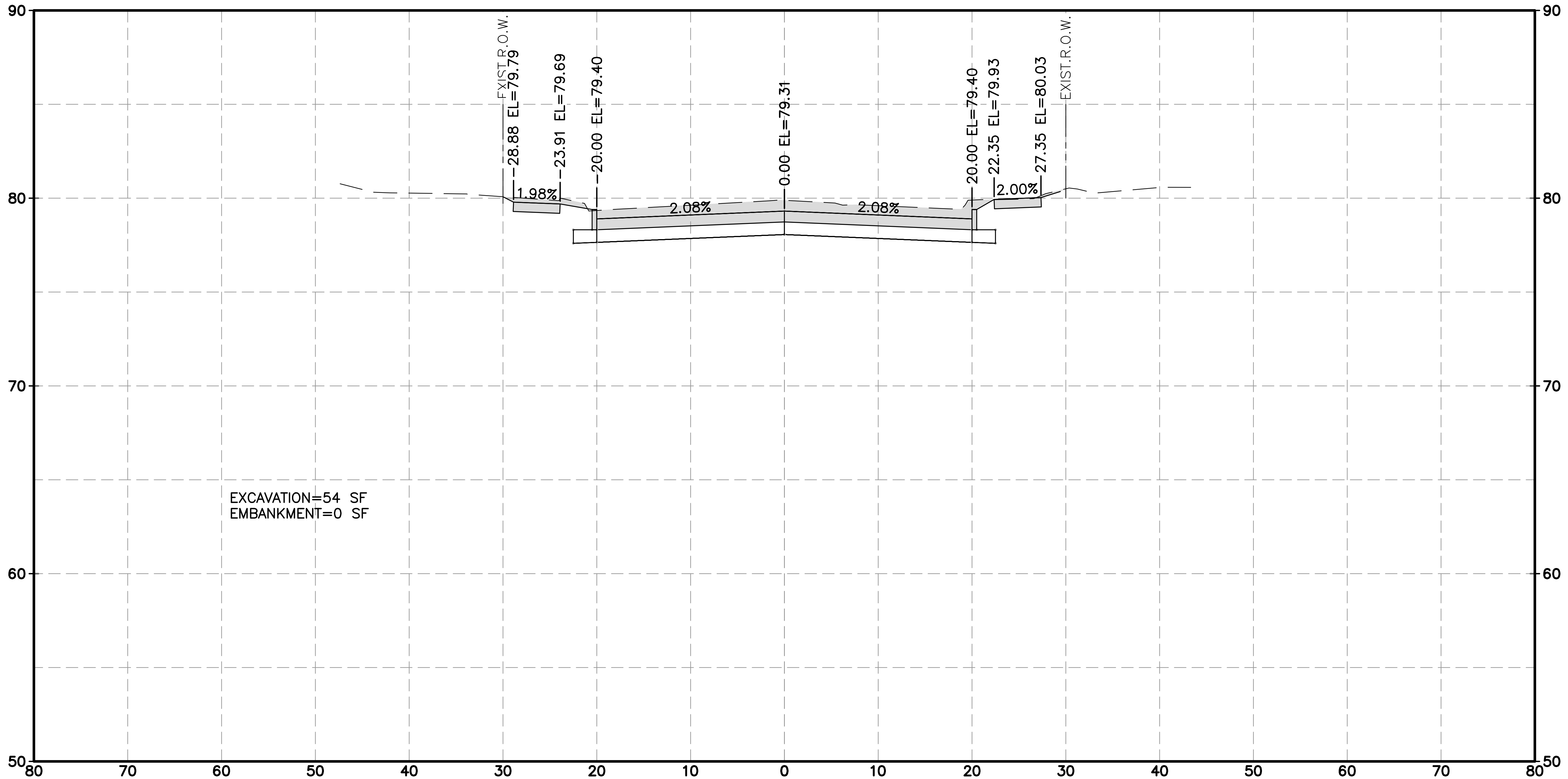
EMBANKMENT=XX SF ▨

No.	Date	Revisions	App.



90
80
70
60
50
EXIST.R.O.W.
28.88 EL=79.64
23.91 EL=79.54
20.00 EL=79.25
0.00 EL=79.16
20.00 EL=79.25
22.35 EL=79.78
27.35 EL=79.88
EXIST.R.O.W.
1.99%
2.08%
2.08%
2.00%
EXCAVATION=61 SF
EMBANKMENT=2 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 13+50.00



90
80
70
60
50
EXIST.R.O.W.
28.88 EL=79.79
23.91 EL=79.69
20.00 EL=79.40
0.00 EL=79.31
20.00 EL=79.40
22.35 EL=79.93
27.35 EL=80.03
EXIST.R.O.W.
1.98%
2.08%
2.08%
2.00%
EXCAVATION=54 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 14+00.00

HRGreen

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 14 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 314 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:49 AM by Huml, John

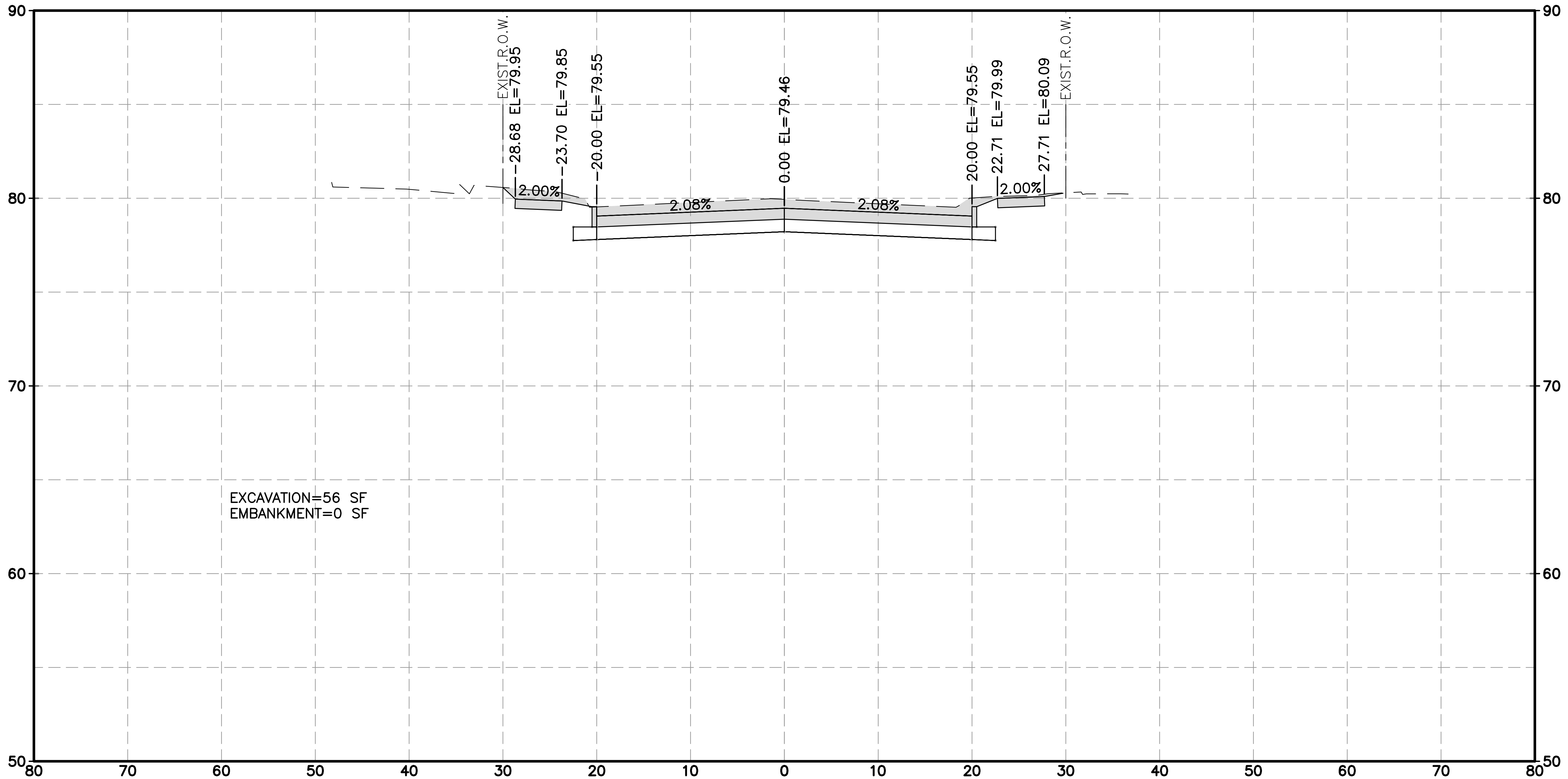
No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

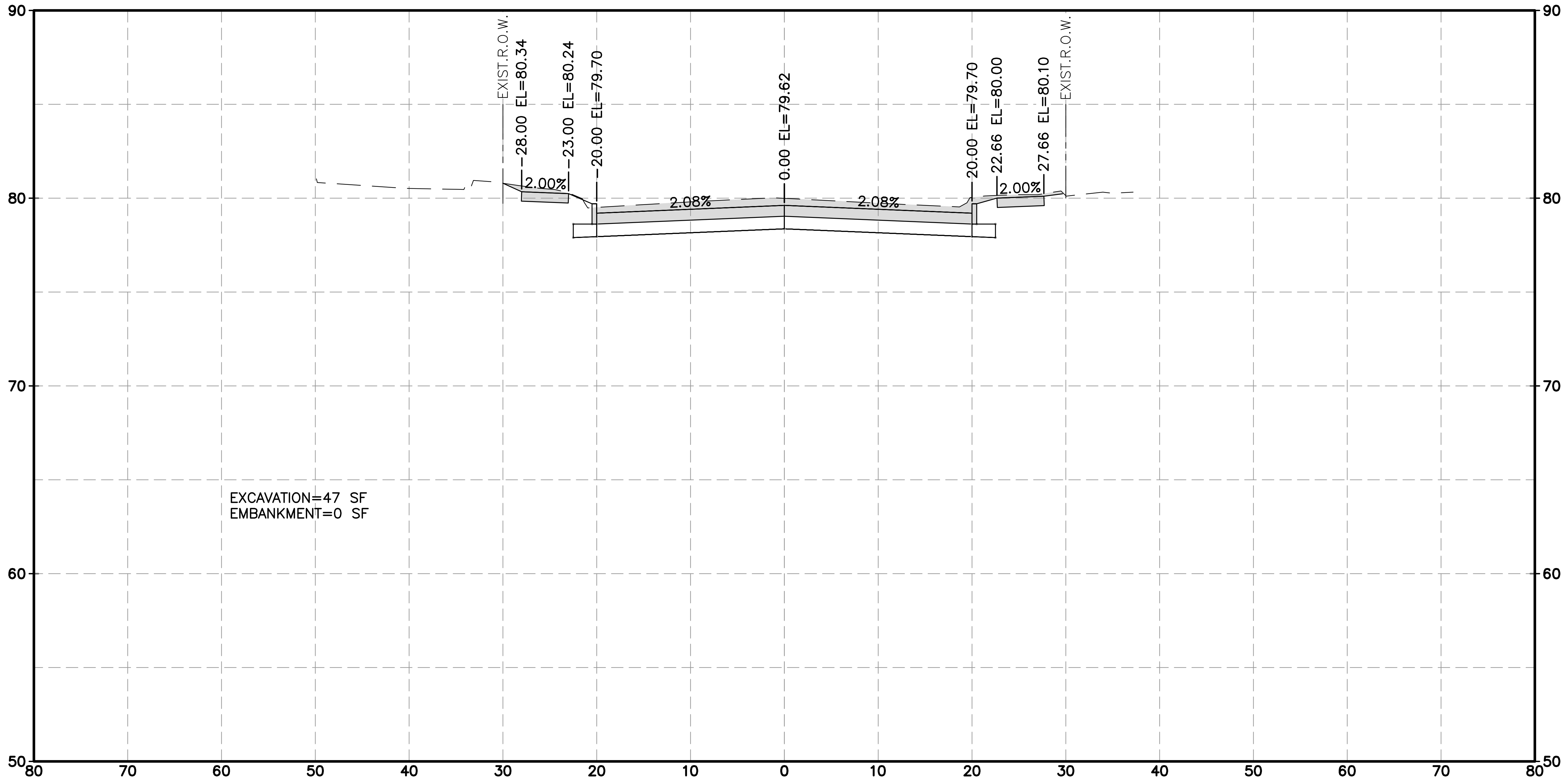
EXCAVATION=XX SF ▭

EMBANKMENT=XX SF ▨



90
80
70
60
50
EXIST.R.O.W.
28.68 EL=79.95
23.70 EL=79.85
20.00 EL=79.55
0.00 EL=79.46
20.00 EL=79.55
22.71 EL=79.99
27.71 EL=80.09
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=56 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 14+50.00



90
80
70
60
50
EXIST.R.O.W.
28.00 EL=80.34
23.00 EL=80.24
20.00 EL=79.70
0.00 EL=79.62
20.00 EL=79.70
22.66 EL=80.00
27.66 EL=80.10
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=47 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 15+00.00

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 15 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 315 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:45 AM by Huml, John

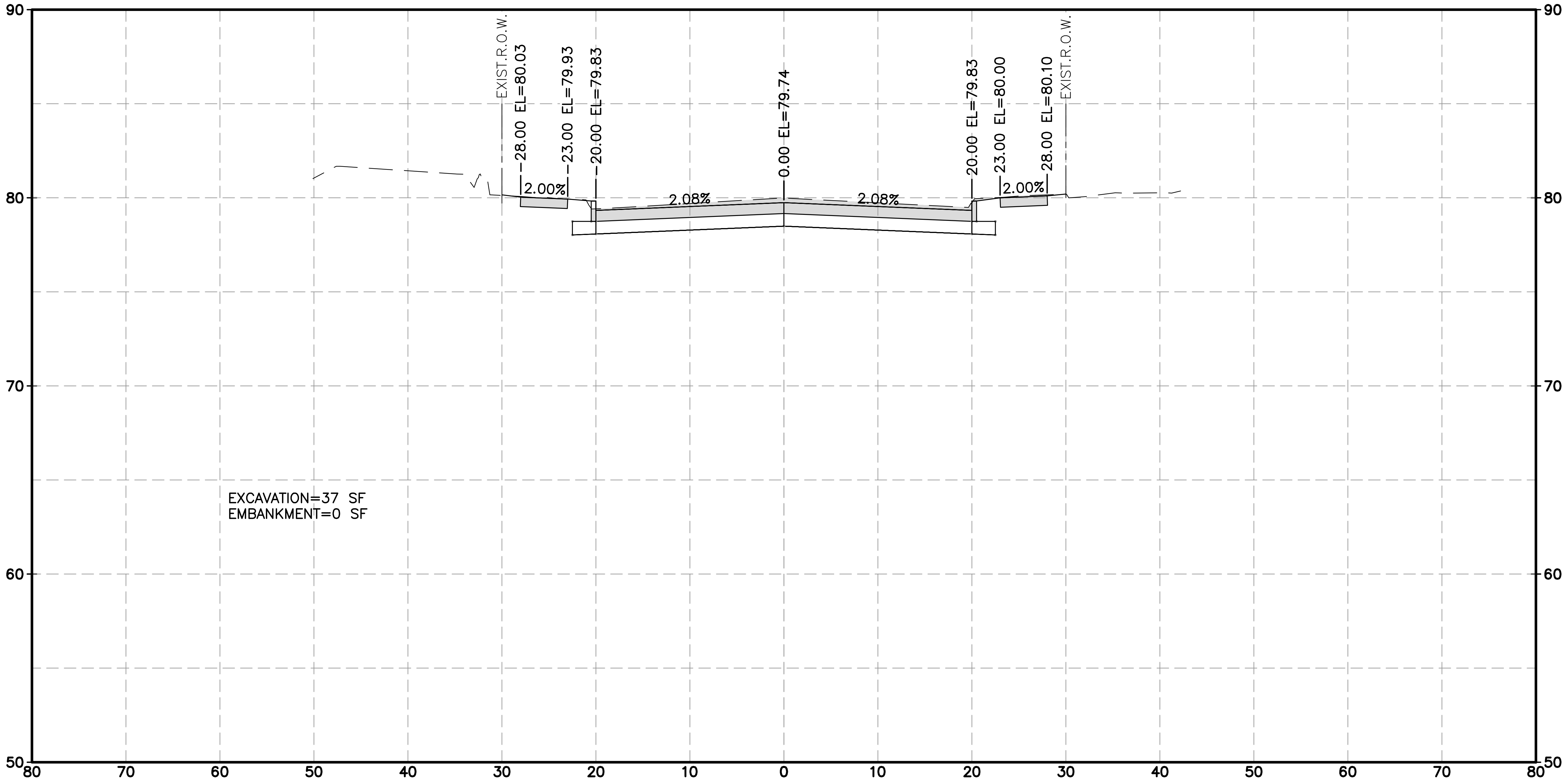
j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:48 AM by Huml, John

No.	Date	Revisions	App.

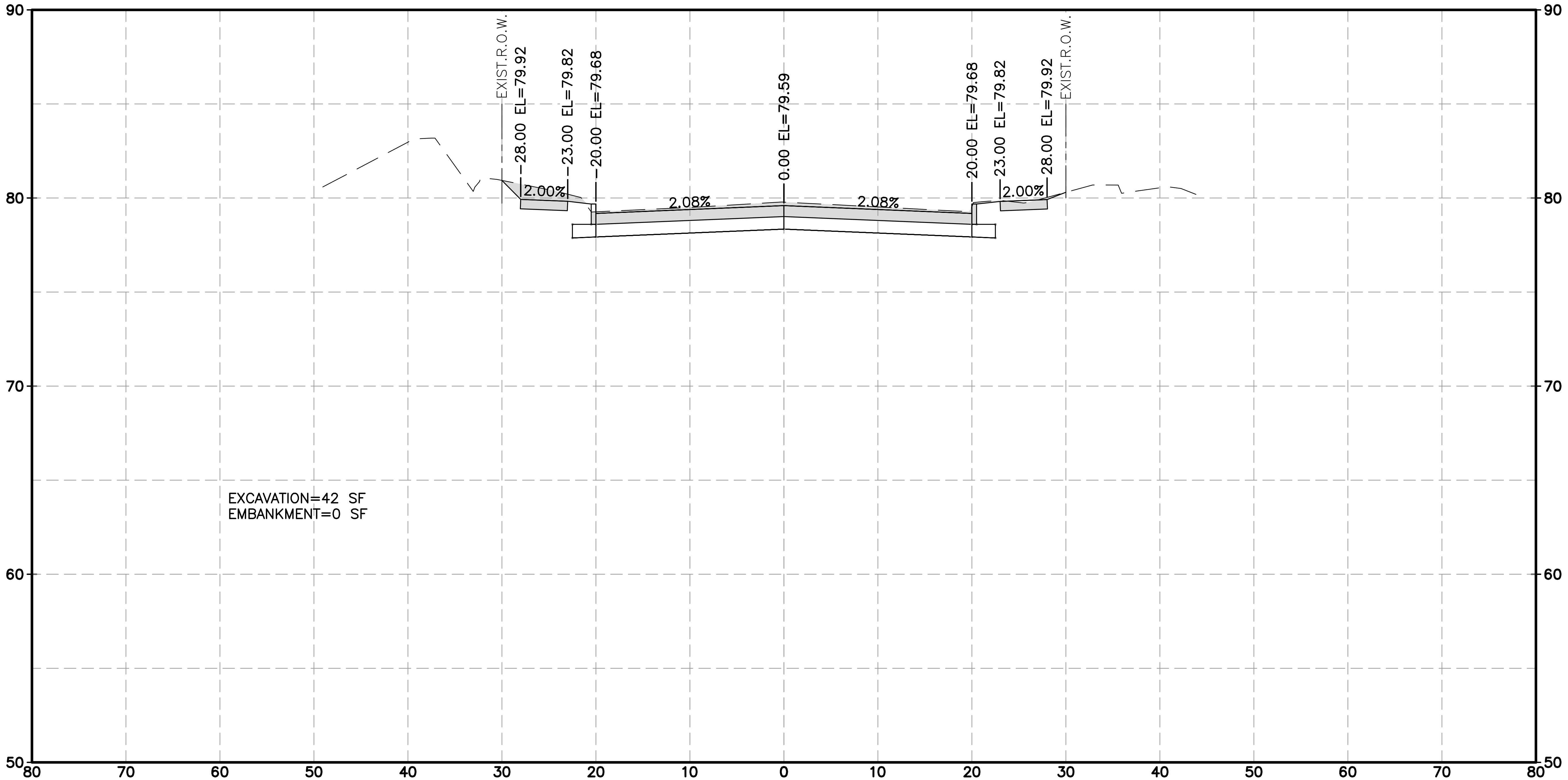
HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨


90
80
70
60
50
EXIST.R.O.W.
28.00 EL=80.03
23.00 EL=79.93
20.00 EL=79.83
0.00 EL=79.74
20.00 EL=79.83
23.00 EL=80.00
28.00 EL=80.10
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=37 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 15+50.00


90
80
70
60
50
EXIST.R.O.W.
28.00 EL=79.92
23.00 EL=79.82
20.00 EL=79.68
0.00 EL=79.59
20.00 EL=79.68
23.00 EL=79.82
28.00 EL=79.92
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=42 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 16+00.00

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 16 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

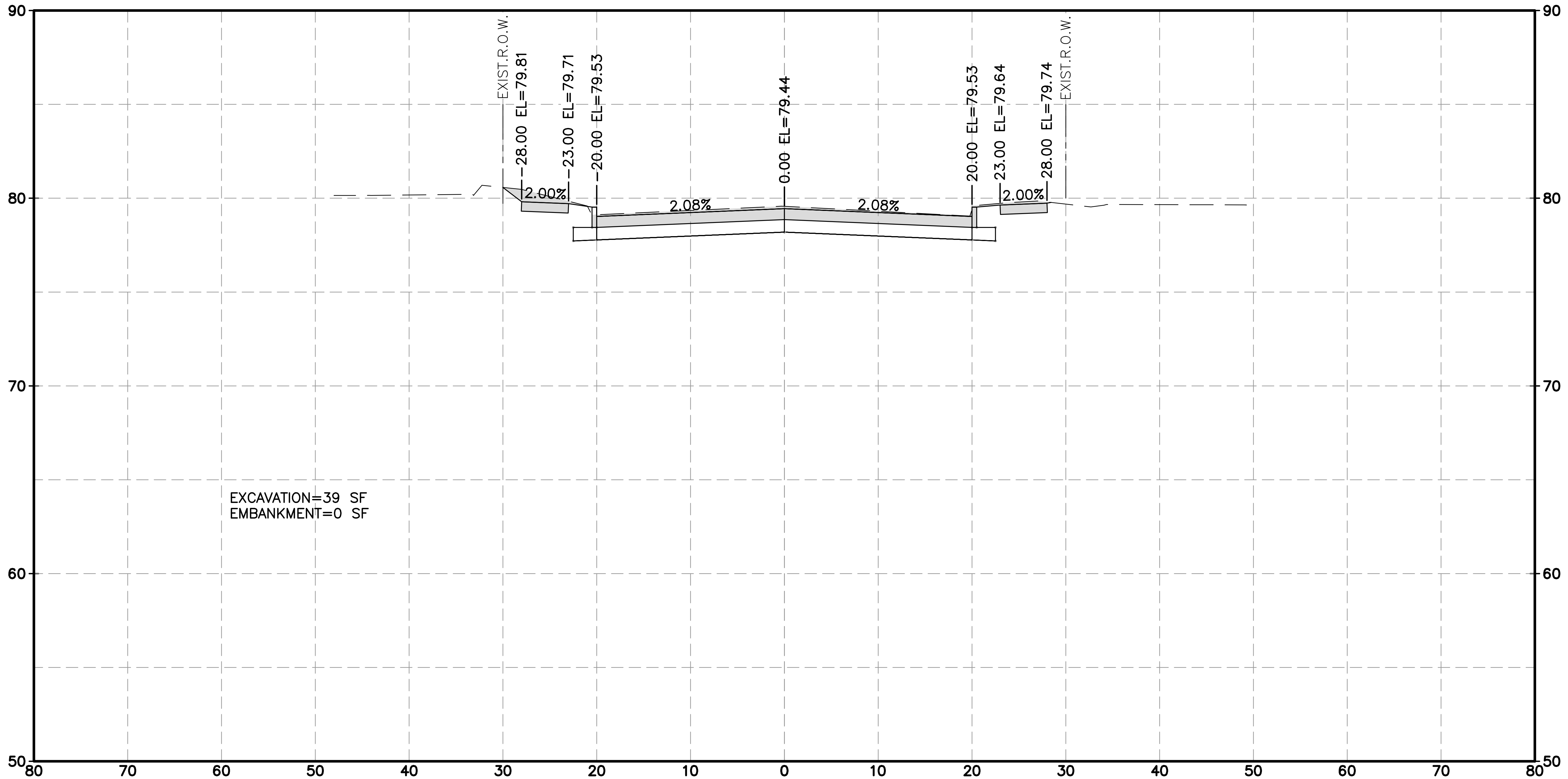
KEVIN HAMMOND, P.E.

SHEET NO. 316 OF 345

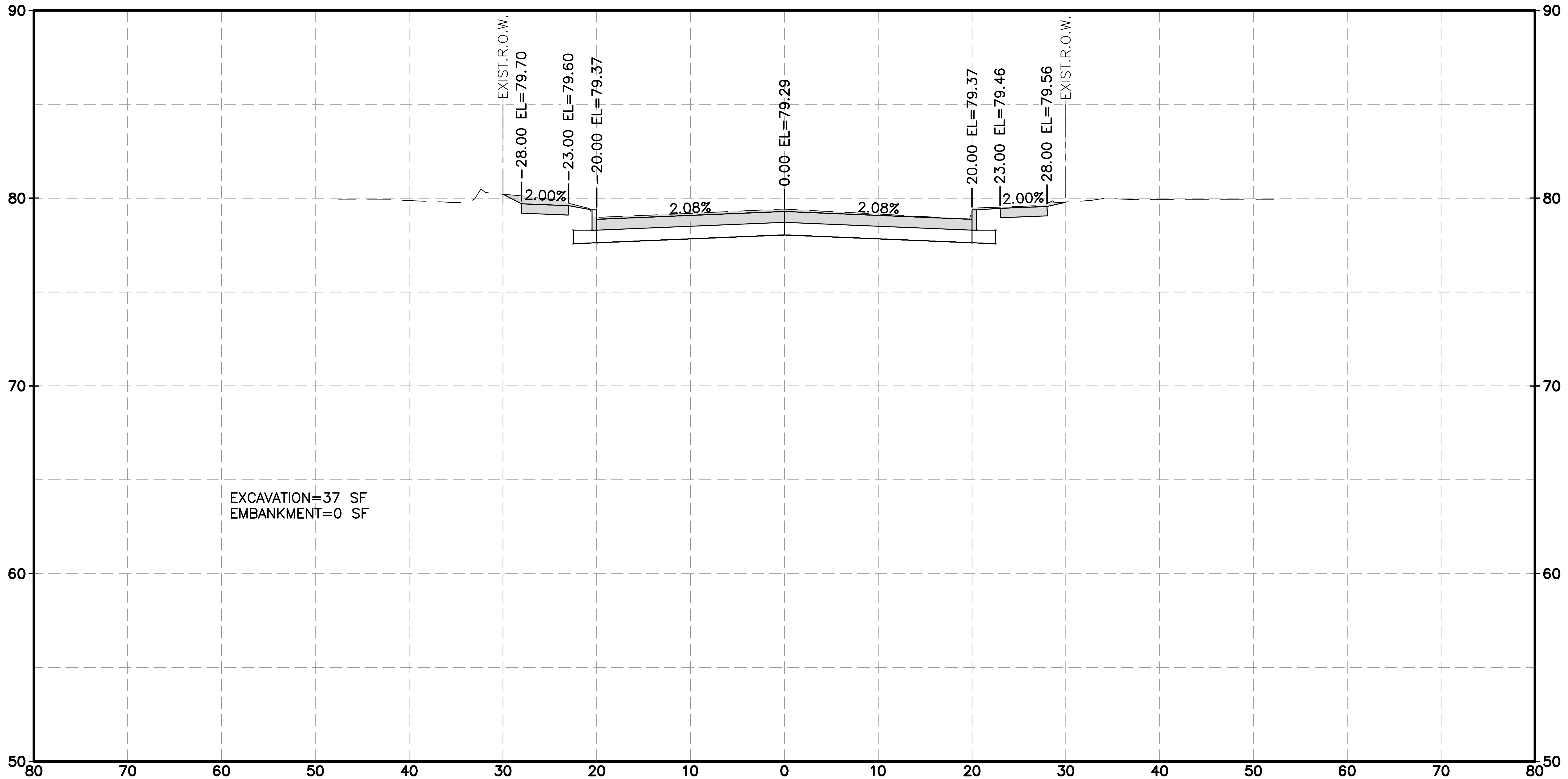
No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ░
EMBANKMENT=XX SF ▨


90
80
70
60
50
EXIST.R.O.W.
28.00 EL=79.81
23.00 EL=79.71
20.00 EL=79.53
0.00 EL=79.44
20.00 EL=79.53
23.00 EL=79.64
28.00 EL=79.74
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=39 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 16+50.00


90
80
70
60
50
EXIST.R.O.W.
28.00 EL=79.70
23.00 EL=79.60
20.00 EL=79.37
0.00 EL=79.29
20.00 EL=79.37
23.00 EL=79.46
28.00 EL=79.56
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=37 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 17+00.00

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 17 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 317 OF 345

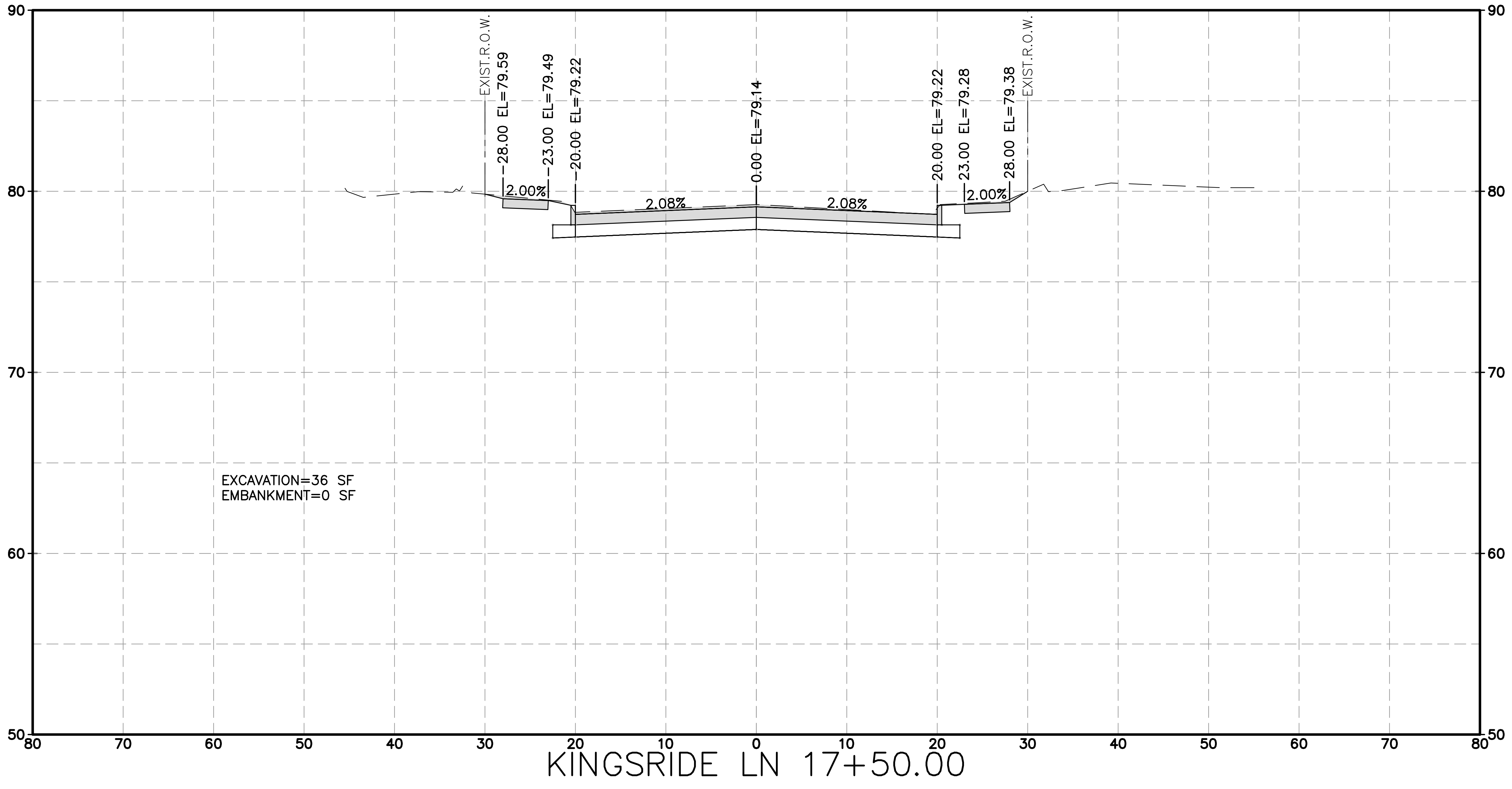
HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF ▭

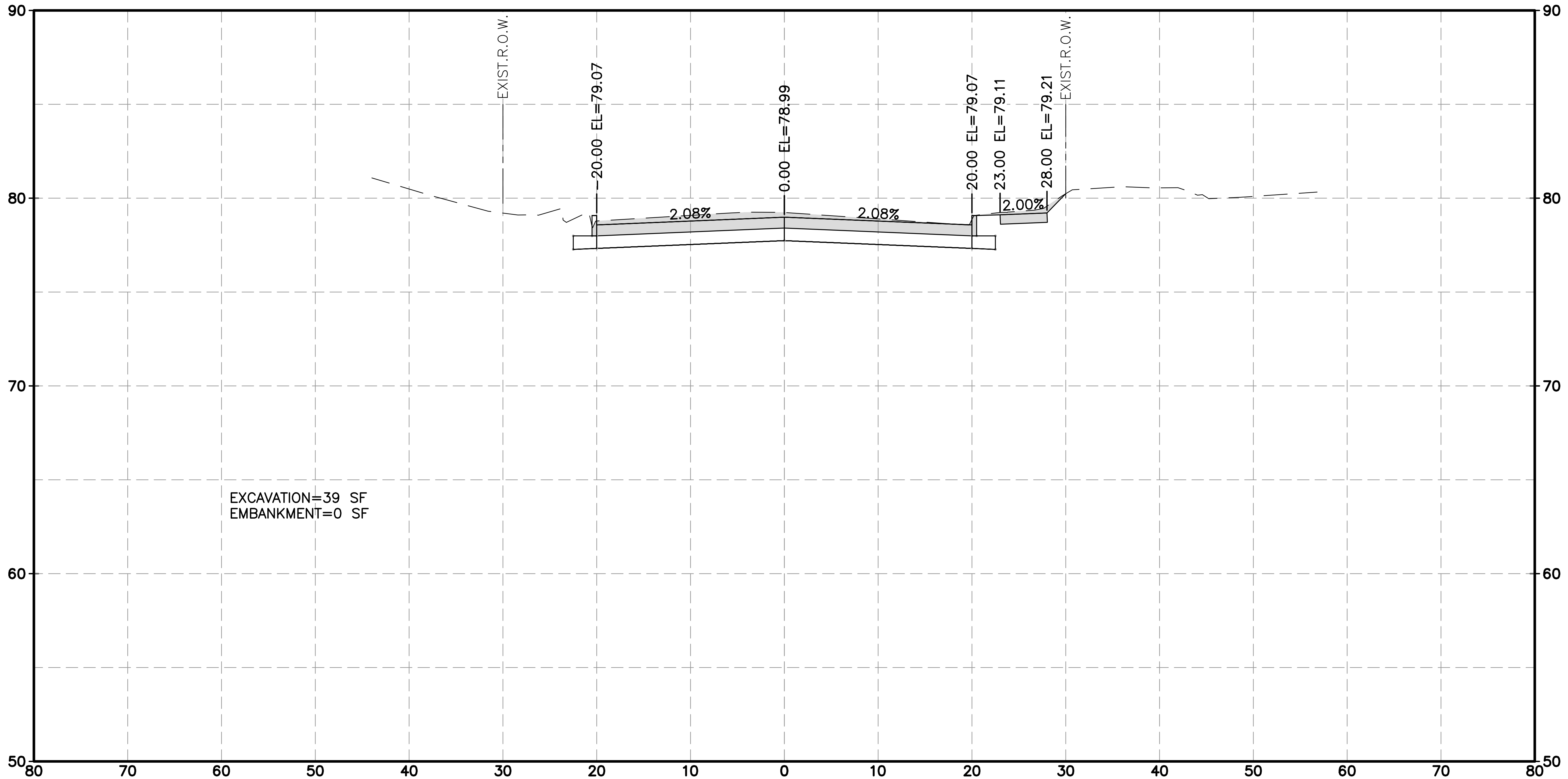
EMBANKMENT=XX SF ▨

No. | Date | Revisions | App.



90
80
70
60
50
EXIST.R.O.W.
28.00 EL=79.59
23.00 EL=79.49
20.00 EL=79.22
0.00 EL=79.14
20.00 EL=79.22
23.00 EL=79.28
28.00 EL=79.38
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=36 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 17+50.00



90
80
70
60
50
EXIST.R.O.W.
20.00 EL=79.07
0.00 EL=78.99
20.00 EL=79.07
23.00 EL=79.11
28.00 EL=79.21
EXIST.R.O.W.
2.08%
2.08%
2.00%
EXCAVATION=39 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 18+00.00

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 18 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

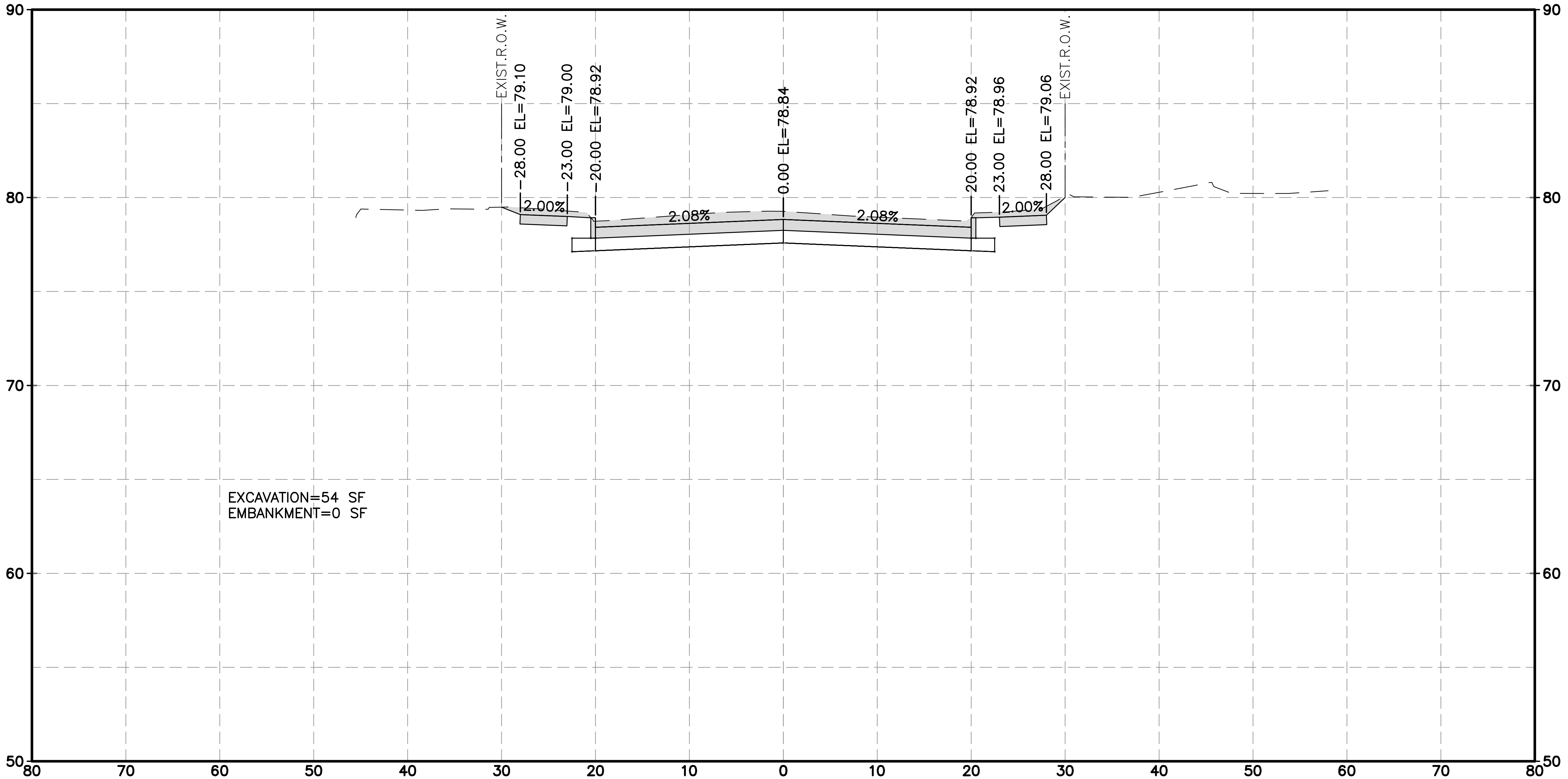
SHEET NO. 318 OF 345

No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

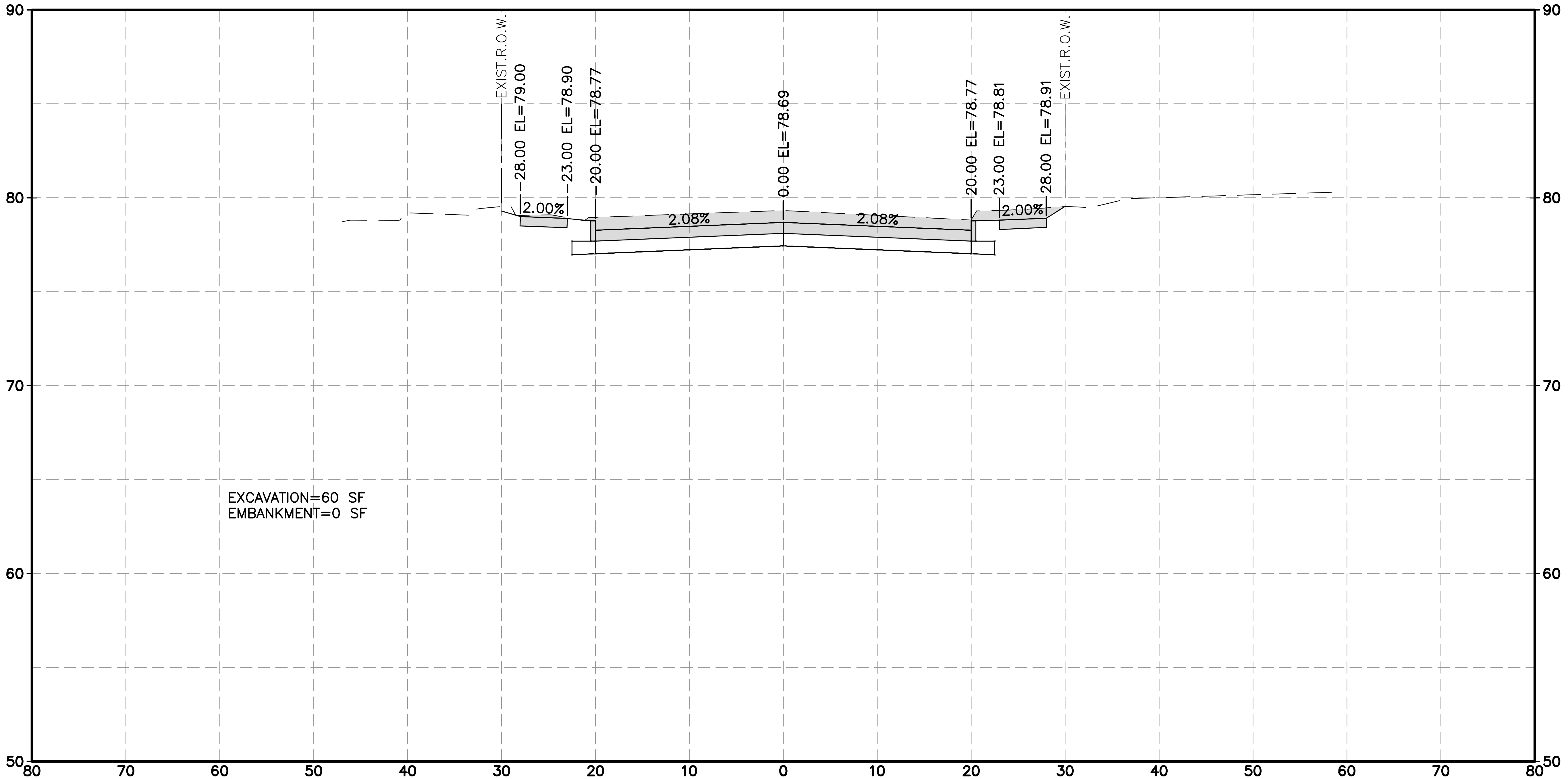
LEGEND

EXCAVATION=XX SF	▢
EMBANKMENT=XX SF	▨



90
80
70
60
50
EXIST.R.O.W.
-28.00 EL=79.10
-23.00 EL=79.00
-20.00 EL=78.92
0.00 EL=78.84
20.00 EL=78.92
23.00 EL=78.96
28.00 EL=79.06
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=54 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 18+50.00



90
80
70
60
50
EXIST.R.O.W.
-28.00 EL=79.00
-23.00 EL=78.90
-20.00 EL=78.77
0.00 EL=78.69
20.00 EL=78.77
23.00 EL=78.81
28.00 EL=78.91
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
EXCAVATION=60 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 19+00.00

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 19 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

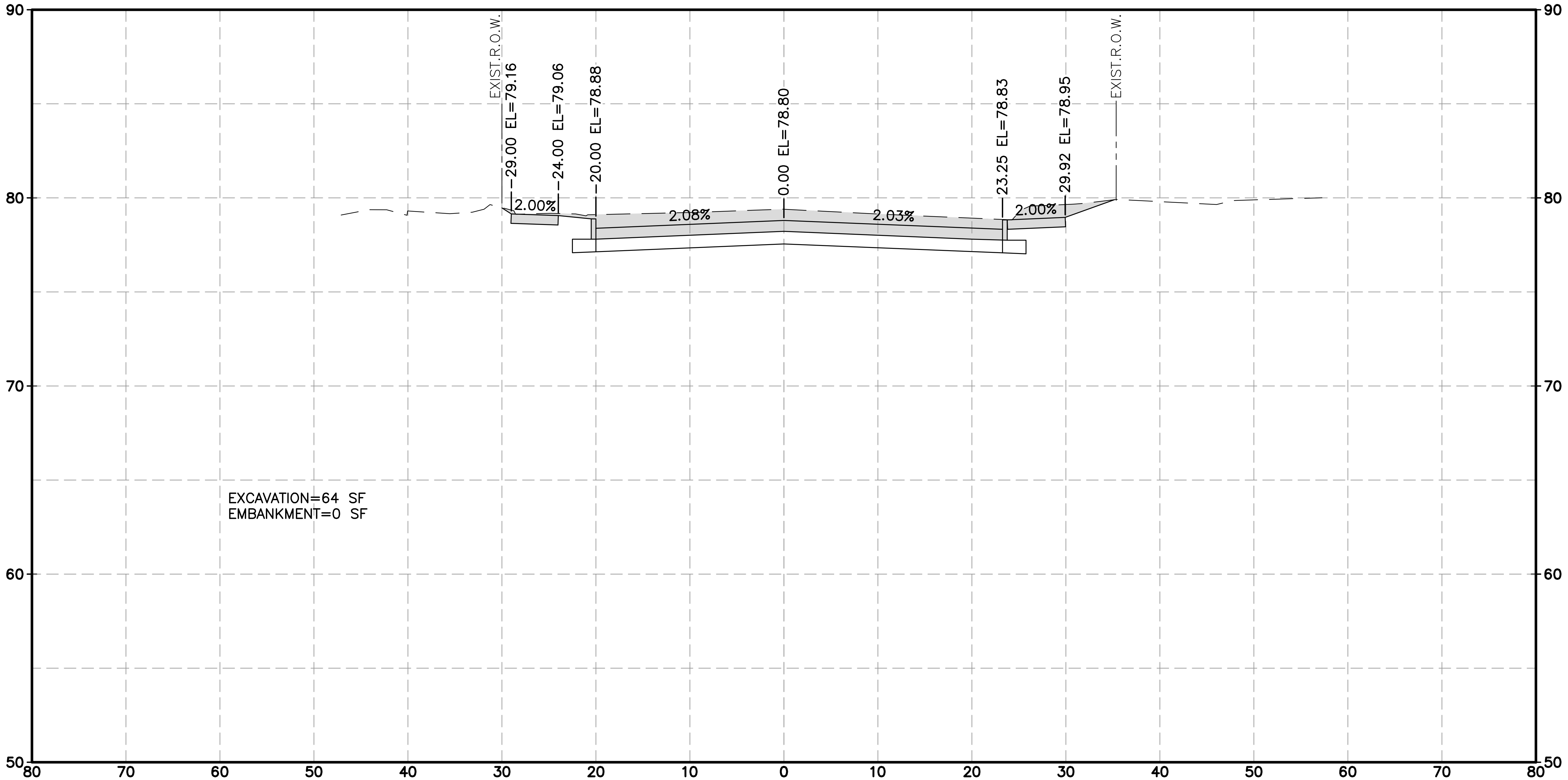
KEVIN HAMMOND, P.E.

SHEET NO. 319 OF 345

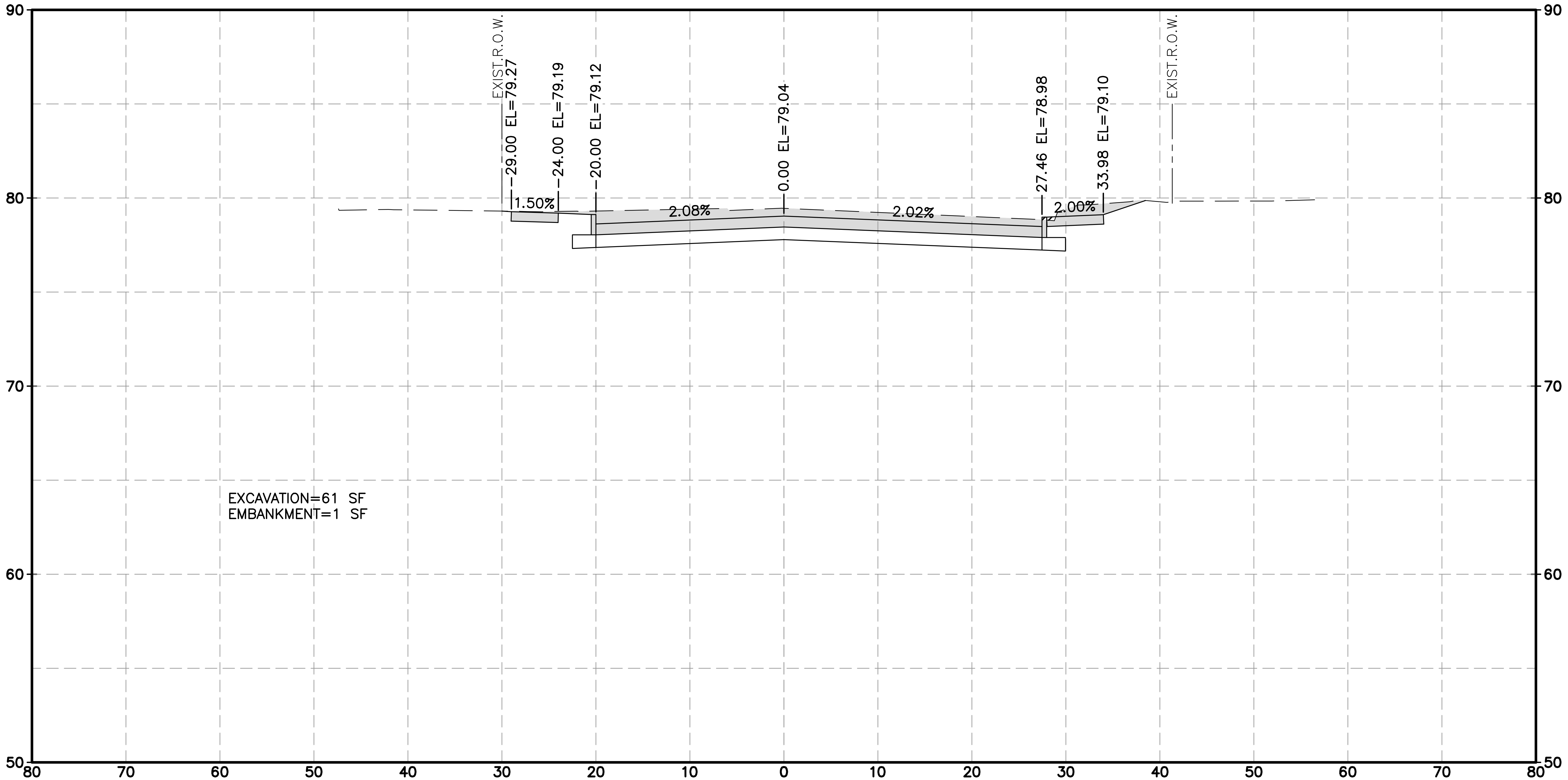
No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨


EXIST.R.O.W.
-29.00 EL=79.16
-24.00 EL=79.06
-20.00 EL=78.88
0.00 EL=78.80
23.25 EL=78.83
29.92 EL=78.95
EXIST.R.O.W.
2.00%
2.08%
2.03%
2.00%
EXCAVATION=64 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 19+50.00


EXIST.R.O.W.
-29.00 EL=79.27
-24.00 EL=79.19
-20.00 EL=79.12
0.00 EL=79.04
27.46 EL=78.98
33.98 EL=79.10
EXIST.R.O.W.
1.50%
2.08%
2.02%
2.00%
EXCAVATION=61 SF
EMBANKMENT=1 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 20+00.00

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:47 AM by Huml, John

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 20 OF 24

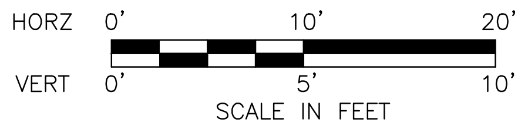
WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

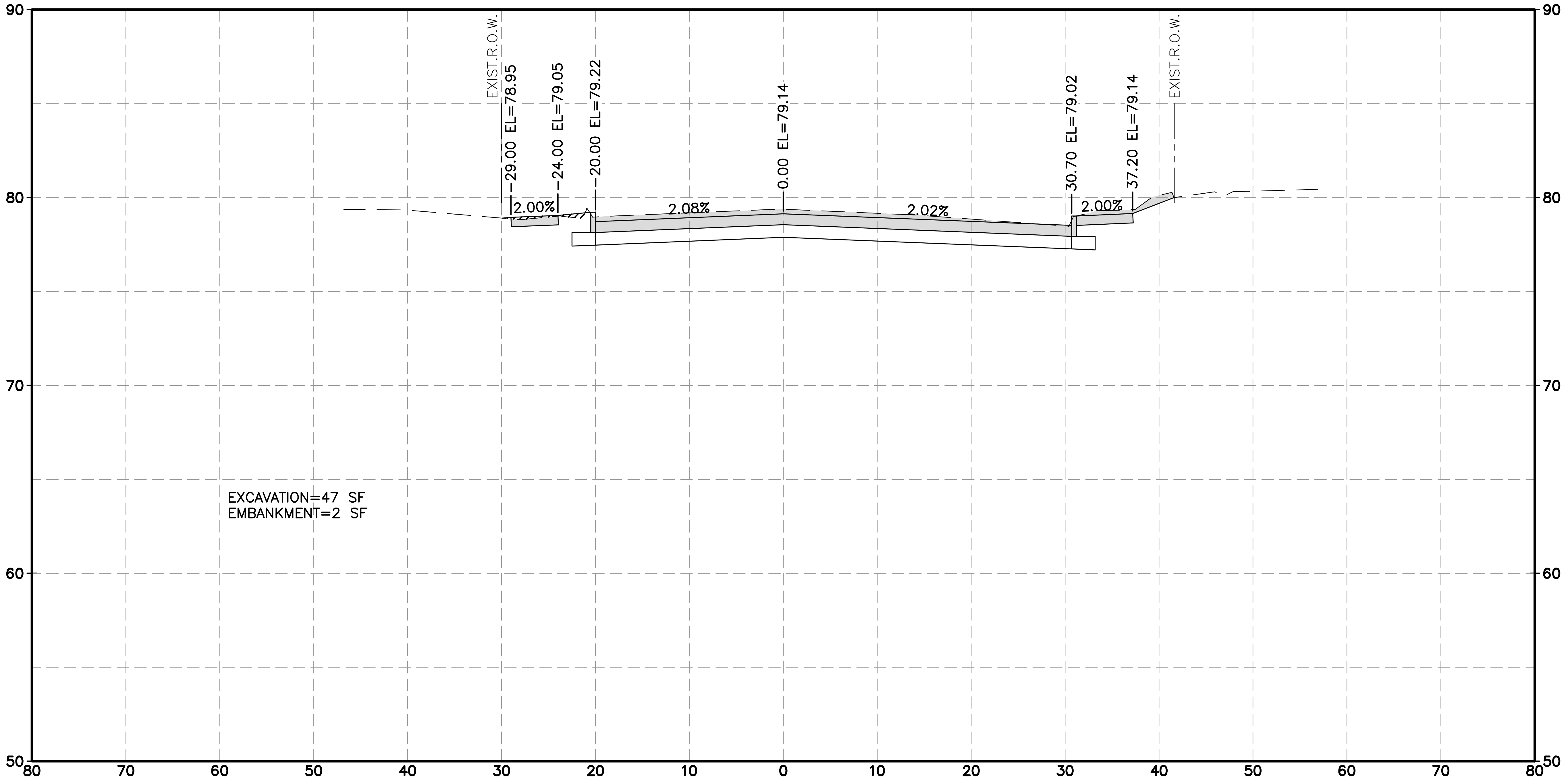
SHEET NO. 320 OF 345

App.
Revisions
Date
No.

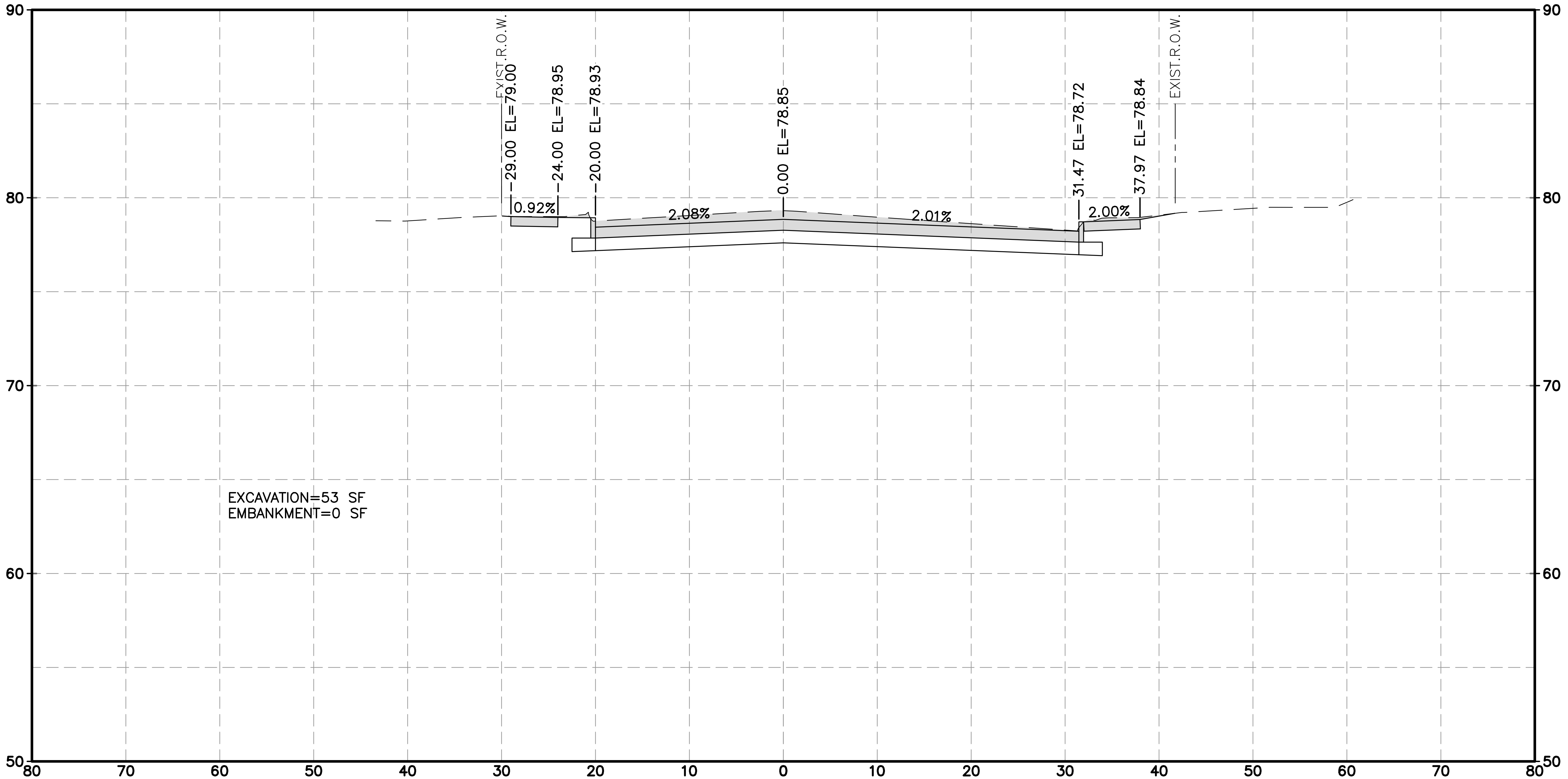

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨


EXIST.R.O.W.
29.00 EL=78.95
24.00 EL=79.05
20.00 EL=79.22
0.00 EL=79.14
30.70 EL=79.02
37.20 EL=79.14
EXIST.R.O.W.
2.00%
2.08%
2.02%
2.00%
EXCAVATION=47 SF
EMBANKMENT=2 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 20+50.00


EXIST.R.O.W.
29.00 EL=79.00
24.00 EL=78.95
20.00 EL=78.93
0.00 EL=78.85
31.47 EL=78.72
37.97 EL=78.84
EXIST.R.O.W.
0.92%
2.08%
2.01%
2.00%
EXCAVATION=53 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

KINGSRIDE LN 21+00.00

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 21 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

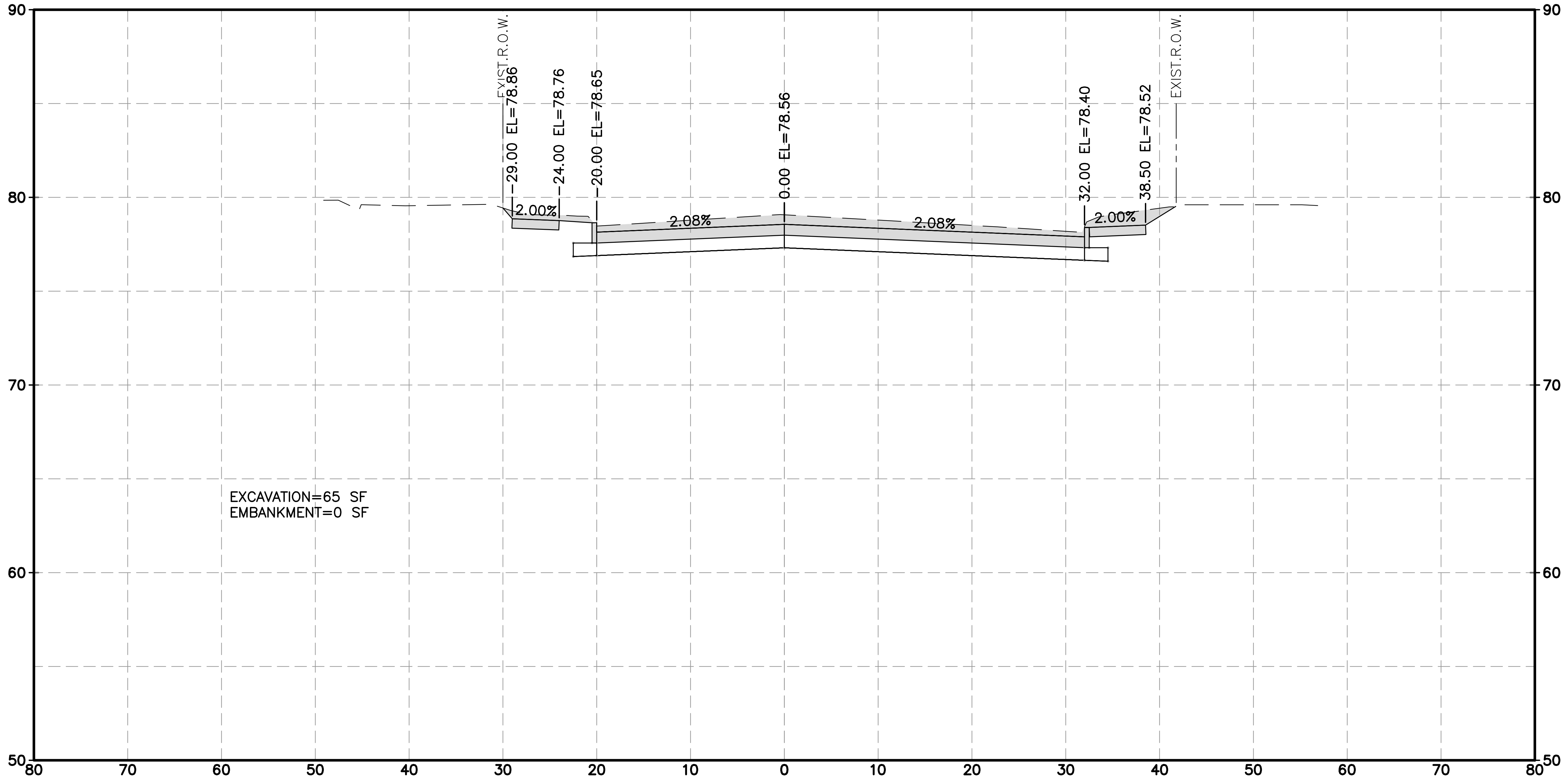
SHEET NO. 321 OF 345

No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

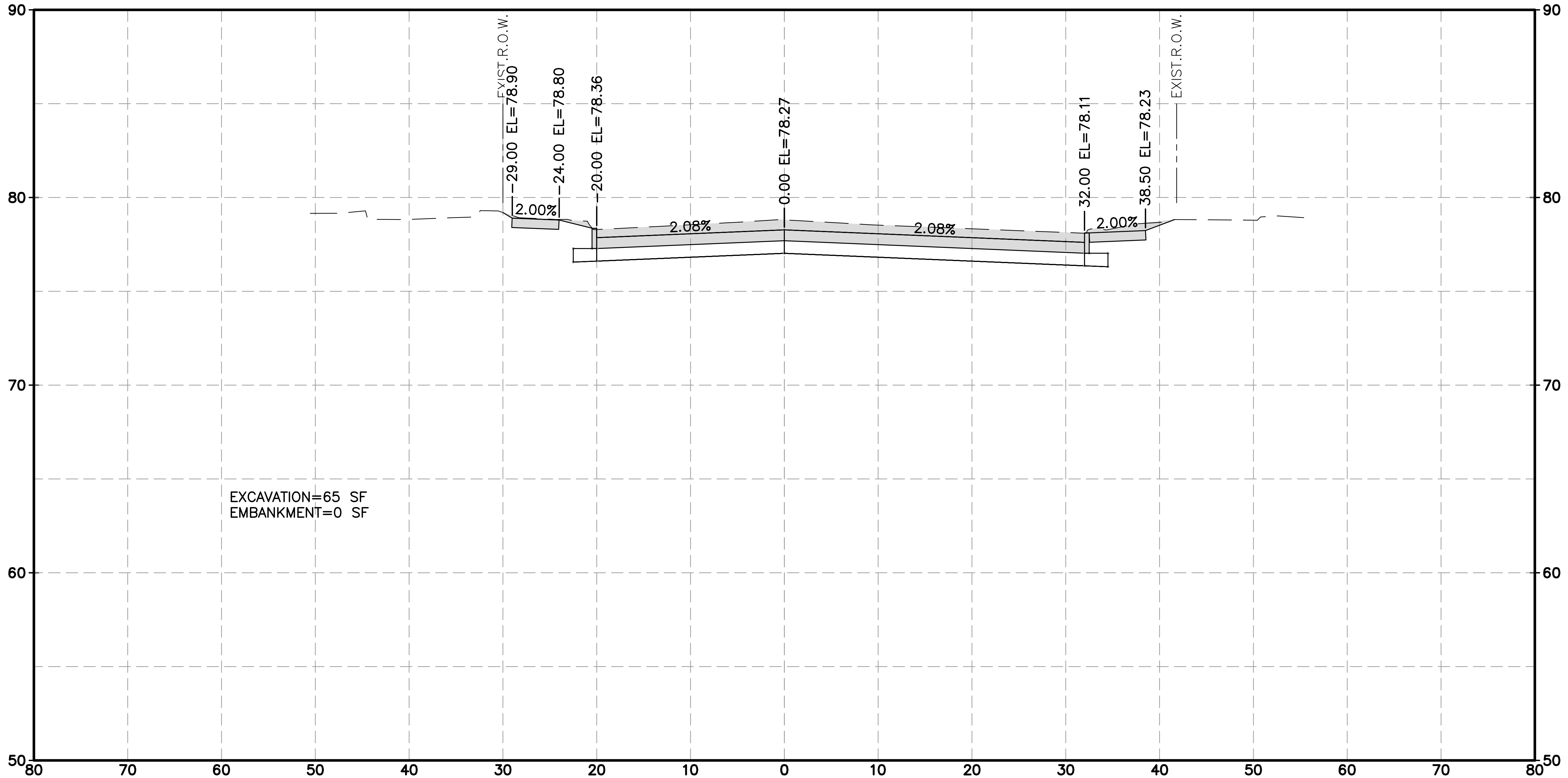
EXCAVATION=XX SF	▢
EMBANKMENT=XX SF	▨



EXIST.R.O.W.
29.00 EL=78.86
24.00 EL=78.76
20.00 EL=78.65
0.00 EL=78.56
32.00 EL=78.40
38.50 EL=78.52
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=65 SF
EMBANKMENT=0 SF

KINGSRIDE LN 21+50.00



EXIST.R.O.W.
29.00 EL=78.90
24.00 EL=78.80
20.00 EL=78.36
0.00 EL=78.27
32.00 EL=78.11
38.50 EL=78.23
EXIST.R.O.W.
2.00%
2.08%
2.08%
2.00%
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=65 SF
EMBANKMENT=0 SF

KINGSRIDE LN 22+00.00

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 22 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 322 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:47 AM by Huml, John

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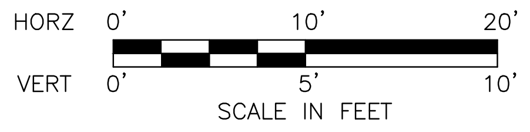
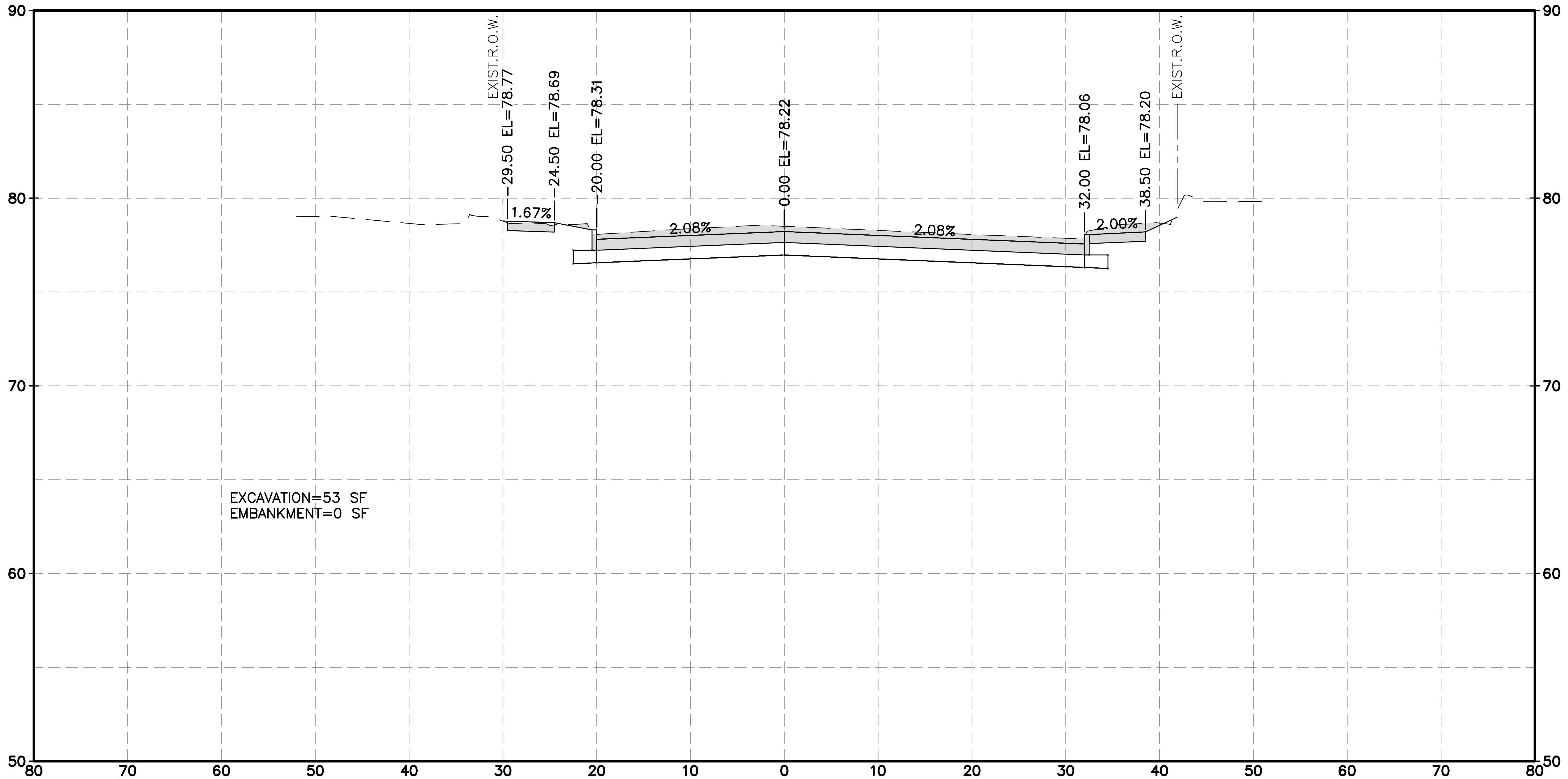
No.	Date	Revisions	App.

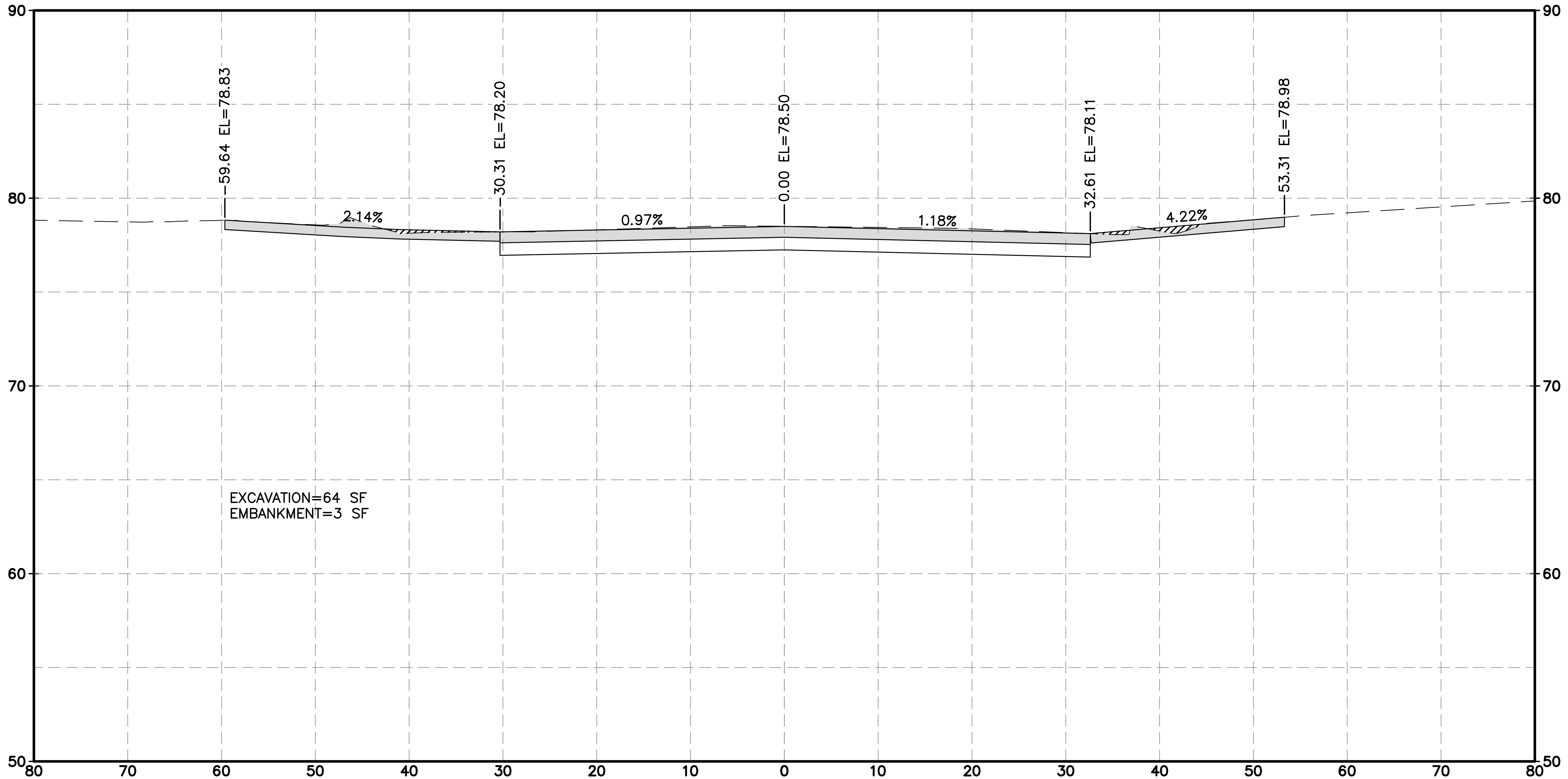

HORZ
0'
10'
20'
VERT
0'
5'
10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF	░
EMBANKMENT=XX SF	▨


90
80
70
60
50
EXIST.R.O.W.
29.50 EL=78.77
24.50 EL=78.69
20.00 EL=78.31
0.00 EL=78.22
32.00 EL=78.06
38.50 EL=78.20
EXIST.R.O.W.
1.67%
2.08%
2.08%
2.00%
EXCAVATION=53 SF
EMBANKMENT=0 SF
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

KINGSRIDE LN 22+50.00


90
80
70
60
50
59.64 EL=78.83
30.31 EL=78.20
0.00 EL=78.50
32.61 EL=78.11
53.31 EL=78.98
2.14%
0.97%
1.18%
4.22%
EXCAVATION=64 SF
EMBANKMENT=3 SF
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

KINGSRIDE LN 23+00.00

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Texas Registered Engineering Firm F-11278

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

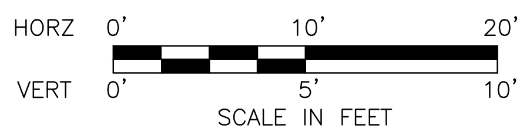
SHEET 23 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

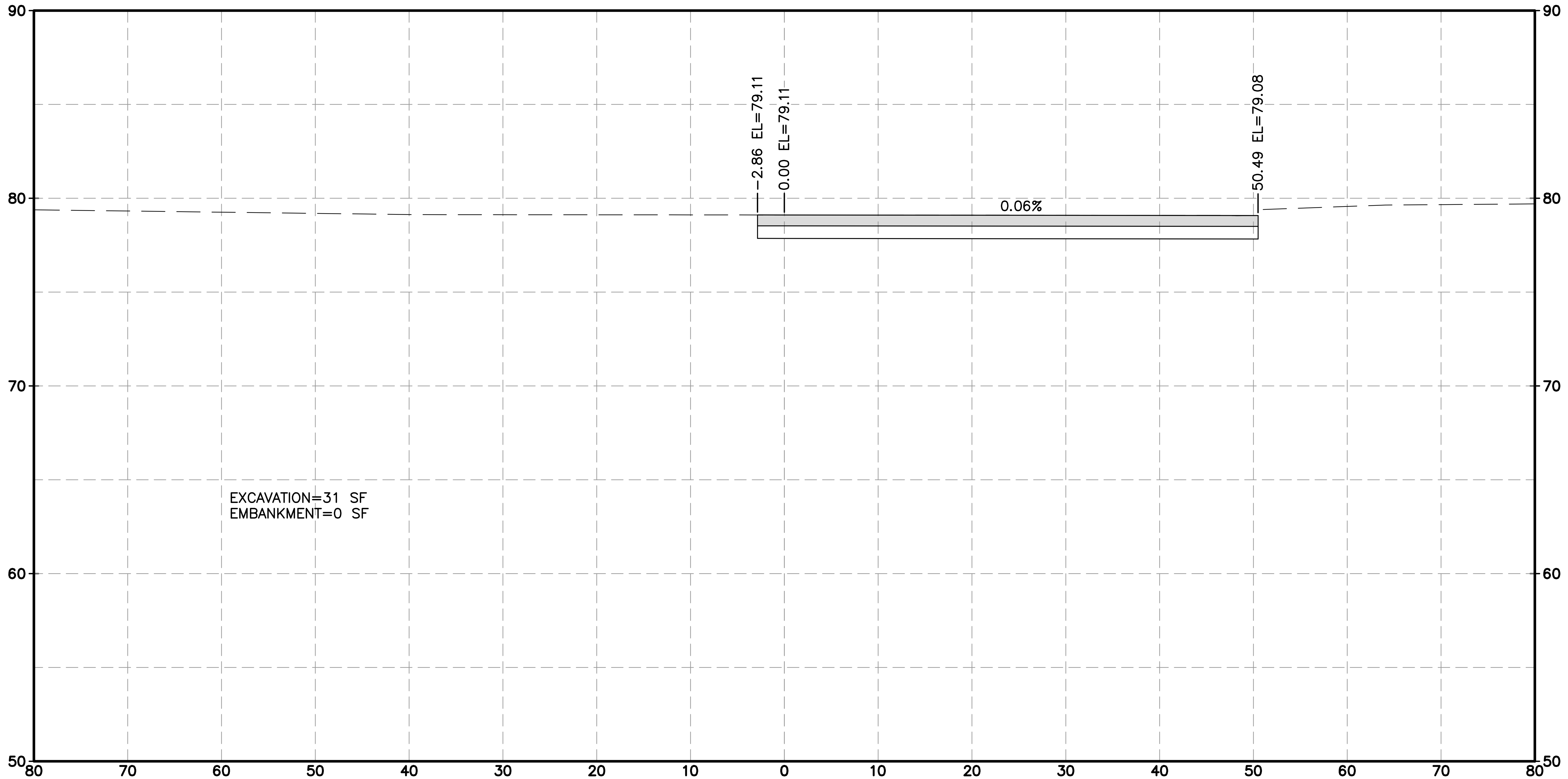
SHEET NO. 323 OF 345


HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF ▭

EMBANKMENT=XX SF ▨


90
80
70
60
50
-2.86 EL=79.11
0.00 EL=79.11
50.49 EL=79.08
0.06%
EXCAVATION=31 SF
EMBANKMENT=0 SF
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

KINGSRIDE LN 23+50.00

No.	Revisions	Date	App.

j:\2021\210601.01\cad\dwgs\d\xs_kingsride.dwg Plotted April 14, 2026 at 9:54 AM by Huml, John

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
KINGSRIDE LANE

SHEET 24 OF 24

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

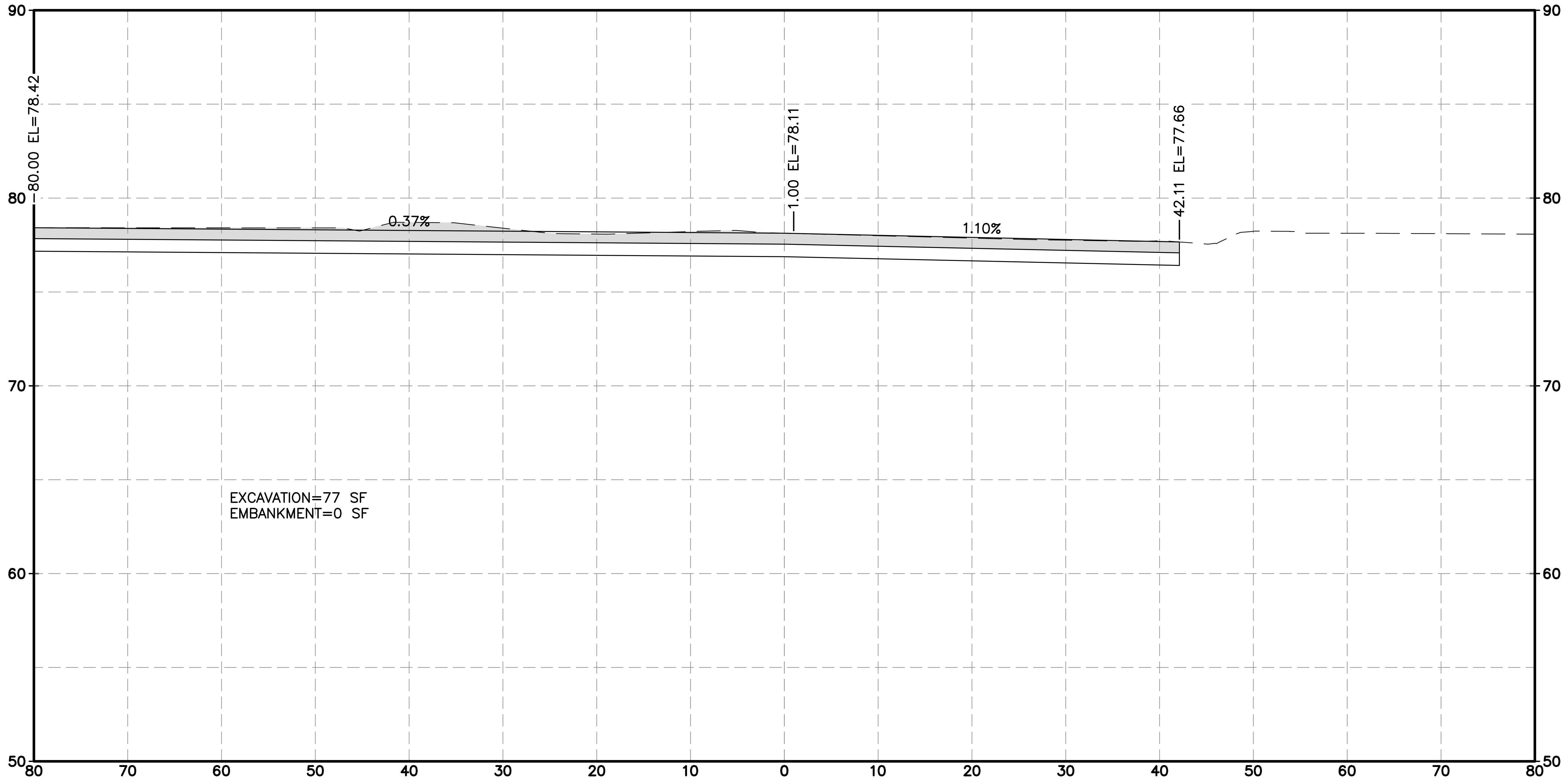
KEVIN HAMMOND, P.E.

SHEET NO. 324 OF 345

No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨



90
80
70
60
50
80.00 EL=78.42
1.00 EL=78.11
42.11 EL=77.66
0.37%
1.10%
EXCAVATION=77 SF
EMBANKMENT=0 SF
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

BARRYKNOLL LN 3+00.00

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 1 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

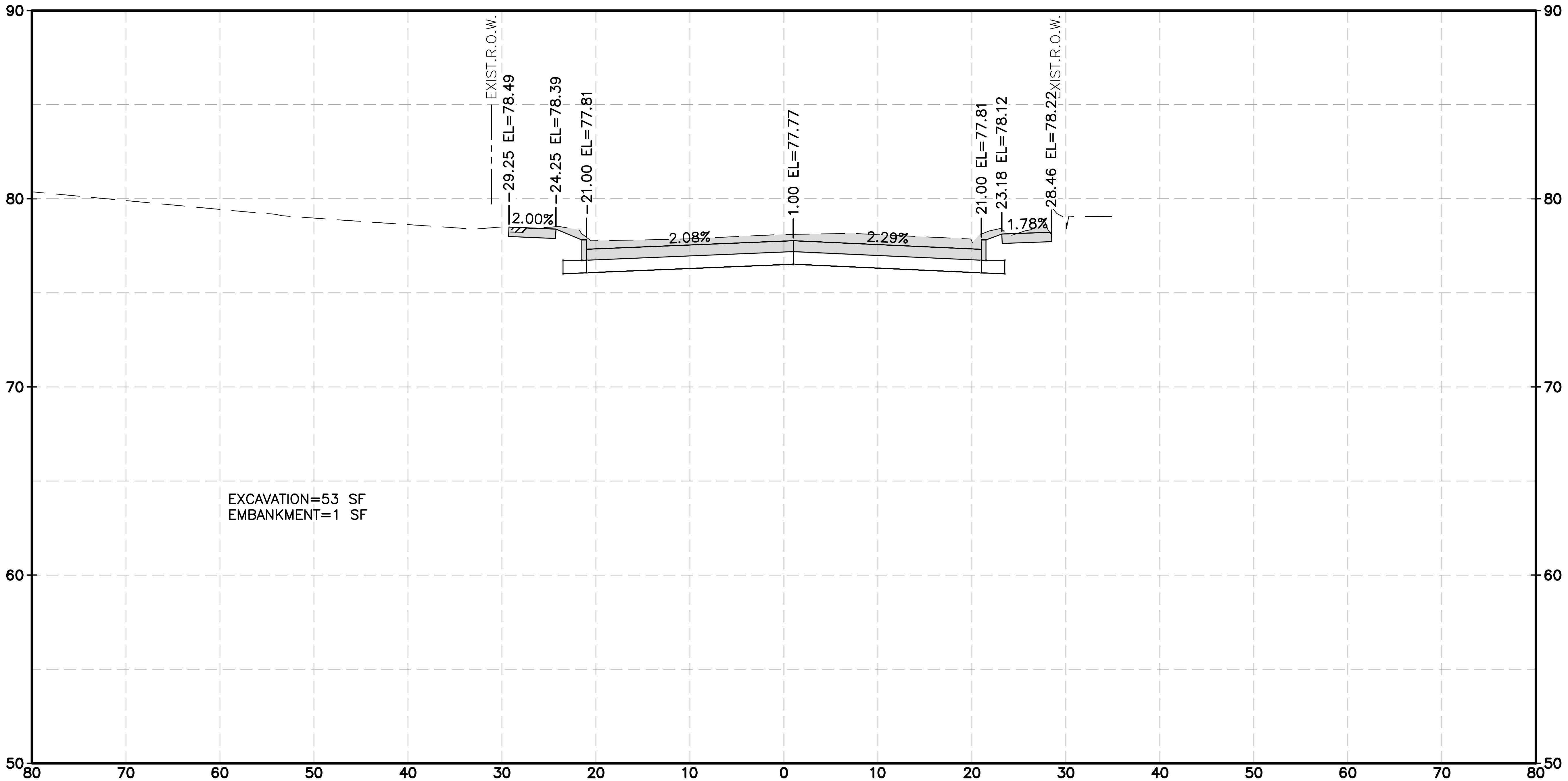
KEVIN HAMMOND, P.E.

SHEET NO. 325 OF 345

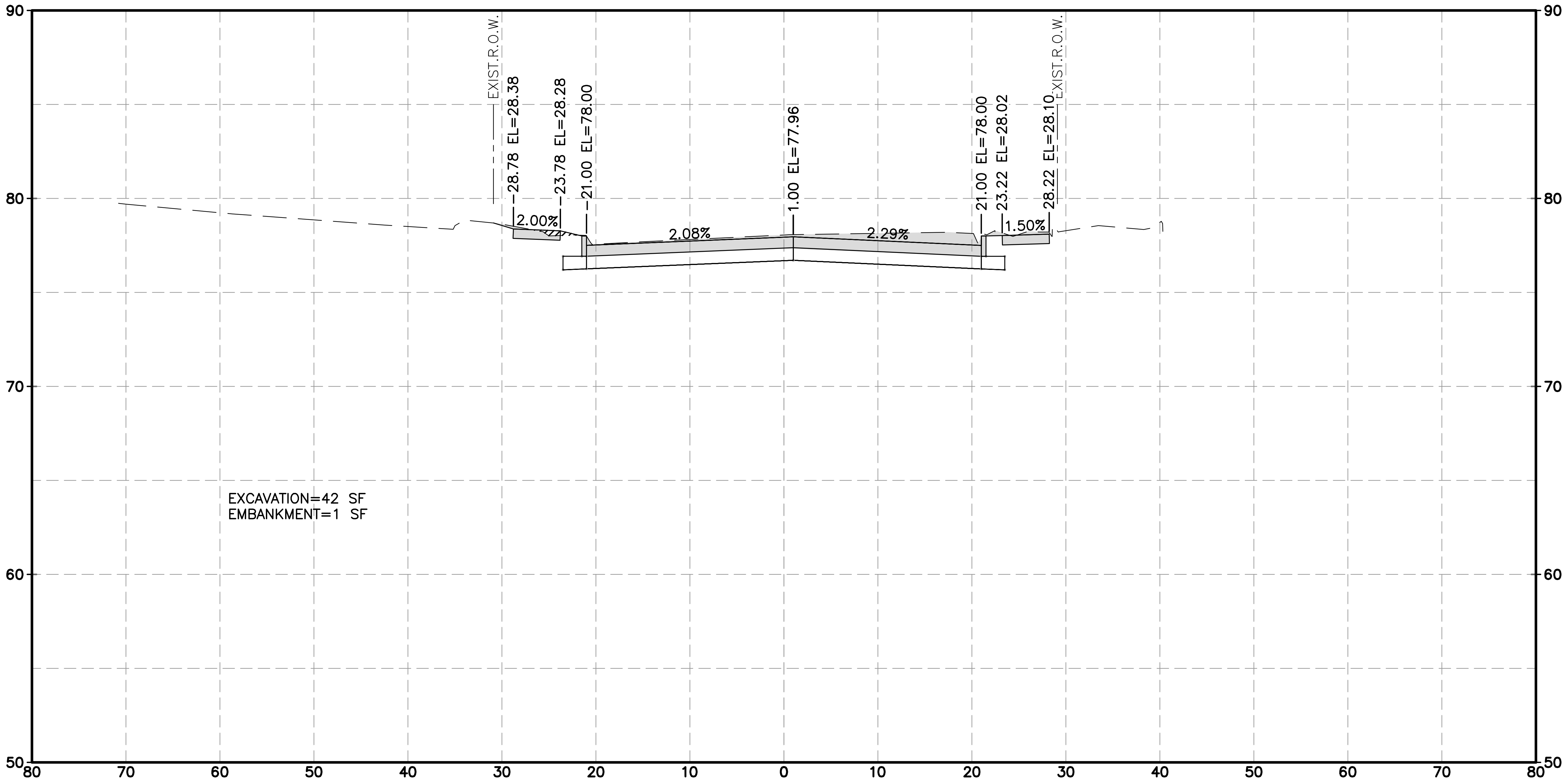
j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:50 AM by Huml, John

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨


90
80
70
60
50
EXIST.R.O.W.
29.25 EL=78.49
24.25 EL=78.39
21.00 EL=77.81
1.00 EL=77.77
21.00 EL=77.81
23.18 EL=78.12
28.46 EL=78.22
EXIST.R.O.W.
2.00%
2.08%
2.29%
1.78%
EXCAVATION=53 SF
EMBANKMENT=1 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 3+50.00


90
80
70
60
50
EXIST.R.O.W.
28.78 EL=28.38
23.78 EL=28.28
21.00 EL=78.00
1.00 EL=77.96
21.00 EL=78.00
23.22 EL=28.02
28.22 EL=28.10
EXIST.R.O.W.
2.00%
2.08%
2.29%
1.50%
EXCAVATION=42 SF
EMBANKMENT=1 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 4+00.00

No.	Date	Revisions	App.

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 2 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 326 OF 345

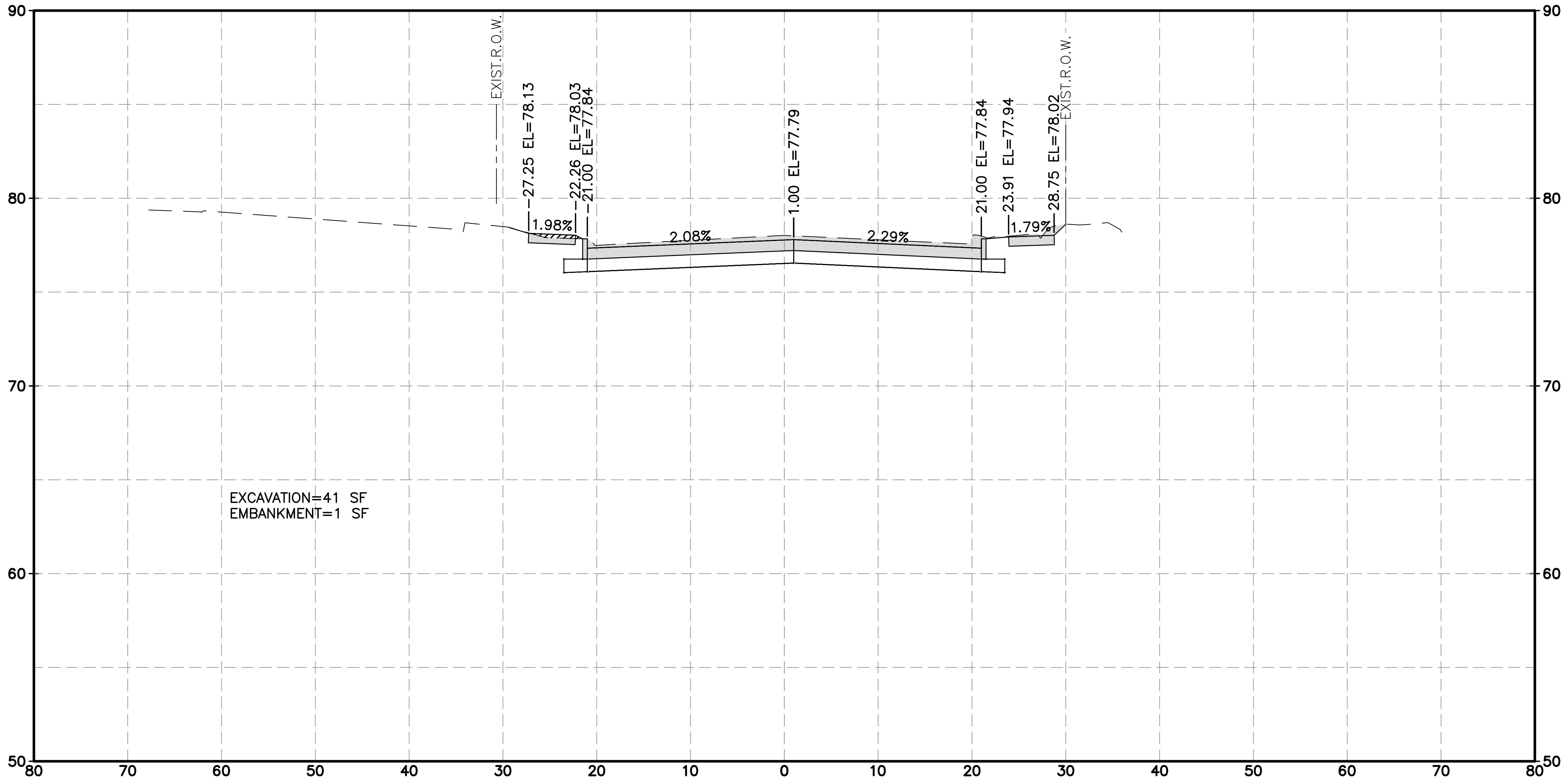
j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:43 AM by Huml, John

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

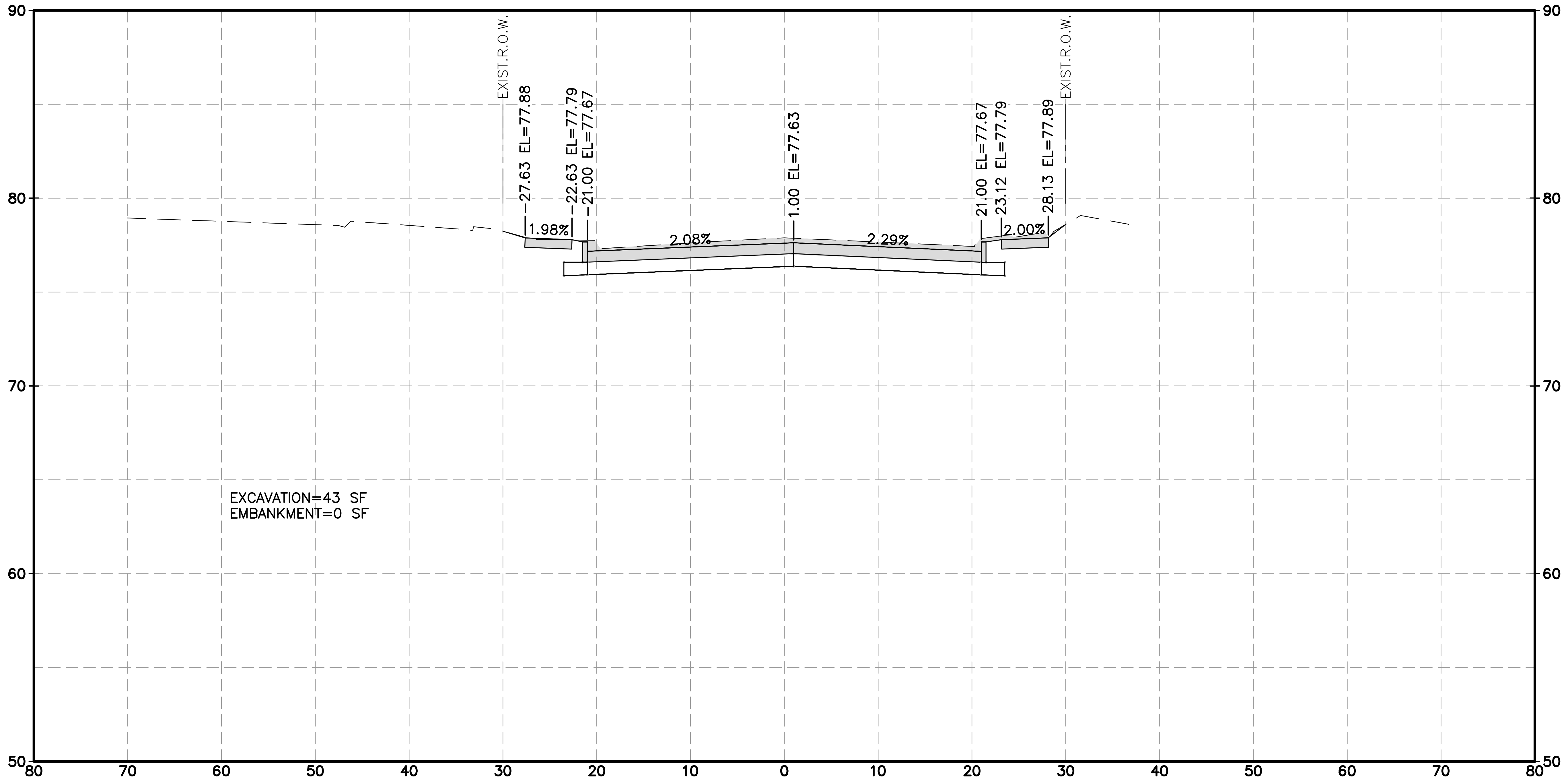
LEGEND

EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨

No.	Date	Revisions	App.


90
80
70
60
50
EXIST.R.O.W.
27.25 EL=78.13
22.26 EL=78.03
21.00 EL=77.84
1.00 EL=77.79
21.00 EL=77.84
23.91 EL=77.94
28.75 EL=78.02
EXIST.R.O.W.
1.98%
2.08%
2.29%
1.79%
EXCAVATION=41 SF
EMBANKMENT=1 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 4+50.00


90
80
70
60
50
EXIST.R.O.W.
27.63 EL=77.88
22.63 EL=77.79
21.00 EL=77.67
1.00 EL=77.63
21.00 EL=77.67
23.12 EL=77.79
28.13 EL=77.89
EXIST.R.O.W.
1.98%
2.08%
2.29%
2.00%
EXCAVATION=43 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 5+00.00

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 3 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 327 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:53 AM by Huml, John

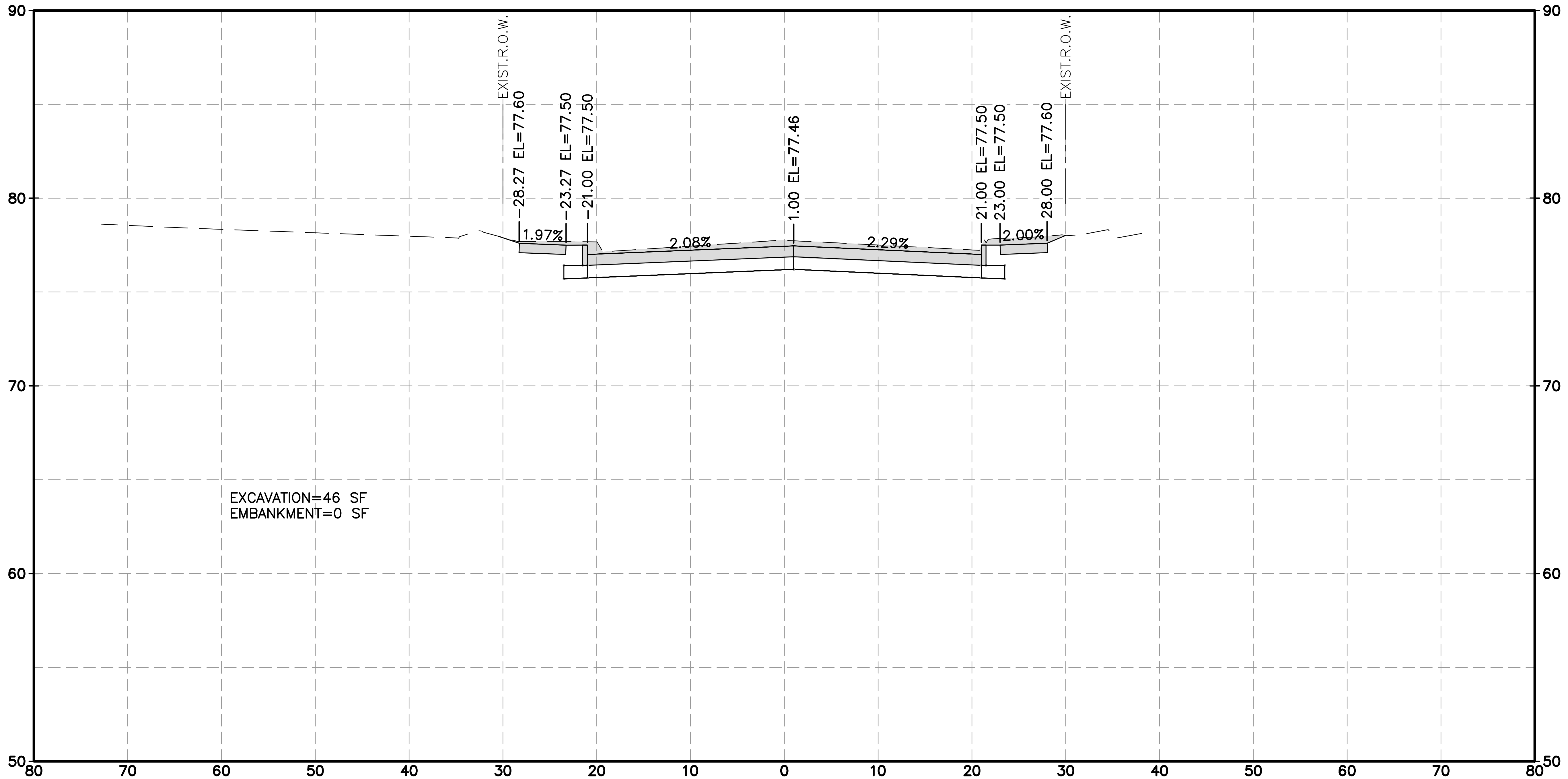
j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:48 AM by Huml, John

No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

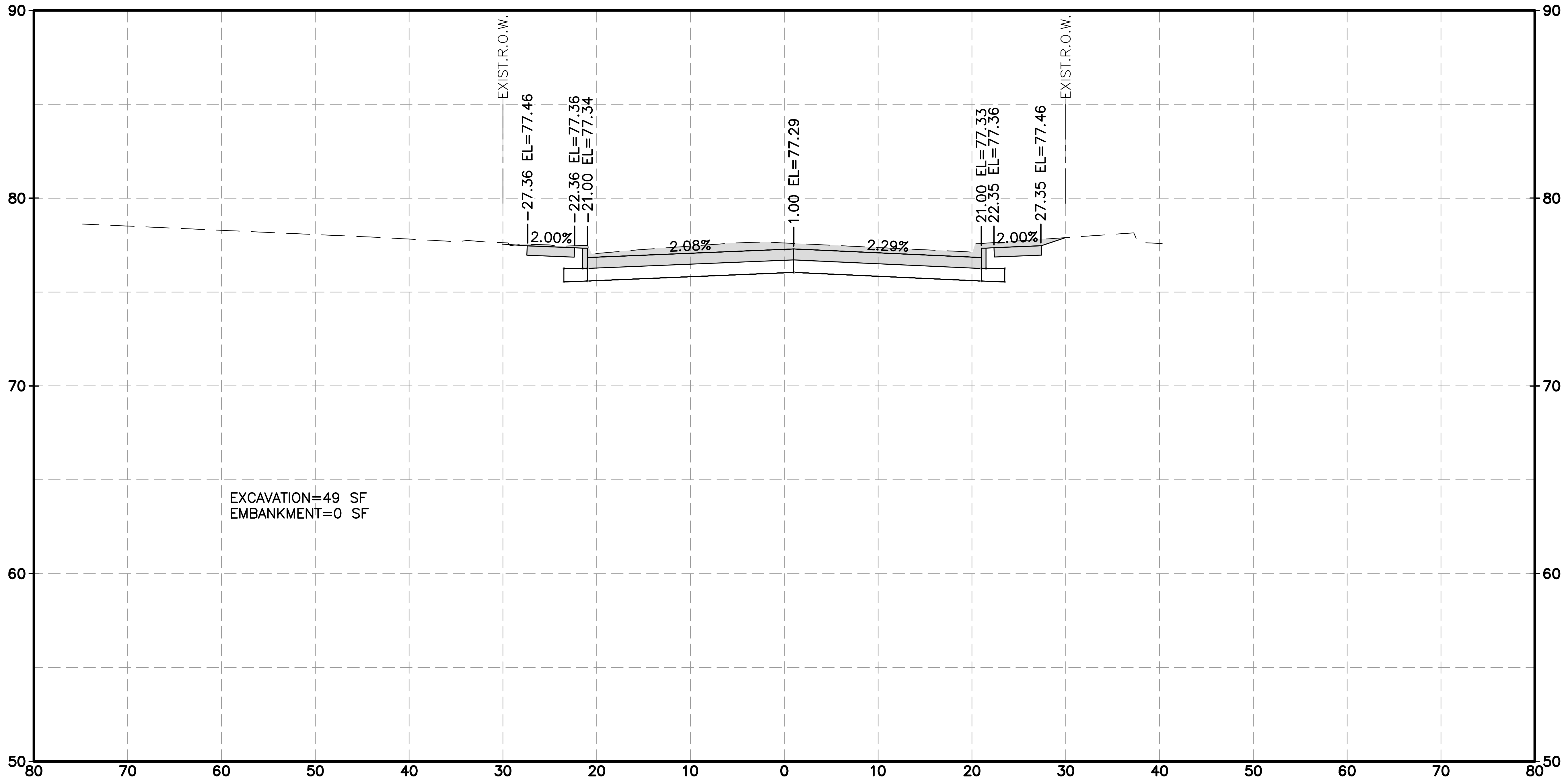
EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨



90
80
70
60
50
EXIST.R.O.W.
28.27 EL=77.60
23.27 EL=77.50
21.00 EL=77.50
1.00 EL=77.46
21.00 EL=77.50
23.00 EL=77.50
28.00 EL=77.60
EXIST.R.O.W.
1.97%
2.08%
2.29%
2.00%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=46 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 5+50.00



90
80
70
60
50
EXIST.R.O.W.
27.36 EL=77.46
22.36 EL=77.36
21.00 EL=77.34
1.00 EL=77.29
21.00 EL=77.33
22.35 EL=77.36
27.35 EL=77.46
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=49 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 6+00.00

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 4 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

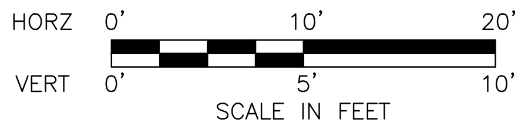
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 328 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:55 AM by Huml, John

No.	Date	Revisions	App.

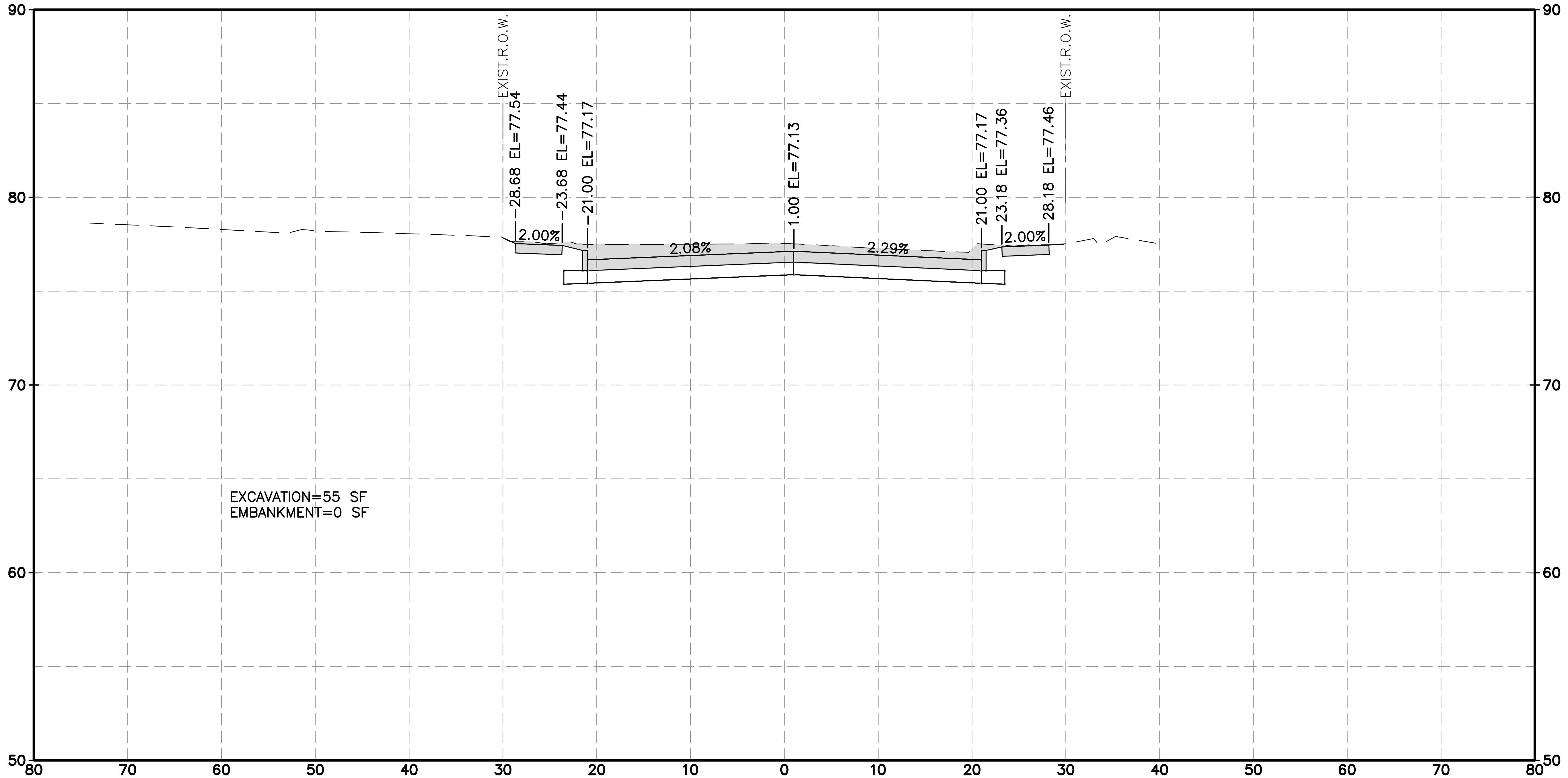


HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

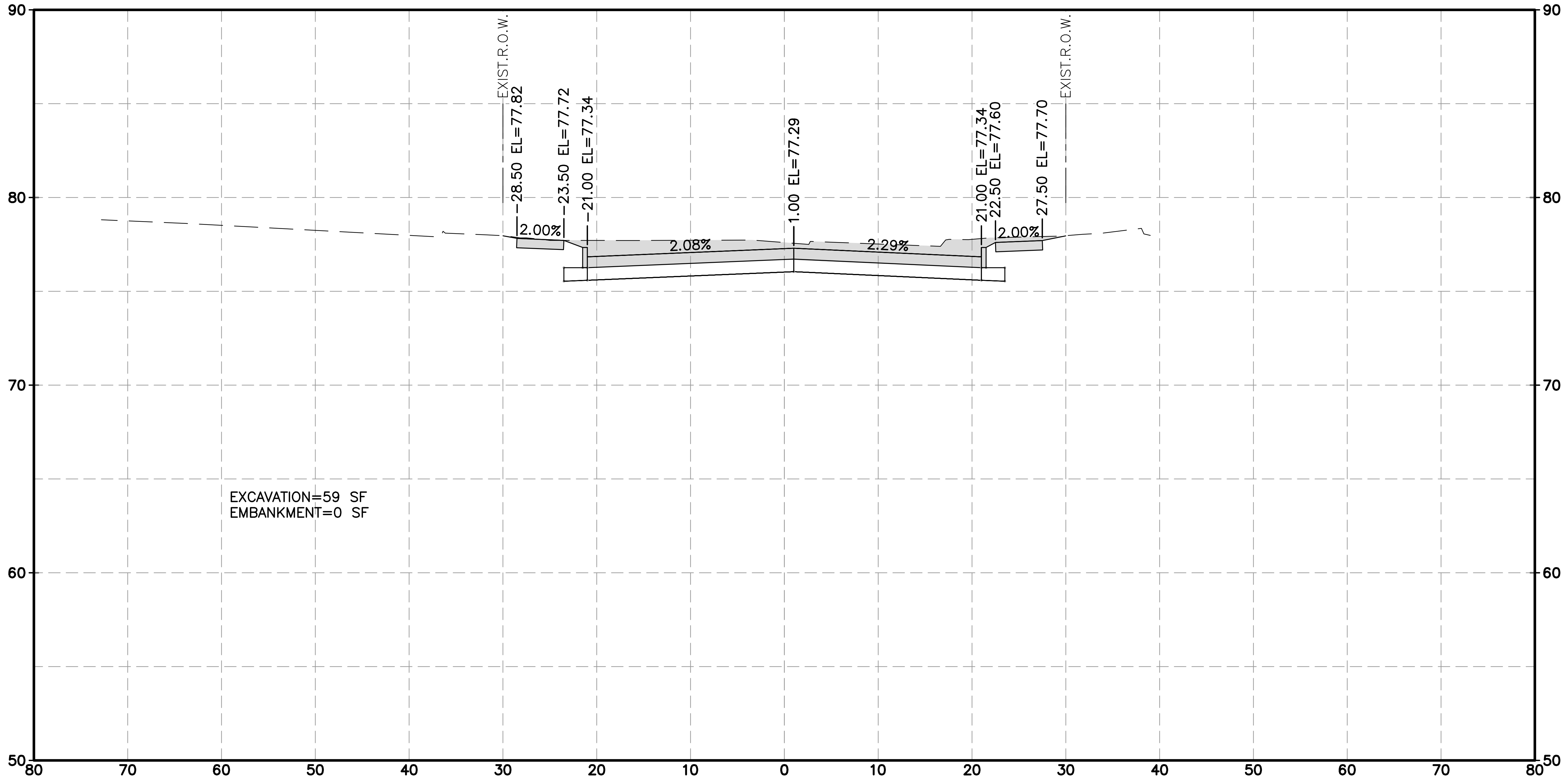
EXCAVATION=XX SF ▭

EMBANKMENT=XX SF ▨



90
80
70
60
50
EXIST.R.O.W.
28.68 EL=77.54
23.68 EL=77.44
21.00 EL=77.17
1.00 EL=77.13
21.00 EL=77.17
23.18 EL=77.36
28.18 EL=77.46
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=55 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 6+50.00



90
80
70
60
50
EXIST.R.O.W.
28.50 EL=77.82
23.50 EL=77.72
21.00 EL=77.34
1.00 EL=77.29
21.00 EL=77.34
22.50 EL=77.60
27.50 EL=77.70
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=59 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 7+00.00

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CITY OF HOUSTON

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 5 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

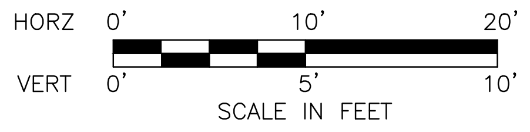
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

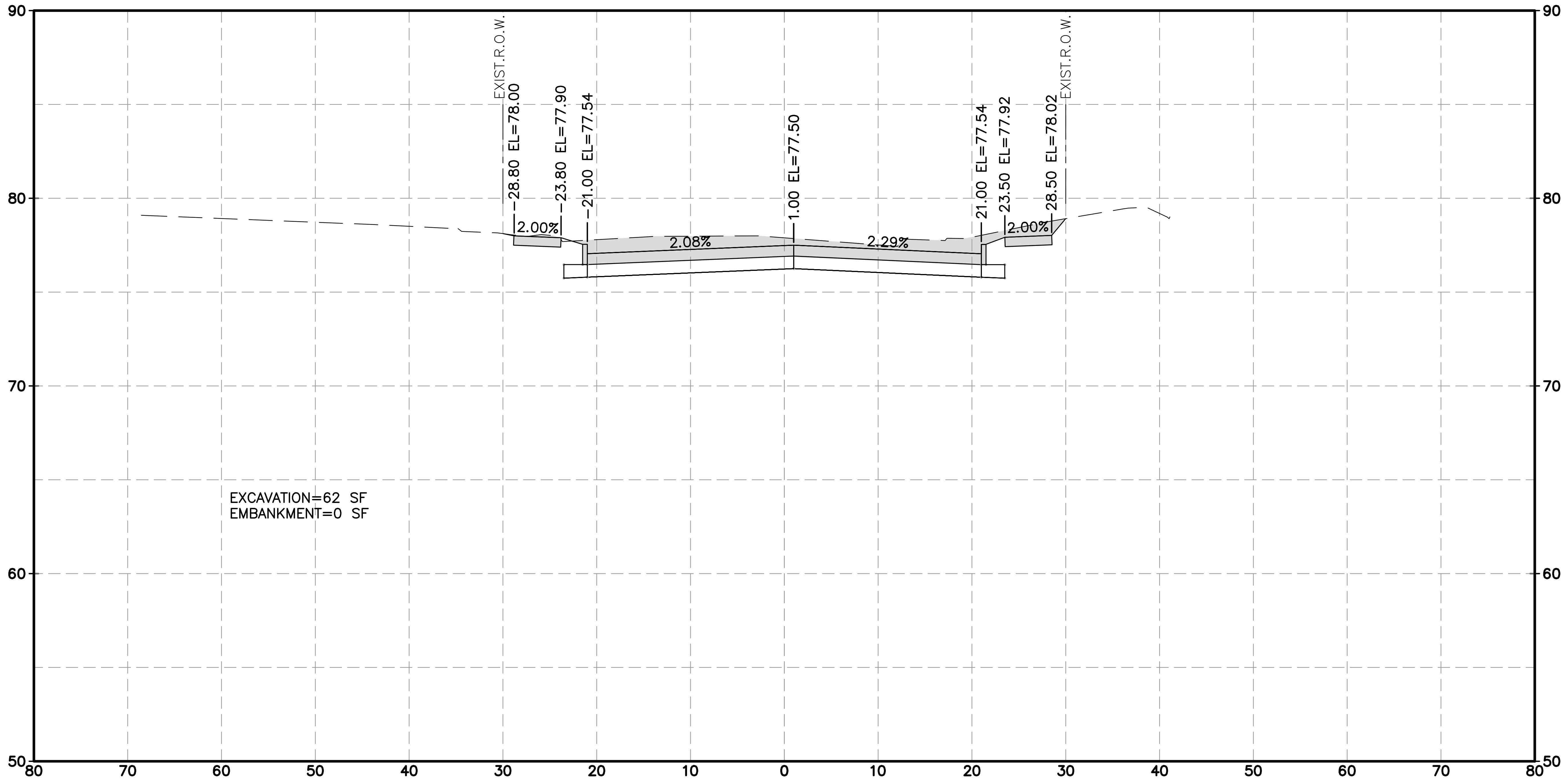
SHEET NO. 329 OF 345

No.	Date	Revisions	App.


HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

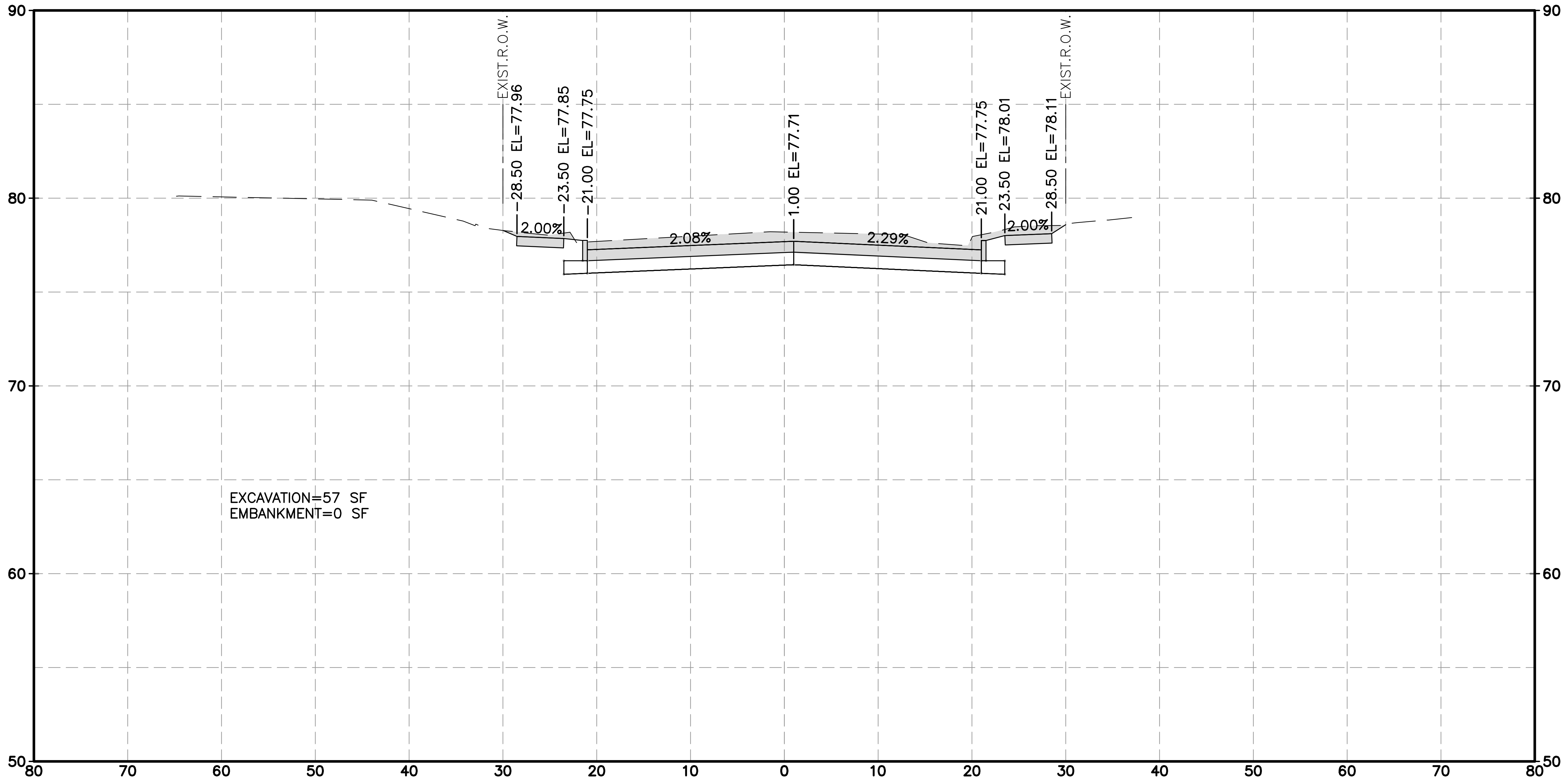
LEGEND

EXCAVATION=XX SF	▭
EMBANKMENT=XX SF	▨


EXIST.R.O.W.
28.80 EL=78.00
23.80 EL=77.90
21.00 EL=77.54
1.00 EL=77.50
21.00 EL=77.54
23.50 EL=77.92
28.50 EL=78.02
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=62 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 7+50.00


EXIST.R.O.W.
28.50 EL=77.96
23.50 EL=77.85
21.00 EL=77.75
1.00 EL=77.71
21.00 EL=77.75
23.50 EL=78.01
28.50 EL=78.11
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=57 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 8+00.00

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 6 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

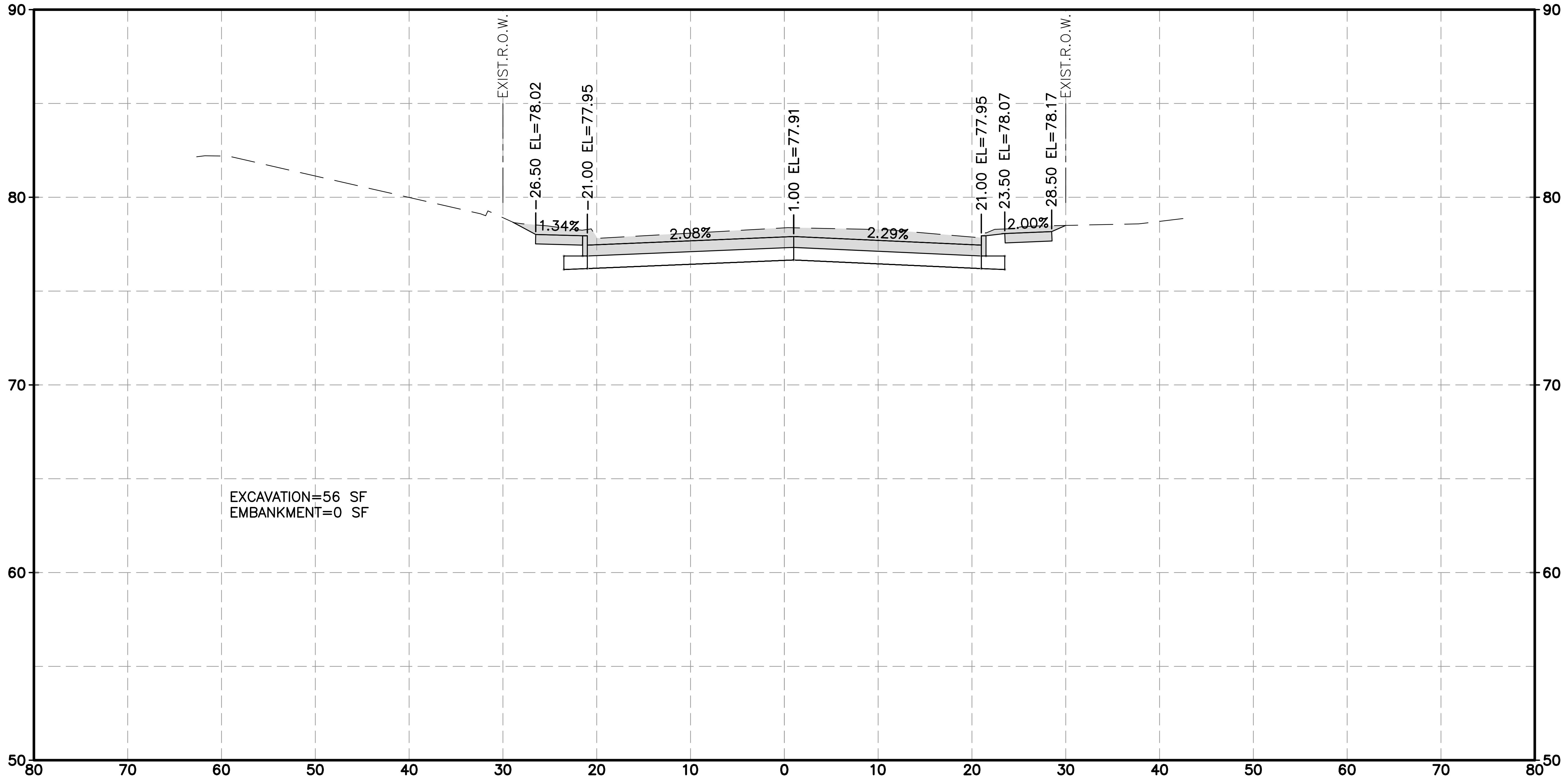
KEVIN HAMMOND, P.E.

SHEET NO. 330 OF 345

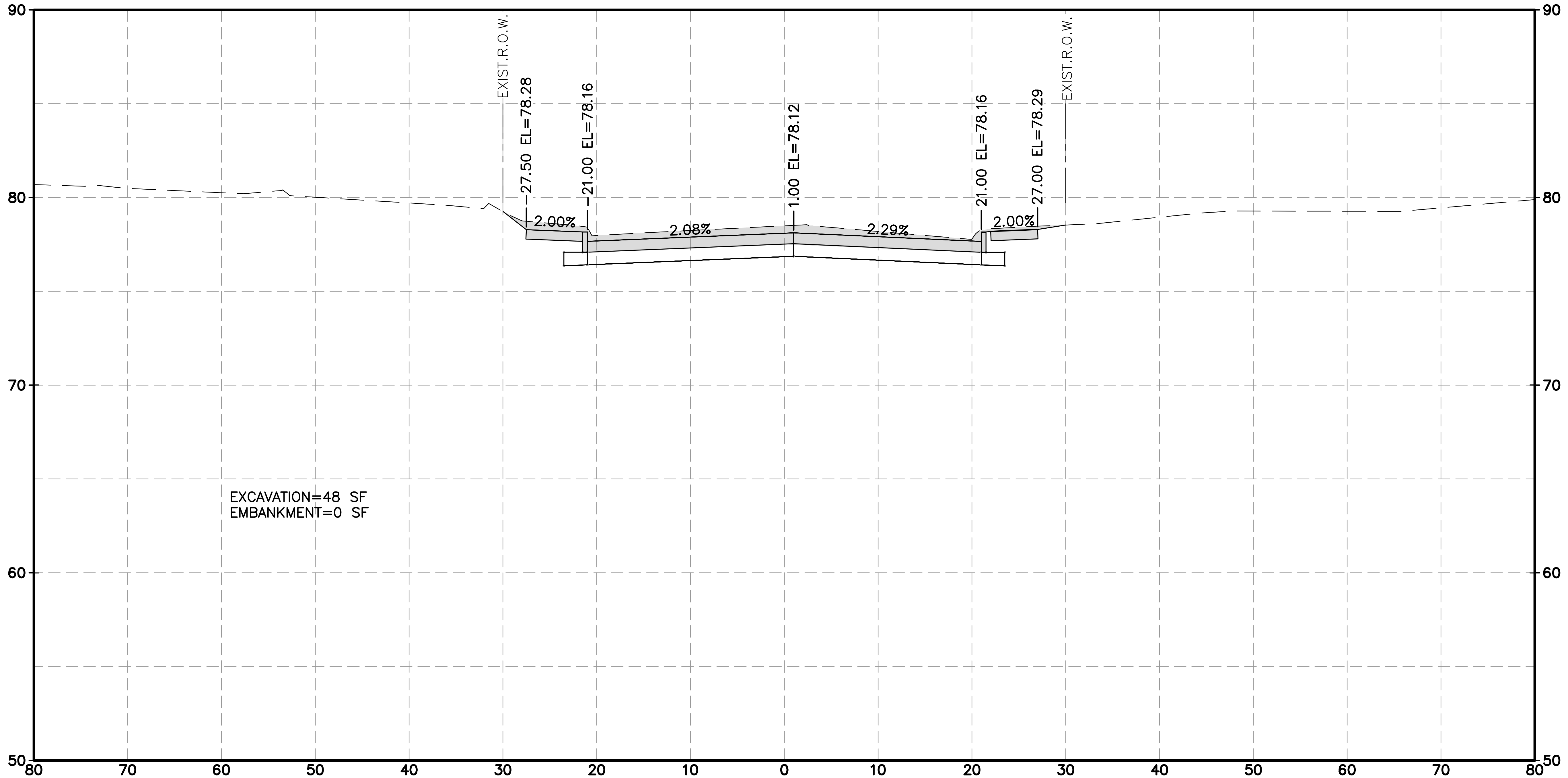
No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨


EXIST.R.O.W.
26.50 EL=78.02
21.00 EL=77.95
1.00 EL=77.91
21.00 EL=77.95
23.50 EL=78.07
28.50 EL=78.17
EXIST.R.O.W.
1.34%
2.08%
2.29%
2.00%
EXCAVATION=56 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 8+50.00


EXIST.R.O.W.
27.50 EL=78.28
21.00 EL=78.16
1.00 EL=78.12
21.00 EL=78.16
27.00 EL=78.29
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=48 SF
EMBANKMENT=0 SF
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 9+00.00

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

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BARRYKNOLL LANE

SHEET 7 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

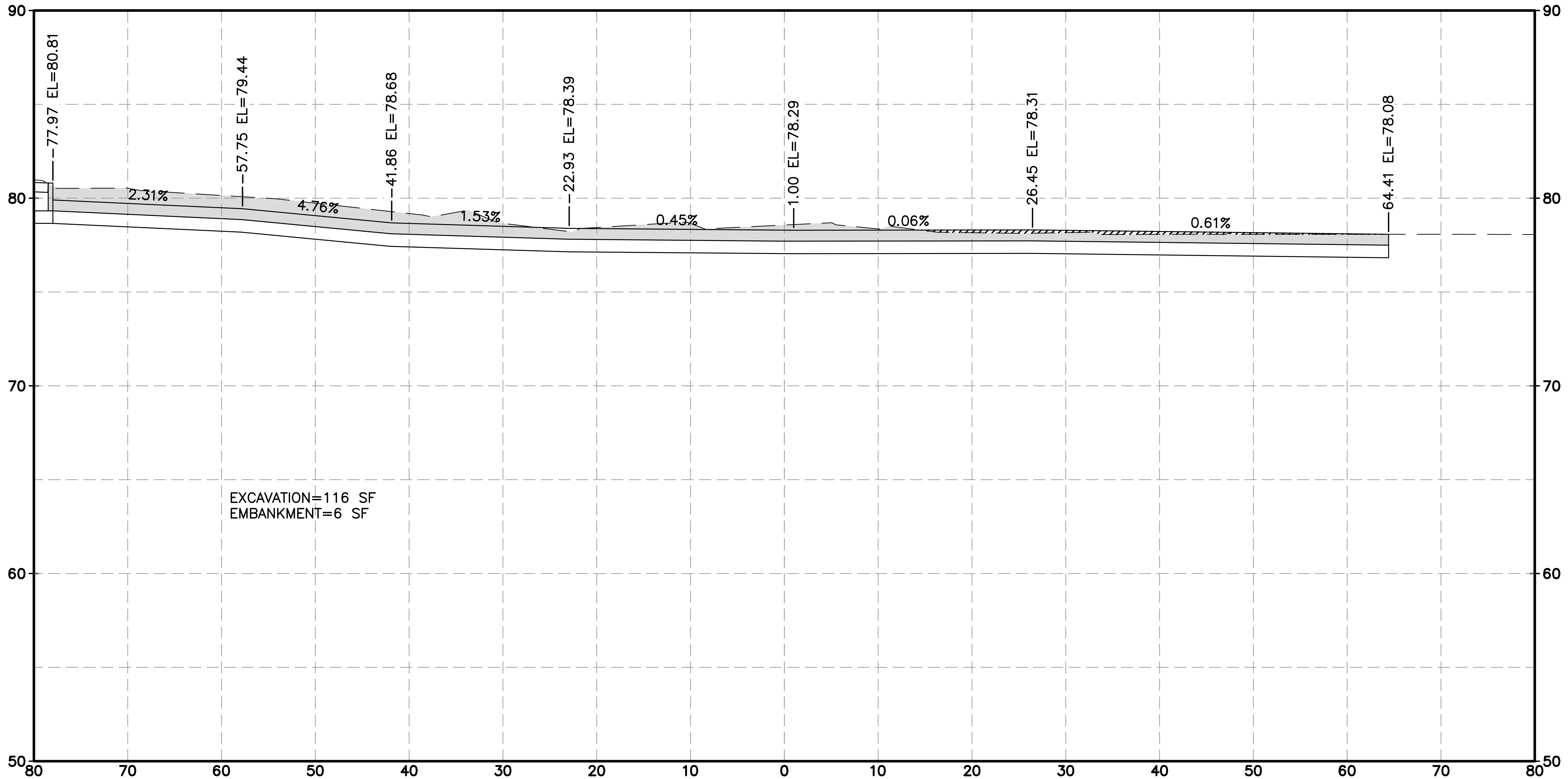
KEVIN HAMMOND, P.E.

SHEET NO. 331 OF 345

No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

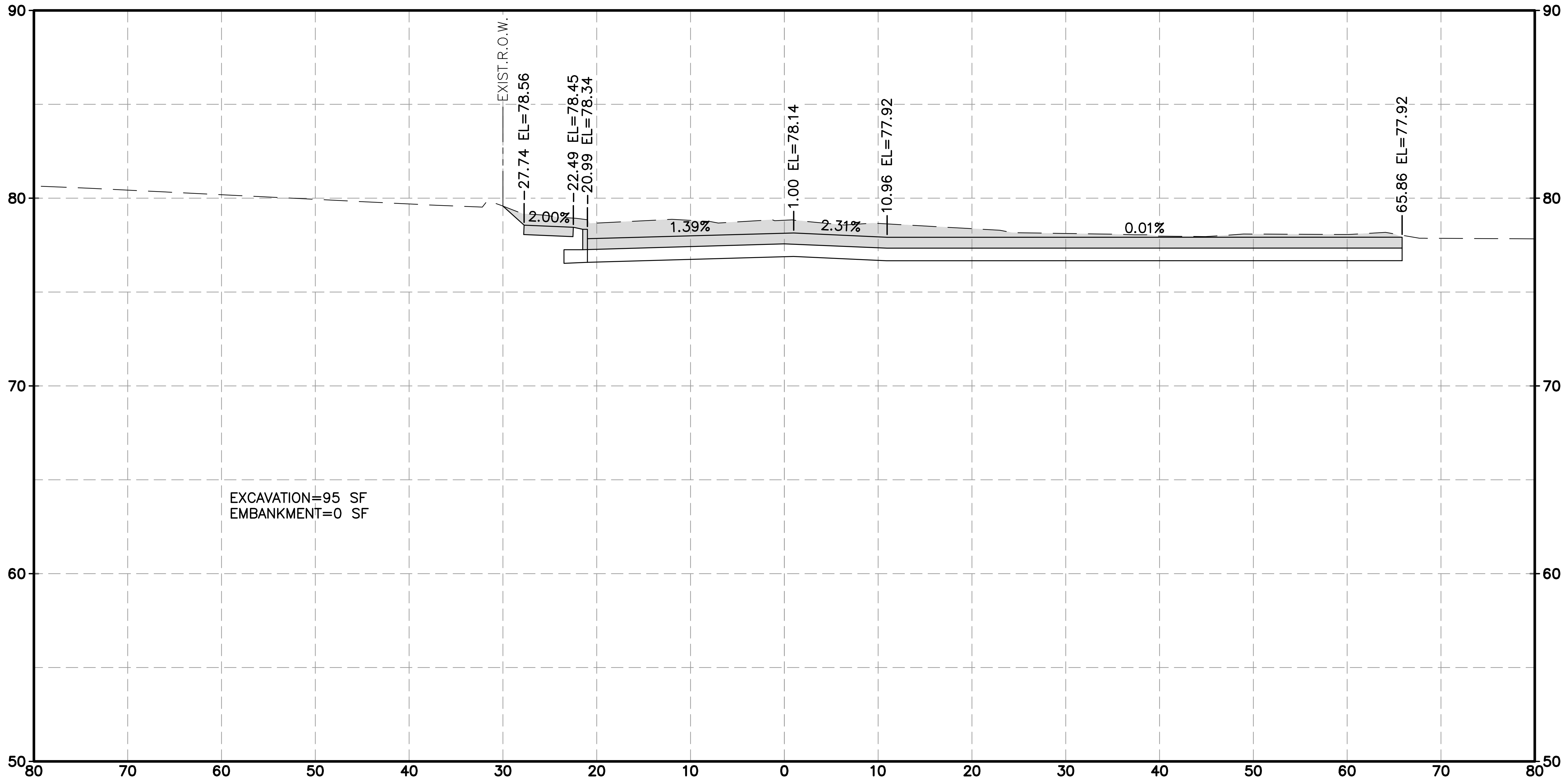
LEGEND
EXCAVATION=XX SF ▒
EMBANKMENT=XX SF ▨



90
80
70
60
50
77.97 EL=80.81
57.75 EL=79.44
41.86 EL=78.68
22.93 EL=78.39
1.00 EL=78.29
26.45 EL=78.31
64.41 EL=78.08
2.31%
4.76%
1.53%
0.45%
0.06%
0.61%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=116 SF
EMBANKMENT=6 SF

BARRYKNOLL LN 9+50.00



90
80
70
60
50
EXIST.R.O.W.
27.74 EL=78.56
22.49 EL=78.45
20.99 EL=78.34
1.00 EL=78.14
10.96 EL=77.92
65.86 EL=77.92
2.00%
1.39%
2.31%
0.01%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=95 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 10+00.00

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4/15/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 8 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 332 OF 345

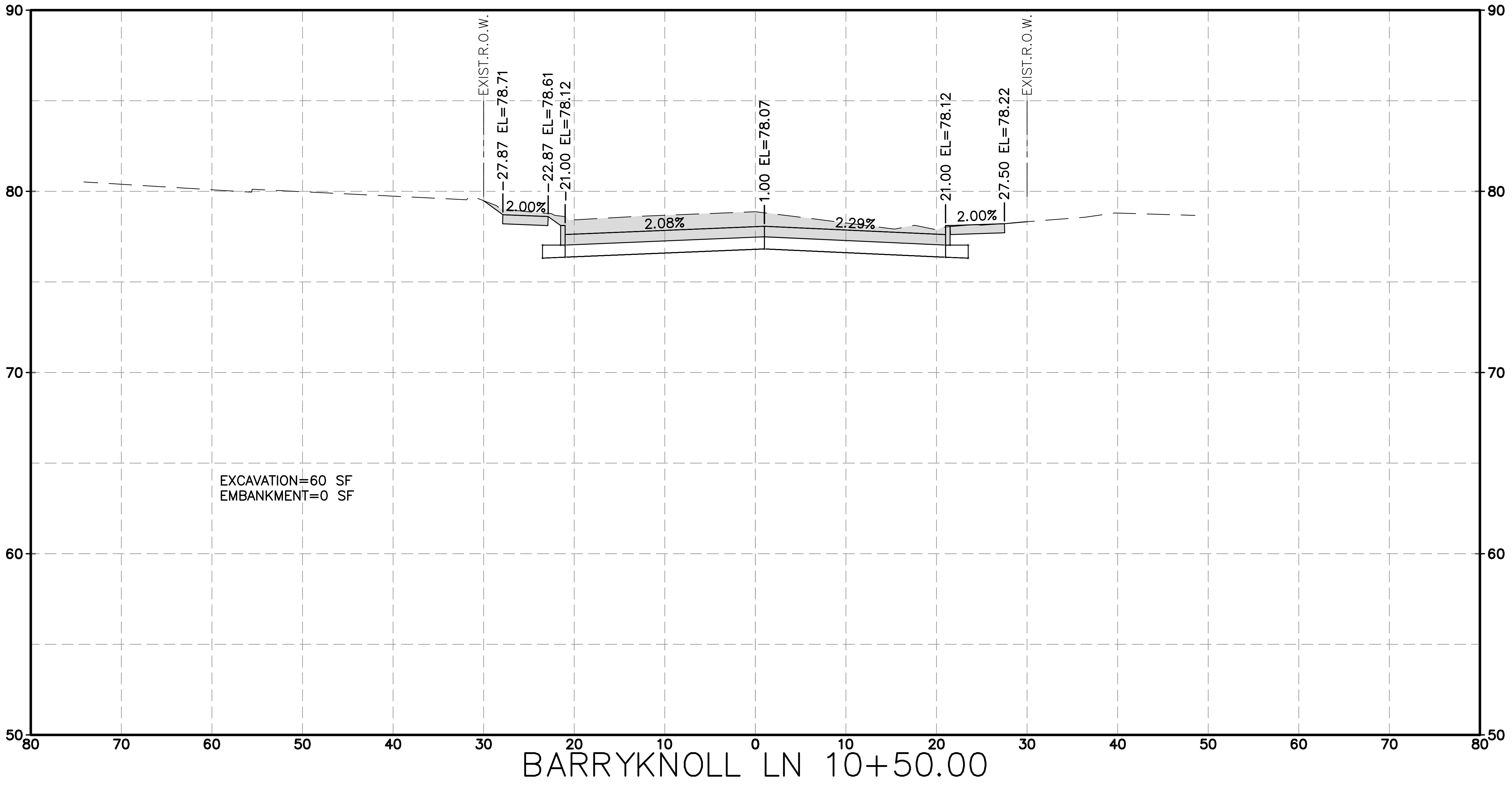
j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:54 AM by Huml, John

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

EXCAVATION=XX SF ▭

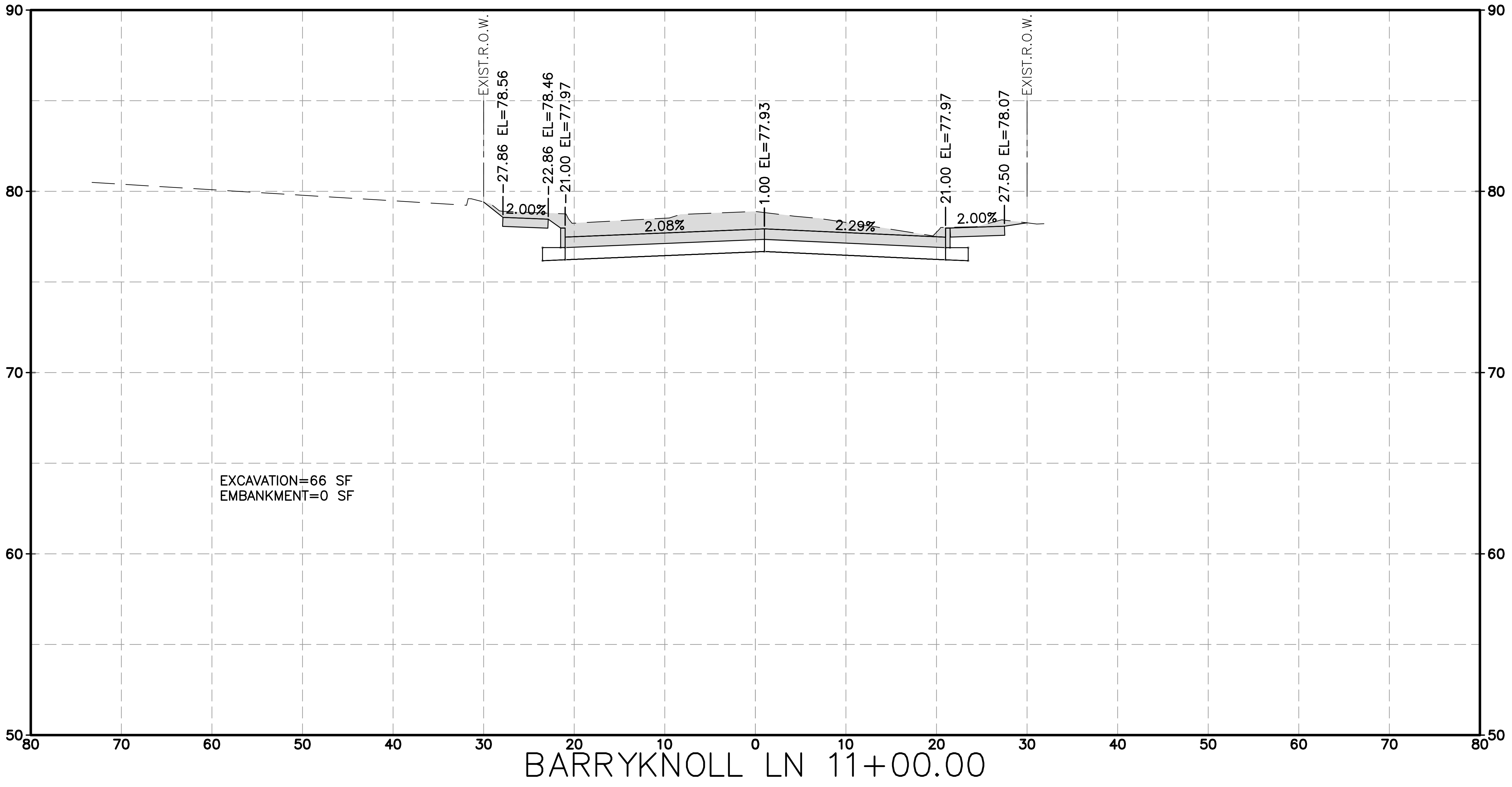
EMBANKMENT=XX SF ▨



EXIST.R.O.W.
27.87 EL=78.71
22.87 EL=78.61
21.00 EL=78.12
1.00 EL=78.07
21.00 EL=78.12
27.50 EL=78.22
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=60 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 10+50.00



EXIST.R.O.W.
27.86 EL=78.56
22.86 EL=78.46
21.00 EL=77.97
1.00 EL=77.93
21.00 EL=77.97
27.50 EL=78.07
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=66 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 11+00.00

No.	Date	Revisions	App.

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125563
David G. Greaney
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 9 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

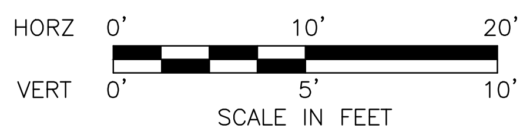
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 333 OF 345

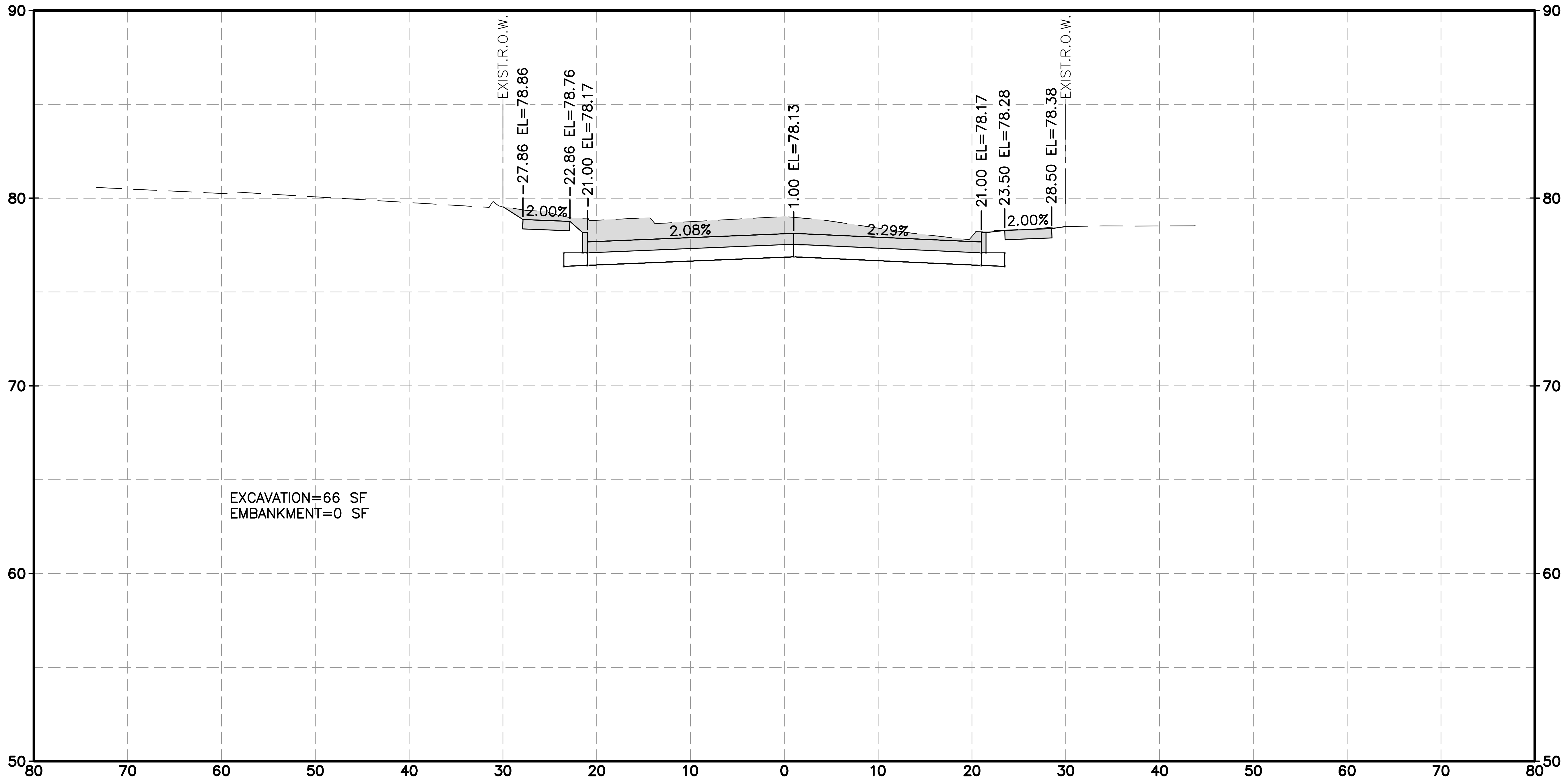
j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:50 AM by Huml, John


HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

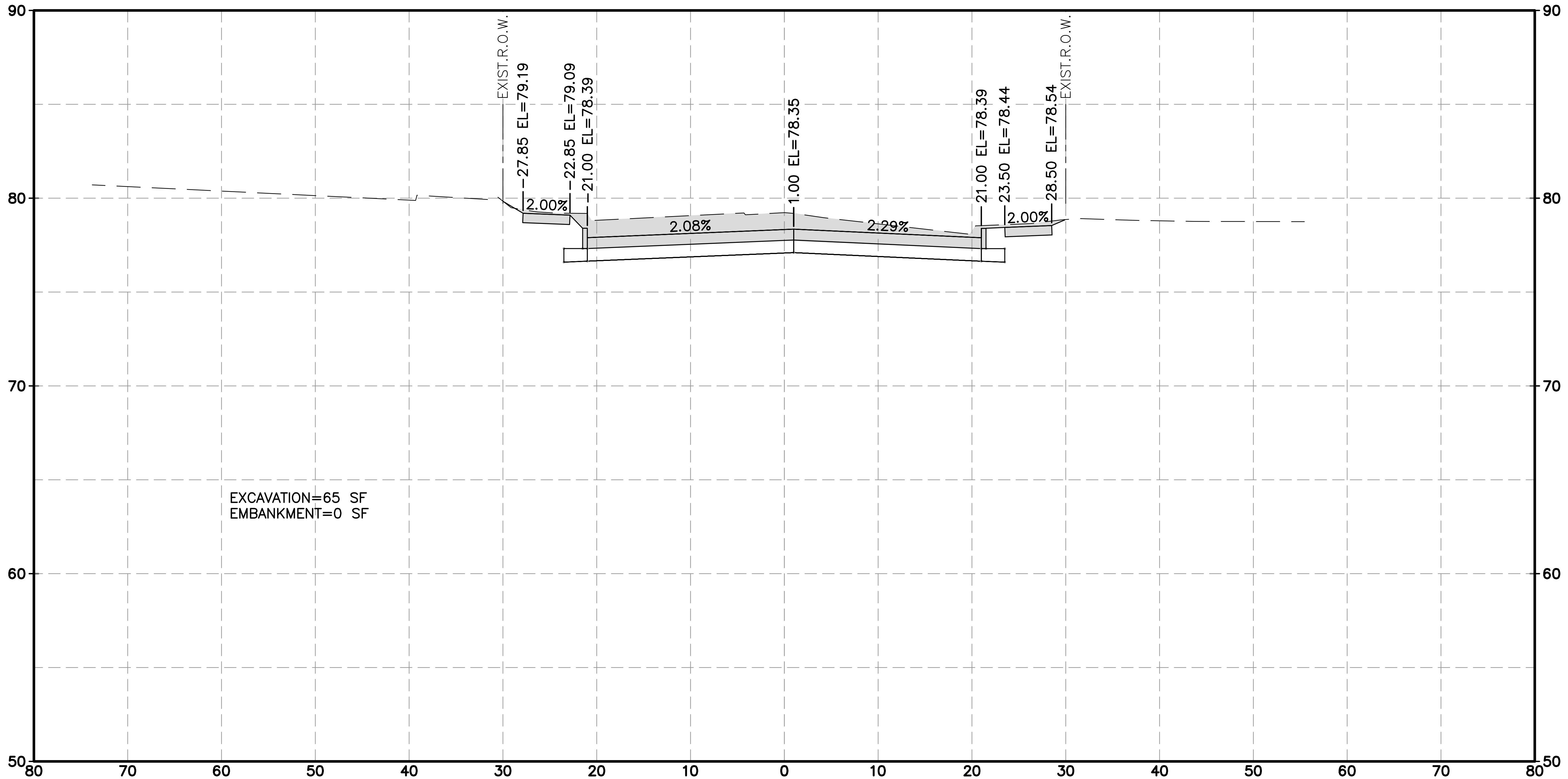
LEGEND

EXCAVATION=XX SF ▭

EMBANKMENT=XX SF ▨


EXIST.R.O.W.
27.86 EL=78.86
22.86 EL=78.76
21.00 EL=78.17
1.00 EL=78.13
21.00 EL=78.17
23.50 EL=78.28
28.50 EL=78.38
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=66 SF
EMBANKMENT=0 SF
90
80
70
60
50
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

BARRYKNOLL LN 11+50.00


EXIST.R.O.W.
27.85 EL=79.19
22.85 EL=79.09
21.00 EL=78.39
1.00 EL=78.35
21.00 EL=78.39
23.50 EL=78.44
28.50 EL=78.54
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=65 SF
EMBANKMENT=0 SF
90
80
70
60
50
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80

BARRYKNOLL LN 12+00.00

No. Date Revisions App.

j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:43 AM by Huml, John

HRGreen
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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 10 OF 15

WBS NO. M-430296-0017-3

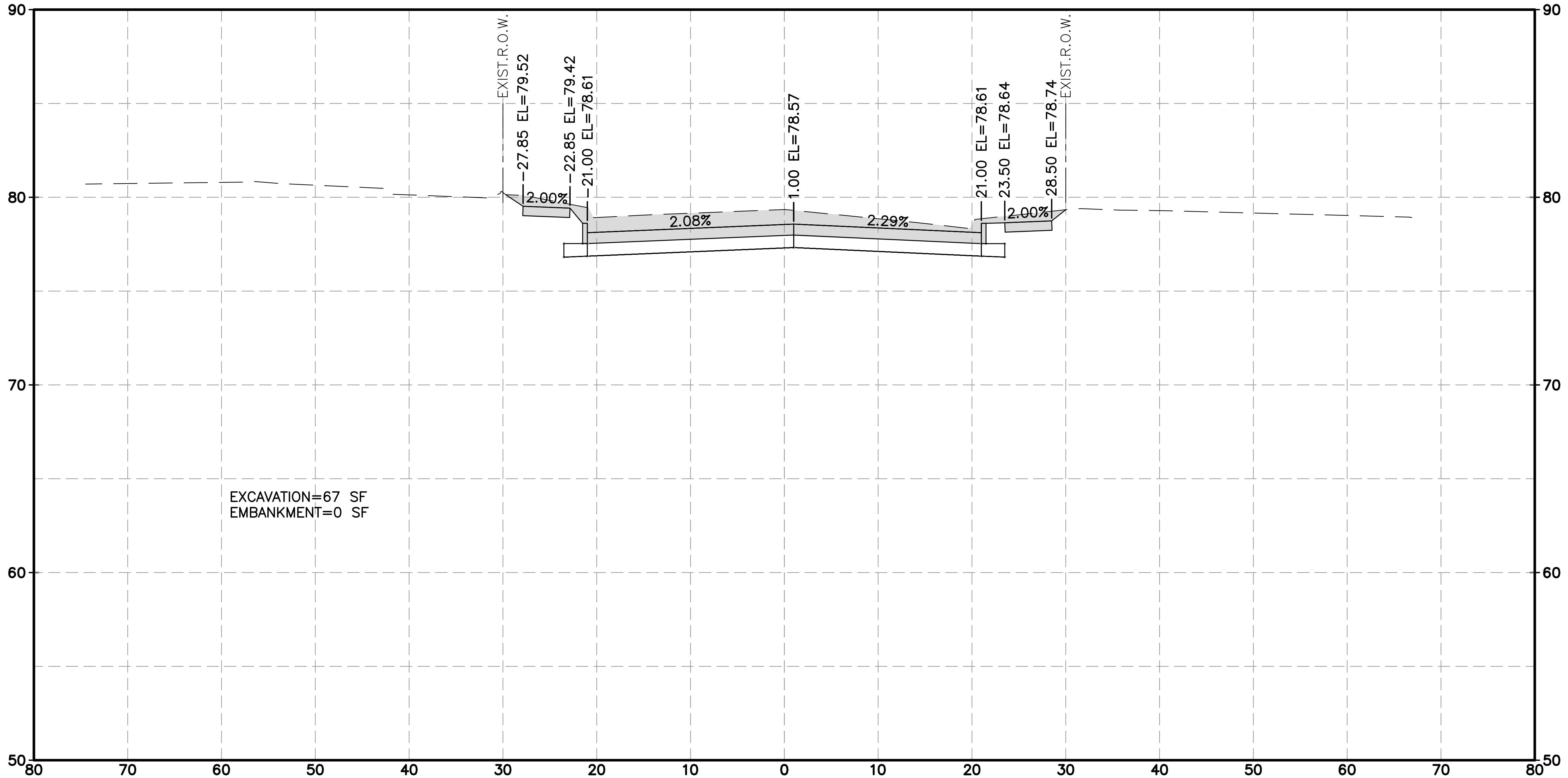
DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

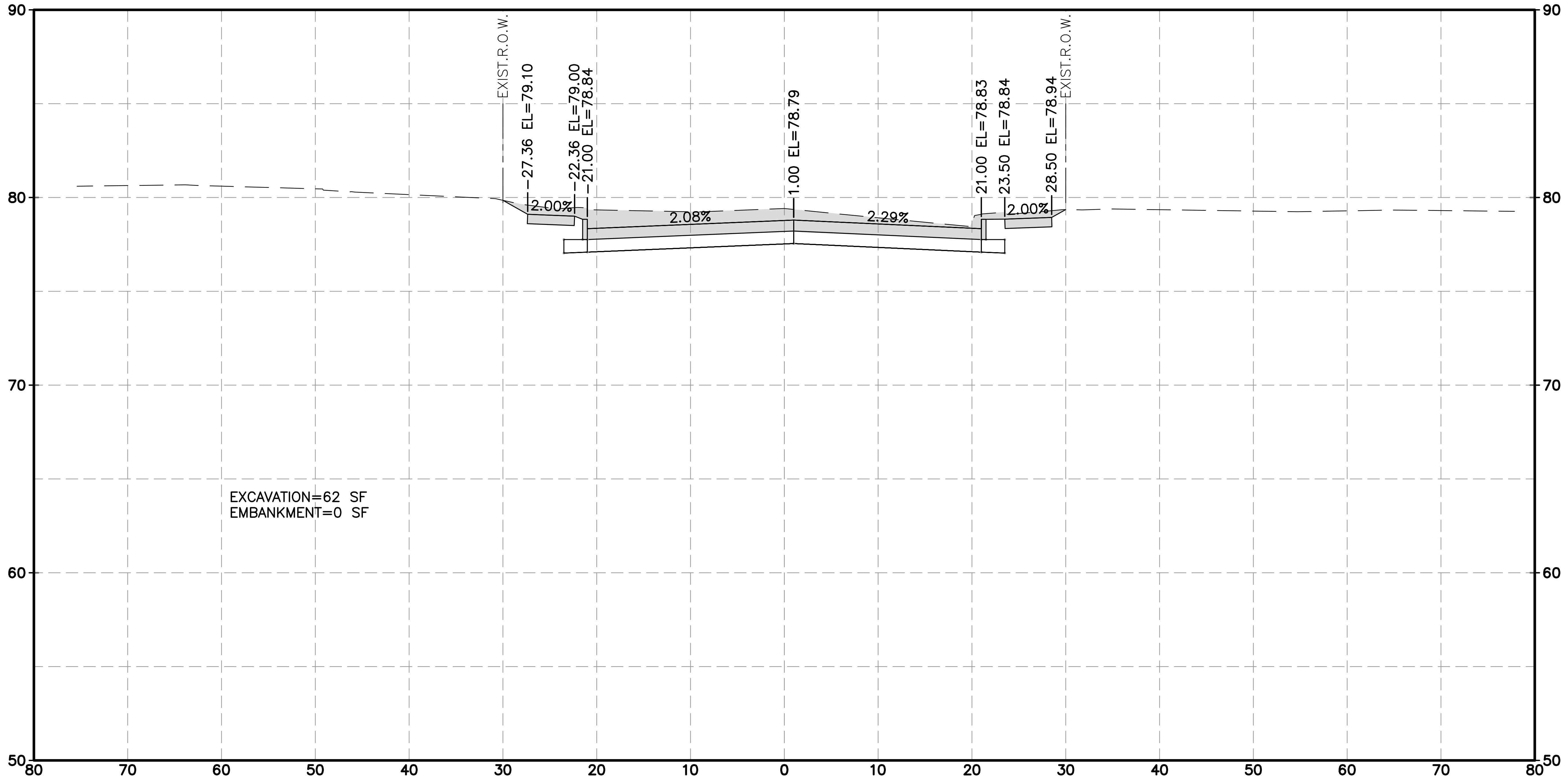
CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 334 OF 345


90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80
EXIST.R.O.W.
-27.85 EL=79.52
-22.85 EL=79.42
-21.00 EL=78.61
1.00 EL=78.57
21.00 EL=78.61
23.50 EL=78.64
28.50 EL=78.74
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=67 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 12+50.00


90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80
EXIST.R.O.W.
-27.36 EL=79.10
-22.36 EL=79.00
-21.00 EL=78.84
1.00 EL=78.79
21.00 EL=78.83
23.50 EL=78.84
28.50 EL=78.94
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=62 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 13+00.00

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ▒
EMBANKMENT=XX SF ▨

No.	Date	Revisions	App.

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 11 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 335 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:50 AM by Huml, John

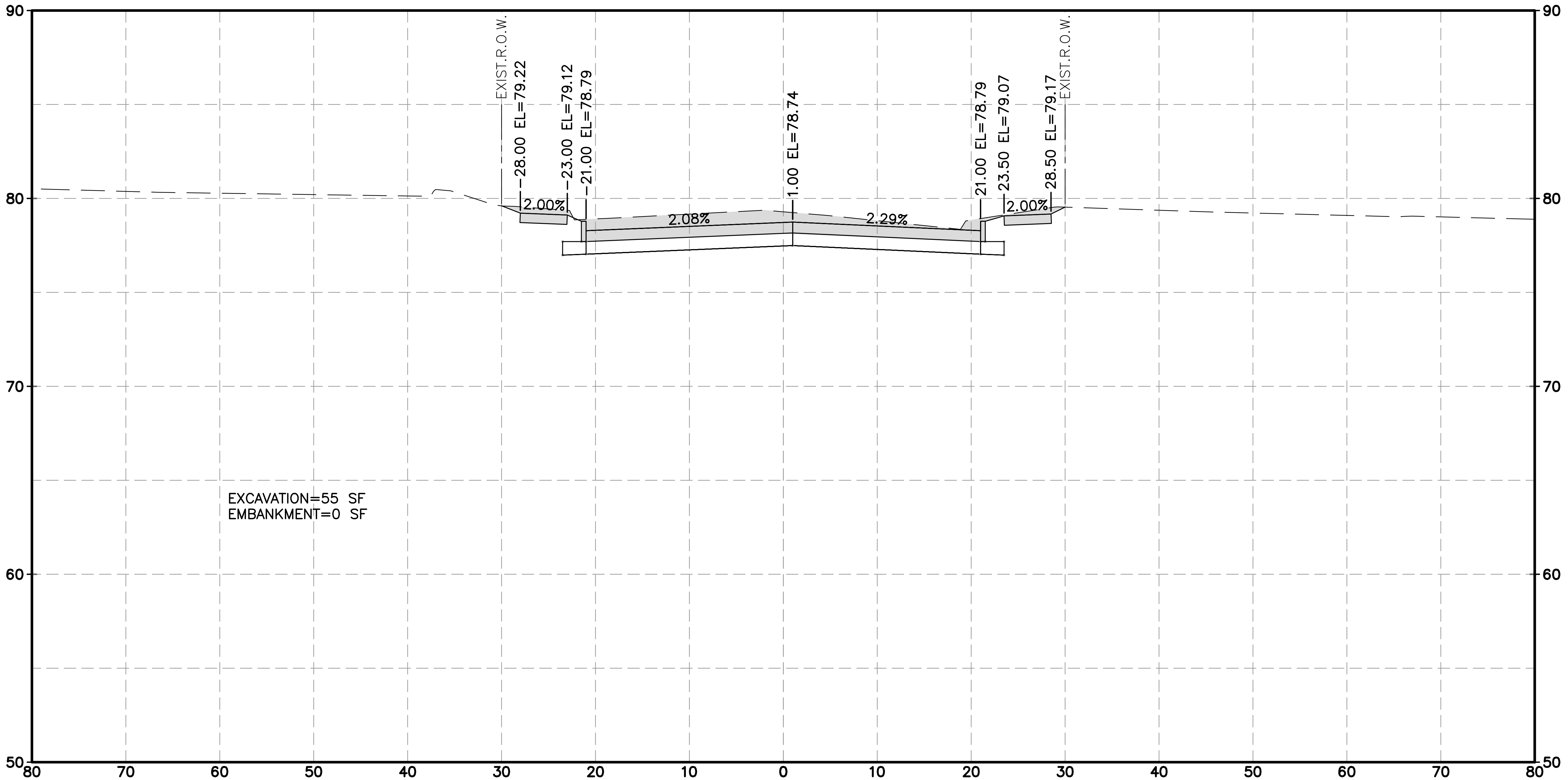
No.	Date	Revisions	App.

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

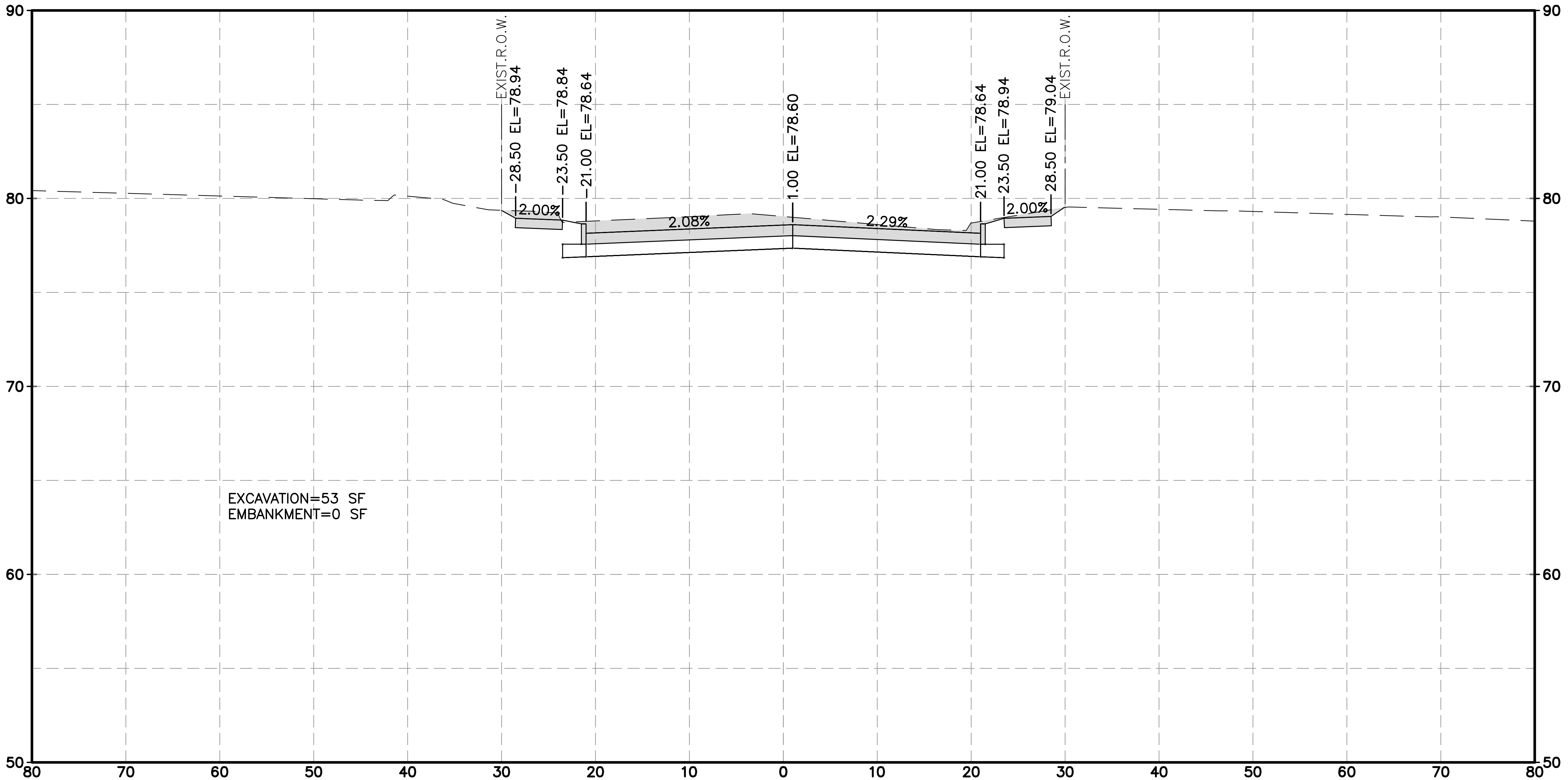
EXCAVATION=XX SF ▒

EMBANKMENT=XX SF ▨



90
80
70
60
50
EXIST.R.O.W.
-28.00 EL=79.22
-23.00 EL=79.12
-21.00 EL=78.79
1.00 EL=78.74
21.00 EL=78.79
23.50 EL=79.07
28.50 EL=79.17
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=55 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 13+50.00



90
80
70
60
50
EXIST.R.O.W.
-28.50 EL=78.94
-23.50 EL=78.84
-21.00 EL=78.64
1.00 EL=78.60
21.00 EL=78.64
23.50 EL=78.94
28.50 EL=79.04
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
EXCAVATION=53 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 14+00.00

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SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 12 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

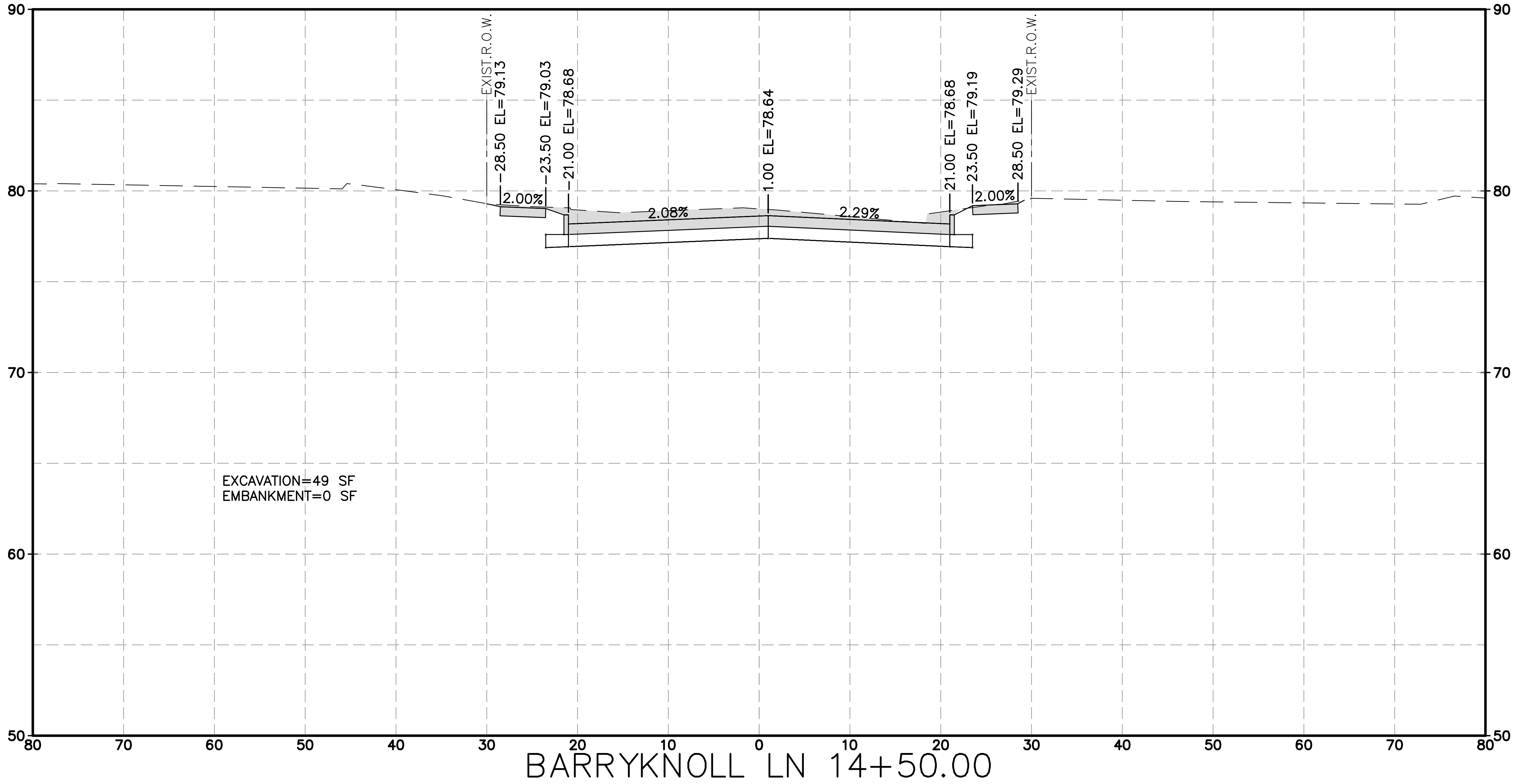
KEVIN HAMMOND, P.E.

SHEET NO. 336 OF 345

HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ▒
EMBANKMENT=XX SF ▨

No.	Date	Revisions	App.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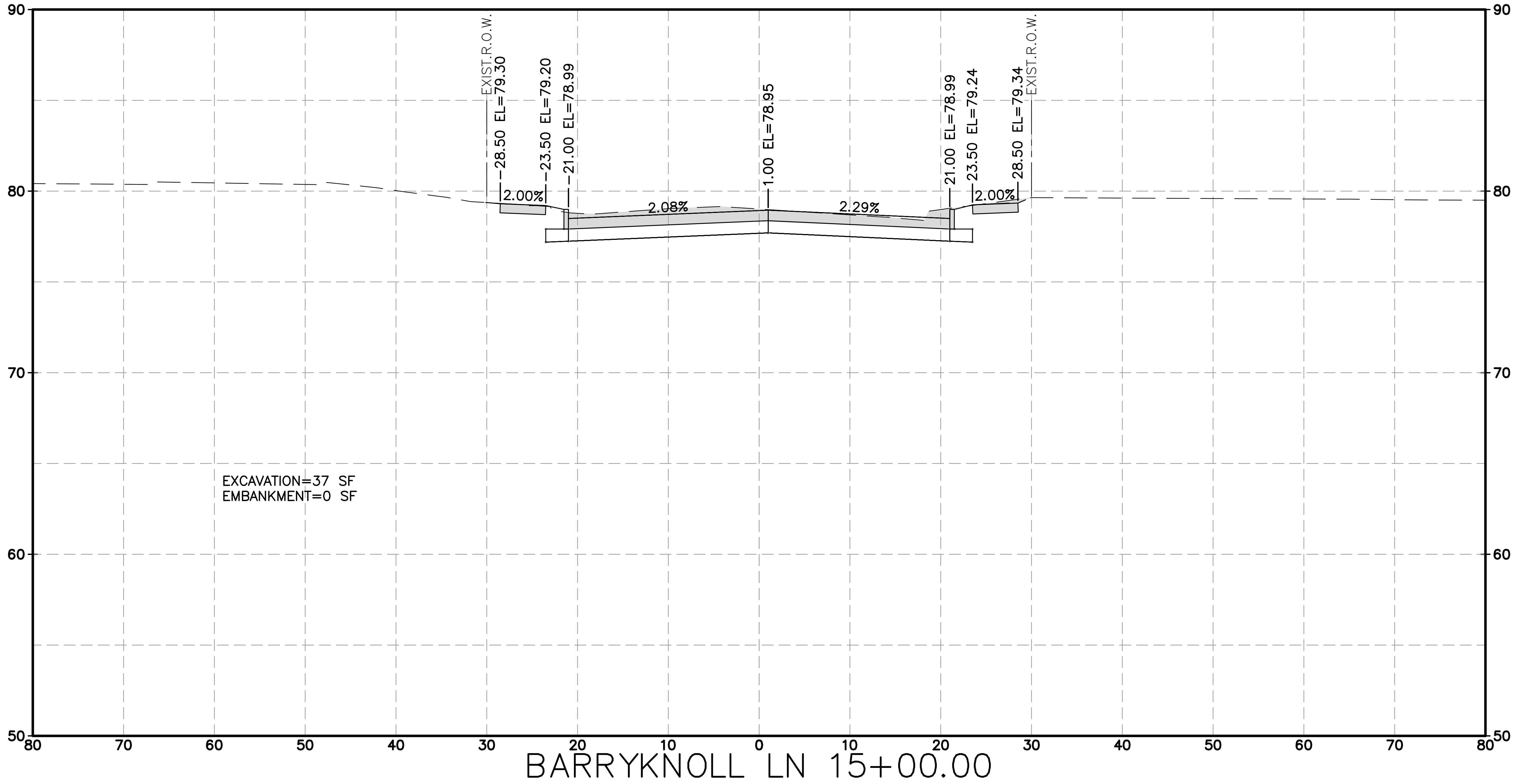
-28.50 EL=79.13
-23.50 EL=79.03
-21.00 EL=78.68
1.00 EL=78.64
21.00 EL=78.68
23.50 EL=79.19
28.50 EL=79.29
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=49 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 14+50.00


EXIST.R.O.W.
-28.50 EL=79.30
-23.50 EL=79.20
-21.00 EL=78.99
1.00 EL=78.95
21.00 EL=78.99
23.50 EL=79.24
28.50 EL=79.34
EXIST.R.O.W.
2.00%
2.08%
2.29%
2.00%
90
80
70
60
50
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=37 SF
EMBANKMENT=0 SF

BARRYKNOLL LN 15+00.00

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 13 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

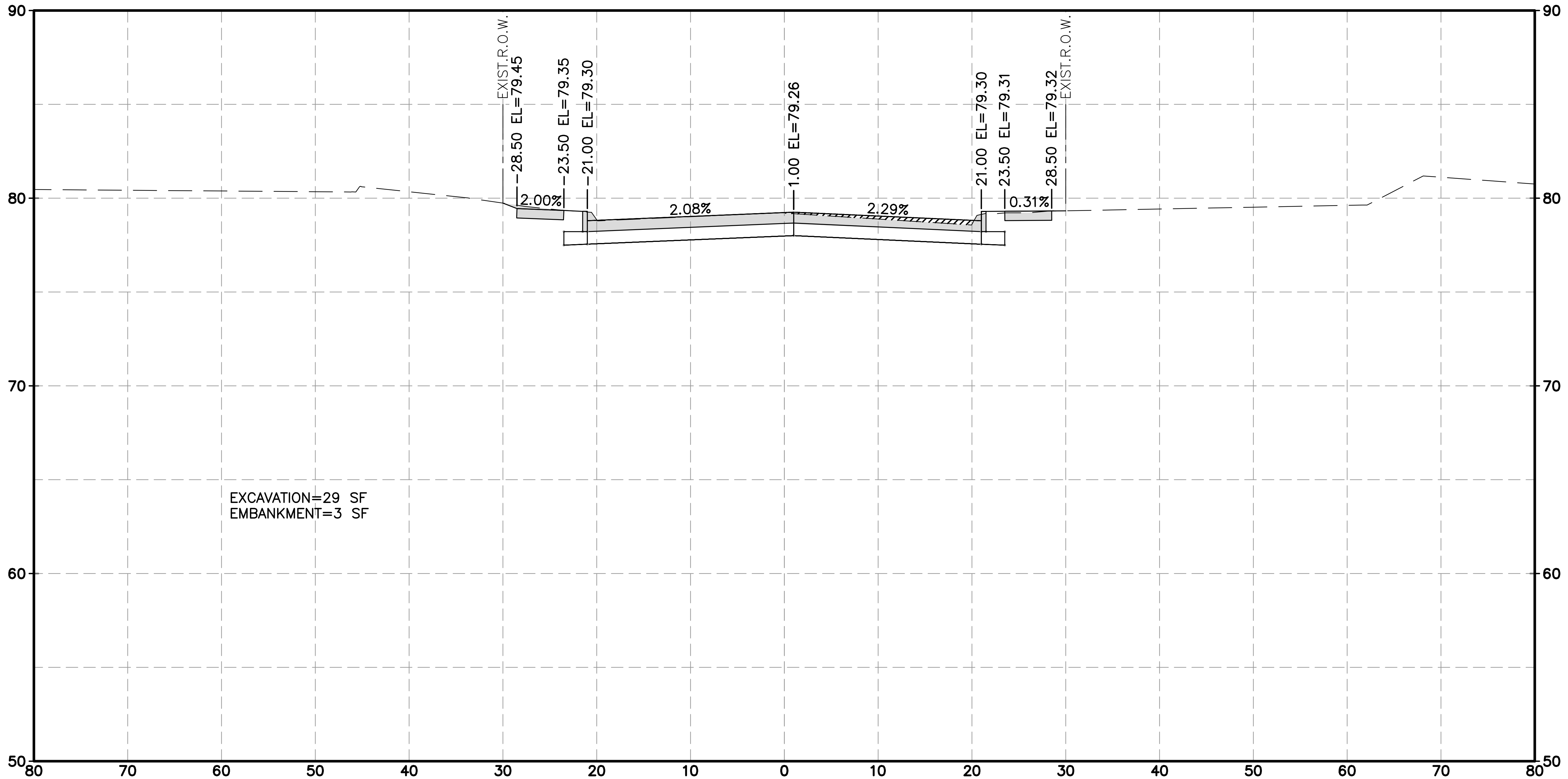
SHEET NO. 337 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:54 AM by Huml, John

No.	Date	Revisions	App.

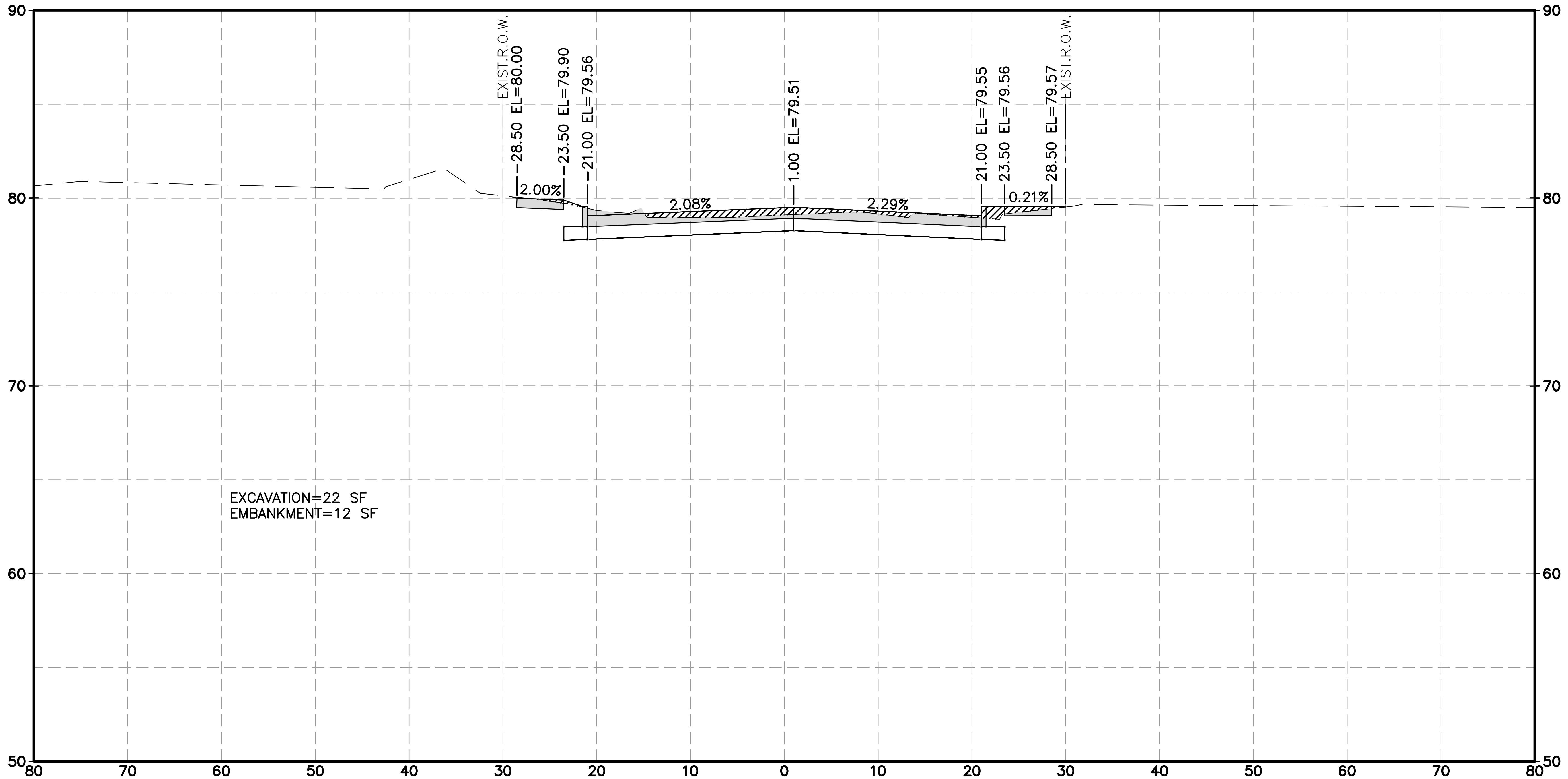
HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND
EXCAVATION=XX SF ▭
EMBANKMENT=XX SF ▨


90
80
70
60
50
EXIST.R.O.W.
-28.50 EL=79.45
-23.50 EL=79.35
-21.00 EL=79.30
1.00 EL=79.26
21.00 EL=79.30
23.50 EL=79.31
28.50 EL=79.32
EXIST.R.O.W.
2.00%
2.08%
2.29%
0.31%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=29 SF
EMBANKMENT=3 SF

BARRYKNOLL LN 15+50.00


90
80
70
60
50
EXIST.R.O.W.
-28.50 EL=80.00
-23.50 EL=79.90
-21.00 EL=79.56
1.00 EL=79.51
21.00 EL=79.55
23.50 EL=79.56
28.50 EL=79.57
EXIST.R.O.W.
2.00%
2.08%
2.29%
0.21%
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

EXCAVATION=22 SF
EMBANKMENT=12 SF

BARRYKNOLL LN 16+00.00

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 14 OF 15

WBS NO. M-430296-0017-3

DRAWING SCALE

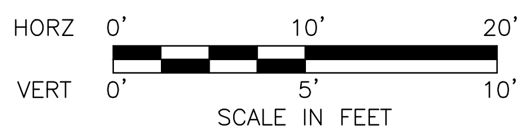
H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 338 OF 345

j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:55 AM by Huml, John

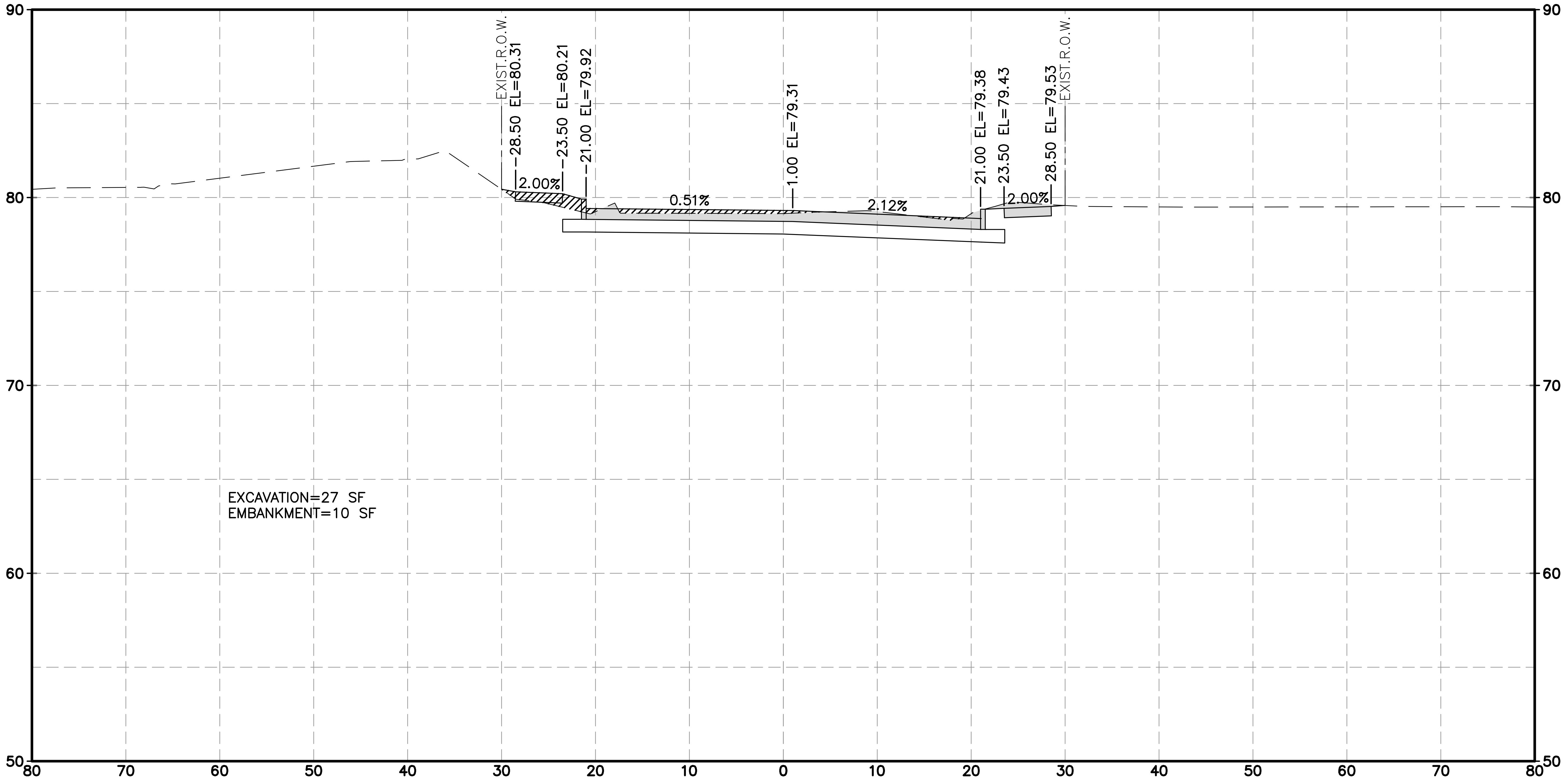


HORZ 0' 10' 20'
VERT 0' 5' 10'
SCALE IN FEET

LEGEND

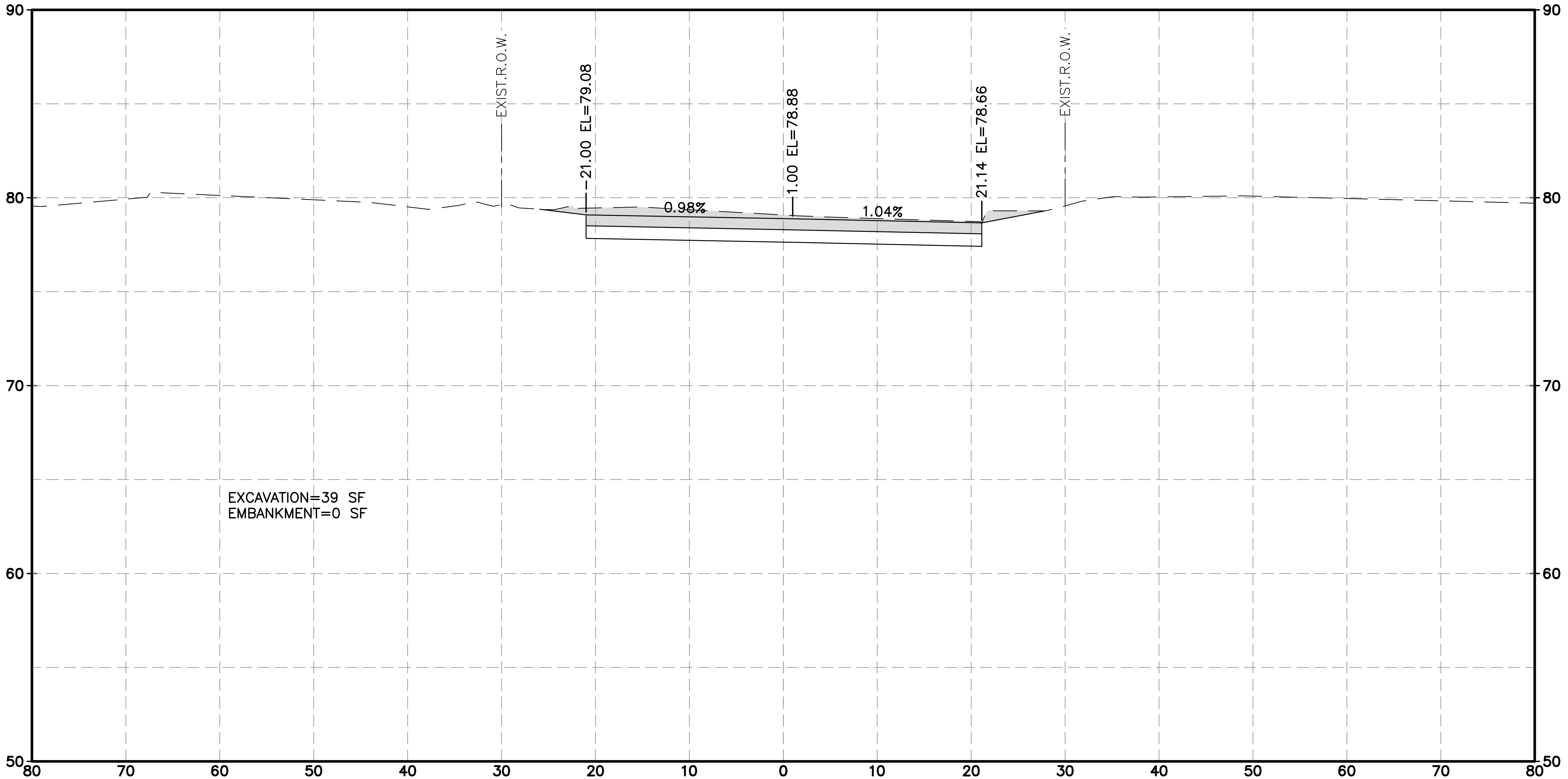
EXCAVATION=XX SF ▭

EMBANKMENT=XX SF ▨



90
80
70
60
50
EXIST.R.O.W.
28.50 EL=80.31
23.50 EL=80.21
21.00 EL=79.92
1.00 EL=79.31
21.00 EL=79.38
23.50 EL=79.43
28.50 EL=79.53
EXIST.R.O.W.
2.00%
0.51%
2.12%
2.00%
EXCAVATION=27 SF
EMBANKMENT=10 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 16+50.00



90
80
70
60
50
EXIST.R.O.W.
21.00 EL=79.08
1.00 EL=78.88
21.14 EL=78.66
EXIST.R.O.W.
0.98%
1.04%
EXCAVATION=39 SF
EMBANKMENT=0 SF
80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80

BARRYKNOLL LN 17+00.00

j:\2021\210601.01\cad\dwgs\d\xs_barryknoll.dwg Plotted April 14, 2026 at 9:45 AM by Huml, John

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TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

PROPOSED CROSS SECTIONS
BARRYKNOLL LANE

SHEET 15 OF 15

WBS NO. M-430296-0017-3

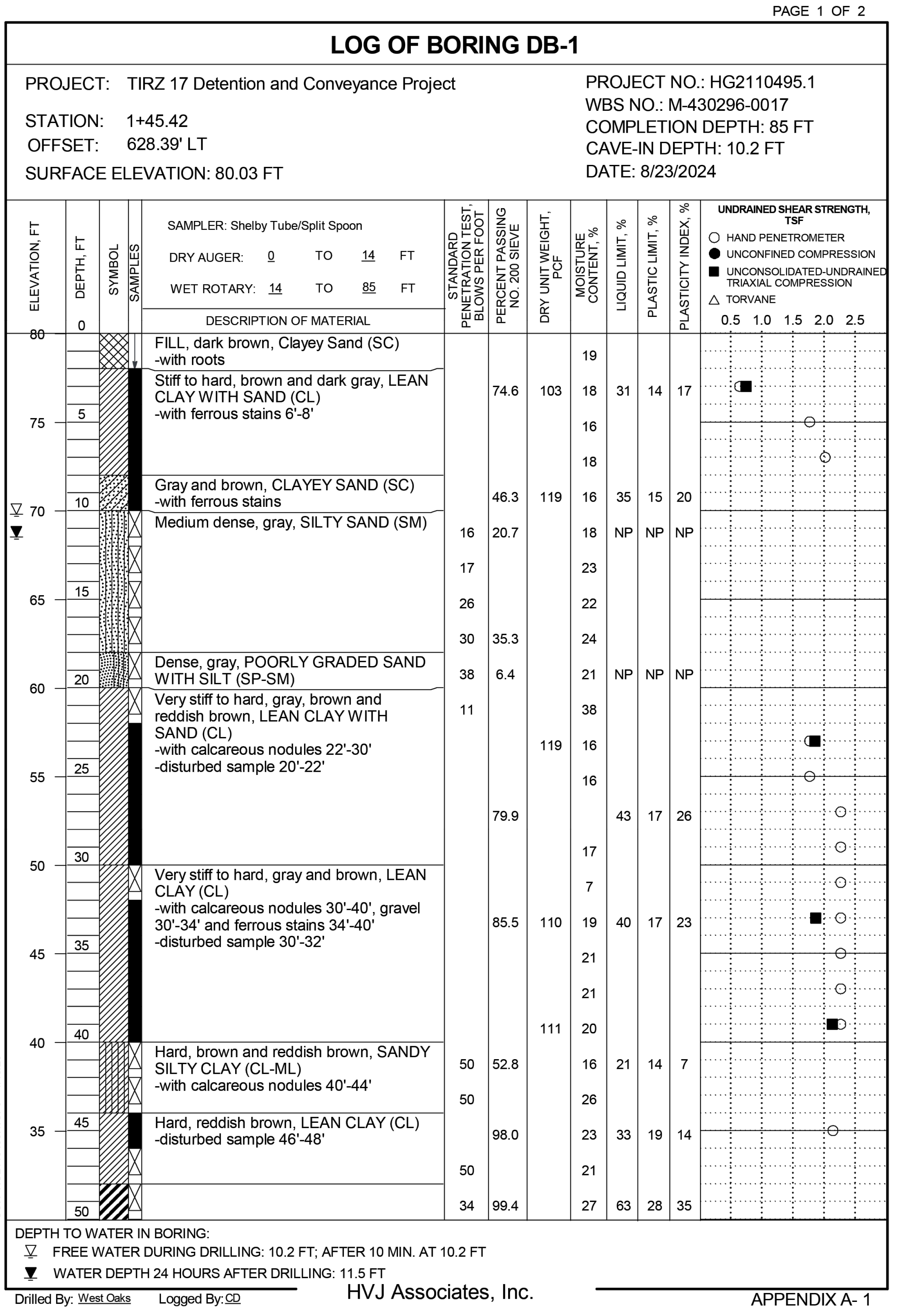
DRAWING SCALE

H: 1"=10' (FULL)
V: 1"=5' (FULL)

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 339 OF 345



PAGE 1 OF 2

LOG OF BORING DB-1

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 1+45.42
OFFSET: 628.39' LT
SURFACE ELEVATION: 80.03 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 10.2 FT
DATE: 8/23/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

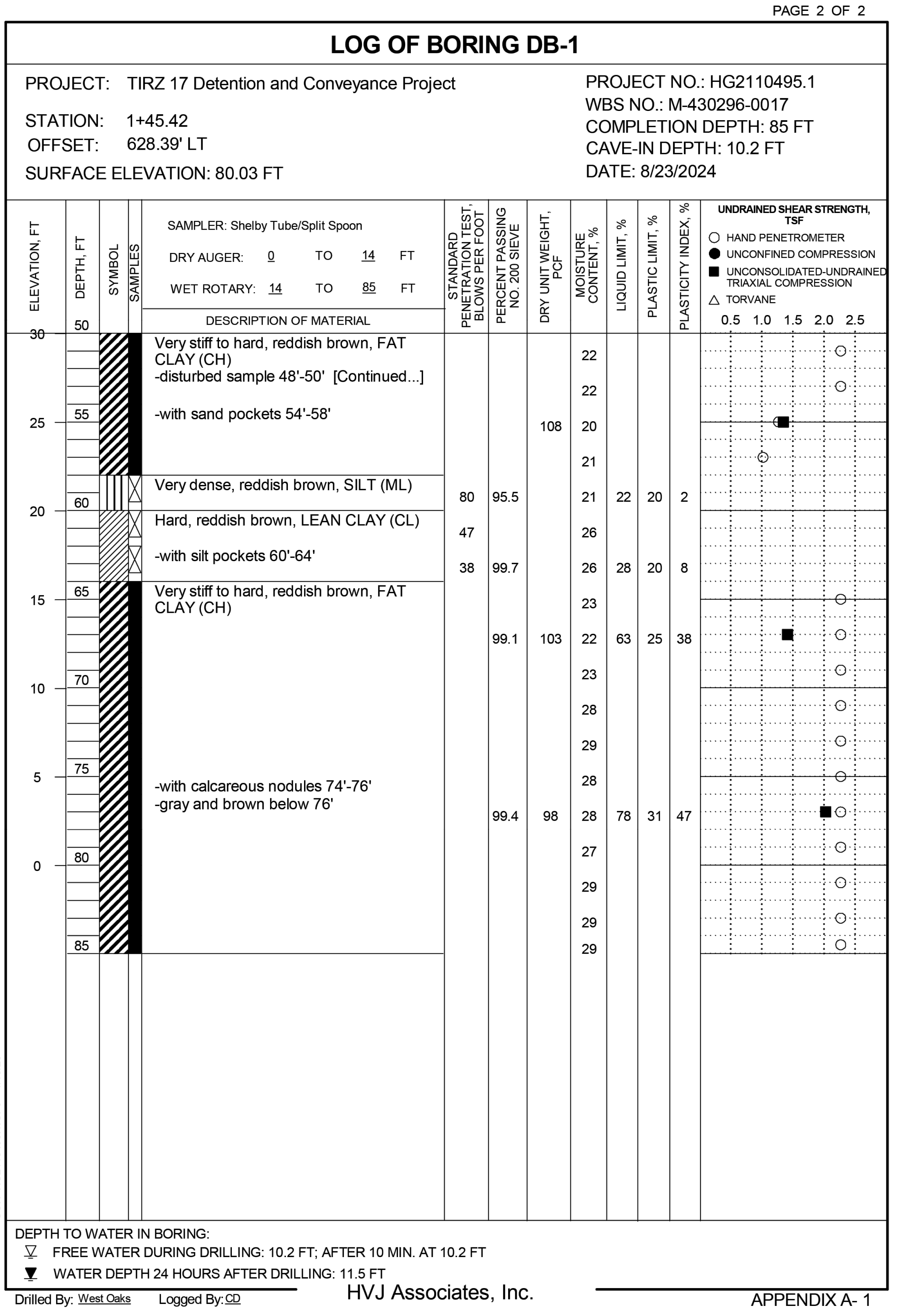
UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, dark brown, Clayey Sand (SC) -with roots				19			
Stiff to hard, brown and dark gray, LEAN CLAY WITH SAND (CL) -with ferrous stains 6'-8'		74.6	103	18	31	14	17
				16			
				18			
Gray and brown, CLAYEY SAND (SC) -with ferrous stains		46.3	119	16	35	15	20
Medium dense, gray, SILTY SAND (SM)	16	20.7		18	NP	NP	NP
	17			23			
	26			22			
	30	35.3		24			
Dense, gray, POORLY GRADED SAND WITH SILT (SP-SM)	38	6.4		21	NP	NP	NP
Very stiff to hard, gray, brown and reddish brown, LEAN CLAY WITH SAND (CL) -with calcareous nodules 22'-30' -disturbed sample 20'-22'	11			38			
			119	16			
				16			
		79.9			43	17	26
				17			
Very stiff to hard, gray and brown, LEAN CLAY (CL) -with calcareous nodules 30'-40', gravel 30'-34' and ferrous stains 34'-40' -disturbed sample 30'-32'				7			
		85.5	110	19	40	17	23
				21			
				21			
			111	20			
Hard, brown and reddish brown, SANDY SILTY CLAY (CL-ML) -with calcareous nodules 40'-44'	50	52.8		16	21	14	7
	50			26			
Hard, reddish brown, LEAN CLAY (CL) -disturbed sample 46'-48'		98.0		23	33	19	14
	50			21			
	34	99.4		27	63	28	35

DEPTH TO WATER IN BORING:
∇ FREE WATER DURING DRILLING: 10.2 FT; AFTER 10 MIN. AT 10.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.5 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 1

COH HG2110495.1.GPJ 1/13/25



PAGE 2 OF 2

LOG OF BORING DB-1

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 1+45.42
OFFSET: 628.39' LT
SURFACE ELEVATION: 80.03 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 10.2 FT
DATE: 8/23/2024

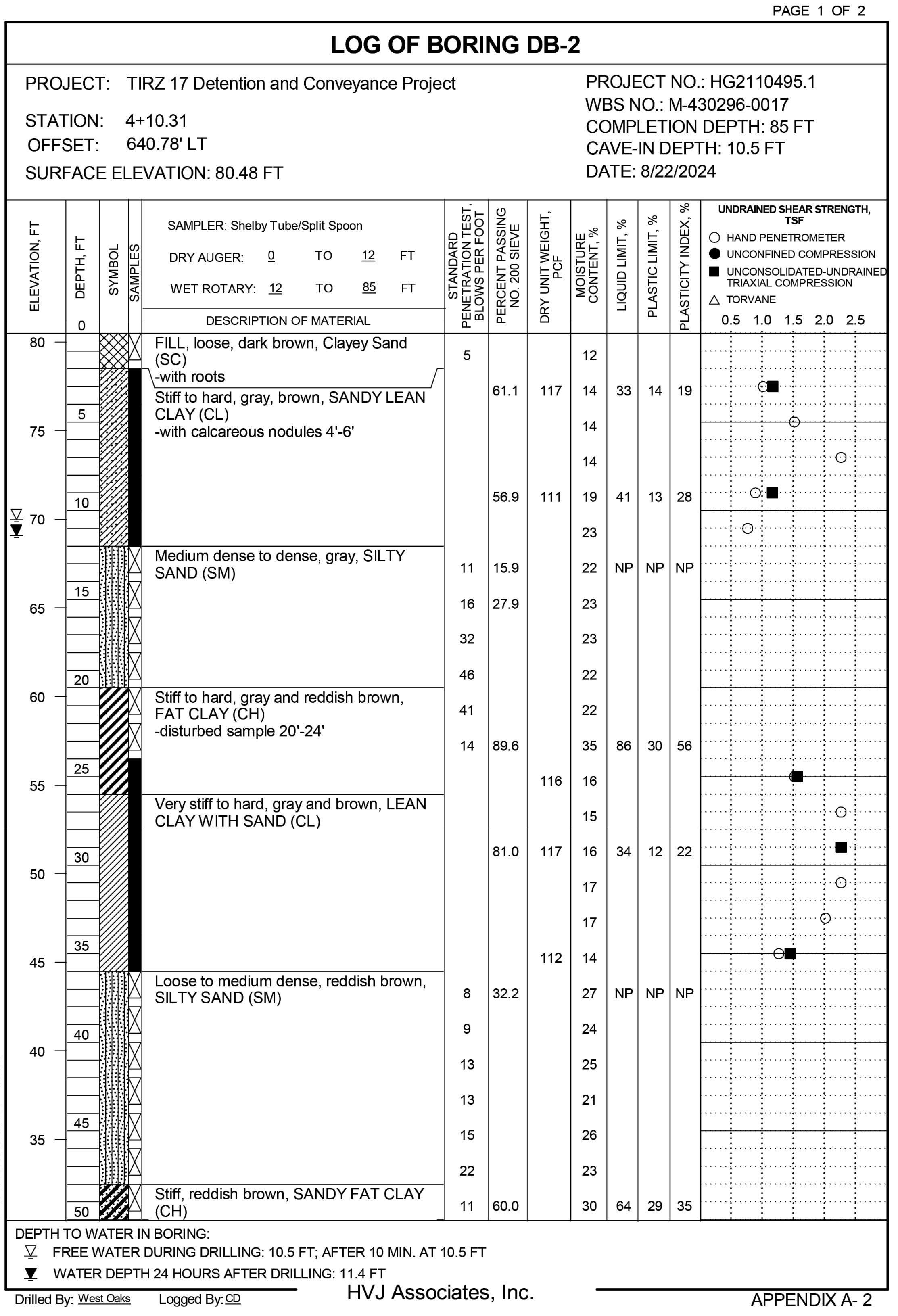
SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Very stiff to hard, reddish brown, FAT CLAY (CH) -disturbed sample 48'-50' [Continued...]				22			
				22			
-with sand pockets 54'-58'			108	20			
				21			
Very dense, reddish brown, SILT (ML)	80	95.5		21	22	20	2
Hard, reddish brown, LEAN CLAY (CL)	47			26			
-with silt pockets 60'-64'	38	99.7		26	28	20	8
Very stiff to hard, reddish brown, FAT CLAY (CH)				23			
		99.1	103	22	63	25	38
				23			
				28			
				29			
-with calcareous nodules 74'-76'				28			
-gray and brown below 76'		99.4	98	28	78	31	47
				27			
				29			
				29			
				29			

DEPTH TO WATER IN BORING:
∇ FREE WATER DURING DRILLING: 10.2 FT; AFTER 10 MIN. AT 10.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.5 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 1

COH HG2110495.1.GPJ 1/13/25



PAGE 1 OF 2

LOG OF BORING DB-2

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 4+10.31
OFFSET: 640.78' LT
SURFACE ELEVATION: 80.48 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 10.5 FT
DATE: 8/22/2024

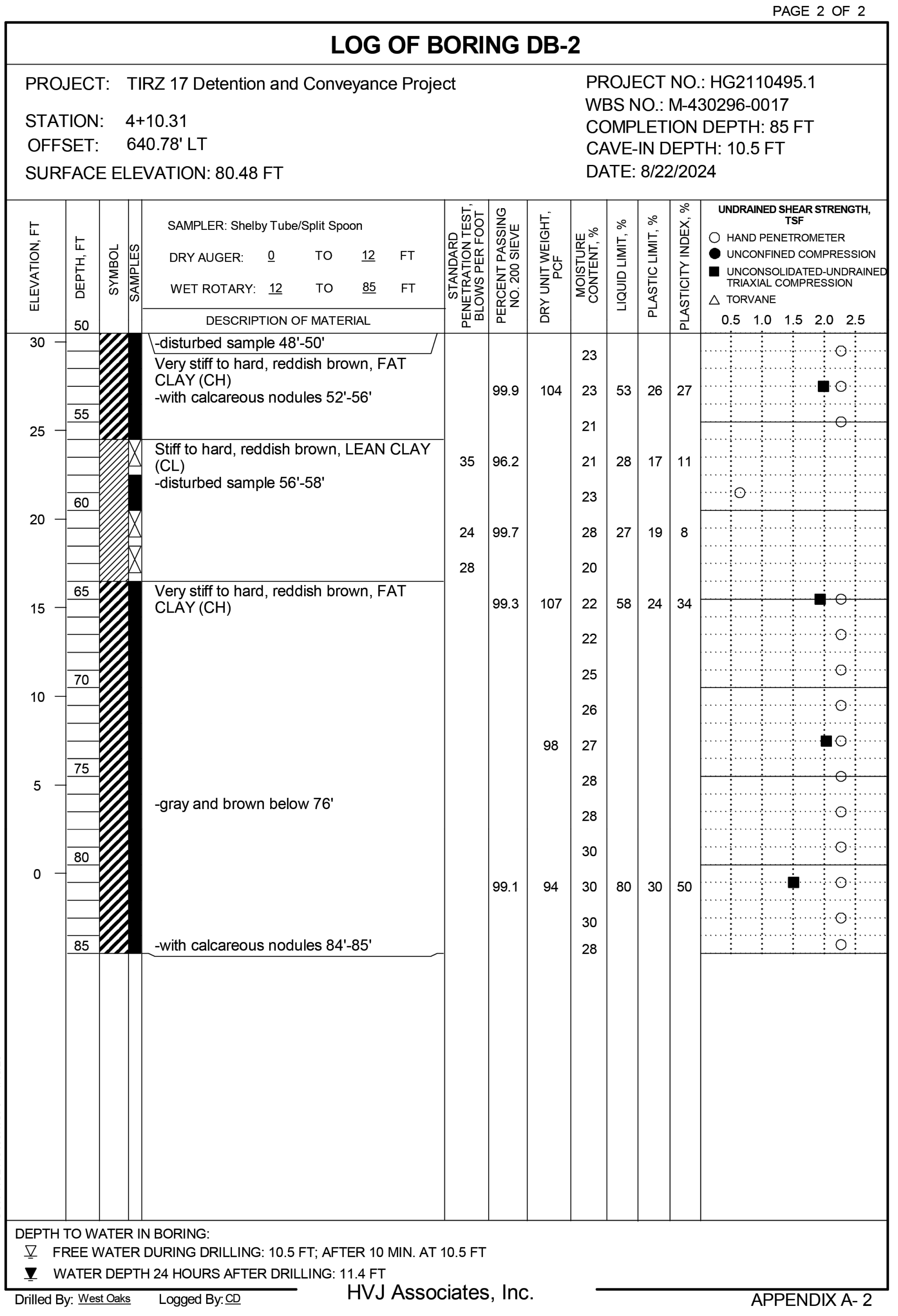
SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, loose, dark brown, Clayey Sand (SC) -with roots	5			12			
Stiff to hard, gray, brown, SANDY LEAN CLAY (CL) -with calcareous nodules 4'-6'		61.1	117	14	33	14	19
				14			
				14			
		56.9	111	19	41	13	28
				23			
Medium dense to dense, gray, SILTY SAND (SM)	11	15.9		22	NP	NP	NP
	16	27.9		23			
	32			23			
	46			22			
Stiff to hard, gray and reddish brown, FAT CLAY (CH) -disturbed sample 20'-24'	41			22			
	14	89.6		35	86	30	56
			116	16			
Very stiff to hard, gray and brown, LEAN CLAY WITH SAND (CL)				15			
		81.0	117	16	34	12	22
				17			
				17			
			112	14			
Loose to medium dense, reddish brown, SILTY SAND (SM)	8	32.2		27	NP	NP	NP
	9			24			
	13			25			
	13			21			
	15			26			
	22			23			
Stiff, reddish brown, SANDY FAT CLAY (CH)	11	60.0		30	64	29	35

DEPTH TO WATER IN BORING:
∇ FREE WATER DURING DRILLING: 10.5 FT; AFTER 10 MIN. AT 10.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.4 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 2

COH HG2110495.1.GPJ 1/13/25



PAGE 2 OF 2

LOG OF BORING DB-2

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 4+10.31
OFFSET: 640.78' LT
SURFACE ELEVATION: 80.48 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 10.5 FT
DATE: 8/22/2024

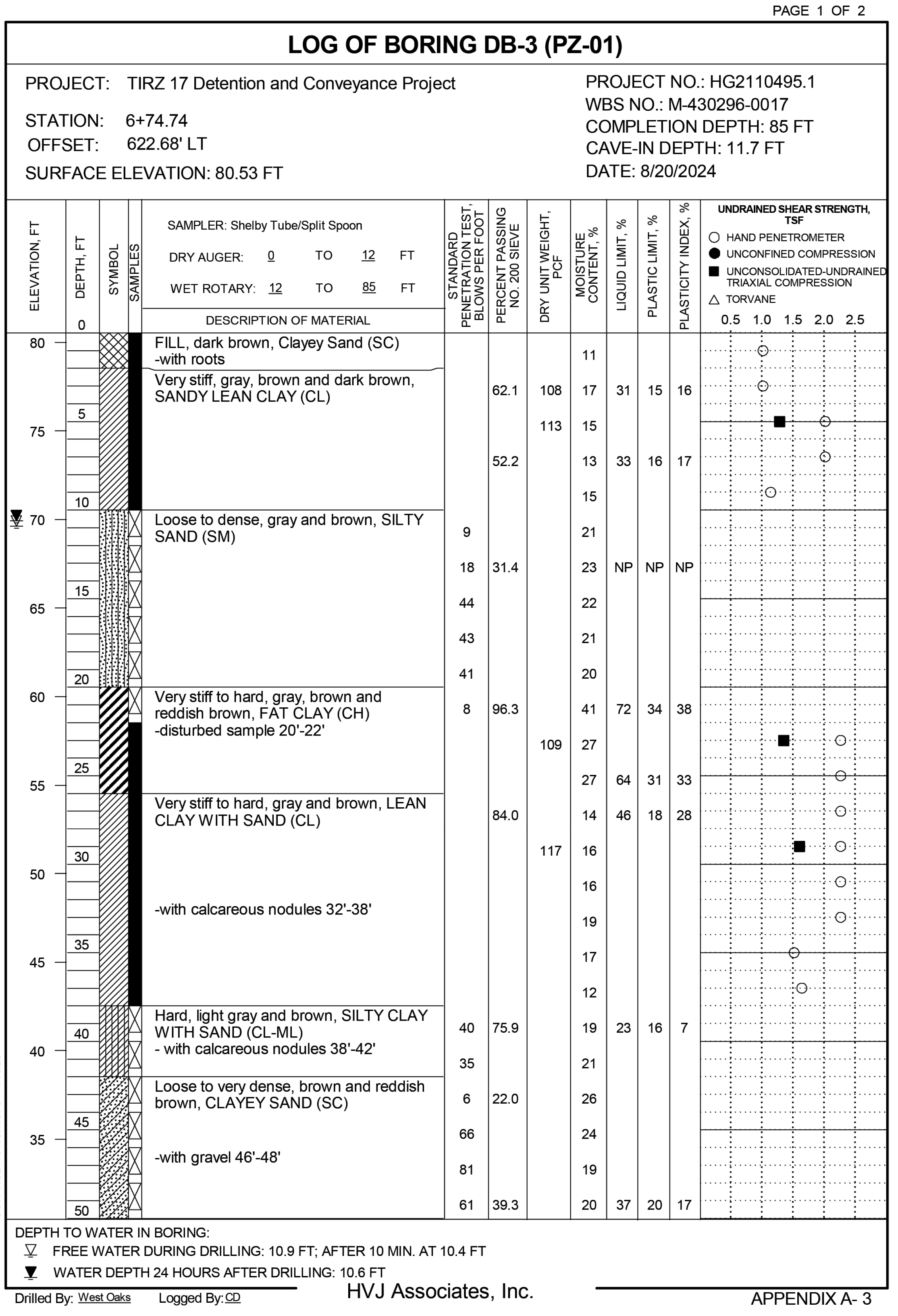
SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
-disturbed sample 48'-50'				23			
Very stiff to hard, reddish brown, FAT CLAY (CH) -with calcareous nodules 52'-56'		99.9	104	23	53	26	27
				21			
Stiff to hard, reddish brown, LEAN CLAY (CL) -disturbed sample 56'-58'	35	96.2		21	28	17	11
				23			
	24	99.7		28	27	19	8
	28			20			
Very stiff to hard, reddish brown, FAT CLAY (CH)		99.3	107	22	58	24	34
				22			
				25			
				26			
			98	27			
				28			
-gray and brown below 76'				28			
				30			
		99.1	94	30	80	30	50
				30			
-with calcareous nodules 84'-85'				28			

DEPTH TO WATER IN BORING:
∇ FREE WATER DURING DRILLING: 10.5 FT; AFTER 10 MIN. AT 10.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.4 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 2

COH HG2110495.1.GPJ 1/13/25



PAGE 1 OF 2

LOG OF BORING DB-3 (PZ-01)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 6+74.74
OFFSET: 622.68' LT
SURFACE ELEVATION: 80.53 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 11.7 FT
DATE: 8/20/2024

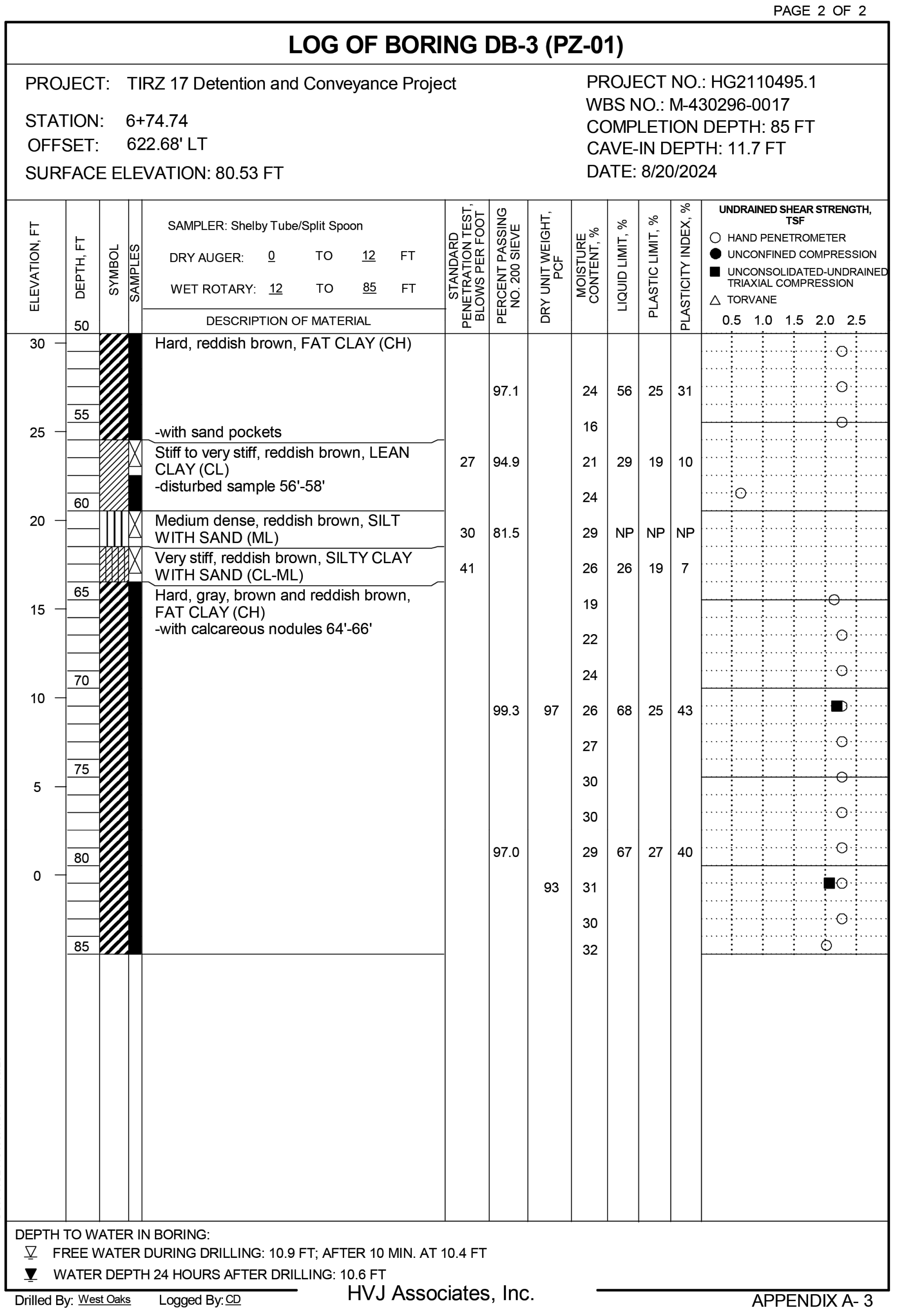
SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, dark brown, Clayey Sand (SC) -with roots				11			
Very stiff, gray, brown and dark brown, SANDY LEAN CLAY (CL)		62.1	108	17	31	15	16
			113	15			
		52.2		13	33	16	17
				15			
Loose to dense, gray and brown, SILTY SAND (SM)	9			21			
	18	31.4		23	NP	NP	NP
	44			22			
	43			21			
	41			20			
Very stiff to hard, gray, brown and reddish brown, FAT CLAY (CH) -disturbed sample 20'-22'	8	96.3		41	72	34	38
			109	27			
				27	64	31	33
Very stiff to hard, gray and brown, LEAN CLAY WITH SAND (CL)		84.0		14	46	18	28
			117	16			
				16			
-with calcareous nodules 32'-38'				19			
				17			
				12			
Hard, light gray and brown, SILTY CLAY WITH SAND (CL-ML) - with calcareous nodules 38'-42'	40	75.9		19	23	16	7
	35			21			
Loose to very dense, brown and reddish brown, CLAYEY SAND (SC)	6	22.0		26			
	66			24			
-with gravel 46'-48'	81			19			
	61	39.3		20	37	20	17

DEPTH TO WATER IN BORING:
∇ FREE WATER DURING DRILLING: 10.9 FT; AFTER 10 MIN. AT 10.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 3

COH HG2110495.1.GPJ 1/13/25



PAGE 2 OF 2

LOG OF BORING DB-3 (PZ-01)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 6+74.74
OFFSET: 622.68' LT
SURFACE ELEVATION: 80.53 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 11.7 FT
DATE: 8/20/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Hard, reddish brown, FAT CLAY (CH)		97.1		24	56	25	31
-with sand pockets				16			
Stiff to very stiff, reddish brown, LEAN CLAY (CL) -disturbed sample 56'-58'	27	94.9		21	29	19	10
				24			
Medium dense, reddish brown, SILT WITH SAND (ML)	30	81.5		29	NP	NP	NP
Very stiff, reddish brown, SILTY CLAY WITH SAND (CL-ML)	41			26	26	19	7
Hard, gray, brown and reddish brown, FAT CLAY (CH) -with calcareous nodules 64'-66'				19			
				22			
				24			
		99.3	97	26	68	25	43
				27			
				30			
				30			
		97.0		29	67	27	40
			93	31			
				30			
				32			

DEPTH TO WATER IN BORING:
∇ FREE WATER DURING DRILLING: 10.9 FT; AFTER 10 MIN. AT 10.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 3

COH HG2110495.1.GPJ 1/13/25

No.	Date	Revisions	App.

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
SUITE 400
HOUSTON, TX 77079
PH: 832.318.8800
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SURVEYED BY: UNITED ENGINEERS, INC.

DAVID G. GREANEY
125563
David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 1 OF 5

WBS NO. M-430296-0017-3
DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 340 OF 345

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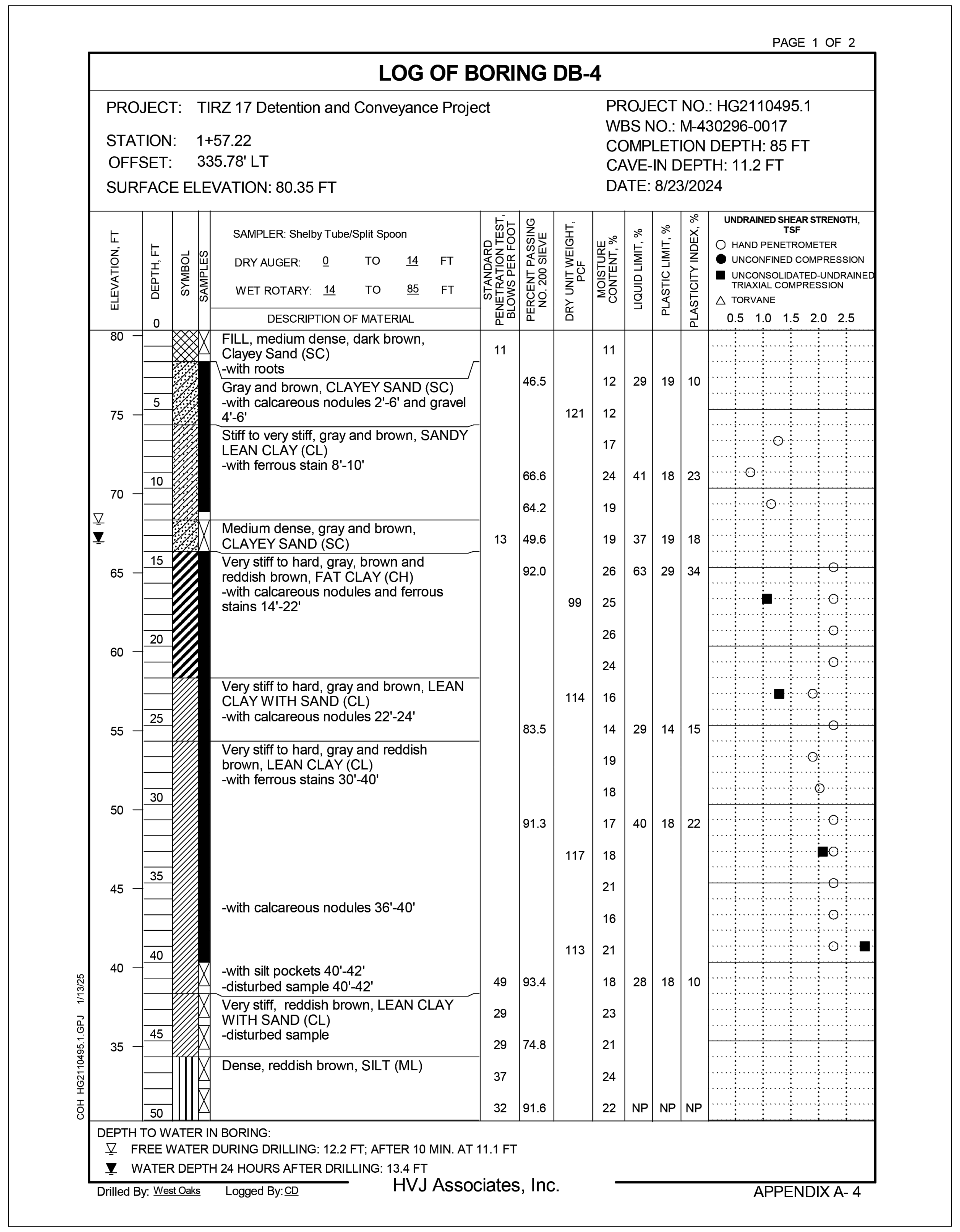


PAGE 1 OF 2

LOG OF BORING DB-4

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 1+57.22
OFFSET: 335.78' LT
SURFACE ELEVATION: 80.35 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 11.2 FT
DATE: 8/23/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

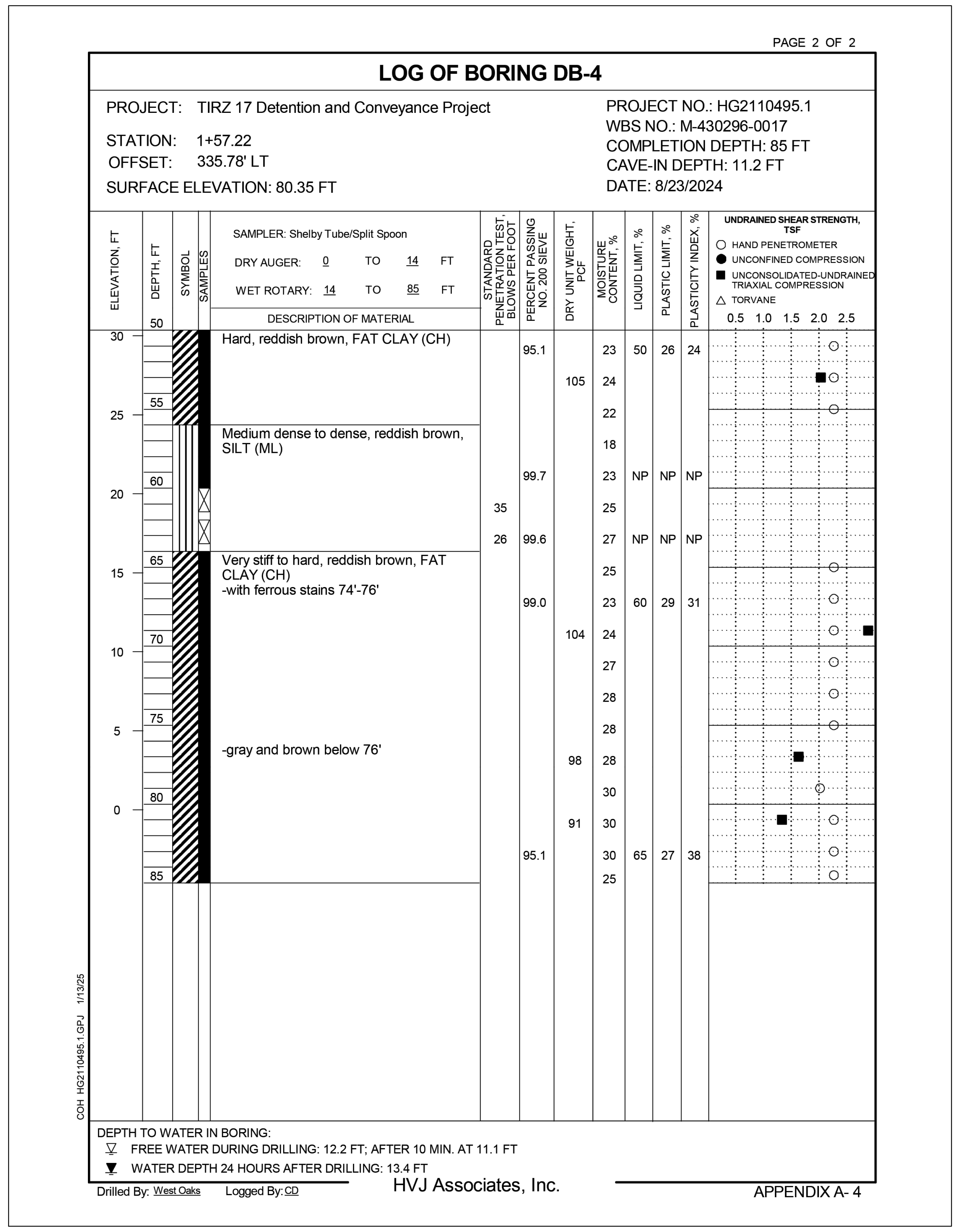
DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, medium dense, dark brown, Clayey Sand (SC) -with roots	11			11			
Gray and brown, CLAYEY SAND (SC) -with calcareous nodules 2'-6' and gravel 4'-6'		46.5		12	29	19	10
			121	12			
Stiff to very stiff, gray and brown, SANDY LEAN CLAY (CL) -with ferrous stain 8'-10'				17			
		66.6		24	41	18	23
		64.2		19			
Medium dense, gray and brown, CLAYEY SAND (SC)	13	49.6		19	37	19	18
Very stiff to hard, gray, brown and reddish brown, FAT CLAY (CH) -with calcareous nodules and ferrous stains 14'-22'		92.0		26	63	29	34
			99	25			
				26			
				24			
Very stiff to hard, gray and brown, LEAN CLAY WITH SAND (CL) -with calcareous nodules 22'-24'			114	16			
		83.5		14	29	14	15
Very stiff to hard, gray and reddish brown, LEAN CLAY (CL) -with ferrous stains 30'-40'				19			
				18			
		91.3		17	40	18	22
			117	18			
				21			
-with calcareous nodules 36'-40'				16			
			113	21			
-with silt pockets 40'-42' -disturbed sample 40'-42'	49	93.4		18	28	18	10
Very stiff, reddish brown, LEAN CLAY WITH SAND (CL) -disturbed sample	29			23			
	29	74.8		21			
Dense, reddish brown, SILT (ML)	37			24			
	32	91.6		22	NP	NP	NP

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 12.2 FT; AFTER 10 MIN. AT 11.1 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 13.4 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 4

COH HG2110495.1.GPJ 1/13/25

ELEVATION, FT
DEPTH, FT
SYMBOL
SAMPLES
0.5 1.0 1.5 2.0 2.5



PAGE 2 OF 2

LOG OF BORING DB-4

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 1+57.22
OFFSET: 335.78' LT
SURFACE ELEVATION: 80.35 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 11.2 FT
DATE: 8/23/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

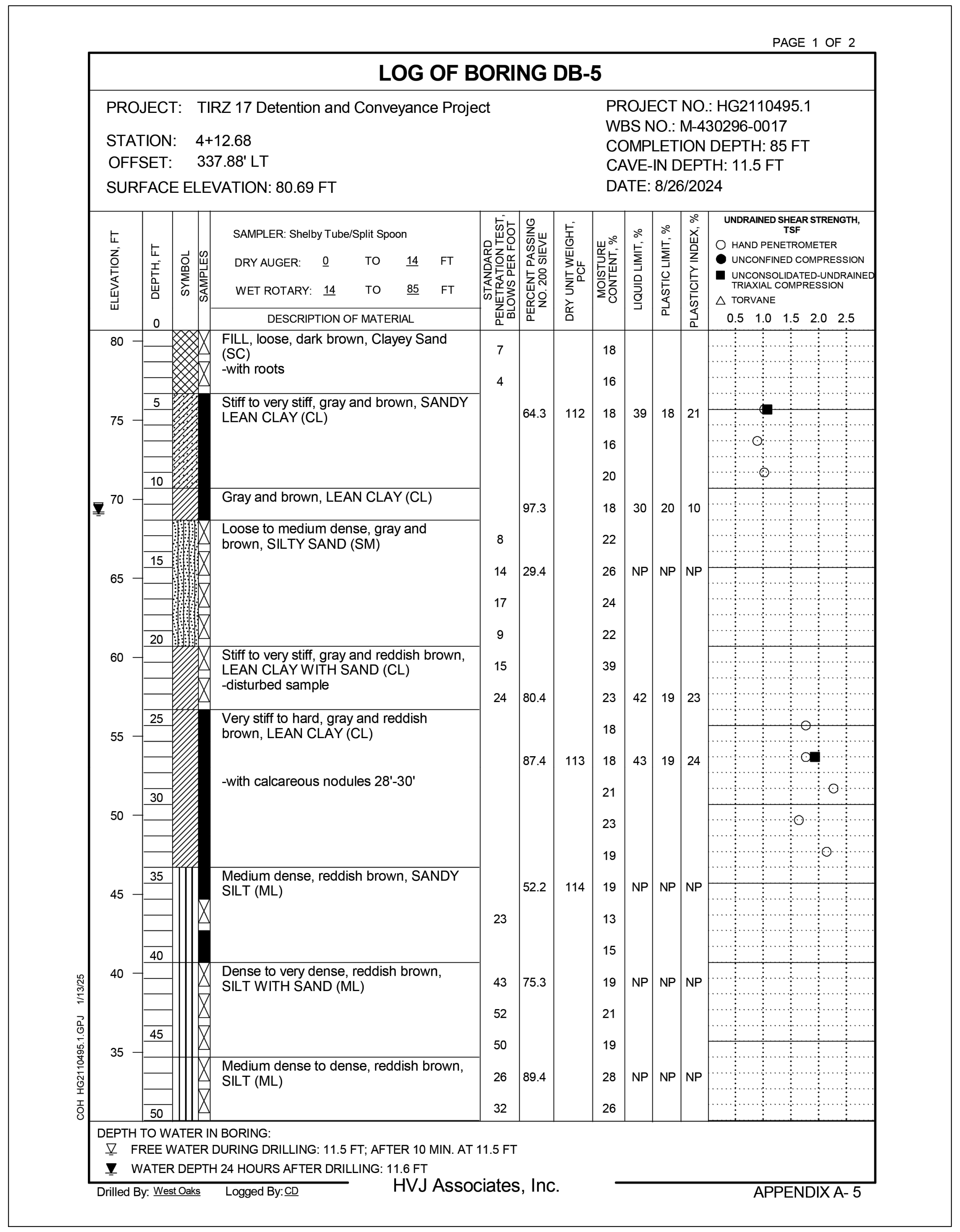
DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Hard, reddish brown, FAT CLAY (CH)		95.1		23	50	26	24
			105	24			
				22			
Medium dense to dense, reddish brown, SILT (ML)				18			
		99.7		23	NP	NP	NP
	35			25			
	26	99.6		27	NP	NP	NP
Very stiff to hard, reddish brown, FAT CLAY (CH) -with ferrous stains 74'-76'				25			
		99.0		23	60	29	31
			104	24			
				27			
				28			
				28			
-gray and brown below 76'			98	28			
				30			
			91	30			
		95.1		30	65	27	38
				25			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 12.2 FT; AFTER 10 MIN. AT 11.1 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 13.4 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 4

COH HG2110495.1.GPJ 1/13/25

ELEVATION, FT
DEPTH, FT
SYMBOL
SAMPLES
0.5 1.0 1.5 2.0 2.5



PAGE 1 OF 2

LOG OF BORING DB-5

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 4+12.68
OFFSET: 337.88' LT
SURFACE ELEVATION: 80.69 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 11.5 FT
DATE: 8/26/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

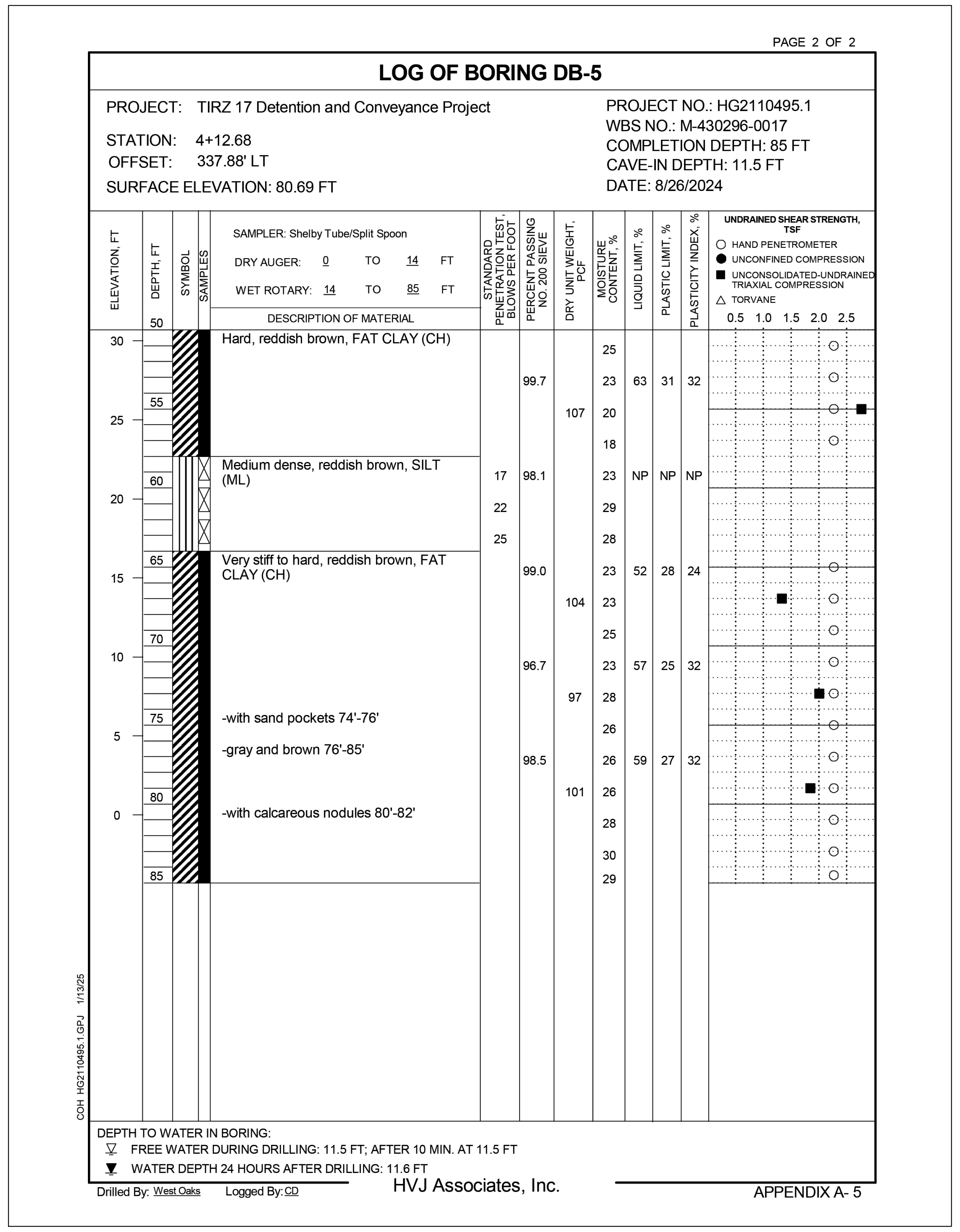
DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, loose, dark brown, Clayey Sand (SC) -with roots	7			18			
	4			16			
Stiff to very stiff, gray and brown, SANDY LEAN CLAY (CL)		64.3	112	18	39	18	21
				16			
				20			
Gray and brown, LEAN CLAY (CL)		97.3		18	30	20	10
Loose to medium dense, gray and brown, SILTY SAND (SM)	8			22			
	14	29.4		26	NP	NP	NP
	17			24			
	9			22			
Stiff to very stiff, gray and reddish brown, LEAN CLAY WITH SAND (CL) -disturbed sample	15			39			
	24	80.4		23	42	19	23
Very stiff to hard, gray and reddish brown, LEAN CLAY (CL)				18			
		87.4	113	18	43	19	24
-with calcareous nodules 28'-30'				21			
				23			
				19			
Medium dense, reddish brown, SANDY SILT (ML)		52.2	114	19	NP	NP	NP
	23			13			
				15			
Dense to very dense, reddish brown, SILT WITH SAND (ML)	43	75.3		19	NP	NP	NP
	52			21			
	50			19			
Medium dense to dense, reddish brown, SILT (ML)	26	89.4		28	NP	NP	NP
	32			26			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 11.5 FT; AFTER 10 MIN. AT 11.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.6 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 5

COH HG2110495.1.GPJ 1/13/25

ELEVATION, FT
DEPTH, FT
SYMBOL
SAMPLES
0.5 1.0 1.5 2.0 2.5



PAGE 2 OF 2

LOG OF BORING DB-5

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 4+12.68
OFFSET: 337.88' LT
SURFACE ELEVATION: 80.69 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 11.5 FT
DATE: 8/26/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

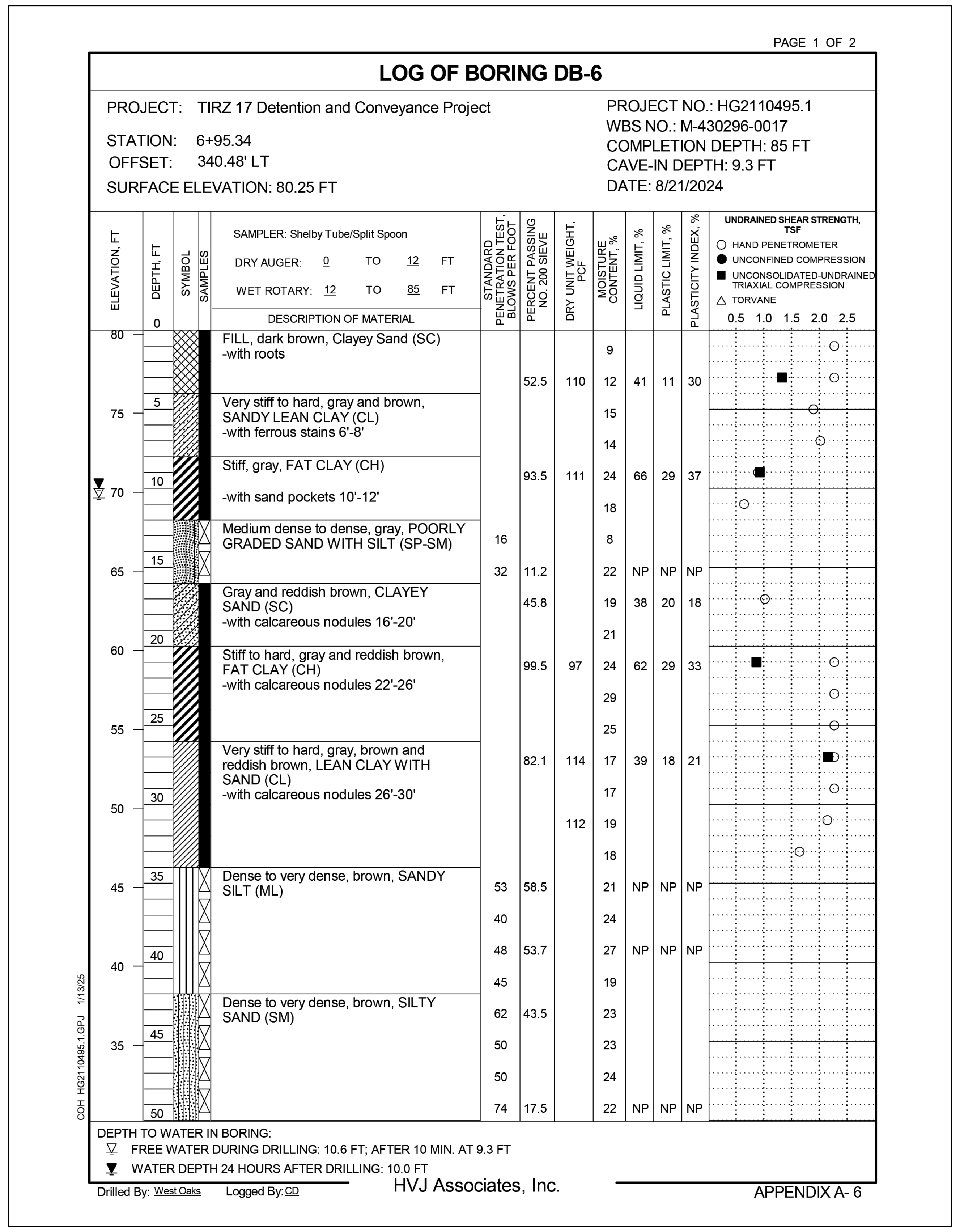
DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Hard, reddish brown, FAT CLAY (CH)				25			
		99.7		23	63	31	32
			107	20			
				18			
Medium dense, reddish brown, SILT (ML)	17	98.1		23	NP	NP	NP
	22			29			
	25			28			
Very stiff to hard, reddish brown, FAT CLAY (CH)		99.0		23	52	28	24
			104	23			
				25			
		96.7		23	57	25	32
			97	28			
-with sand pockets 74'-76'				26			
-gray and brown 76'-85'		98.5		26	59	27	32
			101	26			
-with calcareous nodules 80'-82'				28			
				30			
				29			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 11.5 FT; AFTER 10 MIN. AT 11.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 11.6 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 5

COH HG2110495.1.GPJ 1/13/25

ELEVATION, FT
DEPTH, FT
SYMBOL
SAMPLES
0.5 1.0 1.5 2.0 2.5



PAGE 1 OF 2

LOG OF BORING DB-6

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 6+95.34
OFFSET: 340.48' LT
SURFACE ELEVATION: 80.25 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 9.3 FT
DATE: 8/21/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

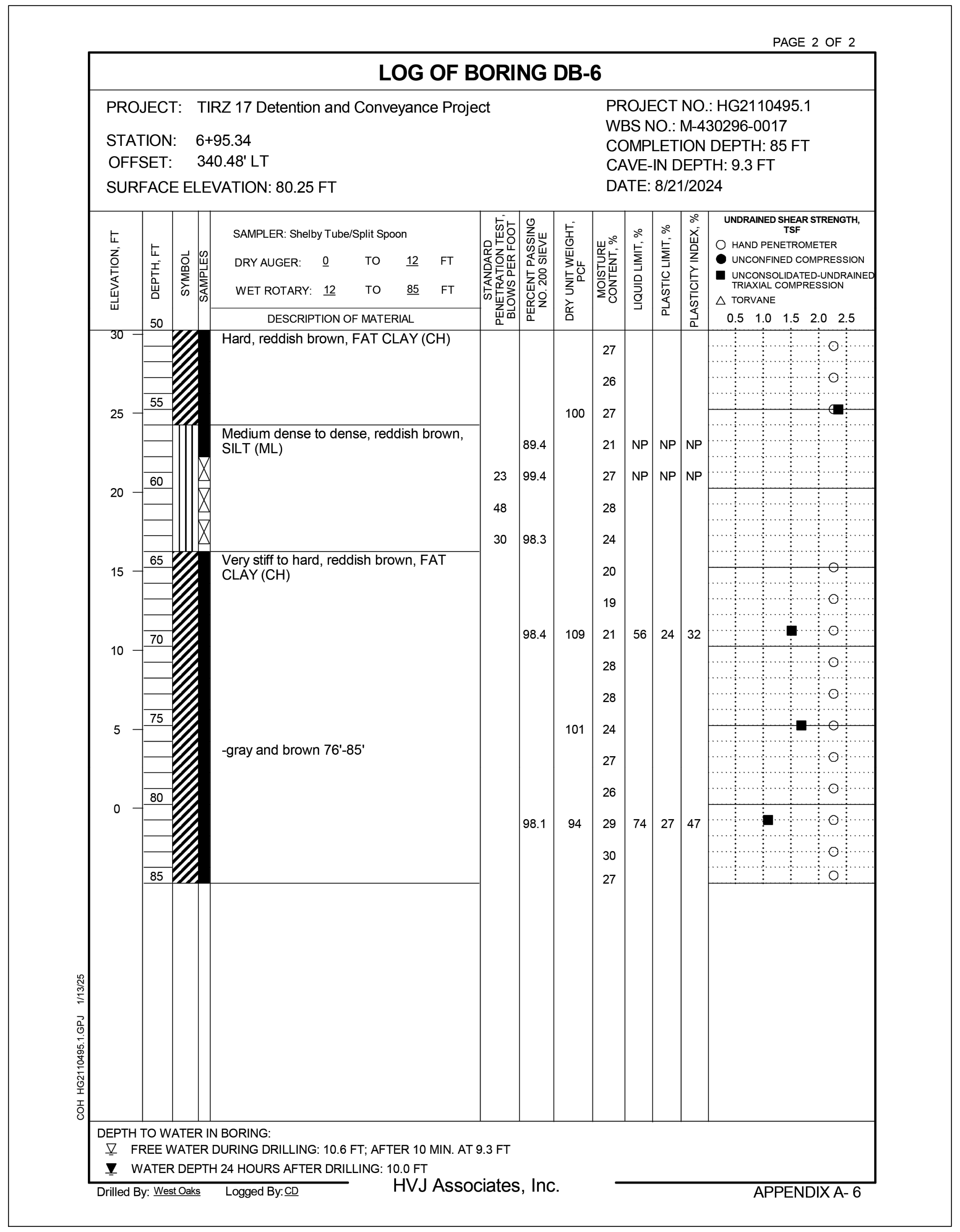
DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, dark brown, Clayey Sand (SC) -with roots				9			
		52.5	110	12	41	11	30
Very stiff to hard, gray and brown, SANDY LEAN CLAY (CL) -with ferrous stains 6'-8'				15			
				14			
Stiff, gray, FAT CLAY (CH)		93.5	111	24	66	29	37
-with sand pockets 10'-12'				18			
Medium dense to dense, gray, POORLY GRADED SAND WITH SILT (SP-SM)	16			8			
	32	11.2		22	NP	NP	NP
Gray and reddish brown, CLAYEY SAND (SC) -with calcareous nodules 16'-20'		45.8		19	38	20	18
				21			
Stiff to hard, gray and reddish brown, FAT CLAY (CH) -with calcareous nodules 22'-26'		99.5	97	24	62	29	33
				29			
				25			
Very stiff to hard, gray, brown and reddish brown, LEAN CLAY WITH SAND (CL) -with calcareous nodules 26'-30'		82.1	114	17	39	18	21
				17			
			112	19			
				18			
Dense to very dense, brown, SANDY SILT (ML)	53	58.5		21	NP	NP	NP
	40			24			
	48	53.7		27	NP	NP	NP
	45			19			
Dense to very dense, brown, SILTY SAND (SM)	62	43.5		23			
	50			23			
	50			24			
	74	17.5		22	NP	NP	NP

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.6 FT; AFTER 10 MIN. AT 9.3 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.0 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 6

COH HG2110495.1.GPJ 1/13/25

ELEVATION, FT
DEPTH, FT
SYMBOL
SAMPLES
0.5 1.0 1.5 2.0 2.5



PAGE 2 OF 2

LOG OF BORING DB-6

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 6+95.34
OFFSET: 340.48' LT
SURFACE ELEVATION: 80.25 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 9.3 FT
DATE: 8/21/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 12 FT
WET ROTARY: 12 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Hard, reddish brown, FAT CLAY (CH)				27			
				26			
			100	27			
Medium dense to dense, reddish brown, SILT (ML)		89.4		21	NP	NP	NP
	23	99.4		27	NP	NP	NP
	48			28			
	30	98.3		24			
Very stiff to hard, reddish brown, FAT CLAY (CH)				20			
				19			
		98.4	109	21	56	24	32
				28			
				28			
			101	24			
-gray and brown 76'-85'				27			
				26			
		98.1	94	29	74	27	47
				30			
				27			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.6 FT; AFTER 10 MIN. AT 9.3 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.0 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 6

COH HG2110495.1.GPJ 1/13/25

No.	Date	Revisions	App.

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SURVEYED BY: UNITED ENGINEERS, INC.

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125563
David G. Greaney
4/15/2026 HR Green
Texas Registered Engineering Firm F-11278

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 2 OF 5

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.

SHEET NO. 341 OF 345

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PAGE 1 OF 2

LOG OF BORING DB-7

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 1+60.09
OFFSET: 53.22' LT
SURFACE ELEVATION: 82.54 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 35 FT
DATE: 8/27/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 38 FT
WET ROTARY: 38 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, medium dense, dark brown, Clayey Sand (SC) -with roots and gravel	22			6			
	23	48.4		7	28	14	14
Medium dense, gray, brown and dark brown, CLAYEY SAND (SC)	18			10			
-with calcareous nodules 4'-10'		48.5	122	6	29	16	13
	19			10			
-with ferrous stains 10'-14'				35			
		38.4	113	16	27	17	10
Medium dense, gray, SILTY, CLAYEY SAND (SC-SM)	16	40.1		20	24	18	6
Stiff to hard, reddish brown, FAT CLAY (CH) -with calcareous nodules 18'-36' and ferrous stains 20'-36'	14	95.6		32			
				27			
		91.5	101	23	77	27	50
				15			
				16			
				17			
			109	21			
				21			
				21	65	26	39
				20			
Very stiff to hard, gray, brown and reddish brown, LEAN CLAY (CL) -with calcareous nodules and sand pockets -disturbed sample 38'-40'			112	20			
	46	86.2		22	27	18	9
Hard, reddish brown, FAT CLAY (CH) -with calcareous nodules				23			
		99.6	103	26	71	28	43
				21			
Dense to very dense, reddish brown, SILT (ML)	81			27			
	32	94.4		29	24	21	3

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 28.2 FT; AFTER 10 MIN. AT 23.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 17.7 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 7

COH HG2110495.1.GPJ 1/13/25

PAGE 2 OF 2

LOG OF BORING DB-7

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 1+60.09
OFFSET: 53.22' LT
SURFACE ELEVATION: 82.54 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 35 FT
DATE: 8/27/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 38 FT
WET ROTARY: 38 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	19			27			
Very stiff to hard, reddish brown, FAT CLAY (CH)				24			
		89.7	104	22	57	26	31
-with calcareous nodules 56'-58'				24			
Hard, reddish brown, SILTY CLAY WITH SAND (CL-ML)	81	76.7		17	22	15	7
Dense, reddish brown, SILT (ML)	32			25			
	34			23	23	16	7
	32			26			
Very stiff to hard, reddish brown, FAT CLAY (CH)	25	99.1		25	56	25	31
				24			
				24			
		99.5	100	25	66	26	40
				29			
				26			
				26			
-gray below 80'				27			
		99.1	93	30	80	32	48
				27			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 28.2 FT; AFTER 10 MIN. AT 23.4 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 17.7 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 7

COH HG2110495.1.GPJ 1/13/25

PAGE 1 OF 2

LOG OF BORING DB-8 (PZ-02)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 4+32.13
OFFSET: 55.18' LT
SURFACE ELEVATION: 80.53 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 12.3 FT
DATE: 8/28/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, loose, dark brown, Clayey Sand (SC) -with roots	8			10			
	10			15			
Very stiff, gray and brown, SANDY LEAN CLAY (CL) -with ferrous stains 6'-10'		58.4	114	15	31	19	12
				16			
		70.0	111	20	32	16	16
				22			
Stiff, gray, FAT CLAY (CH)	8	95.4		24			
Medium dense, gray, SILTY SAND (SM)	13	22.6		25	NP	NP	NP
	21			26			
	23			23			
Very stiff to hard, gray and reddish brown, LEAN CLAY (CL) -with ferrous stains 20'-24'				20			
		90.8	117	18	44	21	23
-with calcareous nodules 24'-32'				17			
				17			
				17			
			107	21			
				20			
-with silt pockets 34'-38' -disturbed sample 34'-38'	28	95.0		24	28	19	9
	23			21			
Very stiff to hard, gray and reddish brown, FAT CLAY (CH) -with calcareous nodules and ferrous stains 40'-44'				27			
		98.6	104	18	58	25	33
				25			
Very stiff to hard, reddish brown, LEAN CLAY WITH SAND (CL) -with sand pockets -disturbed sample	43	82.4		23	26	17	9
	25			29			
	25			27			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.6 FT; AFTER 10 MIN. AT 10.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 8

COH HG2110495.1.GPJ 1/13/25

PAGE 2 OF 2

LOG OF BORING DB-8 (PZ-02)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 4+32.13
OFFSET: 55.18' LT
SURFACE ELEVATION: 80.53 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 12.3 FT
DATE: 8/28/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 14 FT
WET ROTARY: 14 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Very stiff to hard, reddish brown, FAT CLAY (CH)		99.9	97	26	61	27	34
				25			
				20			
				21			
Very stiff, reddish brown, LEAN CLAY (CL) -with silt pockets -disturbed sample 60'-64'			109	19			
	16	87.5		27	29	16	13
	26			25			
Very stiff to hard, gray, brown and reddish brown, FAT CLAY (CH) -with calcareous nodules 66'-70'				24			
				23			
		98.6	104	24	61	26	35
-with ferrous stains 70'-76'				27			
				26			
				25			
				27			
		98.7	96	28	65	27	38
-with calcareous nodules 80'-82'				30			
				32			
				24			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 10.6 FT; AFTER 10 MIN. AT 10.5 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.6 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 8

COH HG2110495.1.GPJ 1/13/25

PAGE 1 OF 2

LOG OF BORING DB-9

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 7+05.82
OFFSET: 57.28' LT
SURFACE ELEVATION: 79.45 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 17.2 FT
DATE: 8/29/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 18 FT
WET ROTARY: 18 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
FILL, dark brown, medium dense, Clayey Sand (SC) -with roots	17			8			
				9			
Very stiff to hard, gray and dark brown, SANDY SILTY CLAY (CL-ML) -with and calcareous nodules		55.9	120	10	26	19	7
Stiff to very stiff, gray and brown, LEAN CLAY WITH SAND (CL) -with calcareous nodules and ferrous stains				18			
		74.8	110	18	35	17	18
Loose to medium dense, gray and reddish brown, SILT (ML)	12	86.7		20	NP	NP	NP
	7			38			
Very stiff to hard, reddish brown, LEAN CLAY (CL) -with ferrous stains 14'-28'and calcareous nodules 14'-28'				26			
		99.6	105	20	47	25	22
				19			
-gray and brown 20'-28'				18			
				17			
				14			
		86.0	114	18	43	22	21
Medium dense, gray and reddish brown, SILT (ML) -with calcareous nodules 28'-30'	19			22			
				20			
		93.6	112	20	NP	NP	NP
	23			26			
Hard, reddish brown, LEAN CLAY (CL) -with ferrous stains 36'-42' and calcareous nodules 38'-40'				27			
			101	27			
		99.8		23	43	22	21
				20			
Dense, reddish brown, SILT (ML)	35	94.2		29	NP	NP	NP
	36			24			
Very stiff to hard, reddish brown, LEAN CLAY (CL)				21			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 17.1 FT; AFTER 10 MIN. AT 17.1 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.4 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 9

COH HG2110495.1.GPJ 1/13/25

PAGE 2 OF 2

LOG OF BORING DB-9

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 7+05.82
OFFSET: 57.28' LT
SURFACE ELEVATION: 79.45 FT
PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 85 FT
CAVE-IN DEPTH: 17.2 FT
DATE: 8/29/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 18 FT
WET ROTARY: 18 TO 85 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Very stiff to hard, reddish brown, LEAN CLAY (CL) [Continued...]				25			
			103	22			
		99.3	106	23	43	25	18
				20			
Dense, reddish brown, SILT (ML)				22			
	35	99.7		27	NP	NP	NP
Very stiff to hard, reddish brown, LEAN CLAY (CL)	35			19			
		99.6	110	20	41	24	17
				22			
				26			
				21			
			95	27			
				30			
Very stiff to hard, gray and brown, FAT CLAY (CH)				28			
				32	73	22	51
		97.2	91	22	62	29	33
				26			
				25			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 17.1 FT; AFTER 10 MIN. AT 17.1 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.4 FT

Drilled By: West Oaks Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 9

COH HG2110495.1.GPJ 1/13/25

No. Date Revisions Apd.

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David G. Greaney
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 3 OF 5

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 342 OF 345

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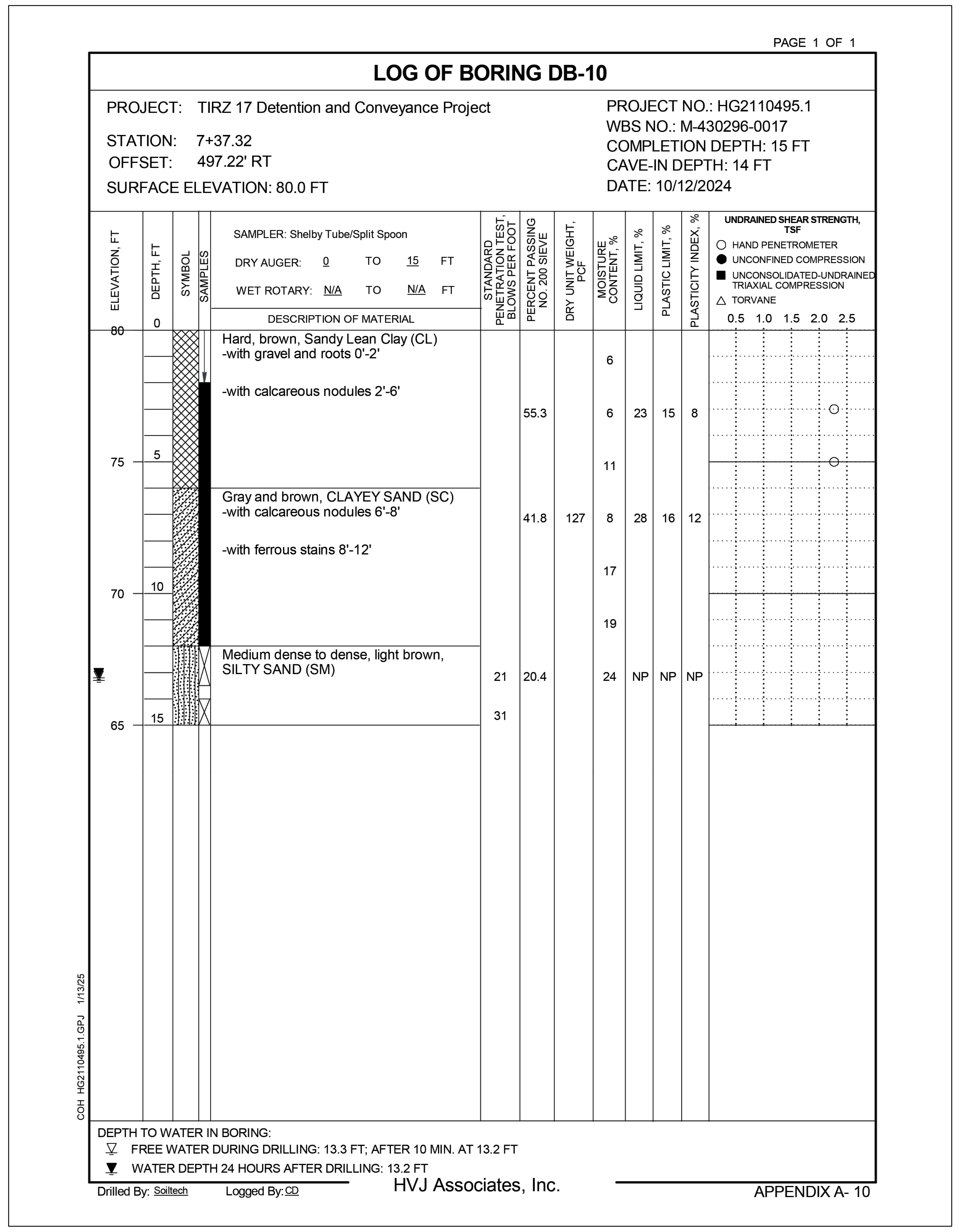


PAGE 1 OF 1

LOG OF BORING DB-10

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 7+37.32
OFFSET: 497.22' RT
SURFACE ELEVATION: 80.0 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 15 FT
CAVE-IN DEPTH: 14 FT
DATE: 10/12/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 15 FT
WET ROTARY: N/A TO N/A FT

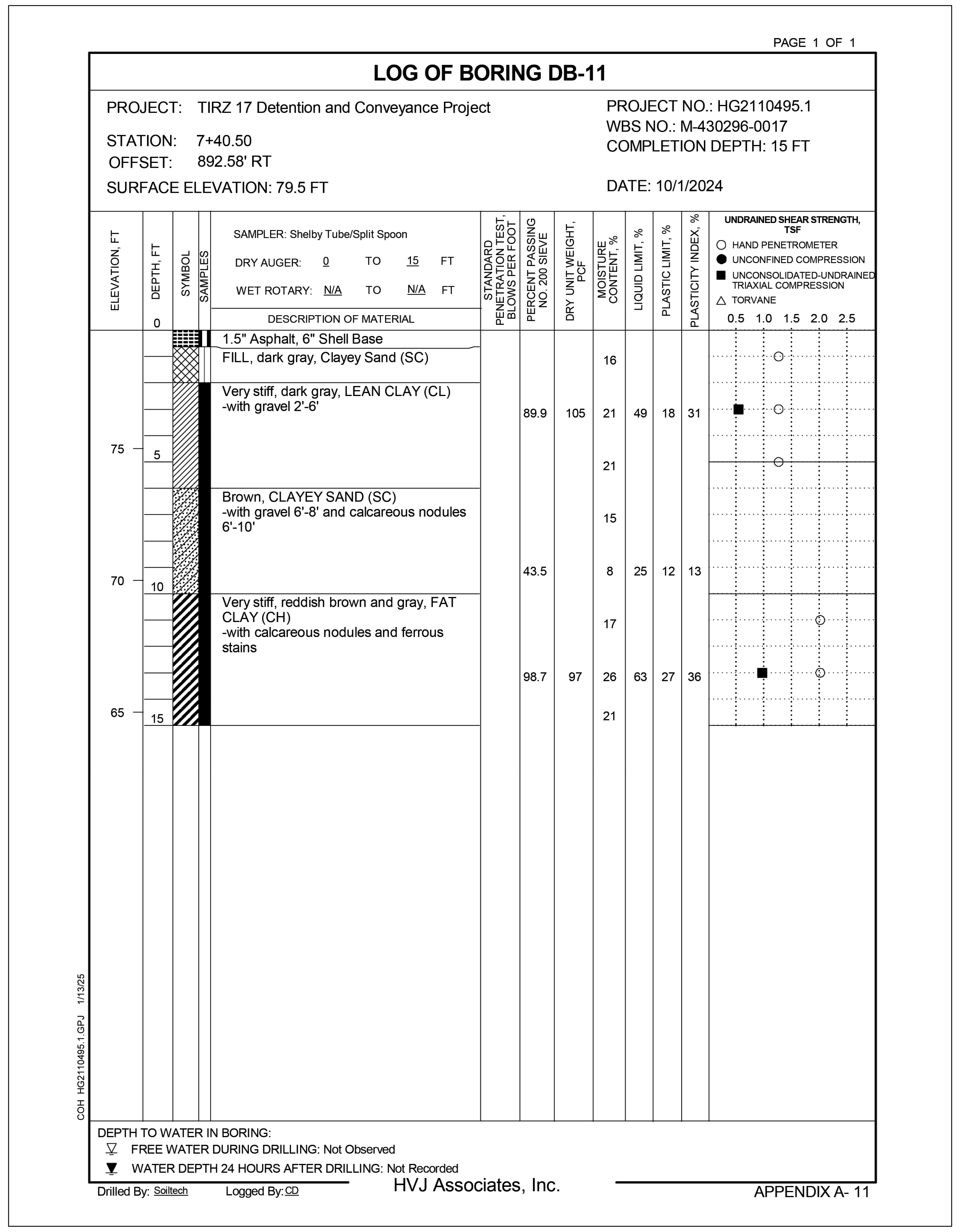
UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

ELEVATION, FT	DEPTH, FT	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
80	0	Hard, brown, Sandy Lean Clay (CL) -with gravel and roots 0'-2'				6			
		-with calcareous nodules 2'-6'		55.3		6	23	15	8
75	5					11			
		Gray and brown, CLAYEY SAND (SC) -with calcareous nodules 6'-8'		41.8	127	8	28	16	12
		-with ferrous stains 8'-12'				17			
70	10					19			
		Medium dense to dense, light brown, SILTY SAND (SM)	21	20.4		24	NP	NP	NP
65	15		31						

COH HG2110495.1.GPJ 1/13/25

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 13.3 FT; AFTER 10 MIN. AT 13.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 13.2 FT

Drilled By: Soiltech Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 10



PAGE 1 OF 1

LOG OF BORING DB-11

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 7+40.50
OFFSET: 892.58' RT
SURFACE ELEVATION: 79.5 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 15 FT
DATE: 10/1/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 15 FT
WET ROTARY: N/A TO N/A FT

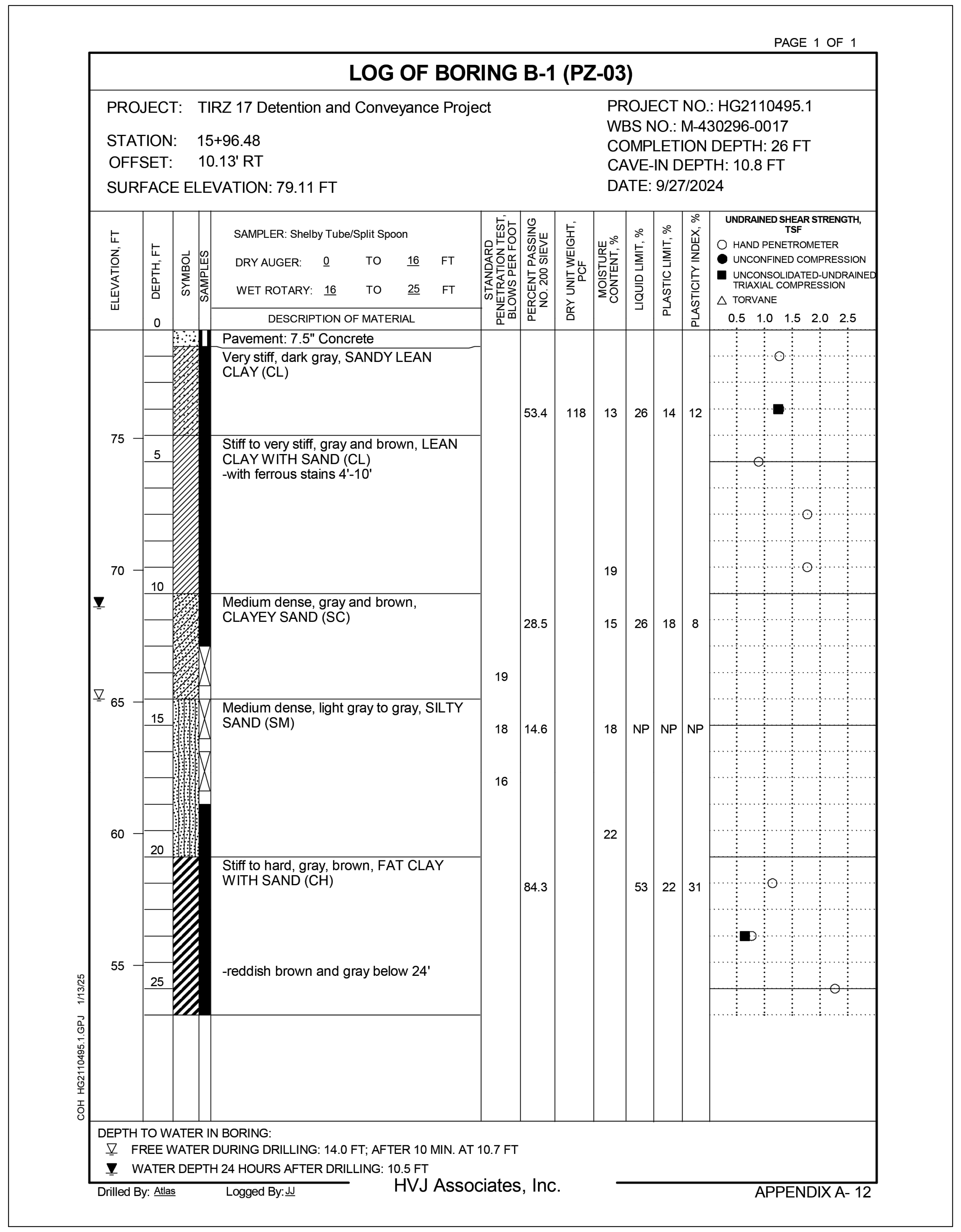
UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

ELEVATION, FT	DEPTH, FT	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0	1.5" Asphalt, 6" Shell Base							
		FILL, dark gray, Clayey Sand (SC)				16			
		Very stiff, dark gray, LEAN CLAY (CL) -with gravel 2'-6'		89.9	105	21	49	18	31
75	5					21			
		Brown, CLAYEY SAND (SC) -with gravel 6'-8' and calcareous nodules 6'-10'				15			
				43.5		8	25	12	13
70	10	Very stiff, reddish brown and gray, FAT CLAY (CH) -with calcareous nodules and ferrous stains				17			
				98.7	97	26	63	27	36
65	15					21			

COH HG2110495.1.GPJ 1/13/25

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: Not Observed
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Soiltech Logged By: CD
HVJ Associates, Inc.
APPENDIX A- 11



PAGE 1 OF 1

LOG OF BORING B-1 (PZ-03)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 15+96.48
OFFSET: 10.13' RT
SURFACE ELEVATION: 79.11 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 10.8 FT
DATE: 9/27/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 16 FT
WET ROTARY: 16 TO 25 FT

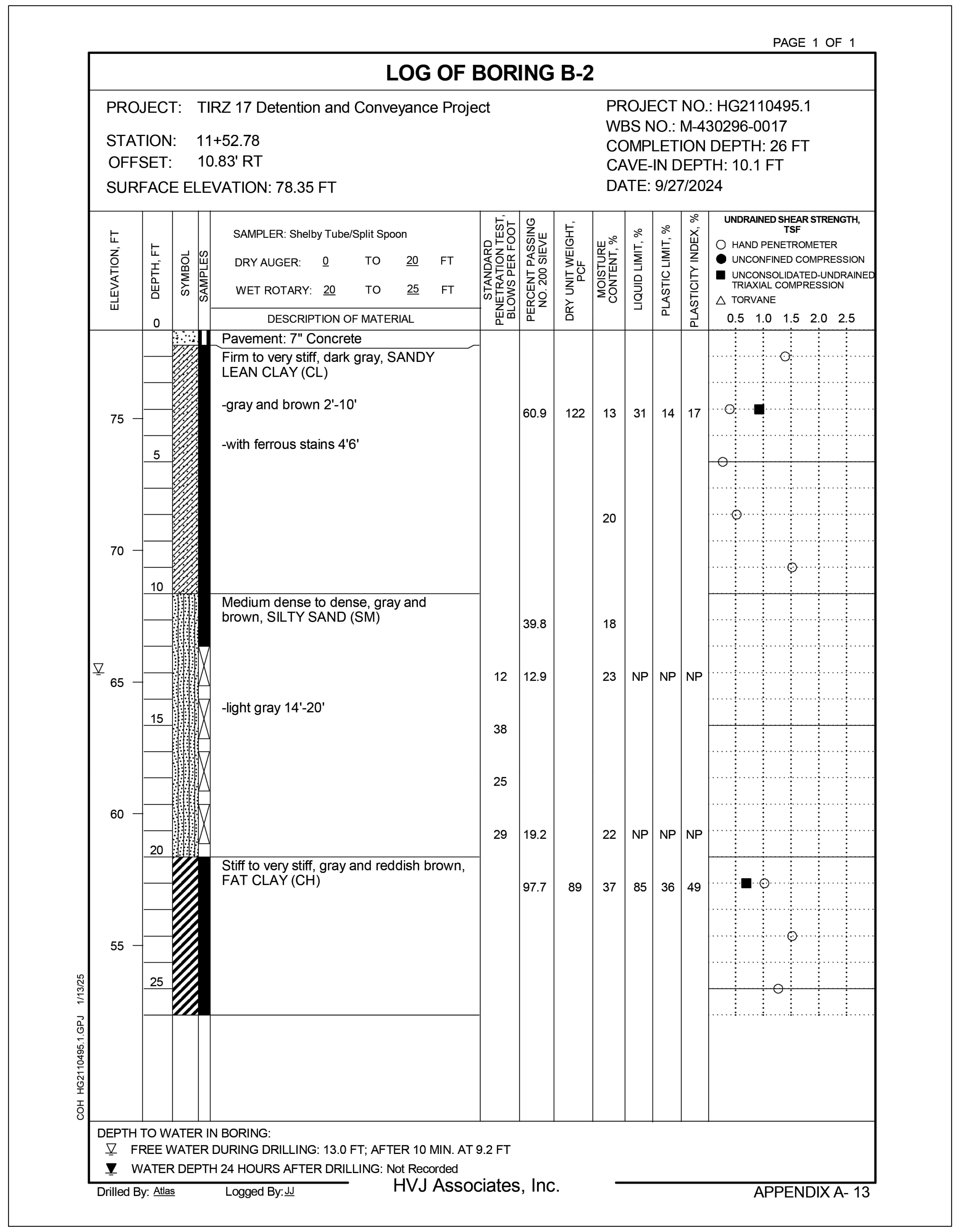
UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

ELEVATION, FT	DEPTH, FT	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0	Pavement: 7.5" Concrete							
		Very stiff, dark gray, SANDY LEAN CLAY (CL)		53.4	118	13	26	14	12
75	5	Stiff to very stiff, gray and brown, LEAN CLAY WITH SAND (CL) -with ferrous stains 4'-10'							
70	10					19			
		Medium dense, gray and brown, CLAYEY SAND (SC)		28.5		15	26	18	8
			19						
65	15	Medium dense, light gray to gray, SILTY SAND (SM)	18	14.6		18	NP	NP	NP
			16						
60	20					22			
		Stiff to hard, gray, brown, FAT CLAY WITH SAND (CH)		84.3			53	22	31
55	25	-reddish brown and gray below 24'							

COH HG2110495.1.GPJ 1/13/25

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 14.0 FT; AFTER 10 MIN. AT 10.7 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 10.5 FT

Drilled By: Atlas Logged By: JJ
HVJ Associates, Inc.
APPENDIX A- 12



PAGE 1 OF 1

LOG OF BORING B-2

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 11+52.78
OFFSET: 10.83' RT
SURFACE ELEVATION: 78.35 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 10.1 FT
DATE: 9/27/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 20 FT
WET ROTARY: 20 TO 25 FT

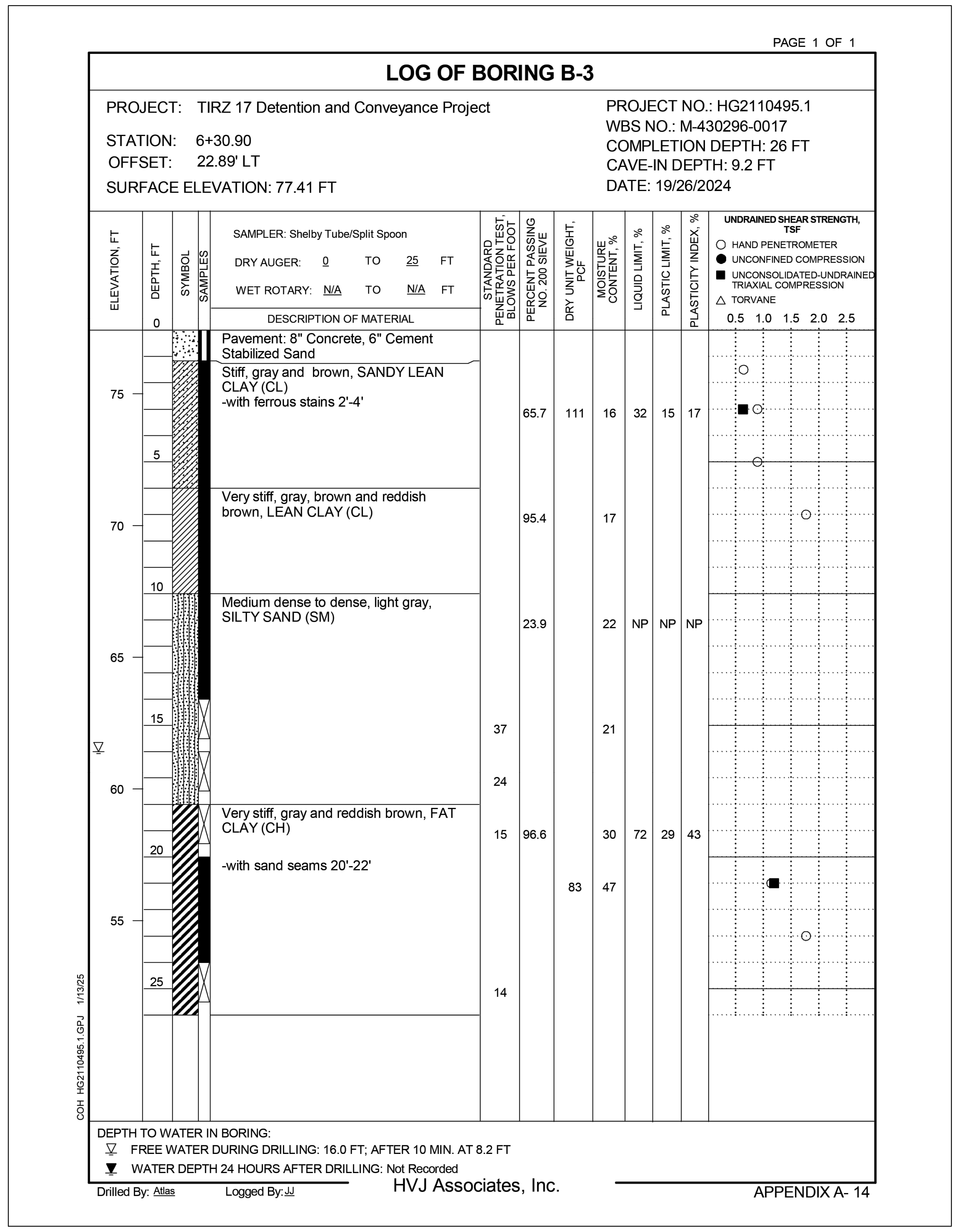
UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

ELEVATION, FT	DEPTH, FT	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0	Pavement: 7" Concrete							
		Firm to very stiff, dark gray, SANDY LEAN CLAY (CL)							
75		-gray and brown 2'-10'		60.9	122	13	31	14	17
	5	-with ferrous stains 4'6'							
						20			
70	10								
		Medium dense to dense, gray and brown, SILTY SAND (SM)		39.8		18			
65			12	12.9		23	NP	NP	NP
	15	-light gray 14'-20'	38						
			25						
60	20		29	19.2		22	NP	NP	NP
		Stiff to very stiff, gray and reddish brown, FAT CLAY (CH)		97.7	89	37	85	36	49
55	25								

COH HG2110495.1.GPJ 1/13/25

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 13.0 FT; AFTER 10 MIN. AT 9.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ
HVJ Associates, Inc.
APPENDIX A- 13



PAGE 1 OF 1

LOG OF BORING B-3

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 6+30.90
OFFSET: 22.89' LT
SURFACE ELEVATION: 77.41 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 9.2 FT
DATE: 19/26/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 25 FT
WET ROTARY: N/A TO N/A FT

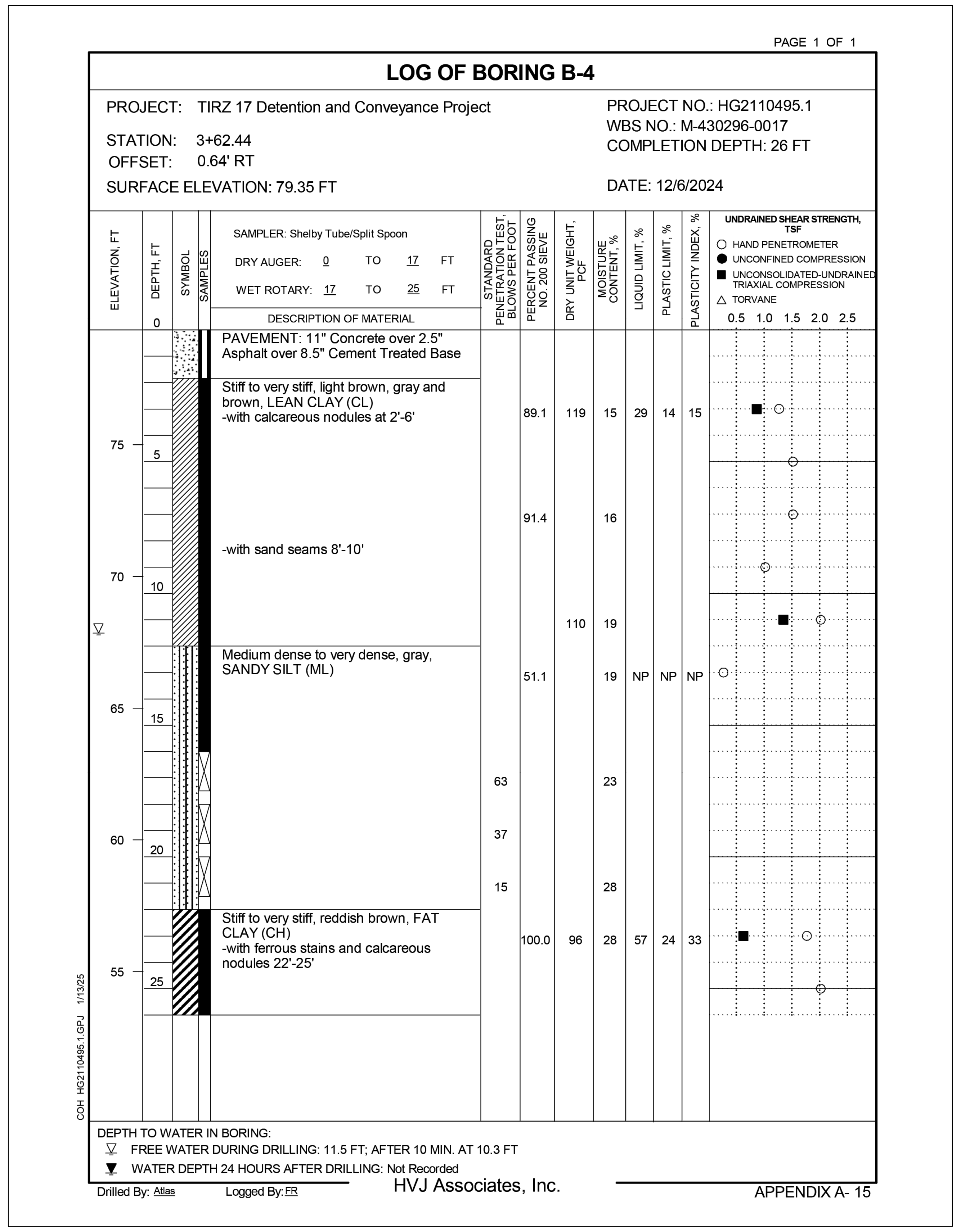
UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

ELEVATION, FT	DEPTH, FT	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0	Pavement: 8" Concrete, 6" Cement Stabilized Sand							
75		Stiff, gray and brown, SANDY LEAN CLAY (CL) -with ferrous stains 2'-4'		65.7	111	16	32	15	17
	5								
70		Very stiff, gray, brown and reddish brown, LEAN CLAY (CL)		95.4		17			
	10								
		Medium dense to dense, light gray, SILTY SAND (SM)		23.9		22	NP	NP	NP
65									
	15		37			21			
60			24						
		Very stiff, gray and reddish brown, FAT CLAY (CH)	15	96.6		30	72	29	43
	20	-with sand seams 20'-22'			83	47			
55									
	25		14						

COH HG2110495.1.GPJ 1/13/25

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 16.0 FT; AFTER 10 MIN. AT 8.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ
HVJ Associates, Inc.
APPENDIX A- 14



PAGE 1 OF 1

LOG OF BORING B-4

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 3+62.44
OFFSET: 0.64' RT
SURFACE ELEVATION: 79.35 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
DATE: 12/6/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 17 FT
WET ROTARY: 17 TO 25 FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE
0.5 1.0 1.5 2.0 2.5

ELEVATION, FT	DEPTH, FT	DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
	0	PAVEMENT: 11" Concrete over 2.5" Asphalt over 8.5" Cement Treated Base							
		Stiff to very stiff, light brown, gray and brown, LEAN CLAY (CL) -with calcareous nodules at 2'-6'		89.1	119	15	29	14	15
75	5								
				91.4		16			
		-with sand seams 8'-10'							
70	10								
					110	19			
		Medium dense to very dense, gray, SANDY SILT (ML)		51.1		19	NP	NP	NP
65	15								
			63			23			
60	20		37						
			15			28			
		Stiff to very stiff, reddish brown, FAT CLAY (CH) -with ferrous stains and calcareous nodules 22'-25'		100.0	96	28	57	24	33
55	25								

COH HG2110495.1.GPJ 1/13/25

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 11.5 FT; AFTER 10 MIN. AT 10.3 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: FR
HVJ Associates, Inc.
APPENDIX A- 15

No.	Date	Revisions	App.

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PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 4 OF 5

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 343 OF 345

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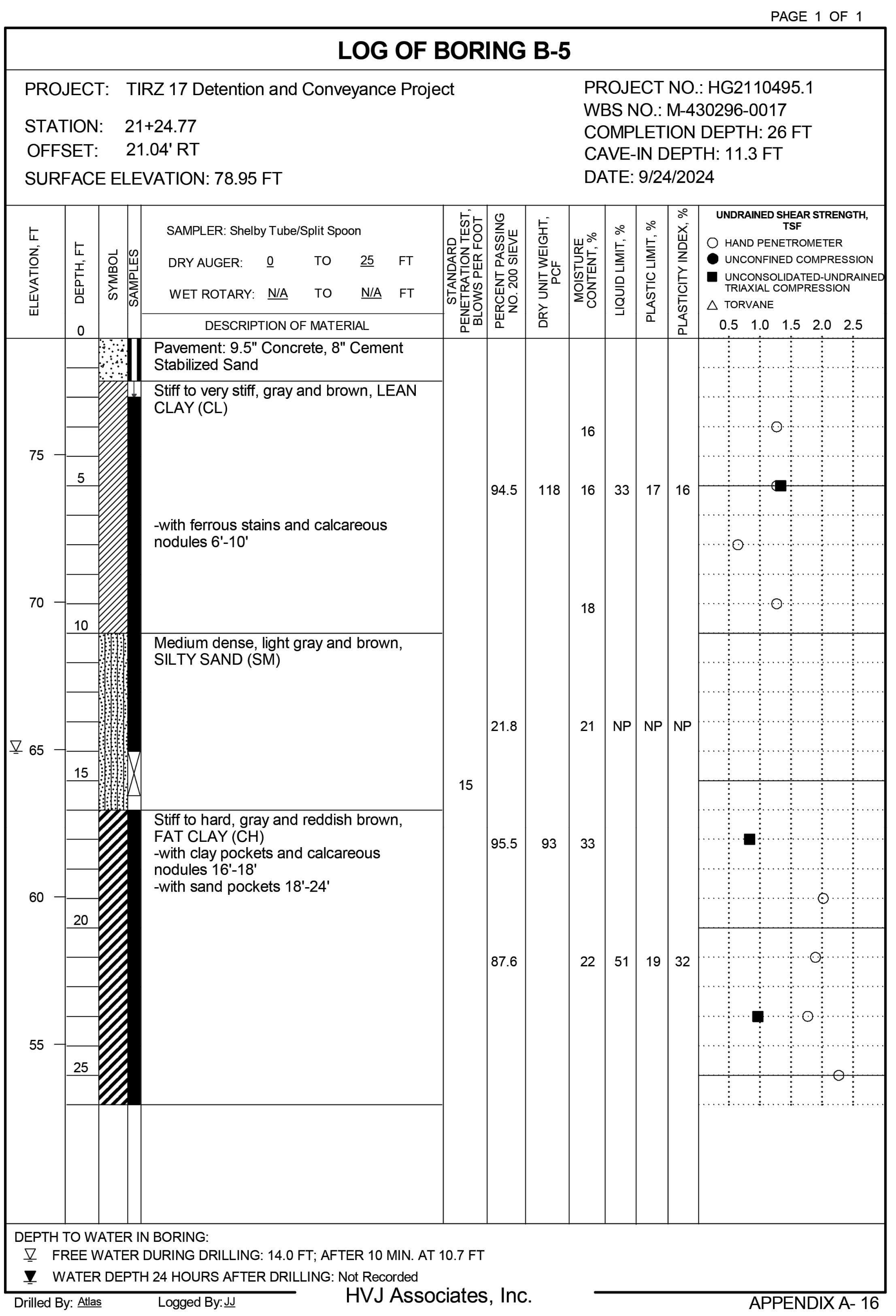
No.
Date
Revisions
App.



PAGE 1 OF 1

LOG OF BORING B-5

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 21+24.77
OFFSET: 21.04' RT
SURFACE ELEVATION: 78.95 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 11.3 FT
DATE: 9/24/2024

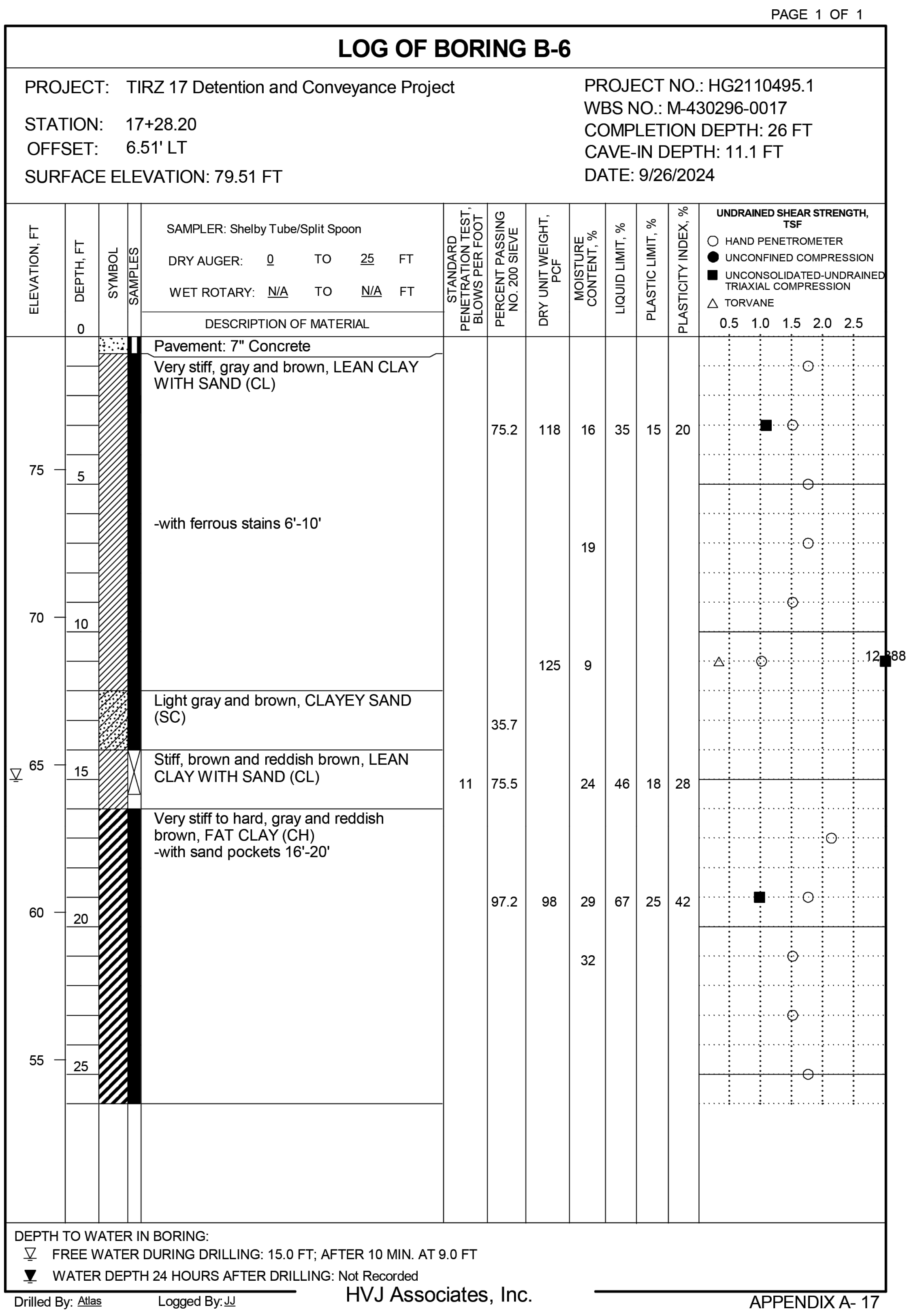
SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 25 FT
WET ROTARY: N/A TO N/A FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Pavement: 9.5" Concrete, 8" Cement Stabilized Sand							
Stiff to very stiff, gray and brown, LEAN CLAY (CL)				16			
		94.5	118	16	33	17	16
-with ferrous stains and calcareous nodules 6'-10'							
				18			
Medium dense, light gray and brown, SILTY SAND (SM)							
		21.8		21	NP	NP	NP
	15						
Stiff to hard, gray and reddish brown, FAT CLAY (CH) -with clay pockets and calcareous nodules 16'-18' -with sand pockets 18'-24'		95.5	93	33			
		87.6		22	51	19	32

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 14.0 FT; AFTER 10 MIN. AT 10.7 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ HVJ Associates, Inc. APPENDIX A- 16



PAGE 1 OF 1

LOG OF BORING B-6

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 17+28.20
OFFSET: 6.51' LT
SURFACE ELEVATION: 79.51 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 11.1 FT
DATE: 9/26/2024

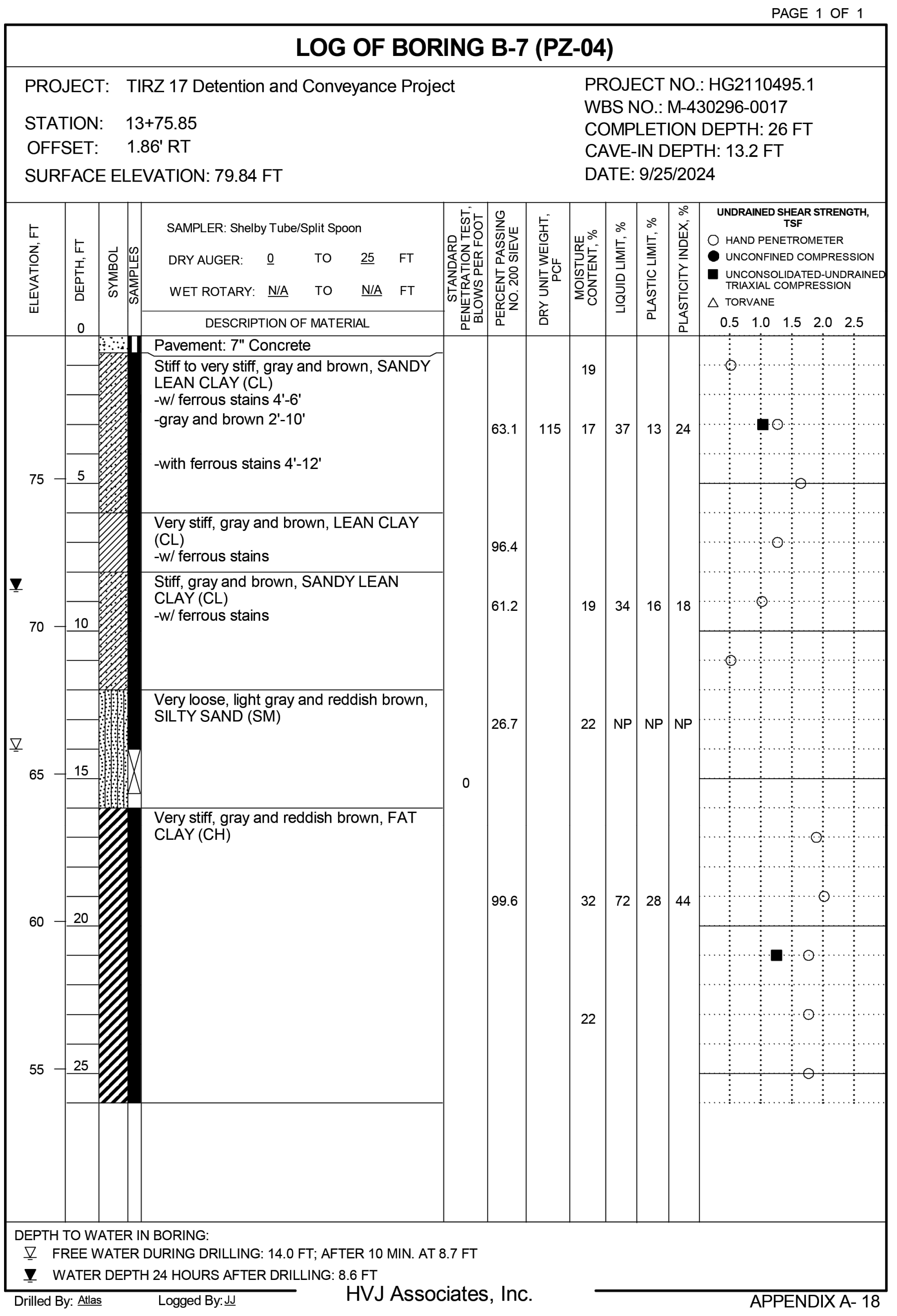
SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 25 FT
WET ROTARY: N/A TO N/A FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Pavement: 7" Concrete							
Very stiff, gray and brown, LEAN CLAY WITH SAND (CL)							
		75.2	118	16	35	15	20
-with ferrous stains 6'-10'							
				19			
			125	9			
Light gray and brown, CLAYEY SAND (SC)		35.7					
Stiff, brown and reddish brown, LEAN CLAY WITH SAND (CL)	11	75.5		24	46	18	28
Very stiff to hard, gray and reddish brown, FAT CLAY (CH) -with sand pockets 16'-20'							
		97.2	98	29	67	25	42
				32			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 15.0 FT; AFTER 10 MIN. AT 9.0 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ HVJ Associates, Inc. APPENDIX A- 17



PAGE 1 OF 1

LOG OF BORING B-7 (PZ-04)

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 13+75.85
OFFSET: 1.86' RT
SURFACE ELEVATION: 79.84 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 13.2 FT
DATE: 9/25/2024

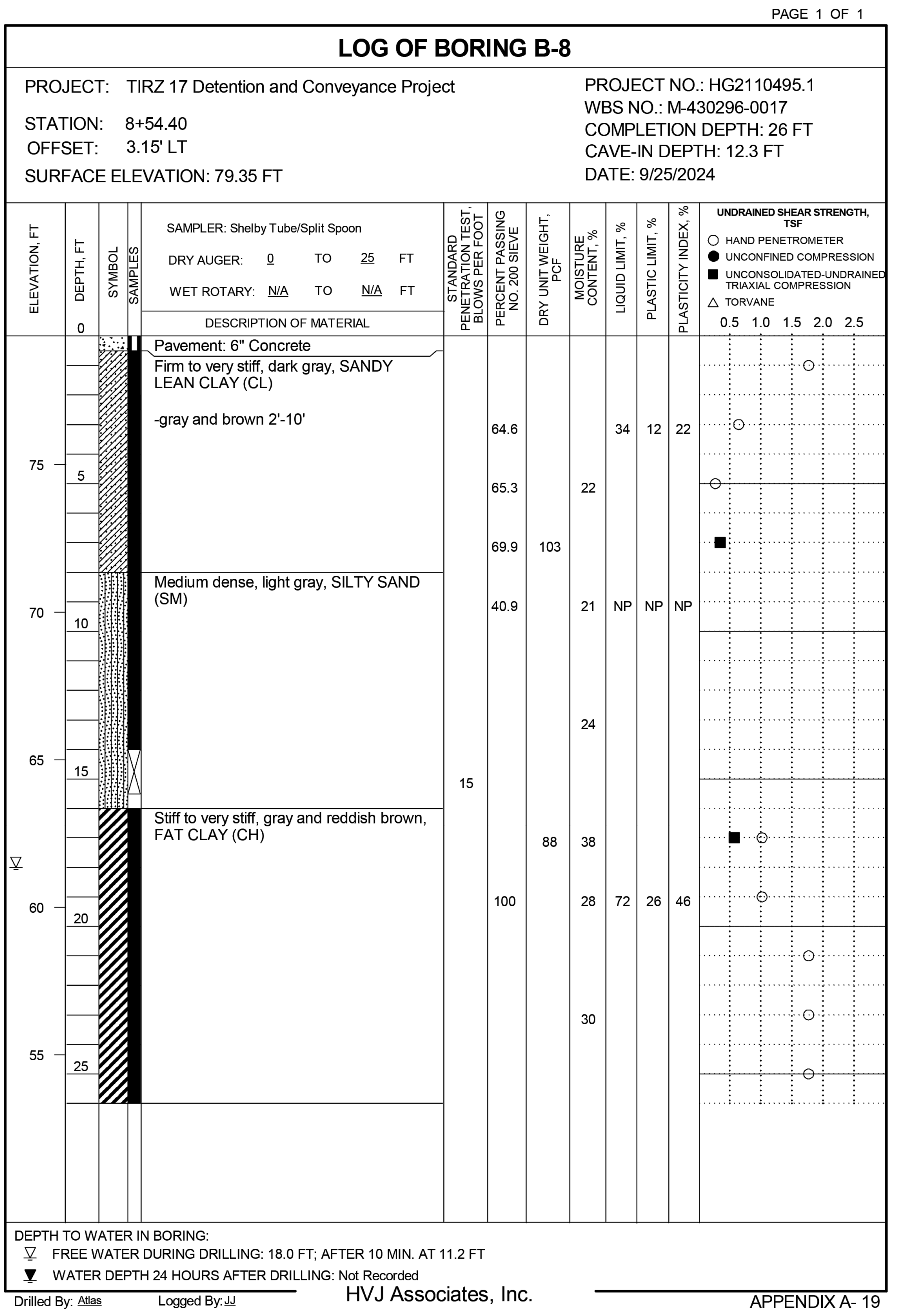
SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 25 FT
WET ROTARY: N/A TO N/A FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Pavement: 7" Concrete							
Stiff to very stiff, gray and brown, SANDY LEAN CLAY (CL) -w/ ferrous stains 4'-6' -gray and brown 2'-10'				19			
		63.1	115	17	37	13	24
-with ferrous stains 4'-12'							
Very stiff, gray and brown, LEAN CLAY (CL) -w/ ferrous stains		96.4					
Stiff, gray and brown, SANDY LEAN CLAY (CL) -w/ ferrous stains		61.2		19	34	16	18
Very loose, light gray and reddish brown, SILTY SAND (SM)		26.7		22	NP	NP	NP
	0						
Very stiff, gray and reddish brown, FAT CLAY (CH)							
		99.6		32	72	28	44
				22			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 14.0 FT; AFTER 10 MIN. AT 8.7 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: 8.6 FT

Drilled By: Atlas Logged By: JJ HVJ Associates, Inc. APPENDIX A- 18



PAGE 1 OF 1

LOG OF BORING B-8

PROJECT: TIRZ 17 Detention and Conveyance Project
STATION: 8+54.40
OFFSET: 3.15' LT
SURFACE ELEVATION: 79.35 FT

PROJECT NO.: HG2110495.1
WBS NO.: M-430296-0017
COMPLETION DEPTH: 26 FT
CAVE-IN DEPTH: 12.3 FT
DATE: 9/25/2024

SAMPLER: Shelby Tube/Split Spoon
DRY AUGER: 0 TO 25 FT
WET ROTARY: N/A TO N/A FT

UNDRAINED SHEAR STRENGTH, TSF
○ HAND PENETROMETER
● UNCONFINED COMPRESSION
■ UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION
△ TORVANE

DESCRIPTION OF MATERIAL	STANDARD PENETRATION TEST, BLOWS PER FOOT	PERCENT PASSING NO. 200 SIEVE	DRY UNIT WEIGHT, PCF	MOISTURE CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %
Pavement: 6" Concrete							
Firm to very stiff, dark gray, SANDY LEAN CLAY (CL)							
-gray and brown 2'-10'		64.6			34	12	22
		65.3		22			
		69.9	103				
Medium dense, light gray, SILTY SAND (SM)		40.9		21	NP	NP	NP
				24			
	15						
Stiff to very stiff, gray and reddish brown, FAT CLAY (CH)			88	38			
		100		28	72	26	46
				30			

DEPTH TO WATER IN BORING:
▽ FREE WATER DURING DRILLING: 18.0 FT; AFTER 10 MIN. AT 11.2 FT
▼ WATER DEPTH 24 HOURS AFTER DRILLING: Not Recorded

Drilled By: Atlas Logged By: JJ HVJ Associates, Inc. APPENDIX A- 19

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DAVID G. GREANEY
125563
4/15/2026 HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

BORING LOGS

SHEET 5 OF 5

WBS NO. M-430296-0017-3
DRAWING SCALE
CITY OF HOUSTON PM
KEVIN HAMMOND, P.E.
SHEET NO. 344 OF 345

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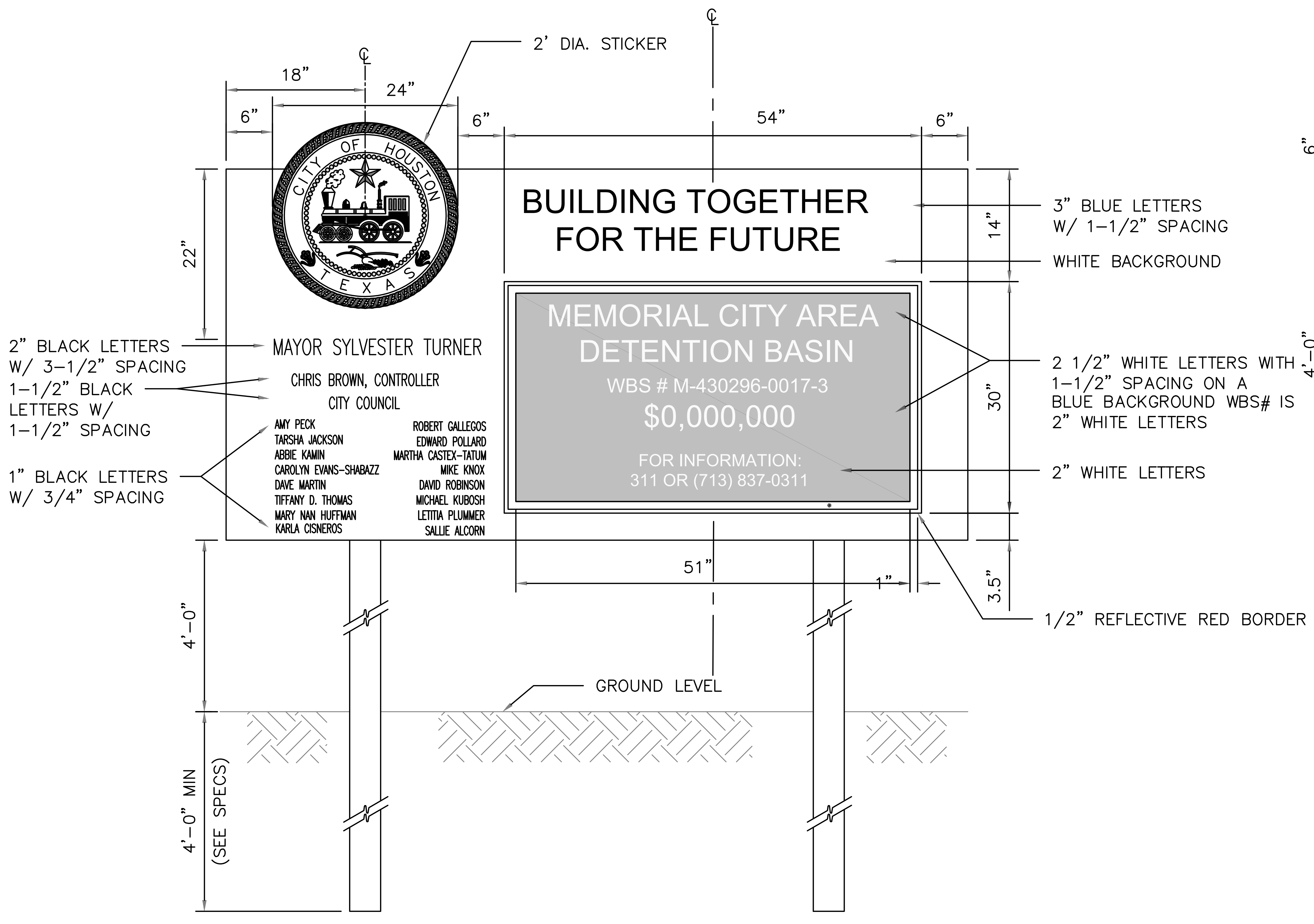
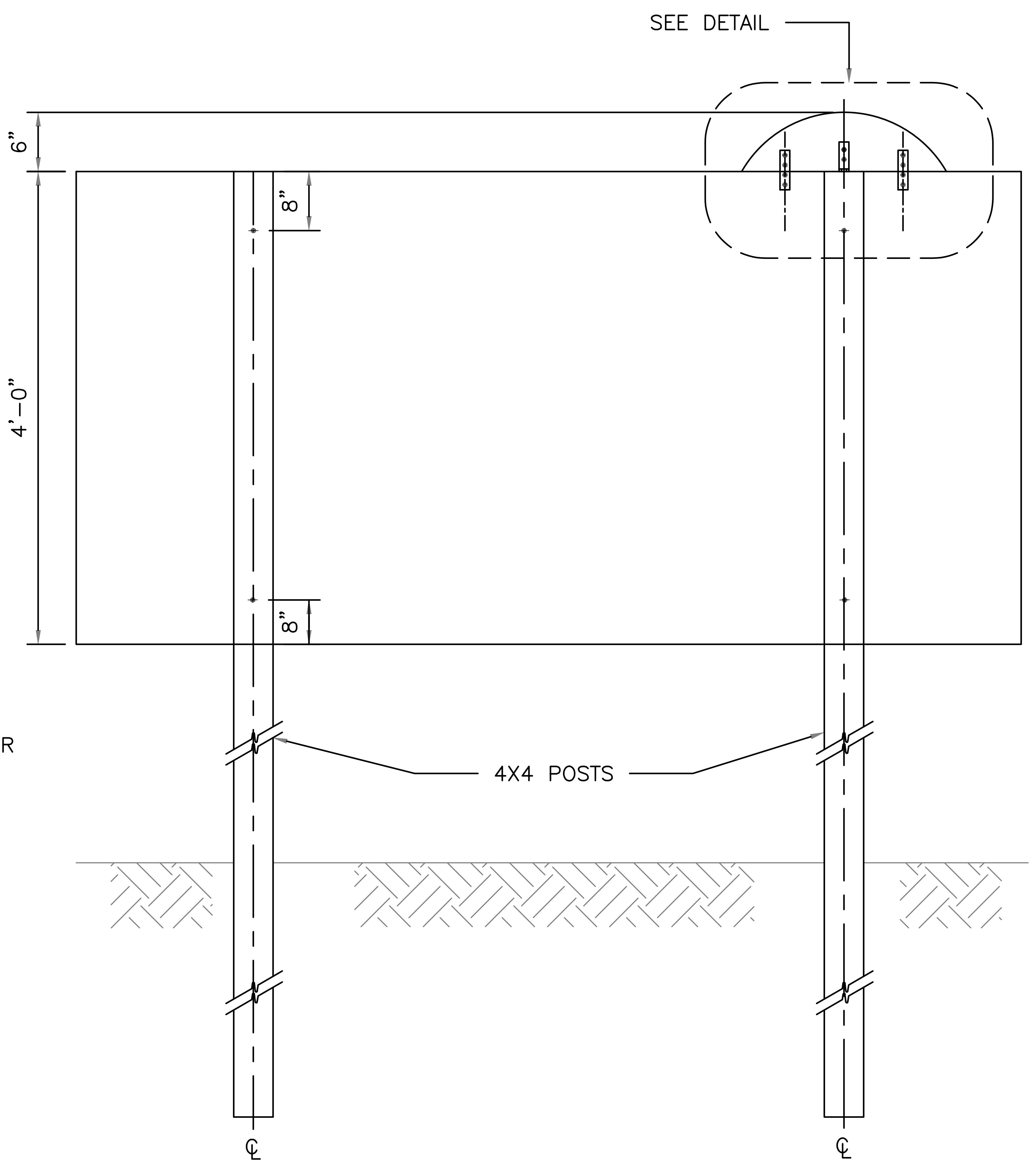
No.	Date	Revisions	App.



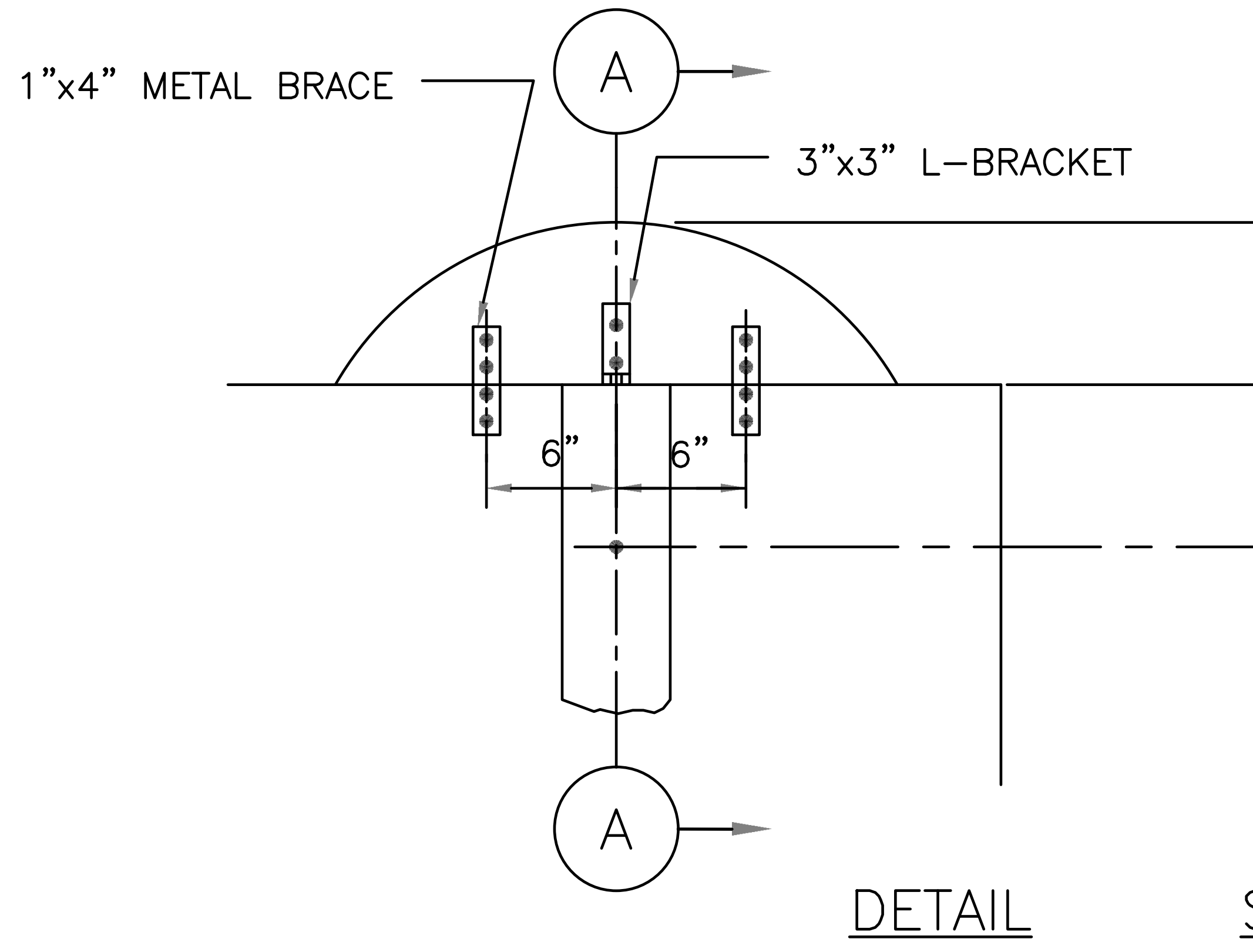
℄
2' DIA. STICKER
18"
24"
6"
6"
54"
6"
22"
CITY OF HOUSTON
TEXAS
BUILDING TOGETHER
FOR THE FUTURE
14"
3" BLUE LETTERS
W/ 1-1/2" SPACING
WHITE BACKGROUND
MEMORIAL CITY AREA
DETENTION BASIN
WBS # M-430296-0017-3
$0,000,000
FOR INFORMATION:
311 OR (713) 837-0311
30"
2 1/2" WHITE LETTERS WITH
1-1/2" SPACING ON A
BLUE BACKGROUND WBS# IS
2" WHITE LETTERS
2" WHITE LETTERS
2" BLACK LETTERS
W/ 3-1/2" SPACING
1-1/2" BLACK
LETTERS W/
1-1/2" SPACING
MAYOR SYLVESTER TURNER
CHRIS BROWN, CONTROLLER
CITY COUNCIL
AMY PECK
TARSHA JACKSON
ABBIE KAMIN
CAROLYN EVANS-SHABAZZ
DAVE MARTIN
TIFFANY D. THOMAS
MARY NAN HUFFMAN
KARLA CISNEROS
ROBERT GALLEGOS
EDWARD POLLARD
MARTHA CASTEX-TATUM
MIKE KNOX
DAVID ROBINSON
MICHAEL KUBOSH
LETITIA PLUMMER
SALLIE ALCORN
1" BLACK LETTERS
W/ 3/4" SPACING
51"
1"
3.5"
1/2" REFLECTIVE RED BORDER
4'-0"
GROUND LEVEL
4'-0" MIN
(SEE SPECS)

FRONT VIEW



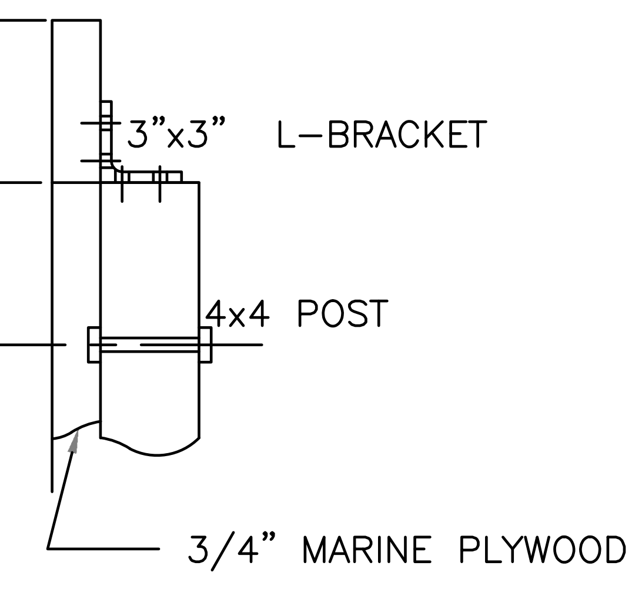
SEE DETAIL
6"
8"
4'-0"
8"
4X4 POSTS
℄
℄

BACK VIEW



1"x4" METAL BRACE
A
3"x3" L-BRACKET
6"
6"
A

DETAIL



3"x3" L-BRACKET
4x4 POST
3/4" MARINE PLYWOOD

SECTION A

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.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS STANDARD

CONSTRUCTION SIGN

(SCALE: NOT TO SCALE)

APPROVED BY:

DocuSigned by: Suhail Kanwar 9EF8B0C641F5478...	DocuSigned by: Carol Haddock A93C410B72B3453...
CITY ENGINEER	DIRECTOR OF HPW
EFF DATE: NOV-27-2023	DWG NO: 01580-01

HRGreen
FIRM NO. F-11278
11750 KATY FREEWAY
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PH: 832.318.8800
FAX: 713.965.0044

DAVID G. GREANEY
125563
4/15/2026
HR Green
Texas Registered Engineering Firm F-11278

SURVEYED BY: UNITED ENGINEERS, INC.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TIRZ #17
MEMORIAL CITY AREA DETENTION BASIN

CONSTRUCTION SIGN

SHEET 1 OF 1

WBS NO. M-430296-0017-3

DRAWING SCALE

CITY OF HOUSTON PM

KEVIN HAMMOND, P.E.

SHEET NO. 345 OF 345

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