INDEX OF SHEETS
SEE SHEETS 2 THRU 8 FOR INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

ROADWAY LENGTH = 21473.19 FT 4.067 MILES
BRIDGE LENGTH = 926.48 FT 0.175 MILES
TOTAL LENGTH OF PROJECT = 4.242 MILES

FERDERAL AID PROJECT
PROJECT NO:
BEXAR COUNTY
SL 1604

LIMITS: FROM 2.0 MILES WEST OF US 281 TO REDLAND RD

FOR WORK CONSISTING OF EXPAND 4 TO 10 LANE EXPRESSWAY-INCLUDING 2 HOV-SPECIAL USE LANES; FROM 4 TO 4 FR RDS

CCSJ 2452-02-130
SL 1604
DESIGN SPEED
MAINLANES = 60 mph
FRONTAGE ROADS = 45 mph
RAMP = 35 mph
DIRECT CONNECTORS = 45 mph
CROSS STREETS = 45/30 mph
AREA OF DISTURBED SOIL = 66 AC.
ADT:
168,750 = (2025)
235,300 = (2045)
FUNCTIONAL CLASS = URBAN FREEWAY

DIST	PROJECT NO.		SHEET NO.
15			1
STATE	DIST	COUNTY	
TEXAS	SAT	BEXAR	
CONT	SECT	JOB	HIGHWAY
2452	02	130, ETC	SL 1604,ETC

REGISTERED ACCESSIBILITY SPECIALIST (RAS) INSPECTION REQUIRED
TDLR NO.
ACCESSIBILITY STANDARDS = PROWAG
FINAL PLANS

LETTING DATE: _____
DATE CONTRACTOR BEGAN WORK: _____
DATE WORK WAS ACCEPTED: _____
DATE WORK WAS COMPLETED: _____
FINAL CONTRACT COST: $ _____
CONTRACTOR: _____

FINAL PLANS STATEMENT:

THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS:

_____ P.E. _____
AREA ENGINEER DATE

TEXAS DEPARTMENT OF TRANSPORTATION

LJA Engineering, Inc.
FRN - F-1386

BEGIN PROJECT
MI MRK: 11.777
REF MRK: 527.79
℄ ML1604 STA 4400+00.00
BEGIN CSJ 2452-02-130
BEGIN RCSJ 2452-03-133

℄ ML1604 STA 4479+85.85
END CSJ 2452-02-130
END RCSJ 2452-03-133
BEGIN CSJ 2452-03-113
BEGIN RCSJ 2452-03-129

N.T.S.

EXCEPTIONS: N/A
EQUATION: STA 4412+82.55 = STA 4412+82.88 LP 1604
RR X-ING'S: N/A

END PROJECT
MI MRK: 30.780
REF MRK: 532.15
℄ ML1604 STA 4624+00.00
END CSJ 2452-03-113
END RCSJ 2452-03-129

ATTACHMENT NO. 01-22 TO SPECIAL AGREEMENT FOR CONSTRUCTION, MAINTENANCE, AND OPERATIONS OF HIGHWAY LIGHTING SYSTEMS WITHIN A MUNICIPALITY, DATED JUNE 24, 2014. THE CITY-STATE CONSTRUCTION, MAINTENANCE AND OPERATION RESPONSIBILITIES SHALL BE AS HERETOFORE AGREED TO, ACCEPTED, AND SPECIFIED IN THE AGREEMENT TO WHICH THESE PLANS ARE MADE A PART.

CONCURRENCE

CITY OF SAN ANTONIO

RECOMMENDED FOR LETTING:

PLAN REVIEW

RECOMMENDED FOR LETTING:

TRANSPORTATION ENGINEER

RECOMMENDED FOR LETTING:

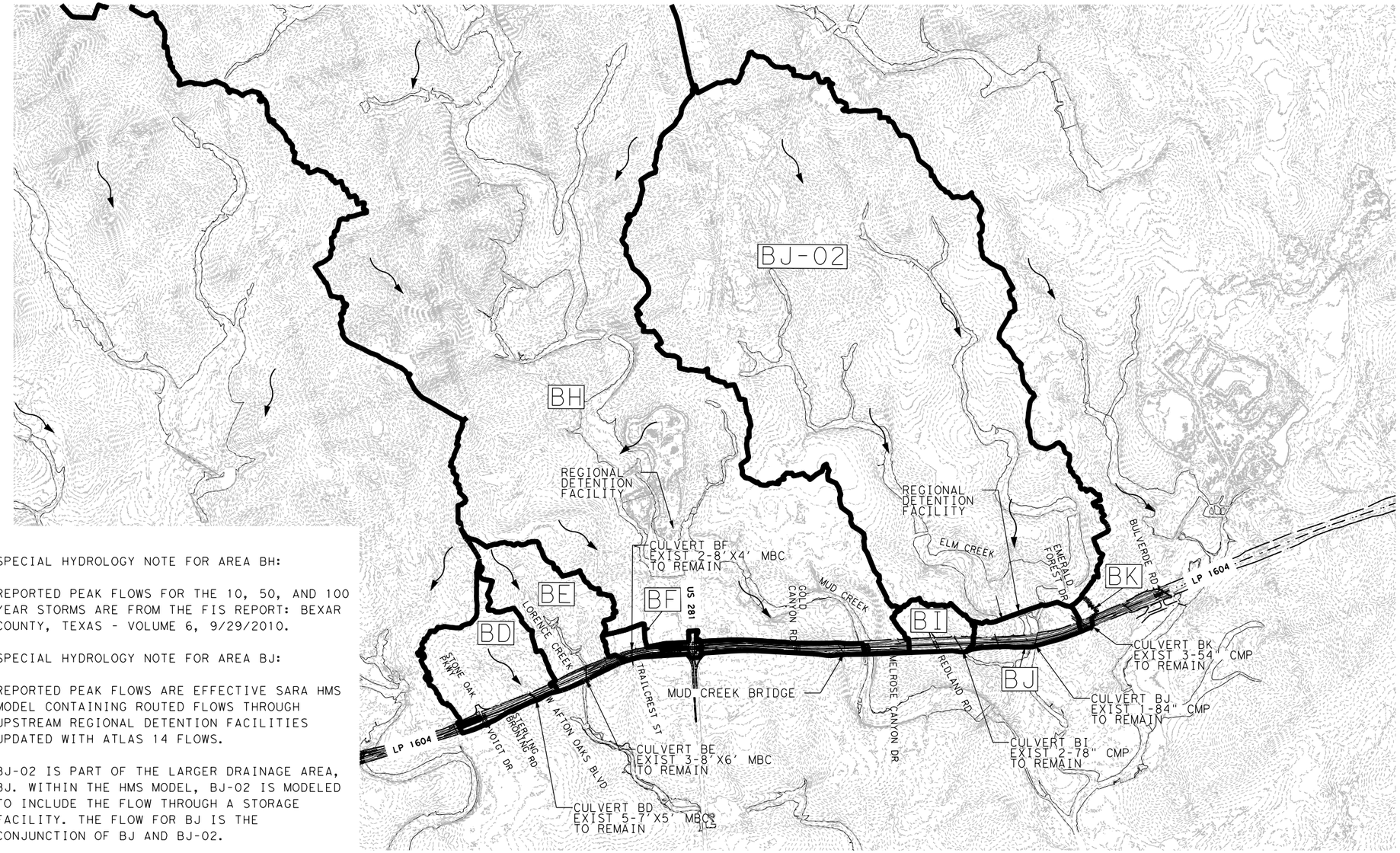
DIRECTOR OF TRANSPORTATION, PLANNING AND DEVELOPMENT

APPROVED FOR LETTING:

DISTRICT ENGINEER

COUNTY BEXAR PROJ. NO. _____
HWY. NO. LP1604 LETTING DATE _____
DATE ACCEPTED _____

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, JULY 5 2022)



SPECIAL HYDROLOGY NOTE FOR AREA BH:

REPORTED PEAK FLOWS FOR THE 10, 50, AND 100 YEAR STORMS ARE FROM THE FIS REPORT: BEXAR COUNTY, TEXAS - VOLUME 6, 9/29/2010.

SPECIAL HYDROLOGY NOTE FOR AREA BJ:

REPORTED PEAK FLOWS ARE EFFECTIVE SARA HMS MODEL CONTAINING ROUTED FLOWS THROUGH UPSTREAM REGIONAL DETENTION FACILITIES UPDATED WITH ATLAS 14 FLOWS.

BJ-02 IS PART OF THE LARGER DRAINAGE AREA, BJ. WITHIN THE HMS MODEL, BJ-02 IS MODELED TO INCLUDE THE FLOW THROUGH A STORAGE FACILITY. THE FLOW FOR BJ IS THE CONJUNCTION OF BJ AND BJ-02.

LP 1604 HYDROLOGIC SUMMARY TABLE

BASIN ID	CULVERT/ BRIDGE	METHOD USED	DRAINAGE AREA		COMPOSITE C-VALUE/CURVE #		Tc	LAG TIME	PEAK FLOW RATES (CFS)		
			ACRES	SQ MI			MIN	MIN	Q_{25}	Q_{50}	Q_{100}
BD	BC CULVERT	NRCS	308	0.48	-	92.6	35.4	21.24	1190	1340	1510
BE	BC CULVERT	NRCS	315.204	0.49	-	90.9	43.7	26.19	1170	1340	1510
BF	CULVERT	RATIONAL	36.59	0.06	0.73	-	5.6	3.366	234	263	293
BH	BRIDGE	NRCS	10313.37	16.11	-	-	-	-	-	4430	5210
BI	CULVERT	RATIONAL	88.423	0.14	0.69	-	8.6	5.16	535	603	672
BJ-02	CULVERT	NRCS	4198.4	6.56	-	89.6	125.9	75.52	7320	10780	12420
BJ		NRCS	4290.7	0.14	-	89.6	-	-	315	562	1370
BK	CULVERT	RATIONAL	13.27	0.02	0.71	-	13.4	8.04	74	83	93

* BJ-02 IS PART OF THE LARGER DRAINAGE AREA, BJ.

NOTES:

1. HYDROLOGY FOR DRAINAGE AREAS BD, BE, BH, AND BJ WAS PERFORMED IN HEC-HMS VERSION 4.8 BASED ON NRCS METHODOLOGY DESCRIBED IN THE TXDOT MANUAL, SEPTEMBER 2019 SECTIONS 12 AND 13 OF CHAPTER 4.
2. HYDROLOGY FOR DRAINAGE AREAS BF, BI, AND BK WAS PERFORMED IN GEOPAK DRAINAGE USING THE RATIONAL METHOD.
3. LOSS METHOD: SCS CURVE NUMBER TRANSFORM: SCS UNIT HYDROGRAPH.
4. ATLAS 14 24 HOUR RAINFALL DEPTHS WERE USED.
5. ATLAS 14 CENTROID TAKEN AT LAT: 29.6070 LONG: -98.4548. ATLAS 14 CITY OF SAN ANTONIO ZONE PA-2.
6. IMPERVIOUS COVER CALCULATIONS PERFORMED BASED ON A FULLY DEVELOPED WATERSHED BASED ON ZONING MAPS FROM THE CITY OF SAN ANTONIO WHEN AVAILABLE.
7. CONTOUR DATA BASED ON BEST AVAILABLE LIDAR FROM THE CITY OF SAN ANTONIO AND FROM TNRIS LIDAR 2016.
8. PROJECT DATA IMPACTING FEMA ZONE AE OR A SENT TO LOCAL FLOODPLAIN MANAGER CITY OF SAN ANTONIO ON 2/17/2023.

LEGEND

- FLOW ARROW
- X — DRAINAGE AREA ID
- DRAINAGE AREA BOUNDARY
- DRAINAGE AREA CONTOUR
- STREAM FLOW PATH
- FLOOD ZONE

0' 1000'2000' 4000'

SCALE: 1"=4000'

STATE OF TEXAS
ZACHARY B. RYAN
106276
LICENSED
PROFESSIONAL ENGINEER

2/17/2023

95% SUBMITTAL

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
DRAINAGE AREA MAP
EXTERNAL

SHEET 1 OF 1

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	Bexar	2452	02	130	1374

$$$$$$SYSTIME$$$$$ 2/17/2023
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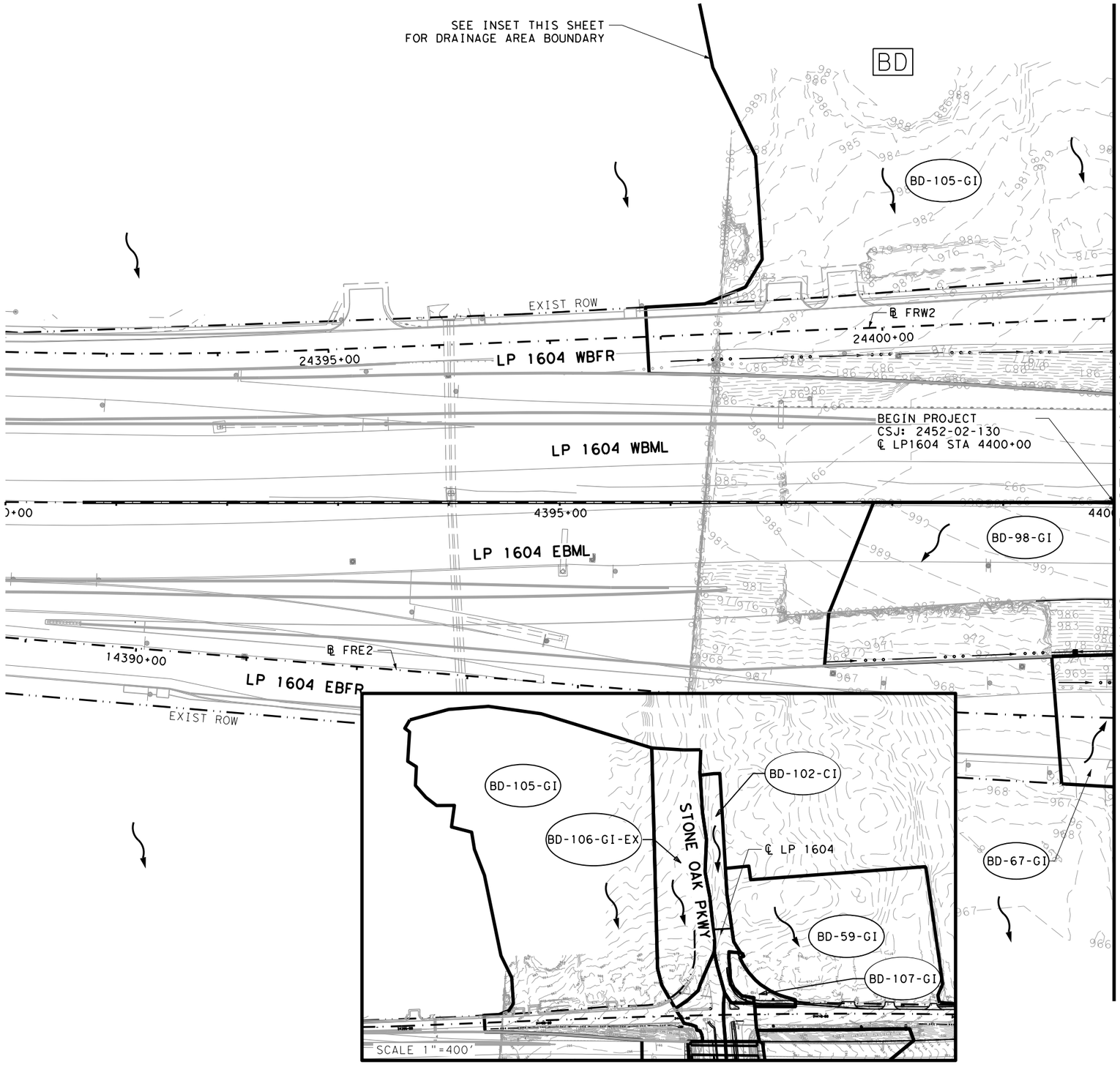

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
1. SEE HYDROLOGY CALCULATION SHEETS FOR DRAINAGE AREA CALCULATIONS.
2. "EX" DENOTES AN EXISTING INLET THAT WILL REMAIN.
3. PROPOSED 1' CONTOURS WITHIN ROW WERE DEVELOPED USING PROPOSED SURFACE AND 2017 LIDAR DATA. EXISTING 1' CONTOURS OUTSIDE ROW WERE DEVELOPED USING 2017 LIDAR DATA.
4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

BEGIN PROJECT TO STA 4400+00

SHEET 1 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1375

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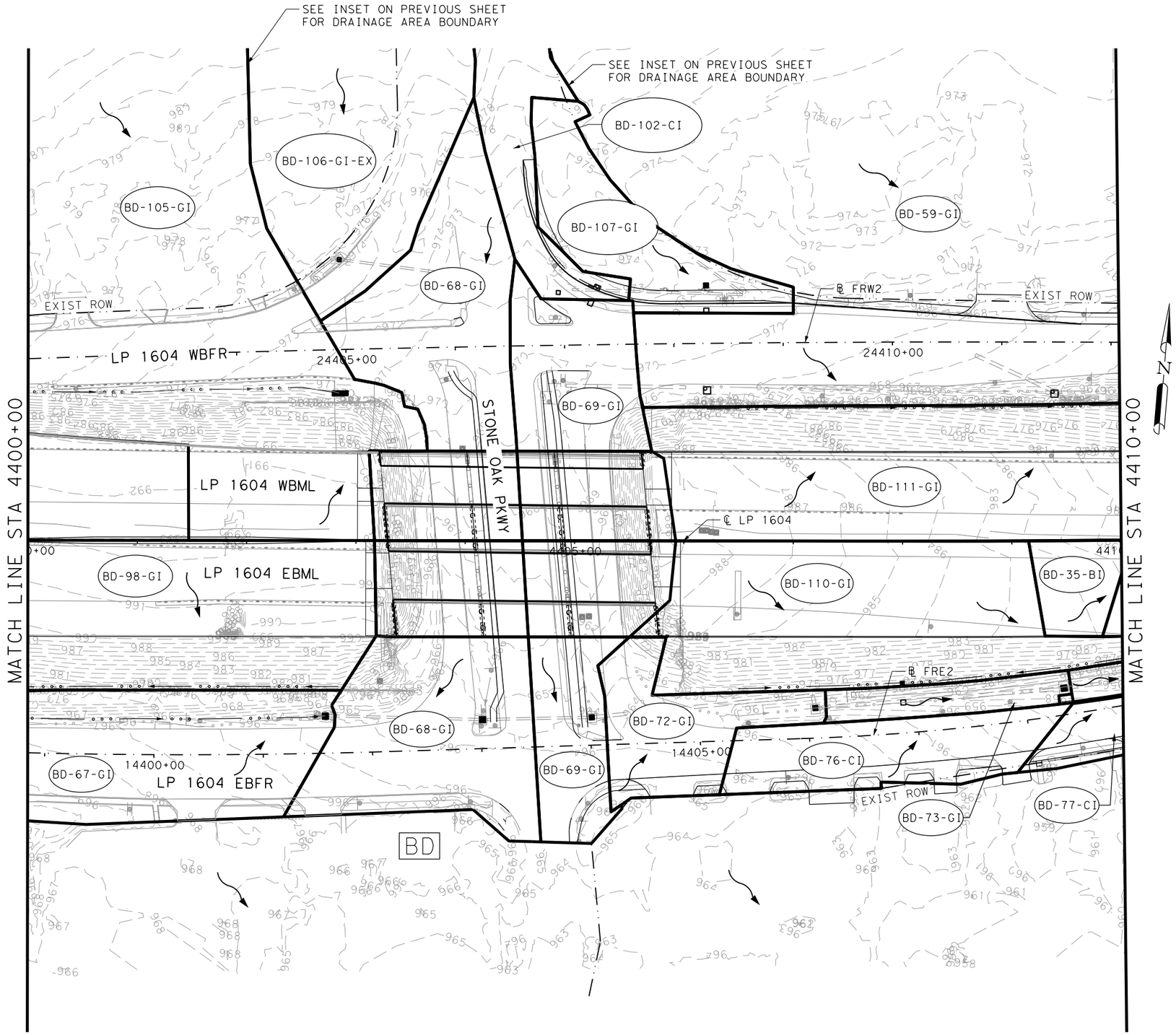

NOTE: DA'S BD-68-GI AND BD-69-GI ARE LOCATED BELOW DA'S BD-111-GI AND BD-110-GI.

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
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4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS — LUKE REED — 101242 — LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 3/1/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4400+00 to STA 4410+00

SHEET 2 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1376

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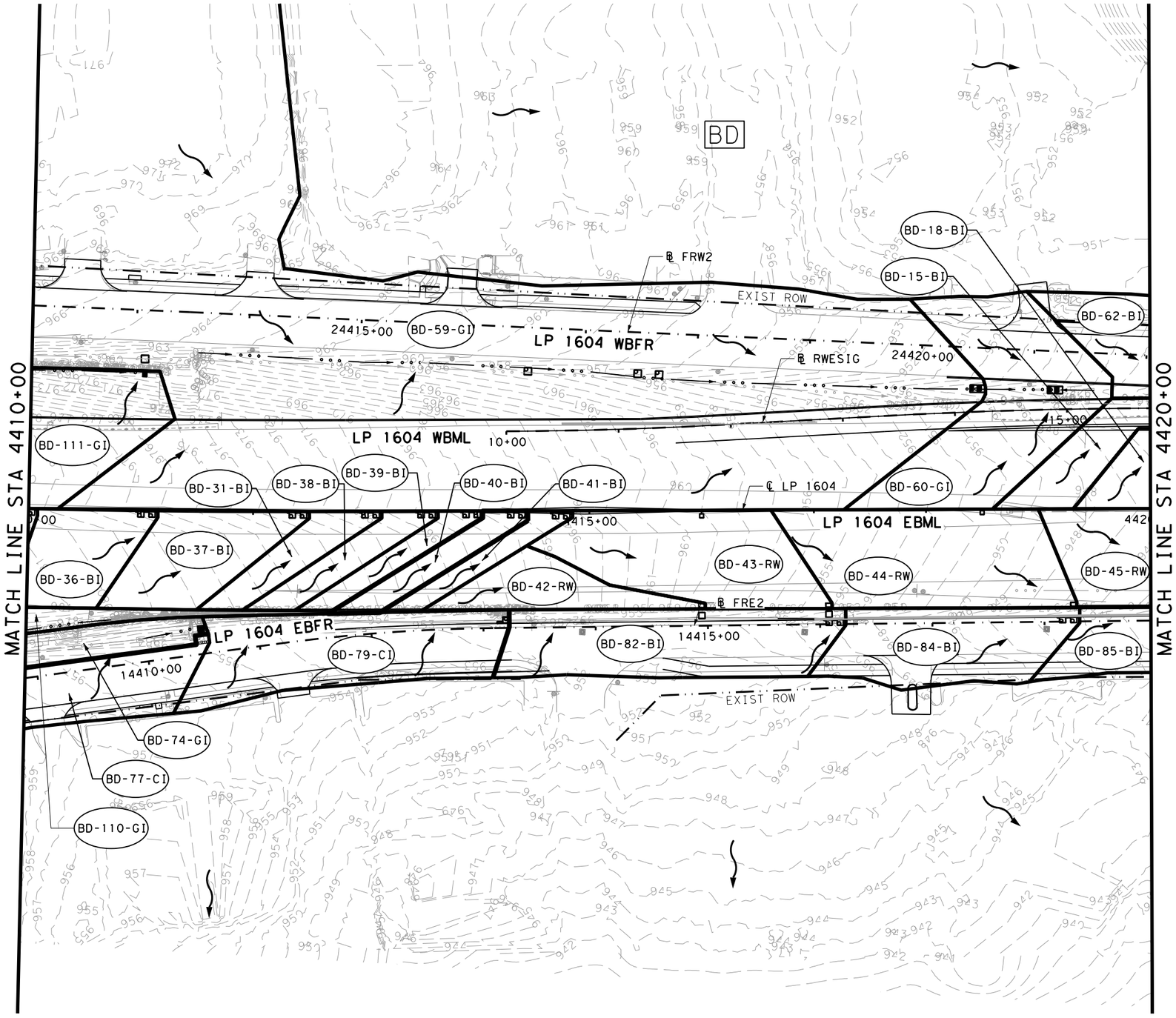

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
1. SEE HYDROLOGY CALCULATION SHEETS FOR DRAINAGE AREA CALCULATIONS.
2. "EX" DENOTES AN EXISTING INLET THAT WILL REMAIN.
3. PROPOSED 1' CONTOURS WITHIN ROW WERE DEVELOPED USING PROPOSED SURFACE AND 2017 LIDAR DATA. EXISTING 1' CONTOURS OUTSIDE ROW WERE DEVELOPED USING 2017 LIDAR DATA.
4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS — LUKE REED — 101242 — LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4410+00 TO STA 4420+00

SHEET 3 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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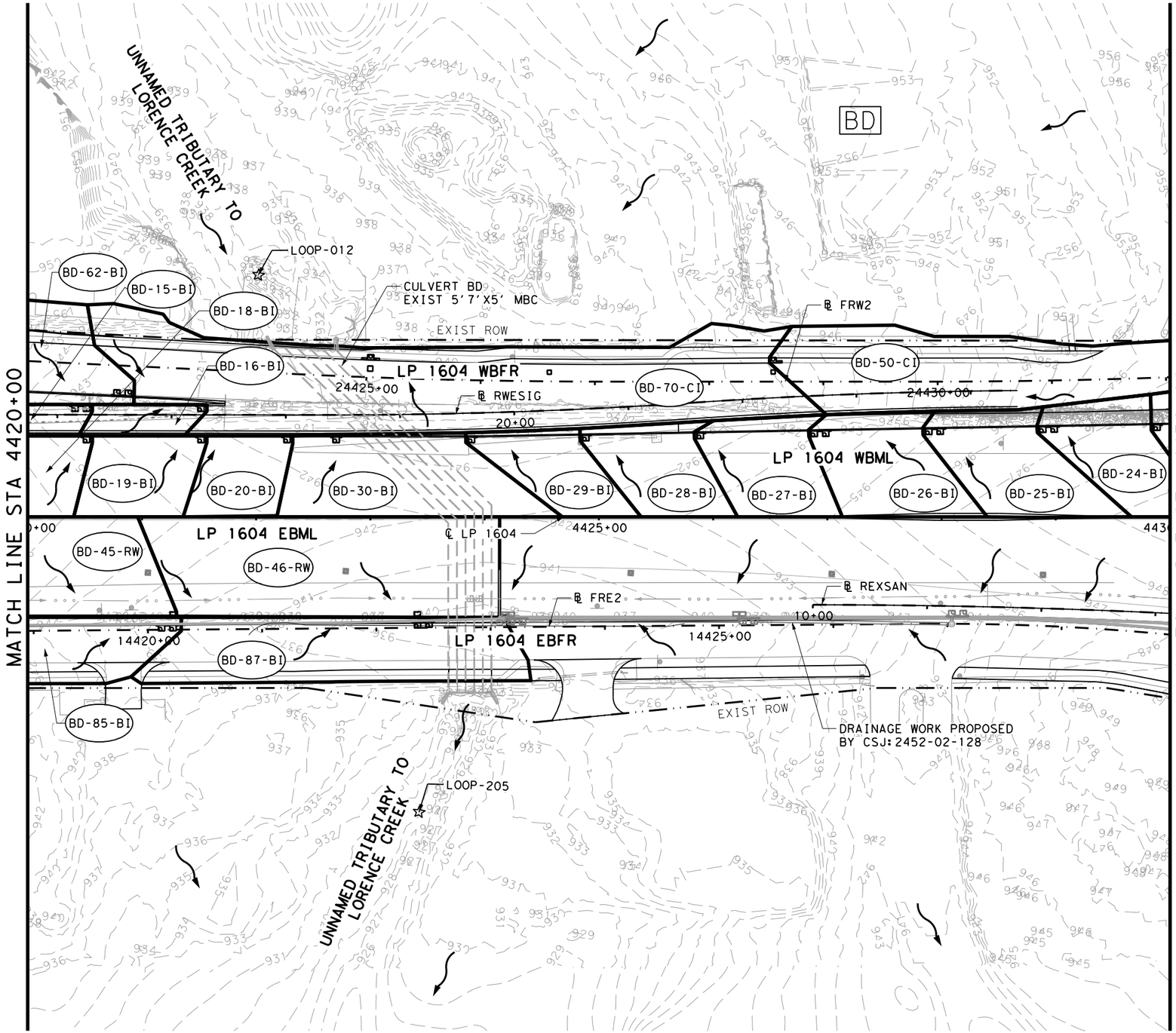

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
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4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4420+00 TO STA 4430+00

SHEET 4 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1378

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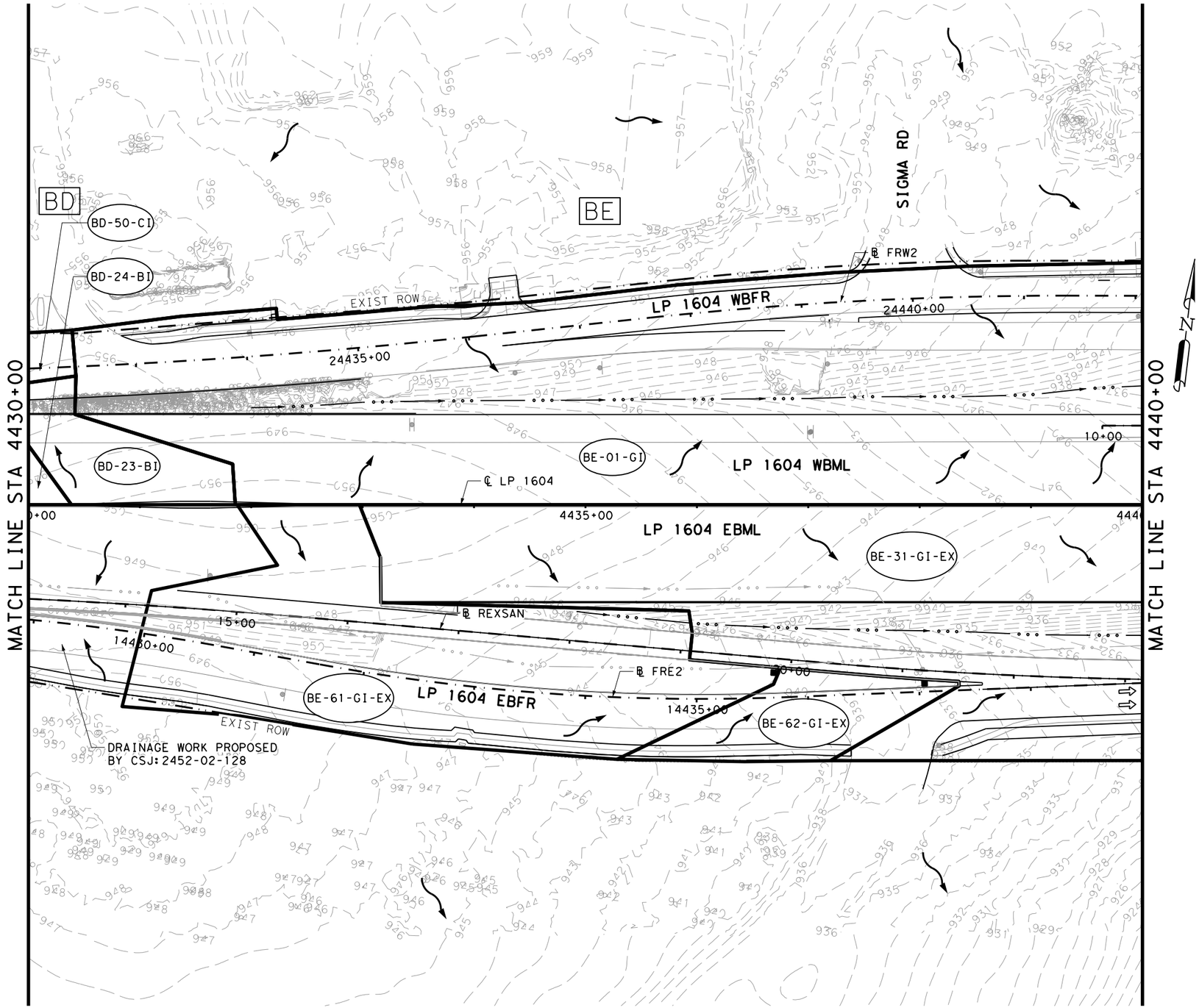

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4430+00 TO STA 4440+00

SHEET 5 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
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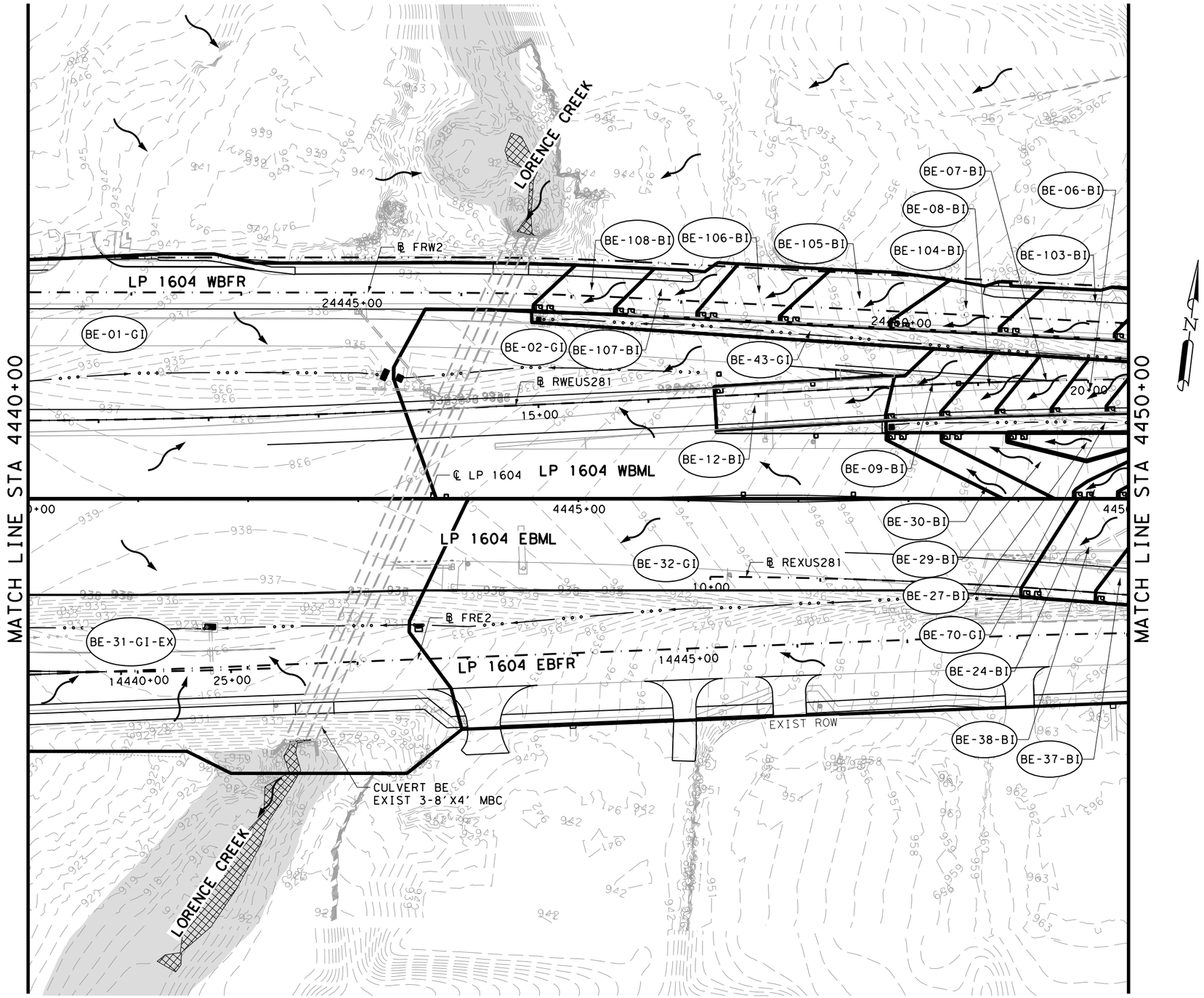

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
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- xx-xx-xx — NAMING CONVENTION
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  - NODE ID
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4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4440+00 TO STA 4450+00

SHEET 6 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1380

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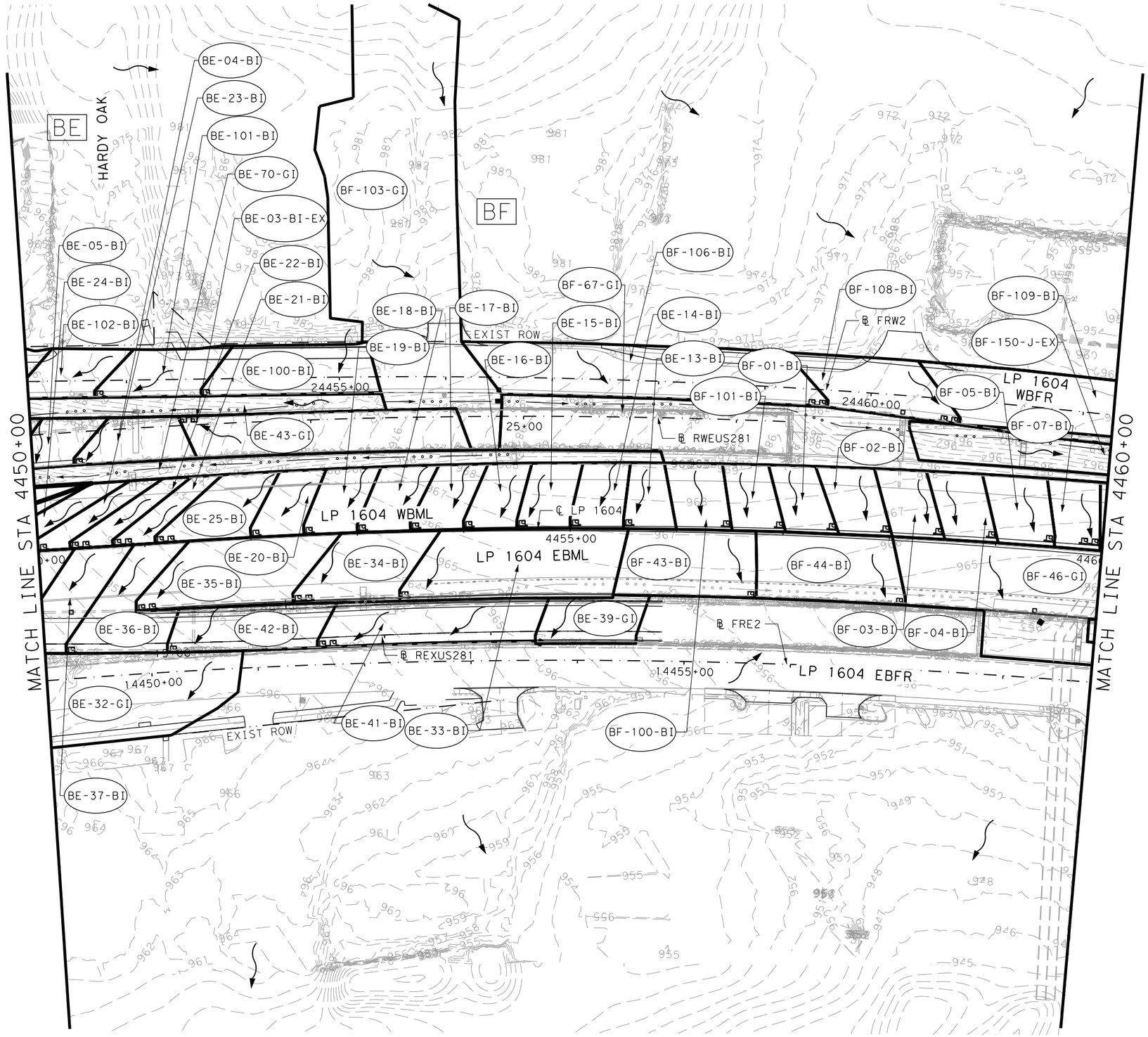

NOTE: DA BF-150-J-EX
IS LOCATED ON A DIRECT CONNECTOR ABOVE AREA BF-67-GI

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- [X] EXTERNAL DRAINAGE AREA ID
- (xx-xx-xx) NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
1. SEE HYDROLOGY CALCULATION SHEETS FOR DRAINAGE AREA CALCULATIONS.
2. "EX" DENOTES AN EXISTING INLET THAT WILL REMAIN.
3. PROPOSED 1' CONTOURS WITHIN ROW WERE DEVELOPED USING PROPOSED SURFACE AND 2017 LIDAR DATA. EXISTING 1' CONTOURS OUTSIDE ROW WERE DEVELOPED USING 2017 LIDAR DATA.
4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 3/1/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4450+00 to STA 4460+00

SHEET 7 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1381

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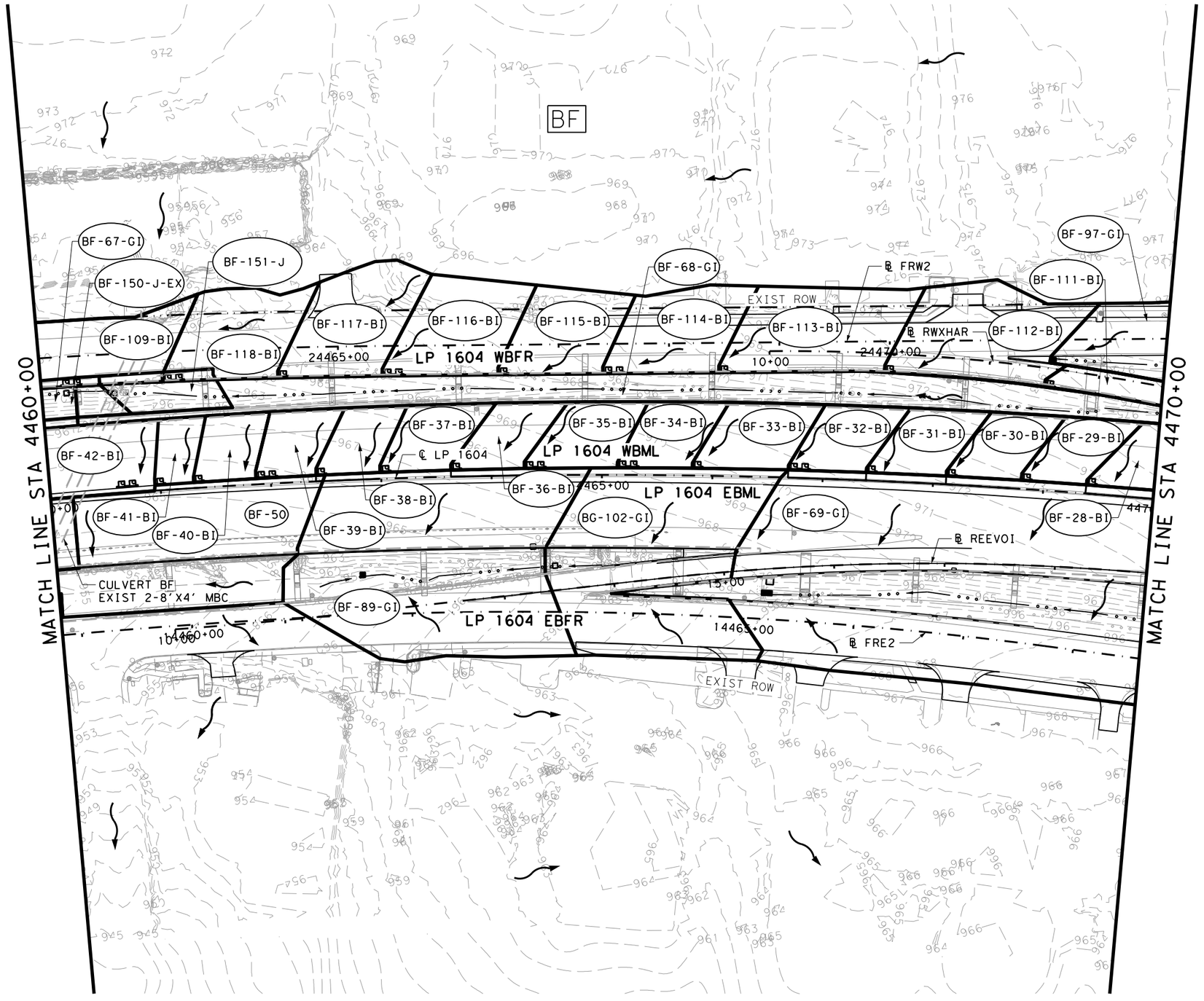

NOTE: DA'S BF-150-J-EX AND BF-151-J
ARE LOCATED ON A DIRECT CONNECTOR ABOVE AREAS BF-67-GI AMD BF-66-GI

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- [X] EXTERNAL DRAINAGE AREA ID
- (xx-xx-xx) NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
1. SEE HYDROLOGY CALCULATION SHEETS FOR DRAINAGE AREA CALCULATIONS.
2. "EX" DENOTES AN EXISTING INLET THAT WILL REMAIN.
3. PROPOSED 1' CONTOURS WITHIN ROW WERE DEVELOPED USING PROPOSED SURFACE AND 2017 LIDAR DATA. EXISTING 1' CONTOURS OUTSIDE ROW WERE DEVELOPED USING 2017 LIDAR DATA.
4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4460+00 TO STA 4470+00

SHEET 8 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1382

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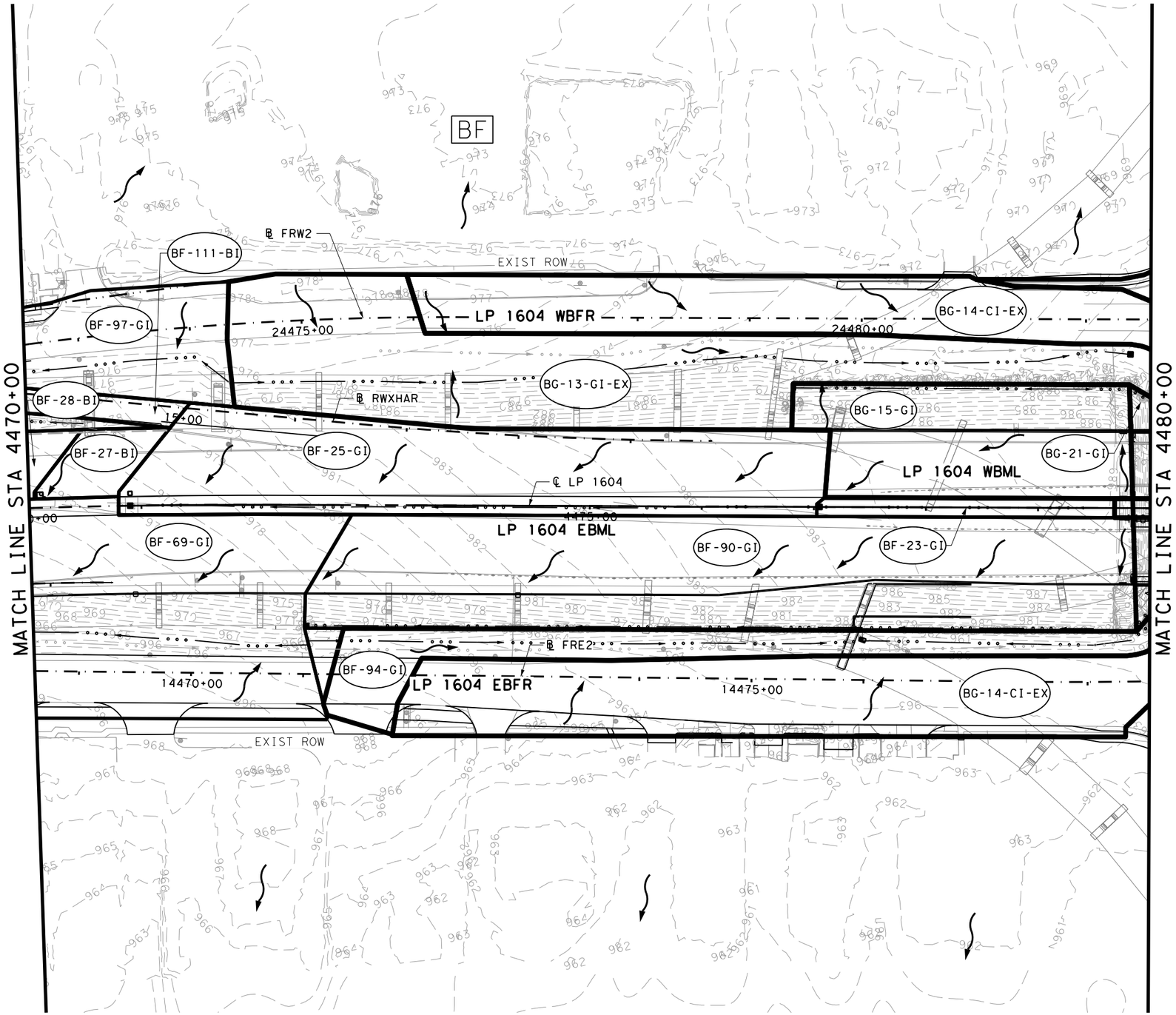

NOTE: DA'S BG-15-GI AND BF-90-GI ARE LOCATED ABOVE DA BG-21-GI

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
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STATE OF TEXAS — LUKE REED — 101242 — LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4470+00 TO STA 4480+00

SHEET 9 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1383

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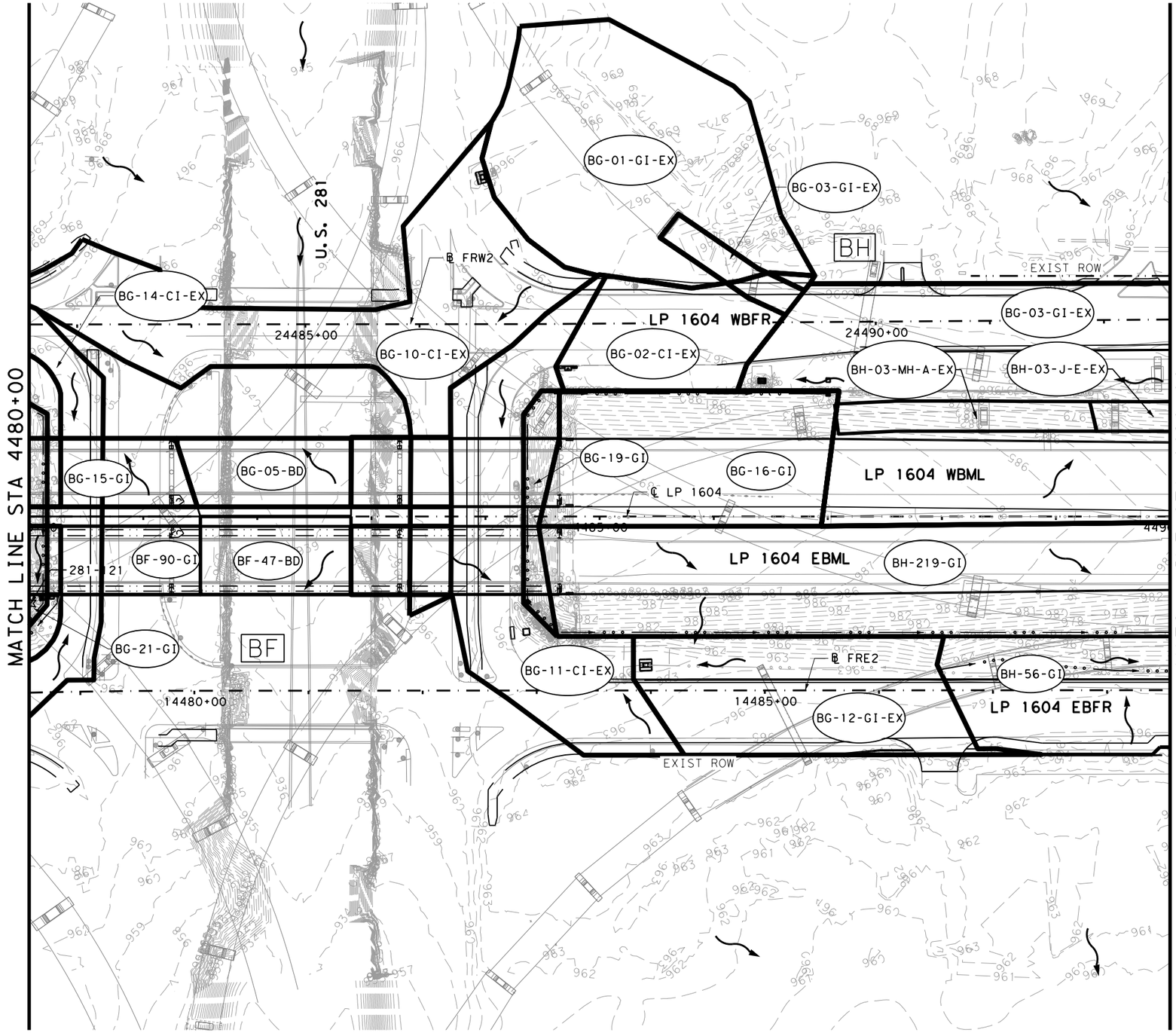

NOTE: DA'S BH-03-MH-A-EX AND BH-03-J-E-EX
ARE LOCATED ON DIRECT CONNECTORS ABOVE DA BG-03-GI-EX.
DA BG-14-CI-EX IS LOCATED BELOW BG-15-GI AND BF-90-GI.
DA BG-10-CI-EX IS LOCATED BELOW BG-11-CI-EX.
DA BG-21-GI IS LOCATED BELOW DA'S BG-15-GI AND BF-90-GI.

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
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STATE OF TEXAS — LUKE REED — 101242 — LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4480+00 TO STA 4490+00

SHEET 10 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1384

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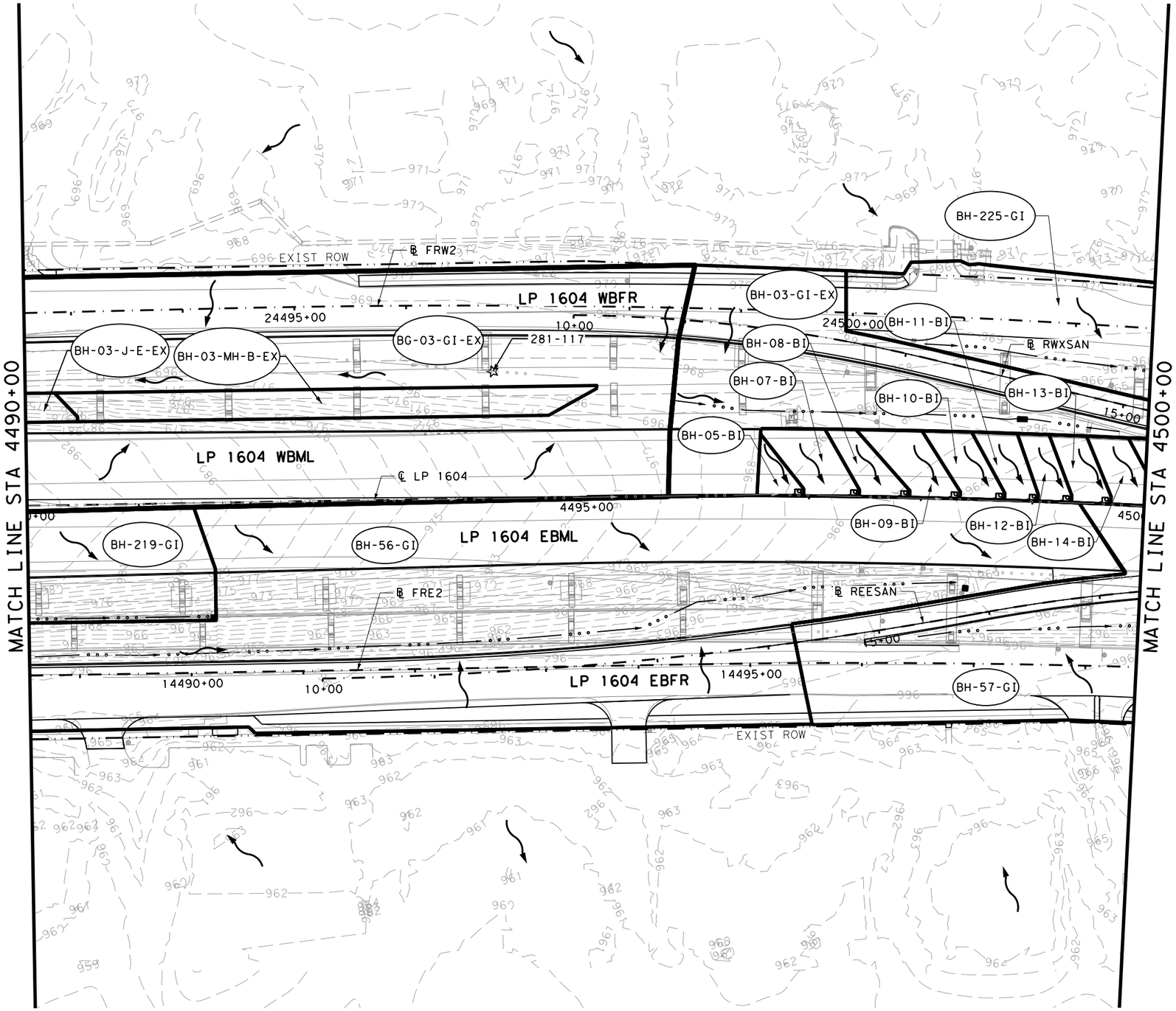

NOTE: DA'S BH-03-J-E-EX AND BH-03-MH-B-EX ARE LOCATED ON DIRECT CONNECTORS ABOVE DA BG-03-GI-EX.

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4490+00 TO STA 4500+00

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1385

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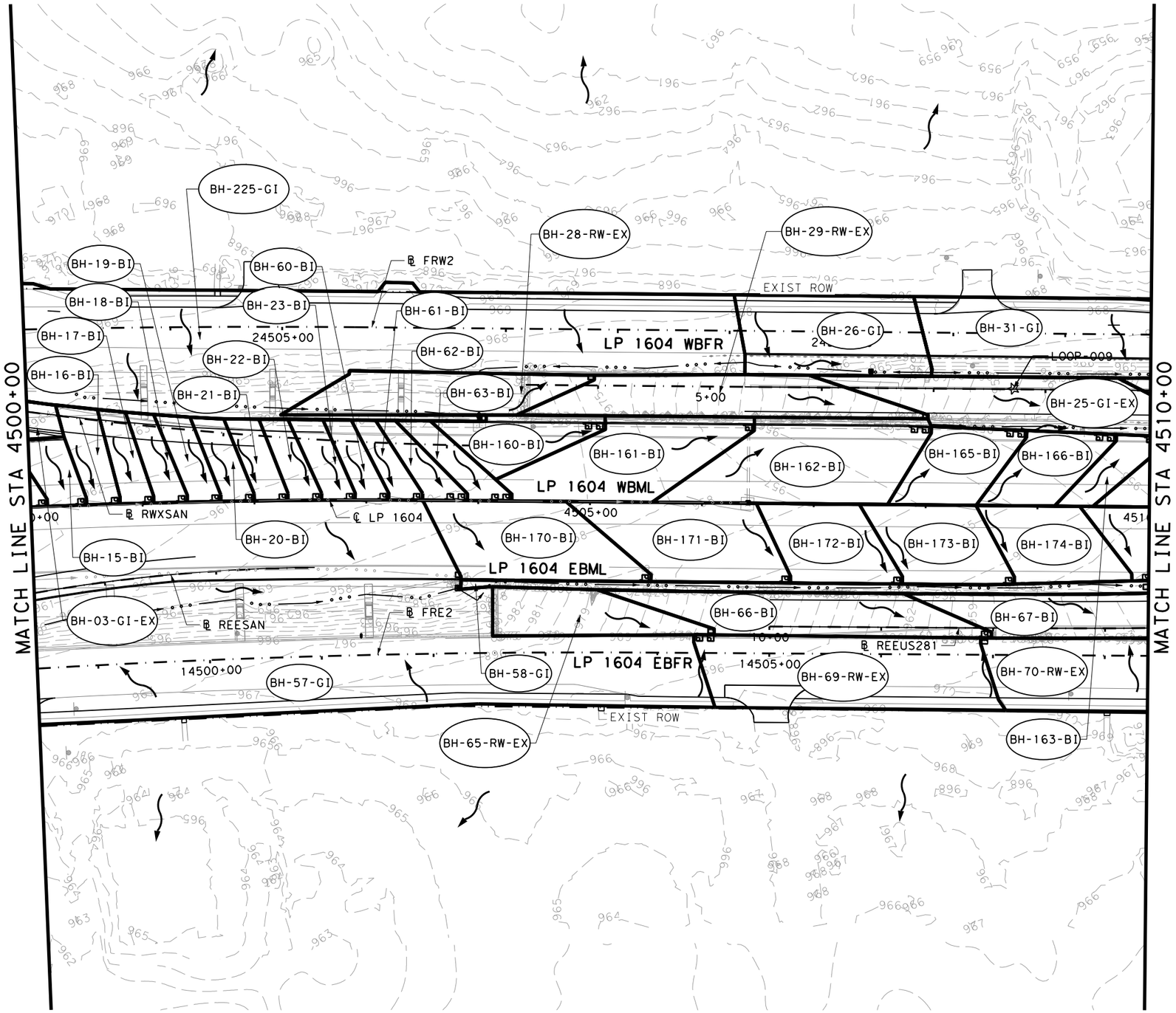

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4500+00 TO STA 4510+00

SHEET 12 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1386

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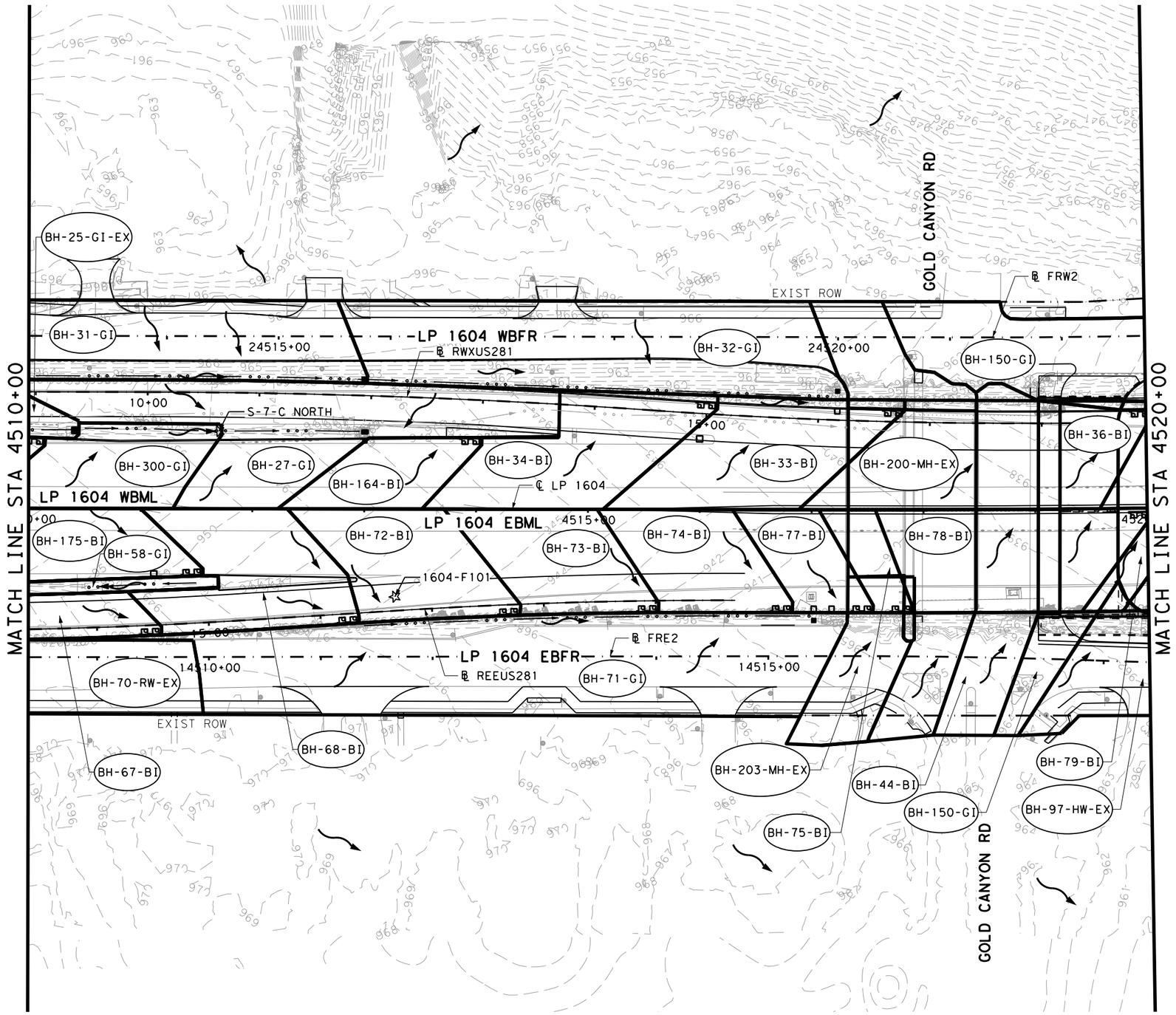

NOTE: DA'S BH-200-MH-EX, BH-203-MH-EX, BH-44-GI AND BH-150-GI ARE LOCATED ABOVE BH-77-BI, BH-75-BI AND BH-78-BI

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
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STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4510+00 TO STA 4520+00

SHEET 13 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1387

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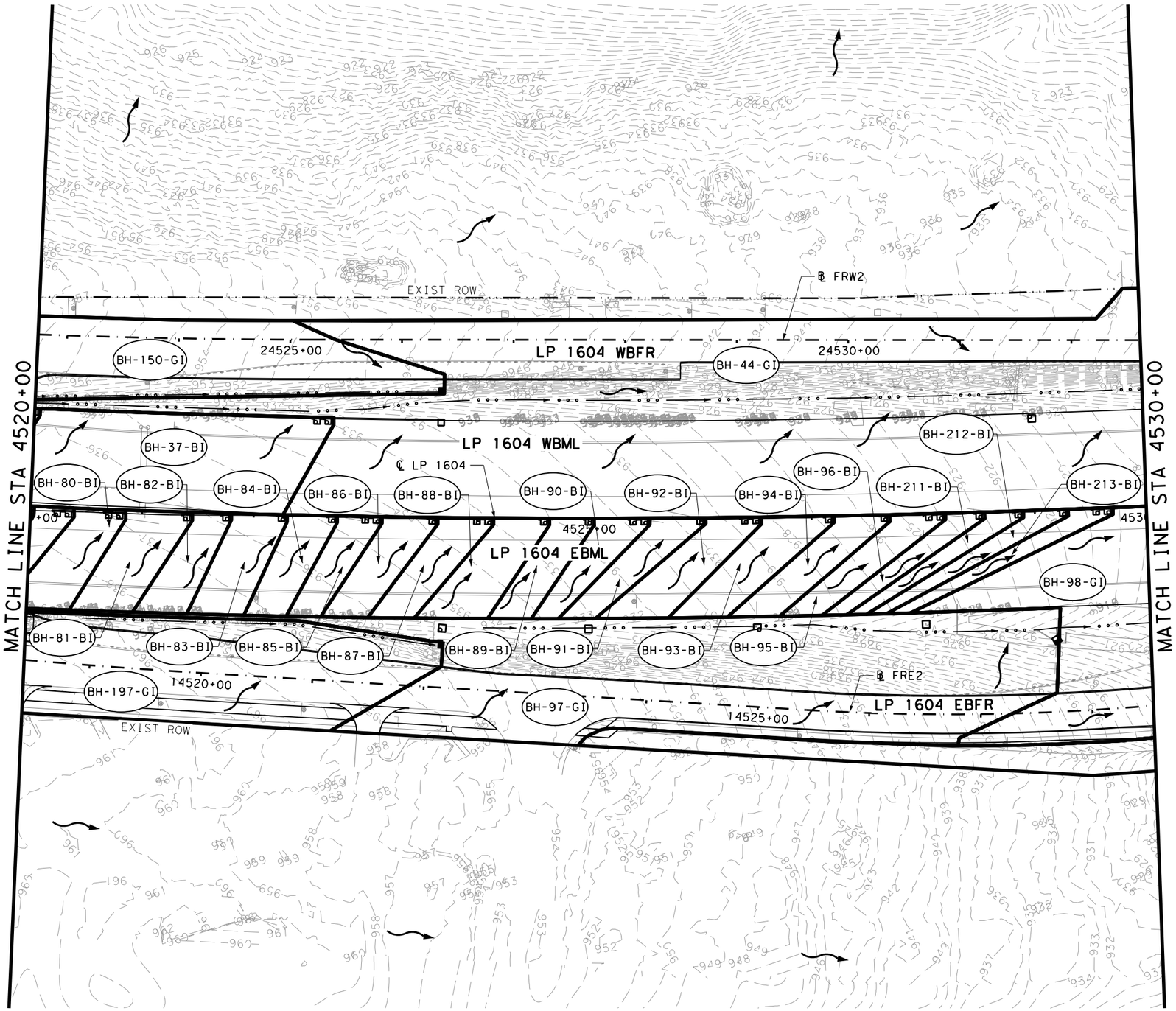

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4520+00 TO STA 4530+00

SHEET 14 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1388

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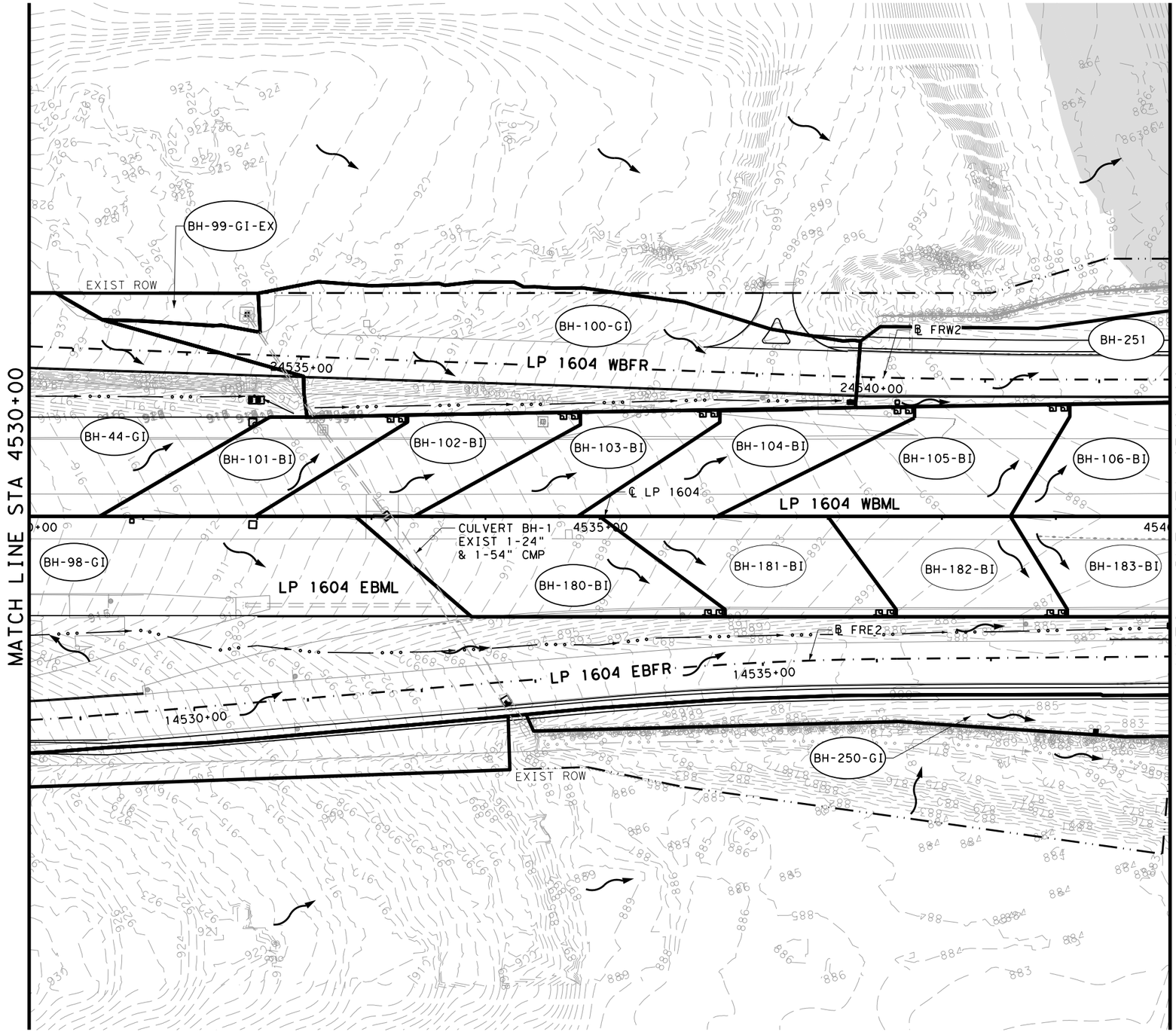

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4530+00 TO STA 4540+00

SHEET 15 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1389

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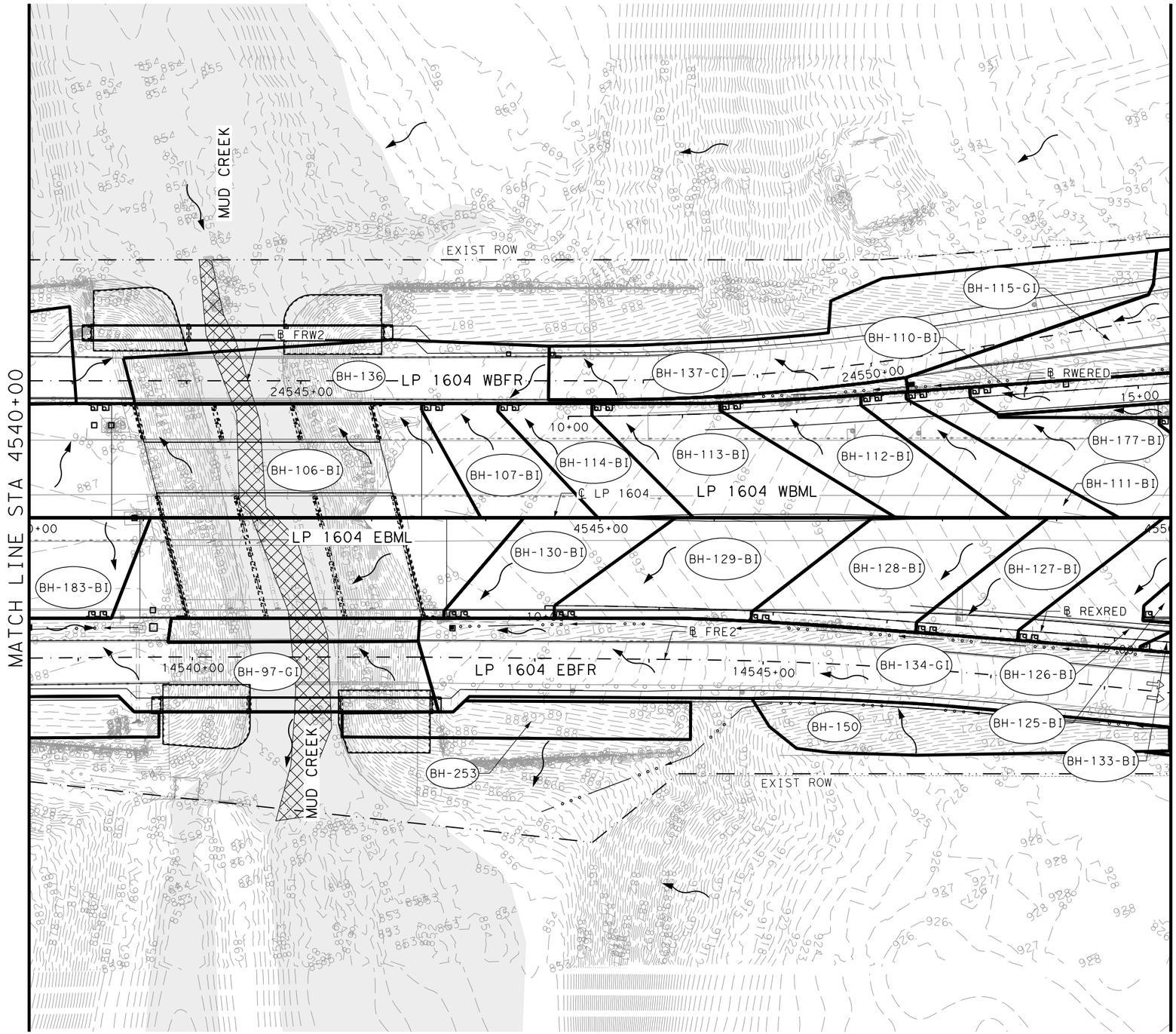

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 3/1/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4540+00 TO STA 4550+00

SHEET 16 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1390

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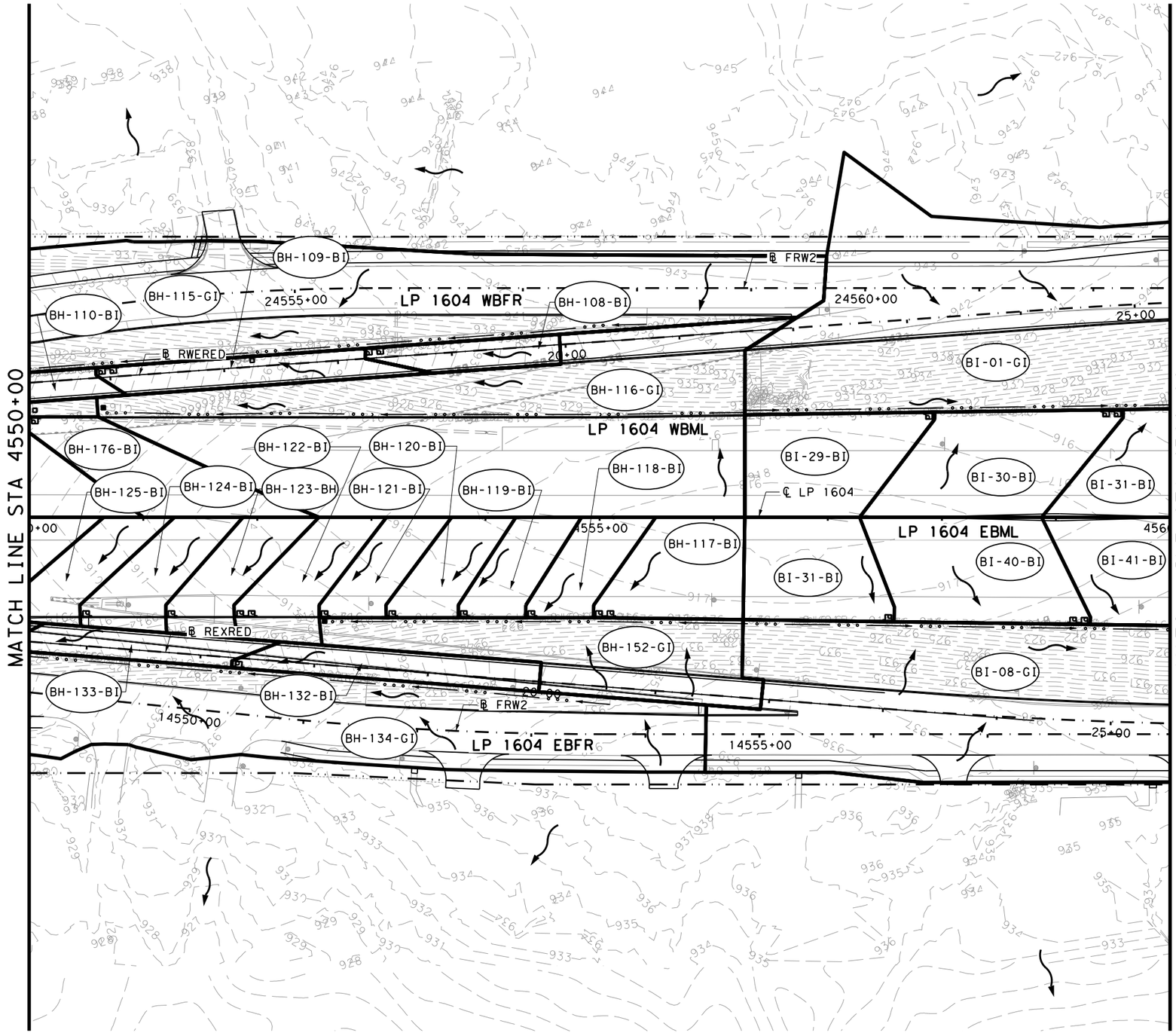

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
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REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

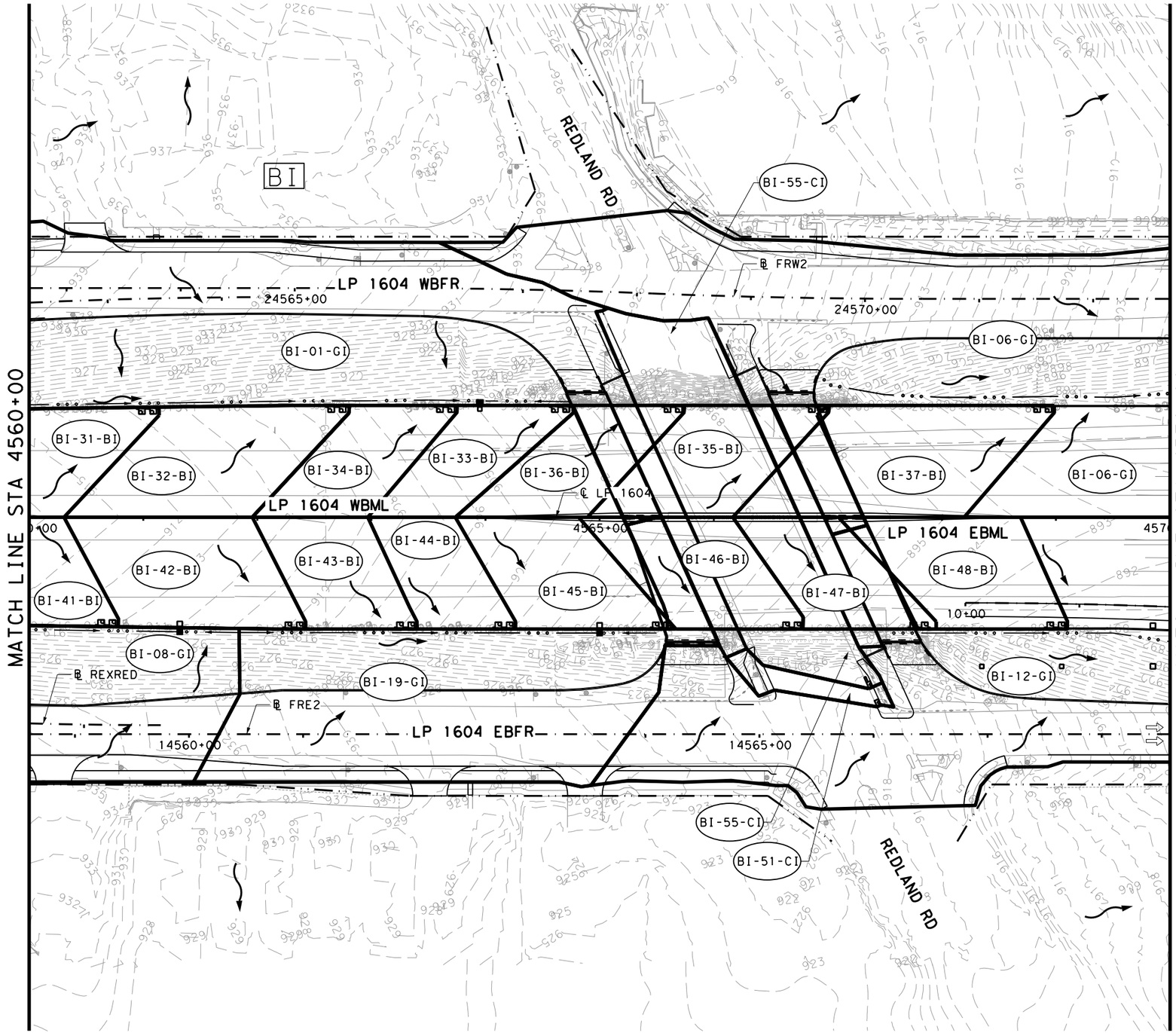
LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4550+00 TO STA 4560+00

SHEET 17 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1391



NOTE: DA'S BI-01-GI, BI-06-GI, BI-55-CI, BI-19-GI AND BI-12-GI ARE LOCATED ABOVE BI-46-BI, BI-47-BI, BI-36-BI, BI-35-BI AND BI-37-BI

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
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STATE OF TEXAS
LUKE REED
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REV. NO.	DATE	DESCRIPTION	BY

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SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

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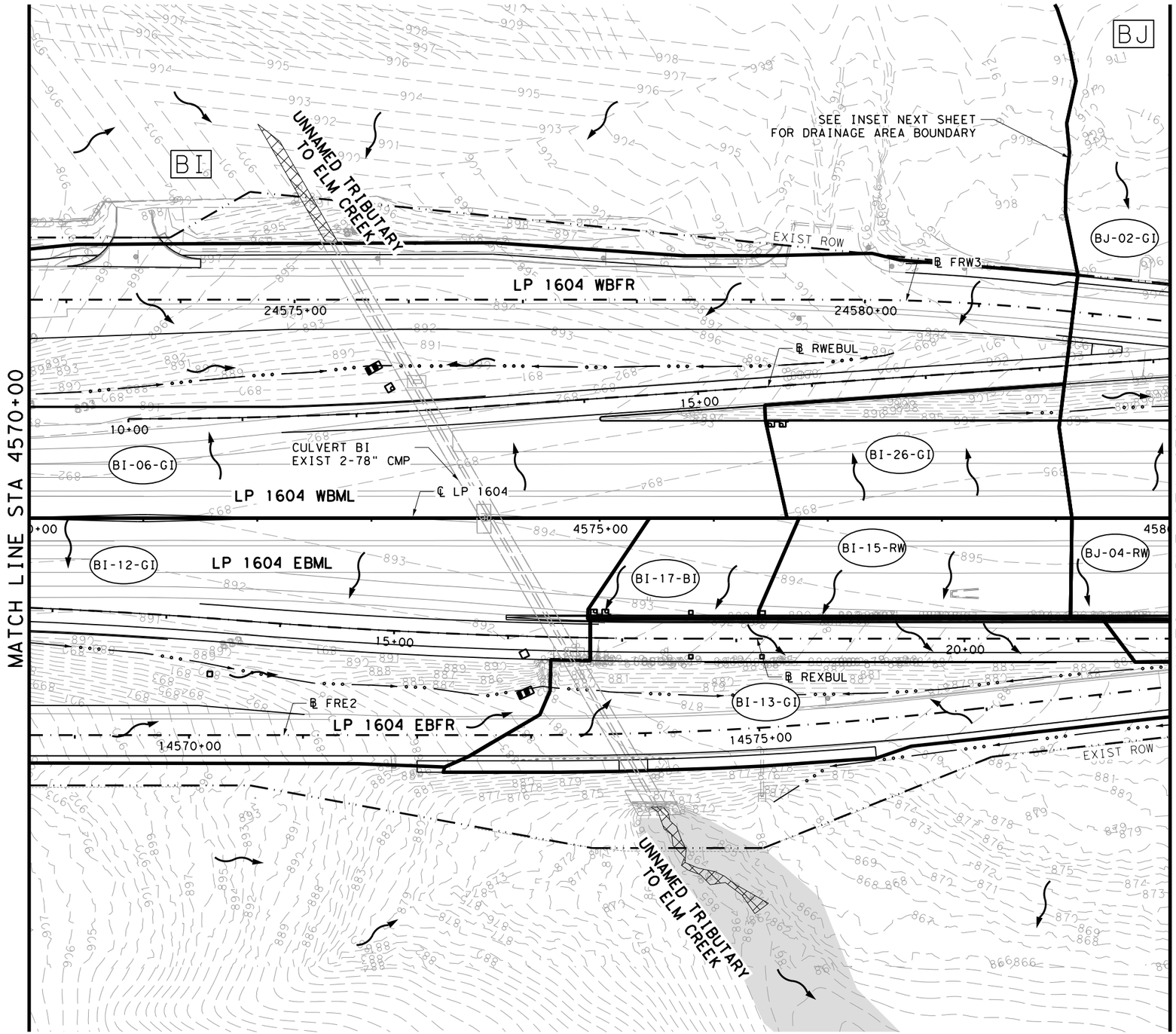
LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4560+00 TO STA 4570+00

SHEET 18 OF 24

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1392



LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- [X] EXTERNAL DRAINAGE AREA ID
- (xx-xx-xx) NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
1. SEE HYDROLOGY CALCULATION SHEETS FOR DRAINAGE AREA CALCULATIONS.
2. "EX" DENOTES AN EXISTING INLET THAT WILL REMAIN.
3. PROPOSED 1' CONTOURS WITHIN ROW WERE DEVELOPED USING PROPOSED SURFACE AND 2017 LIDAR DATA. EXISTING 1' CONTOURS OUTSIDE ROW WERE DEVELOPED USING 2017 LIDAR DATA.
4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4570+00 TO STA 4580+00

SHEET 19 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1393

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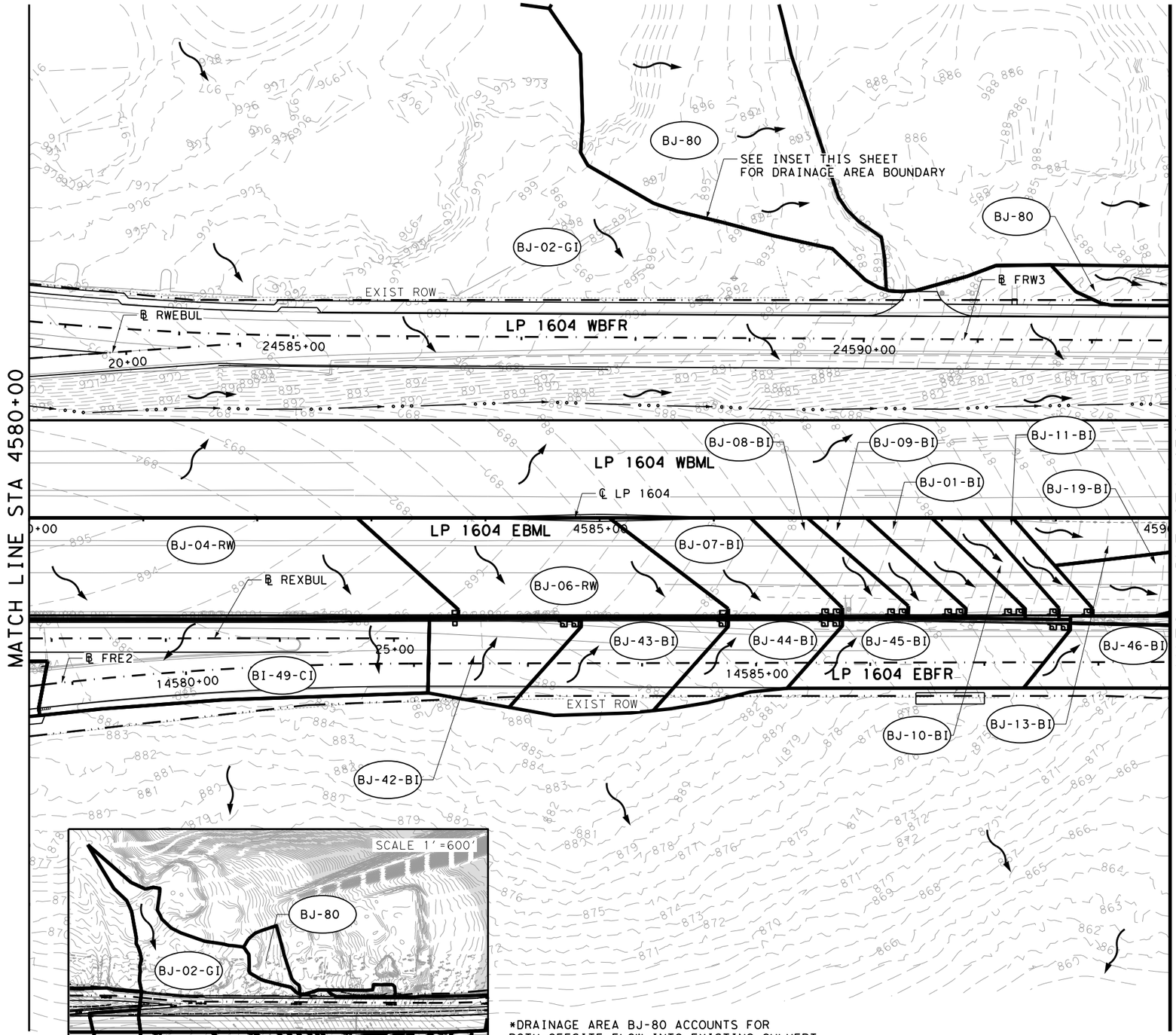

*DRAINAGE AREA BJ-80 ACCOUNTS FOR BOTH OFFSITE FLOW INTO EXISTING CULVERT WEST OF EMERALD VILLAGE APARTMENTS AND FLOW ENTERING PROPOSED DITCH BJ-80 SOUTH OF EMERALD VILLAGE APARTMENTS. THIS TOTAL FLOW WAS USED FOR THE OUTSIDE OF ROW ANALYSIS FOR DITCH BJ-80.

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- [X] EXTERNAL DRAINAGE AREA ID
- (xx-xx-xx) NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
1. SEE HYDROLOGY CALCULATION SHEETS FOR DRAINAGE AREA CALCULATIONS.
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4. SEE DRAINAGE AREA MAP EXTERNAL SHEETS FOR EXTERNAL AREAS.

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4580+00 TO STA 4590+00

SHEET 20 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1394

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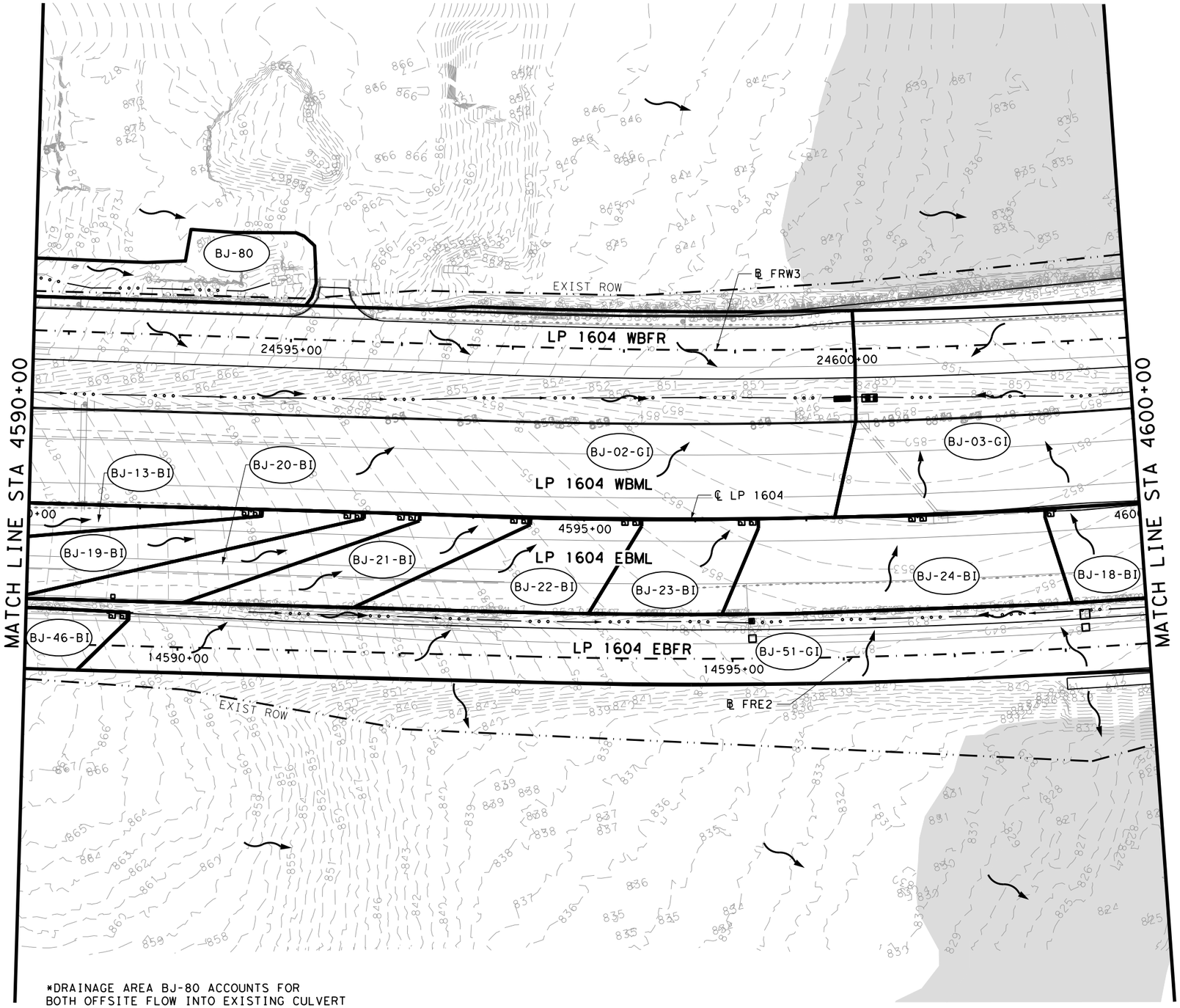

*DRAINAGE AREA BJ-80 ACCOUNTS FOR BOTH OFFSITE FLOW INTO EXISTING CULVERT WEST OF EMERALD VILLAGE APARTMENTS AND FLOW ENTERING PROPOSED DITCH BJ-80 SOUTH OF EMERALD VILLAGE APARTMENTS. THIS TOTAL FLOW WAS USED FOR THE OUTSIDE OF ROW ANALYSIS FOR DITCH BJ-80.

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
1. SEE HYDROLOGY CALCULATION SHEETS FOR DRAINAGE AREA CALCULATIONS.
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STATE OF TEXAS — LUKE REED — 101242 — LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4590+00 TO STA 4600+00

SHEET 21 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1395

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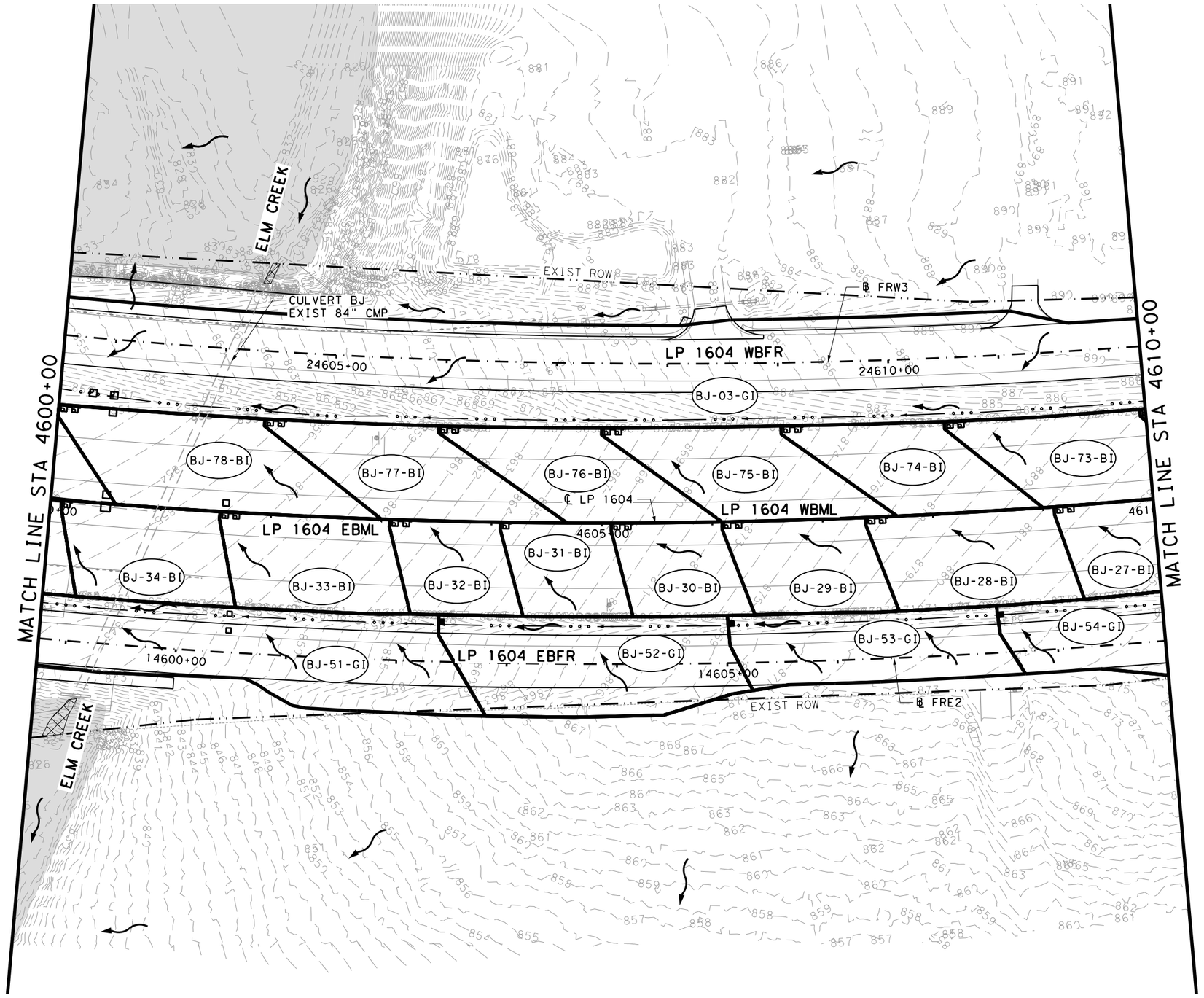

N

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

INTERIOR DRAINAGE AREA LAYOUT

STA 4600+00 TO STA 4610+00

SHEET 22 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1396

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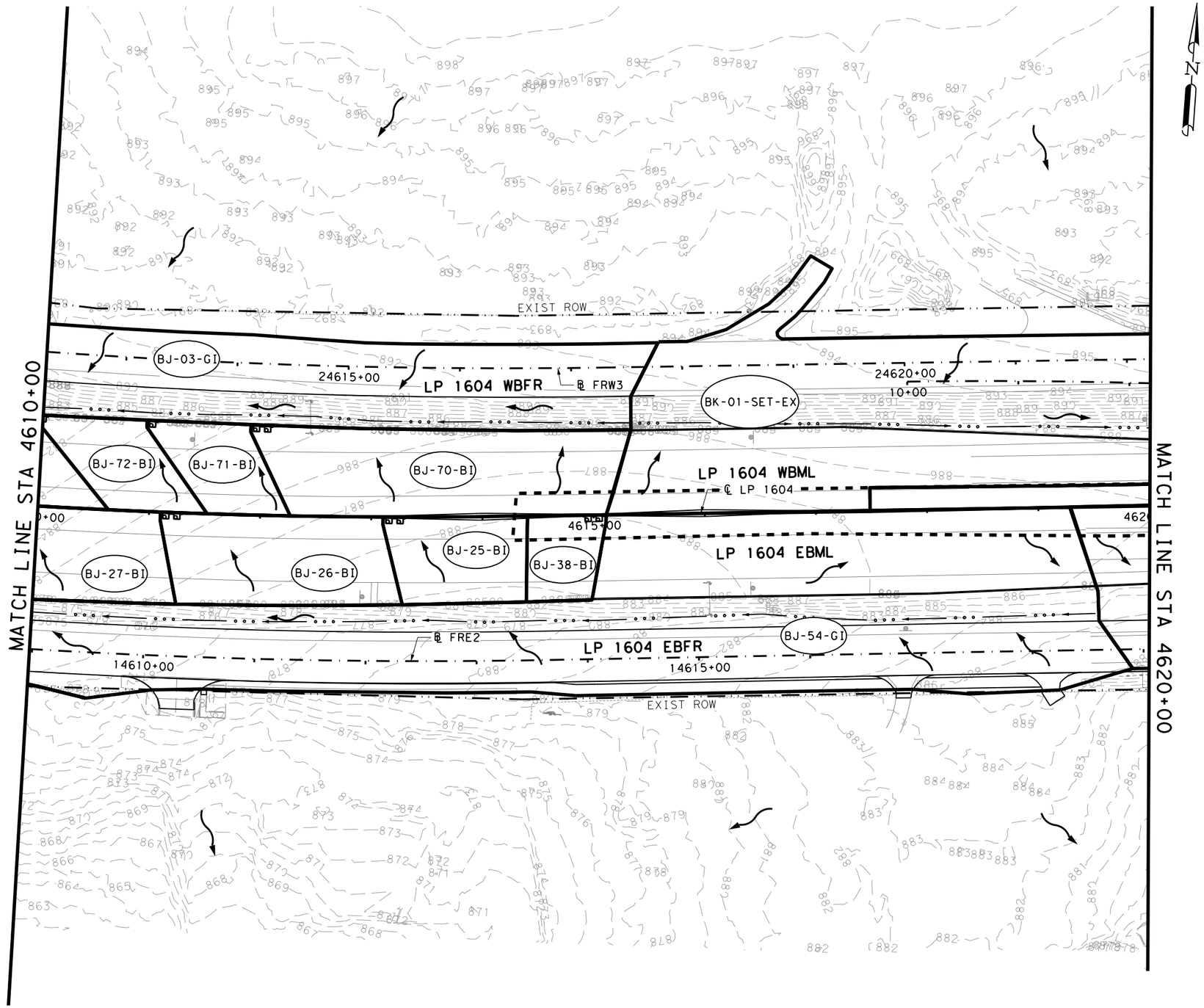

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
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- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604
INTERIOR DRAINAGE AREA LAYOUT
STA 4610+00 TO 4620+00

SHEET 23 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1397

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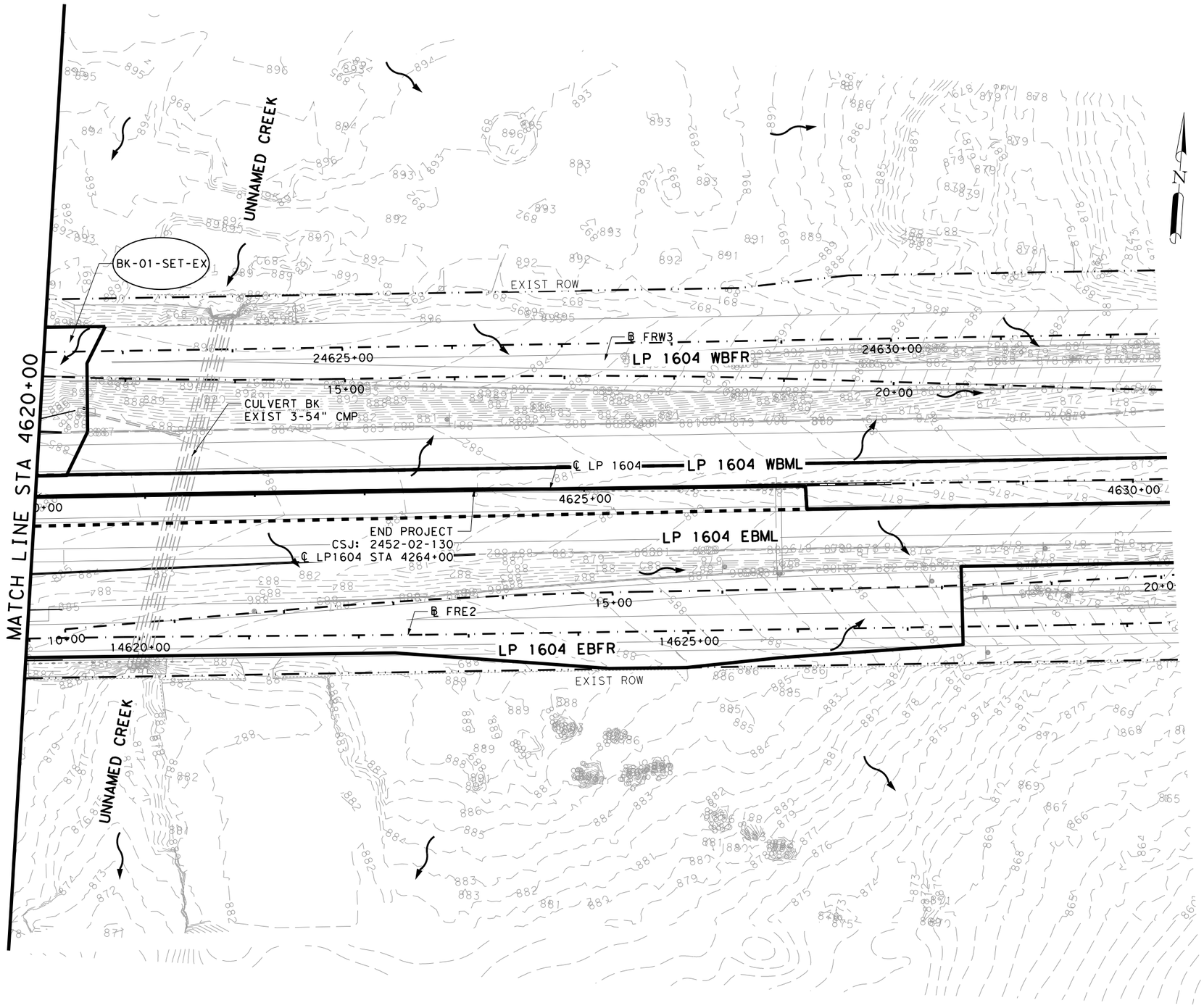

LEGEND

- FLOW ARROW
- DRAINAGE AREA BOUNDARY
- EXISTING DITCH FLOW LINE
- PROPOSED DITCH FLOW LINE
- EXISTING FEATURES
- 100 YR FLOODPLAIN
- X — EXTERNAL DRAINAGE AREA ID
- xx-xx-xx — NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTES:
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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

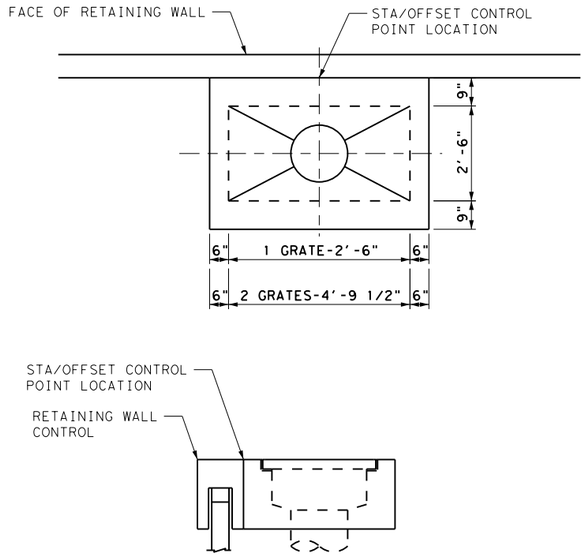
LP 1604

INTERIOR DRAINAGE AREA LAYOUT

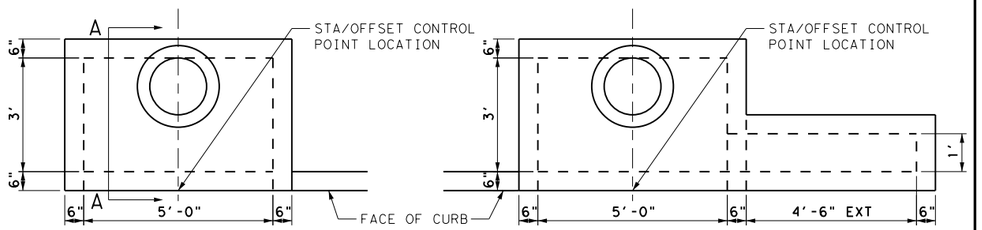
STA 4620+00 TO END PROJECT

SHEET 24 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1398

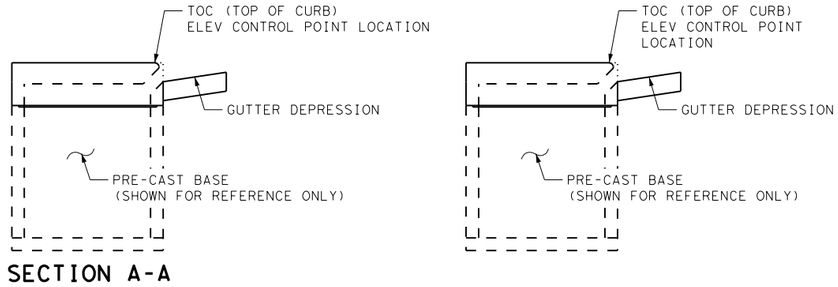


STATION/OFFSET CONTROL POINT FOR INLET TYPE MSE2 STYLE MOD AND PG



INLET TYPE PCO (3'x5')

INLET TYPE PCO W/1 EXT (3'x5')

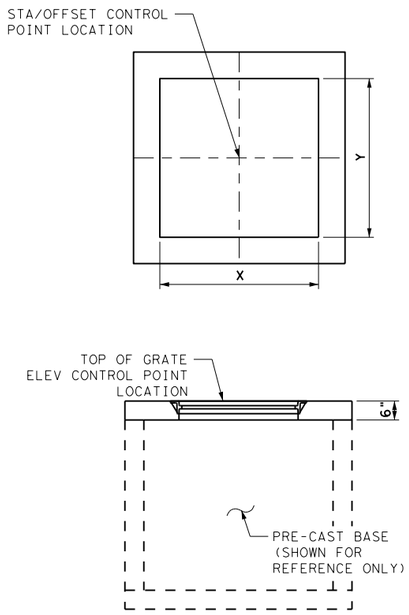


SECTION A-A

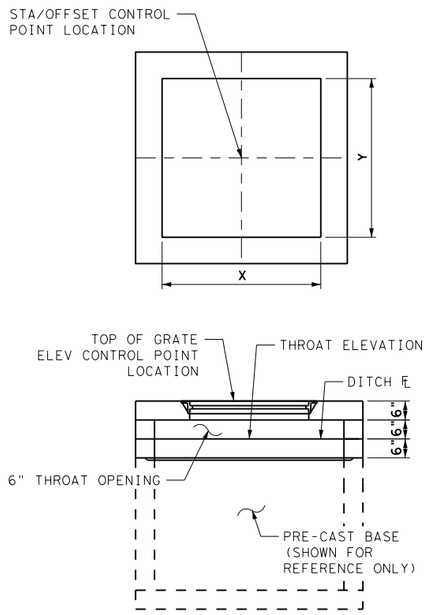
STATION/OFFSET CONTROL POINT FOR INLET TYPE PCO (3'x5')

NOTES:

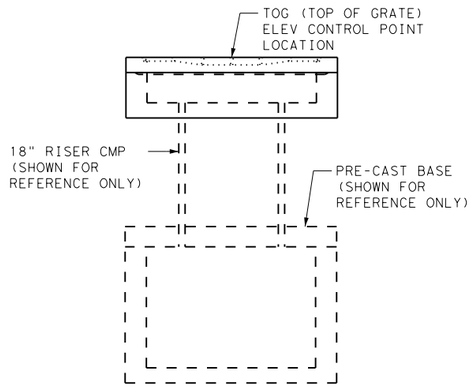
1. THE LOCATION OF THE CONTROL POINTS SHOWN ON THIS SHEET SHALL GOVERN THE LOCATION SHOWN ON STANDARD DETAILS.
2. FOR ADDITONAL INLET DIMENSIONS AND PRE-CAST BASE OR JUNCTION BOX DETAILS SEE APPLICABLE STANDARDS.
3. CI - CURB INLET
   BI - BARRIER INLET
   RW - RETAINING WALL INLET
   GI - GRATE INLET
   JB - JUNCTION BOX
   MH - MANHOLE
   J - JUNCTION
   EX - EXISTING STRUCTURE
4. FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.



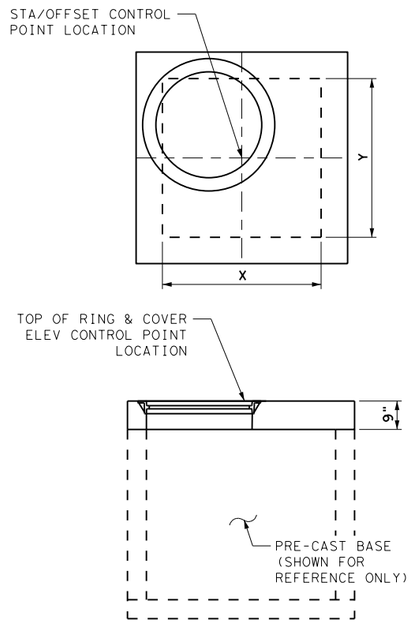
STATION/OFFSET CONTROL POINT FOR INLET TYPE PSL STYLE FG (4'X4')



STATION/OFFSET CONTROL POINT FOR INLET TYPE PAZD STYLE FG (3'x3') OR (4'X4')



STATION/OFFSET CONTROL POINT FOR INLET TYPE POD STYLE FG (3'x3') OR (4'X4')



STATION/OFFSET CONTROL POINT FOR INLET TYPE PSL STYLE RC (4'x4'), (5'x5'), (6'X6')

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

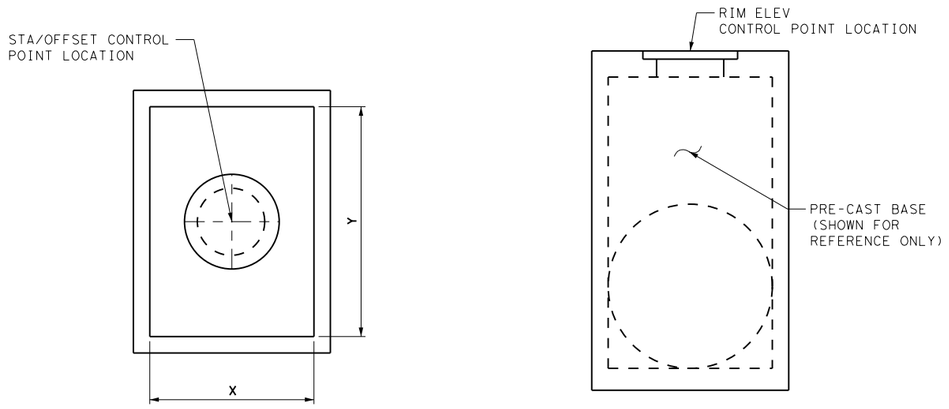
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

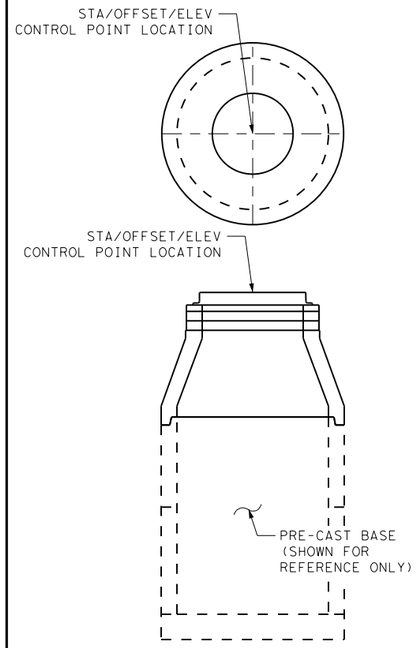
LP 1604
HYDRAULIC DATA
GENERAL INFORMATION

NTS — SHEET 3 OF 5

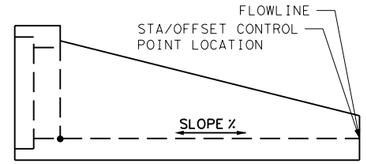
FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1411



STATION/OFFSET CONTROL POINT FOR INLET TYPE PJB (3'X3'), (4'X4'), (5'X5') OR (6'X6')



STATION/OFFSET CONTROL POINT FOR MANHOLE TYPE PRM



STATION/OFFSET CONTROL POINT FOR S.E.T.

NOTES:

1. THE LOCATION OF THE CONTROL POINTS SHOWN ON THIS SHEET SHALL GOVERN THE LOCATION SHOWN ON STANDARD DETAILS.
2. FOR ADDITONAL INLET DIMENSIONS AND PRE-CAST BASE OR JUNCTION BOX DETAILS SEE APPLICABLE STANDARDS.
3. CI - CURB INLET
   BI - BARRIER INLET
   RW - RETAINING WALL INLET
   GI - GRATE INLET
   JB - JUNCTION BOX
   MH - MANHOLE
   J - JUNCTION
   EX - EXISTING STRUCTURE
4. FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604
HYDRAULIC DATA
GENERAL INFORMATION

SHEET 4 OF 5

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1412

NOTE:
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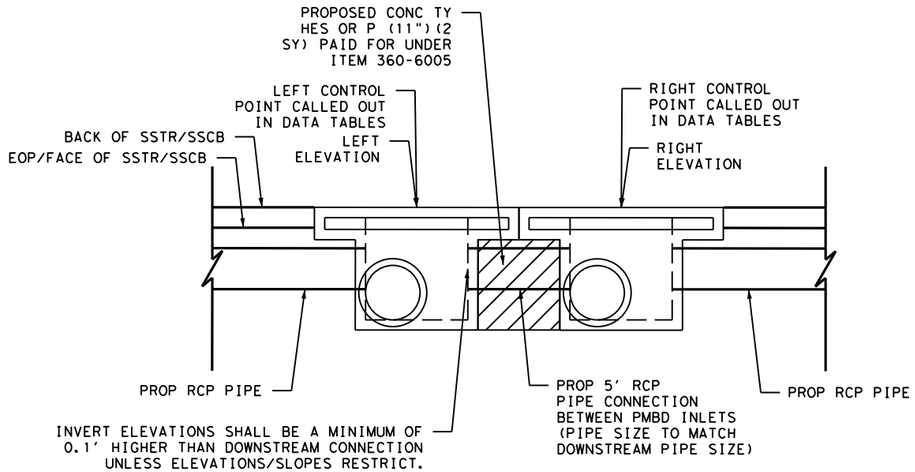
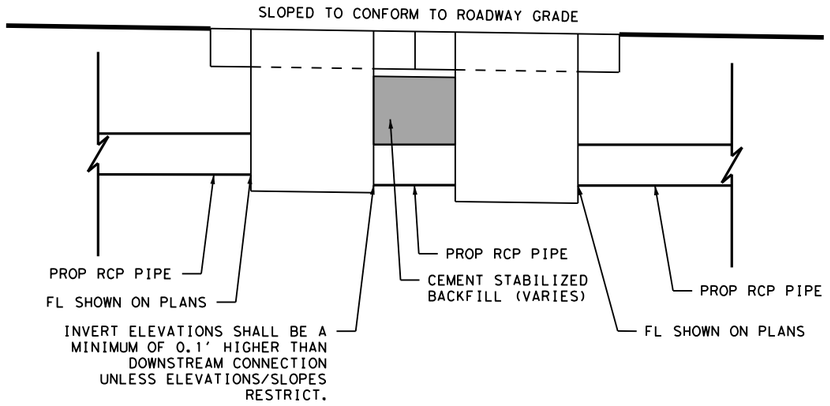
BARRIER INLETS							
TYPE	SLOT LENGTH (FT)	SLOT WIDTH (FT)	PERIMETER (FT)	GRATE AREA (SF)	CLOG REDUCTION FACTOR	PERIMETER REDUCTION FACTOR	CONTROL POINT
PMBD (MOD)	0.58	9.00	N/A	N/A	N/A	N/A	TOP BACK CENTER OF INLET
PMBD (MOD)X2	0.58	18.00	N/A	N/A	N/A	N/A	TOP BACK CENTER OF INLETS



2-PMBD PLAN DETAIL

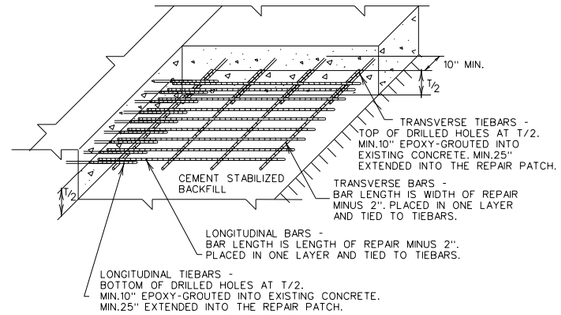


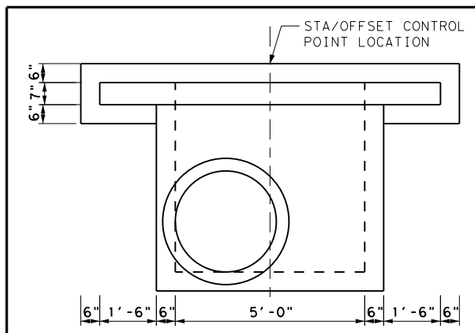
2-PMBD PROFILE DETAIL

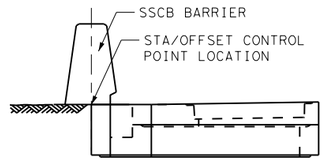
CONCRETE PAVING DETAIL

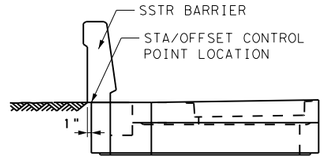
TABLE NO.1 STEEL BAR SIZE AND SPACING						
TYPE PAVEMENT	SLAB THICKNESS AND BAR SIZE		LONGITUDINAL*		TRANSVERSE*	
			REGULAR BARS	TIEBARS	BARS	TIEBARS
	T (IN.)	BAR SIZE	SPACING (IN.)	SPACING (IN.)	SPACING (IN.)	SPACING (IN.)
CRCP	11.0	#6	6.5	6.5		24

* USE 12" SPACING AS FIRST AND LAST SPACING AT END OR SIDE FOR ALL BARS.









STATION/OFFSET CONTROL POINT FOR INLET TYPE PMBD (MOD)

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

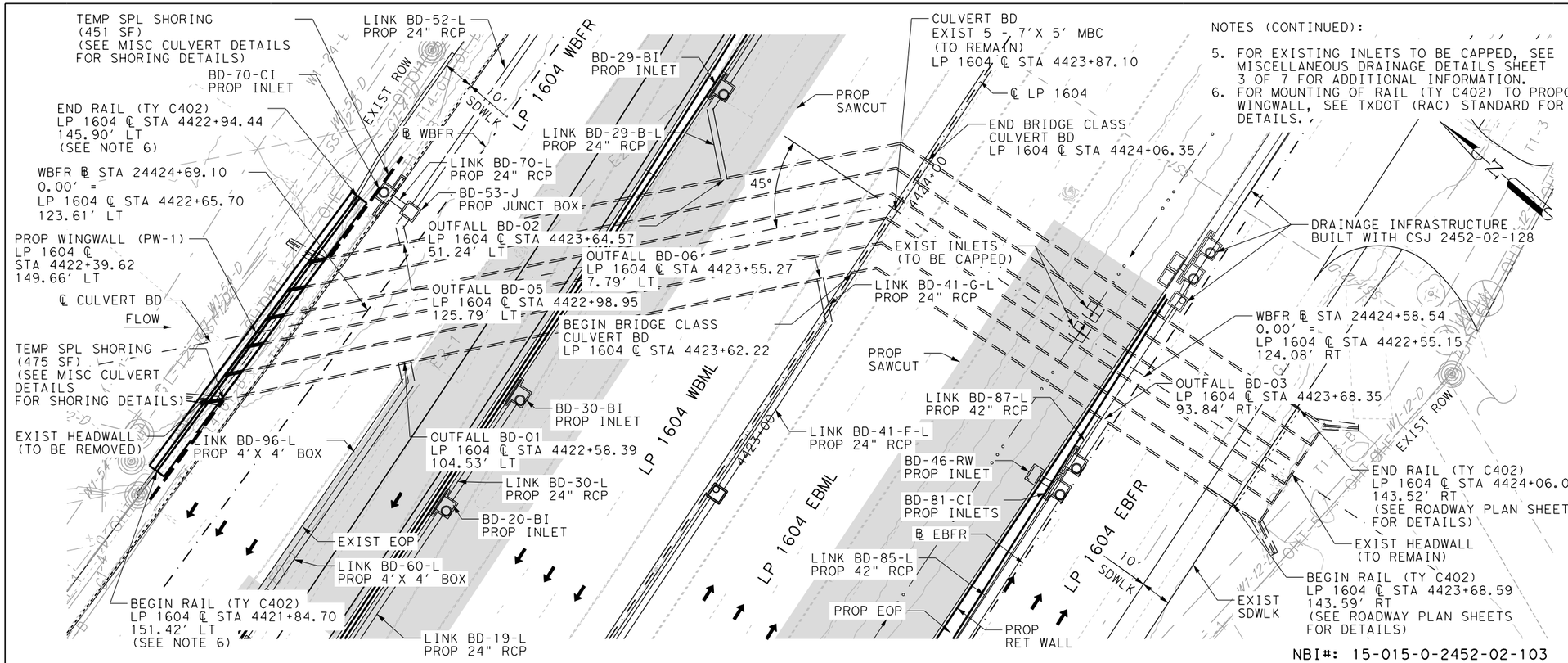
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
HYDRAULIC DATA
GENERAL INFORMATION

SHEET 5 OF5

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1413



NBI#: 15-015-0-2452-02-103

QUANTITY SUMMARY CSJ 2452-02-130			
ITEM NO.	ITEM	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	32
0401-6001	FLOWABLE BACKFILL	CY	25
0403-6001	TEMPORARY SPL SHORING	SF	926
0450-6034	RAIL (TY C402)	LF	110
0462-6060	CONC BOX CULV(7 FT X 5 FT)(EXTEND)	LF	30
0466-6184	WINGWALL (PW-1)(HW=9 FT)	EA	1
0496-6006	REMOVING STR (HEADWALL)	EA	1

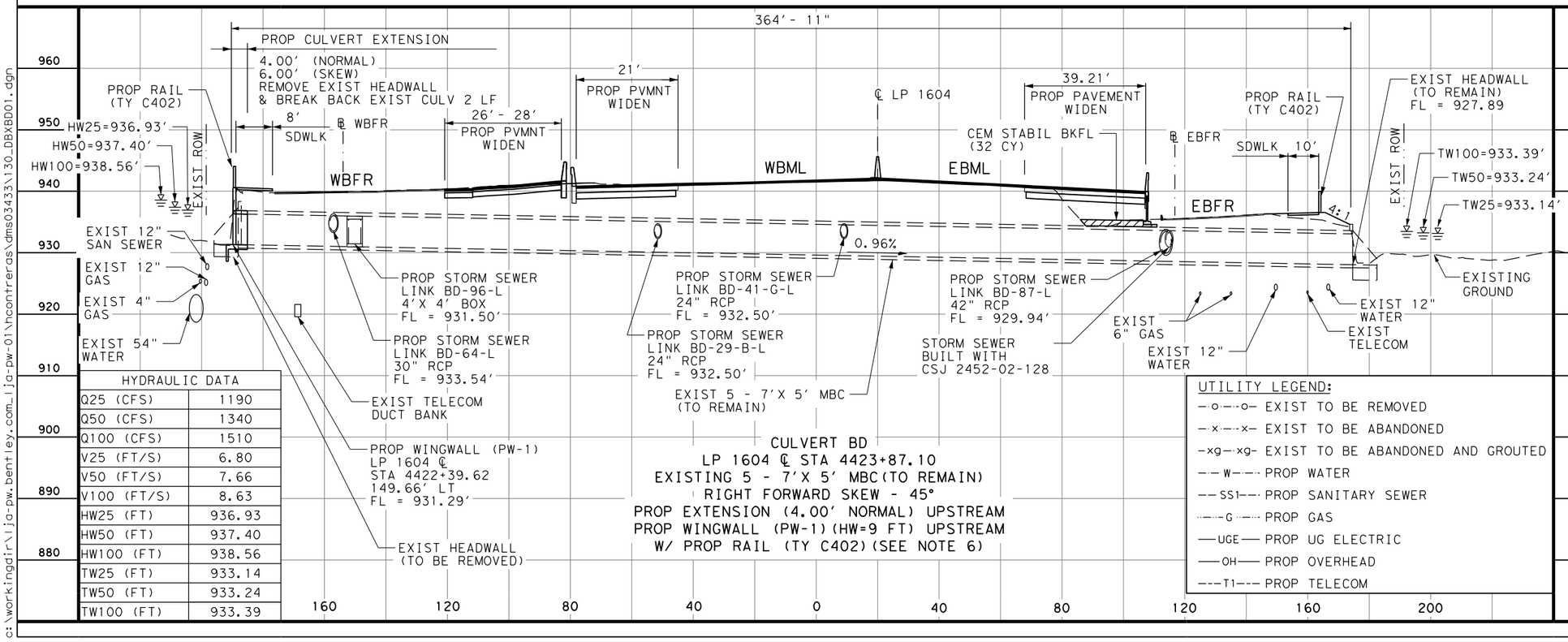
NOTES:

1. HYDRAULIC ANALYSIS PERFORMED USING HEC-RAS VERSION 5.0.7.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.
4. CLEANING OF EXISTING CULVERT PAID FOR UNDER CSJ 2452-02-128,ETC.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/
RECONSTRUCTION



CULVERT BD
LP 1604 ℄ STA 4423+87.10
EXISTING 5 - 7'X 5' MBC(TO REMAIN)
RIGHT FORWARD SKEW - 45°
PROP EXTENSION (4.00' NORMAL) UPSTREAM
PROP WINGWALL (PW-1)(HW=9 FT) UPSTREAM
W/ PROP RAIL (TY C402)(SEE NOTE 6)

HYDRAULIC DATA	
Q25 (CFS)	1190
Q50 (CFS)	1340
Q100 (CFS)	1510
V25 (FT/S)	6.80
V50 (FT/S)	7.66
V100 (FT/S)	8.63
HW25 (FT)	936.93
HW50 (FT)	937.40
HW100 (FT)	938.56
TW25 (FT)	933.14
TW50 (FT)	933.24
TW100 (FT)	933.39

UTILITY LEGEND:

-o-o- EXIST TO BE REMOVED
-x-x- EXIST TO BE ABANDONED
-xg-xg- EXIST TO BE ABANDONED AND GROUTED
-W- PROP WATER
-SS1- PROP SANITARY SEWER
-G- PROP GAS
-UGE- PROP UG ELECTRIC
-OH- PROP OVERHEAD
-T1- PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER
2/17/2023

0' 10' 20' 40'
SCALE: 1"=40'- HORZ
1"=20'- VERT

CivilCorp
ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

LP 1604

CULVERT LAYOUT SHEETS
CULVERT BD
UT TO LORENCE CREEK

SHEET 1 OF 10

DESIGNED: HC	FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
CHECKED: KYY	6	TEXAS				LP1604
DRAWN: HC	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED: KYY	SAT	BEXAR	2452	02	130, ETC	1577

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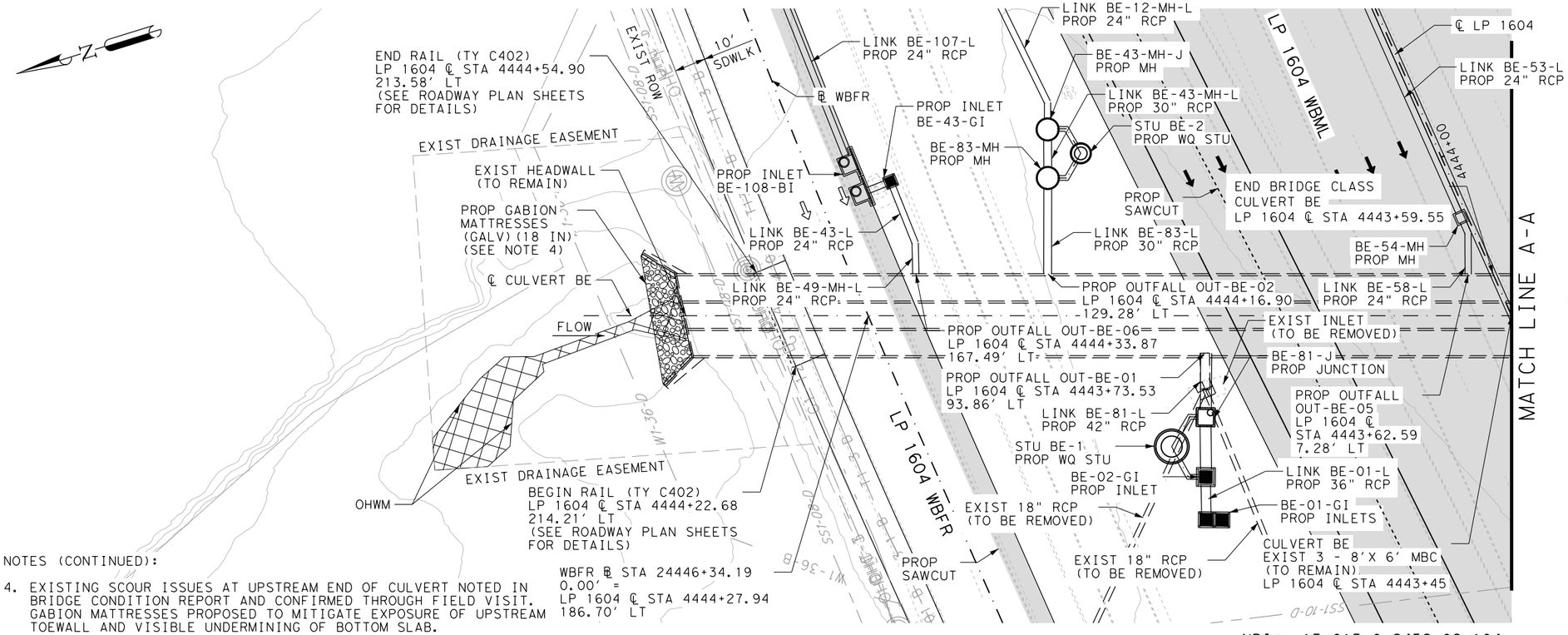


NOTES (CONTINUED):

4. EXISTING SCOUR ISSUES AT UPSTREAM END OF CULVERT NOTED IN BRIDGE CONDITION REPORT AND CONFIRMED THROUGH FIELD VISIT. GABION MATTRESSES PROPOSED TO MITIGATE EXPOSURE OF UPSTREAM TOEWALL AND VISIBLE UNDERMINING OF BOTTOM SLAB.

NBI#: 15-015-0-2452-02-104

QUANTITY SUMMARY CSJ 2452-02-130			
ITEM NO.	ITEM	UNIT	QTY
0459-6008	GABION MATTRESSES (GALV)(18 IN)	SY	40
0480-6001	CLEAN EXIST CULVERTS	EA	1

NOTES:

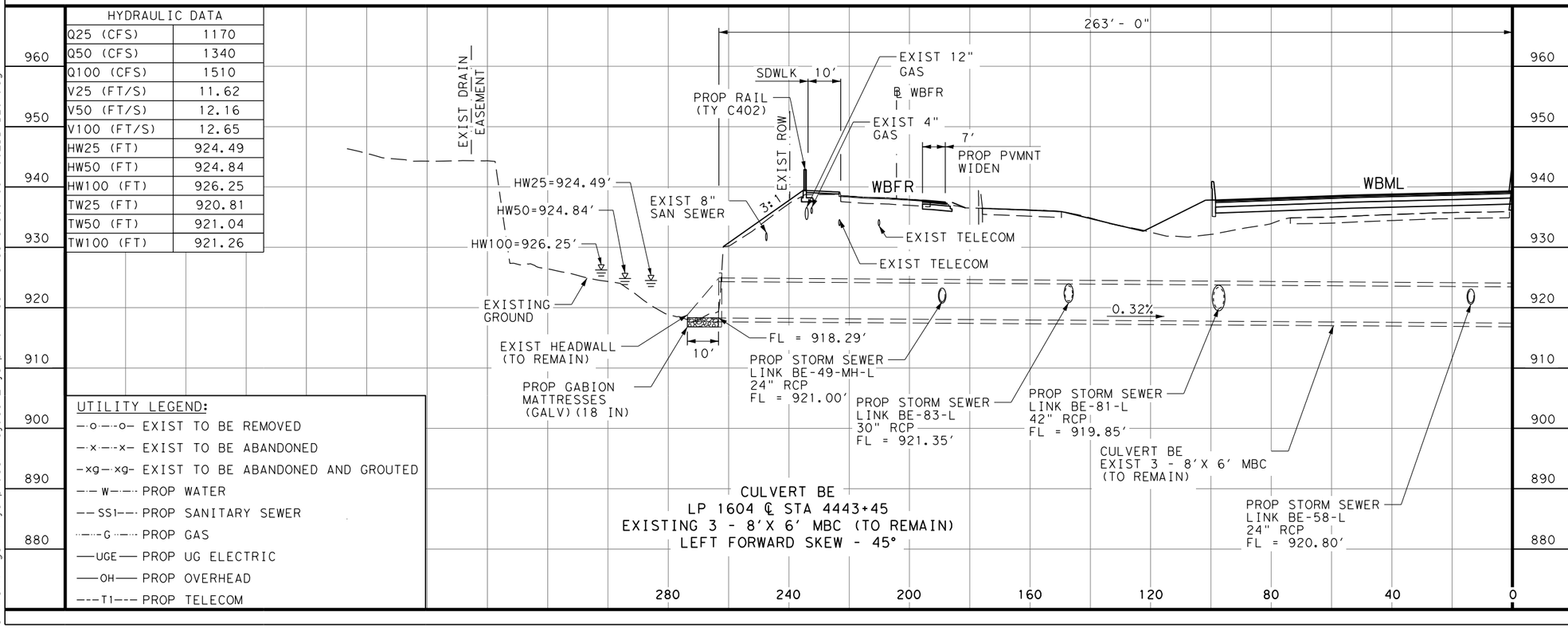
1. HYDRAULIC ANALYSIS PERFORMED USING HEC-RAS VERSION 5.0.7.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION

HYDRAULIC DATA	
Q25 (CFS)	1170
Q50 (CFS)	1340
Q100 (CFS)	1510
V25 (FT/S)	11.62
V50 (FT/S)	12.16
V100 (FT/S)	12.65
HW25 (FT)	924.49
HW50 (FT)	924.84
HW100 (FT)	926.25
TW25 (FT)	920.81
TW50 (FT)	921.04
TW100 (FT)	921.26



UTILITY LEGEND:

- —·o·—·o— EXIST TO BE REMOVED
- —·x·—·x— EXIST TO BE ABANDONED
- -xg—·xg- EXIST TO BE ABANDONED AND GROUTED
- —·— W—·—·· PROP WATER
- —— SS1—·— PROP SANITARY SEWER
- ···—·—G·—···· PROP GAS
- —UGE— PROP UG ELECTRIC
- —OH— PROP OVERHEAD
- ---T1--- PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER

2/17/2023

0' 10' 20' 40'

SCALE: 1"=40'- HORZ
1"=20'- VERT

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

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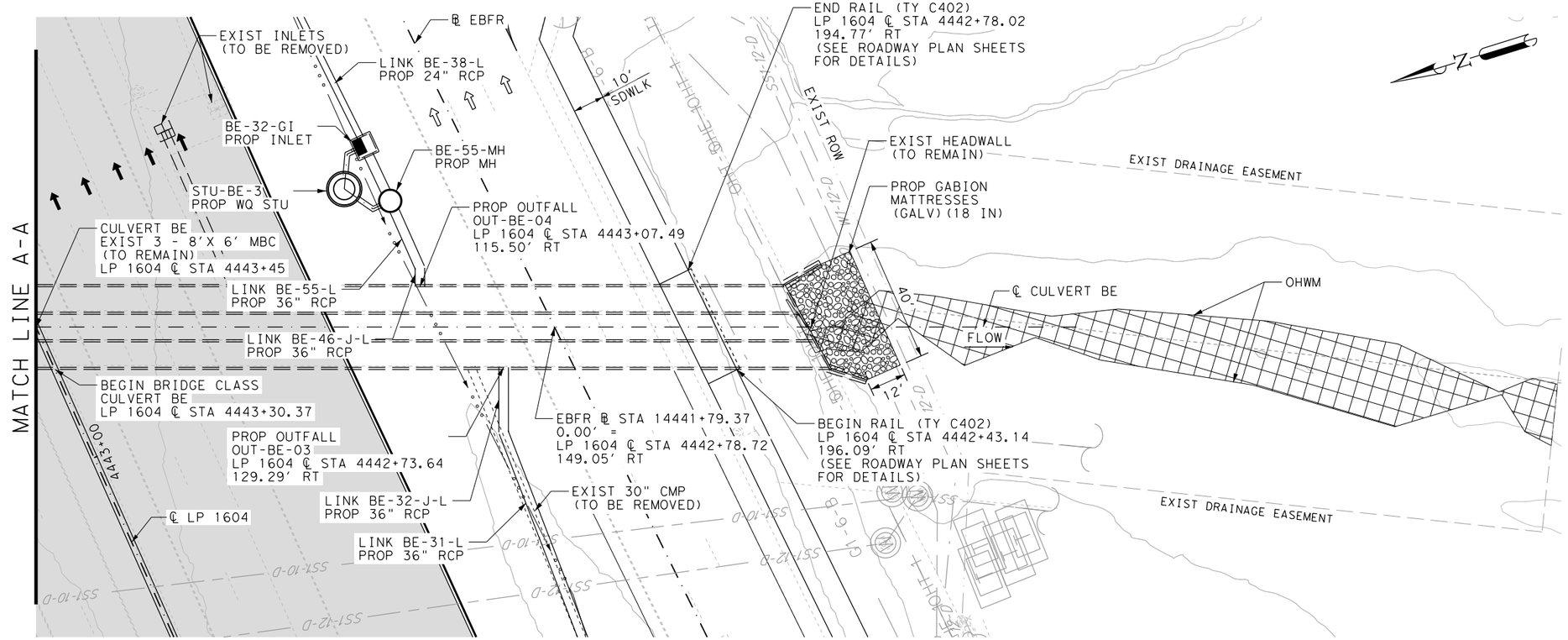
LP 1604

CULVERT LAYOUT SHEETS
CULVERT BE
LORENCE CREEK

SHEET 2 OF 10

DESIGNED: HC	FED.RD. DIV.NO.	STATE	PROJECT NO.				HIGHWAY NO.
CHECKED: KYY	6	TEXAS					LP1604
DRAWN: HC	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		SHEET NO.
CHECKED: KYY	SAT	BEXAR	2452	02	130, ETC		1578



QUANTITY SUMMARY CSJ 2452-02-130			
ITEM NO.	ITEM	UNIT	QTY
0459-6008	GABION MATTRESSES (GALV)(18 IN)	SY	90

NOTES:

1. HYDRAULIC ANALYSIS PERFORMED USING HEC-RAS VERSION 5.0.7.
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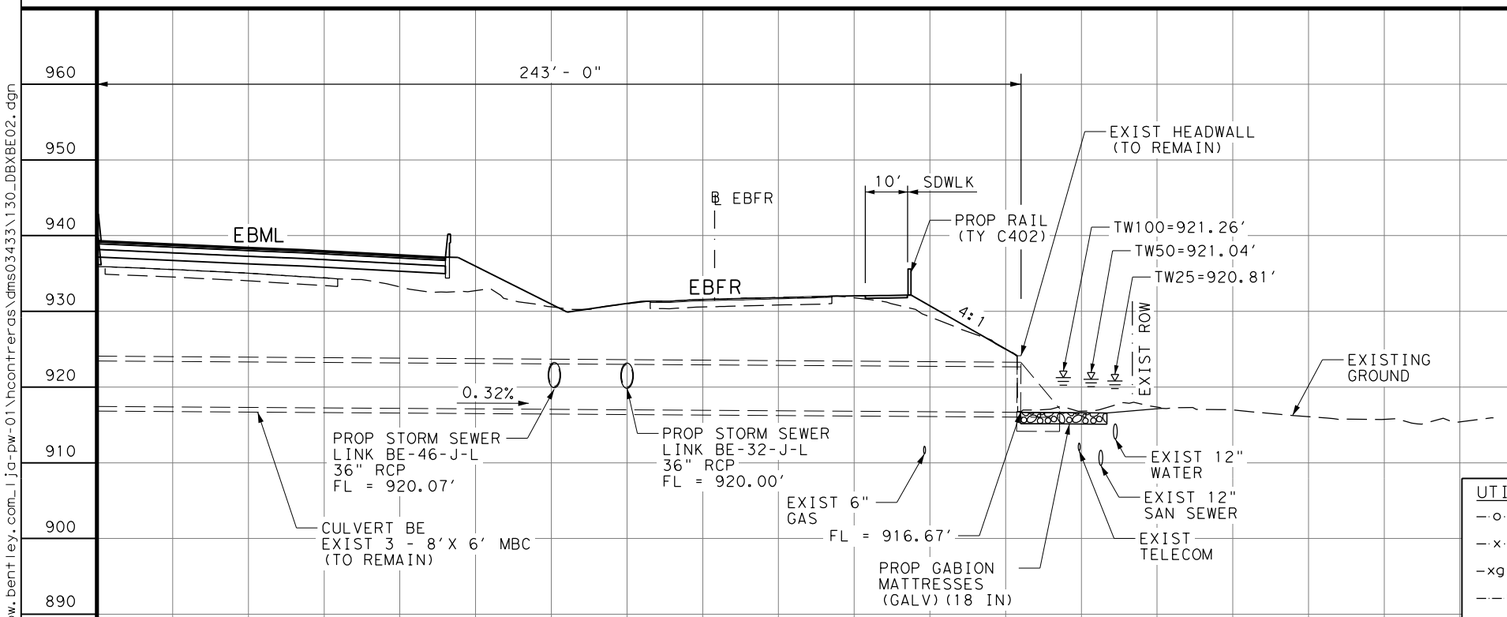
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION

NBI#: 15-015-0-2452-02-104



CULVERT BE
LP 1604 ℄ STA 4443+45
EXISTING 3 - 8'X 6' MBC (TO REMAIN)
LEFT FORWARD SKEW - 45°

HYDRAULIC DATA	
Q25 (CFS)	1170
Q50 (CFS)	1340
Q100 (CFS)	1510
V25 (FT/S)	11.62
V50 (FT/S)	12.16
V100 (FT/S)	12.65
HW25 (FT)	924.49
HW50 (FT)	924.84
HW100 (FT)	926.25
TW25 (FT)	920.81
TW50 (FT)	921.04
TW100 (FT)	921.26

UTILITY LEGEND:

-o-o- EXIST TO BE REMOVED
-x-x- EXIST TO BE ABANDONED
-xg-xg- EXIST TO BE ABANDONED AND GROUTED
-W- PROP WATER
-SS1- PROP SANITARY SEWER
-G- PROP GAS
-UGE- PROP UG ELECTRIC
-OH- PROP OVERHEAD
-T1- PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED PROFESSIONAL ENGINEER
2/17/2023

0' 10' 20' 40'
SCALE: 1"=40'- HORZ
1"=20'- VERT

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

CULVERT LAYOUT SHEETS
CULVERT BE
LORENCE CREEK

SHEET 3 OF 10

DESIGNED: HC	FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
CHECKED: KYY	6	TEXAS				LP1604
DRAWN: HC	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED: KYY	SAT	BEXAR	2452	02	130, ETC	1579

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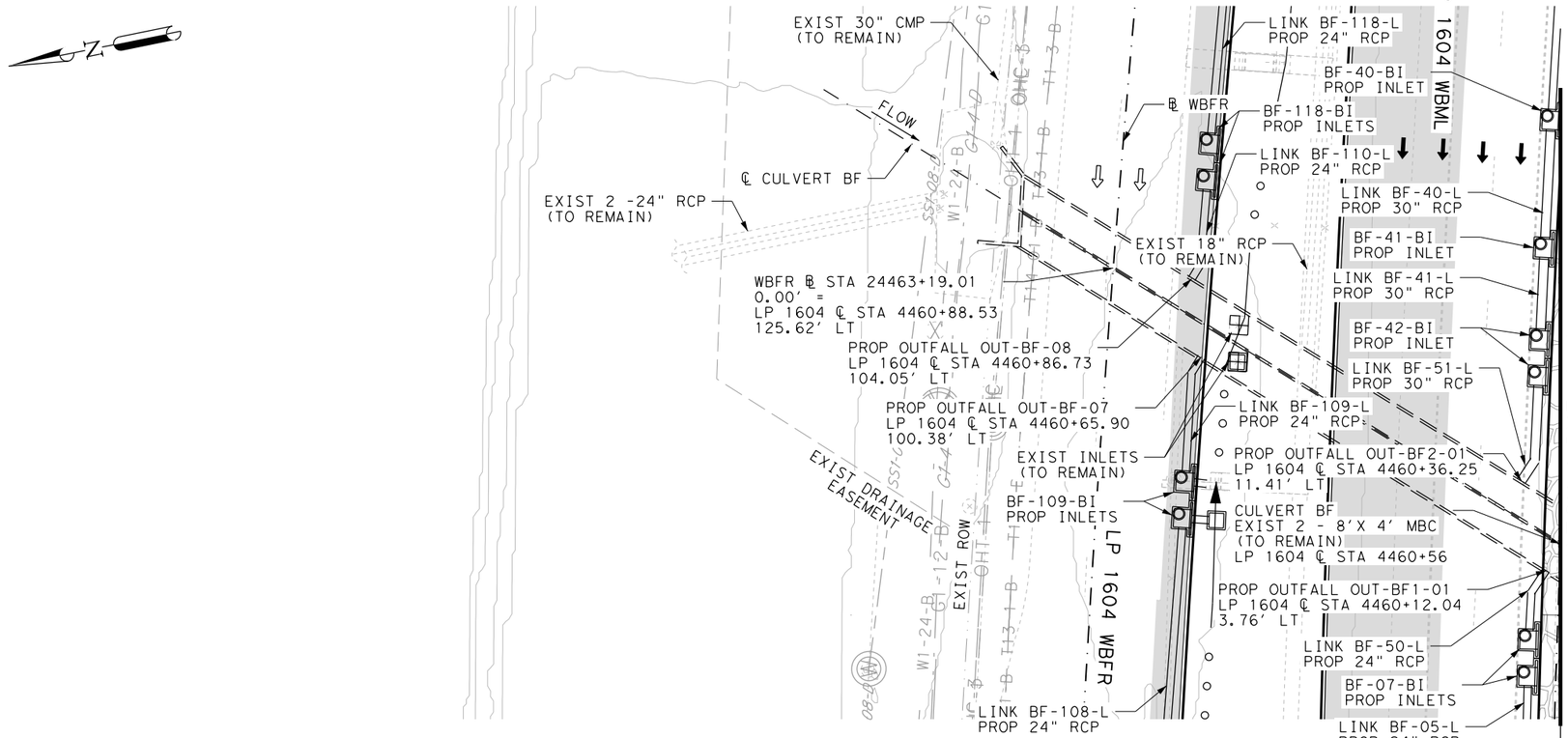

QUANTITY SUMMARY CSJ 2452-02-130			
ITEM NO.	ITEM	UNIT	QTY
0480-6001	CLEAN EXIST CULVERTS	EA	1

NOTES:

1. HYDRAULIC ANALYSIS PERFORMED USING HEC-RAS VERSION 5.0.7.
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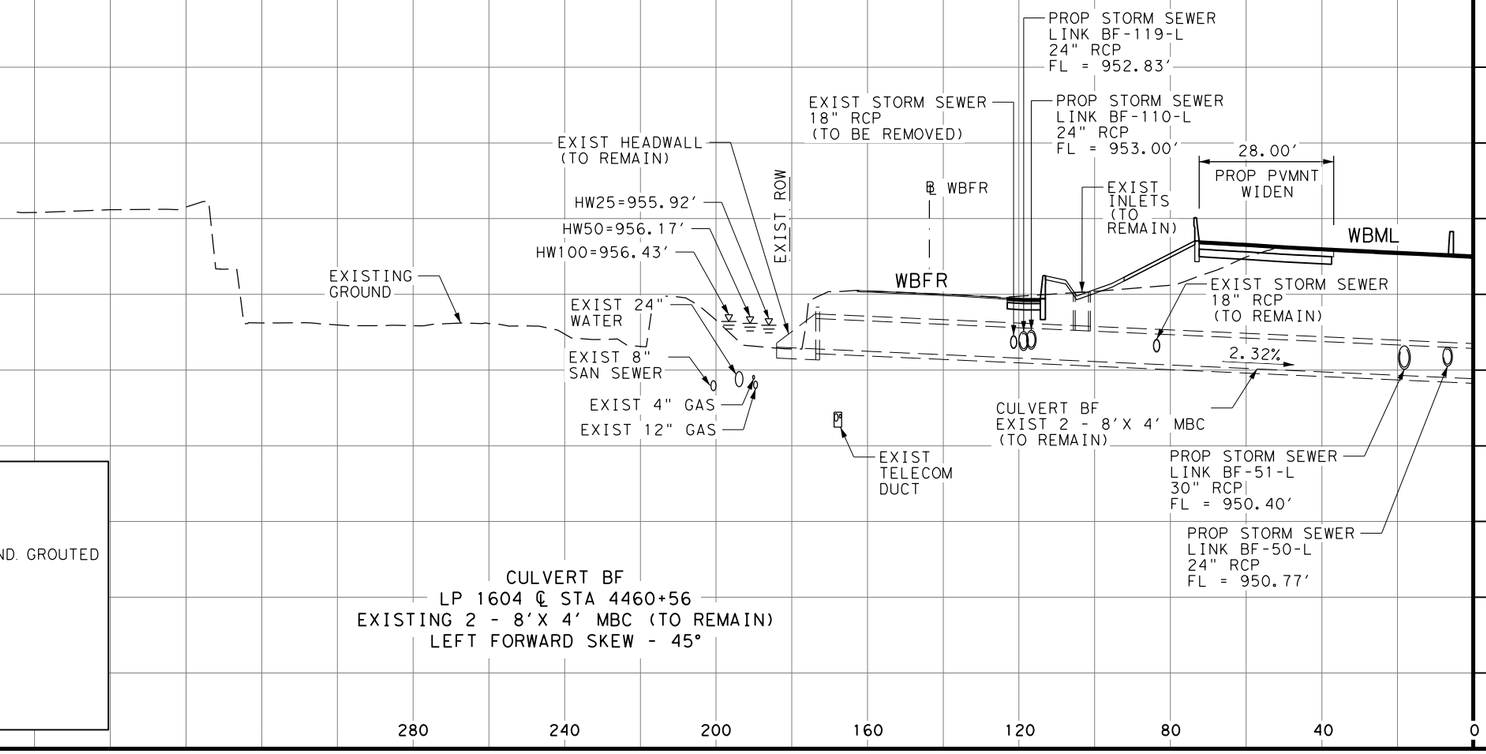
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION

HYDRAULIC DATA	
Q25 (CFS)	234
Q50 (CFS)	263
Q100 (CFS)	293
V25 (FT/S)	15.69
V50 (FT/S)	16.35
V100 (FT/S)	16.97
HW25 (FT)	955.92
HW50 (FT)	956.17
HW100 (FT)	956.43
TW25 (FT)	939.98
TW50 (FT)	940.04
TW100 (FT)	940.10



CULVERT BF
LP 1604 ℄ STA 4460+56
EXISTING 2 - 8'X 4' MBC (TO REMAIN)
LEFT FORWARD SKEW - 45°

UTILITY LEGEND:

—·o·—·o— EXIST TO BE REMOVED
—·x·—·x— EXIST TO BE ABANDONED
-xg—xg- EXIST TO BE ABANDONED AND GROUTED
—·W·—·— PROP WATER
——SS1——· PROP SANITARY SEWER
·—·—G·—·— PROP GAS
——UGE—— PROP UG ELECTRIC
——OH—— PROP OVERHEAD
———T1——— PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER
2/17/2023

0' 10' 20' 40'
SCALE: 1"=40' - HORZ
1"=20' - VERT

REV. NO.	DATE	DESCRIPTION	BY

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

LP 1604

CULVERT LAYOUT SHEETS
CULVERT BF
MINOR CROSSING

SHEET 4 OF 10

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1580

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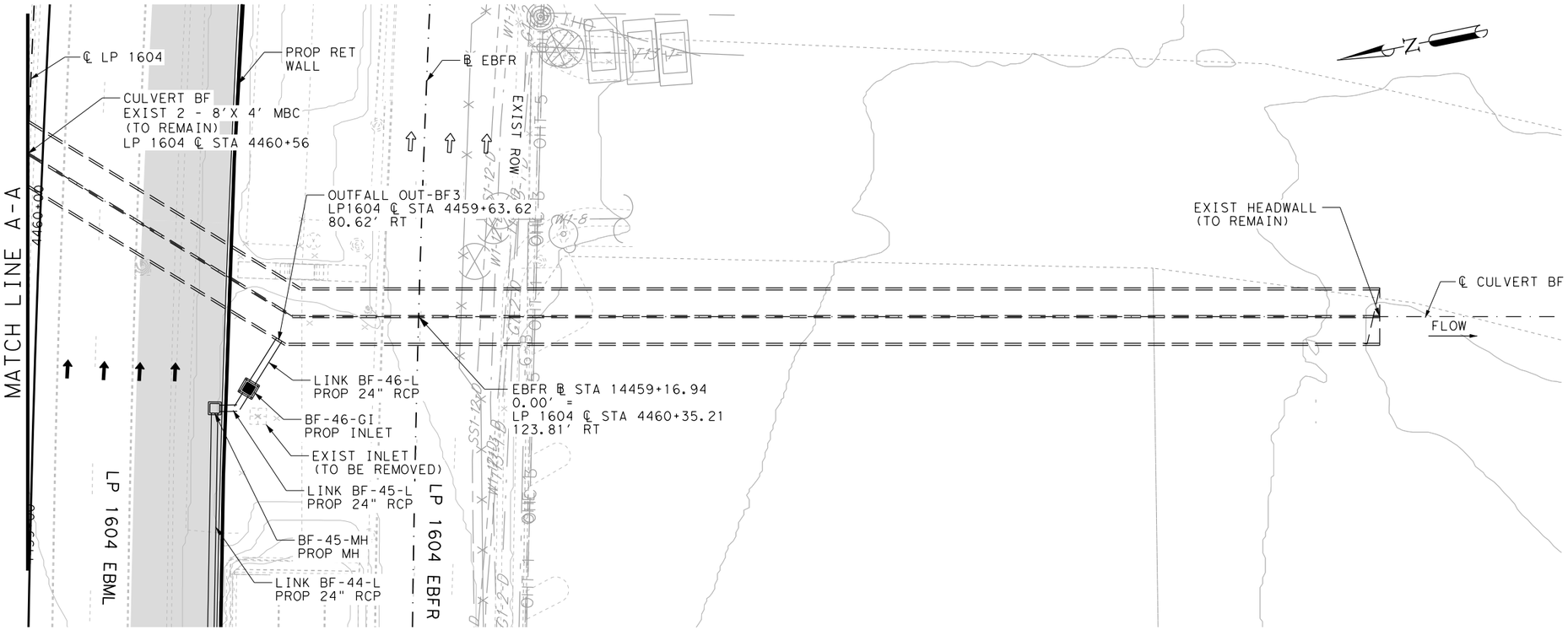


QUANTITY SUMMARY CSJ 2452-02-130			
ITEM NO.	ITEM	UNIT	QTY

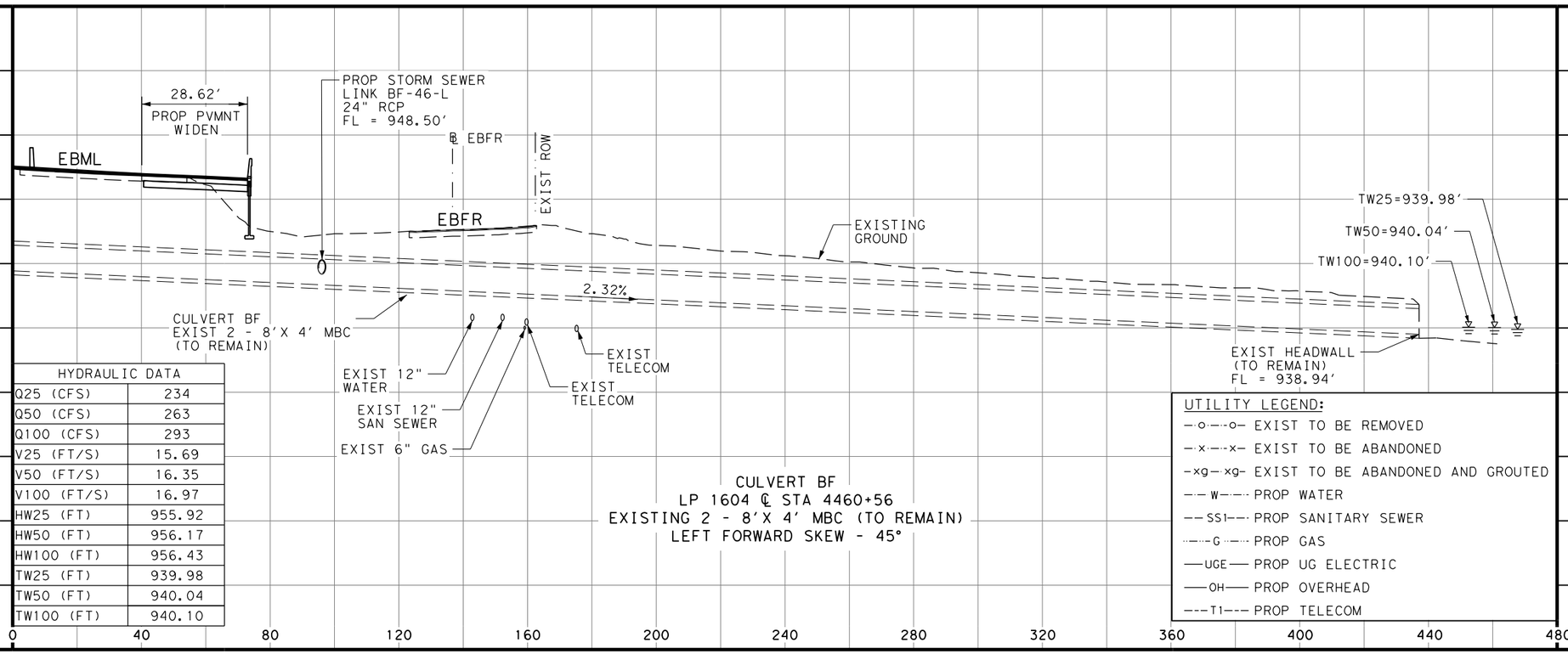
NOTES:

1. HYDRAULIC ANALYSIS PERFORMED USING HY-8 VERSION 7.6.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION



HYDRAULIC DATA	
Q25 (CFS)	234
Q50 (CFS)	263
Q100 (CFS)	293
V25 (FT/S)	15.69
V50 (FT/S)	16.35
V100 (FT/S)	16.97
HW25 (FT)	955.92
HW50 (FT)	956.17
HW100 (FT)	956.43
TW25 (FT)	939.98
TW50 (FT)	940.04
TW100 (FT)	940.10

CULVERT BF
LP 1604 ℄ STA 4460+56
EXISTING 2 - 8'X 4' MBC (TO REMAIN)
LEFT FORWARD SKEW - 45°

UTILITY LEGEND:

- —o—·o— EXIST TO BE REMOVED
- —x—·x— EXIST TO BE ABANDONED
- -xg-·xg- EXIST TO BE ABANDONED AND GROUTED
- —W—·— PROP WATER
- --SS1-- PROP SANITARY SEWER
- ·—G—· PROP GAS
- —UGE— PROP UG ELECTRIC
- —OH— PROP OVERHEAD
- ---T1--- PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER

2/17/2023

0' 10' 20' 40'

SCALE: 1"=40'- HORZ
1"=20'- VERT

REV. NO.	DATE	DESCRIPTION	BY

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

CULVERT LAYOUT SHEETS
CULVERT BF
MINOR CROSSING

SHEET 5 OF 10

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1581

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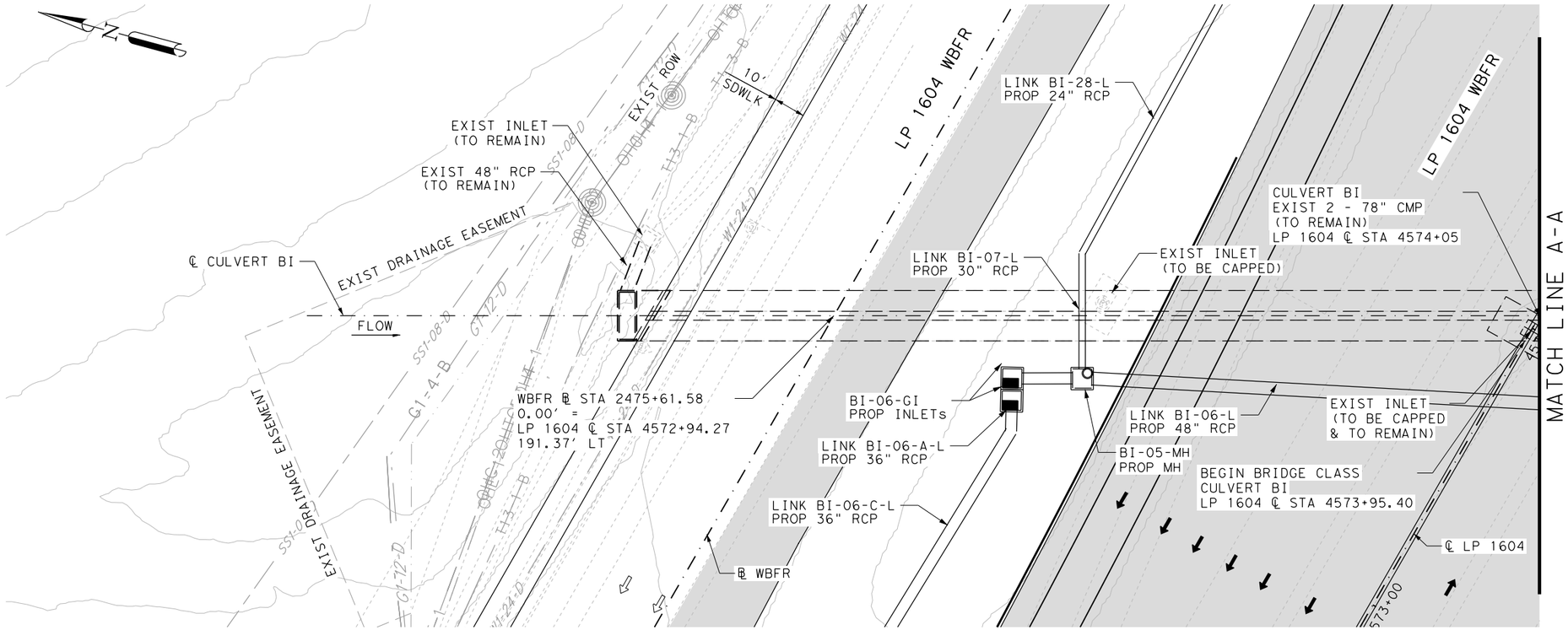


QUANTITY SUMMARY CSJ 2452-02-130

ITEM NO.	ITEM	UNIT	QTY

NOTES:

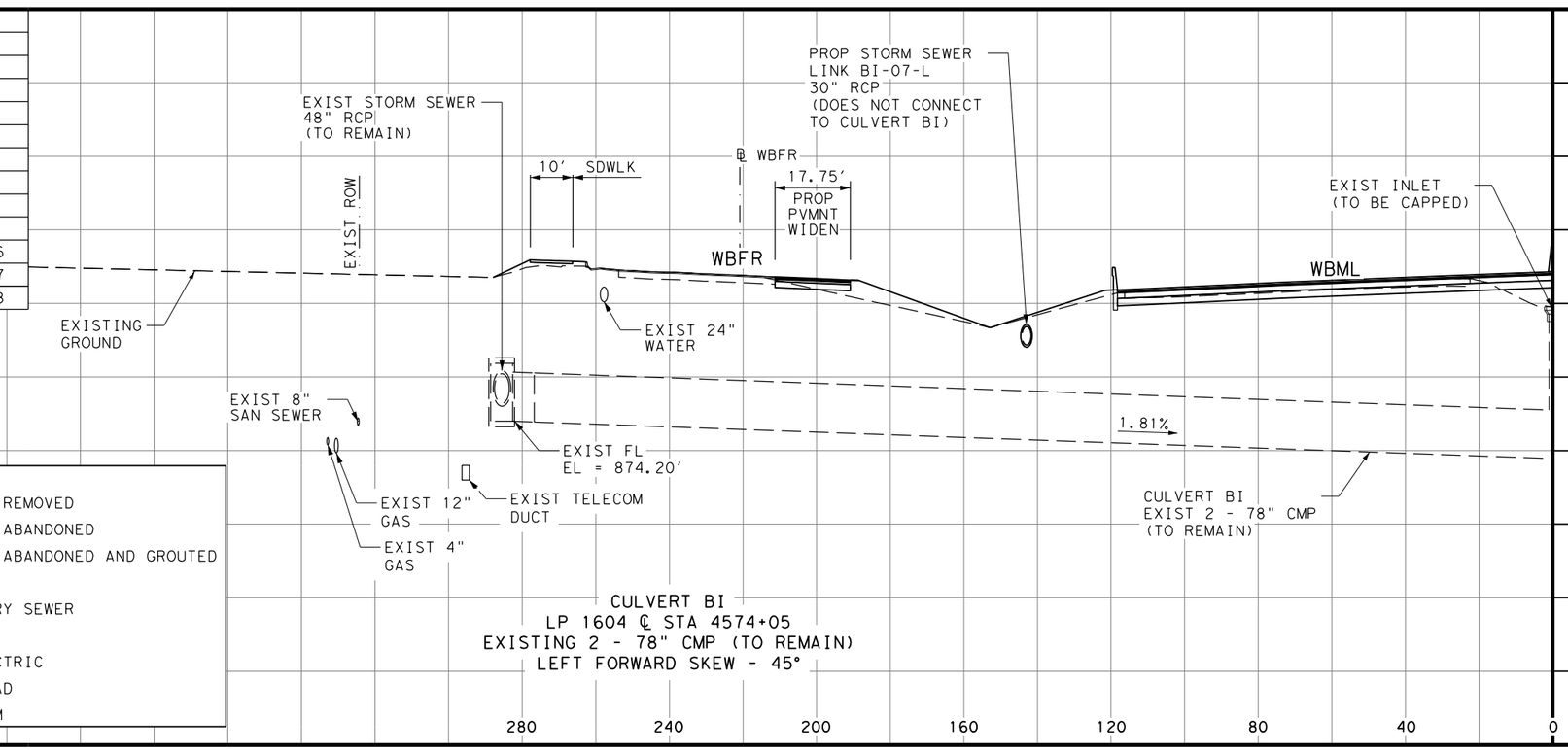
1. HYDRAULIC ANALYSIS PERFORMED USING HY-8 VERSION 7.6.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION

HYDRAULIC DATA	
Q25 (CFS)	535
Q50 (CFS)	603
Q100 (CFS)	672
V25 (FT/S)	12.63
V50 (FT/S)	12.94
V100 (FT/S)	13.18
HW25 (FT)	N/A
HW50 (FT)	N/A
HW100 (FT)	N/A
TW25 (FT)	865.16
TW50 (FT)	865.27
TW100 (FT)	865.38



CULVERT BI
LP 1604 ℄ STA 4574+05
EXISTING 2 - 78" CMP (TO REMAIN)
LEFT FORWARD SKEW - 45°

UTILITY LEGEND:

- —·o·—·o— EXIST TO BE REMOVED
- —·x·—·x— EXIST TO BE ABANDONED
- -xg—·xg- EXIST TO BE ABANDONED AND GROUTED
- —·W·—·· PROP WATER
- ——SS1—·— PROP SANITARY SEWER
- ···—·G·—··· PROP GAS
- —UGE— PROP UG ELECTRIC
- —OH— PROP OVERHEAD
- ---T1--- PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER

2/17/2023

0' 10' 20' 40'
SCALE: 1"=40'- HORZ
1"=20'- VERT

REV. NO.	DATE	DESCRIPTION	BY

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

LP 1604
CULVERT LAYOUT SHEETS
CULVERT BI
UT TO ELM CREEK

SHEET 6 OF 10

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1582

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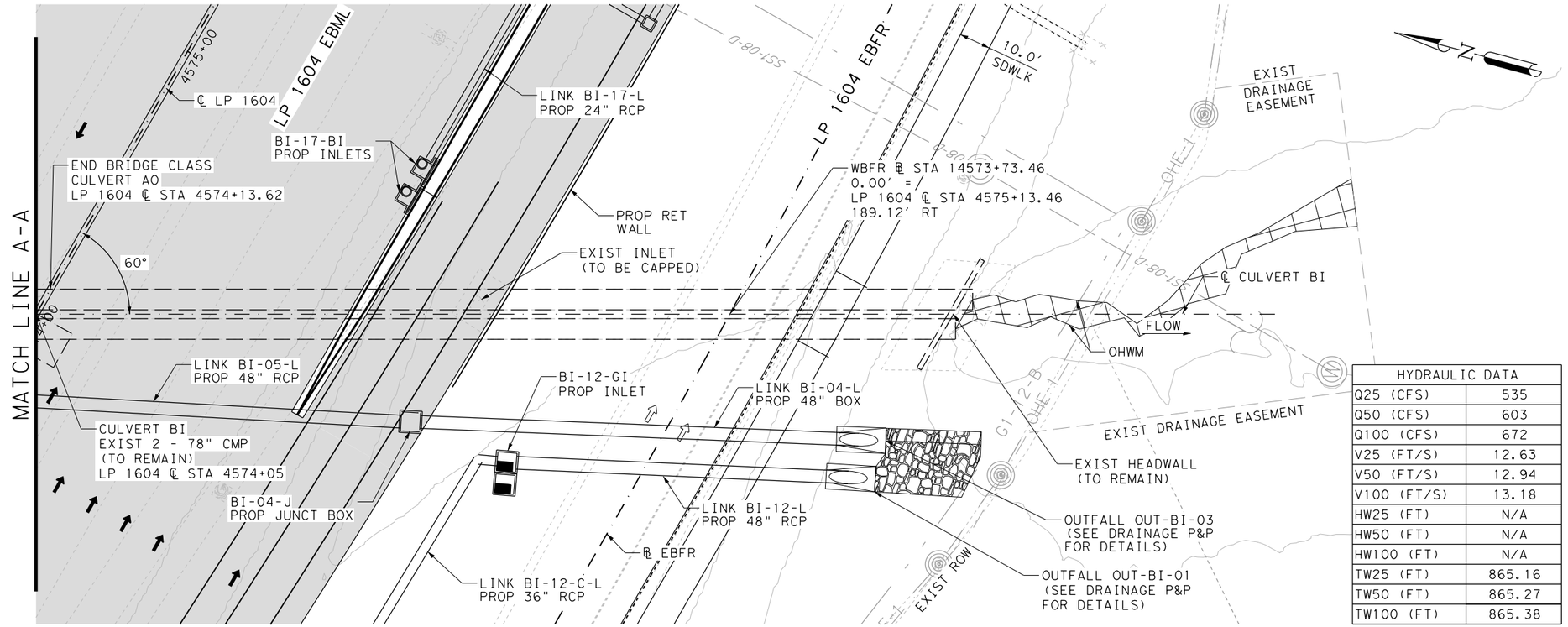

HYDRAULIC DATA	
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Q50 (CFS)	603
Q100 (CFS)	672
V25 (FT/S)	12.63
V50 (FT/S)	12.94
V100 (FT/S)	13.18
HW25 (FT)	N/A
HW50 (FT)	N/A
HW100 (FT)	N/A
TW25 (FT)	865.16
TW50 (FT)	865.27
TW100 (FT)	865.38

QUANTITY SUMMARY CSJ 2452-02-130

ITEM NO.	ITEM	UNIT	QTY

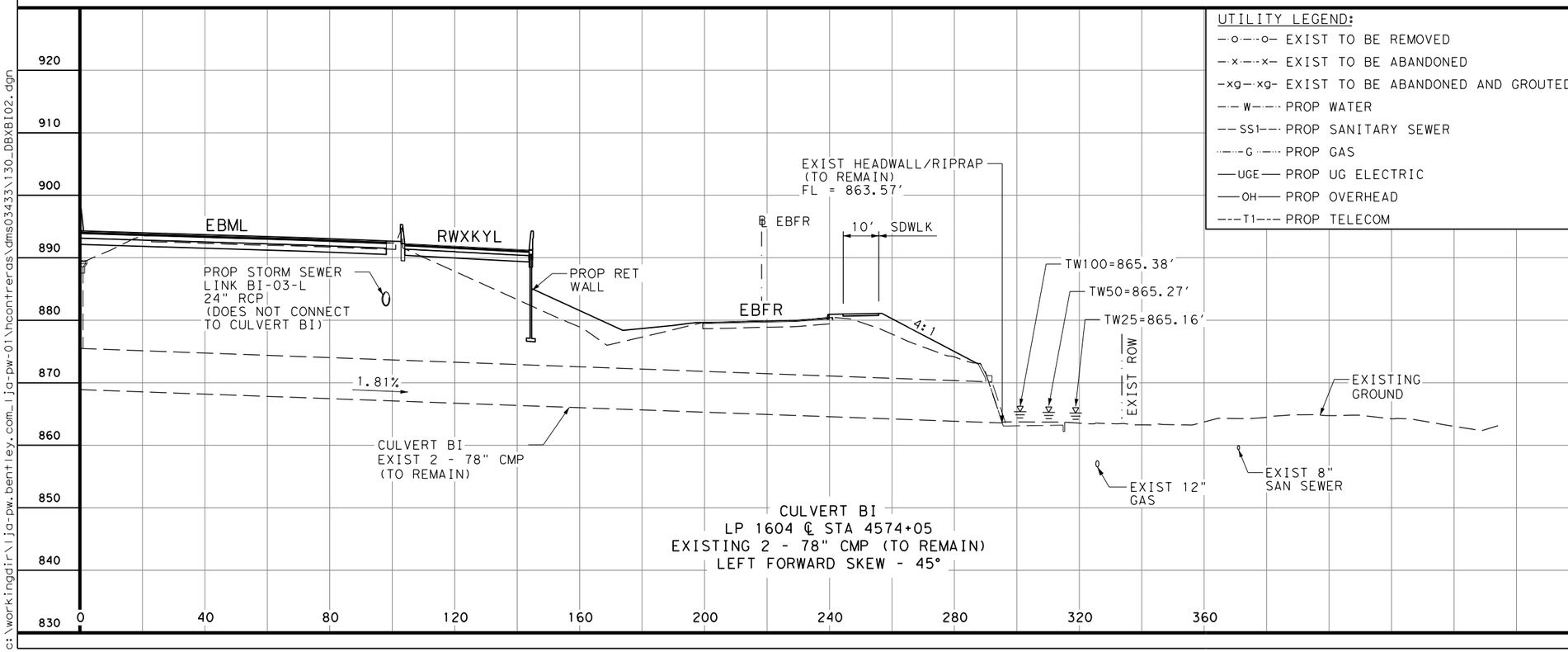
NOTES:

1. HYDRAULIC ANALYSIS PERFORMED USING HY-8 VERSION 7.6.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION



CULVERT BI
LP 1604 ℄ STA 4574+05
EXISTING 2 - 78" CMP (TO REMAIN)
LEFT FORWARD SKEW - 45°

UTILITY LEGEND:

- —o—o— EXIST TO BE REMOVED
- —x—x— EXIST TO BE ABANDONED
- —xg—xg— EXIST TO BE ABANDONED AND GROUTED
- —W— PROP WATER
- —SS1— PROP SANITARY SEWER
- —G— PROP GAS
- —UGE— PROP UG ELECTRIC
- —OH— PROP OVERHEAD
- —T1— PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER

2/17/2023

0' 10' 20' 40'

SCALE: 1"=40'- HORZ
1"=20'- VERT

REV. NO.	DATE	DESCRIPTION	BY

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
CULVERT LAYOUT SHEETS
CULVERT BI
UT TO ELM CREEK

SHEET 7 OF 10

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1583

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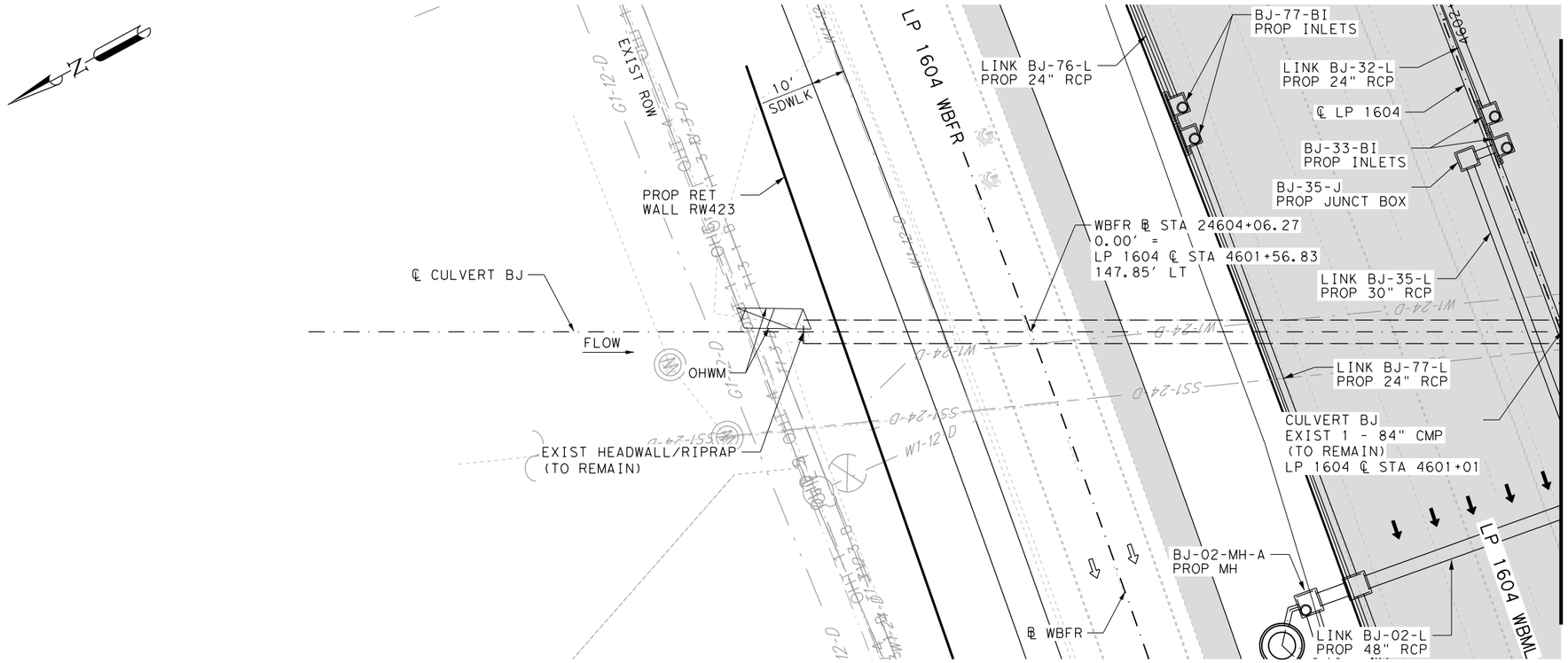


QUANTITY SUMMARY CSJ 2452-02-130			
ITEM NO.	ITEM	UNIT	QTY
0480-6001	CLEAN EXIST CULVERTS	EA	1

NOTES:

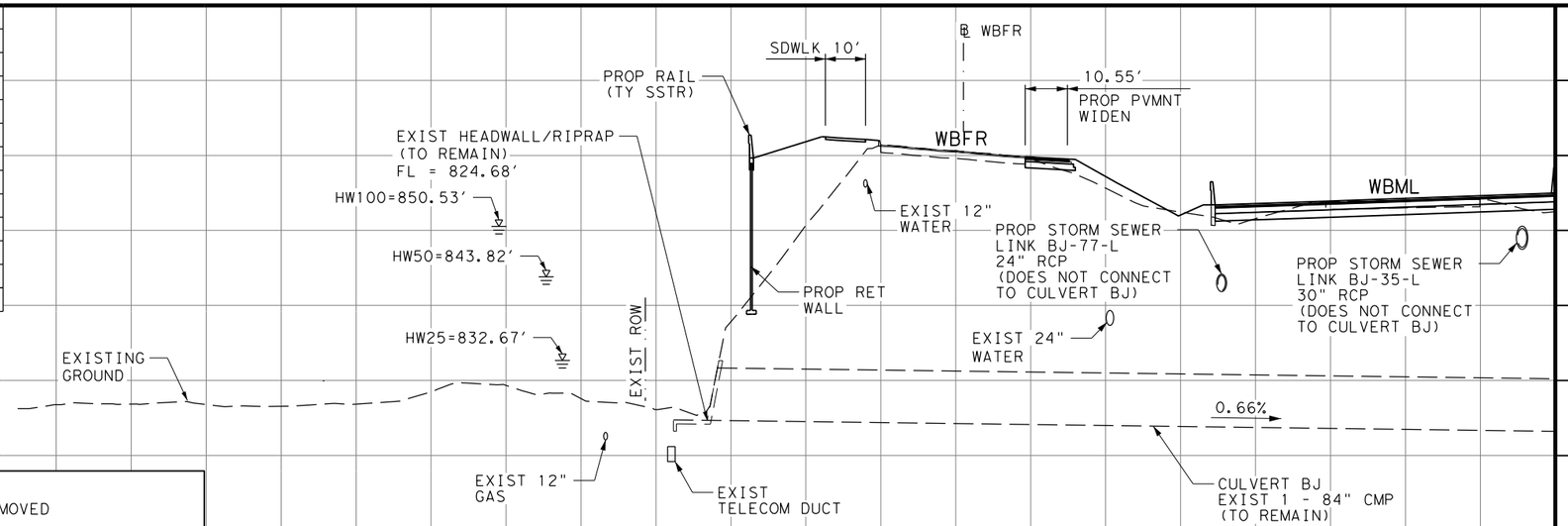
1. HYDRAULIC ANALYSIS PERFORMED USING HEC-RAS VERSION 5.0.7.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION

HYDRAULIC DATA	
Q25 (CFS)	315
Q50 (CFS)	562
Q100 (CFS)	1370
V25 (FT/S)	11.54
V50 (FT/S)	15.74
V100 (FT/S)	17.45
HW25 (FT)	832.67
HW50 (FT)	843.82
HW100 (FT)	850.53
TW25 (FT)	826.50
TW50 (FT)	827.23
TW100 (FT)	828.70



CULVERT BJ
LP 1604 ℄ STA 4601+01
EXISTING 1 - 84" CMP (TO REMAIN)
LEFT FORWARD SKEW - 45°
PROP EXTENSION (31 LF) DOWNSTREAM

UTILITY LEGEND:

—·o·—·o— EXIST TO BE REMOVED
—·x·—·x— EXIST TO BE ABANDONED
—xg—·xg— EXIST TO BE ABANDONED AND GROUTED
—·W·—·· PROP WATER
—SS1—·· PROP SANITARY SEWER
··—·G·—·· PROP GAS
—UGE— PROP UG ELECTRIC
—OH— PROP OVERHEAD
—T1— PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER

2/18/2023

0' 10' 20' 40'
SCALE: 1"=40'- HORZ
1"=20'- VERT

REV. NO.	DATE	DESCRIPTION	BY

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
CULVERT LAYOUT SHEETS
CULVERT BJ
ELM CREEK

SHEET 8 OF 10

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1584

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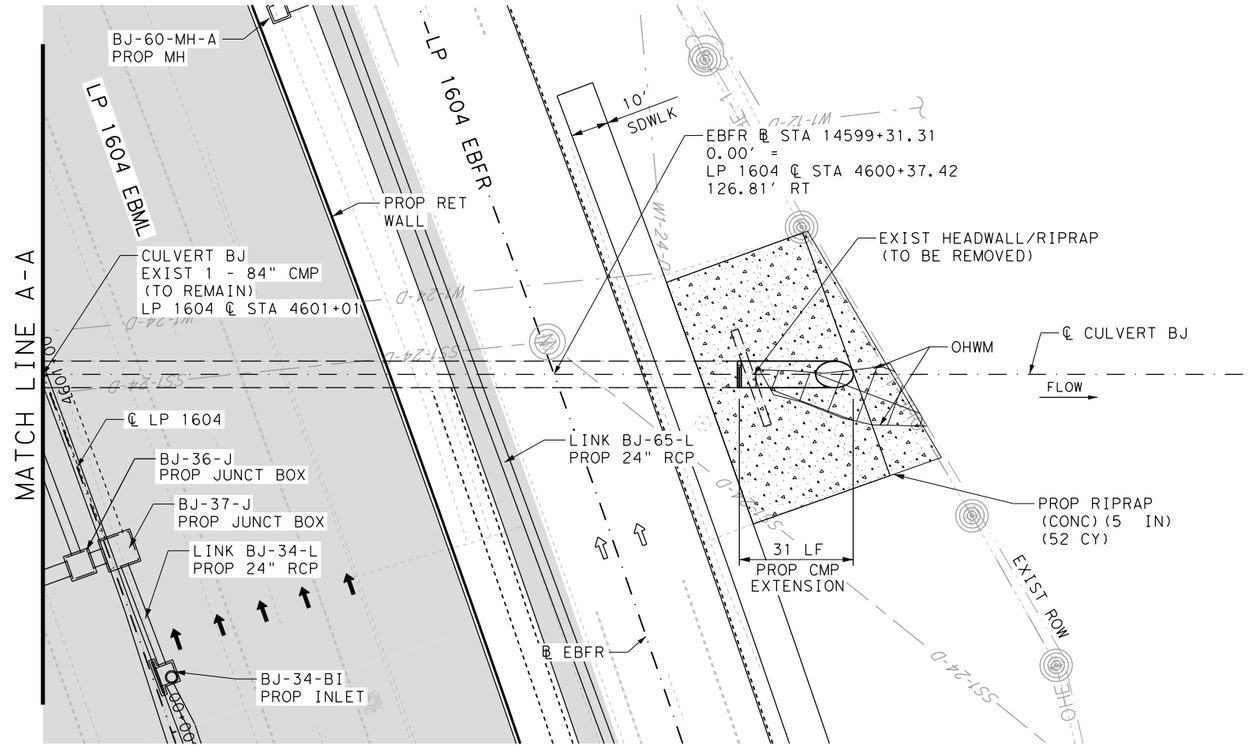


QUANTITY SUMMARY CSJ 2452-02-130

ITEM NO.	ITEM	UNIT	QTY
0432-6002	RIPRAP (CONC)(5 IN)	CY	52
0460-6020	CMP (GAL STL 84 IN)	LF	31

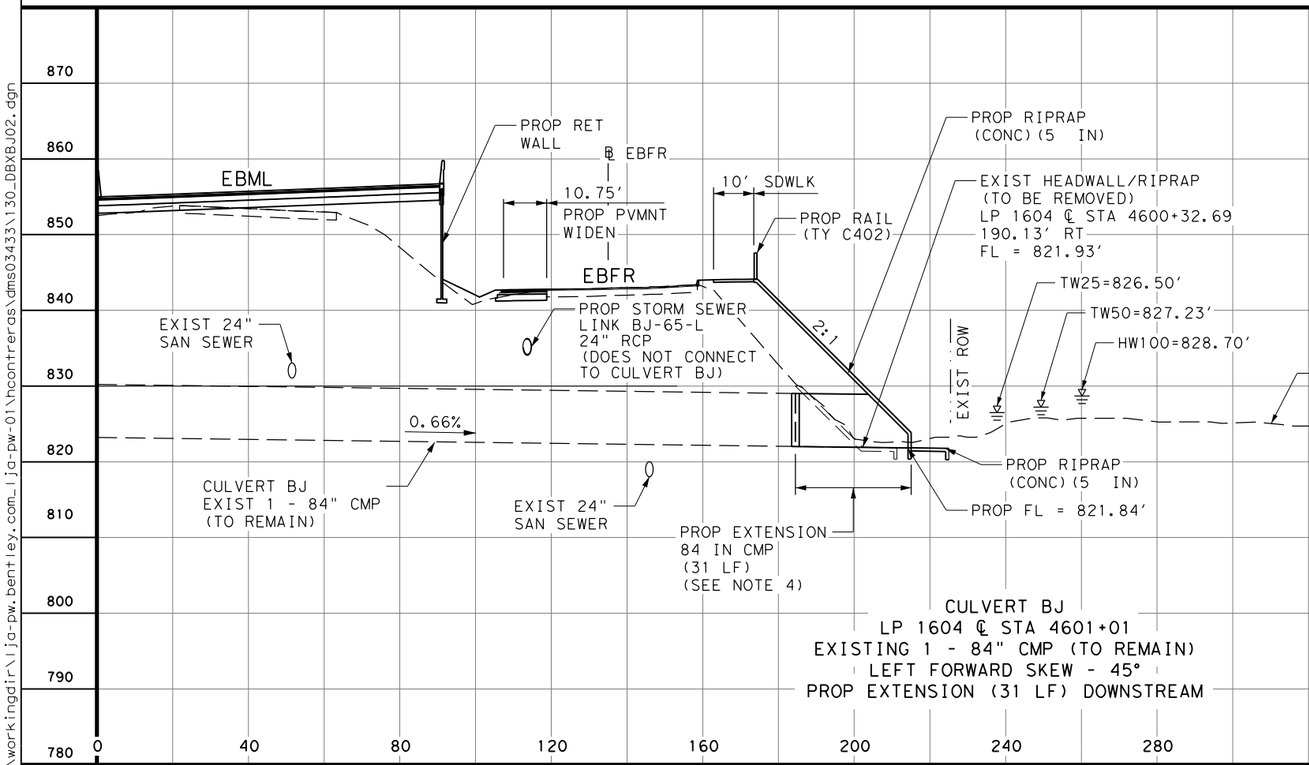
NOTES:

1. HYDRAULIC ANALYSIS PERFORMED USING HEC-RAS VERSION 5.0.7.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.
4. SEE MISCELLANEOUS CULVERT DETAILS SHEET FOR EXISTING CMP CULVERT EXTENSION DETAILS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION



CULVERT BJ
LP 1604 ℄ STA 4601+01
EXISTING 1 - 84" CMP (TO REMAIN)
LEFT FORWARD SKEW - 45°
PROP EXTENSION (31 LF) DOWNSTREAM

HYDRAULIC DATA	
Q25 (CFS)	315
Q50 (CFS)	562
Q100 (CFS)	1370
V25 (FT/S)	11.54
V50 (FT/S)	15.74
V100 (FT/S)	17.45
HW25 (FT)	832.67
HW50 (FT)	843.82
HW100 (FT)	850.53
TW25 (FT)	826.50
TW50 (FT)	827.23
TW100 (FT)	828.70

UTILITY LEGEND:

- EXIST TO BE REMOVED
- EXIST TO BE ABANDONED
- EXIST TO BE ABANDONED AND GROUTED
- PROP WATER
- PROP SANITARY SEWER
- PROP GAS
- PROP UG ELECTRIC
- PROP OVERHEAD
- PROP TELECOM

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER

2/17/2023

0' 10' 20' 40'
SCALE: 1"=40'- HORZ
1"=20'- VERT

REV. NO.	DATE	DESCRIPTION	BY

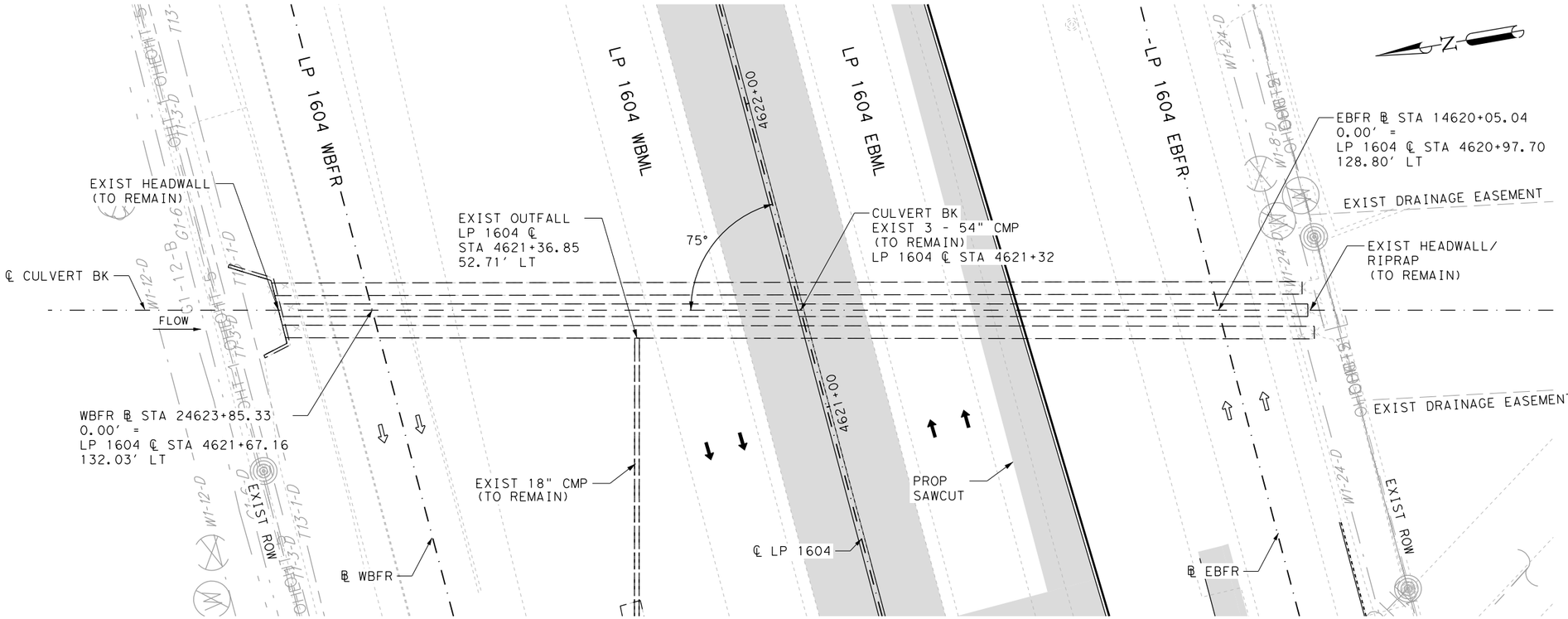
CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN - F-1386

LP 1604
CULVERT LAYOUT SHEETS
CULVERT BJ
ELM CREEK

SHEET 9 OF 10

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1585



QUANTITY SUMMARY CSJ 2452-02-130

ITEM NO.	ITEM	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	20
0480-6001	CLEAN EXIST CULVERTS	EA	1

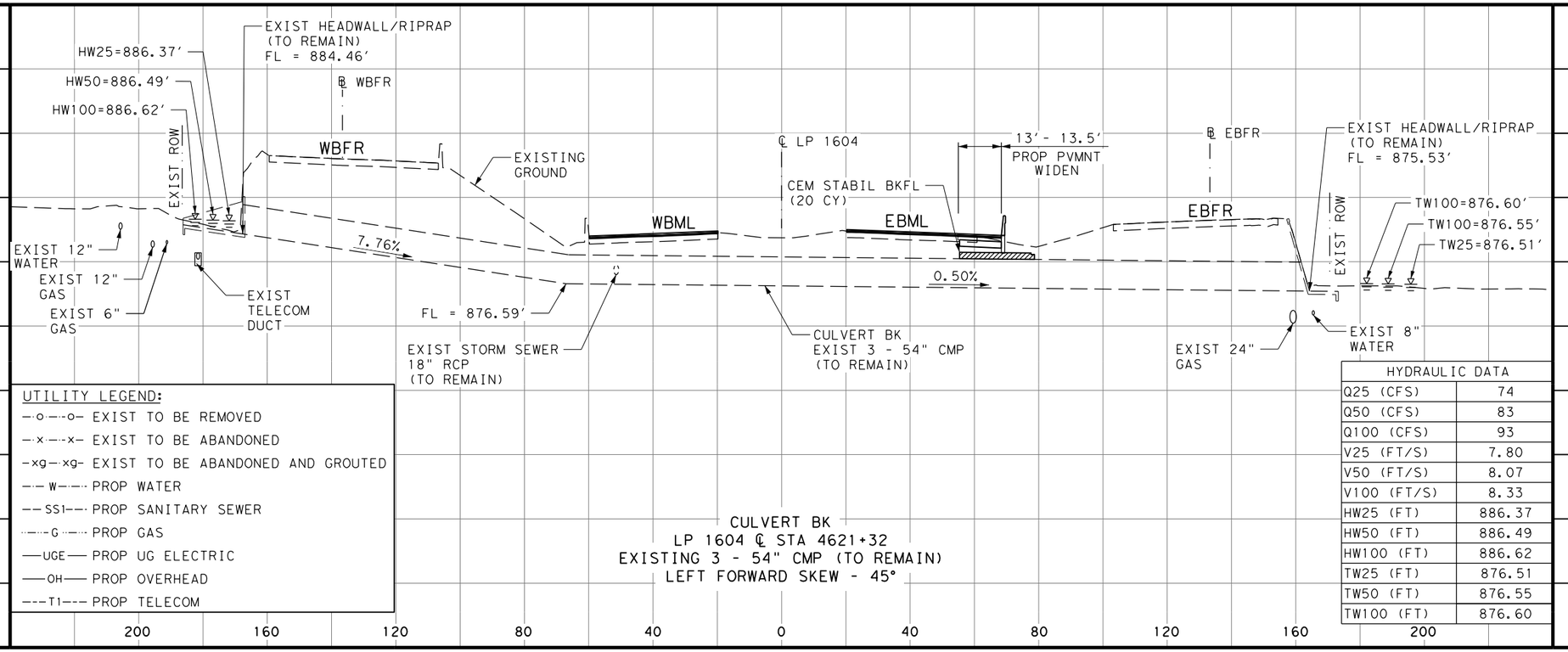
NOTES:

1. HYDRAULIC ANALYSIS PERFORMED USING HY-8 VERSION 7.6.
2. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
3. CULVERT SLOPES AND INTERIOR FLOWLINE ELEVATIONS ARE APPROXIMATE AND NOT BASED ON SURVEYED DATA. ELEVATIONS OBTAINED FROM EXISTING AS-BUILT PLANS.

LEGEND:

OHWM AREA

PAVEMENT WIDENING/ RECONSTRUCTION



UTILITY LEGEND:

- —o—o— EXIST TO BE REMOVED
- —x—x— EXIST TO BE ABANDONED
- -xg—xg- EXIST TO BE ABANDONED AND GROUTED
- —W—W— PROP WATER
- —SS1— PROP SANITARY SEWER
- —G—G— PROP GAS
- —UGE— PROP UG ELECTRIC
- —OH— PROP OVERHEAD
- —T1— PROP TELECOM

HYDRAULIC DATA	
Q25 (CFS)	74
Q50 (CFS)	83
Q100 (CFS)	93
V25 (FT/S)	7.80
V50 (FT/S)	8.07
V100 (FT/S)	8.33
HW25 (FT)	886.37
HW50 (FT)	886.49
HW100 (FT)	886.62
TW25 (FT)	876.51
TW50 (FT)	876.55
TW100 (FT)	876.60

CULVERT BK
LP 1604 ℄ STA 4621+32
EXISTING 3 - 54" CMP (TO REMAIN)
LEFT FORWARD SKEW - 45°

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER

2/14/2023

0' 10' 20' 40'
SCALE: 1"=40'- HORZ
1"=20'- VERT

REV. NO.	DATE	DESCRIPTION	BY

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

LJA Engineering, Inc.
FRN-F-1386

LP 1604
CULVERT LAYOUT SHEETS
CULVERT BK
MINOR CROSSING

SHEET 10 OF 10

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1586

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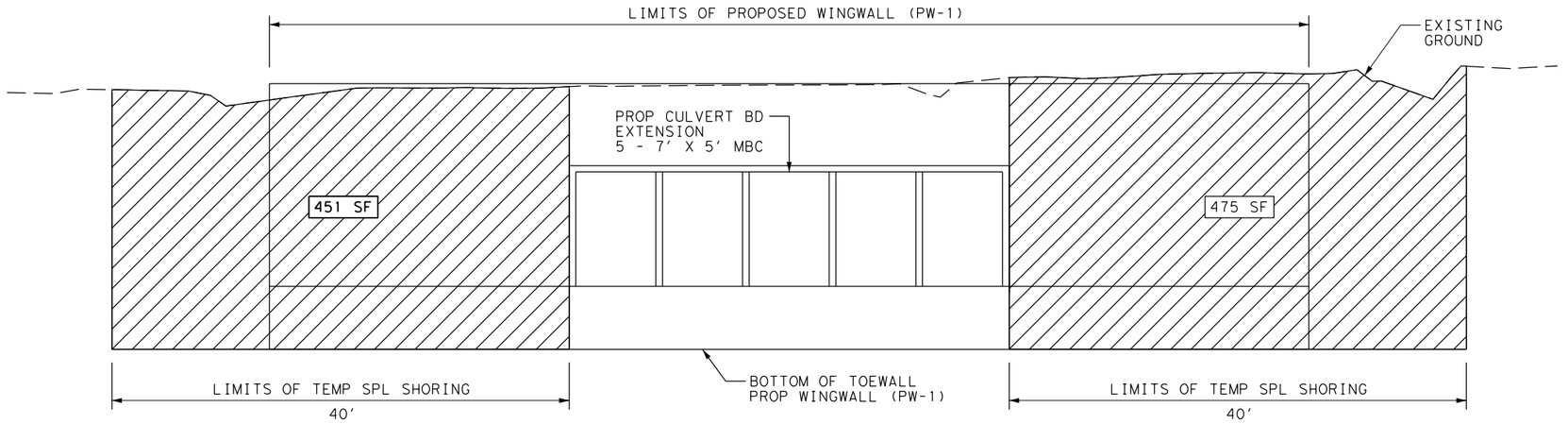
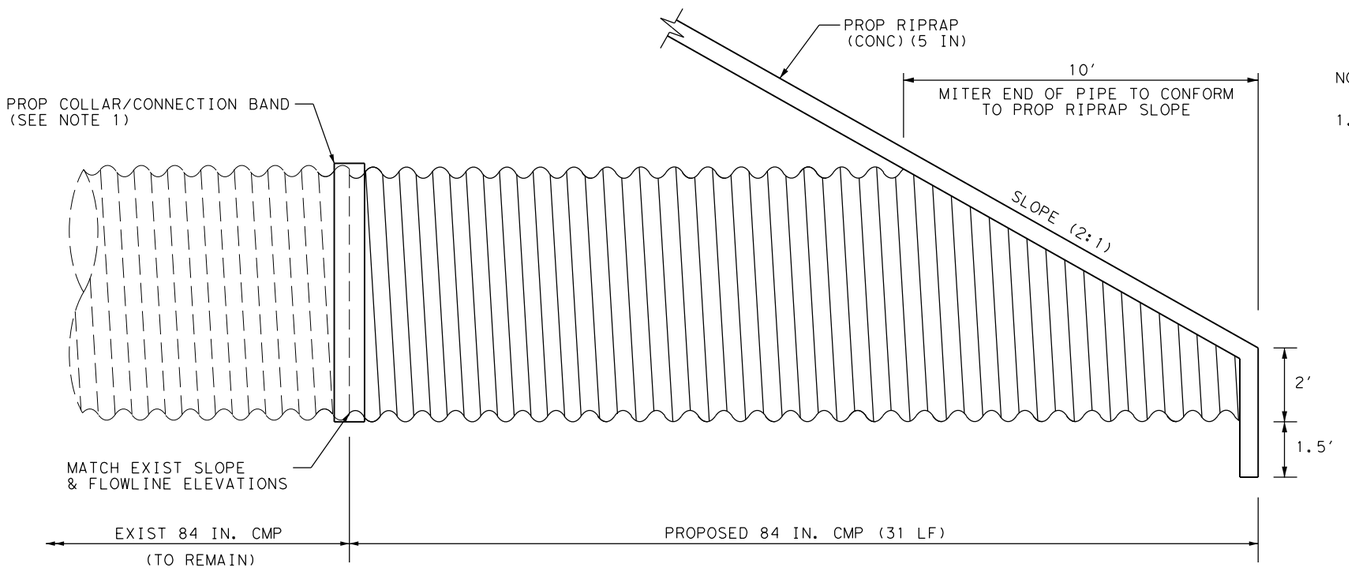


TEMPORARY SPECIAL SHORING DETAILS
CULVERT BD (UPSTREAM)

NOTES:

1. TEMPORARY SPECIAL SHORING RECOMMENDED FOR EXTENSION OF EXISTING CULVERT AND CONSTRUCTION OF NEW WINGWALL. SEE CULVERT LAYOUT SHEET (CULVERT BD) FOR MORE INFORMATION ON PLACEMENT OF SHORING.
2. SEE CULVERT LAYOUT SHEET FOR QUANTITY PAID FOR UNDER ITEM 403-6001.



CULVERT BJ - CMP EXTENSION DETAILS

NOTES:

1. TRIM EXISTING CMP AS REQUIRED TO PROVIDE SECURE CONNECTION WITH PROPOSED CMP. PROVIDE HOT DIPPED GALVANIZED STEEL BAND, 10 GAGE, 12 INCH WIDE, AND SECURELY FASTEN USING STAINLESS STEEL BOLTS, NUTS AND WASHERS. INCLUDE ALL COSTS FOR LABOR, EQUIPMENT AND MATERIAL IN UNIT BID PRICE FOR PROPOSED CMP.

STATE OF TEXAS
HUMBERTO CONTRERAS
99213
LICENSED
PROFESSIONAL ENGINEER

2/15/2023

REV. NO.	DATE	DESCRIPTION	BY

CivilCorp ENGINEERS • SURVEYORS
2825 WILCREST DRIVE, SUITE 100, HOUSTON, TEXAS 77042
TEL: 713-785-9815 FAX: 713-782-6922 TXENG FIRM 10283

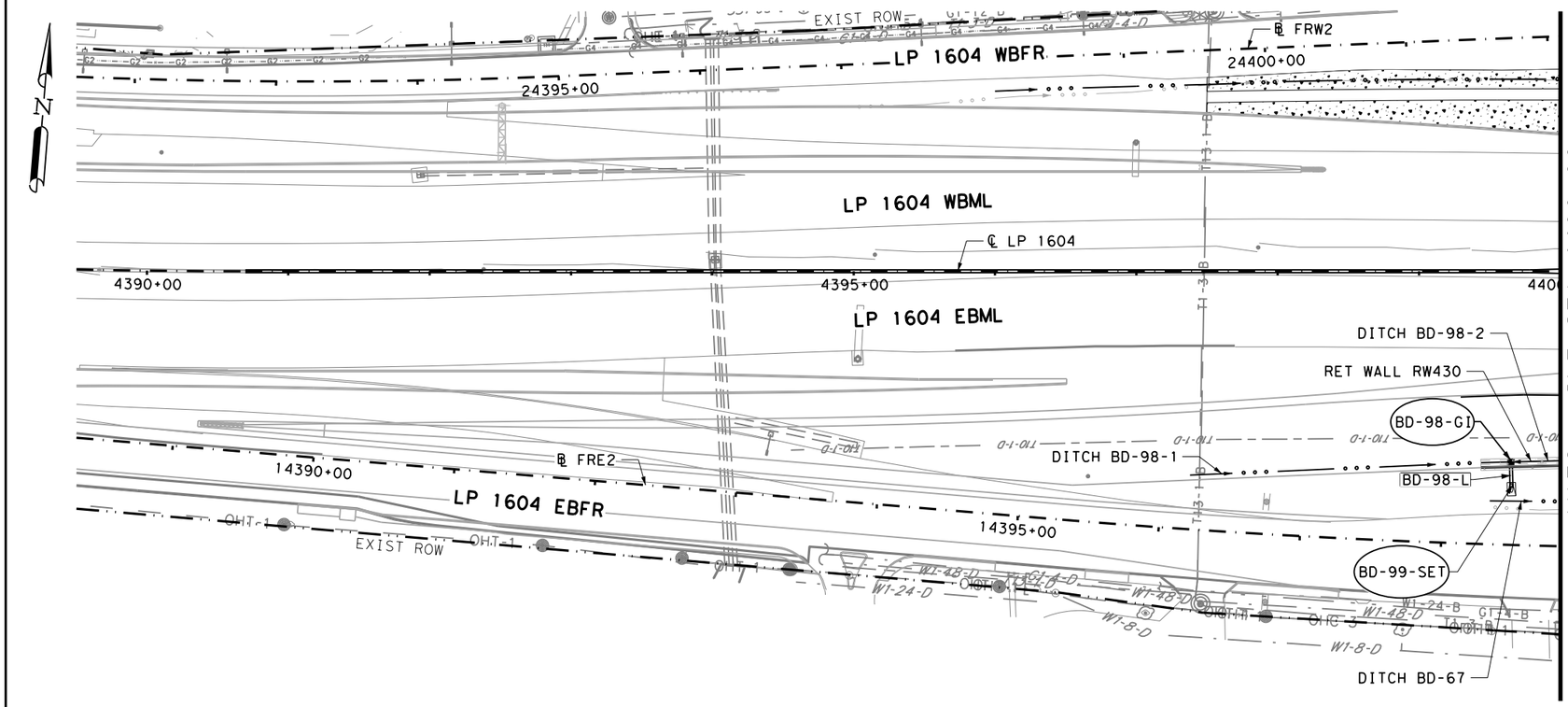
LJA Engineering, Inc.
FRN-F-1386

LP 1604

MISCELLANEOUS CULVERT DETAILS

SHEET 1 OF 1

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1587



NOTES:

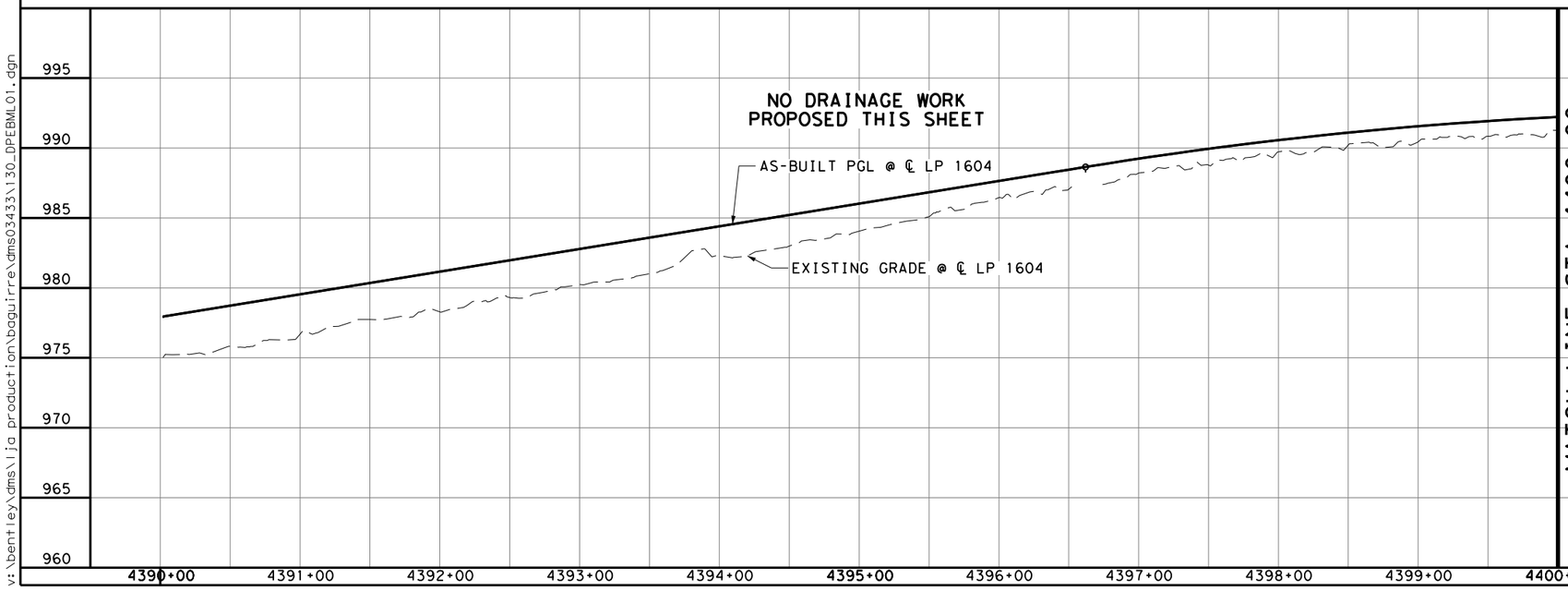
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
10. PROP INLET ELEVATIONS ARE APPROXIMATE & BASED OFF SURVEY DATA & ROADWAY WIDENING. CONTRACTOR TO CONFIRM ELEVATIONS DURING CONSTRUCTION.
11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	9
0432-6006	RIPRAP (CONC)(CL B)	CY	8
0464-6018	RC PIPE (CL IV)(24 IN)	LF	20
0465-6005	JCTBOX(COMPL)(PJB)(3FTX3FT)	EA	1
0465-6048	INLET (COMPL)(POD)(FG)(3FTX3FT)	EA	1
0467-6388	SET (TY II)(24 IN)(RCP)(3:1)(C)	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0′ 25′ 50′ 100′

SCALE: 1"=100′ - HORZ
1"=10′ - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604

EASTBOUND DRAINAGE PLAN AND PROFILE

BEGIN PROJECT TO STA 4400+00

SHEET 1 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1588

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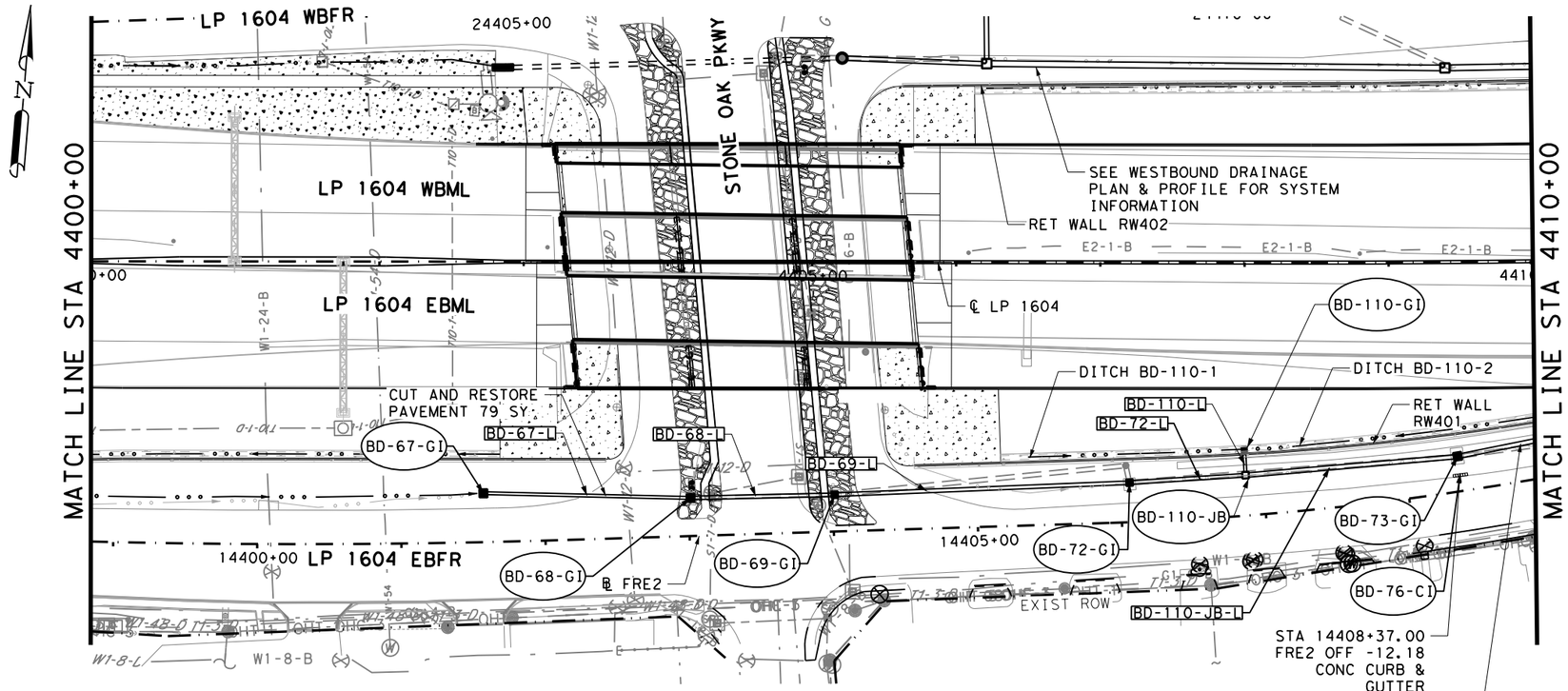


NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTES:

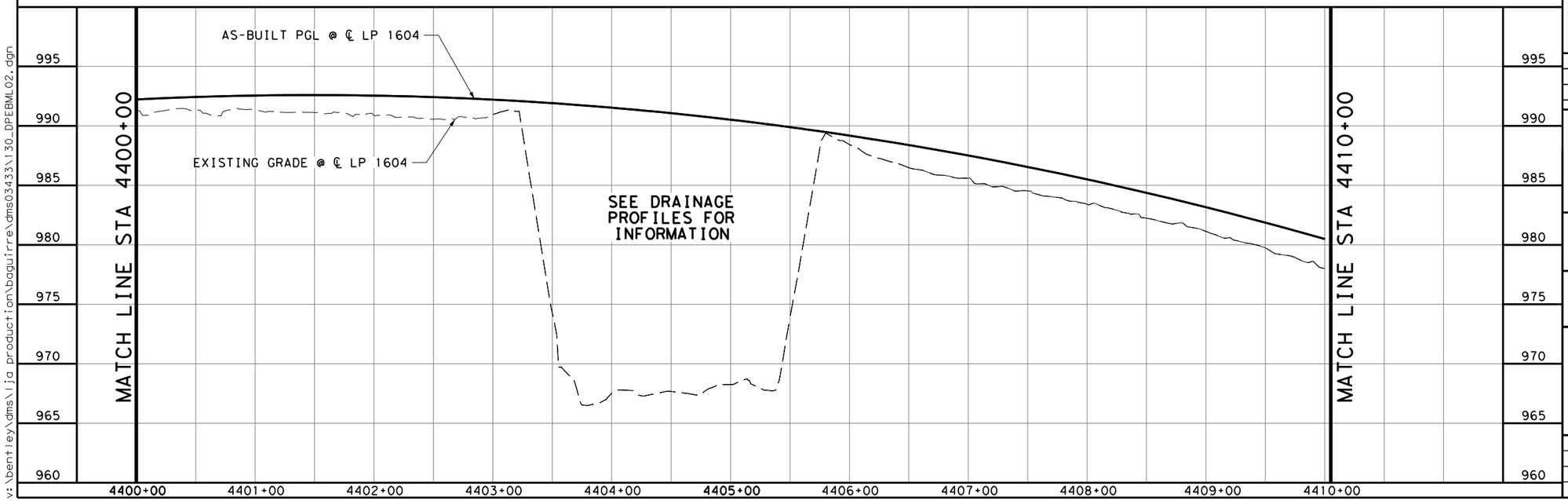
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
10. PROP INLET ELEVATIONS ARE APPROXIMATE & BASED OFF SURVEY DATA & ROADWAY WIDENING. CONTRACTOR TO CONFIRM ELEVATIONS DURING CONSTRUCTION.
11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	672
0400-6006	CUT & RESTORING PAV	SY	79
0402-6001	TRENCH EXCAVATION PROTECTION	LF	668
0432-6006	RIPRAP (CONC)(CL B)	CY	48
0464-6005	RC PIPE (CL III)(24 IN)	LF	153
0464-6007	RC PIPE (CL III)(30 IN)	LF	373
0464-6008	RC PIPE (CL III)(36 IN)	LF	193
0465-6005	JCTBOX(COMPL)(PJB)(3FTX3FT)	EA	1
0465-6006	JCTBOX(COMPL)(PJB)(4FTX4FT)	EA	1
0465-6048	INLET (COMPL)(POD)(FG)(3FTX3FT)	EA	1
0465-6160	INLET(COMPL)(PAZD)(FG)(4FTX4FT-4FTX	EA	3
0465-6162	INLET(COMPL)(PAZD)(FG)(5FTX5FT-4FTX	EA	2
0529-6020	CONC CURB & GUTTER (ARMOR CURB)	LF	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS — LUKE REED — 101242 — LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

EASTBOUND DRAINAGE PLAN AND PROFILE

STA 4400+00 TO STA 4410+00

SHEET 2 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1589

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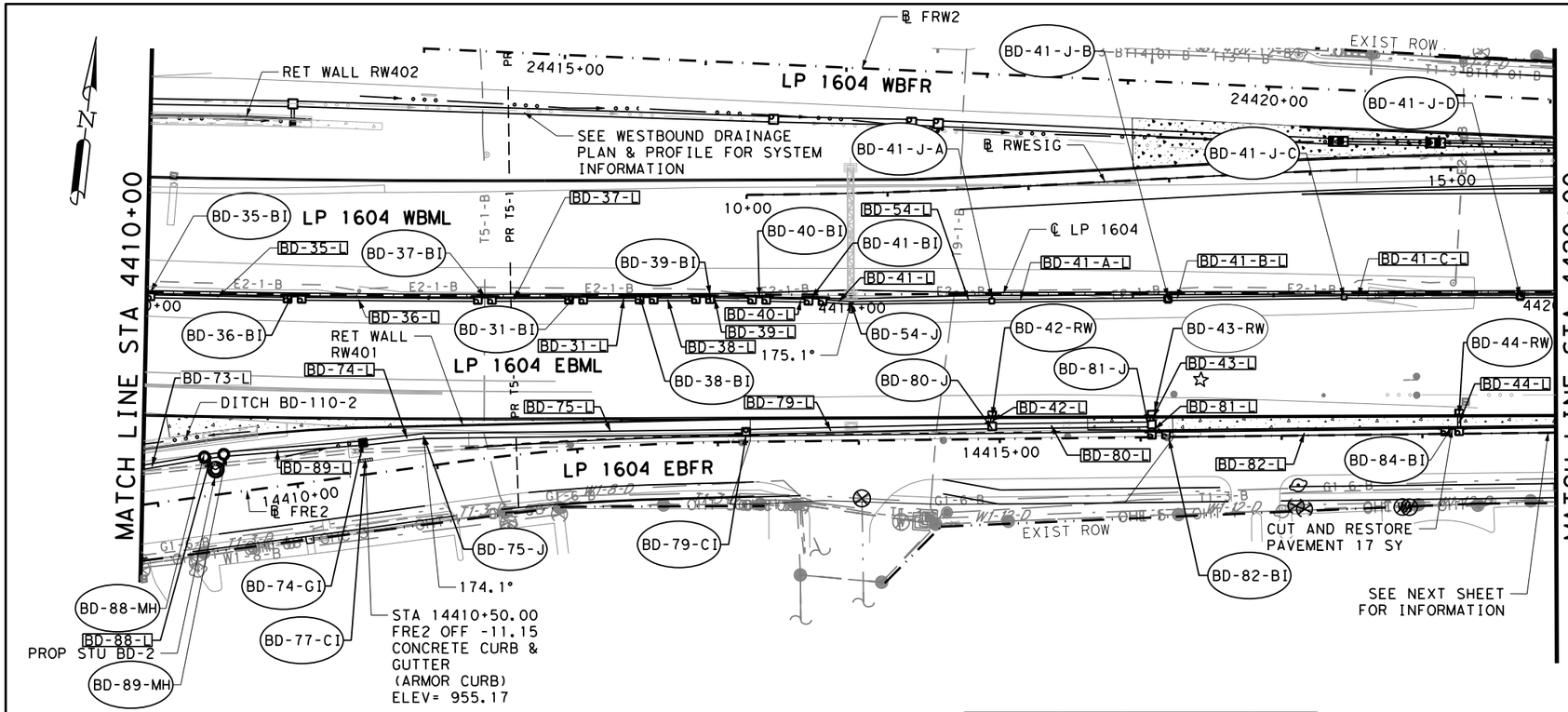

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

ID	LENGTH	SIZE	SLOPE
BD-38-L	25.01	24" RCP CL IV	0.50%
BD-39-L	24.93	24" RCP CL IV	0.50%
BD-40-L	25.01	24" RCP CL IV	0.50%
BD-41-L	17.63	24" RCP	1.00%

ID	STA	CHAIN	OFF	TYPE	ELEV
BD-35-BI	4410+02.75	LP1604	0.00	PMBD(MOD)	980.61
BD-54-J	4415+00.00	LP1604	6	CONCRETE COLLAR	957.89

NOTES:
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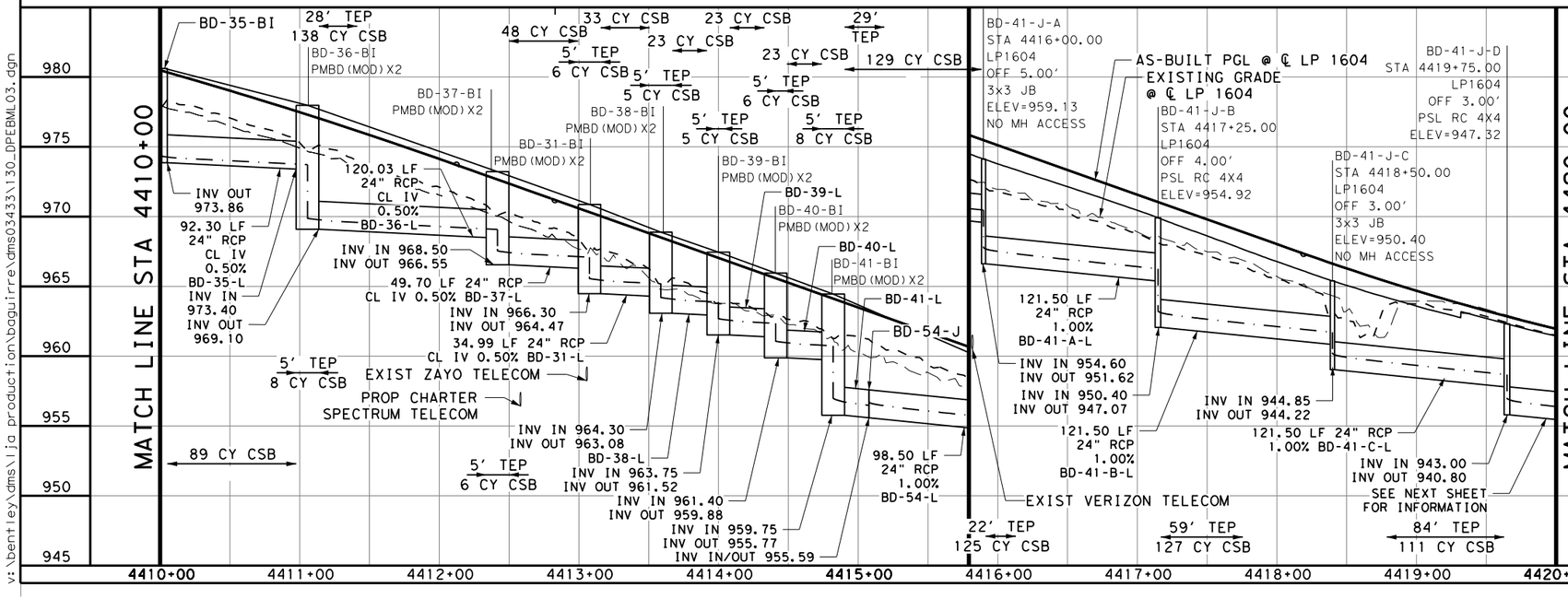
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
10. PROP INLET ELEVATIONS ARE APPROXIMATE & BASED OFF SURVEY DATA & ROADWAY WIDENING. CONTRACTOR TO CONFIRM ELEVATIONS DURING CONSTRUCTION.
11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	18
0400-6005	CEM STABIL BKFL	CY	1286
0400-6006	CUT & RESTORING PAV	SY	17
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1214
0420-6009	CL A CONC (COLLAR)	EA	2
0464-6005	RC PIPE (CL III) (24 IN)	LF	463
0464-6008	RC PIPE (CL III) (36 IN)	LF	195
0464-6018	RC PIPE (CL IV) (24 IN)	LF	455
0464-6020	RC PIPE (CL IV) (36 IN)	LF	193
0464-6021	RC PIPE (CL IV) (42 IN)	LF	550
0465-6004	MANH (COMPL) (PRM) (72IN)	EA	2
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	5
0465-6009	JCTBOX (COMPL) (PJB) (5FTX5FT)	EA	2
0465-6022	INLET (COMPL) (PCO) (5FT) (LEFT)	EA	1
0465-6071	INLET (COMPL) (PSL) (RC) (4FTX4FT)	EA	2
0465-6162	INLET (COMPL) (PAZD) (FG) (5FTX5FT-4FTX	EA	1
0465-6179	INLET (COMPL) (TY MSE2)	EA	3
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	19
0529-6020	CONC CURB & GUTTER (ARMOR CURB)	LF	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER
LUKE REED, P.E.

2/27/2023
DATE

0' 25' 50' 100'
SCALE: 1"=100' - HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4410+00 TO STA 4420+00

SHEET 3 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1590

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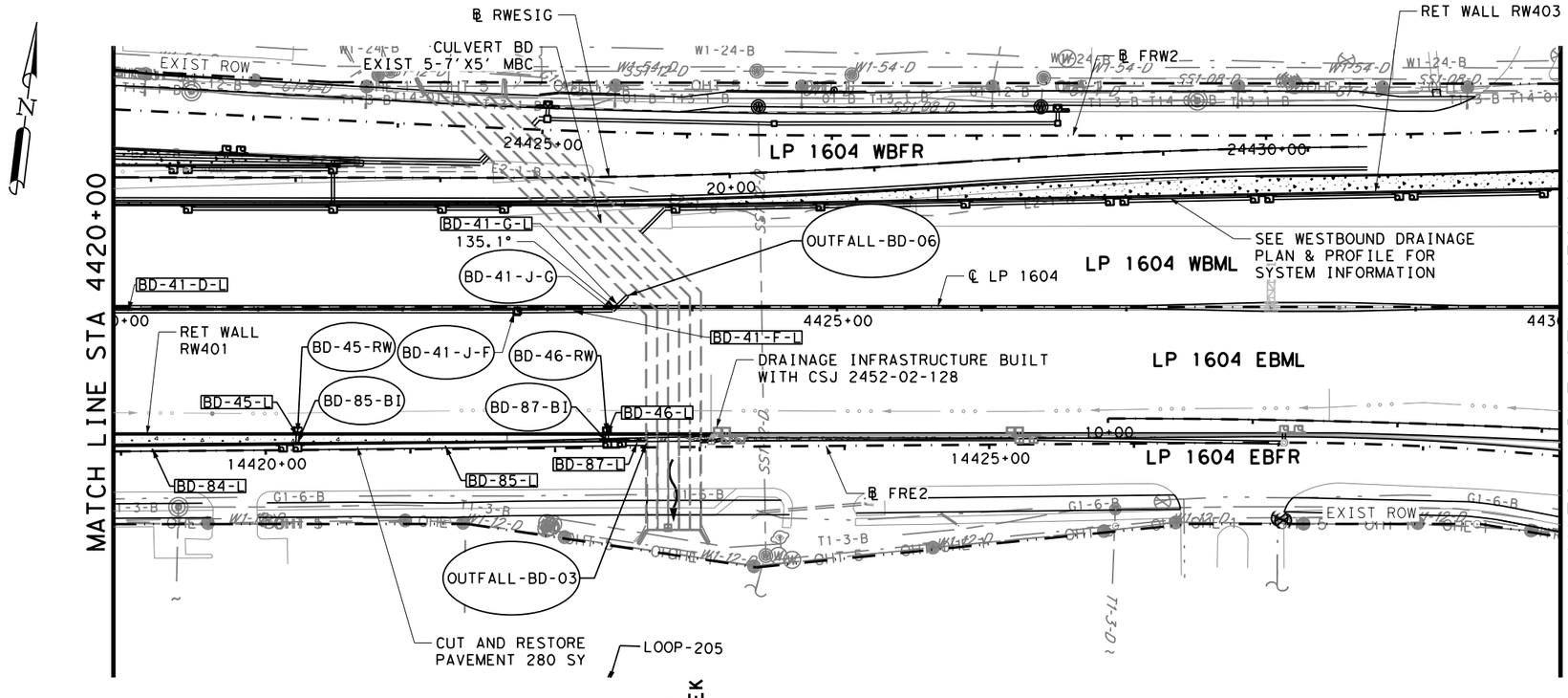

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.
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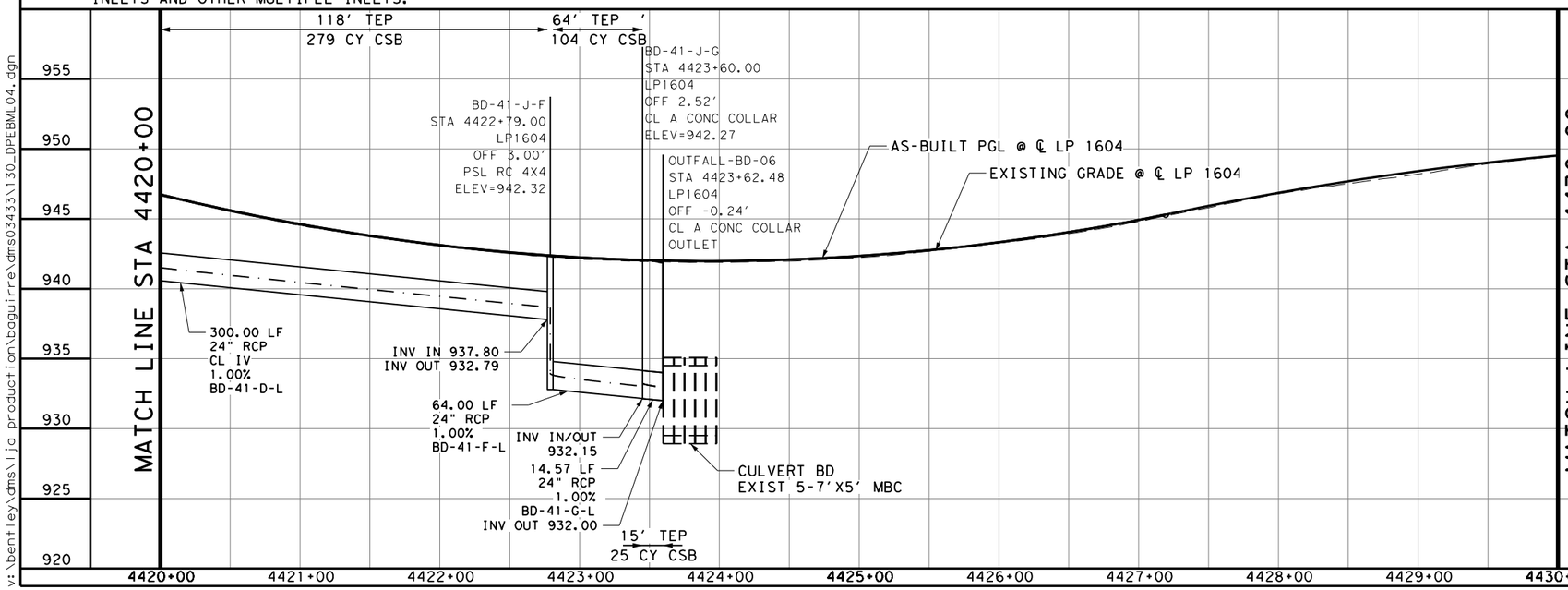

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QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	4
0400-6005	CEM STABIL BKFL	CY	1041
0400-6006	CUT & RESTORING PAV	SY	280
0402-6001	TRENCH EXCAVATION PROTECTION	LF	620
0420-6009	CL A CONC (COLLAR)	EA	2
0464-6005	RC PIPE (CL III) (24 IN)	LF	79
0464-6018	RC PIPE (CL IV) (24 IN)	LF	313
0464-6021	RC PIPE (CL IV) (42 IN)	LF	415
0465-6005	JCTBOX(COMPL) (PJB) (3FTX3FT)	EA	2
0465-6071	INLET (COMPL) (PSL) (RC) (4FTX4FT)	EA	1
0465-6179	INLET (COMPL) (TY MSE2)	EA	2
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	4

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4420+00 TO STA 4430+00

SHEET 4 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1591

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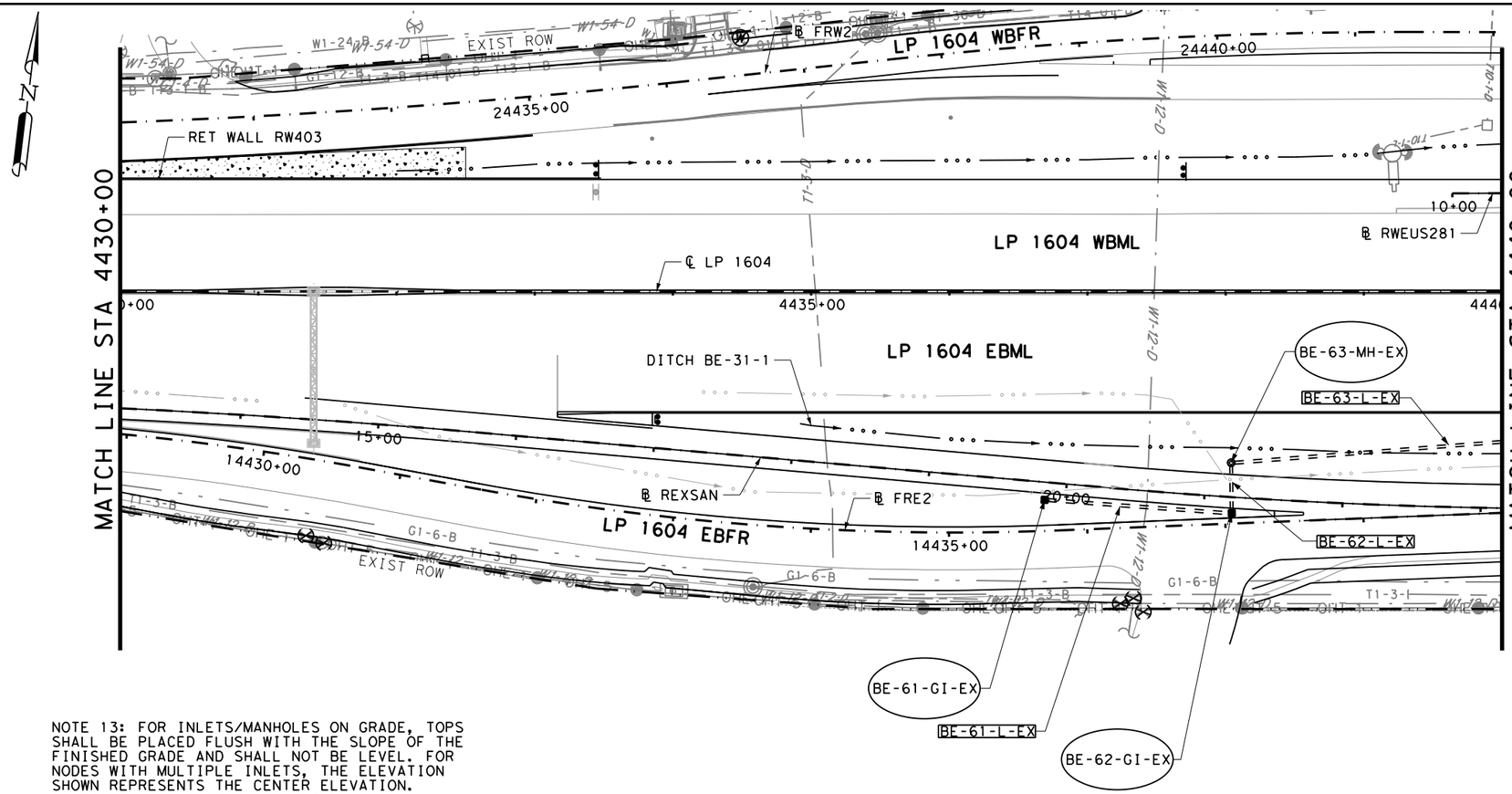

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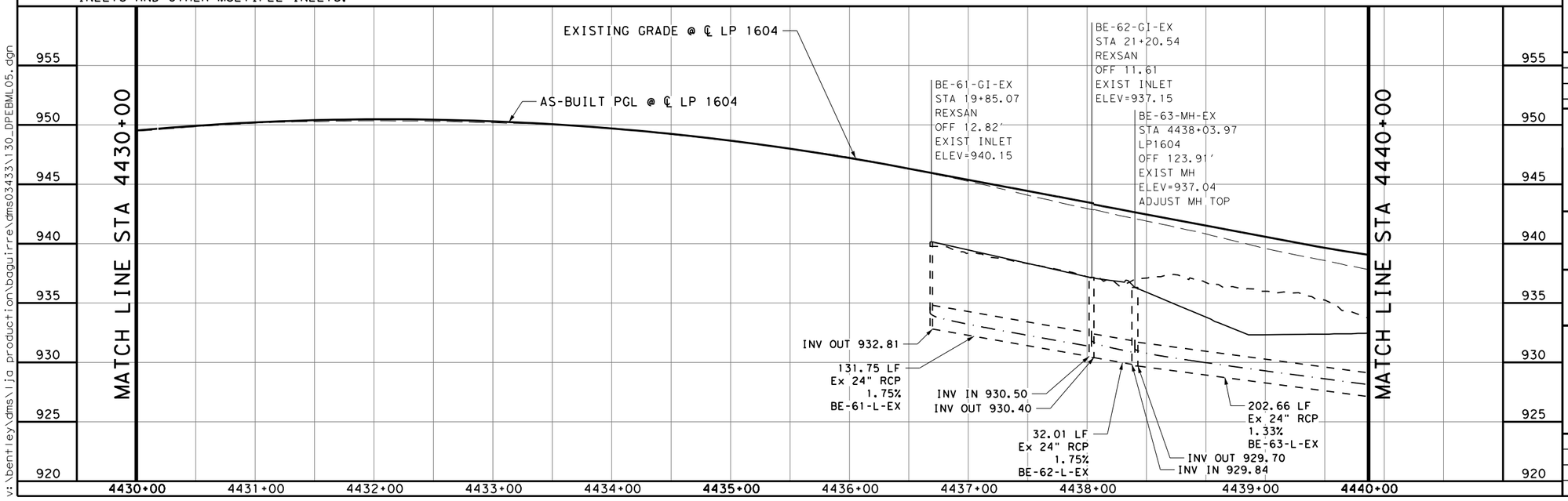
QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0479-6001	ADJUSTING MANHOLES	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

EASTBOUND DRAINAGE PLAN AND PROFILE

STA 4430+00 TO STA 4440+00

SHEET 5 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1592

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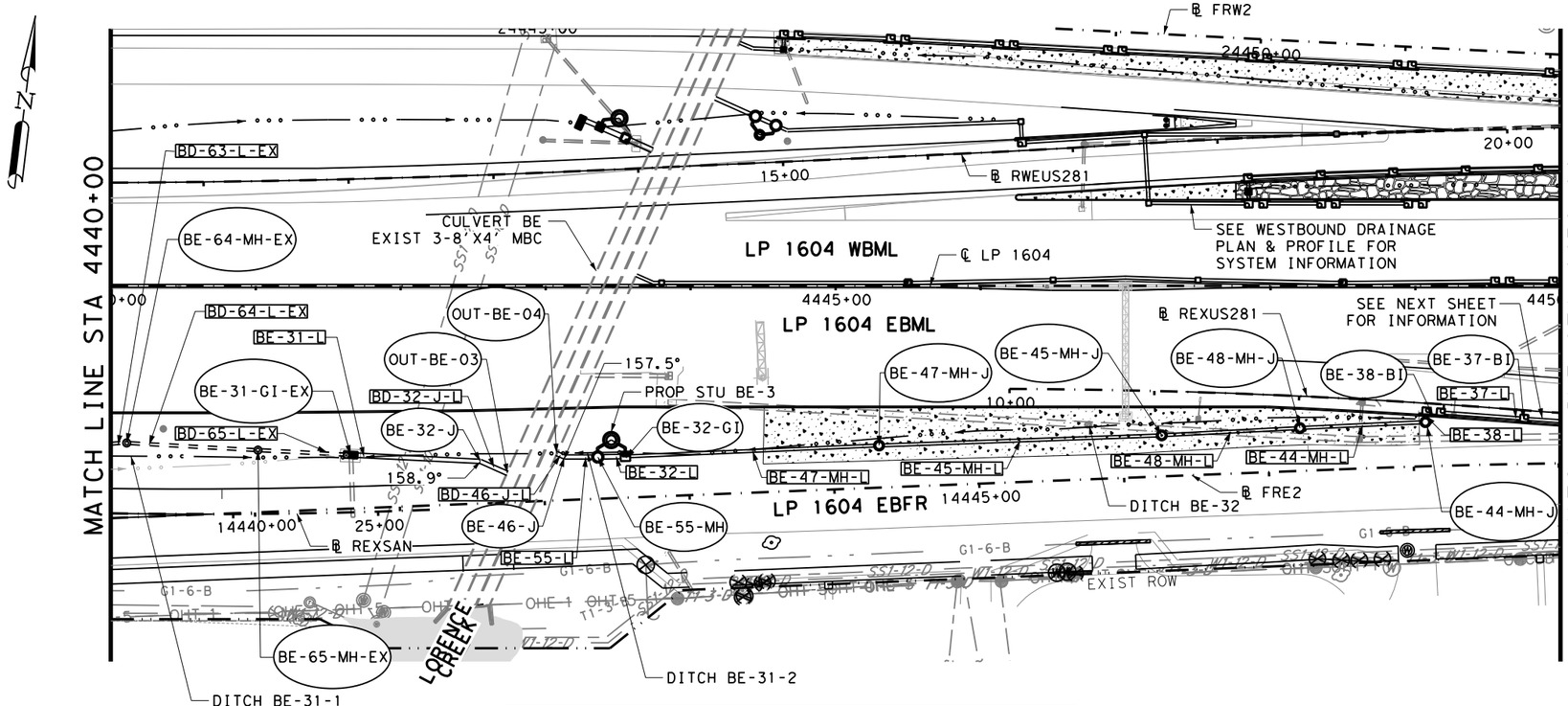

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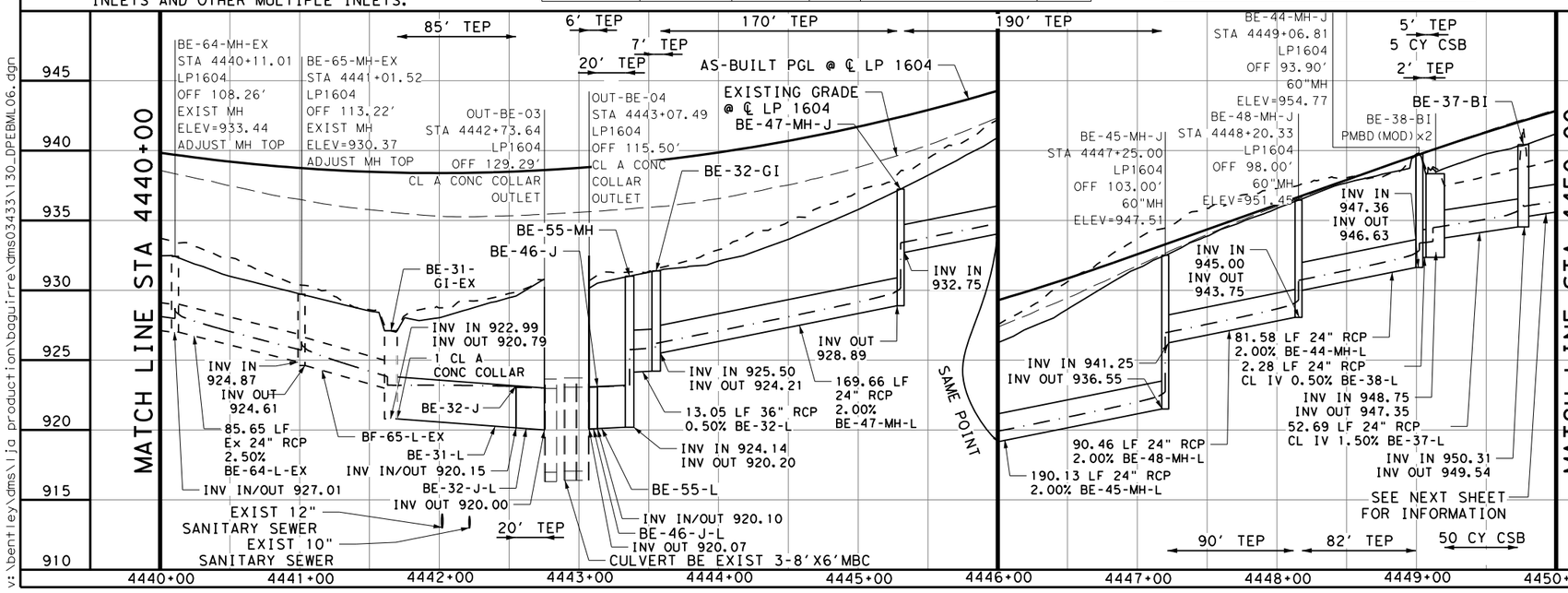
ID	STA	CHAIN	OFF	TYPE	ELEV
BE-31-GI-EX	4441+65.50	LP1604	116.50	EX PAZD FG 4x4-4 - 2	927.10
BE-32-GI	4443+55.00	LP1604	117.50	PSL FG 6x6 w 3x5 gr	931.38
BE-32-J	4442+55.00	LP1604	121.00	CL A CONC COLLAR	923.15
BE-37-BI	4449+74.75	LP1604	94.54	PMBD(MOD)	955.43
BE-46-J	4443+12.95	LP1604	117.93	CL A CONC COLLAR	923.10
BE-47-MH-J	4445+33.71	LP1604	95.20	60"MH	937.25
BE-55-MH	4443+35.96	LP1604	117.94	60"MH	931.02

ID	LENGTH	SIZE	SLOPE
BE-31-L	85.11 LF	36" RCP	0.75%
BD-32-J-L	20.40 LF	36" RCP	0.75%
BE-65-L-EX	57.06 LF	Ex 24" RCP	2.84%
BE-46-J-L	5.98 LF	36" RCP	0.50%
BE-55-L	20.01	36" RCP	0.50%



NOTES:
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QUANTITY SUMMARY CSJ 2452-02-130			
ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	2
0400-6005	CEM STABIL BKFL	CY	55
0402-6001	TRENCH EXCAVATION PROTECTION	LF	677
0420-6009	CL A CONC (COLLAR)	EA	5
0432-6006	RIPRAP (CONC)(CL B)	CY	8
0464-6005	RC PIPE (CL III)(24 IN)	LF	455
0464-6008	RC PIPE (CL III)(36 IN)	LF	144
0464-6018	RC PIPE (CL IV)(24 IN)	LF	137
0465-6003	MANH (COMPL)(PRM)(60IN)	EA	5
0465-6142	INLET (COMPL)(PSL)(FG)(6FTX6FT-3FTX	EA	1
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	3

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4440+00 TO STA 4450+00

SHEET 6 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1593

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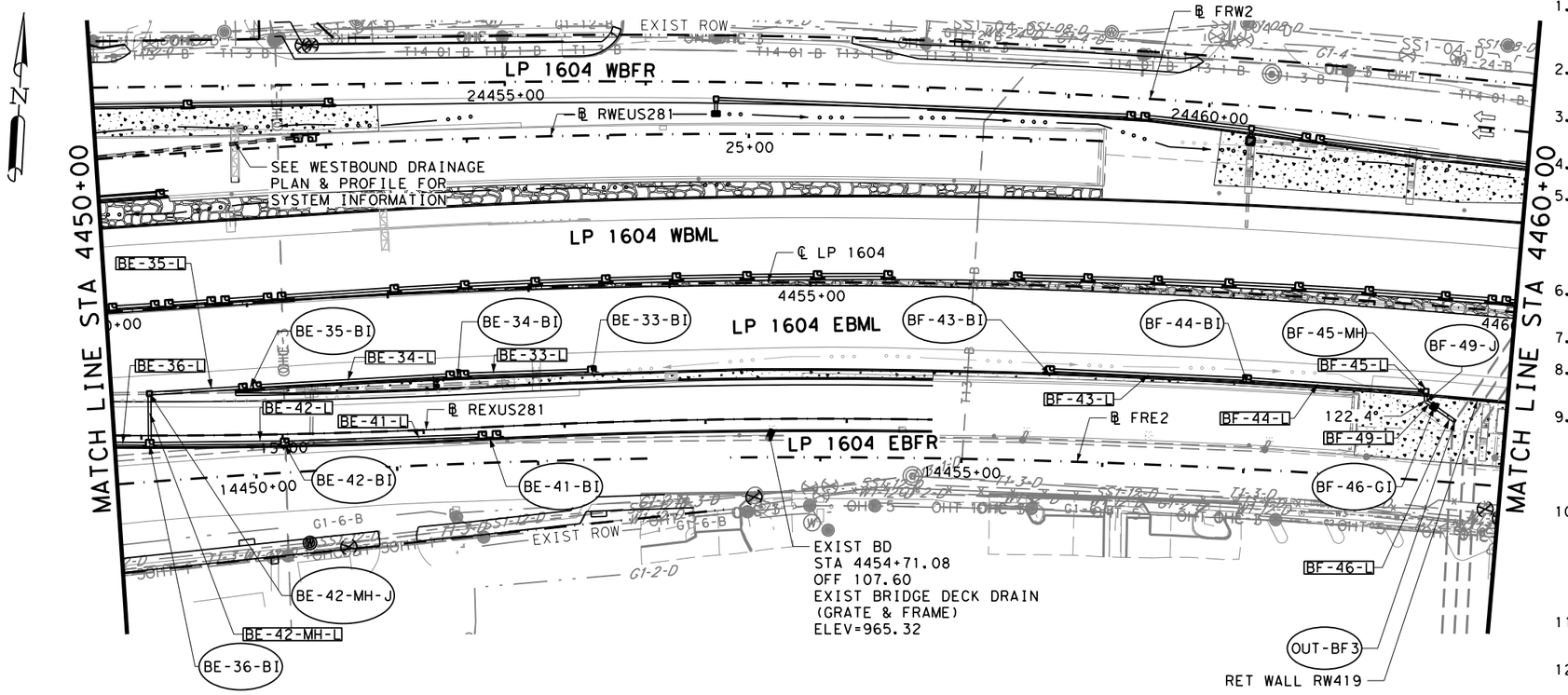

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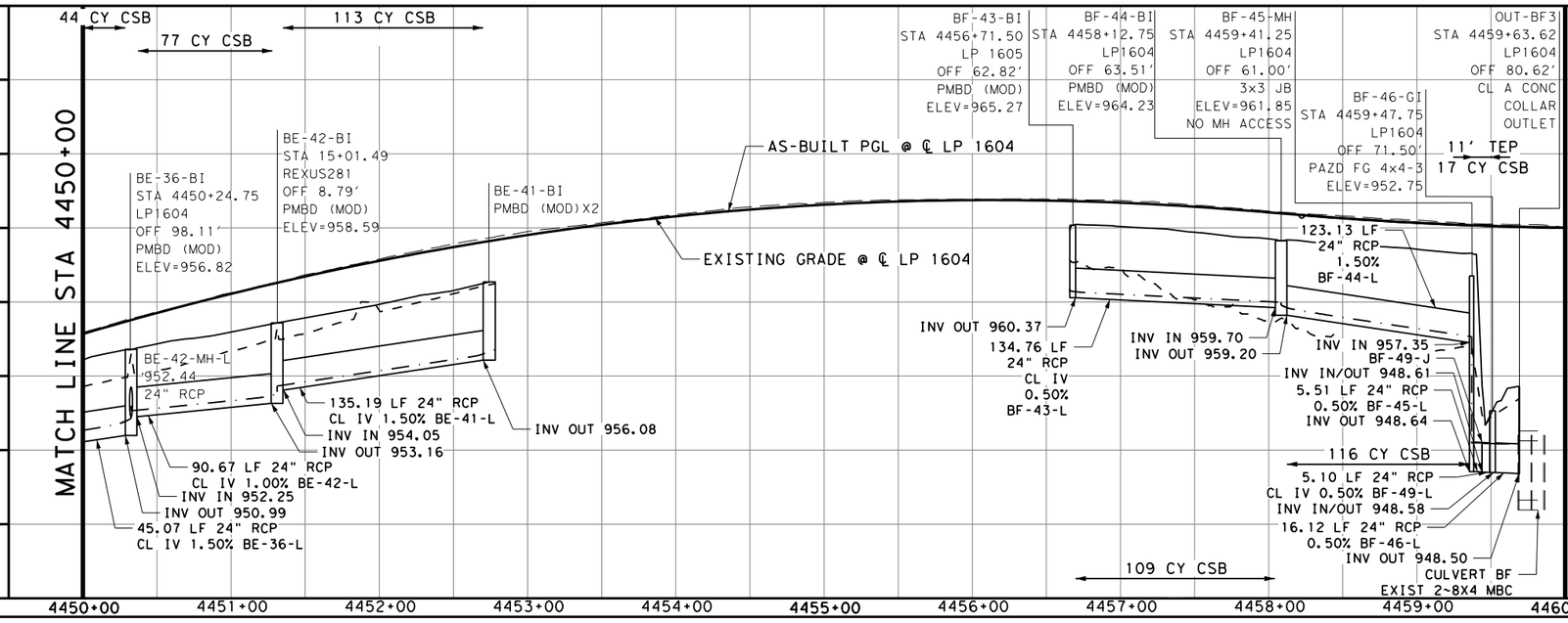
QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	6
0400-6005	CEM STABIL BKFL	CY	765
0402-6001	TRENCH EXCAVATION PROTECTION	LF	21
0420-6009	CL A CONC (COLLAR)	EA	2
0432-6006	RIPRAP (CONC)(CL B)	CY	8
0464-6005	RC PIPE (CL III)(24 IN)	LF	155
0464-6018	RC PIPE (CL IV)(24 IN)	LF	738
0465-6005	JCTBOX(COMPL)(PJB)(3FTX3FT)	EA	2
0465-6159	INLET(COMPL)(PAZD)(FG)(4FTX4FT-3FTX	EA	1
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	11

LEGEND
- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

ID	STA	CHAIN	OFF	TYPE	ELEV
BF-49-J	4459+41.50	LP1604	68.00	CL A CONC COLLAR	950.61



0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

LUKE REED, P.E. — 2/27/2023 DATE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4450+00 TO STA 4460+00

SHEET 7 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1594

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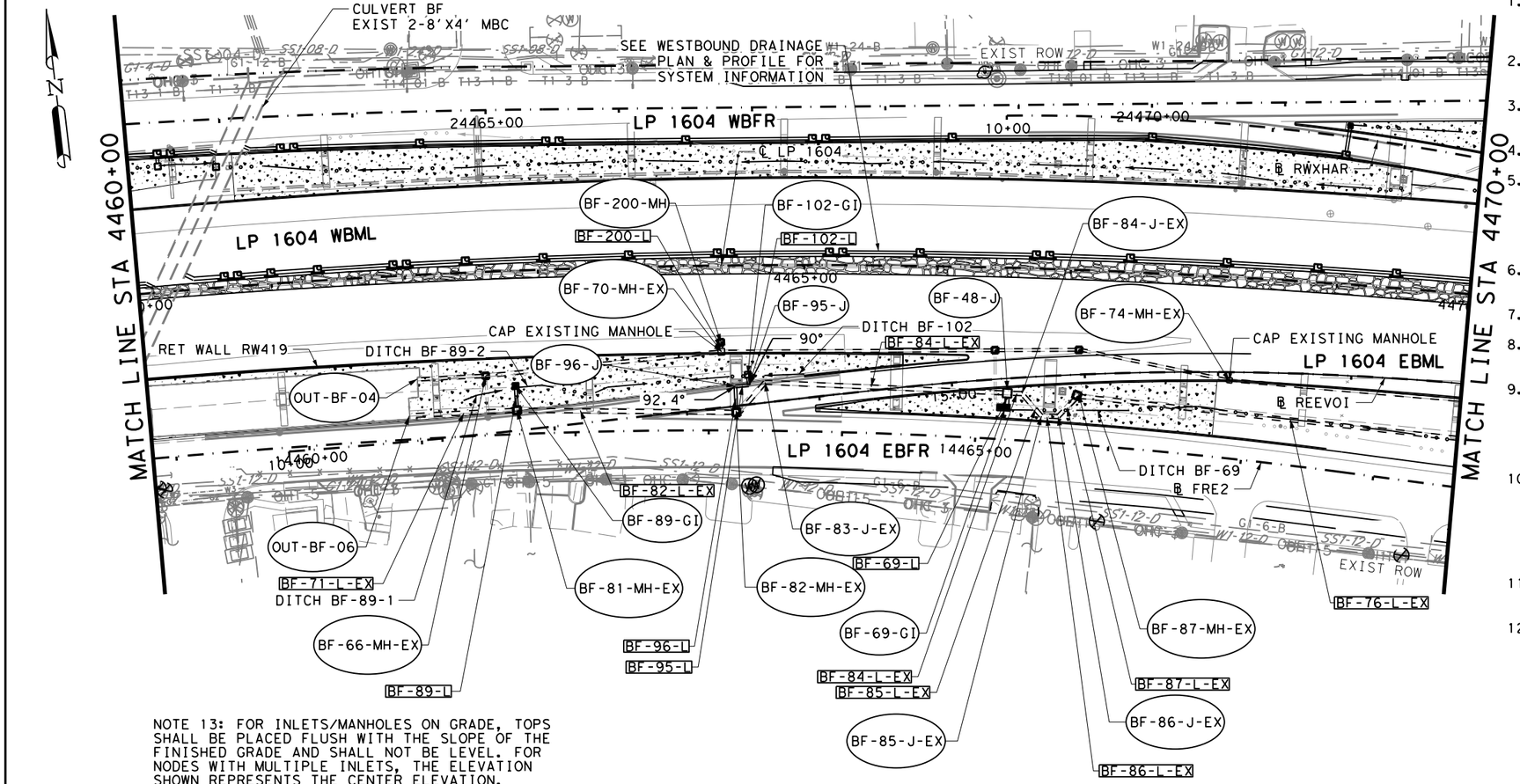

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTES:
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
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5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
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7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
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12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	41
0402-6001	TRENCH EXCAVATION PROTECTION	LF	56
0420-6009	CL A CONC (COLLAR)	EA	3
0432-6006	RIPRAP (CONC) (CL B)	CY	24
0464-6005	RC PIPE (CL III) (24 IN)	LF	47
0464-6008	RC PIPE (CL III) (36 IN)	LF	54
0465-6011	JCTBOX (COMPL) (PJB) (6FTX6FT)	EA	1
0465-6071	INLET (COMPL) (PSL) (RC) (4FTX4FT)	EA	1
0465-6088	INLET (COMPL) (PSL) (SH) (4FTX4FT-4FTX	EA	2
0465-6160	INLET (COMPL) (PAZD) (FG) (4FTX4FT-4FTX	EA	1
0479-6001	ADJUSTING MANHOLES	EA	2

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
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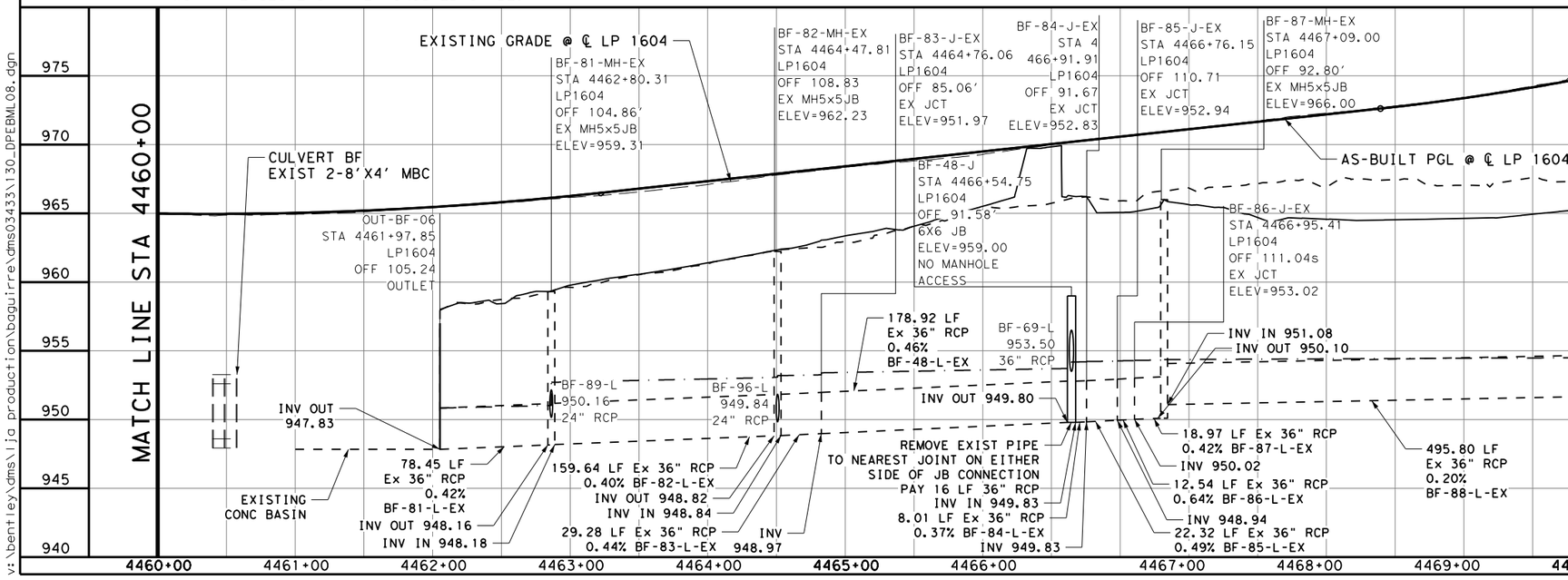

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

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LP 1604
EASTBOUND DRAINAGE
PLAN AND PROFILE
STA 4460+00 TO STA 4470+00

SHEET 8 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1595

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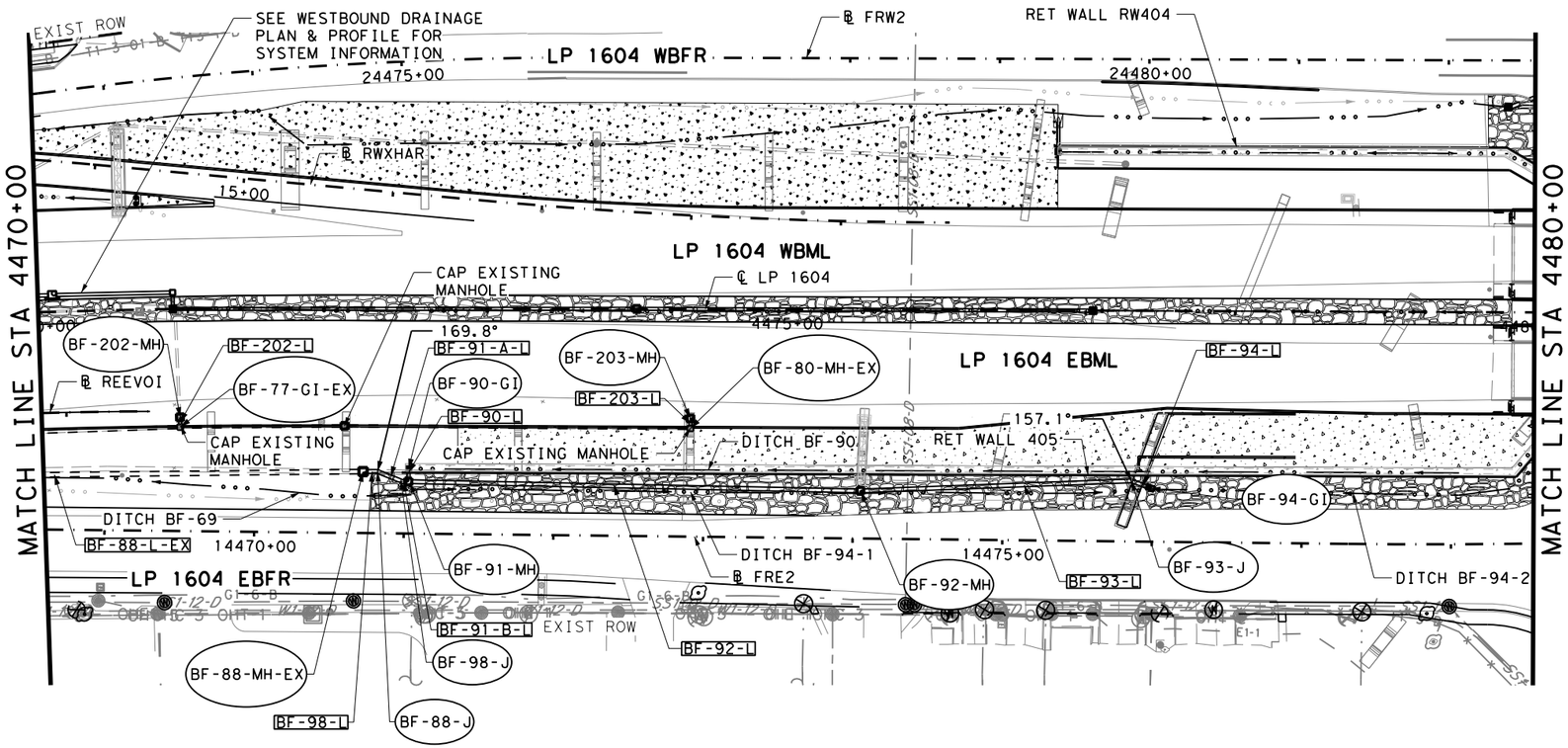

NOTES:

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QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	1064
0402-6001	TRENCH EXCAVATION PROTECTION	LF	526
0420-6009	CL A CONC (COLLAR)	EA	5
0432-6006	RIPRAP (CONC)(CL B)	CY	16
0464-6005	RC PIPE (CL III)(24 IN)	LF	5
0464-6007	RC PIPE (CL III)(30 IN)	LF	7
0464-6018	RC PIPE (CL IV)(24 IN)	LF	5
0464-6019	RC PIPE (CL IV)(30 IN)	LF	508
0465-6005	JCTBOX(COMPL)(PJB)(3FTX3FT)	EA	1
0465-6048	INLET (COMPL)(POD)(FG)(3FTX3FT)	EA	1
0465-6071	INLET (COMPL)(PSL)(RC)(4FTX4FT)	EA	2
0465-6129	INLET (COMPL)(PSL)(FG)(3FTX5FT-3FTX	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
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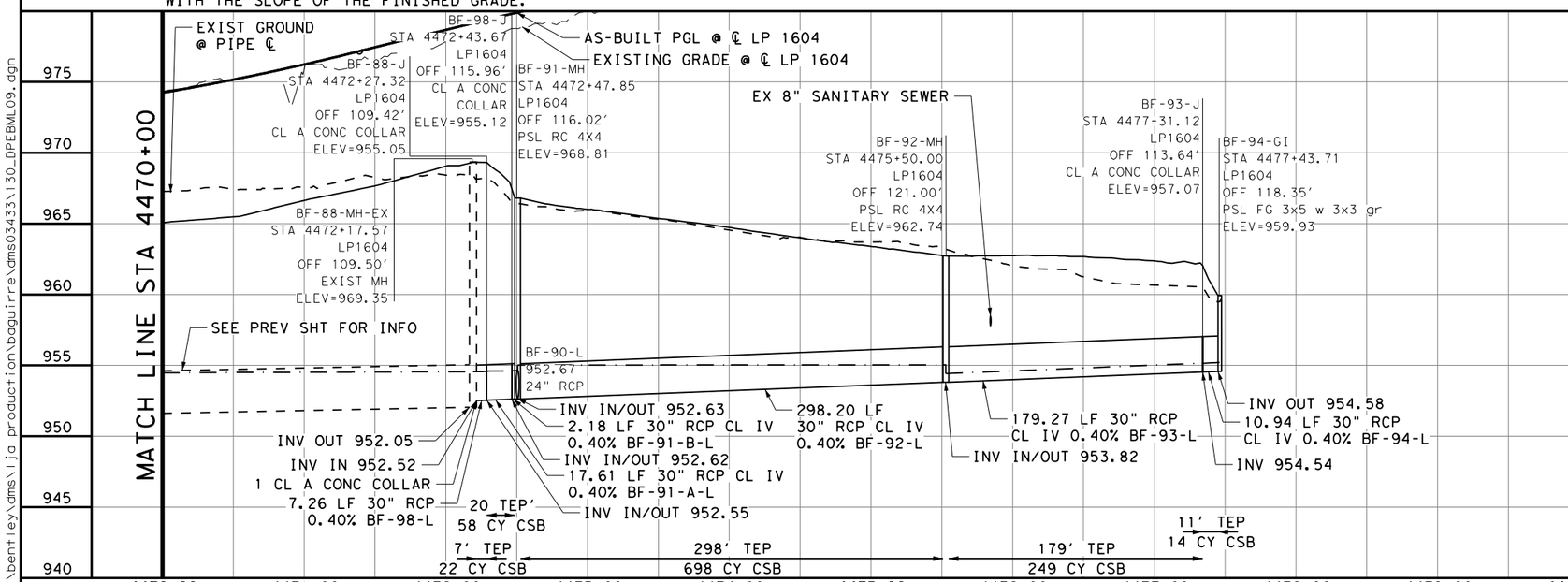

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100' - HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

EASTBOUND DRAINAGE PLAN AND PROFILE

STA 4470+00 TO STA 4480+00

SHEET 9 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1596

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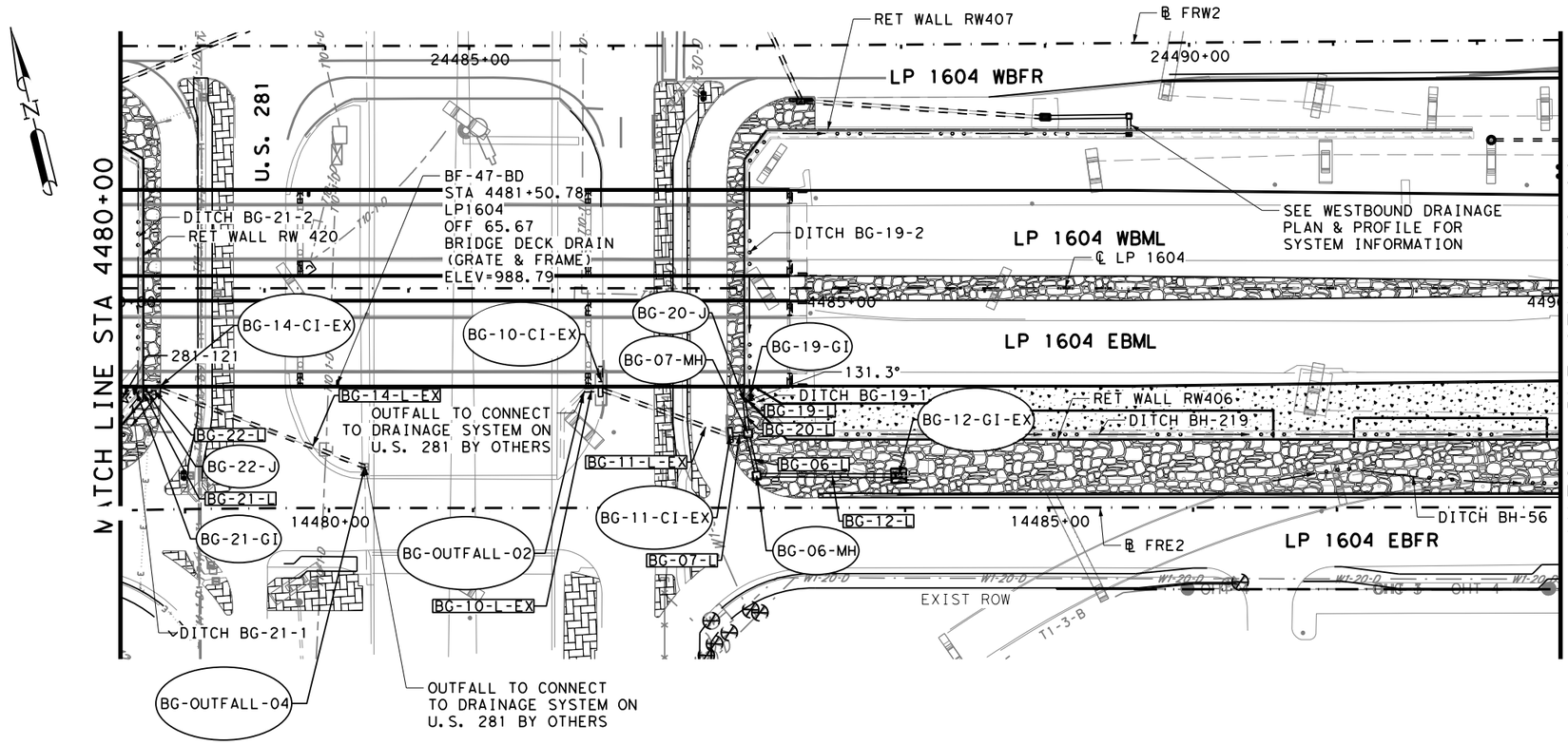

NOTES:

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0402-6001	TRENCH EXCAVATION PROTECTION	LF	142
0420-6009	CL A CONC (COLLAR)	EA	3
0432-6006	RIPRAP (CONC) (CL B)	CY	16
0464-6005	RC PIPE (CL III) (24 IN)	LF	10
0464-6007	RC PIPE (CL III) (30 IN)	LF	128
0464-6018	RC PIPE (CL IV) (24 IN)	LF	23
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	3
0465-6009	JCTBOX (COMPL) (PJB) (5FTX5FT)	EA	2
0465-6048	INLET (COMPL) (POD) (FG) (3FTX3FT)	EA	2
0471-6007	GRATE AND FRAME (BRIDGE DRAIN)	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
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- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
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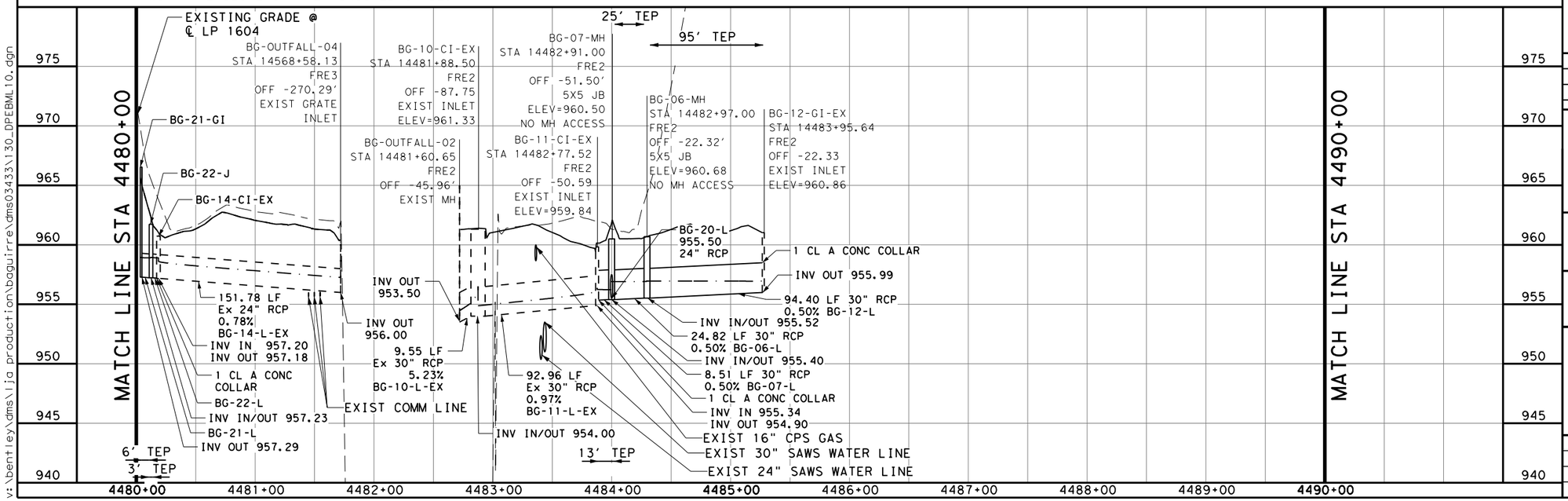
ID	STA	CHAIN	OFF	TYPE	ELEV
BE-14-CI-EX	14478+83.10	FRE2	-85.70	EXIST INLET	960.73
BG-22-J	4480+20.00	LP1604	70.50	3X3 JB (NO MH ACCESS)	961.73
BG-21-GI	4480+12.00	LP1604	75.50	POD 3x3 w 3x3 gr	966.54

ID	LENGTH	SIZE	SLOPE
BG-21-L	6.09 LF	24" RCP CL IV	1.00%
BG-22-L	3.22 LF	24" RCP	1.00%



STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4480+00 TO STA 4490+00

SHEET 10 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1597

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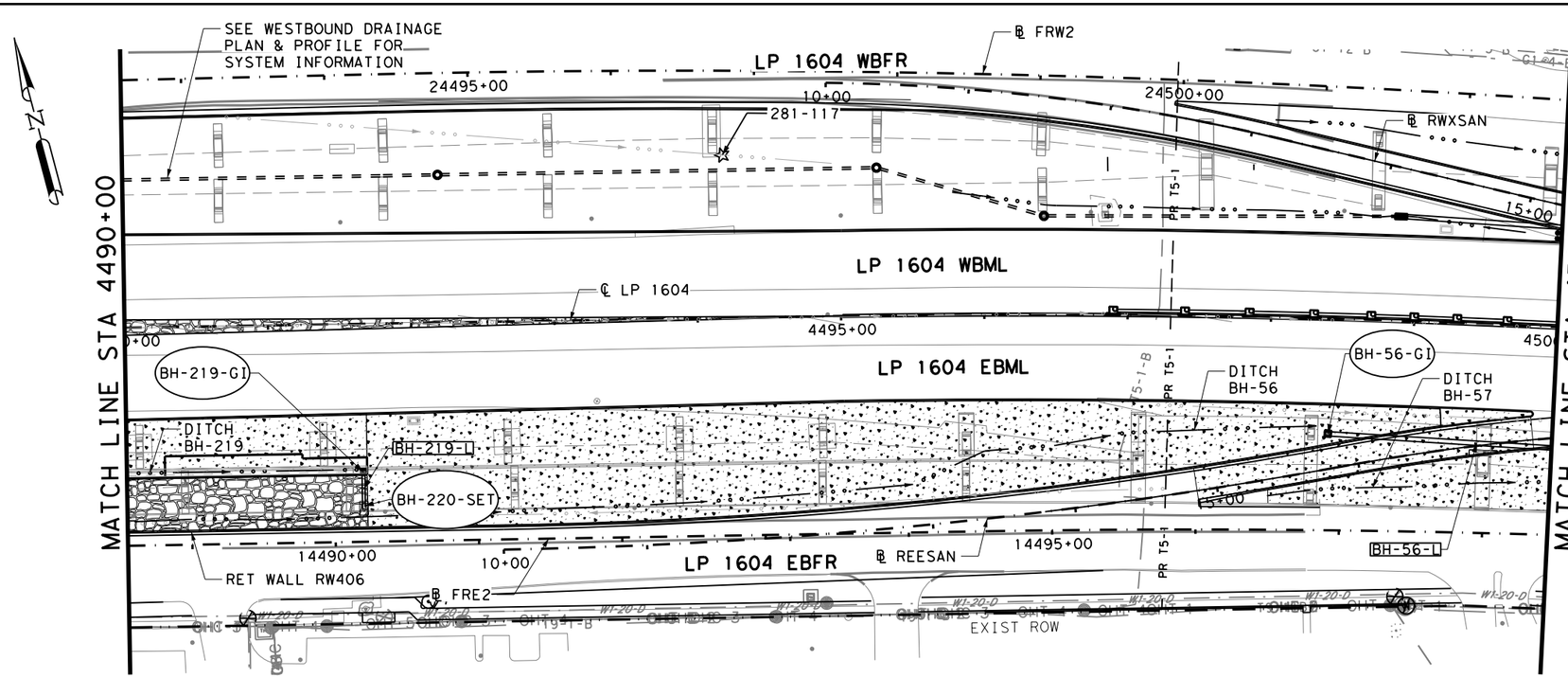

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	268
0402-6001	TRENCH EXCAVATION PROTECTION	LF	232
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6008	RC PIPE (CL III) (36 IN)	LF	219
0464-6018	RC PIPE (CL IV) (24 IN)	LF	27
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	1
0465-6048	INLET (COMPL) (POD) (FG) (3FTX3FT)	EA	1
0465-6160	INLET (COMPL) (PAZD) (FG) (4FTX4FT-4FTX	EA	1
0467-6388	SET (TY II) (24 IN) (RCP) (3:1) (C)	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
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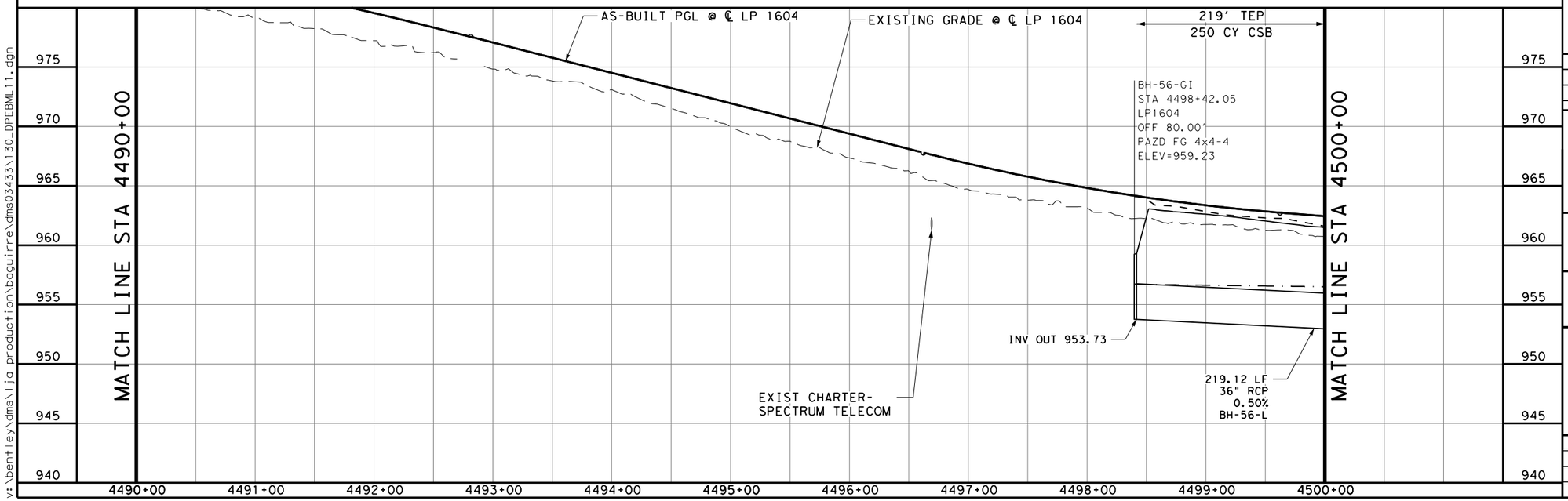

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

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2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4490+00 TO STA 4500+00

SHEET 11 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1598

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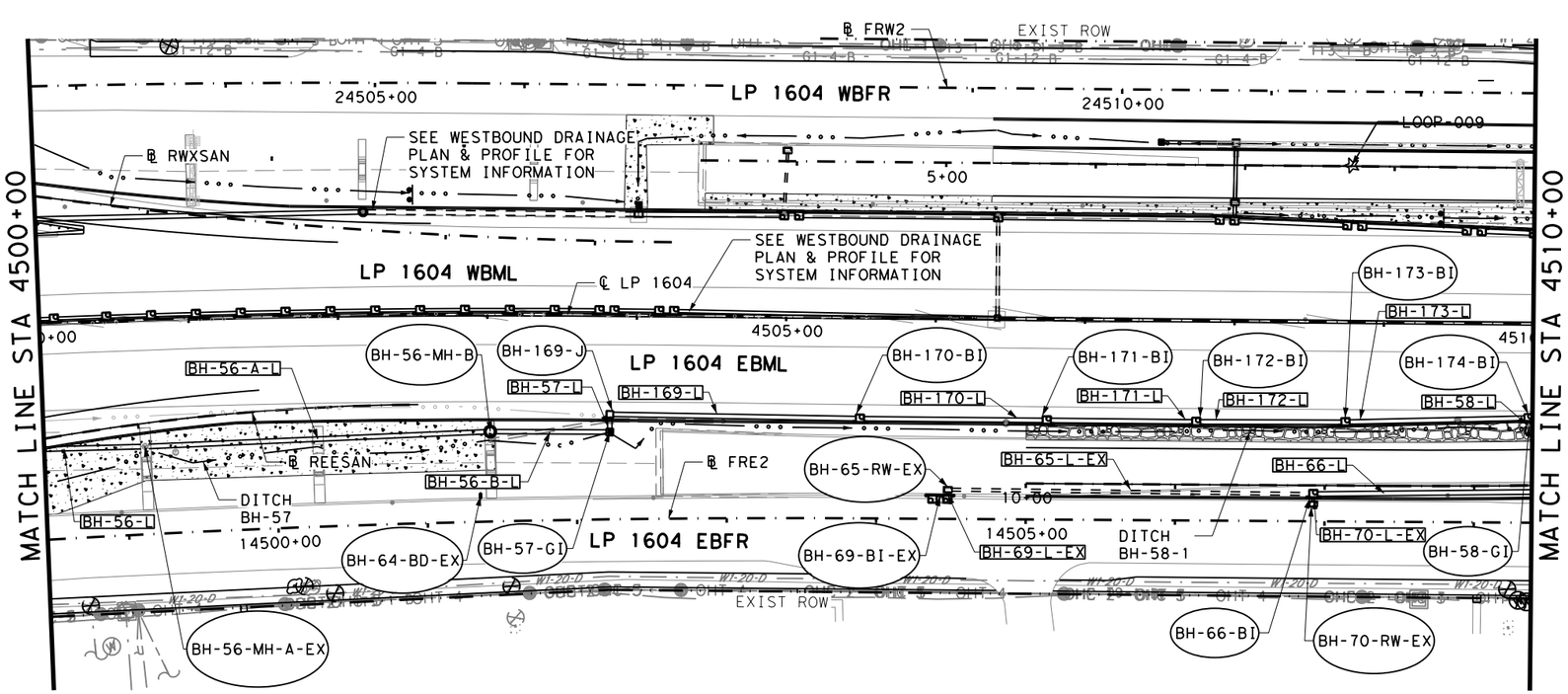

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QUANTITY SUMMARY CSJ 2452-03-113

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0400-6005	CEM STABIL BKFL	CY	1197
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1105
0420-6009	CL A CONC (COLLAR)	EA	2
0432-6006	RIPRAP (CONC)(CL B)	CY	8
0464-6005	RC PIPE (CL III)(24 IN)	LF	4
0464-6008	RC PIPE (CL III)(36 IN)	LF	961
0464-6017	RC PIPE (CL IV)(18 IN)	LF	8
0464-6018	RC PIPE (CL IV)(24 IN)	LF	8
0464-6020	RC PIPE (CL IV)(36 IN)	LF	193
0465-6004	MANH (COMPL)(PRM)(72IN)	EA	1
0465-6006	JCTBOX(COMPL)(PJB)(4FTX4FT)	EA	1
0465-6127	INLET (COMPL)(PSL)(FG)(4FTX4FT-3FTX	EA	1
0465-6150	INLET (COMPL)(PAZD)(SL)(4FTX4FT)	EA	1
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	6

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
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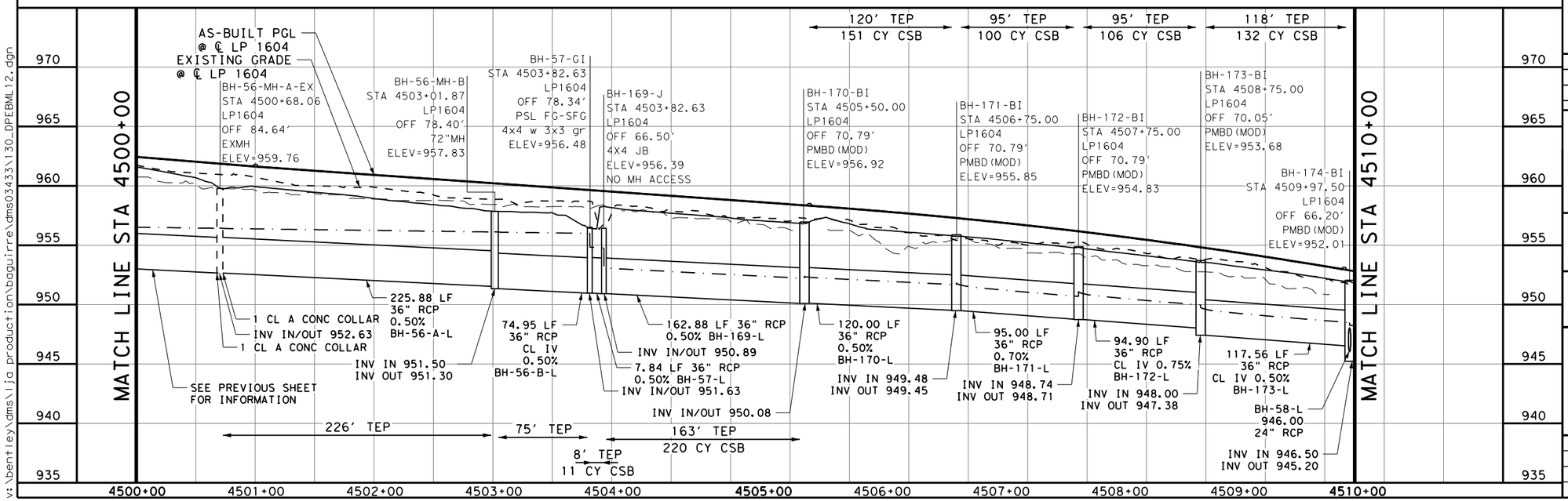
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.



STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4500+00 TO STA 4510+00

SHEET 12 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1599

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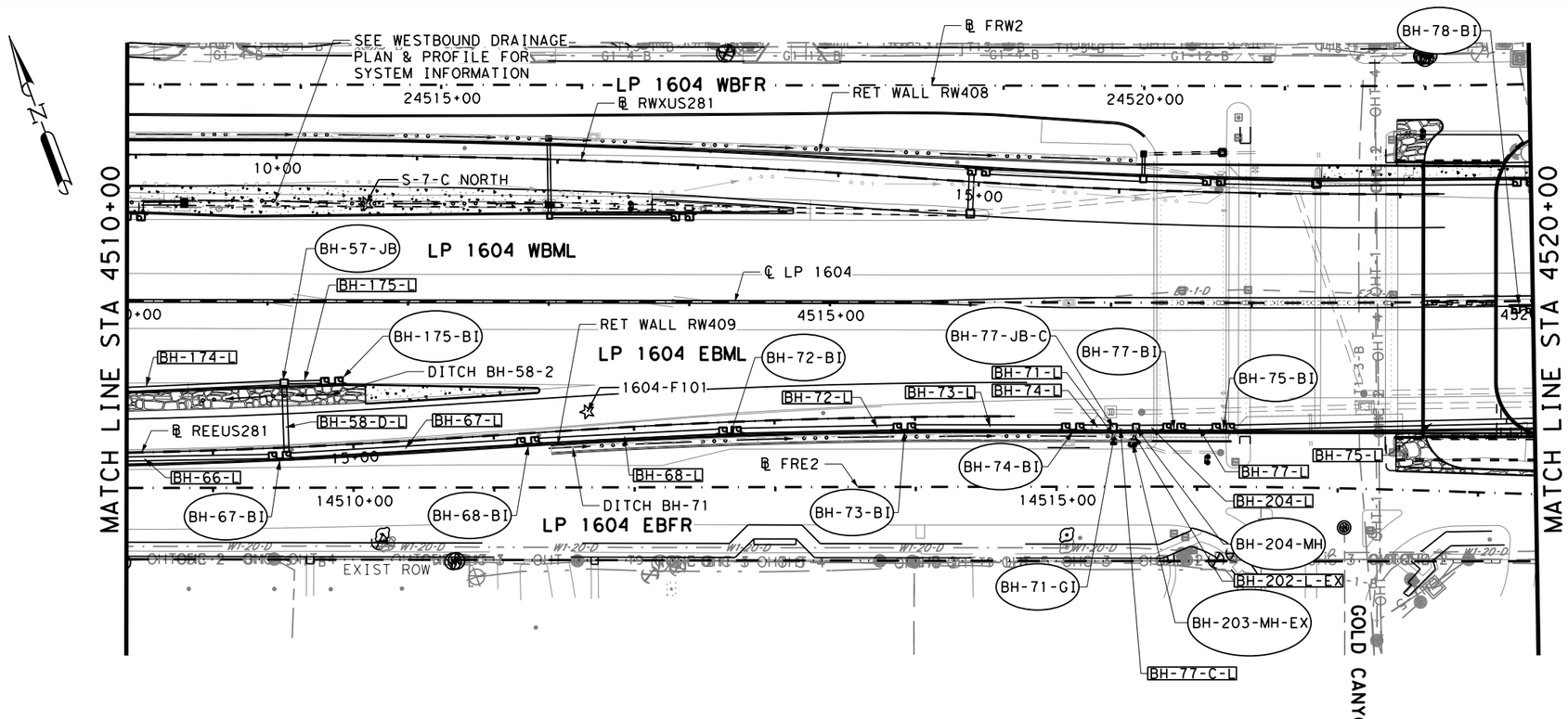


NOTES:

1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
10. PROP INLET ELEVATIONS ARE APPROXIMATE & BASED OFF SURVEY DATA & ROADWAY WIDENING. CONTRACTOR TO CONFIRM ELEVATIONS DURING CONSTRUCTION.
11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-03-113

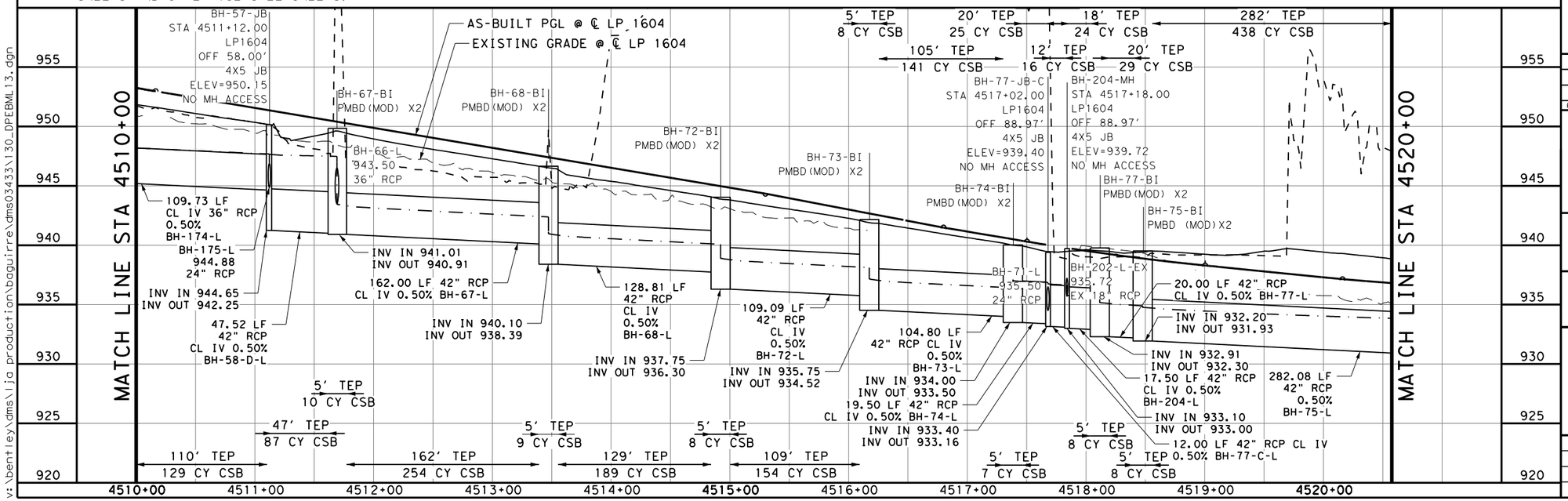
ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	16
0400-6005	CEM STABIL BKFL	CY	1560
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1055
0432-6006	RIPRAP (CONC)(CL B)	CY	8
0464-6005	RC PIPE (CL III)(24 IN)	LF	32
0464-6009	RC PIPE (CL III)(42 IN)	LF	262
0464-6017	RC PIPE (CL IV)(18 IN)	LF	8
0464-6018	RC PIPE (CL IV)(24 IN)	LF	11
0464-6020	RC PIPE (CL IV)(36 IN)	LF	110
0464-6021	RC PIPE (CL IV)(42 IN)	LF	656
0465-6005	JCTBOX(COMPL)(PJB)(3FTX3FT)	EA	1
0465-6008	JCTBOX(COMPL)(PJB)(4FTX5FT)	EA	1
0465-6048	INLET (COMPL)(POD)(FG)(3FTX3FT)	EA	1
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	16

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.



STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

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PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

EASTBOUND DRAINAGE PLAN AND PROFILE

STA 4510+00 TO STA 4520+00

SHEET 13 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1600

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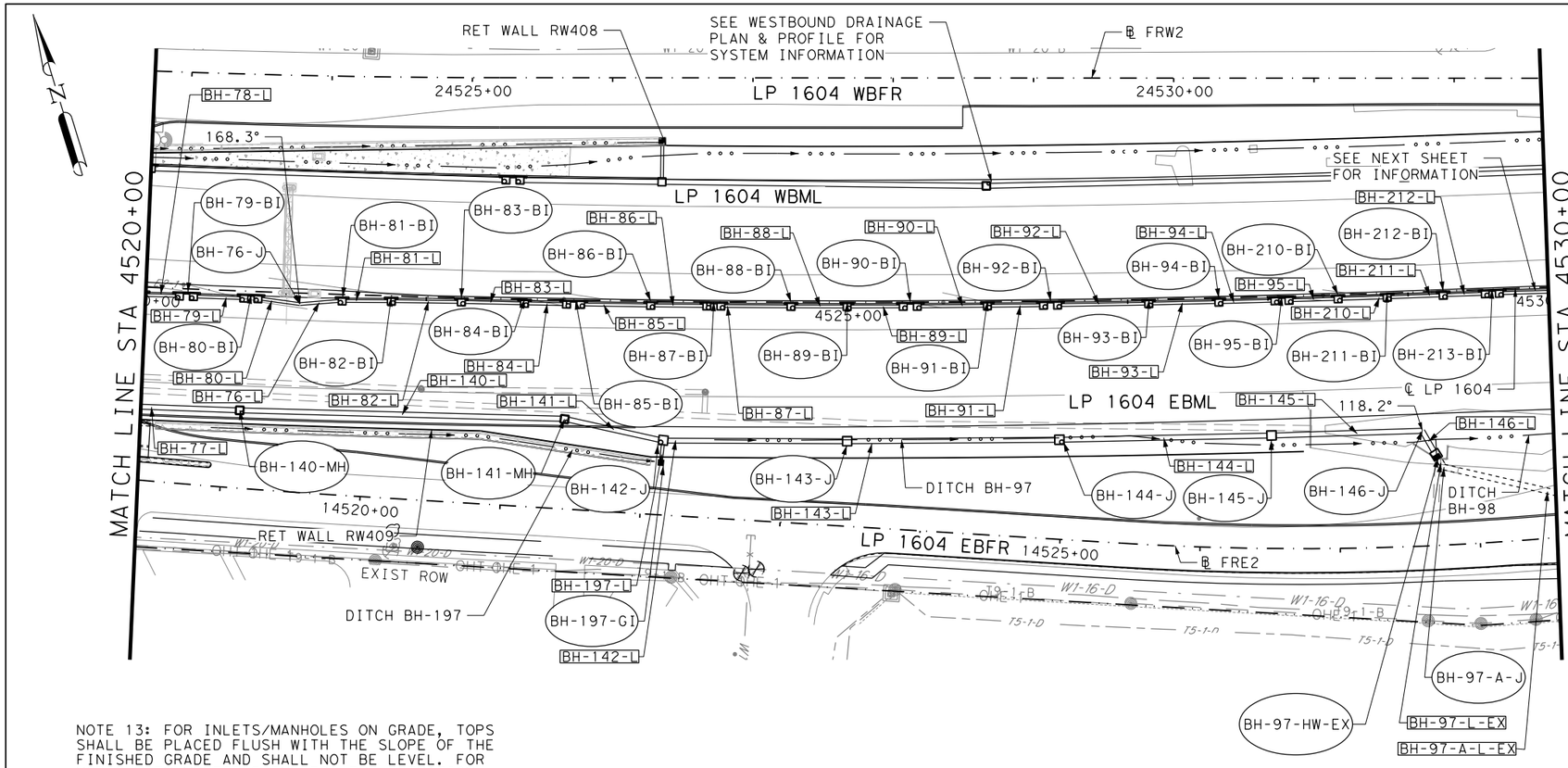

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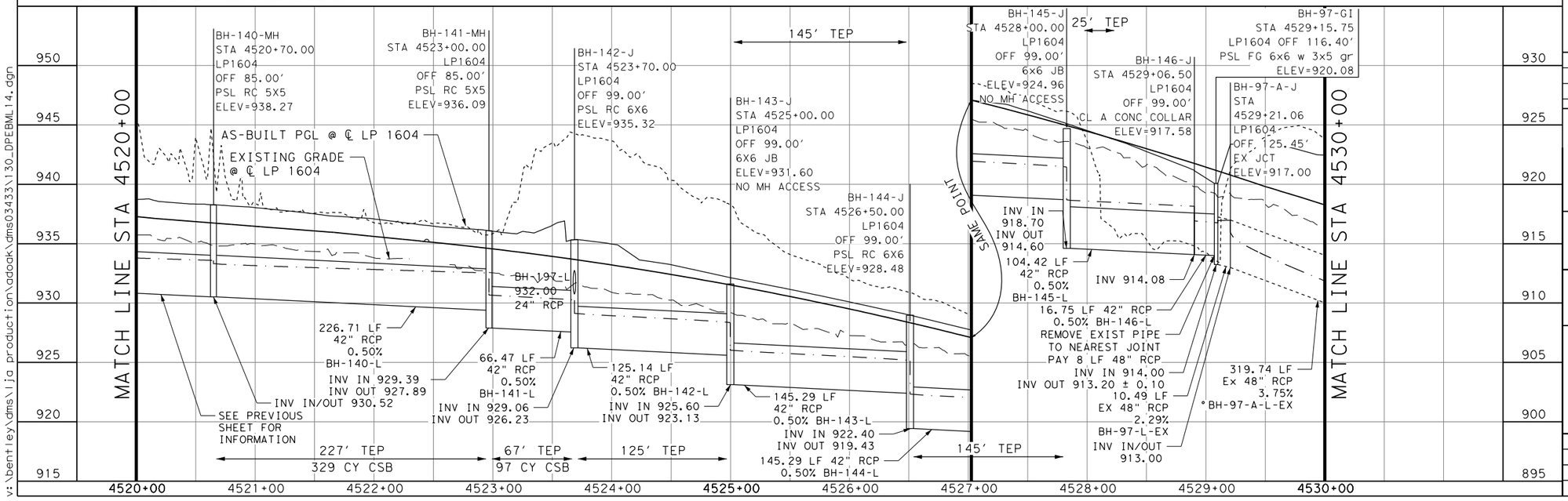
QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	14
0400-6005	CEM STABIL BKFL	CY	1230
0402-6001	TRENCH EXCAVATION PROTECTION	LF	801
0420-6009	CL A CONC (COLLAR)	EA	2
0432-6006	RIPRAP (CONC)(CL B)	CY	8
0464-6005	RC PIPE (CL III)(24 IN)	LF	315
0464-6009	RC PIPE (CL III)(42 IN)	LF	830
0464-6010	RC PIPE (CL III)(48 IN)	LF	8
0464-6018	RC PIPE (CL IV)(24 IN)	LF	664
0465-6005	JCTBOX(COMPL)(PJB)(3FTX3FT)	EA	1
0465-6011	JCTBOX(COMPL)(PJB)(6FTX6FT)	EA	2
0465-6048	INLET (COMPL)(POD)(FG)(3FTX3FT)	EA	1
0465-6074	INLET (COMPL)(PSL)(RC)(5FTX5FT)	EA	2
0465-6076	INLET (COMPL)(PSL)(RC)(6FTX6FT)	EA	2
0465-6142	INLET (COMPL)(PSL)(FG)(6FTX6FT-3FTX	EA	1
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	29

LEGEND
- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER
LUKE REED, P.E. 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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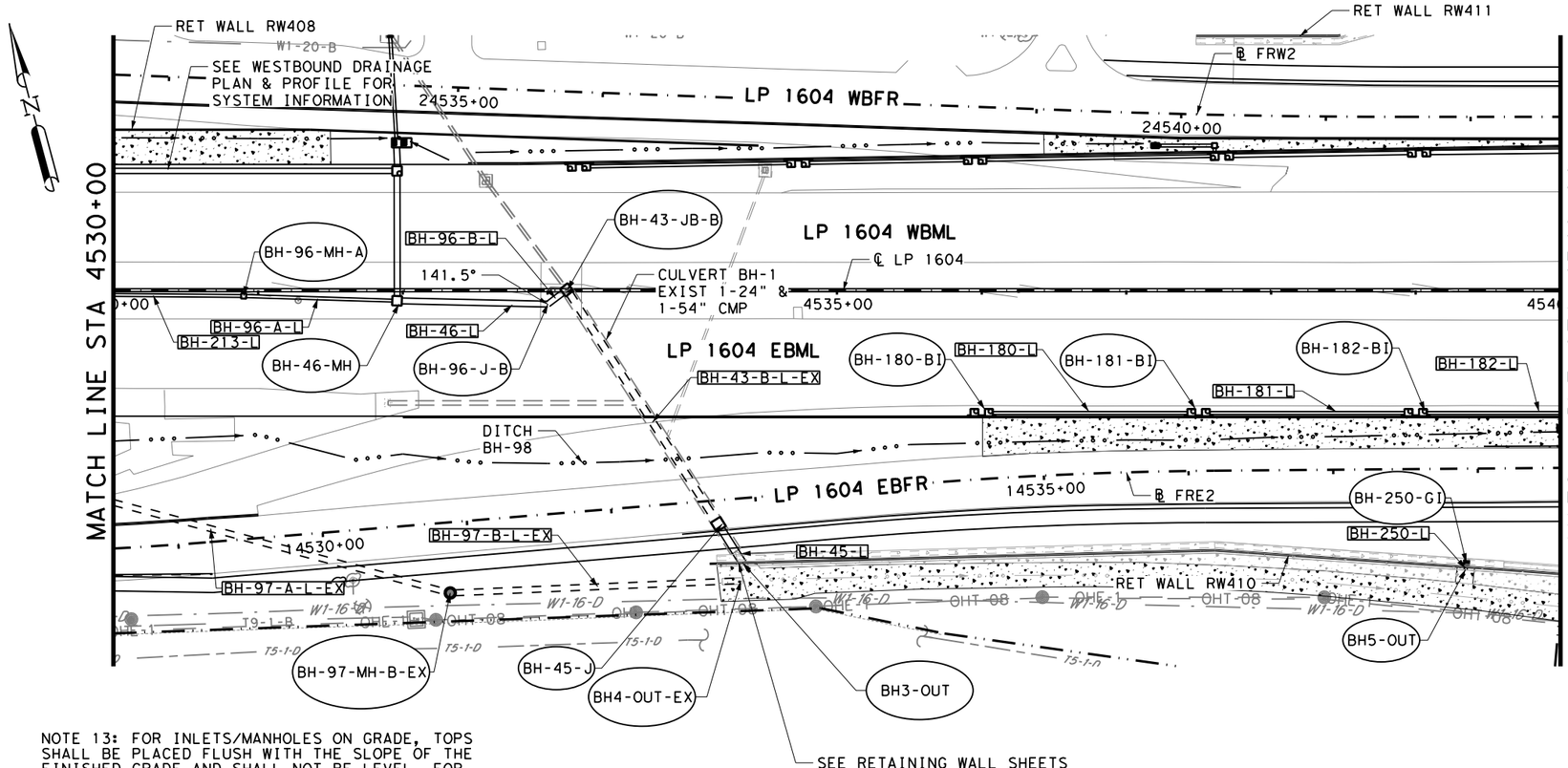
LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4520+00 TO STA 4530+00

SHEET 14 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1601



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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	6
0400-6005	CEM STABIL BKFL	CY	901
0402-6001	TRENCH EXCAVATION PROTECTION	LF	262
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC)(CL B)	CY	8
0460-6008	CMP (GAL STL 60 IN)	LF	8
0464-6005	RC PIPE (CL III)(24 IN)	LF	121
0464-6010	RC PIPE (CL III)(48 IN)	LF	101
0464-6018	RC PIPE (CL IV)(24 IN)	LF	535
0464-6022	RC PIPE (CL IV)(48 IN)	LF	13
0464-6052	RC PIPE (CL IV)(60 IN)	LF	28
0465-6005	JCTBOX(COMPL)(PJB)(3FTX3FT)	EA	2
0465-6011	JCTBOX(COMPL)(PJB)(6FTX6FT)	EA	2
0465-6048	INLET (COMPL)(POD)(FG)(3FTX3FT)	EA	1
0465-6348	JCTBOX(COMPL)(PJB)(7FTX7FT)(MOD)	EA	1
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	6

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
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- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
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- (xx-xx-xx) NODE NAMING CONVENTION
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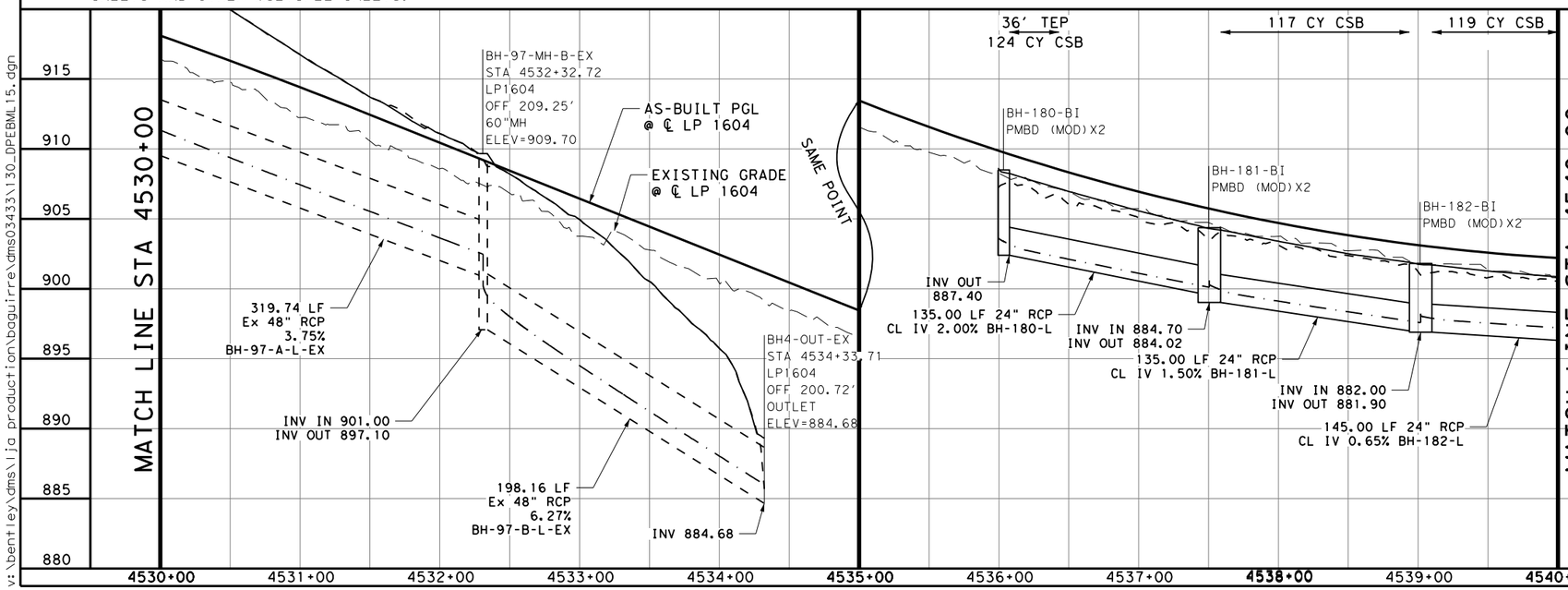

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

EASTBOUND DRAINAGE PLAN AND PROFILE

STA 4530+00 TO STA 4540+00

SHEET 15 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1602

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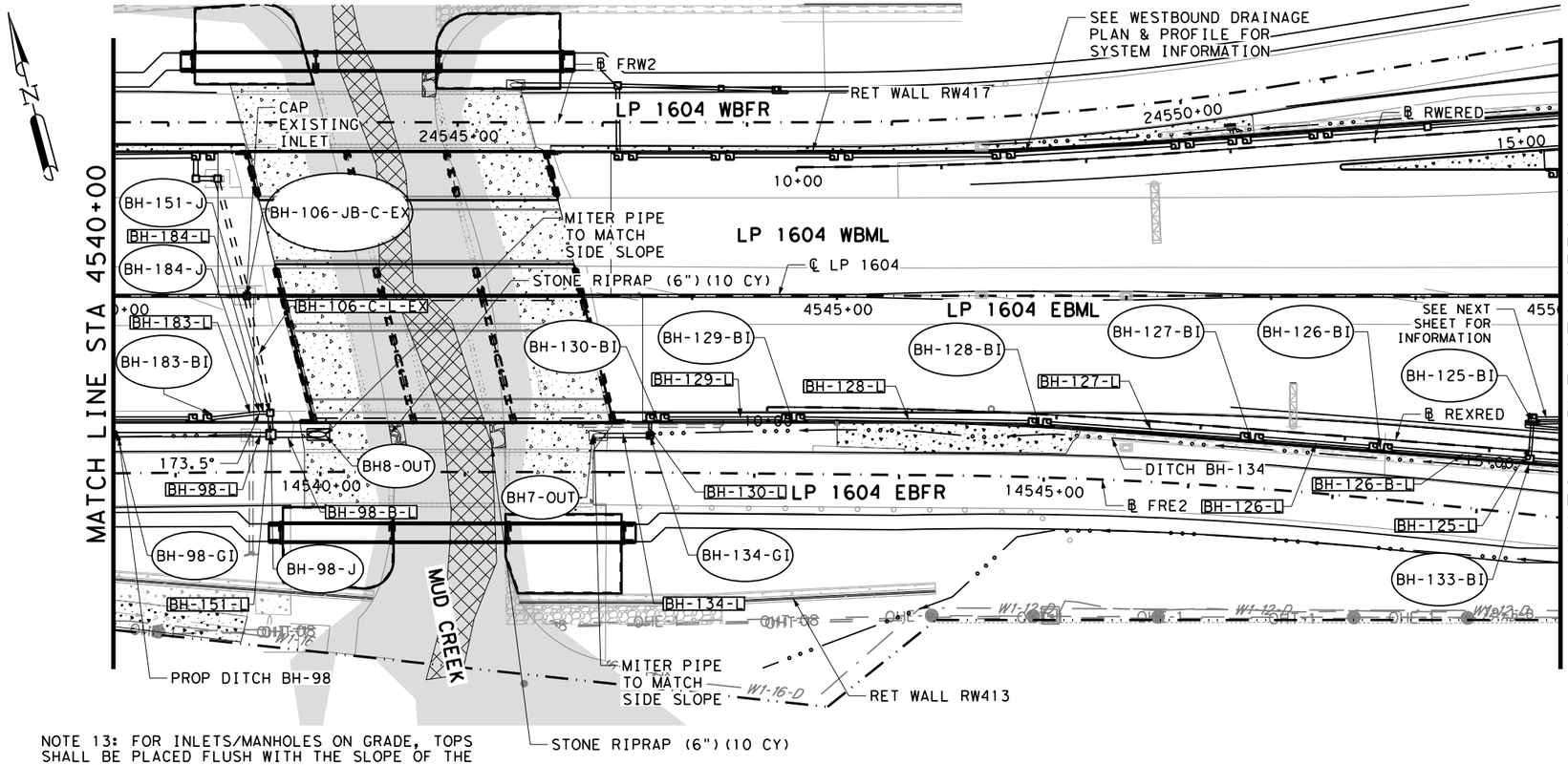

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NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	12
0400-6005	CEM STABIL BKFL	CY	921
0402-6001	TRENCH EXCAVATION PROTECTION	LF	768
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	16
0432-6022	RIPRAP (STONE COMMON) (DRY) (6 IN)	CY	20
0460-6005	CMP (GAL STL 36 IN)	LF	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	605
0464-6008	RC PIPE (CL III) (36 IN)	LF	152
0464-6010	RC PIPE (CL III) (48 IN)	LF	35
0464-6018	RC PIPE (CL IV) (24 IN)	LF	23
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	1
0465-6011	JCTBOX (COMPL) (PJB) (6FTX6FT)	EA	1
0465-6160	INLET (COMPL) (PAZD) (FG) (4FTX4FT-4FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	14
0467-6449	SET (TY II) (36 IN) (RCP) (3:1) (P)	EA	1
0467-6475	SET (TY II) (48 IN) (RCP) (3:1) (P)	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
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- 10-YR HGL
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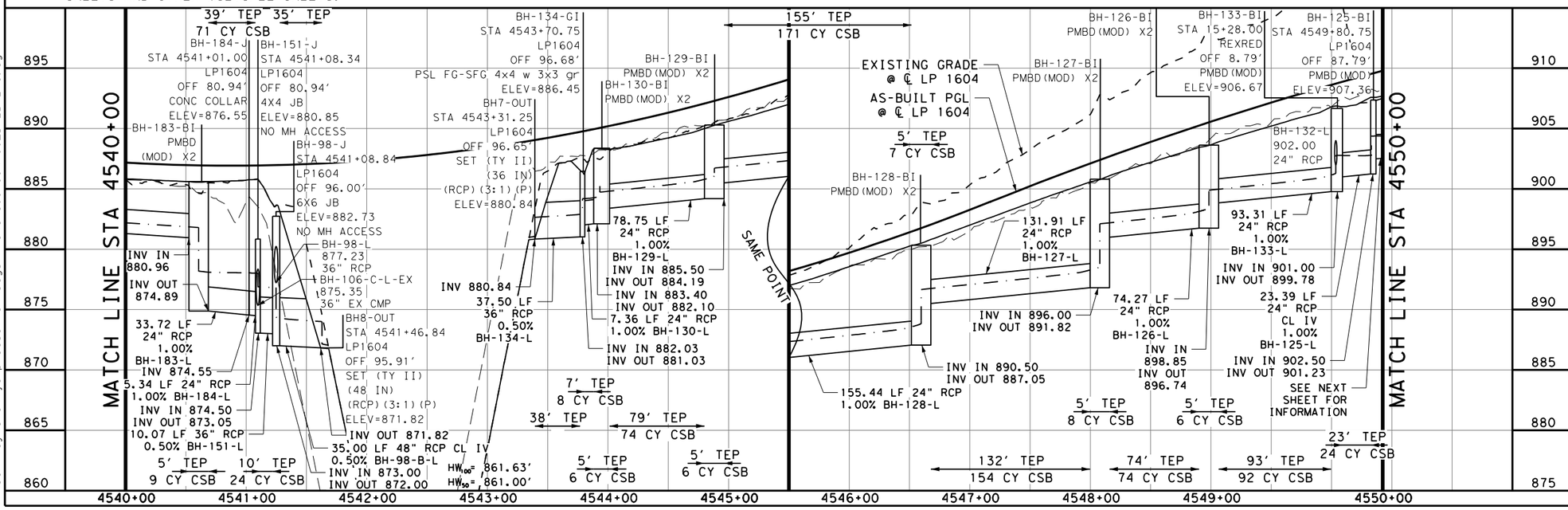

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

EASTBOUND DRAINAGE PLAN AND PROFILE

STA 4540+00 TO STA 4550+00

SHEET 16 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1603

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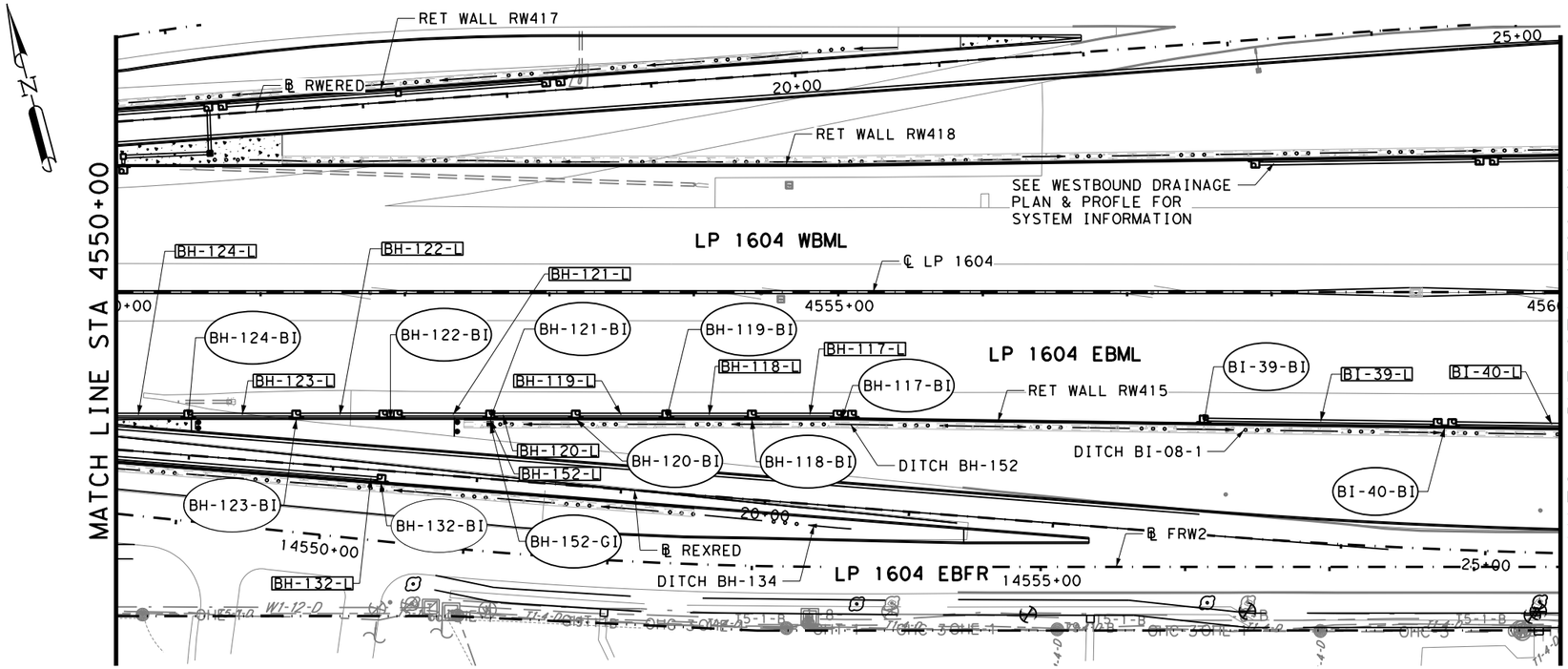

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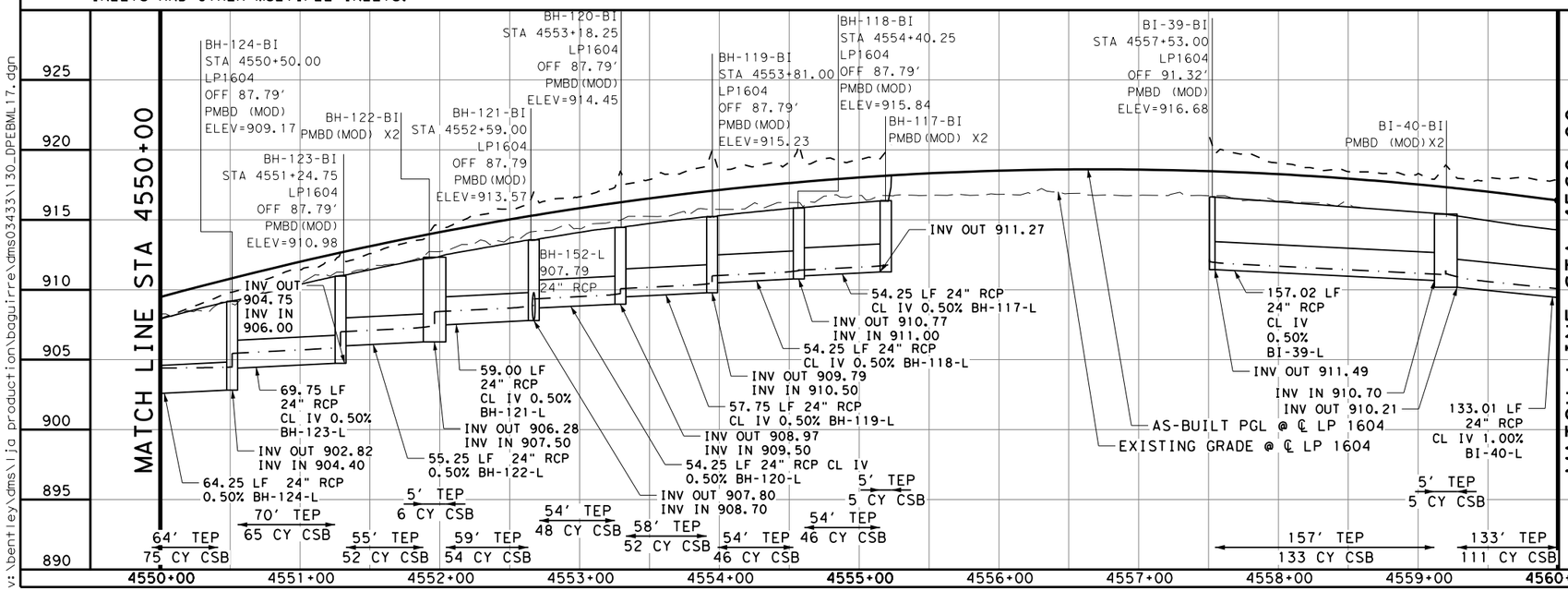
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
10. PROP INLET ELEVATIONS ARE APPROXIMATE & BASED OFF SURVEY DATA & ROADWAY WIDENING. CONTRACTOR TO CONFIRM ELEVATIONS DURING CONSTRUCTION.
11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	6
0400-6005	CEM STABIL BKFL	CY	950
0402-6001	TRENCH EXCAVATION PROTECTION	LF	976
0432-6006	RIPRAP (CONC)(CL B)	CY	8
0464-6005	RC PIPE (CL III)(24 IN)	LF	322
0464-6018	RC PIPE (CL IV)(24 IN)	LF	654
0465-6126	INLET (COMPL)(PSL)(FG)(3FTX3FT-3FTX	EA	1
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	14

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4550+00 TO STA 4560+00

SHEET 17 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1604

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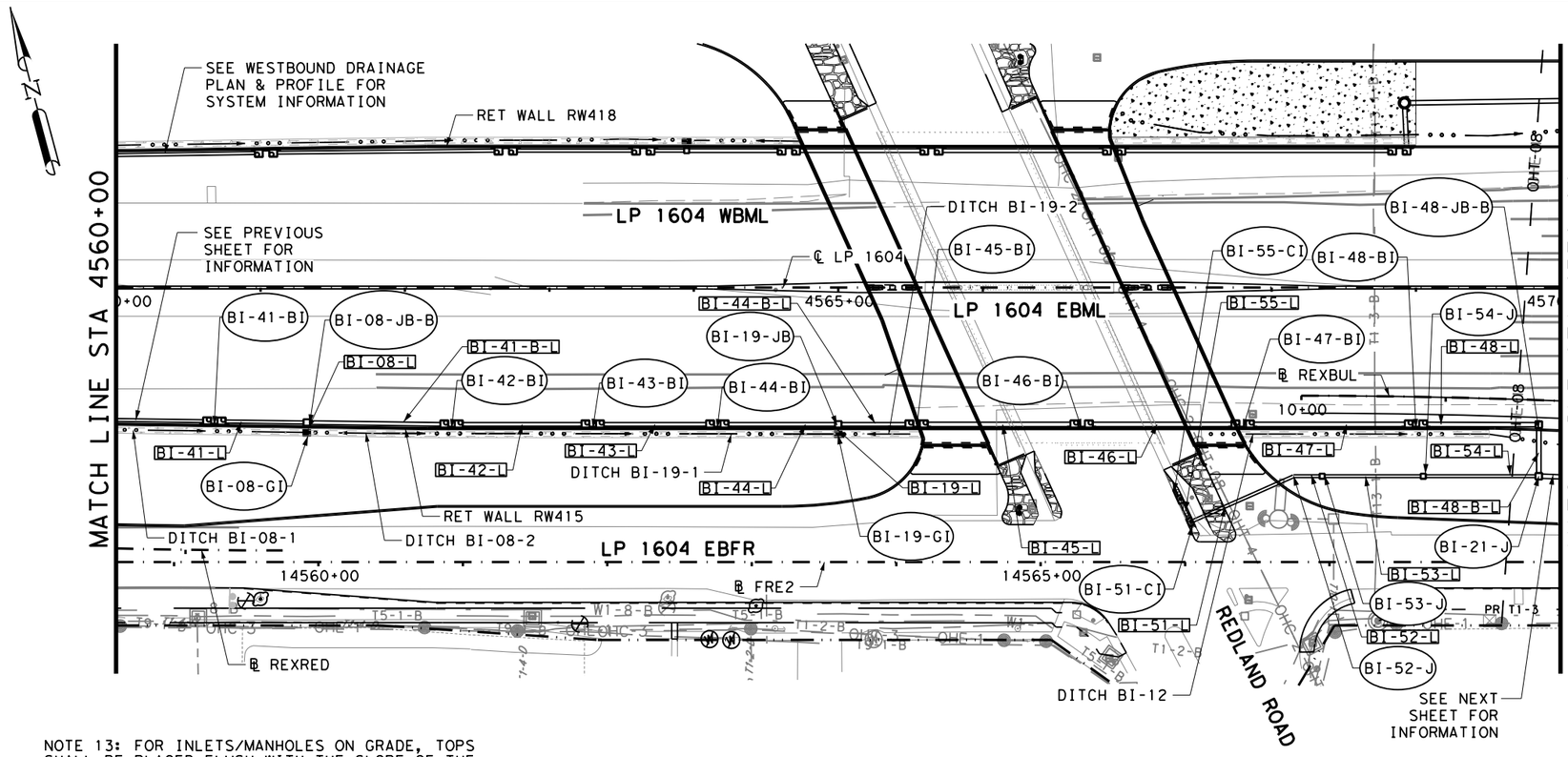

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

NOTES:
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
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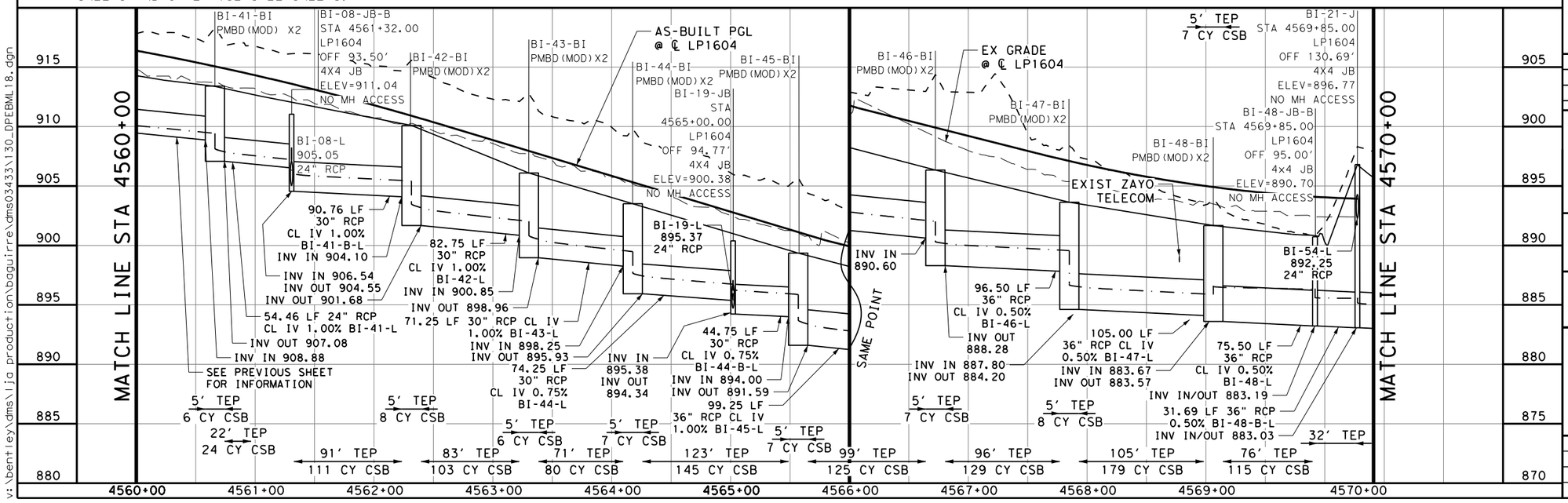
QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	16
0400-6005	CEM STABIL BKFL	CY	1078
0402-6001	TRENCH EXCAVATION PROTECTION	LF	844
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC)(CL B)	CY	16
0464-6005	RC PIPE (CL III)(24 IN)	LF	251
0464-6008	RC PIPE (CL III)(36 IN)	LF	31
0464-6018	RC PIPE (CL IV)(24 IN)	LF	65
0464-6019	RC PIPE (CL IV)(30 IN)	LF	379
0464-6020	RC PIPE (CL IV)(36 IN)	LF	396
0465-6005	JCTBOX(COMPL)(PJB)(3FTX3FT)	EA	5
0465-6006	JCTBOX(COMPL)(PJB)(4FTX4FT)	EA	4
0465-6013	INLET (COMPL)(PCO)(3FT)(NONE)	EA	1
0465-6014	INLET (COMPL)(PCO)(3FT)(LEFT)	EA	1
0465-6049	INLET (COMPL)(POD)(FG)(4FTX4FT)	EA	3
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	16

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



0' 25' 50' 100'
SCALE: 1"=100' - HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

STATE OF TEXAS — LUKE REED — 101242 — LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4560+00 TO STA 4570+00

SHEET 18 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1605

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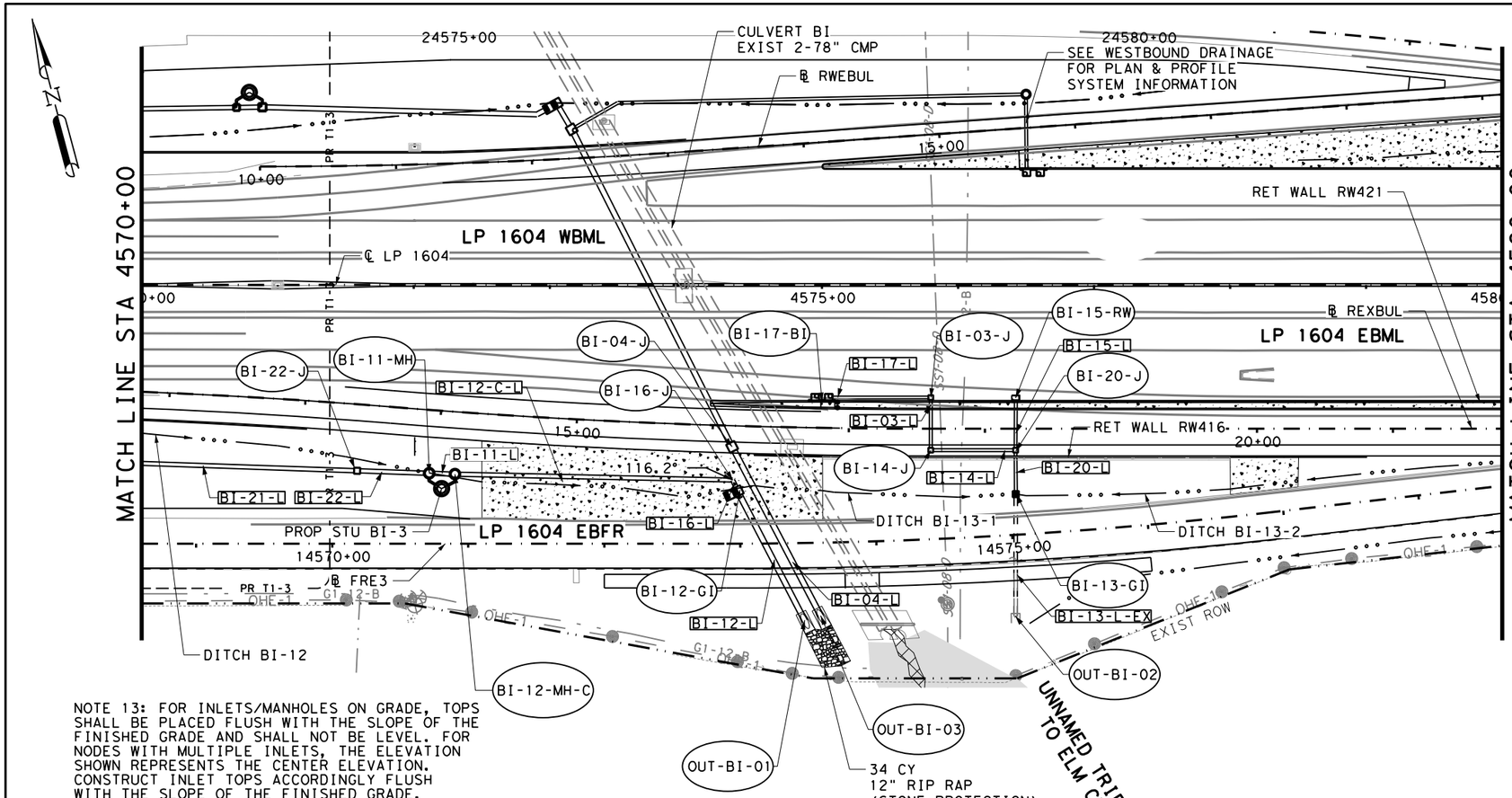

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

NOTES:
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
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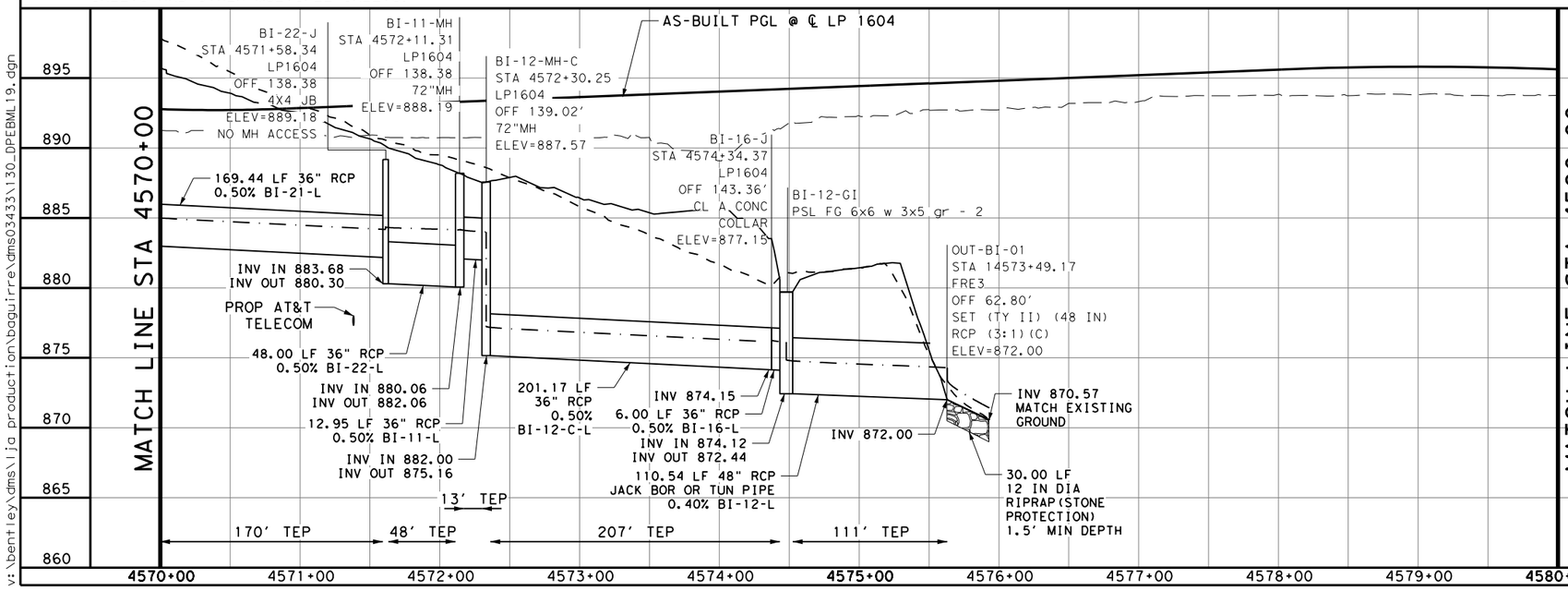
QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	2
0400-6005	CEM STABIL BKFL	CY	175
0402-6001	TRENCH EXCAVATION PROTECTION	LF	570
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	16
0432-6031	RIPRAP (STONE PROTECTION) (12 IN)	CY	34
0460-6004	CMP (GAL STL 30 IN)	LF	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	164
0464-6008	RC PIPE (CL III) (36 IN)	LF	438
0465-6004	MANH (COMPL) (PRM) (72IN)	EA	2
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	4
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	1
0465-6011	JCTBOX (COMPL) (PJB) (6FTX6FT)	EA	1
0465-6126	INLET (COMPL) (PSL) (FG) (3FTX3FT-3FTX	EA	1
0465-6142	INLET (COMPL) (PSL) (FG) (6FTX6FT-3FTX	EA	1
0465-6179	INLET (COMPL) (TY MSE2)	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	2
0467-6474	SET (TY II) (48 IN) (RCP) (3:1) (C)	EA	2
0476-6014	JACK BOR OR TUN PIPE (24 IN) (RC) (CL IV	LF	73

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
EASTBOUND DRAINAGE
PLAN AND PROFILE
STA 4570+00 TO STA 4580+00

SHEET 19 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1606

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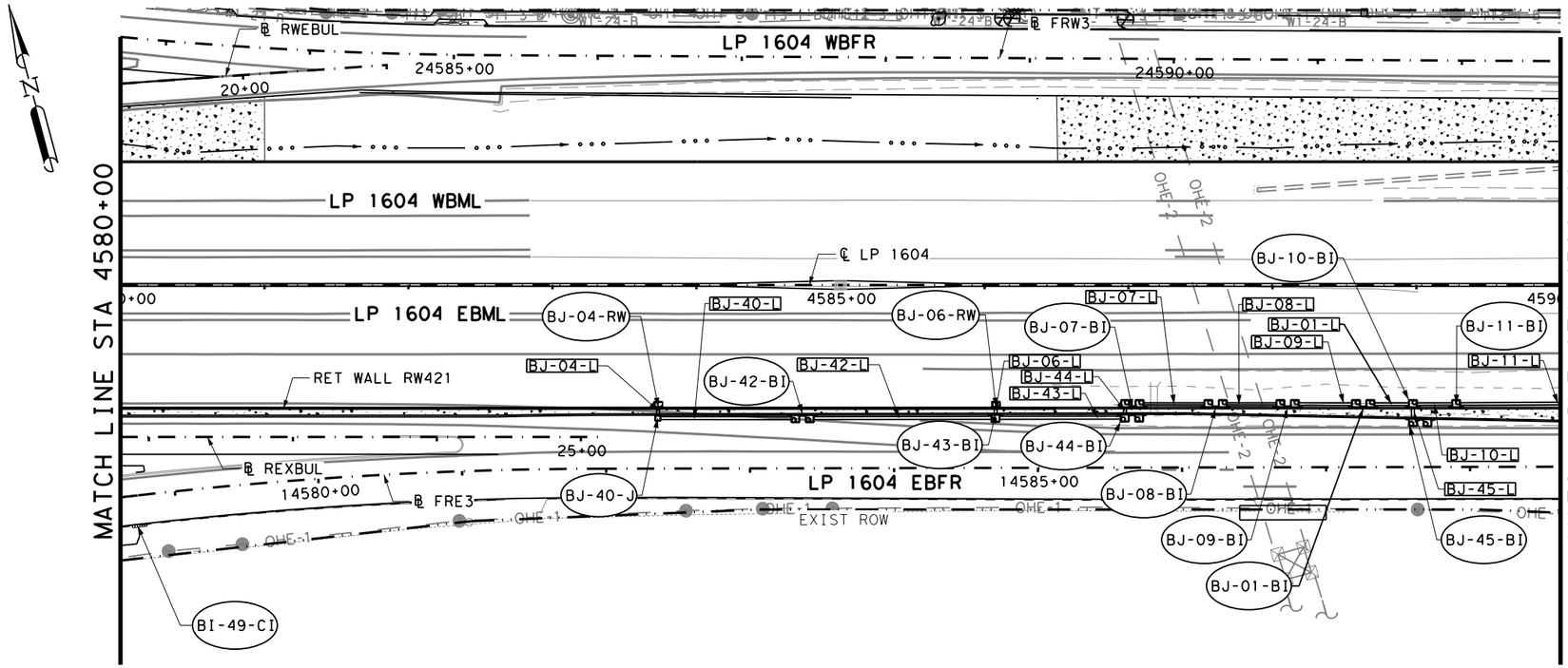

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	14
0400-6005	CEM STABIL BKFL	CY	697
0402-6001	TRENCH EXCAVATION PROTECTION	LF	373
0464-6005	RC PIPE (CL III) (24 IN)	LF	327
0464-6018	RC PIPE (CL IV) (24 IN)	LF	343
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	3
0465-6179	INLET (COMPL) (TY MSE2)	EA	2
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	17
0529-6020	CONC CURB & GUTTER (ARMOR CURB)	LF	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
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- xx-xx-xx NODE NAMING CONVENTION
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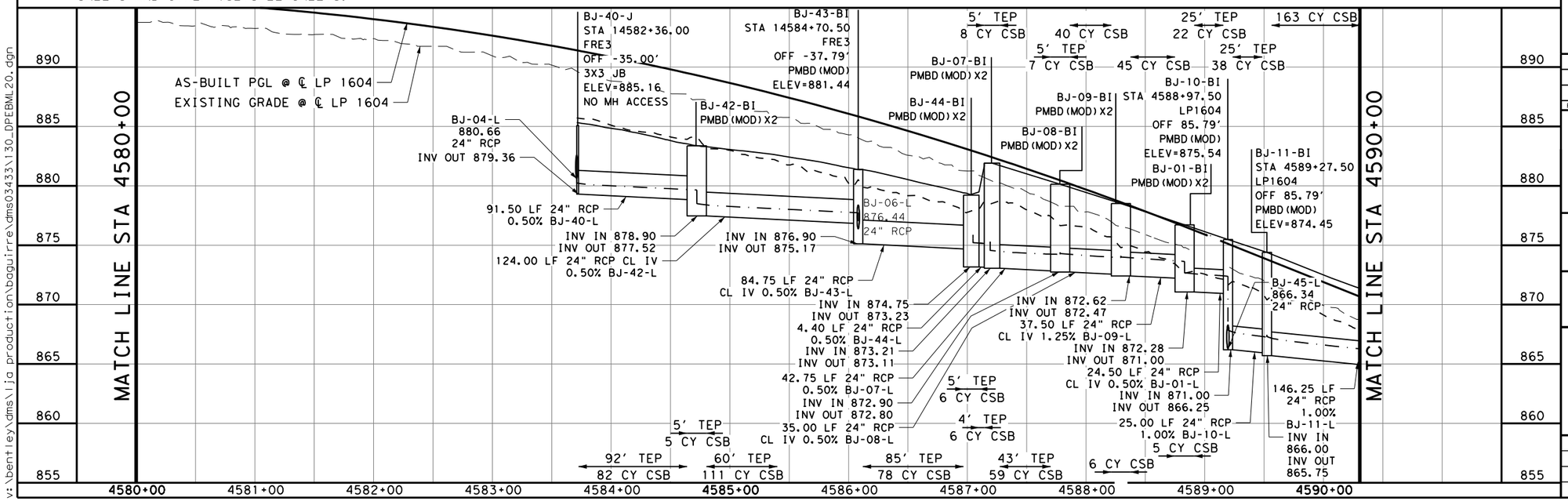

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4580+00 TO STA 4590+00

SHEET 20 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1607

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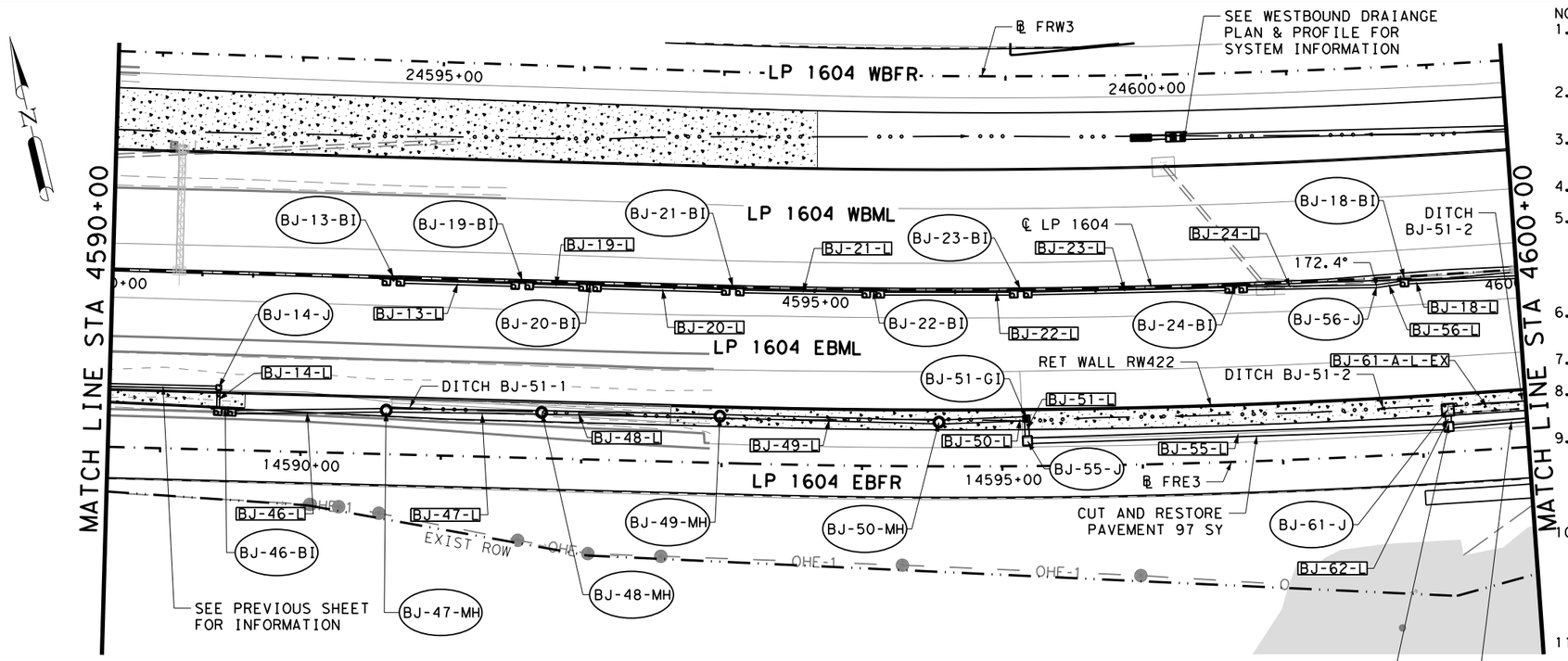

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	16
0400-6005	CEM STABIL BKFL	CY	2076
0400-6006	CUT & RESTORING PAV	SY	97
0402-6001	TRENCH EXCAVATION PROTECTION	LF	963
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	751
0464-6008	RC PIPE (CL III) (36 IN)	LF	11
0464-6010	RC PIPE (CL III) (48 IN)	LF	299
0464-6012	RC PIPE (CL III) (60 IN)	LF	8
0464-6019	RC PIPE (CL IV) (30 IN)	LF	480
0464-6020	RC PIPE (CL IV) (36 IN)	LF	57
0465-6004	MANH (COMPL) (PRM) (72IN)	EA	4
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	1
0465-6011	JCTBOX (COMPL) (PJB) (6FTX6FT)	EA	2
0465-6012	JCTBOX (COMPL) (PJB) (8FTX8FT)	EA	1
0465-6127	INLET (COMPL) (PSL) (FG) (4FTX4FT-3FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	17

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
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- 10-YR HGL
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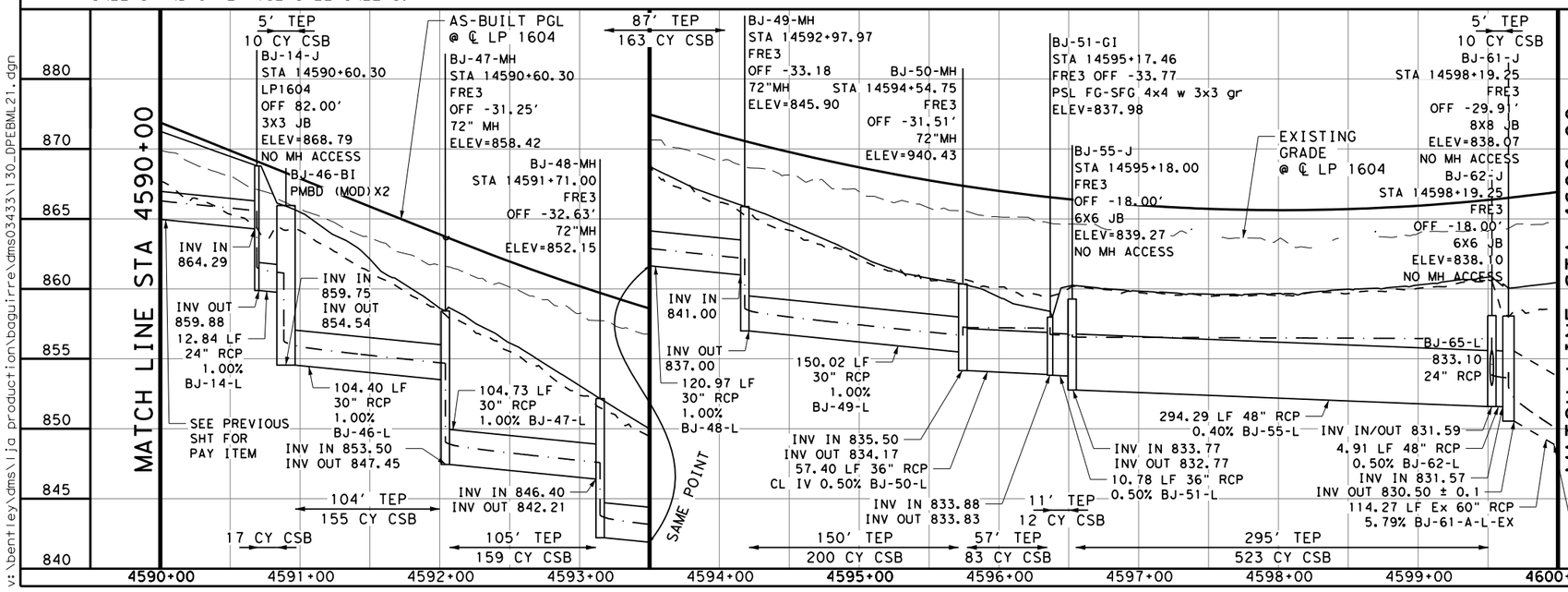

STATE OF TEXAS
LUKE REED
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LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

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LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4590+00 TO STA 4600+00

SHEET 21 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1608

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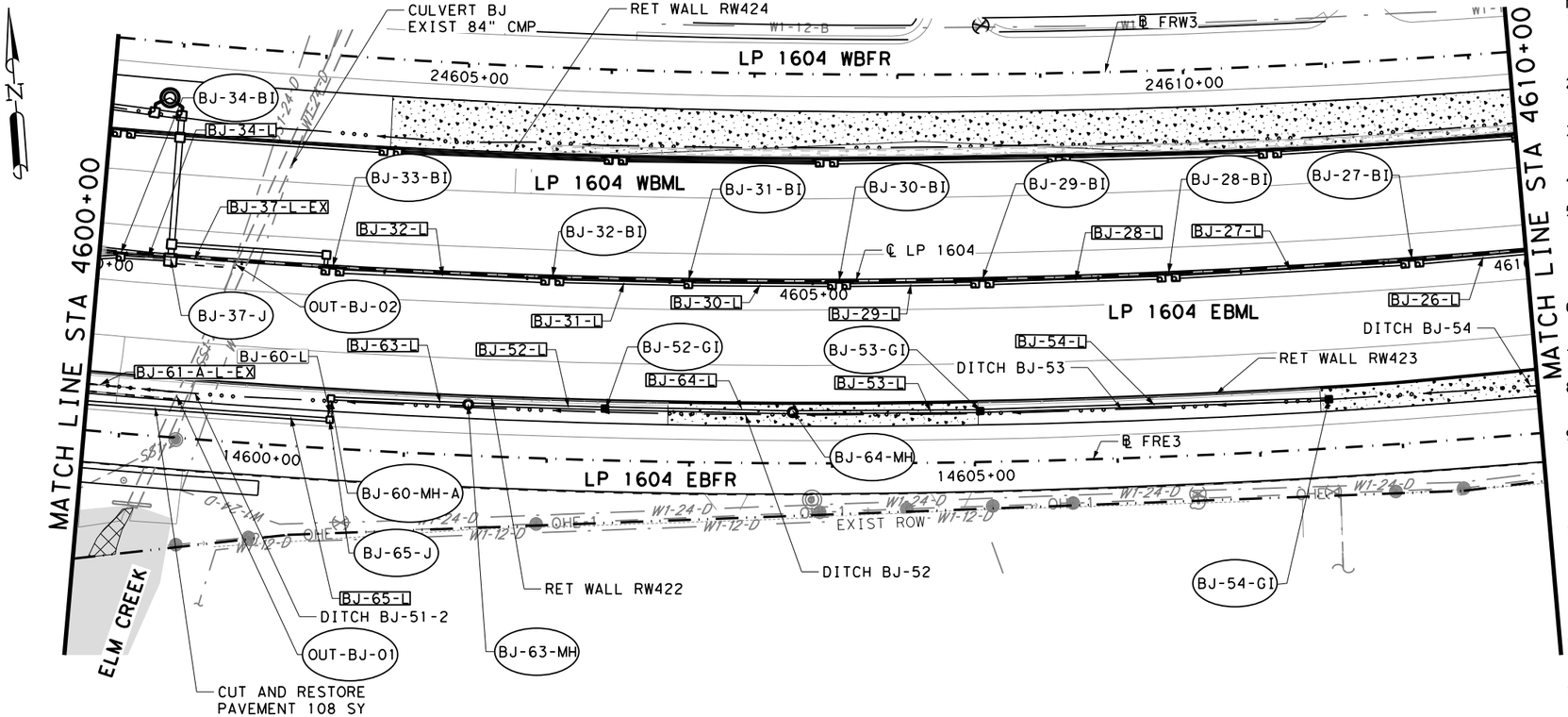
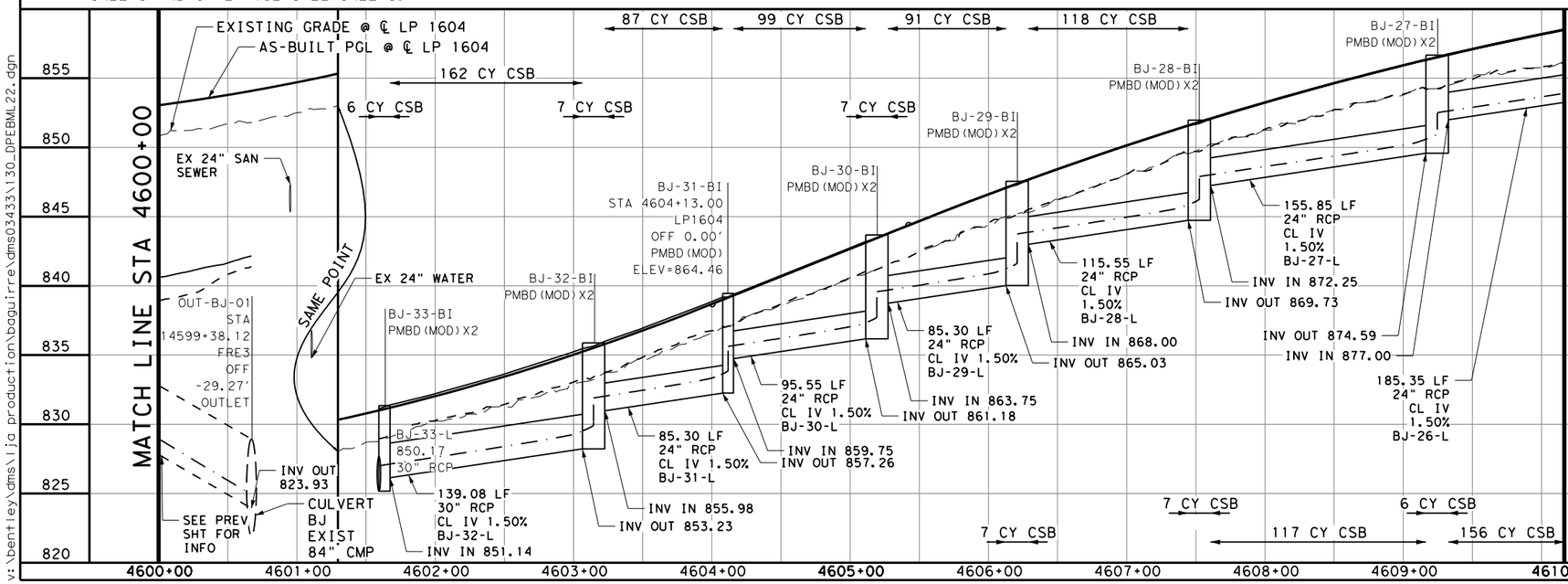


NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.



NOTES:

1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UN-LESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APP-ROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
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11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	12
0400-6005	CEM STABIL BKFL	CY	1967
0400-6006	CUT & RESTORING PAV	SY	108
0402-6001	TRENCH EXCAVATION PROTECTION	LF	851
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	24
0464-6005	RC PIPE (CL III) (24 IN)	LF	271
0464-6007	RC PIPE (CL III) (30 IN)	LF	222
0464-6018	RC PIPE (CL IV) (24 IN)	LF	1201
0464-6019	RC PIPE (CL IV) (30 IN)	LF	149
0465-6003	MANH (COMPL) (PRM) (60IN)	EA	2
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	2
0465-6012	JCTBOX (COMPL) (PJB) (8FTX8FT)	EA	1
0465-6128	INLET (COMPL) (PSL) (FG) (4FTX4FT-4FTX	EA	3
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	14

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc. FRN-F-1386

LP 1604

EASTBOUND DRAINAGE PLAN AND PROFILE

STA 4600+00 TO STA 4610+00

SHEET 22 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1609

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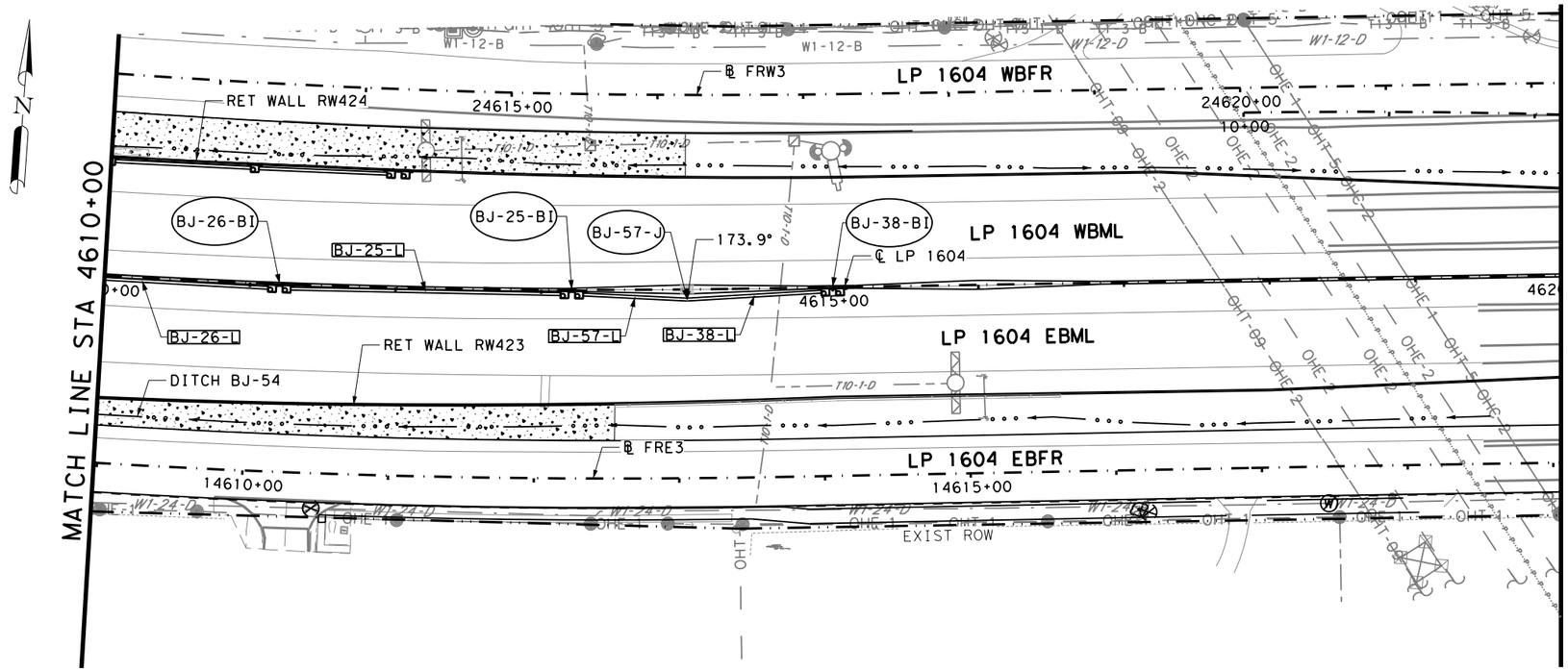

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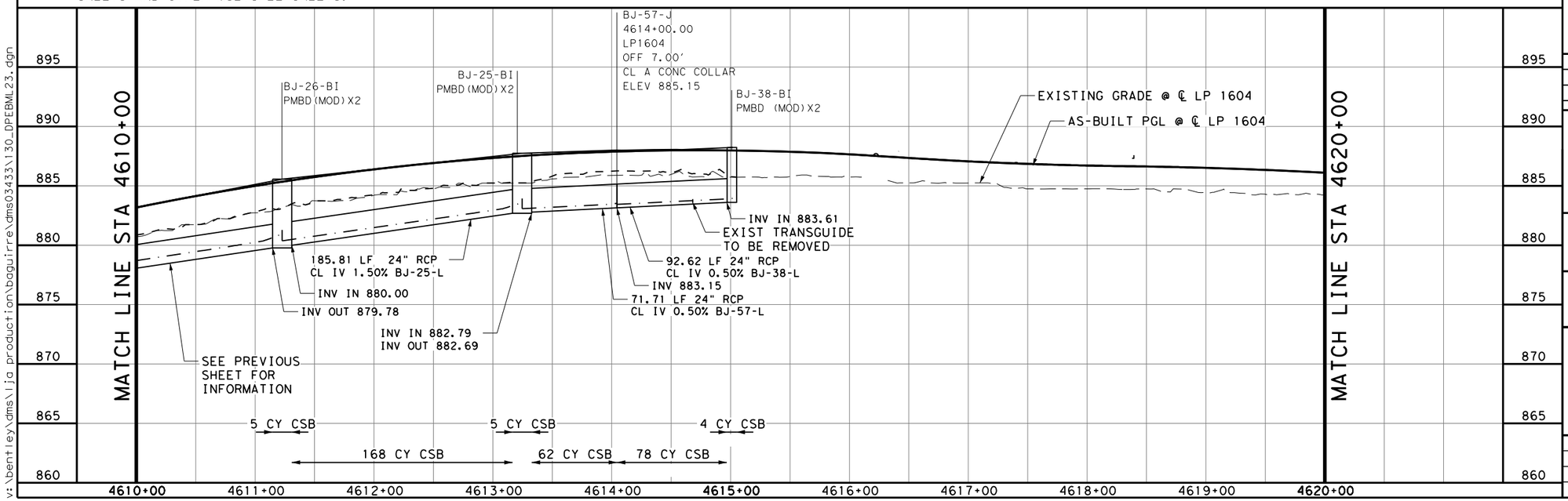

NOTES:
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2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	6
0400-6005	CEM STABIL BKFL	CY	322
0420-6009	CL A CONC (COLLAR)	EA	1
0464-6018	RC PIPE (CL IV)(24 IN)	LF	365
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	6

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4610+00 TO 4620+00

SHEET 23 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1610

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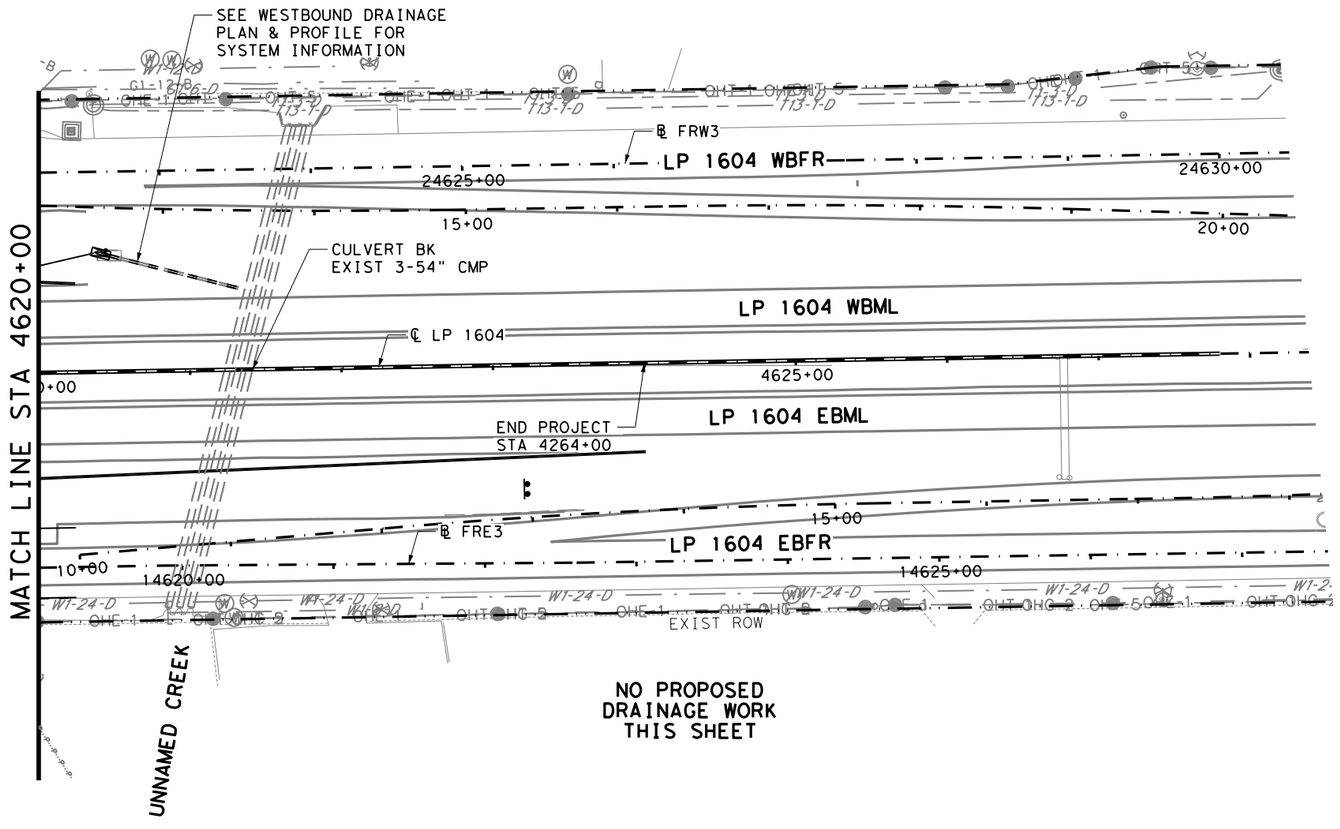

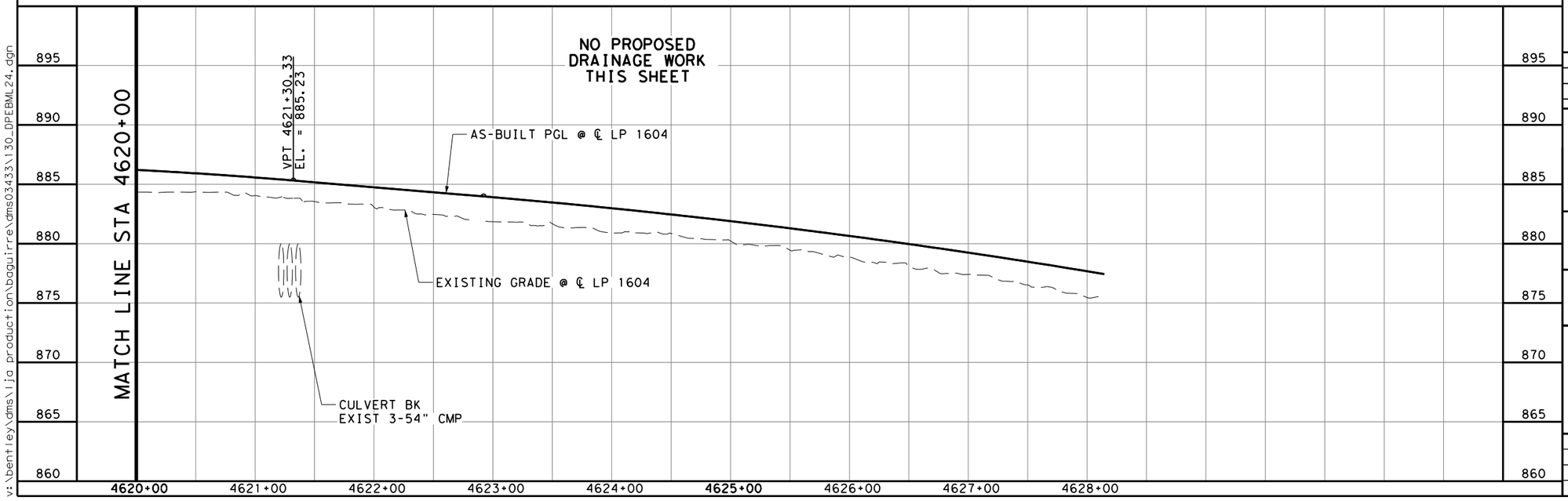

NOTES:
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2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100' - HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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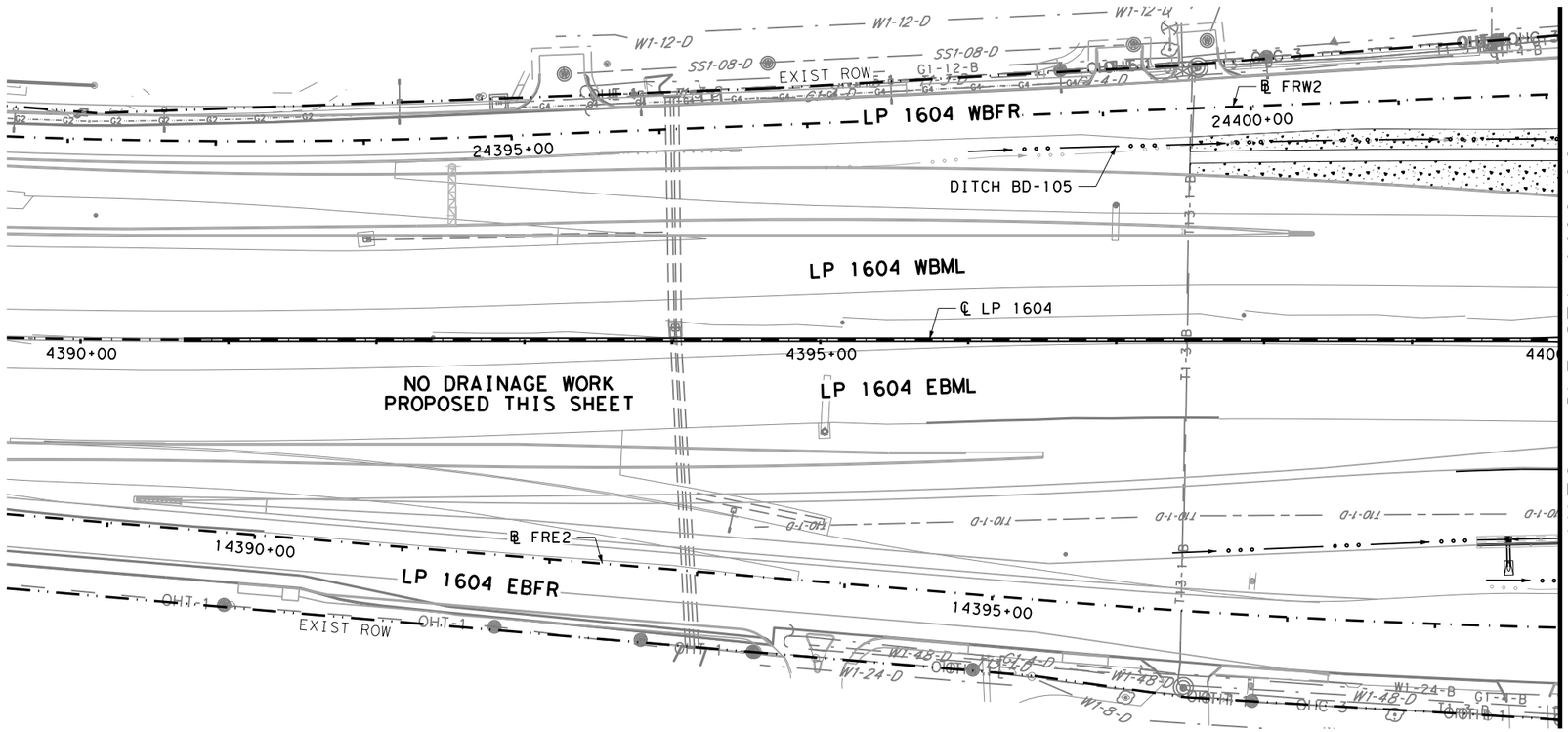
LP 1604
EASTBOUND DRAINAGE PLAN AND PROFILE
STA 4620+00 TO END PROJECT

SHEET 24 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1611



MATCH LINE STA 4400+00

NOTES:

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QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NO DRAINAGE WORK
PROPOSED THIS SHEET

995 990 985 980 975 970 965 960

MATCH LINE STA 4400+00

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

BEGIN PROJECT TO STA 4400+00

SHEET 1 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1612

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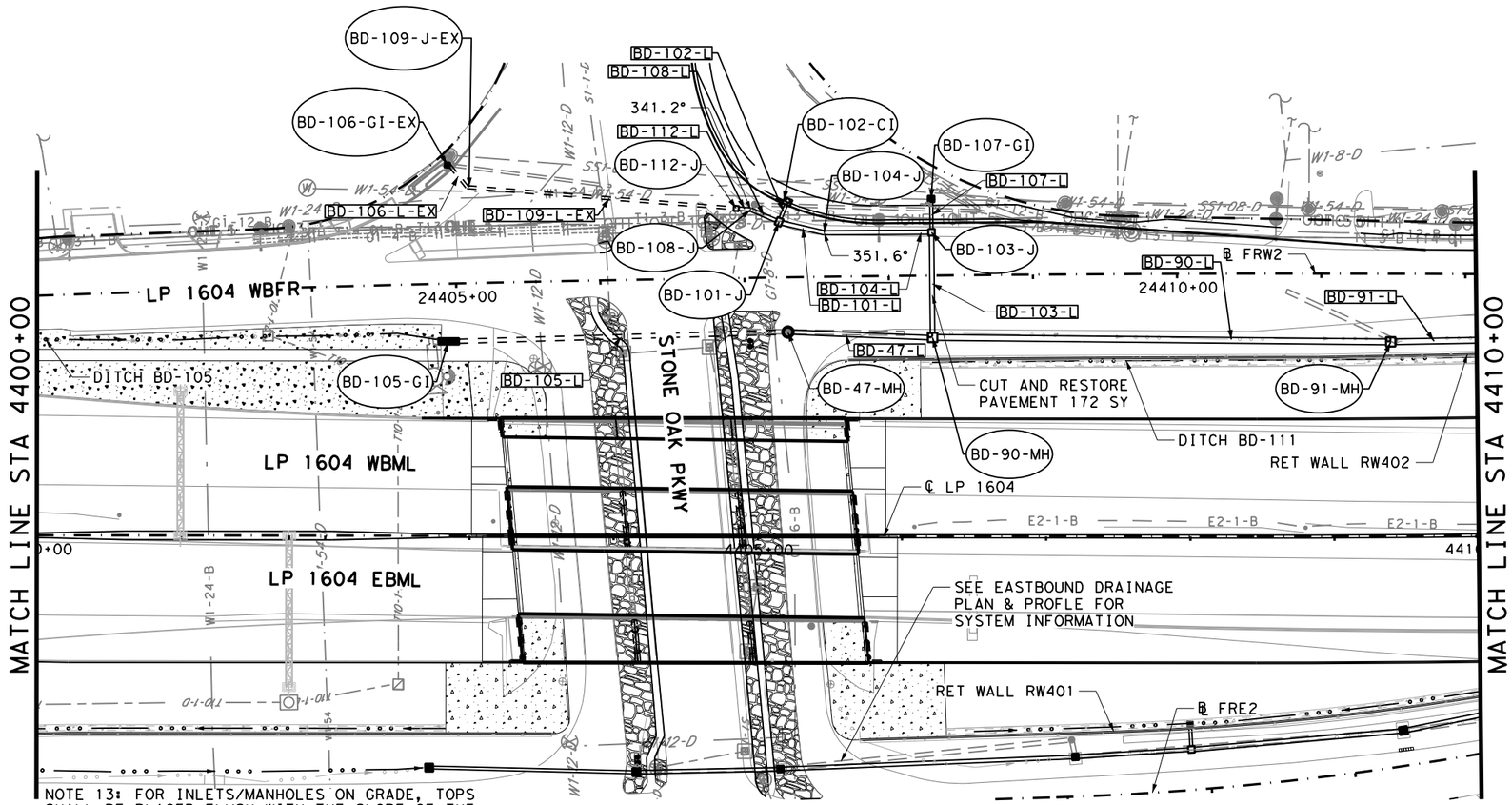

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NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

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QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	2
0400-6005	CEM STABIL BKFL	CY	489
0400-6006	CUT & RESTORING PAV	SY	172
0402-6001	TRENCH EXCAVATION PROTECTION	LF	635
0420-6009	CL A CONC (COLLAR)	EA	2
0432-6006	RIPRAP (CONC) (CL B)	CY	16
0464-6005	RC PIPE (CL III) (24 IN)	LF	30
0464-6007	RC PIPE (CL III) (30 IN)	LF	28
0464-6008	RC PIPE (CL III) (36 IN)	LF	265
0464-6010	RC PIPE (CL III) (48 IN)	LF	312
0464-6020	RC PIPE (CL IV) (36 IN)	LF	8
0465-6004	MANH (COMPL) (PRM) (72IN)	EA	1
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	2
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	1
0465-6008	JCTBOX (COMPL) (PJB) (4FTX5FT)	EA	1
0465-6018	INLET (COMPL) (PCO) (4FT) (LEFT)	EA	1
0465-6050	INLET (COMPL) (POD) (FG) (3FTX5FT)	EA	1
0465-6076	INLET (COMPL) (PSL) (RC) (6FTX6FT)	EA	2

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
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- EXIST GROUND @ PIPE CL
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- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
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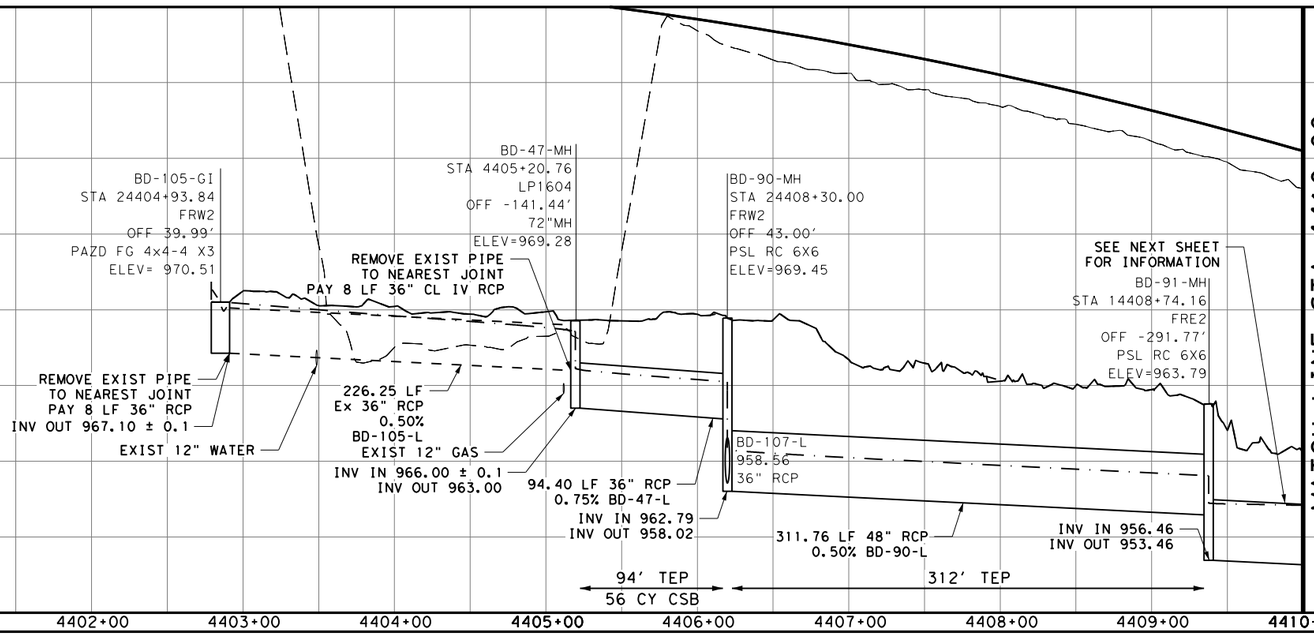


STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

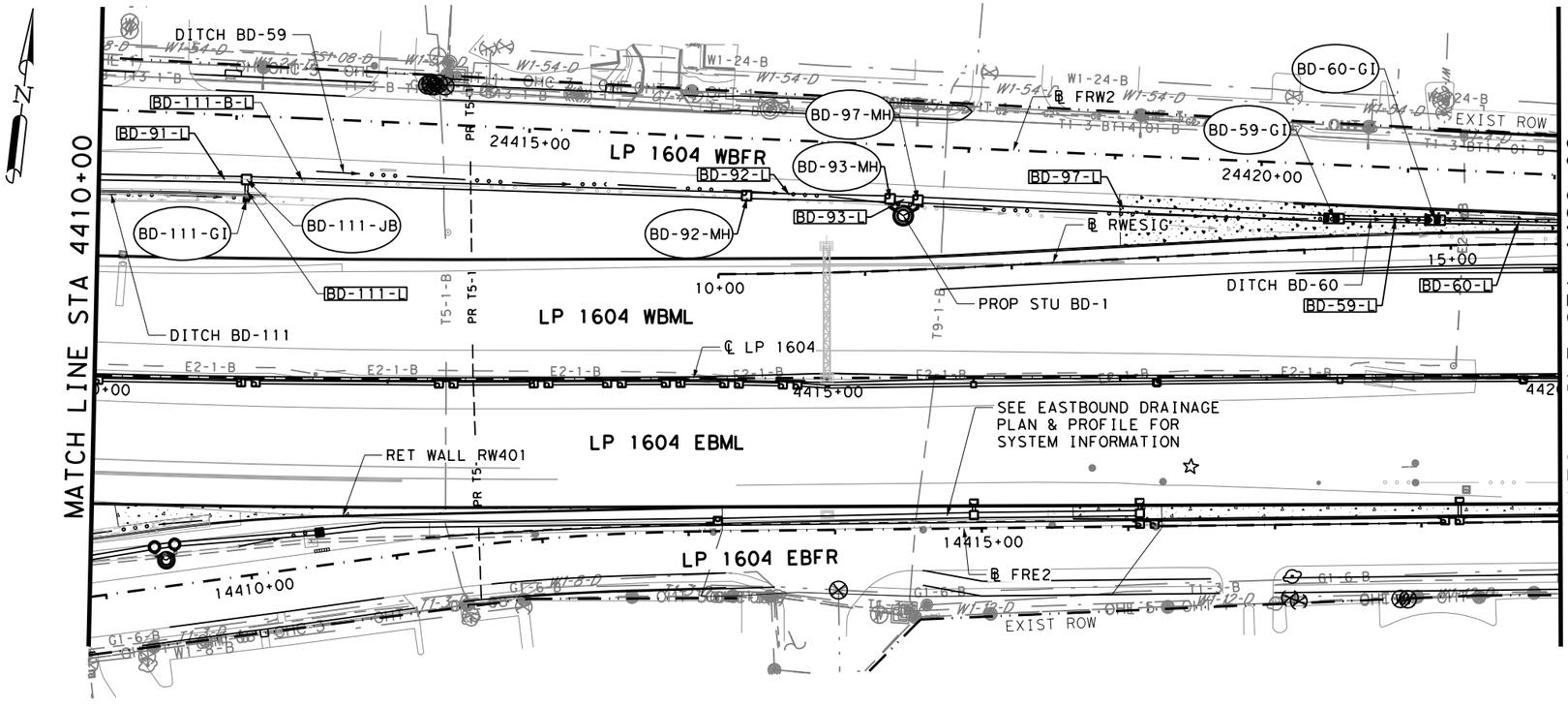
LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4400+00 TO STA 4410+00

SHEET 2 OF 24

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1613



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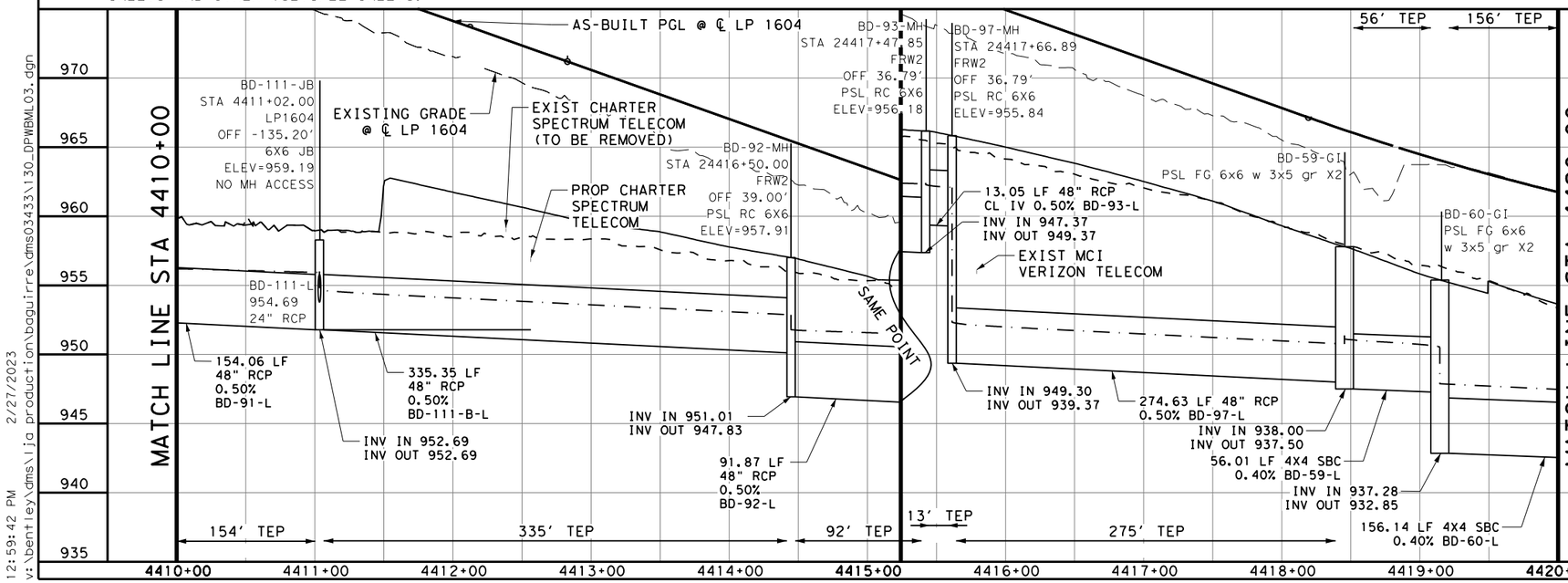
QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	14
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1091
0432-6006	RIPRAP (CONC) (CL B)	CY	24
0462-6005	CONC BOX CULV (4 FT X 4 FT)	LF	212
0464-6010	RC PIPE (CL III) (48 IN)	LF	869
0464-6018	RC PIPE (CL IV) (24 IN)	LF	10
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	1
0465-6011	JCTBOX (COMPL) (PJB) (6FTX6FT)	EA	1
0465-6048	INLET (COMPL) (POD) (FG) (3FTX3FT)	EA	1
0465-6076	INLET (COMPL) (PSL) (RC) (6FTX6FT)	EA	3
0465-6142	INLET (COMPL) (PSL) (FG) (6FTX6FT-3FTX	EA	4

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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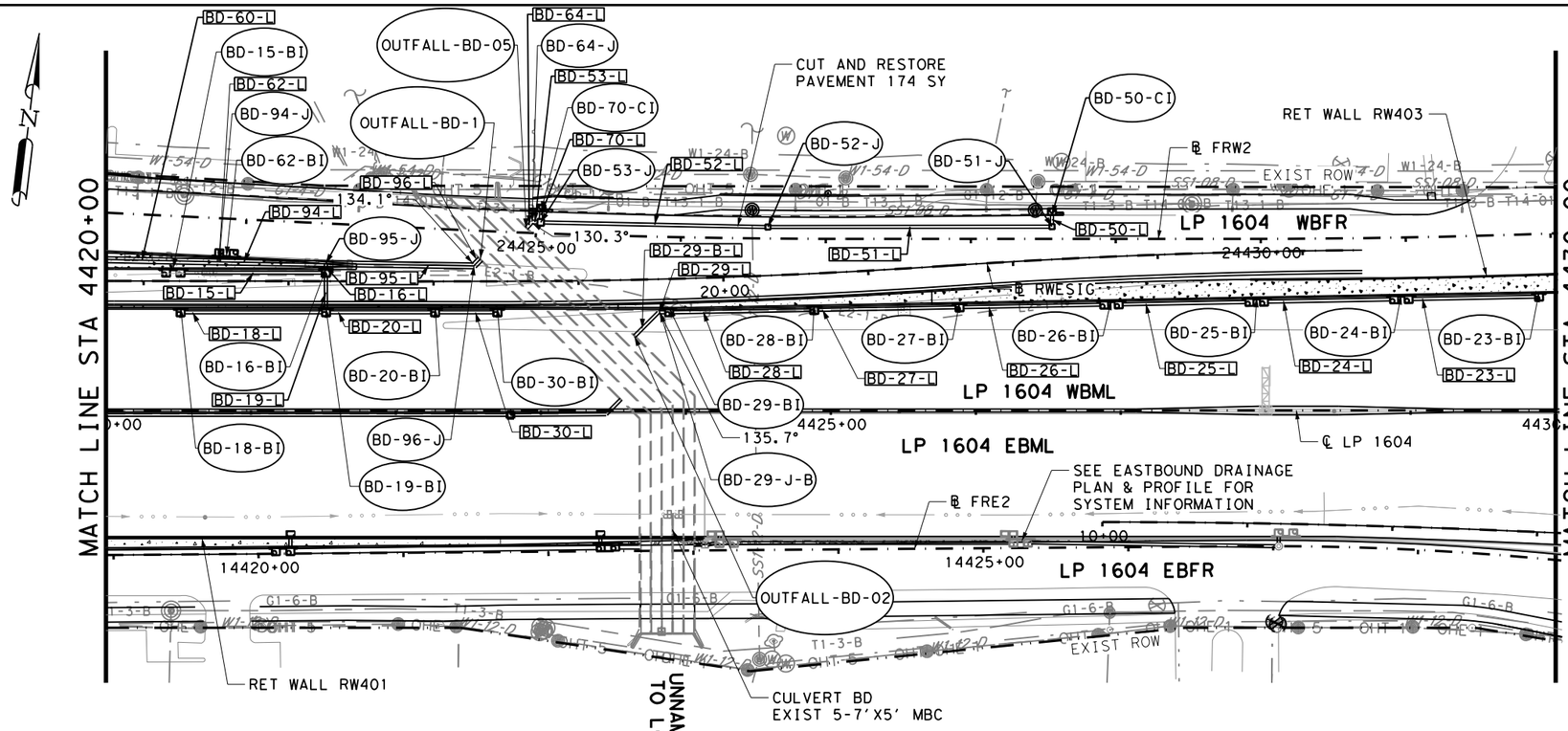
LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4410+00 TO STA 4420+00

SHEET 3 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1614



NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD) X2 INLETS AND OTHER MULTIPLE INLETS.

NOTES:
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
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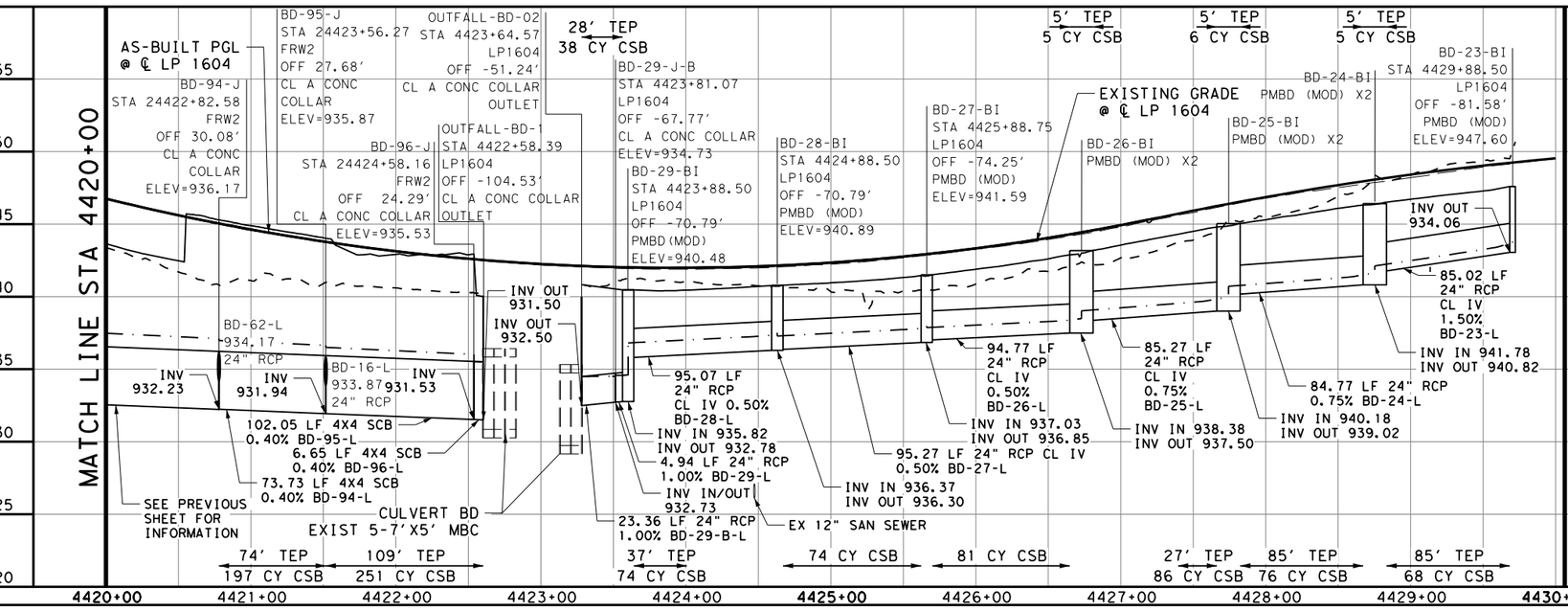
11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	10
0400-6005	CEM STABIL BKFL	CY	1659
0400-6006	CUT & RESTORING PAV	SY	174
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1025
0420-6009	CL A CONC (COLLAR)	EA	9
0462-6005	CONC BOX CULV (4 FT X 4 FT)	LF	182
0464-6005	RC PIPE (CL III) (24 IN)	LF	655
0464-6007	RC PIPE (CL III) (30 IN)	LF	6
0464-6018	RC PIPE (CL IV) (24 IN)	LF	630
0465-6005	JCTBOX(COMPL) (PJB) (3FTX3FT)	EA	2
0465-6006	JCTBOX(COMPL) (PJB) (4FTX4FT)	EA	1
0465-6019	INLET (COMPL) (PCO) (4FT) (RIGHT)	EA	1
0465-6020	INLET (COMPL) (PCO) (4FT) (BOTH)	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	19

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER
LUKE REED, P.E.
2/27/2023
DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4420+00 TO STA 4430+00

SHEET 4 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1615

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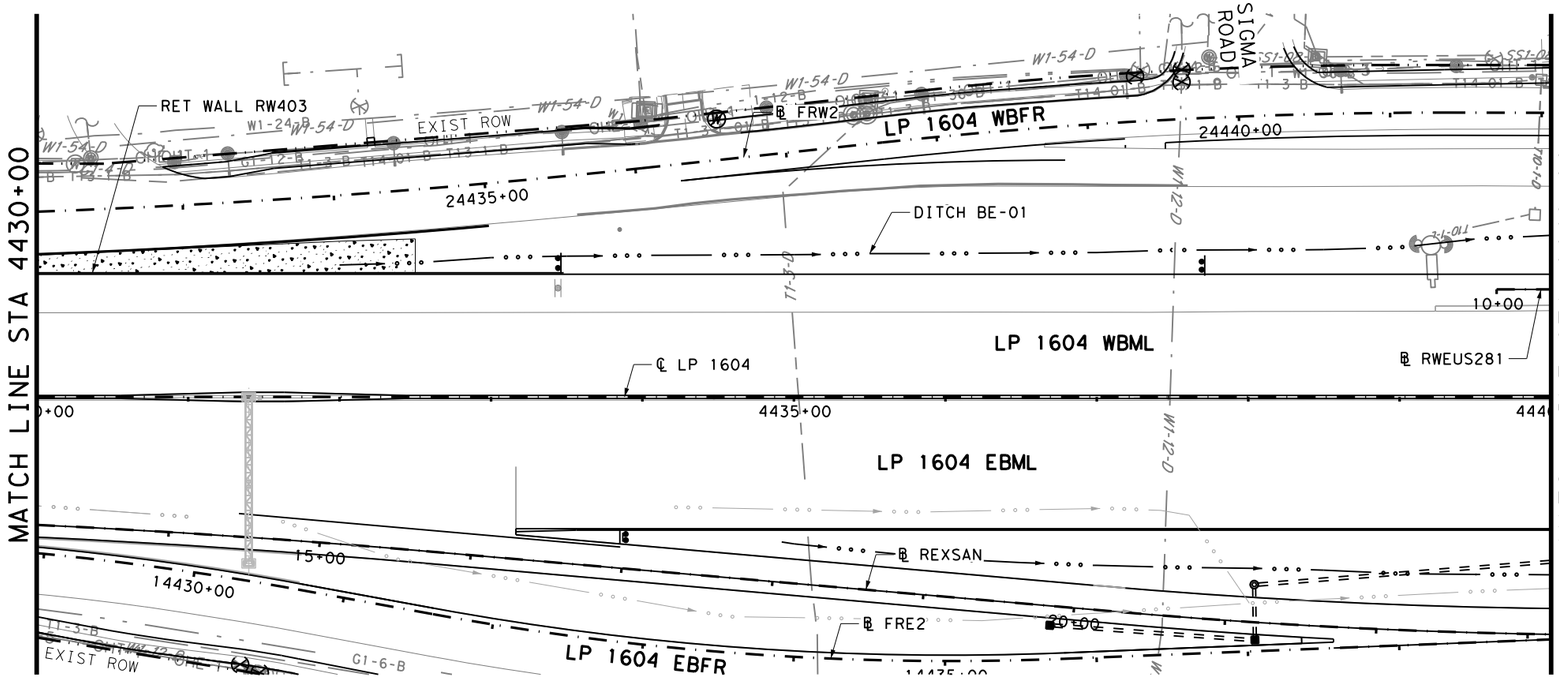

NOTES:

1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
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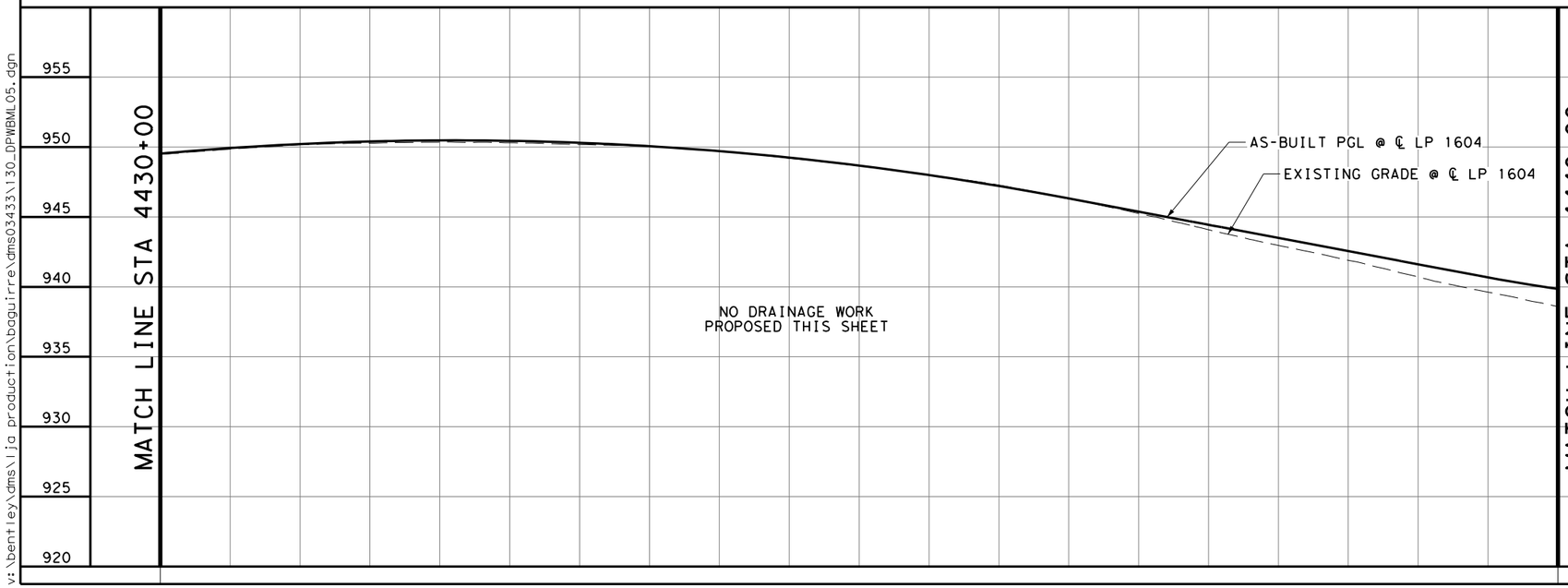
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0′ 25′ 50′ 100′

SCALE: 1"=100′- HORZ
1"=10′ - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4430+00 TO STA 4440+00

SHEET 5 OF 23

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1616

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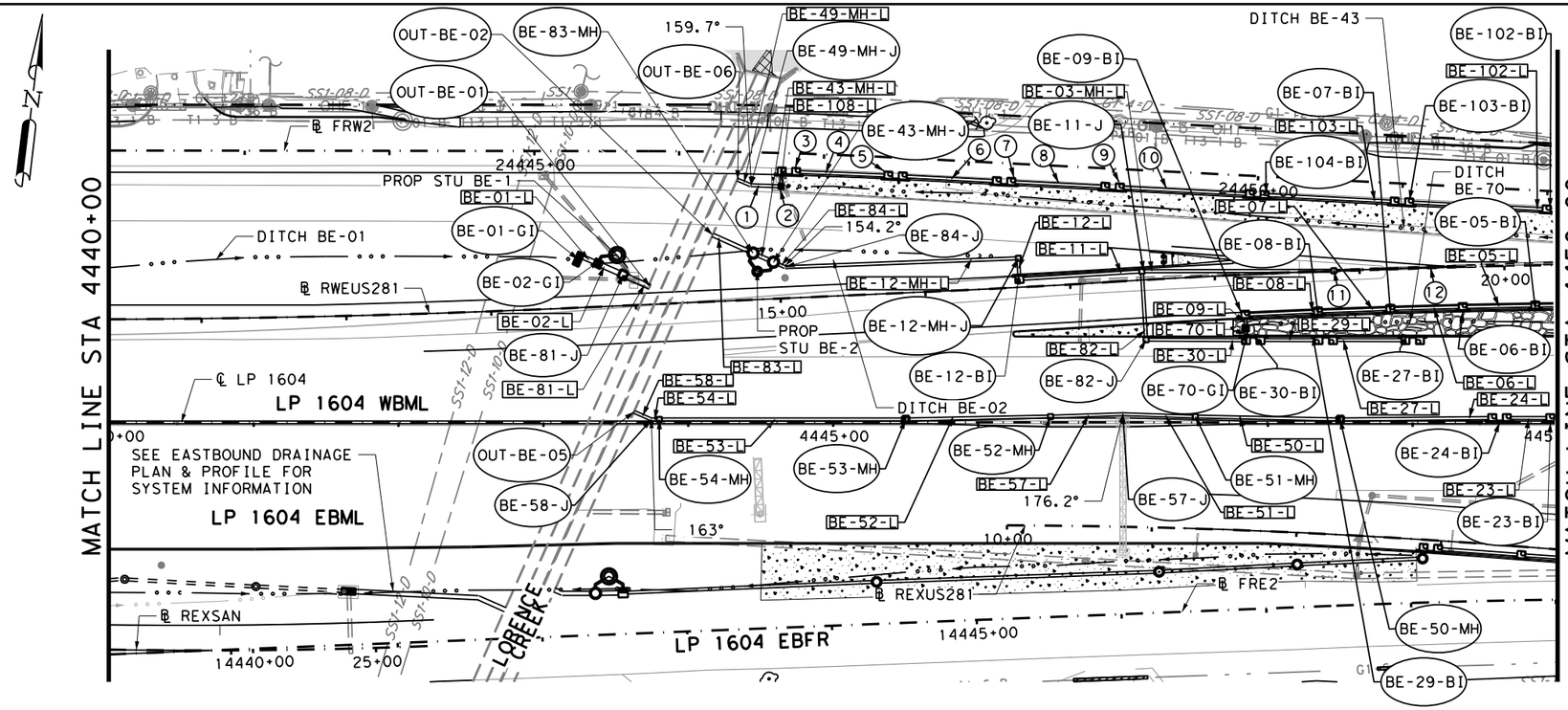

NOTES:

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QUANTITY SUMMARY CSJ 2452-02-130			
ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	12
0400-6005	CEM STABIL BKFL	CY	1859
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1389
0420-6009	CL A CONC (COLLAR)	EA	7
0432-6006	RIPRAP (CONC) (CL B)	CY	32
0464-6003	RC PIPE (CL III) (18 IN)	LF	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	1170
0464-6007	RC PIPE (CL III) (30 IN)	LF	37
0464-6008	RC PIPE (CL III) (36 IN)	LF	9
0464-6009	RC PIPE (CL III) (42 IN)	LF	32
0464-6018	RC PIPE (CL IV) (24 IN)	LF	721
0465-6004	MANH (COMPL) (PRM) (72IN)	EA	2
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	7
0465-6071	INLET (COMPL) (PSL) (RC) (4FTX4FT)	EA	2
0465-6074	INLET (COMPL) (PSL) (RC) (5FTX5FT)	EA	1
0465-6147	INLET (COMPL) (PSL) (SFG) (4FTX4FT-4FTX	EA	1
0465-6158	INLET (COMPL) (PAZD) (FG) (3FTX3FT-3FTX	EA	1
0465-6160	INLET (COMPL) (PAZD) (FG) (4FTX4FT-4FTX	EA	1
0465-6162	INLET (COMPL) (PAZD) (FG) (5FTX5FT-4FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	29

LEGEND

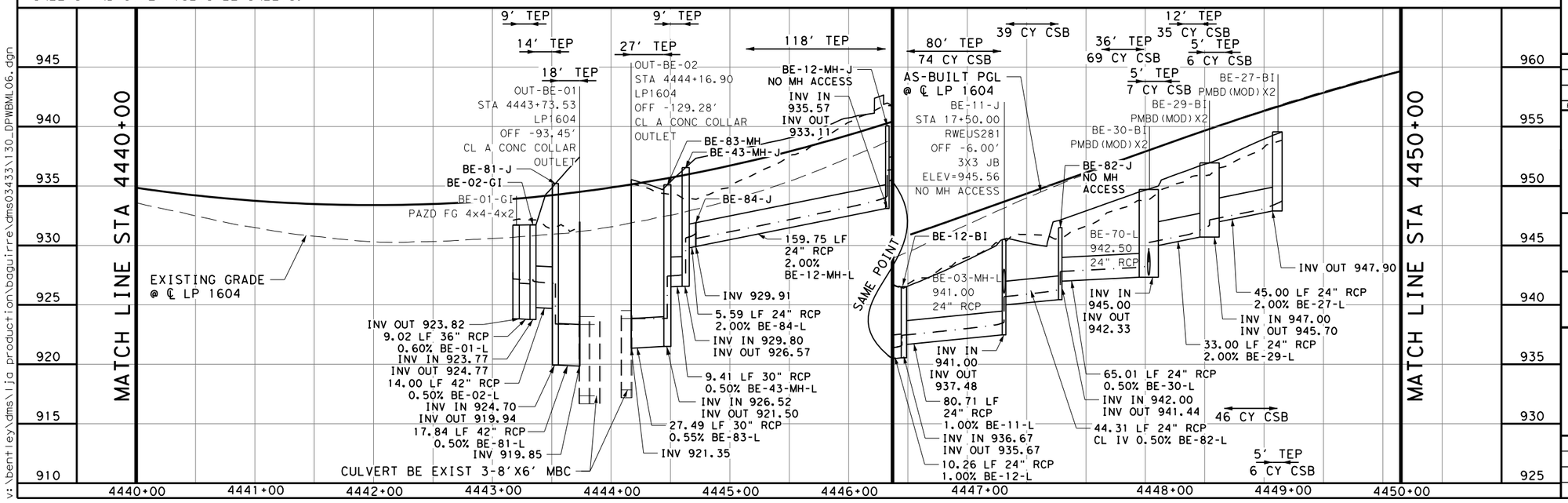
- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

ID	STA	CHAIN	OFFSET	TYPE	ELEV
BE-02-GI	4443+37.61	LP1604	-109.52	PAZD FG 5x5-4	931.73
BE-12-BI	4444+58.97	LP1604	-110.60	PMBD(MOD)	941.54
BE-12-MH-J	4446+27.85	LP1604	-113.22	3X3 JB	940.07
BE-43-MH-J	4444+58.84	LP1604	-110.64	72"MH	936.55
BE-81-J	4443+55.00	LP1604	-101.86	PSL RC 5'X5'	935.21
BE-82-J	4447+16.00	LP1604	-57.00	3X3 JB	946.61
BE-83-MH	4444+44.73	LP1604	-116.83	72"MH	935.11
BE-84-J	4444+66.70	LP1604	-107.18	CL A CONC COLLAR	931.91

① BE-43-L ⑤ BE-107-BI ⑨ BE-105-BI
② BE-43-GI ⑥ BE-106-L ⑩ BE-104-L
③ BE-108-BI ⑦ BE-106-BI ⑪ BE-03-MH-J
④ BE-107-L ⑧ BE-105-L ⑫ BE-103-L-EX



STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4440+00 TO STA 4450+00

SHEET 6 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1617

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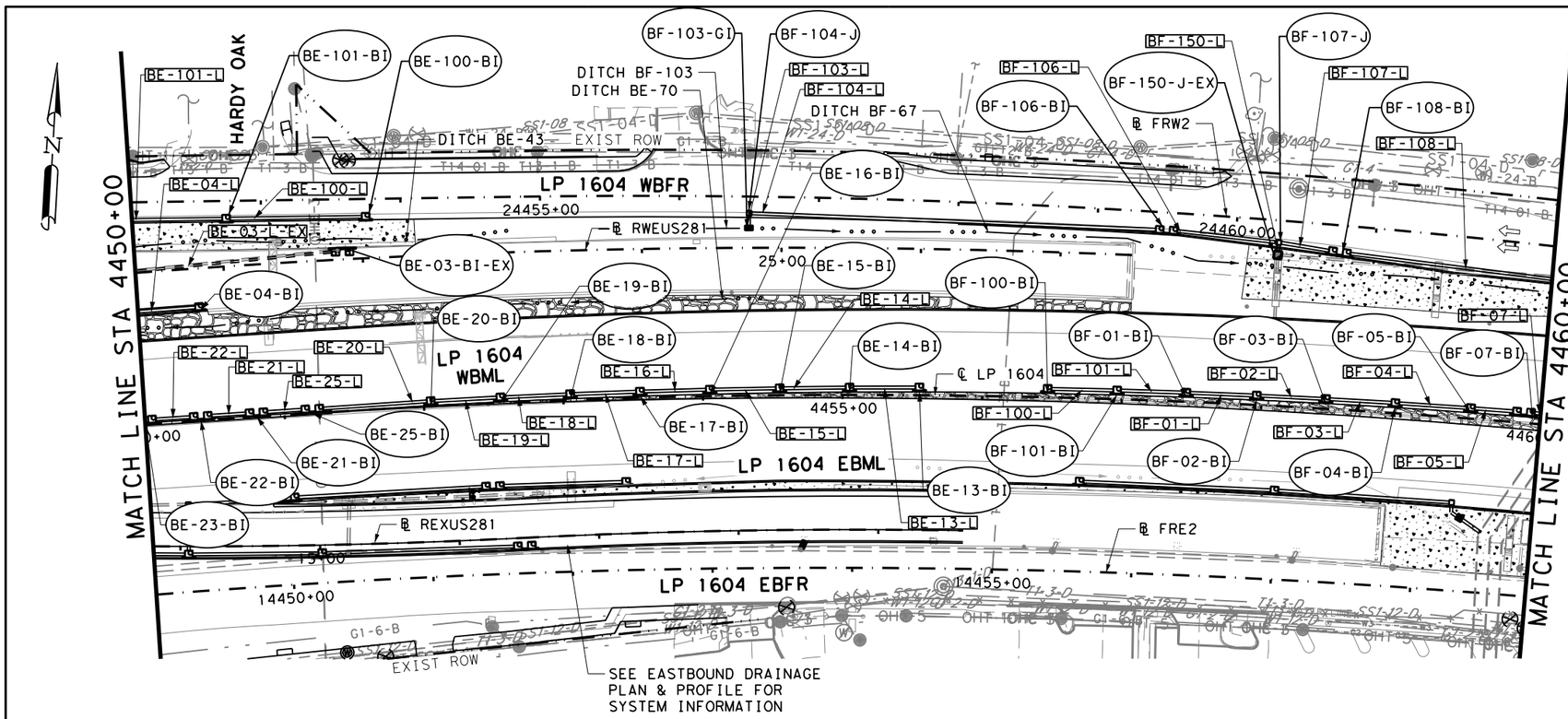

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NOTES:
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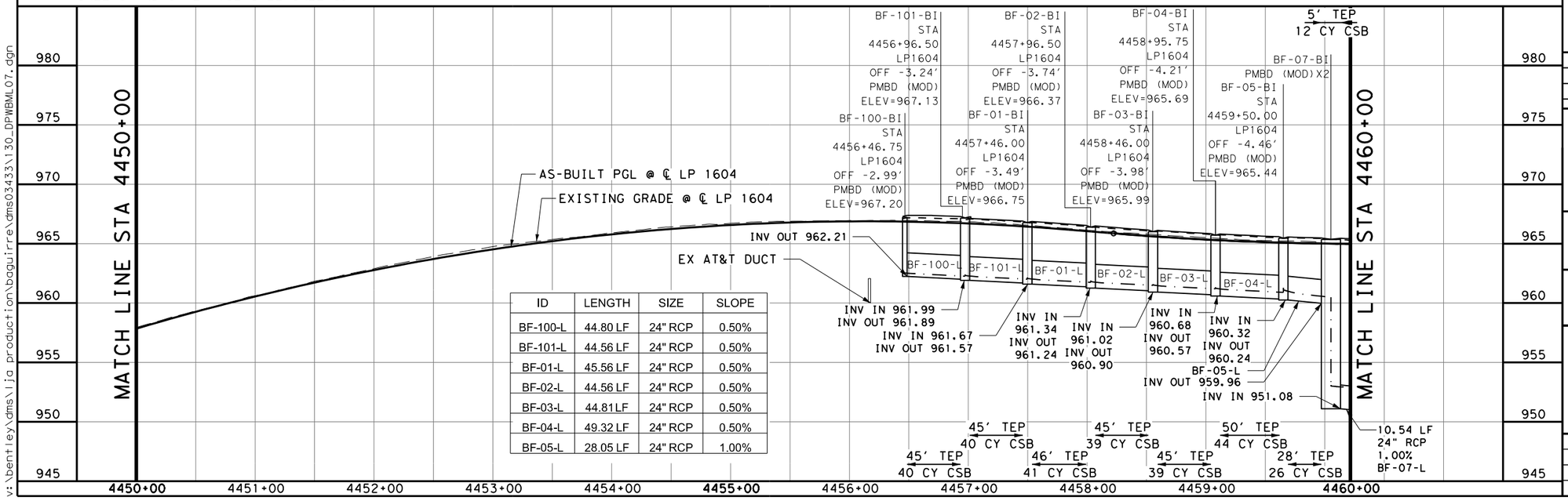
QUANTITY SUMMARY CSJ 2452-02-130			
ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	14
0400-6005	CEM STABIL BKFL	CY	1271
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1089
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	946
0464-6018	RC PIPE (CL IV) (24 IN)	LF	530
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	2
0465-6148	INLET (COMPL) (PSL) (SFG) (3FTX5FT-3FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	30

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



ID	LENGTH	SIZE	SLOPE
BF-100-L	44.80 LF	24" RCP	0.50%
BF-101-L	44.56 LF	24" RCP	0.50%
BF-01-L	45.56 LF	24" RCP	0.50%
BF-02-L	44.56 LF	24" RCP	0.50%
BF-03-L	44.81LF	24" RCP	0.50%
BF-04-L	49.32 LF	24" RCP	0.50%
BF-05-L	28.05 LF	24" RCP	1.00%

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100' - HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4450+00 TO STA 4460+00

SHEET 7 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1618

1:02:30 PM 2/27/2023
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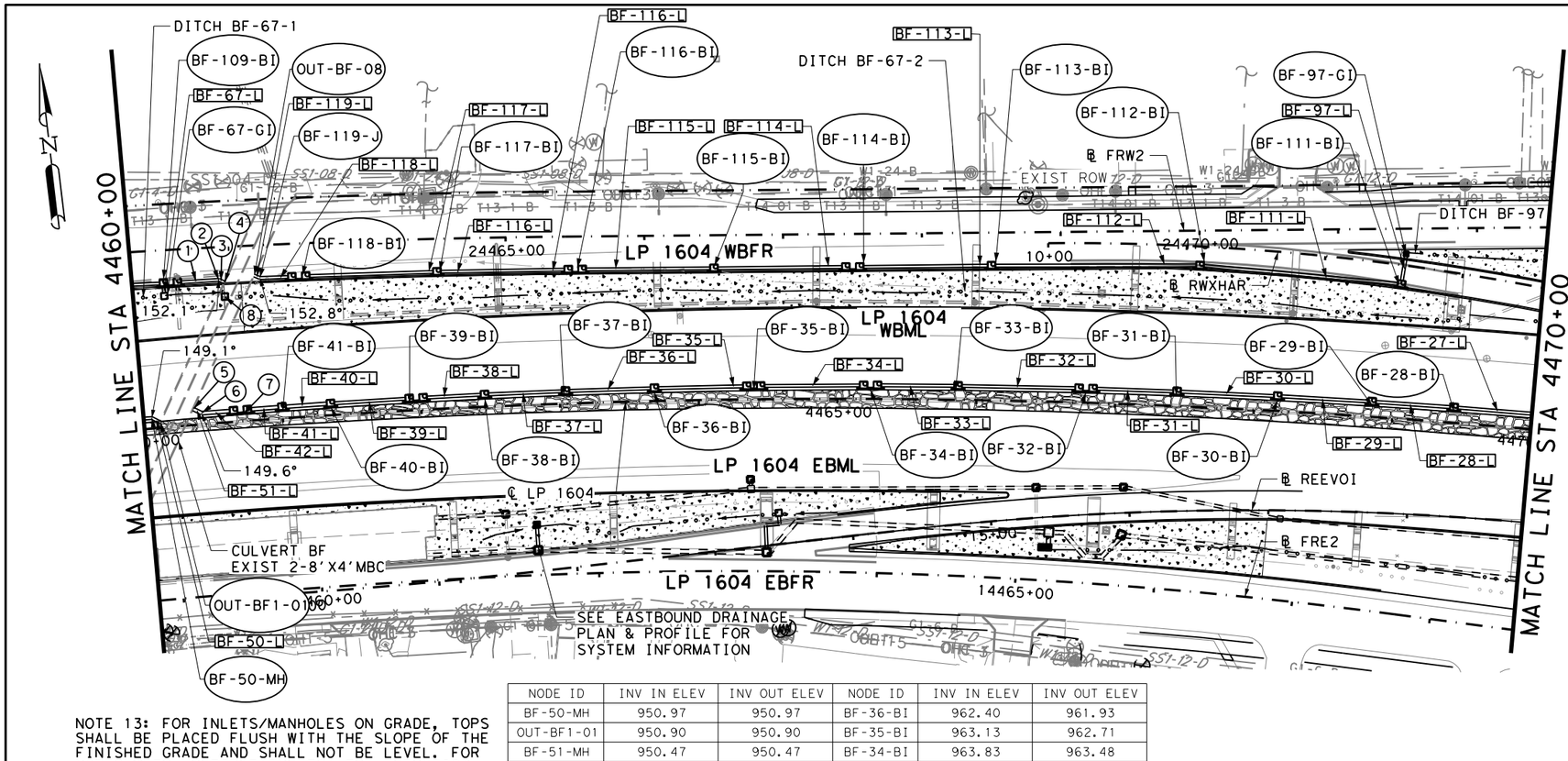


NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

NODE ID	INV IN ELEV	INV OUT ELEV	NODE ID	INV IN ELEV	INV OUT ELEV
BF-50-MH	950.97	950.97	BF-36-BI	962.40	961.93
OUT-BF1-01	950.90	950.90	BF-35-BI	963.13	962.71
BF-51-MH	950.47	950.47	BF-34-BI	963.83	963.48
BF-42-BI	959.02	950.68	BF-33-BI	964.44	964.10
BF-41-BI	959.66	959.12	BF-32-BI	965.70	964.85
BF-40-BI	960.31	959.81	BF-31-BI	966.68	965.98
BF-39-BI	960.67	960.57	BF-30-BI	967.69	967.02
BF-38-BI	961.07	960.87	BF-29-BI	968.30	968.01
BF-37-BI	961.64	961.34	BF-28-BI	968.57	968.57

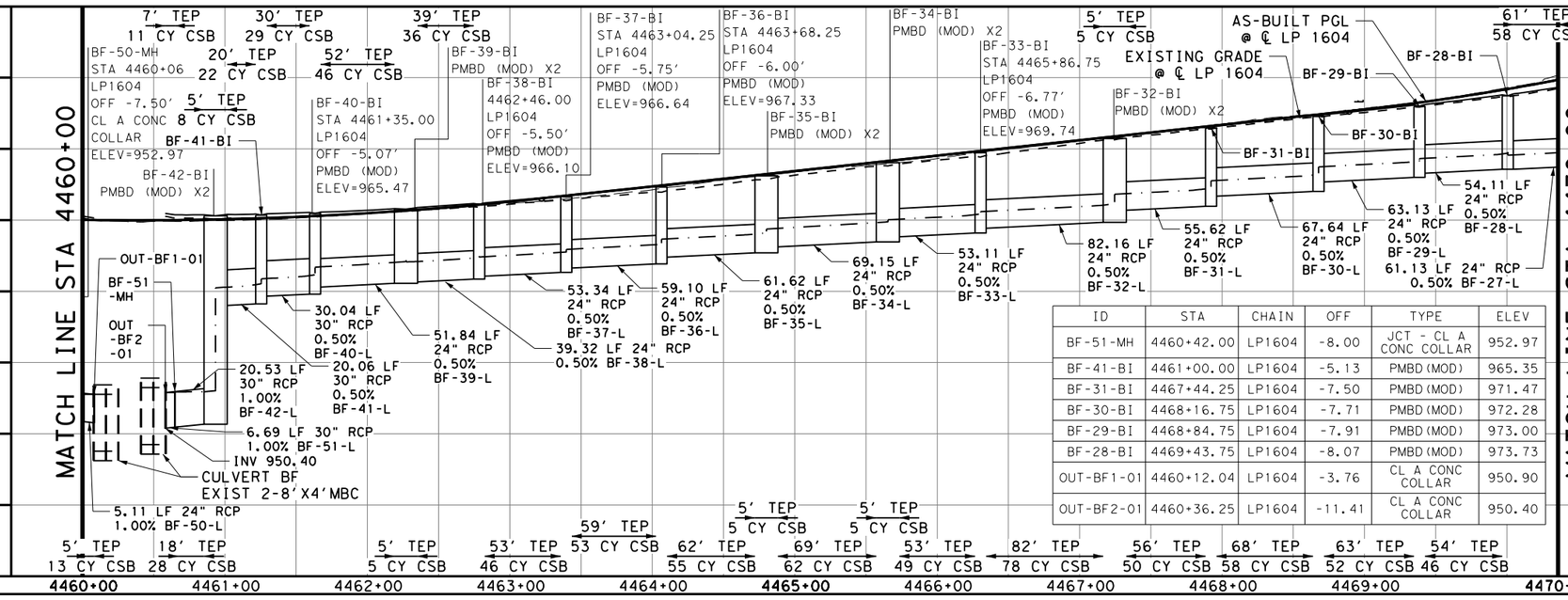
NOTES:
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
10. PROP INLET ELEVATIONS ARE APPROXIMATE & BASED OFF SURVEY DATA & ROADWAY WIDENING. CONTRACTOR TO CONFIRM ELEVATIONS DURING CONSTRUCTION.
11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-02-130			
ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	18
0400-6005	CEM STABIL BKFL	CY	1560
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1665
0420-6009	CL A CONC (COLLAR)	EA	9
0432-6006	RIPRAP (CONC) (CL B)	CY	24
0464-6005	RC PIPE (CL III) (24 IN)	LF	1780
0464-6007	RC PIPE (CL III) (30 IN)	LF	87
0464-6018	RC PIPE (CL IV) (24 IN)	LF	5
0465-6088	INLET (COMPL) (PSL) (SH) (4FTX4FT-4FTX	EA	1
0465-6126	INLET (COMPL) (PSL) (FG) (3FTX3FT-3FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	33

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

① BF-109-L ④ OUT-BF-07 ⑦ BF-42-BI
② BF-110-J ⑤ OUT-BF2-01 ⑧ BF-68-GI
③ BF-110-L ⑥ BF-51-MH



ID	STA	CHAIN	OFF	TYPE	ELEV
BF-51-MH	4460+42.00	LP1604	-8.00	JCT - CL A CONC COLLAR	952.97
BF-41-BI	4461+00.00	LP1604	-5.13	PMBD(MOD)	965.35
BF-31-BI	4467+44.25	LP1604	-7.50	PMBD(MOD)	971.47
BF-30-BI	4468+16.75	LP1604	-7.71	PMBD(MOD)	972.28
BF-29-BI	4468+84.75	LP1604	-7.91	PMBD(MOD)	973.00
BF-28-BI	4469+43.75	LP1604	-8.07	PMBD(MOD)	973.73
OUT-BF1-01	4460+12.04	LP1604	-3.76	CL A CONC COLLAR	950.90
OUT-BF2-01	4460+36.25	LP1604	-11.41	CL A CONC COLLAR	950.40

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4460+00 TO STA 4470+00

SHEET 8 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1619

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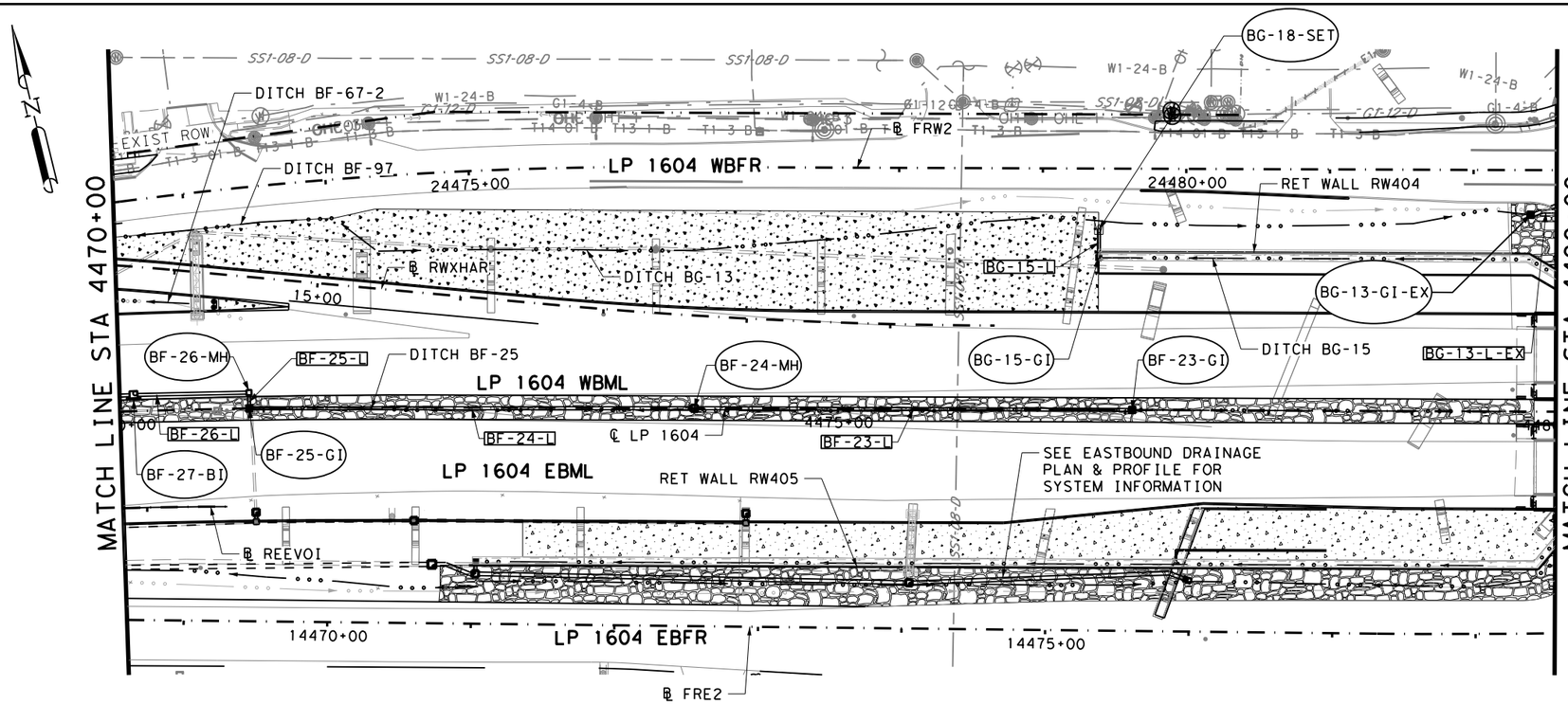

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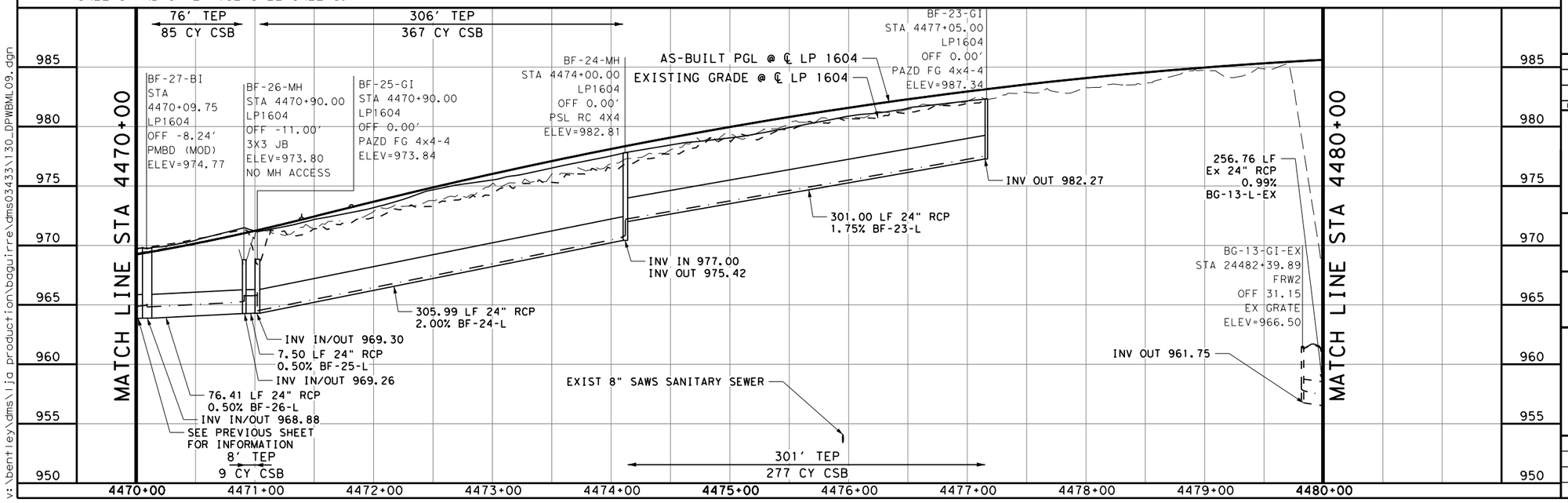

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QUANTITY SUMMARY CSJ 2452-02-130

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	738
0402-6001	TRENCH EXCAVATION PROTECTION	LF	691
0432-6006	RIPRAP (CONC) (CL B)	CY	16
0464-6005	RC PIPE (CL III) (24 IN)	LF	691
0464-6018	RC PIPE (CL IV) (24 IN)	LF	22
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	2
0465-6048	INLET (COMPL) (POD) (FG) (3FTX3FT)	EA	1
0465-6071	INLET (COMPL) (PSL) (RC) (4FTX4FT)	EA	1
0465-6160	INLET (COMPL) (PAZD) (FG) (4FTX4FT-4FTX	EA	2
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	1
0467-6388	SET (TY II) (24 IN) (RCP) (3:1) (C)	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4470+00 TO STA 4480+00

SHEET 9 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1620

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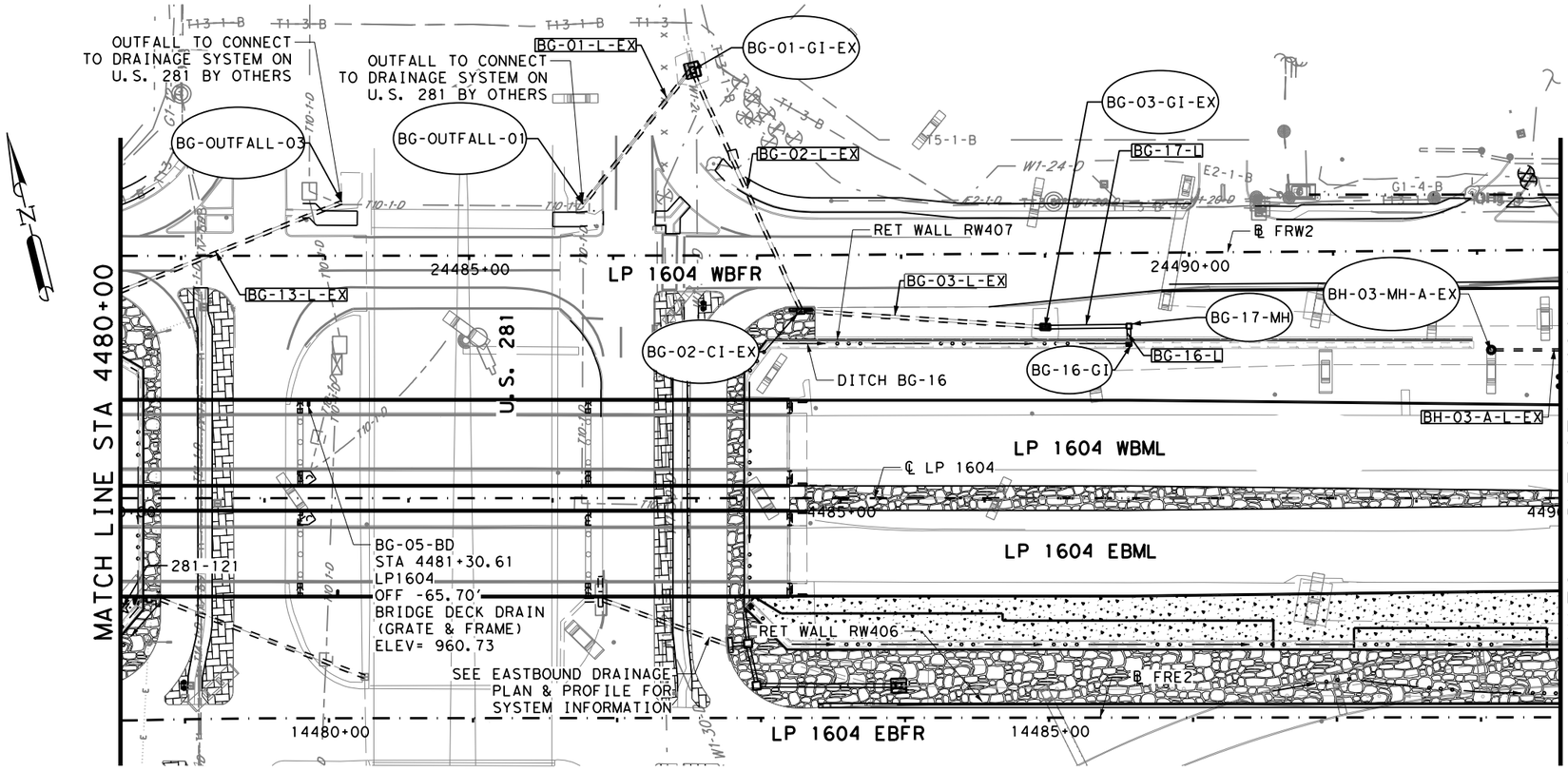

NOTES:

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	128
0402-6001	TRENCH EXCAVATION PROTECTION	LF	54
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6018	RC PIPE (CL IV) (24 IN)	LF	63
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	2
0465-6048	INLET (COMPL) (POD) (FG) (3FTX3FT)	EA	1
0471-6007	GRATE AND FRAME (BRIDGE DRAIN)	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

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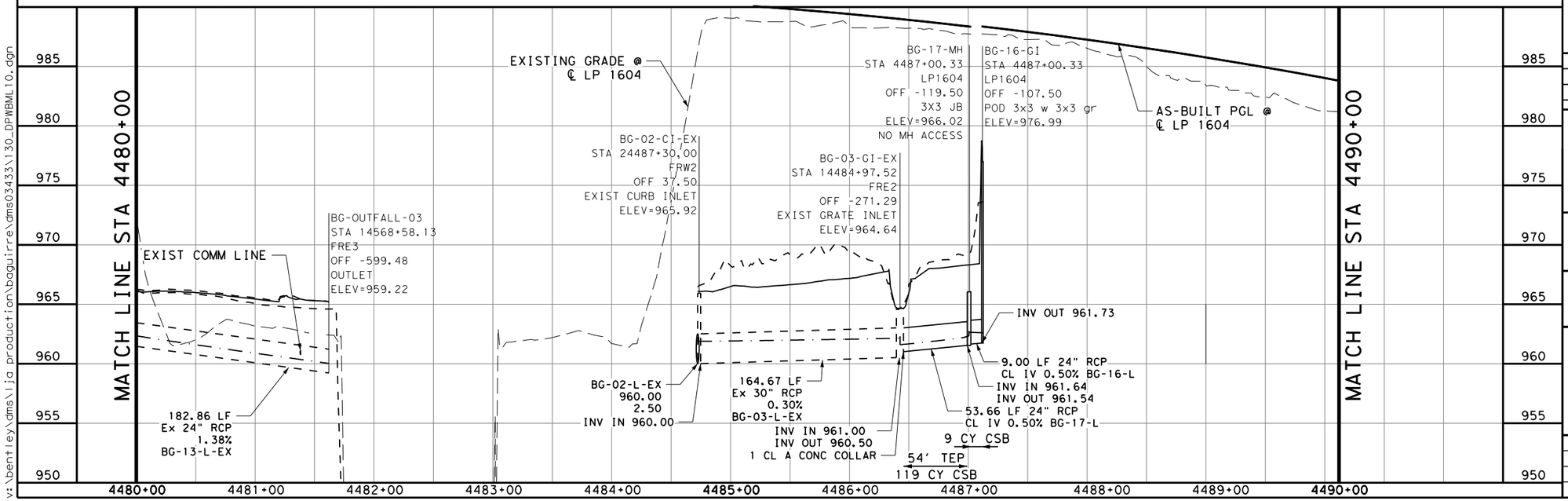

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER
LUKE REED, P.E.

2/27/2023
DATE

0' 25' 50' 100'

SCALE: 1"=100' - HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4480+00 TO STA 4490+00

SHEET 10 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1621

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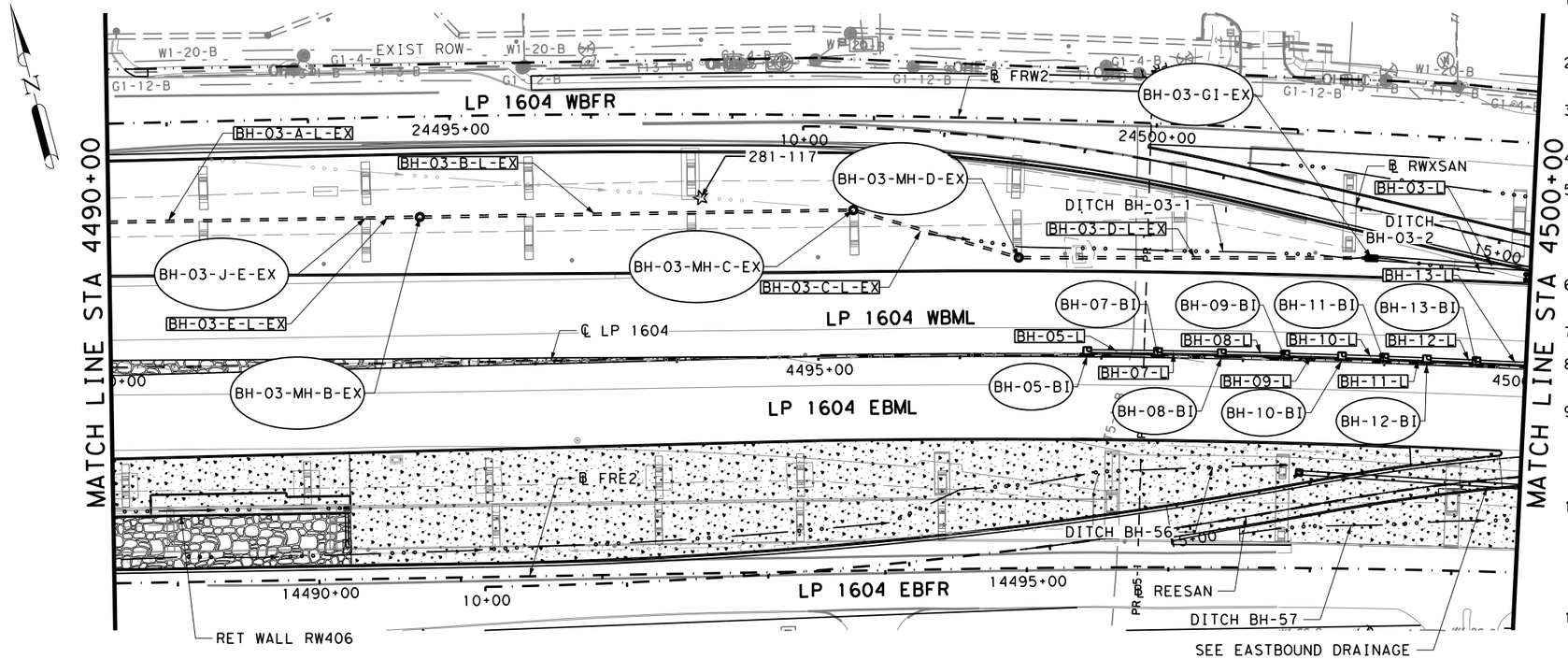

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NOTES:

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0400-6005	CEM STABIL BKFL	CY	238
0420-6009	CL A CONC (COLLAR)	EA	1
0464-6018	RC PIPE (CL IV)(24 IN)	LF	280
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	8

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
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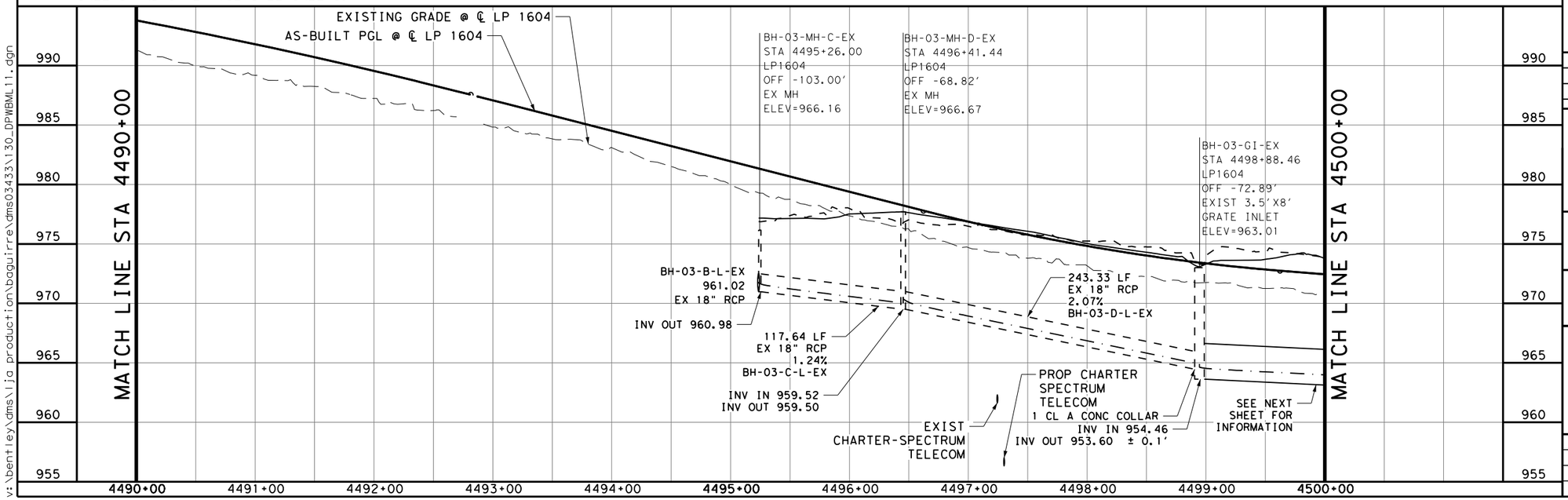

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
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REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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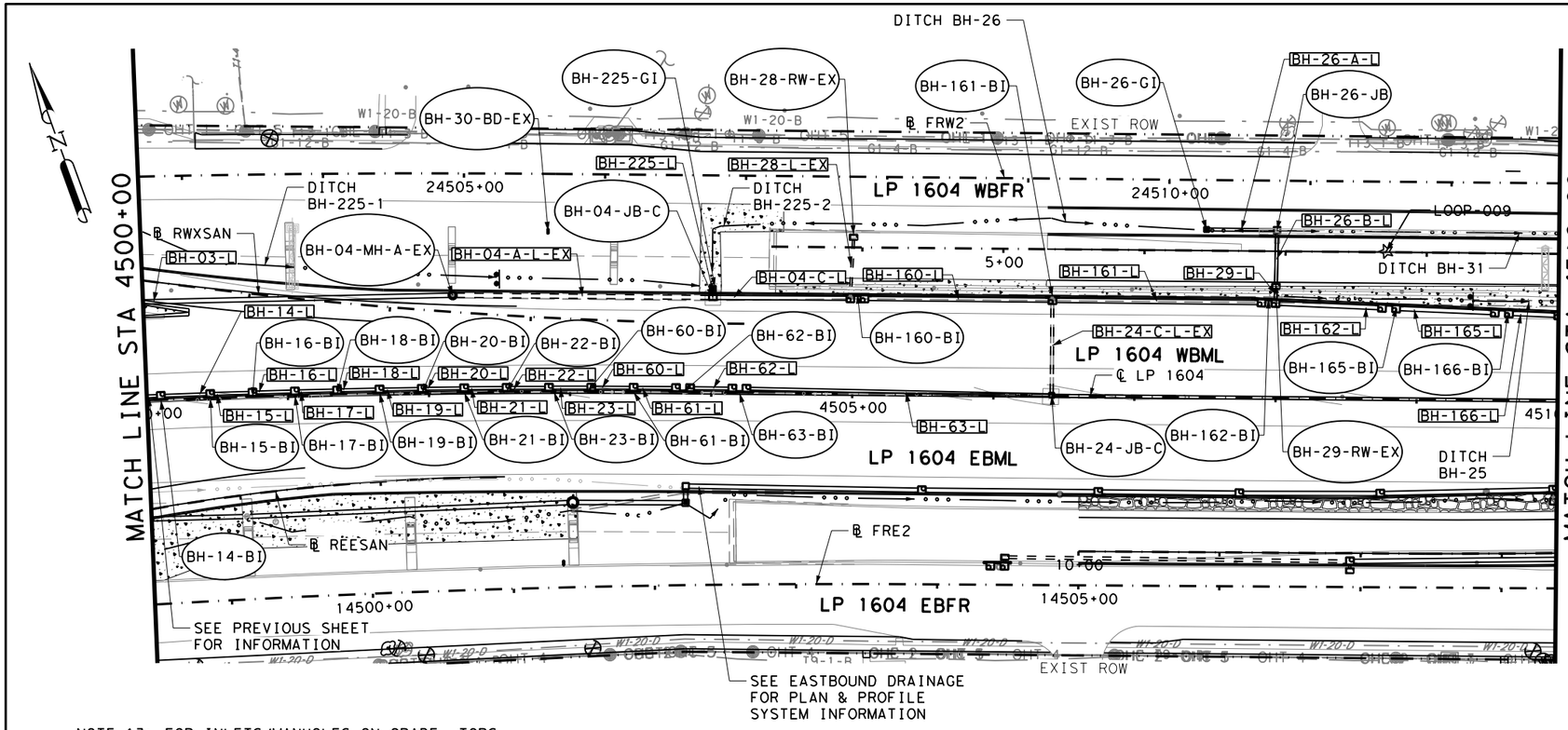
LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4490+00 TO STA 4500+00

SHEET 11 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1622



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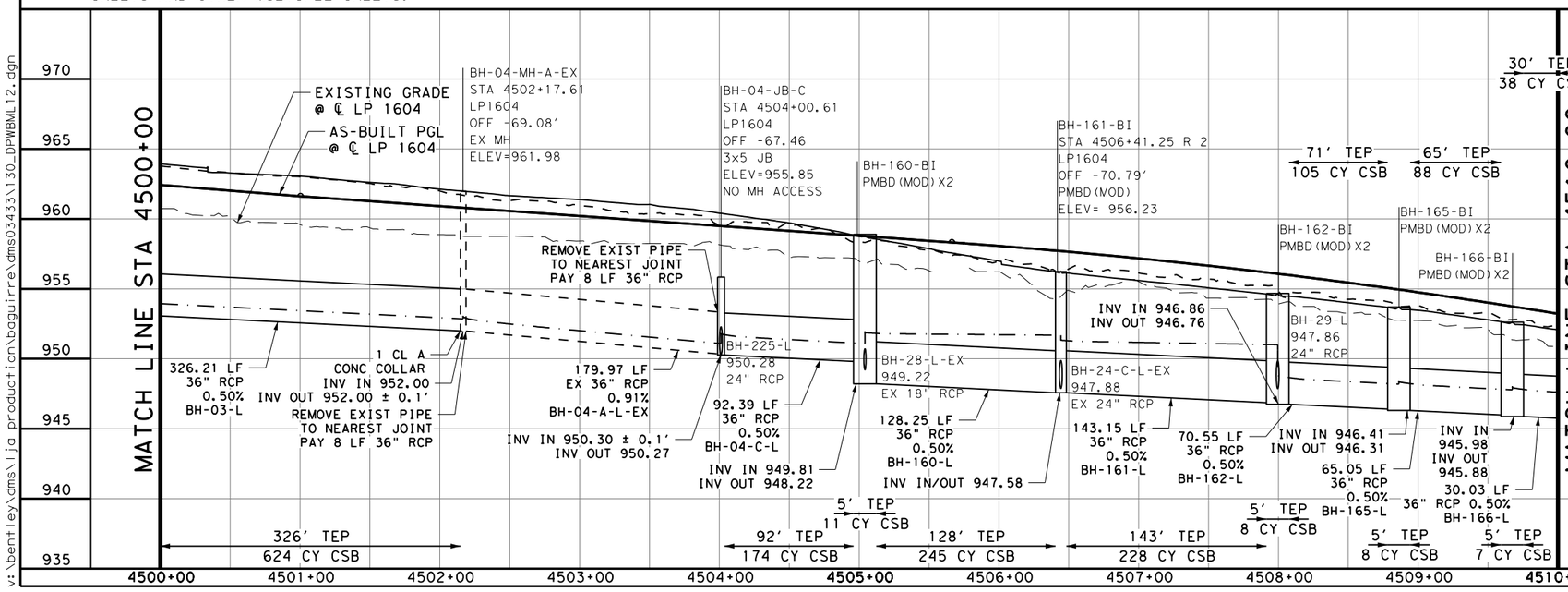
QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	12
0400-6005	CEM STABIL BKFL	CY	2195
0402-6001	TRENCH EXCAVATION PROTECTION	LF	962
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6003	RC PIPE (CL III) (18 IN)	LF	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	110
0464-6008	RC PIPE (CL III) (36 IN)	LF	883
0464-6018	RC PIPE (CL IV) (24 IN)	LF	557
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	2
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	1
0465-6007	JCTBOX (COMPL) (PJB) (3FTX5FT)	EA	1
0465-6048	INLET (COMPL) (POD) (FG) (3FTX3FT)	EA	1
0465-6126	INLET (COMPL) (PSL) (FG) (3FTX3FT-3FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	25

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

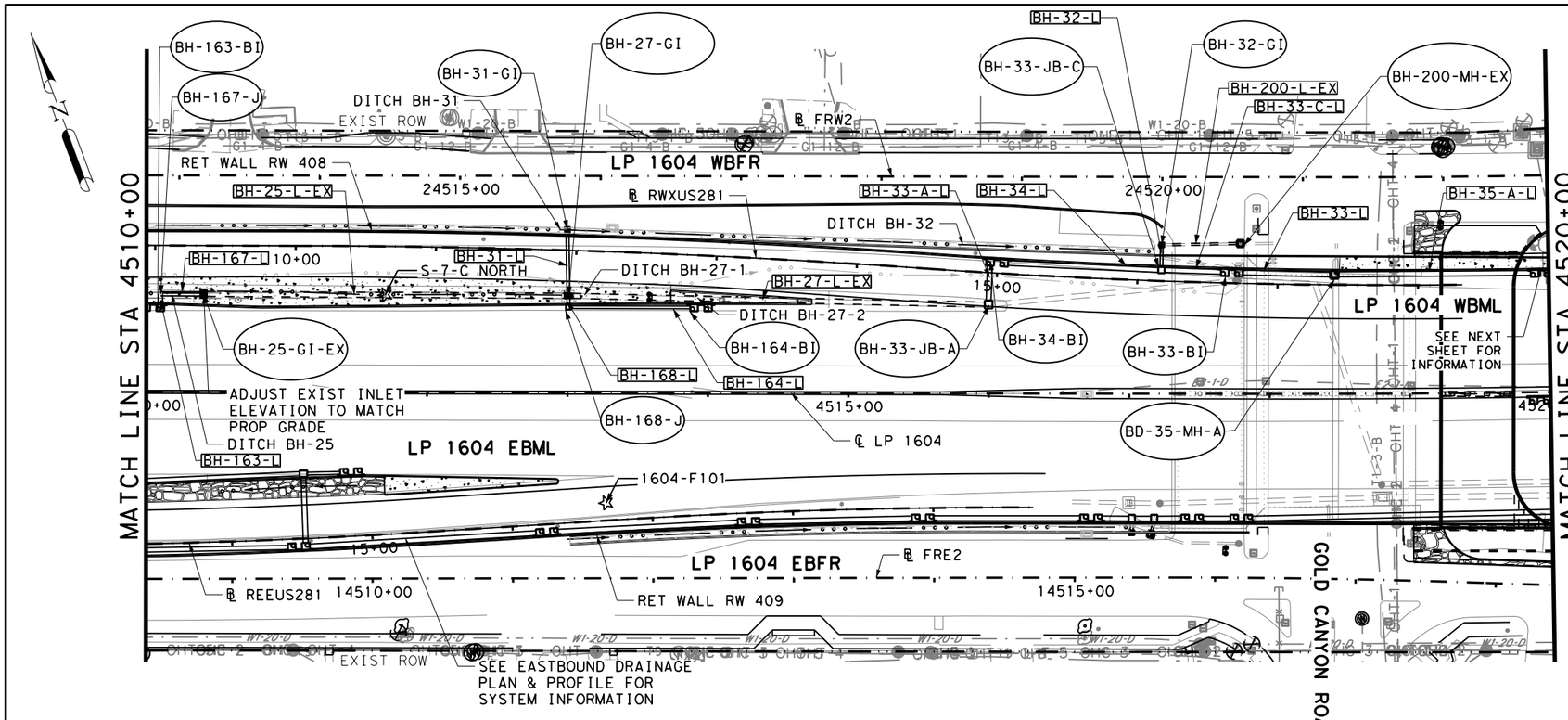
LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4500+00 TO STA 4510+00

SHEET 12 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1623



NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

NOTES:
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
10. PROP INLET ELEVATIONS ARE APPROXIMATE & BASED OFF SURVEY DATA & ROADWAY WIDENING. CONTRACTOR TO CONFIRM ELEVATIONS DURING CONSTRUCTION.
11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	8
0400-6005	CEM STABIL BKFL	CY	727
0402-6001	TRENCH EXCAVATION PROTECTION	LF	574
0420-6009	CL A CONC (COLLAR)	EA	2
0432-6006	RIPRAP (CONC) (CL B)	CY	16
0464-6003	RC PIPE (CL III) (18 IN)	LF	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	95
0464-6008	RC PIPE (CL III) (36 IN)	LF	41
0464-6009	RC PIPE (CL III) (42 IN)	LF	408
0464-6018	RC PIPE (CL IV) (24 IN)	LF	59
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	3
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	1
0465-6009	JCTBOX (COMPL) (PJB) (5FTX5FT)	EA	1
0465-6048	INLET (COMPL) (POD) (FG) (3FTX3FT)	EA	2
0465-6074	INLET (COMPL) (PSL) (RC) (5FTX5FT)	EA	1
0465-6130	INLET (COMPL) (PSL) (FG) (3FTX5FT-3FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	8

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
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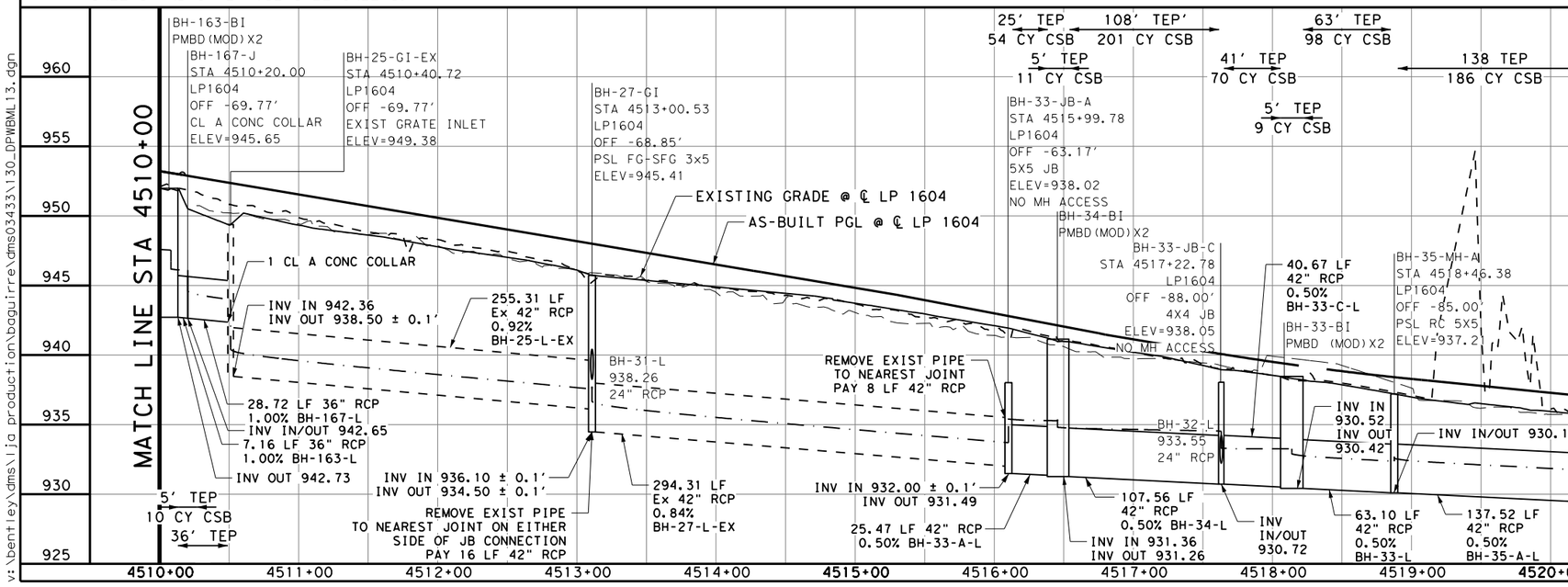

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100' - HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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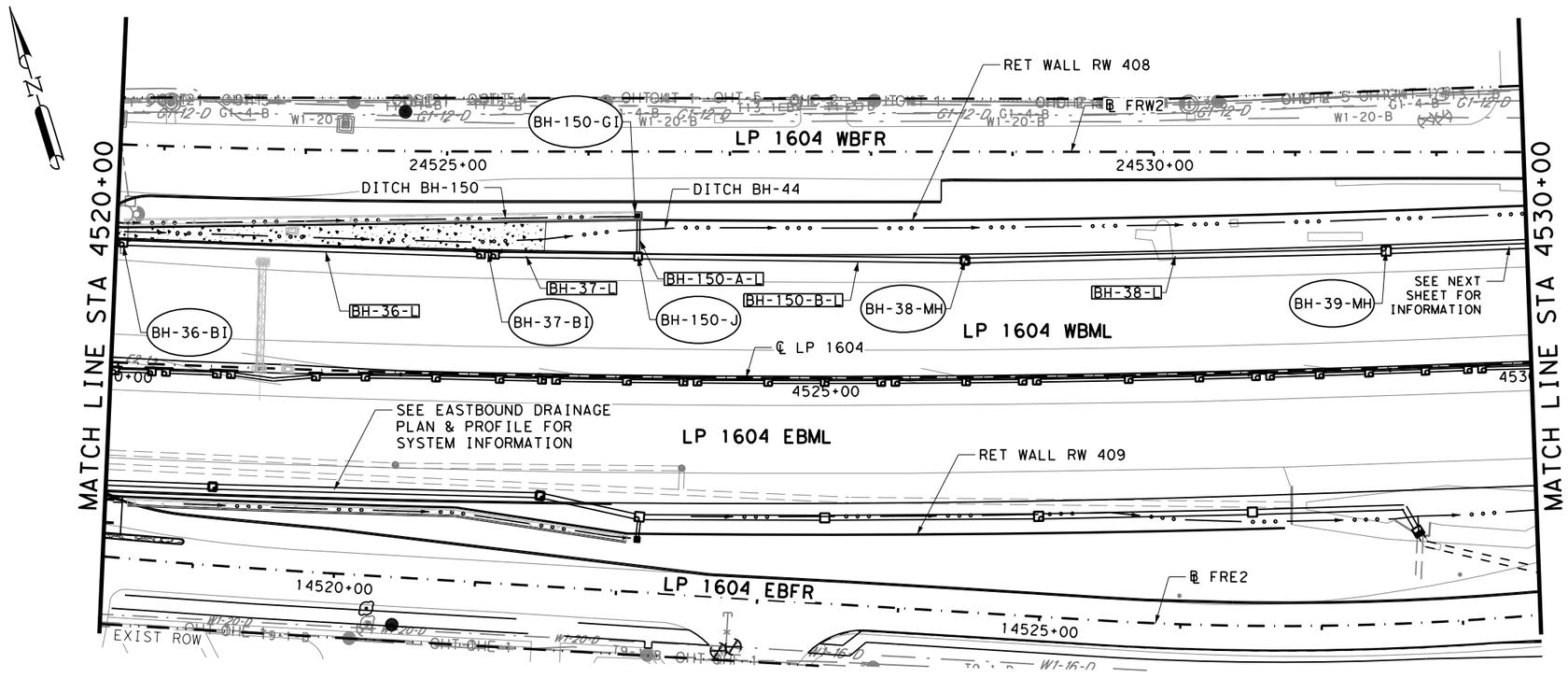
LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4510+00 TO STA 4520+00

SHEET 13 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1624



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NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	4
0400-6005	CEM STABIL BKFL	CY	1518
0402-6001	TRENCH EXCAVATION PROTECTION	LF	897
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6009	RC PIPE (CL III) (42 IN)	LF	873
0464-6018	RC PIPE (CL IV) (24 IN)	LF	33
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	1
0465-6009	JCTBOX (COMPL) (PJB) (5FTX5FT)	EA	1
0465-6049	INLET (COMPL) (POD) (FG) (4FTX4FT)	EA	1
0465-6074	INLET (COMPL) (PSL) (RC) (5FTX5FT)	EA	2
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	4

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
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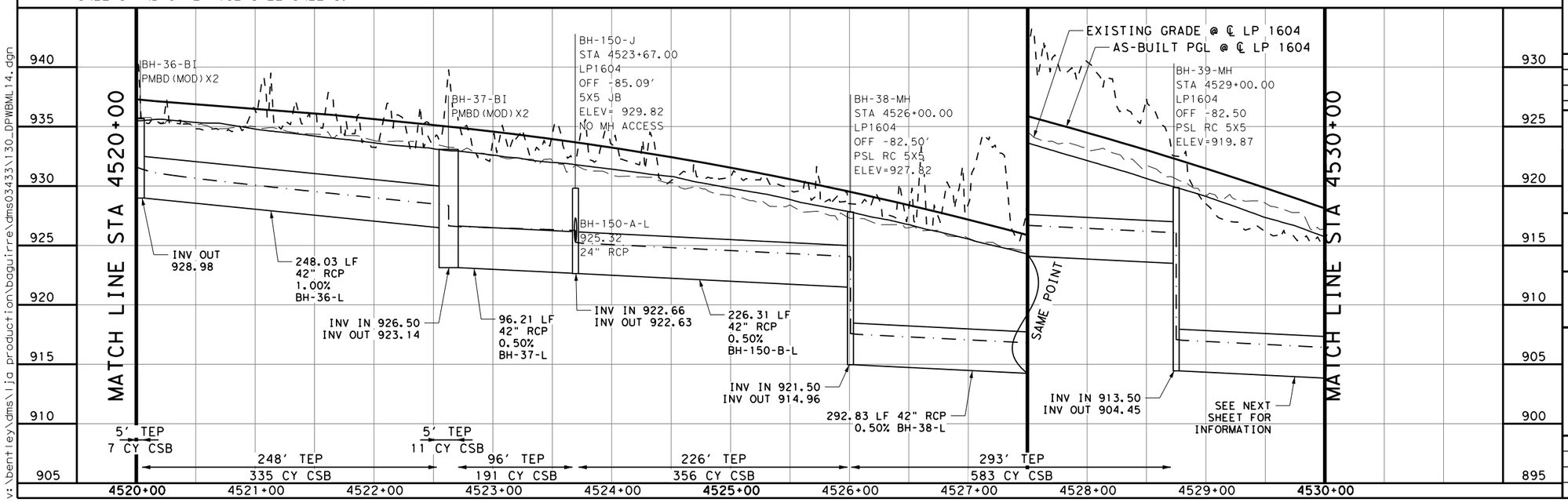

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

 Texas Department of Transportation

LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4520+00 TO STA 4530+00

SHEET 14 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1625

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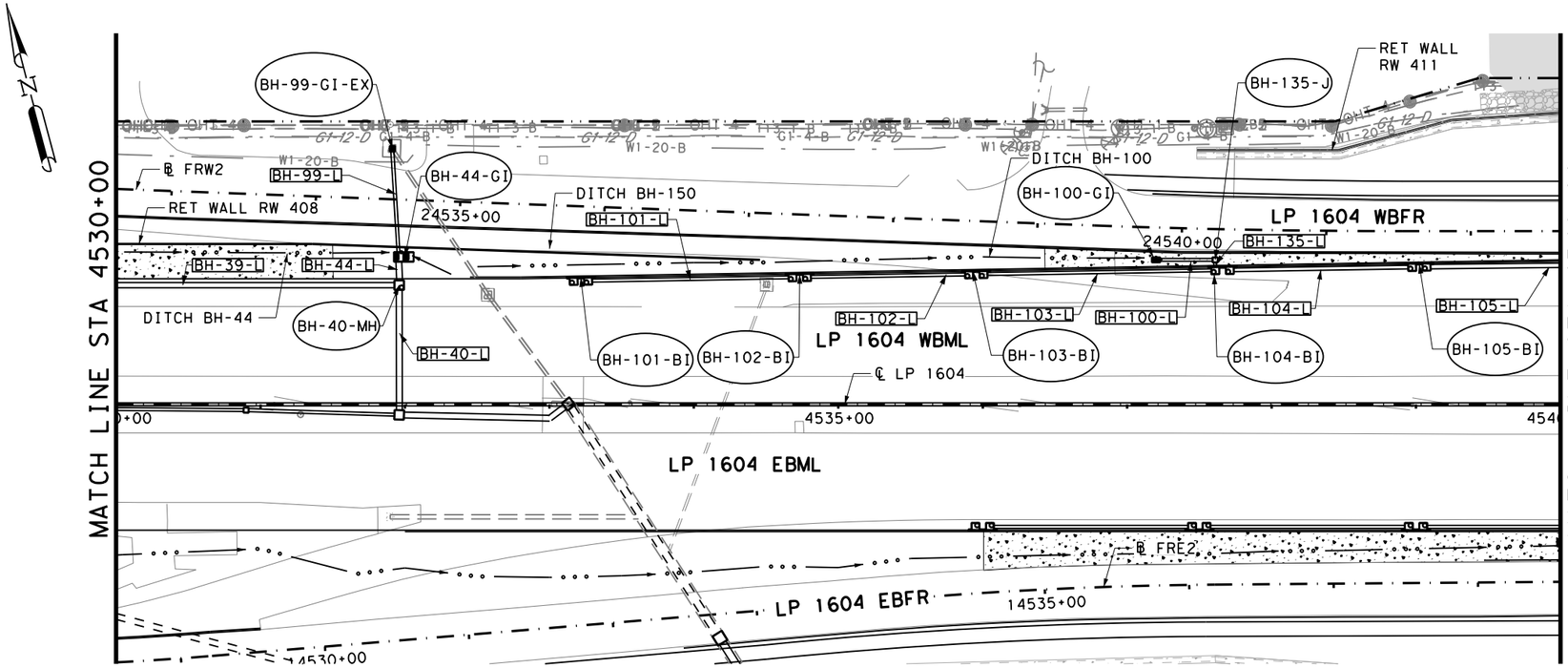

NOTES:

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	10
0400-6005	CEM STABIL BKFL	CY	1445
0402-6001	TRENCH EXCAVATION PROTECTION	LF	1038
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	16
0464-6005	RC PIPE (CL III) (24 IN)	LF	454
0464-6007	RC PIPE (CL III) (30 IN)	LF	14
0464-6009	RC PIPE (CL III) (42 IN)	LF	291
0464-6018	RC PIPE (CL IV) (24 IN)	LF	10
0464-6019	RC PIPE (CL IV) (30 IN)	LF	126
0464-6020	RC PIPE (CL IV) (36 IN)	LF	150
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	1
0465-6074	INLET (COMPL) (PSL) (RC) (5FTX5FT)	EA	1
0465-6126	INLET (COMPL) (PSL) (FG) (3FTX3FT-3FTX	EA	1
0465-6148	INLET (COMPL) (PSL) (SFG) (3FTX5FT-3FTX	EA	2
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	10
0476-6014	JACK BOR OR TUN PIPE (24 IN) (RC) (CL IV	LF	71
0476-6034	JACK BOR OR TUN PIPE (48 IN) (RC) (CL I	LF	84

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
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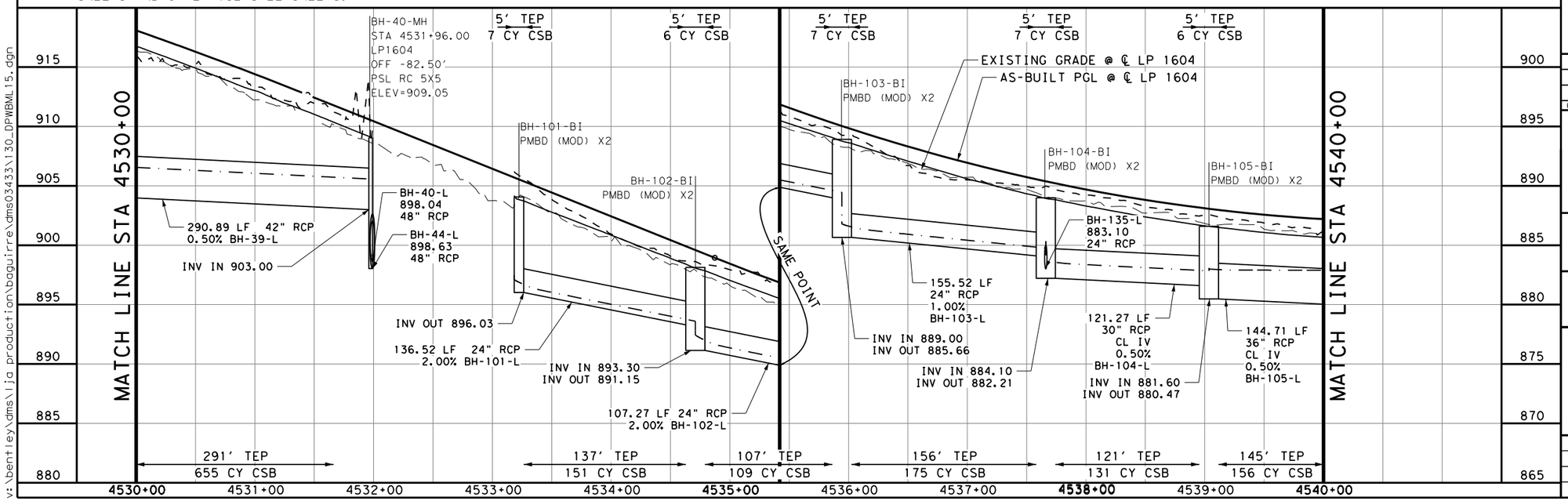

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4530+00 TO STA 4540+00

SHEET 15 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1626

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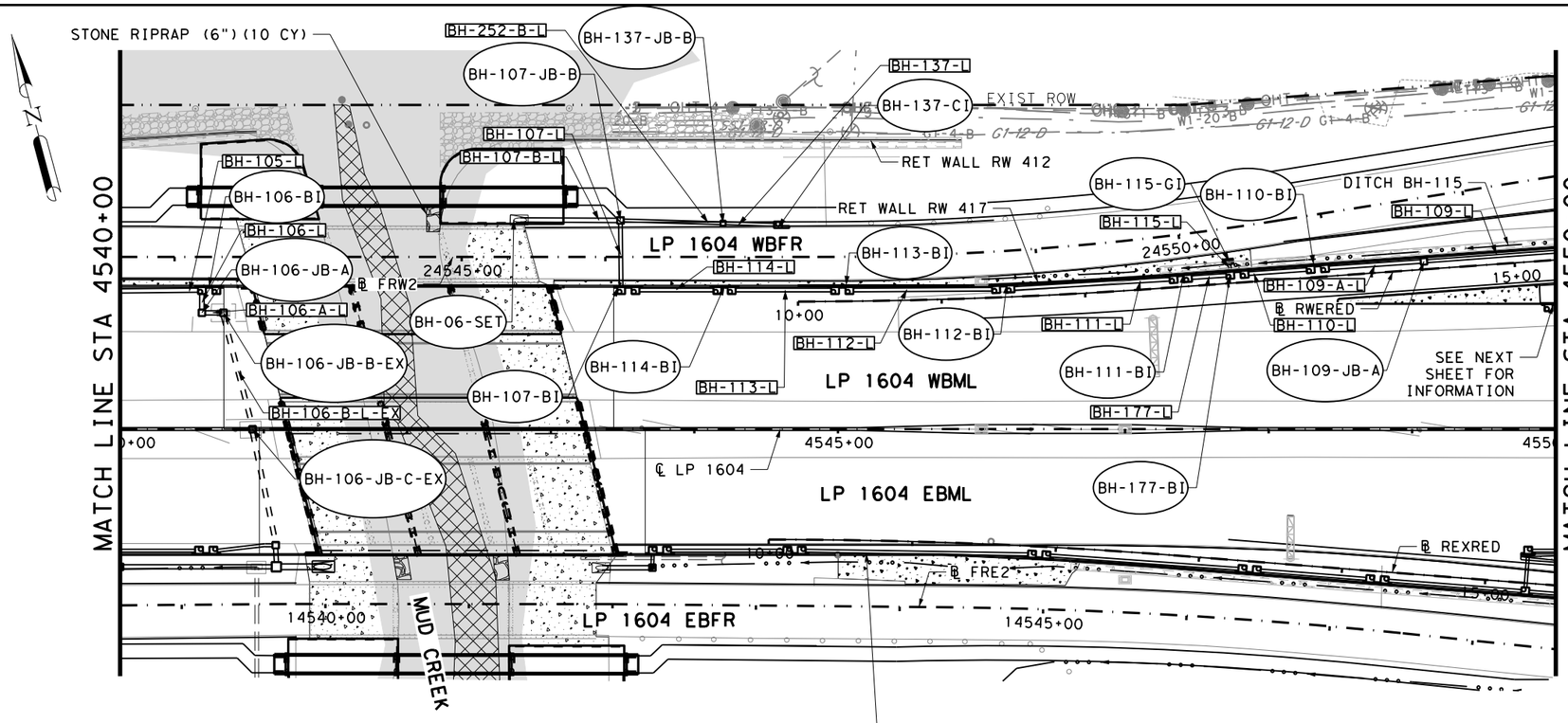

NOTES:

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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	16
0400-6005	CEM STABIL BKFL	CY	1156
0402-6001	TRENCH EXCAVATION PROTECTION	LF	872
0420-6009	CL A CONC (COLLAR)	EA	1
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0432-6022	RIPRAP (STONE COMMON) (DRY) (6 IN)	CY	10
0464-6005	RC PIPE (CL III) (24 IN)	LF	102
0464-6007	RC PIPE (CL III) (30 IN)	LF	686
0464-6008	RC PIPE (CL III) (36 IN)	LF	72
0464-6018	RC PIPE (CL IV) (24 IN)	LF	5
0464-6020	RC PIPE (CL IV) (36 IN)	LF	5
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	2
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	3
0465-6019	INLET (COMPL) (PCO) (4FT) (RIGHT)	EA	1
0465-6050	INLET (COMPL) (POD) (FG) (3FTX5FT)	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	16
0467-6449	SET (TY II) (36 IN) (RCP) (3:1) (P)	EA	1

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
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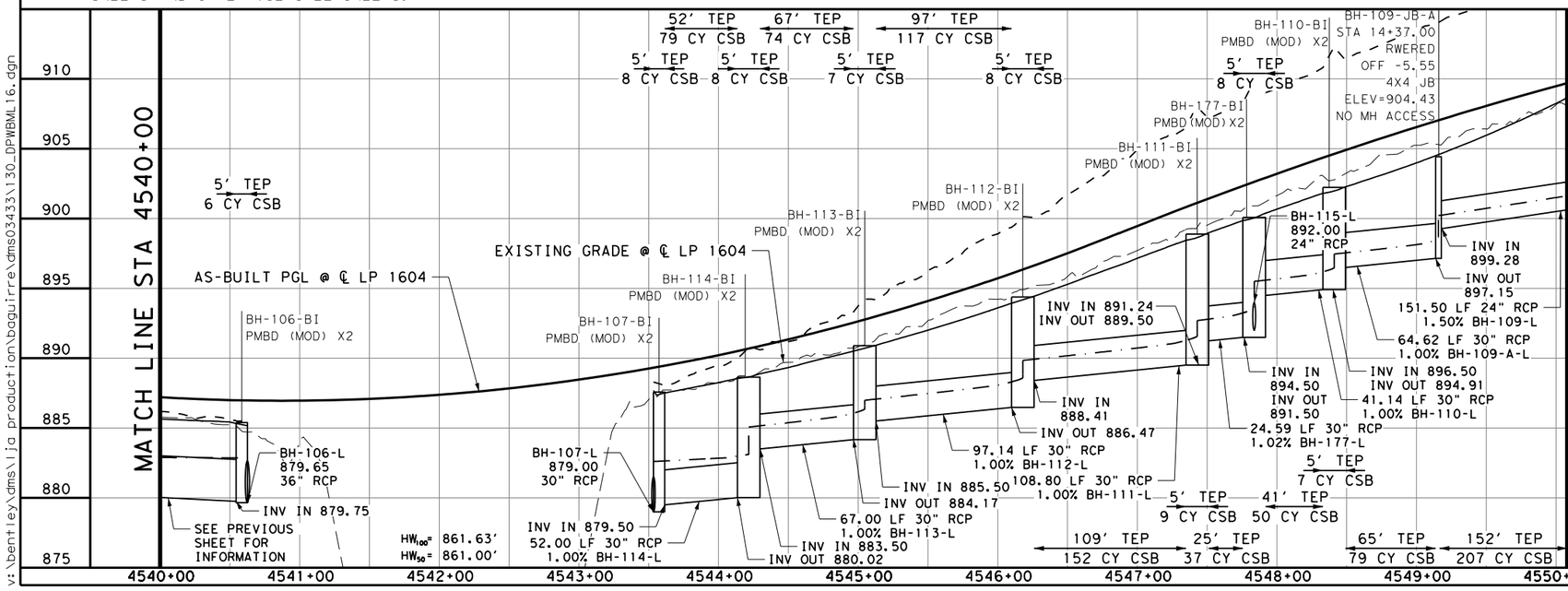

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER
LUKE REED, P.E.
2/27/2023
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4540+00 TO STA 4550+00

SHEET 16 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1627

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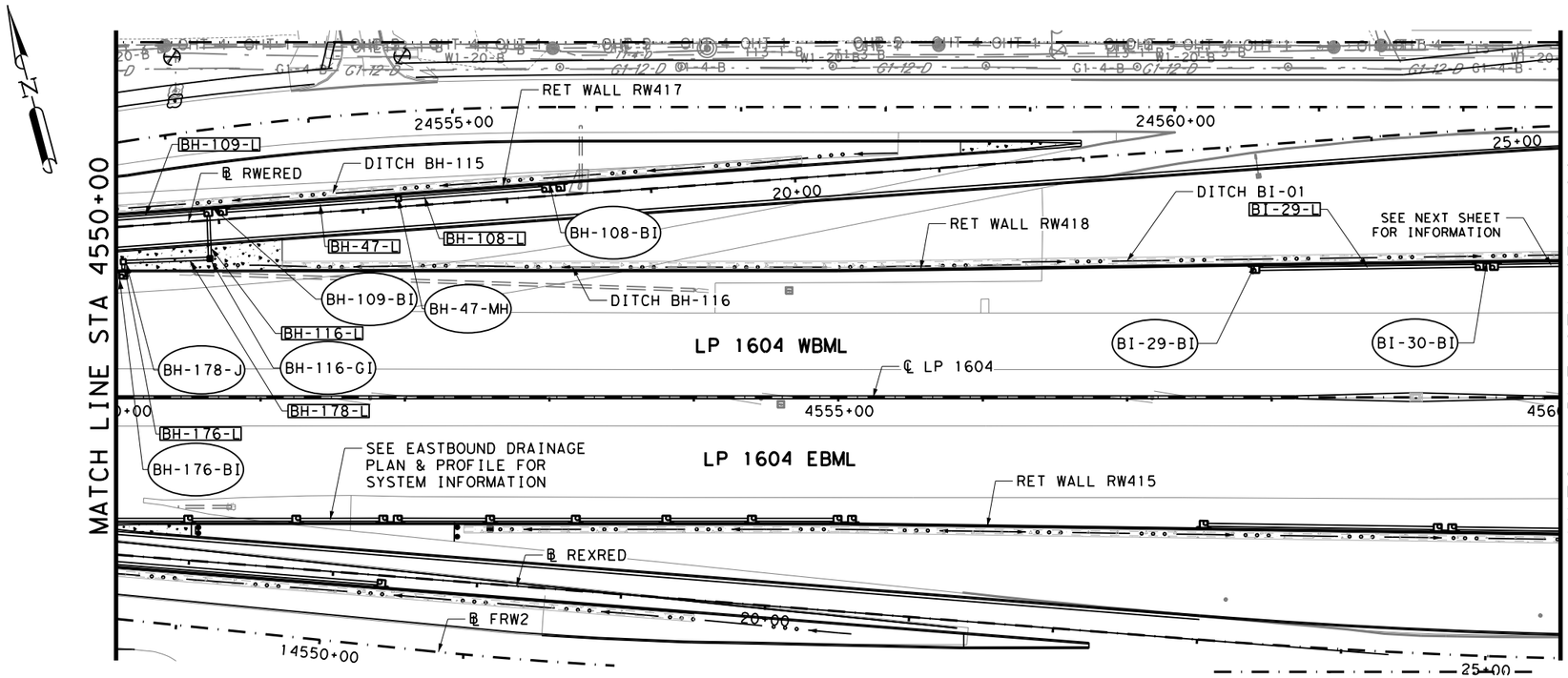

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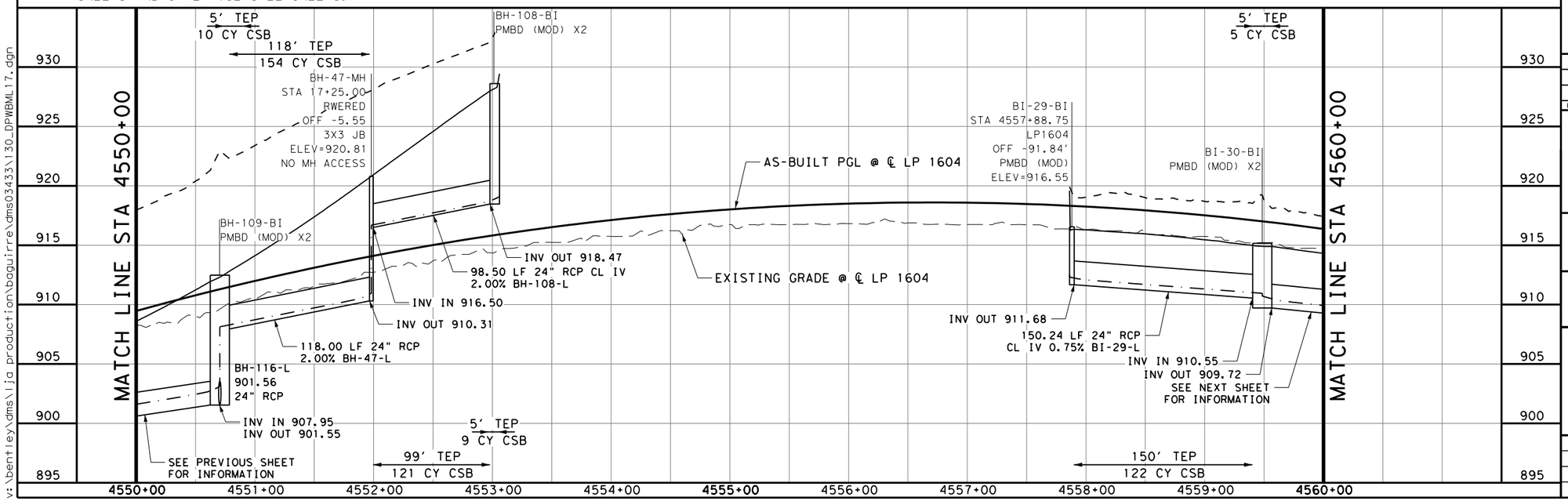
QUANTITY SUMMARY CSJ 2452-03-113			
ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	8
0400-6005	CEM STABIL BKFL	CY	510
0402-6001	TRENCH EXCAVATION PROTECTION	LF	428
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	218
0464-6018	RC PIPE (CL IV) (24 IN)	LF	264
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	2
0465-6146	INLET (COMPL) (PSL) (SFG) (3FTX3FT-3FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	9

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.



STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4550+00 TO STA 4560+00

SHEET 17 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1628

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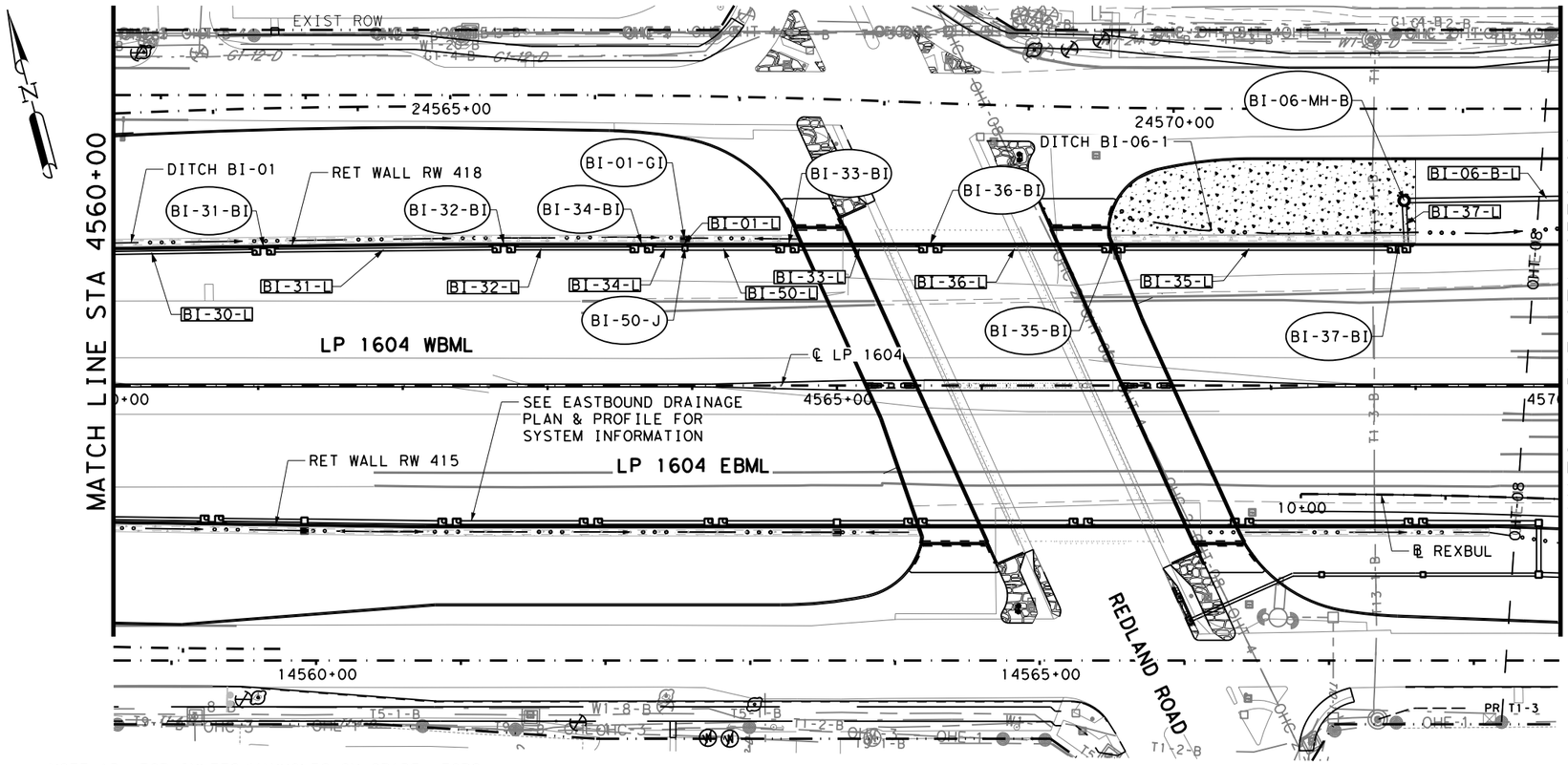

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

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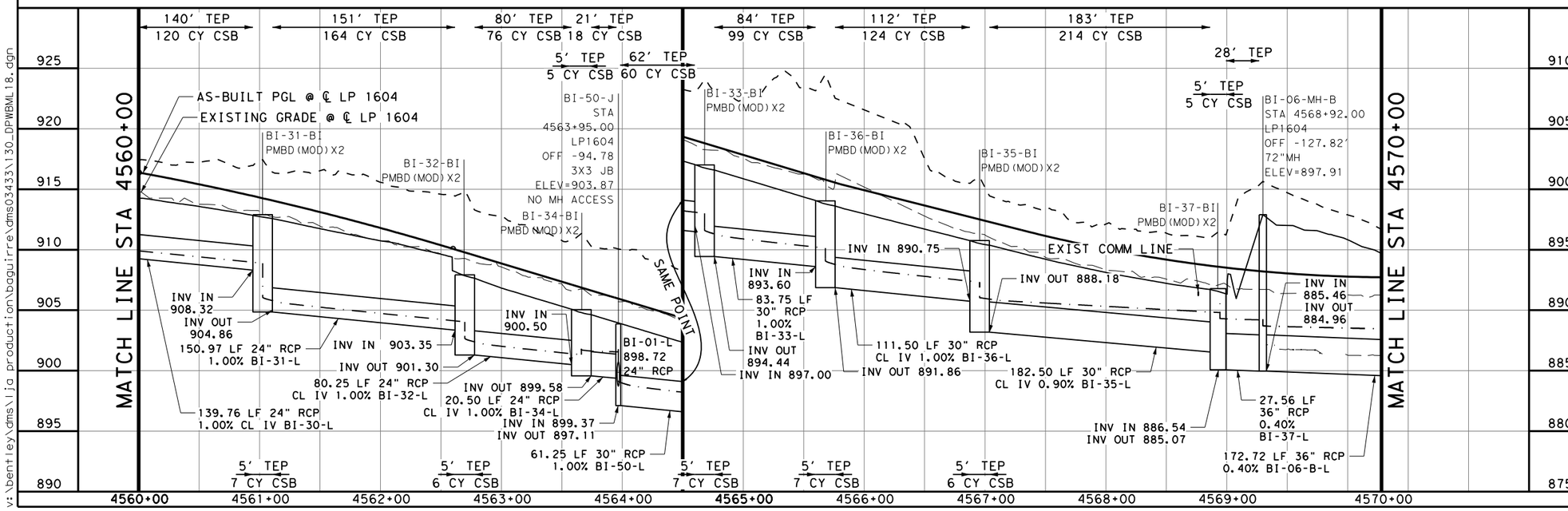

NOTES:
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2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
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11. SHORING/STABILIZATION OF EXIST UTILITIES SHALL BE NSPI.
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	14
0400-6005	CEM STABIL BKFL	CY	918
0402-6001	TRENCH EXCAVATION PROTECTION	LF	899
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	156
0464-6007	RC PIPE (CL III) (30 IN)	LF	262
0464-6008	RC PIPE (CL III) (36 IN)	LF	201
0464-6018	RC PIPE (CL IV) (24 IN)	LF	254
0464-6019	RC PIPE (CL IV) (30 IN)	LF	198
0465-6004	MANH (COMPL) (PRM) (72IN)	EA	1
0465-6005	JCTBOX (COMPL) (PJB) (3FTX3FT)	EA	1
0465-6007	JCTBOX (COMPL) (PJB) (3FTX5FT)	EA	1
0465-6050	INLET (COMPL) (POD) (FG) (3FTX5FT)	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	14

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4560+00 TO STA 4570+00

SHEET 18 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1629

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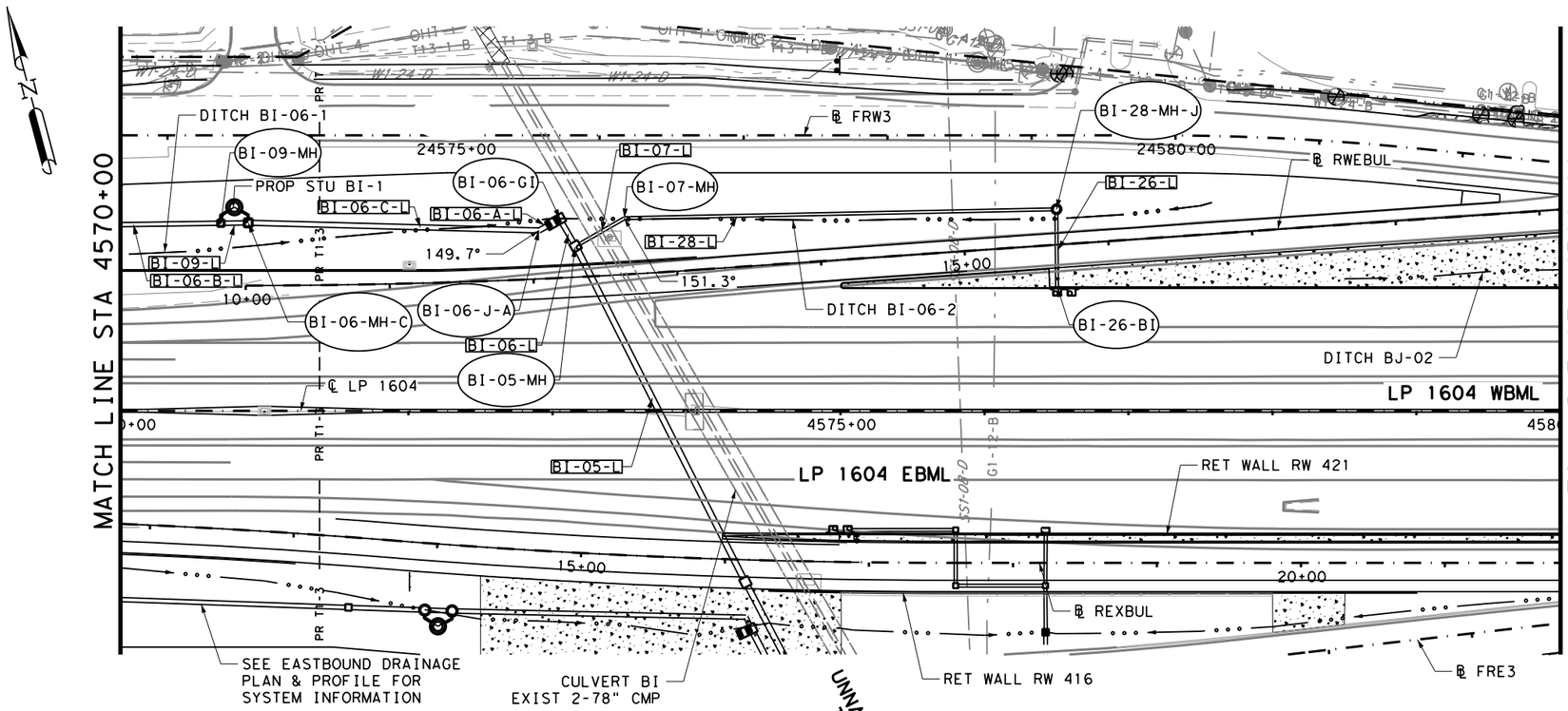

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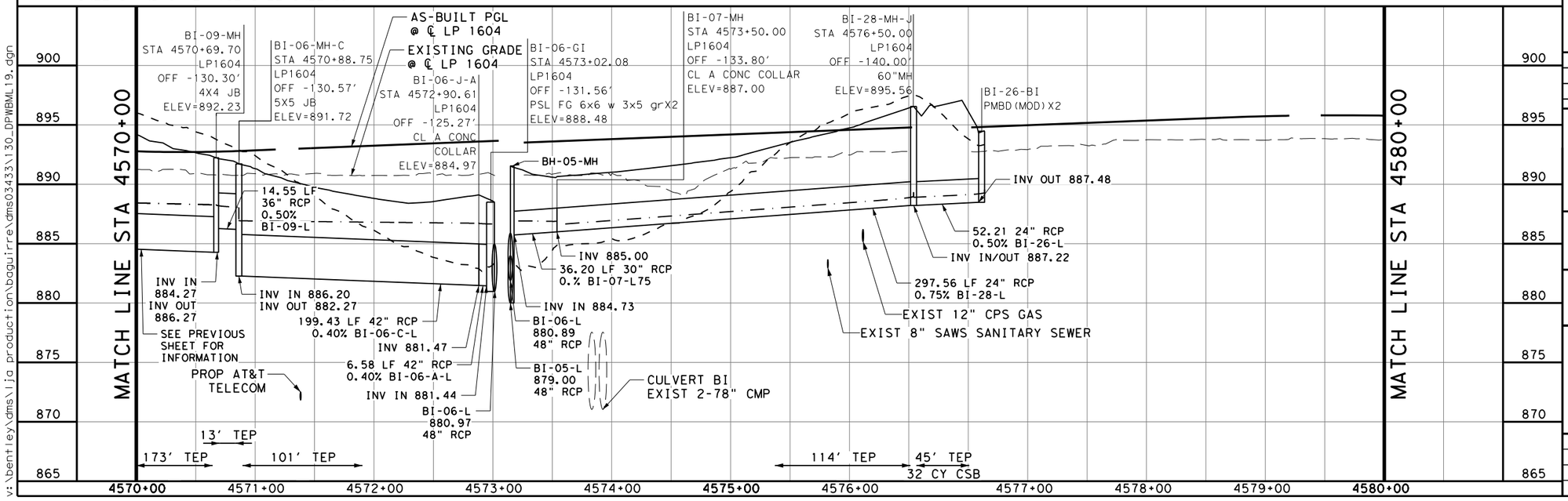
NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

ID	STA	CHAIN	OFFSET	TYPE	ELEV
BI-05-MH	4573+16.03	LP1604	-114.24	PSL RC 4X4	890.54



NOTES:
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7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	2
0400-6005	CEM STABIL BKFL	CY	32
0402-6001	TRENCH EXCAVATION PROTECTION	LF	446
0420-6009	CL A CONC (COLLAR)	EA	2
0432-6006	RIPRAP (CONC) (CL B)	CY	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	391
0464-6008	RC PIPE (CL III) (36 IN)	LF	15
0464-6009	RC PIPE (CL III) (42 IN)	LF	206
0465-6003	MANH (COMPL) (PRM) (60IN)	EA	1
0465-6006	JCTBOX (COMPL) (PJB) (4FTX4FT)	EA	1
0465-6009	JCTBOX (COMPL) (PJB) (5FTX5FT)	EA	1
0465-6071	INLET (COMPL) (PSL) (RC) (4FTX4FT)	EA	1
0465-6142	INLET (COMPL) (PSL) (FG) (6FTX6FT-3FTX	EA	1
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	2
0476-6034	JACK BOR OR TUN PIPE (48 IN) (RC) (CL II	LF	271

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100' - HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4570+00 TO STA 4580+00

SHEET 19 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1630

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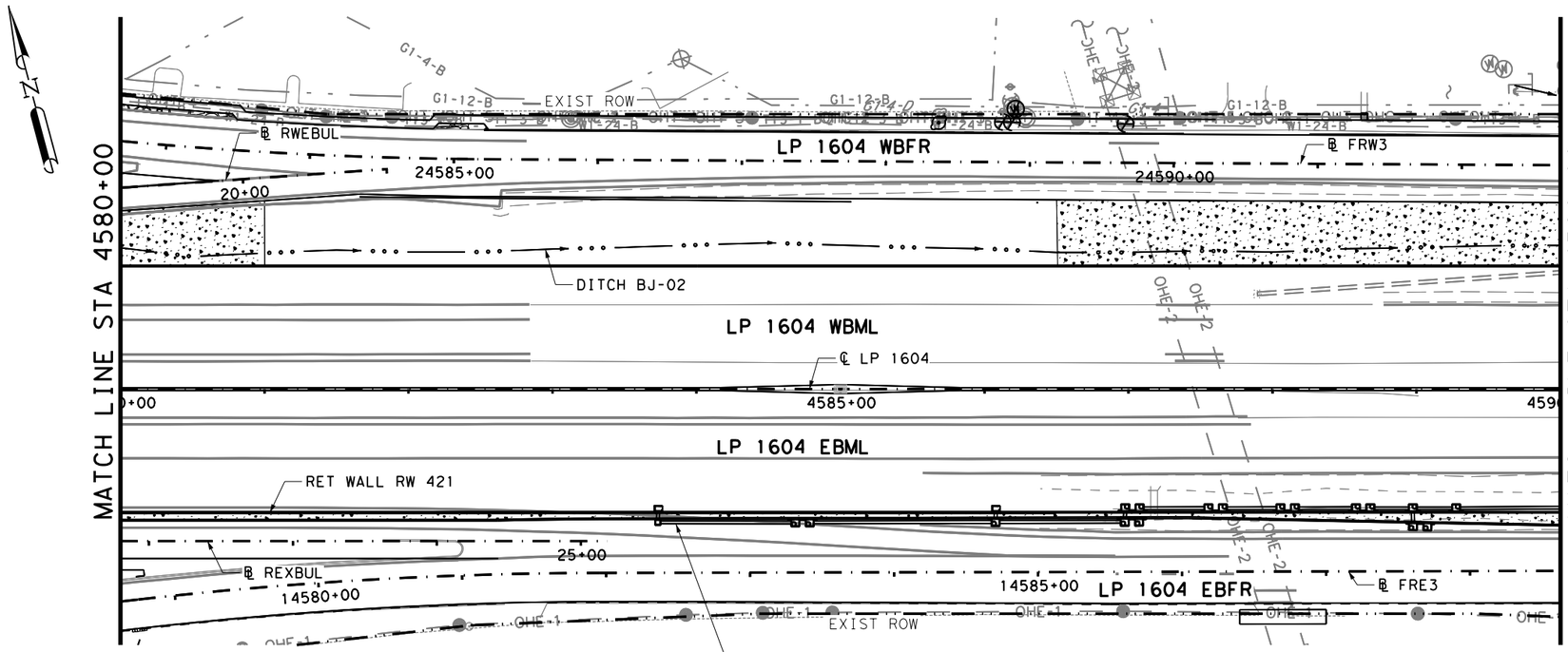

SEE EASTBOUND DRAINAGE PLAN & PROFILE FOR SYSTEM INFORMATION

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

NOTES:
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LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
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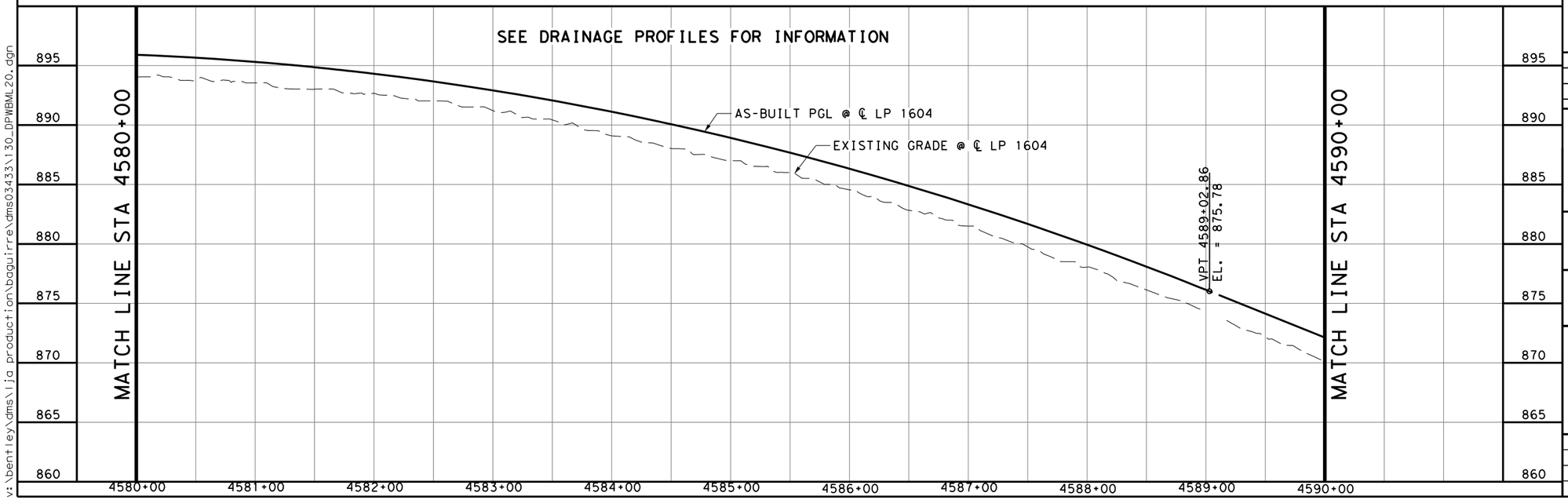
  - OUTFALL ID



STATE OF TEXAS — LUKE REED — 101242 — LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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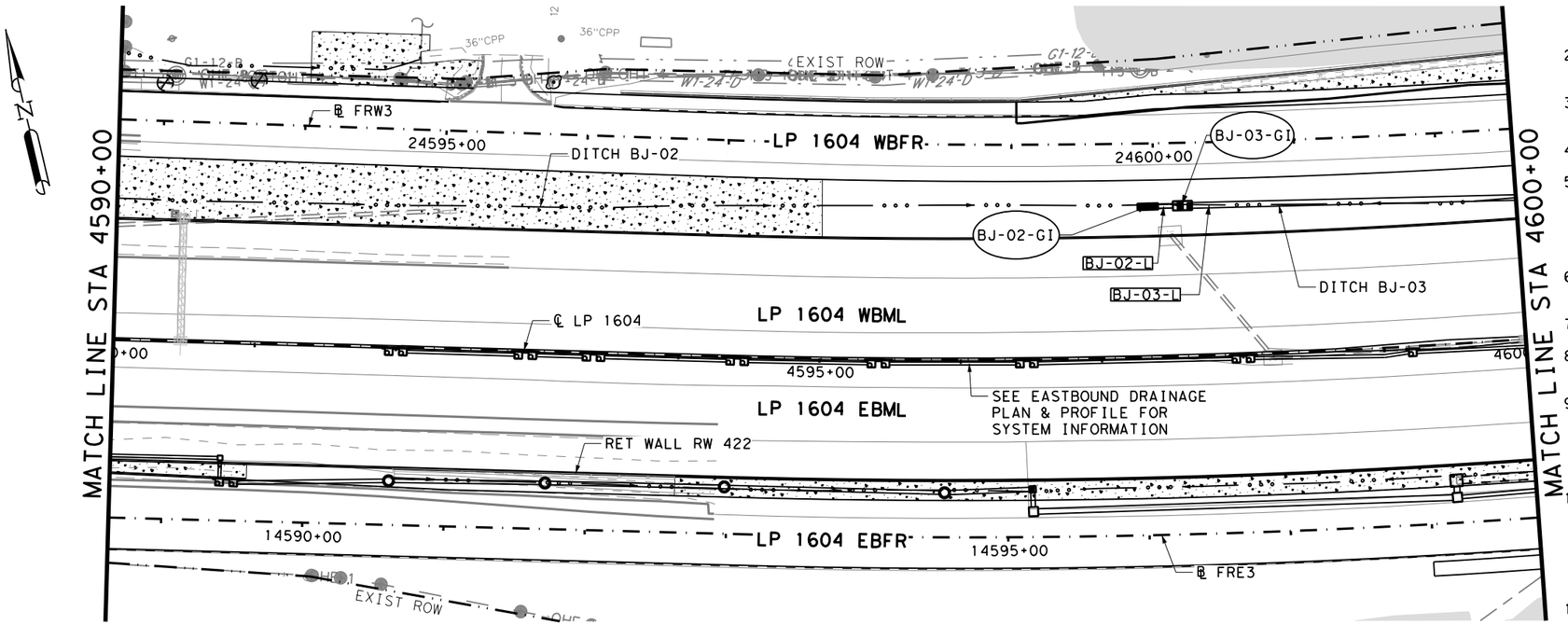
LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4580+00 TO STA 4590+00

SHEET 20 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1631



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QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0402-6001	TRENCH EXCAVATION PROTECTION	LF	267
0432-6006	RIPRAP (CONC)(CL B)	CY	16
0464-6008	RC PIPE (CL III)(36 IN)	LF	11
0464-6010	RC PIPE (CL III)(48 IN)	LF	256
0465-6142	INLET (COMPL)(PSL)(FG)(6FTX6FT-3FTX	EA	2
0465-6160	INLET(COMPL)(PAZD)(FG)(4FTX4FT-4FTX	EA	3

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
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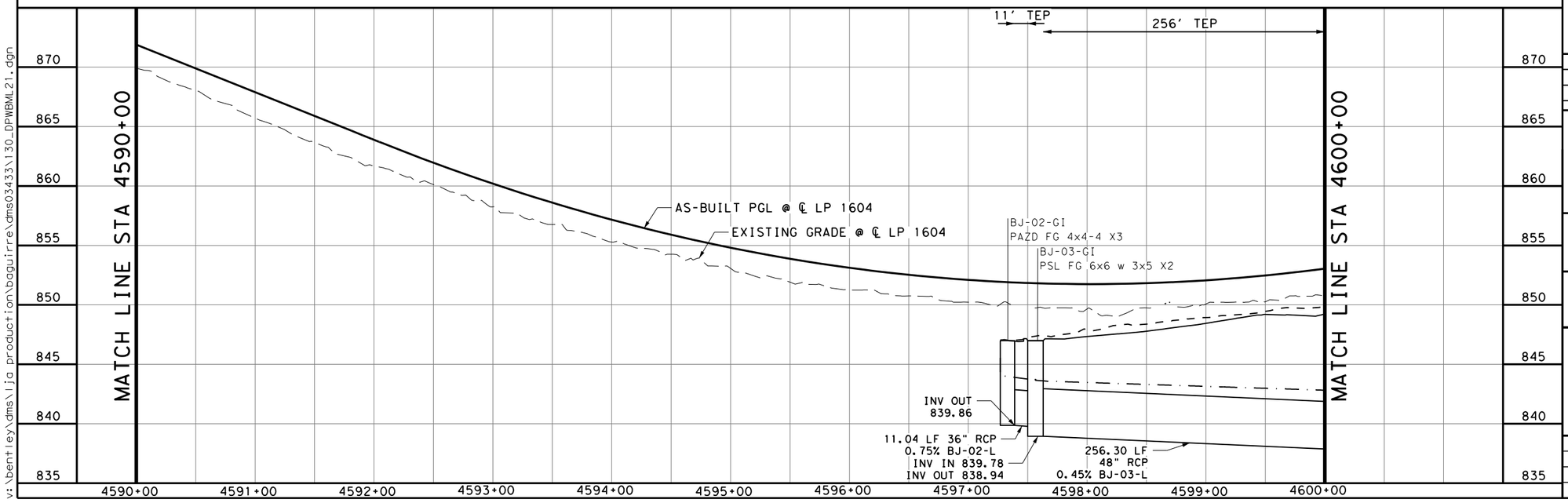

STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

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1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

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SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

WESTBOUND DRAINAGE PLAN AND PROFILE

STA 4590+00 TO STA 4600+00

SHEET 21 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1632

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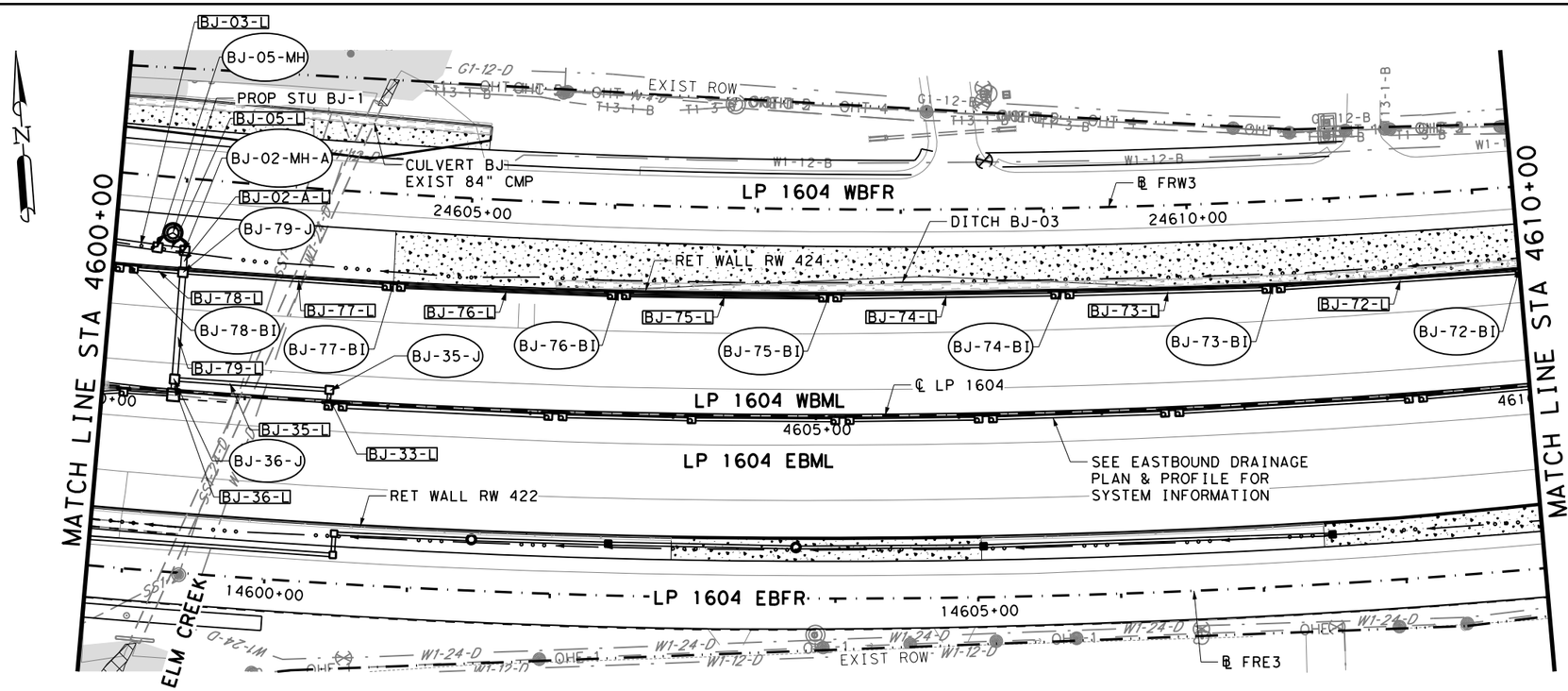

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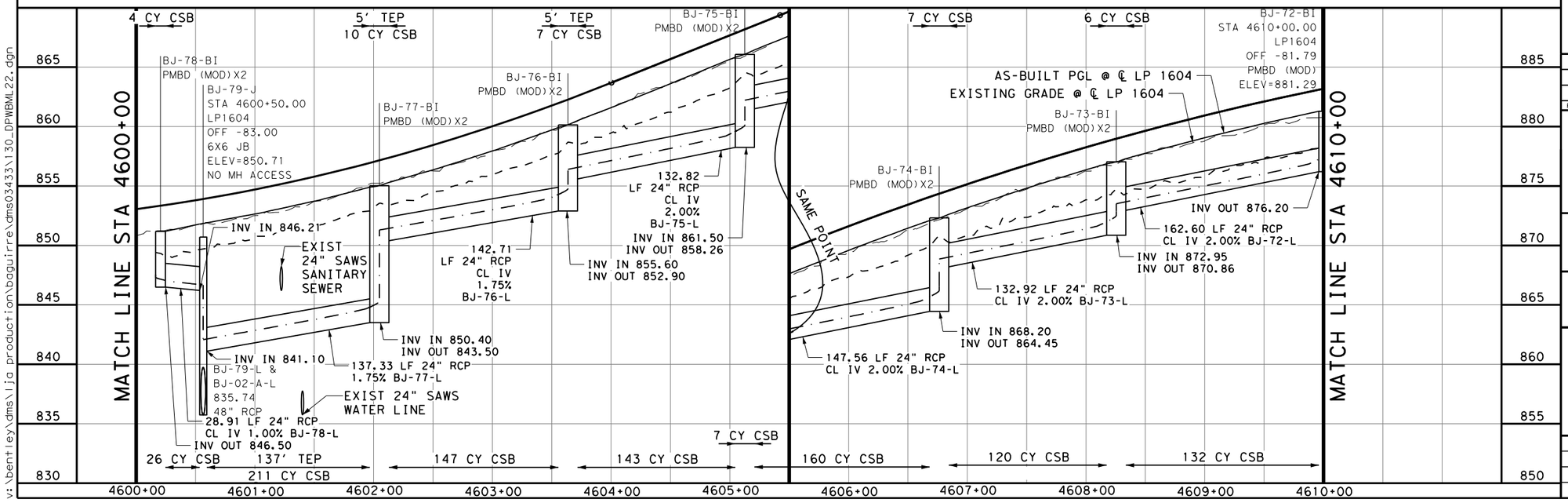

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12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	11
0400-6005	CEM STABIL BKFL	CY	1207
0402-6001	TRENCH EXCAVATION PROTECTION	LF	275
0460-6008	CMP (GAL STL 60 IN)	LF	8
0464-6005	RC PIPE (CL III) (24 IN)	LF	171
0464-6007	RC PIPE (CL III) (30 IN)	LF	112
0464-6010	RC PIPE (CL III) (48 IN)	LF	26
0464-6018	RC PIPE (CL IV) (24 IN)	LF	744
0465-6009	JCTBOX(COMPL) (PJB) (5FTX5FT)	EA	2
0465-6011	JCTBOX(COMPL) (PJB) (6FTX6FT)	EA	1
0465-6076	INLET (COMPL) (PSL) (RC) (6FTX6FT)	EA	2
0465-AAAA	INLET (COMPL) (PMBD) (MOD)	EA	13
0476-6034	JACK BOR OR TUN PIPE(48 IN)(RC)(CL I	LF	69

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- xx-xx-xx NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS · LUKE REED · 101242 · LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

WESTBOUND DRAINAGE

STA 4600+00 TO STA 4610+00

SHEET 22 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1633

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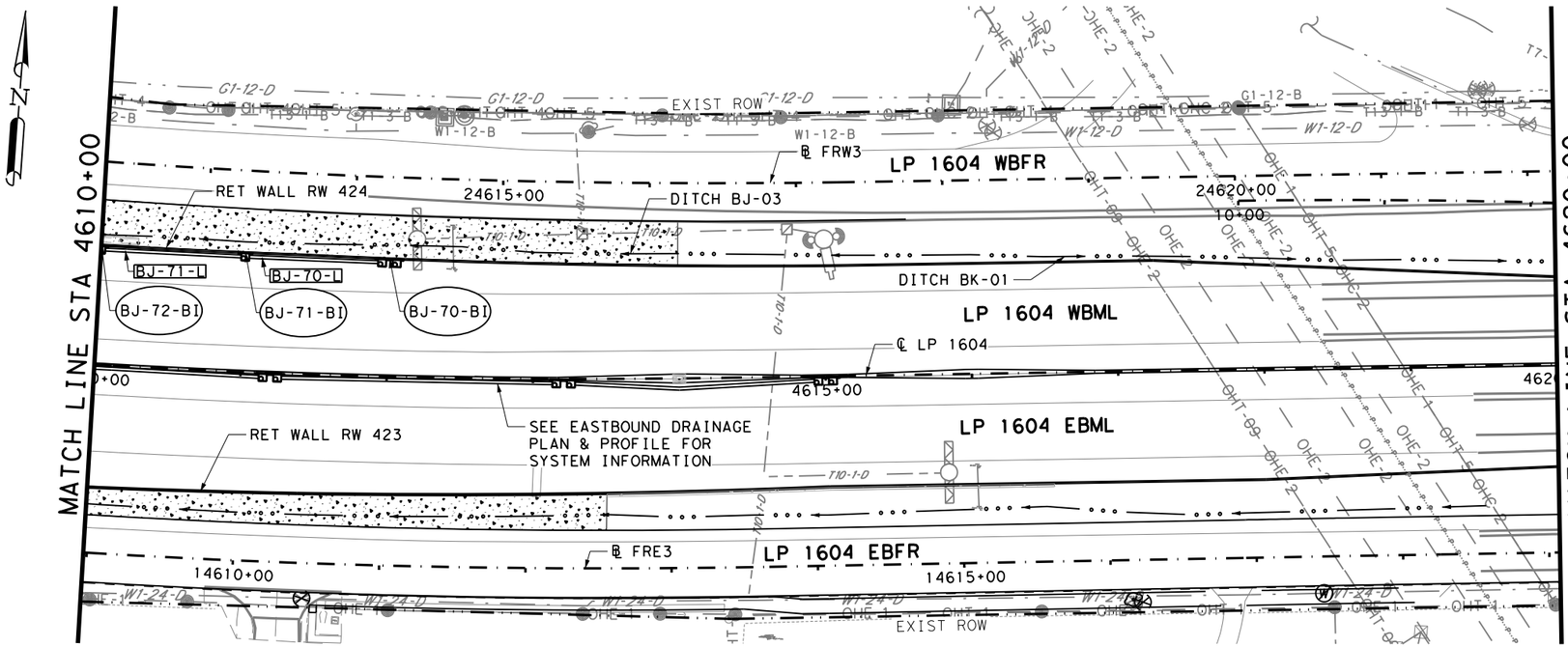

NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.

NOTES:
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
8. SEE MISC. DRN DETAILS FOR CONC & STONE RIPRAP, & RW(RI) INLET INFO.
9. LOCATION/ELEVATION OF EXIST INLETS/PIPES ARE BASED OFF SURVEY & AS-BUILT DATA. CONTRACTOR TO VERIFY & LOCATE PRIOR TO CONSTRUCTION.
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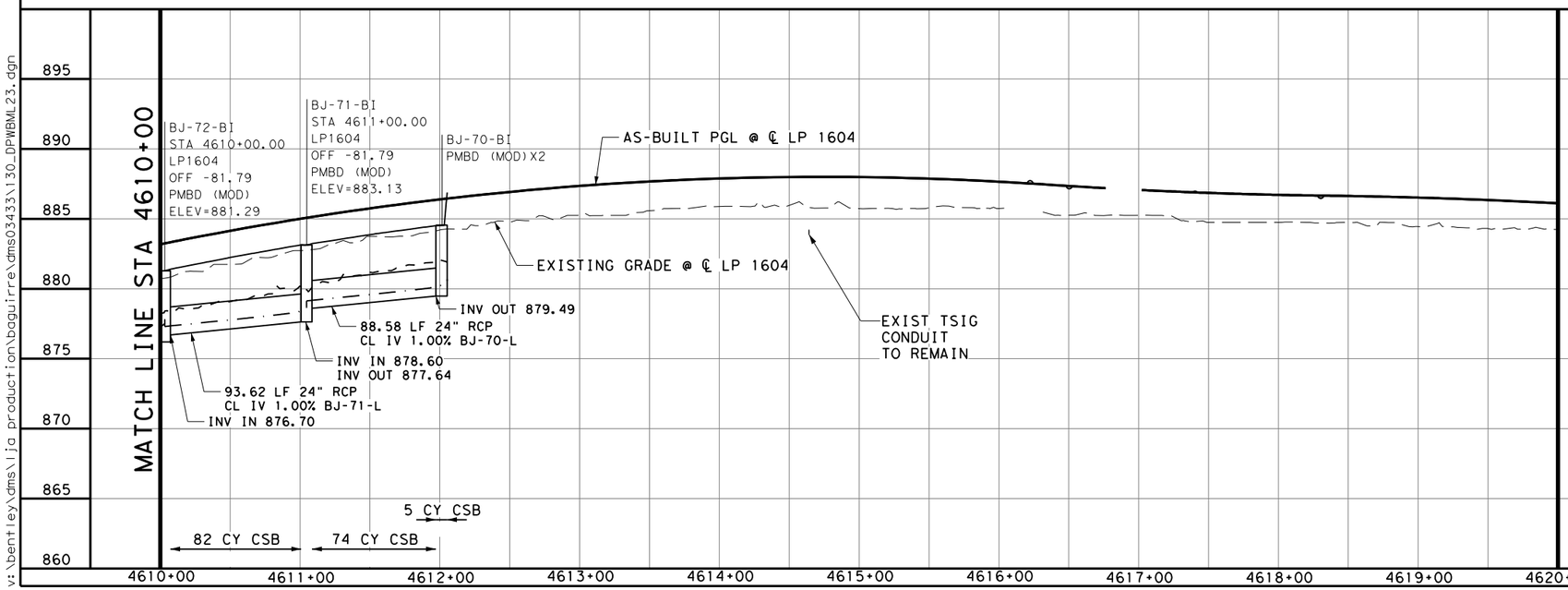
12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY
0360-6005	CONC PVMT (CONT REINF - CRCP) (11")	SY	2
0400-6005	CEM STABIL BKFL	CY	161
0464-6018	RC PIPE (CL IV)(24 IN)	LF	187
0465-AAAA	INLET (COMPL)(PMBD)(MOD)	EA	4

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID



STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'

SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4610+00 TO 4620+00

SHEET 23 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1634

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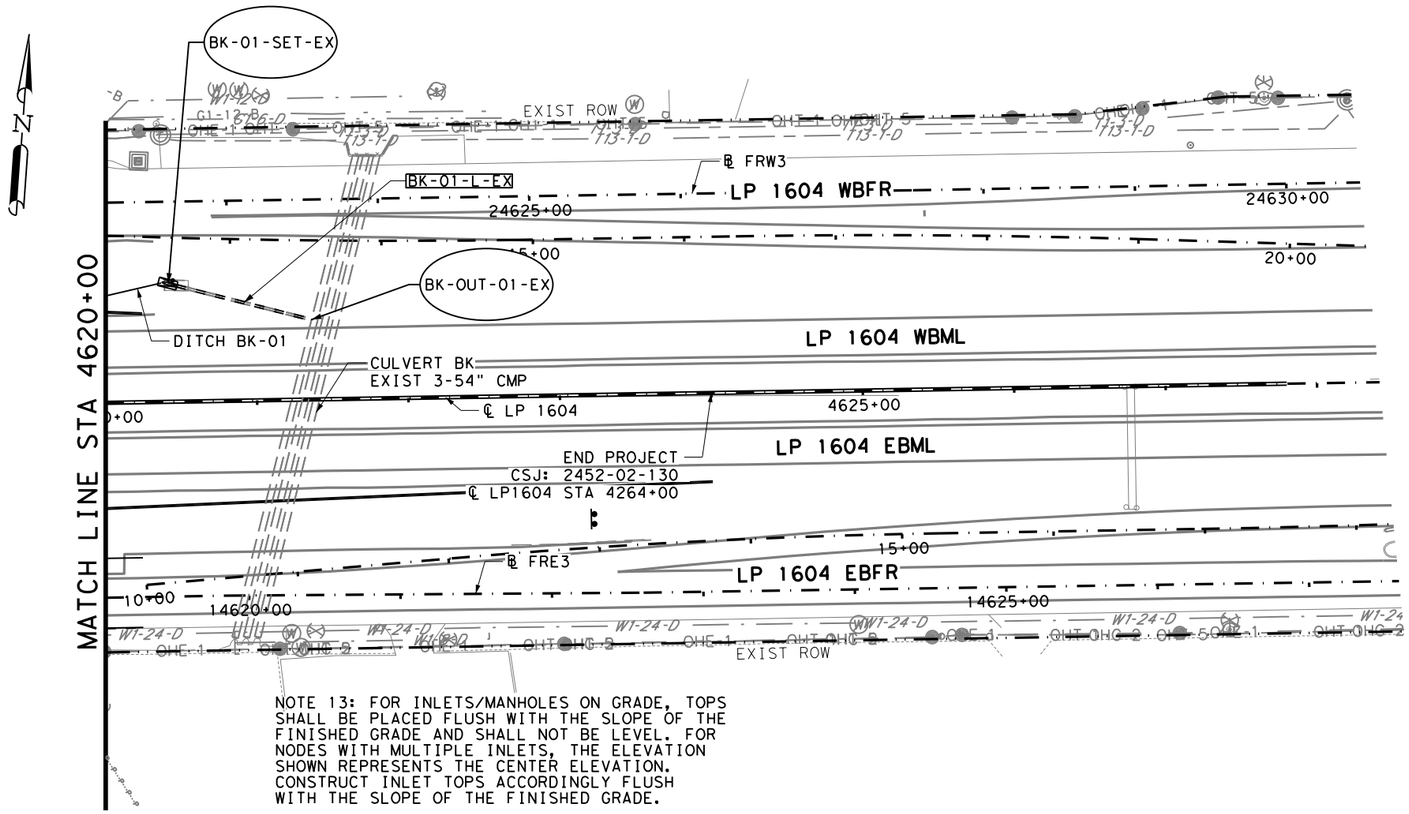
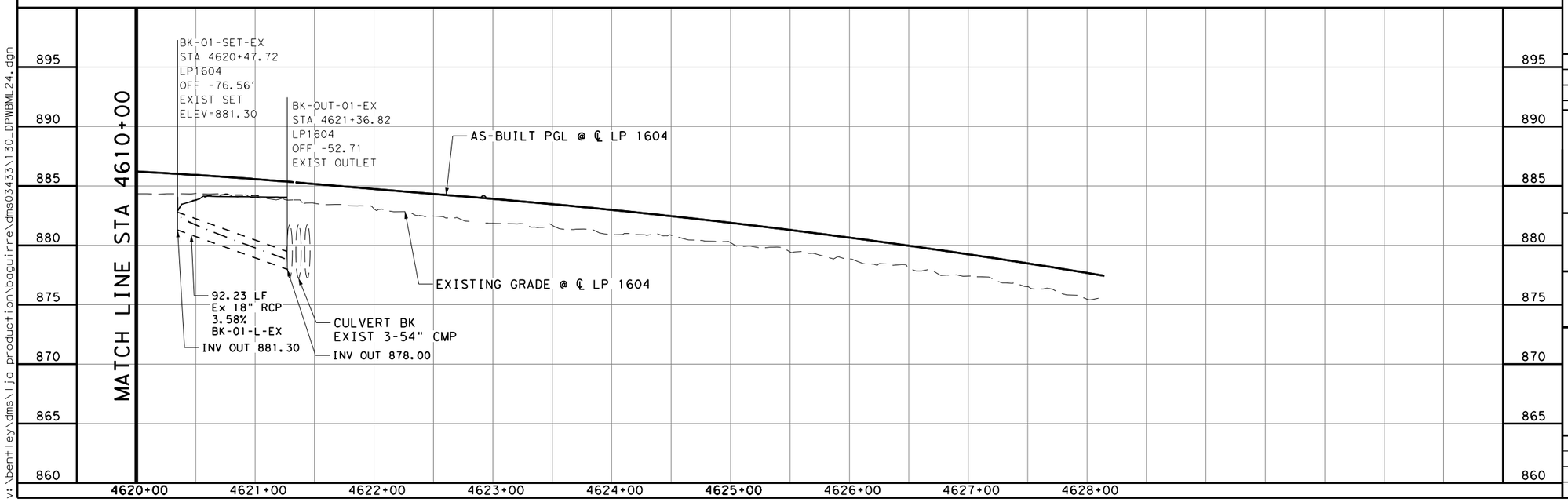


NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

NOTE 14: SEE HYDRAULIC DATA SHEETS FOR LEFT AND RIGHT STATION, OFFSET, AND ELEVATION INFORMATION FOR PMBD(MOD)X2 INLETS AND OTHER MULTIPLE INLETS.



NOTES:
1. SEE HYDRAULIC DATA GEN INF SHTS FOR CONTROL POINTS OF ALL DRN STRUCTURES.
2. SEE DITCH DATA SHEETS & CROSS SECTIONS FOR MORE INFO.
3. ALL REINFORCED CONC PIPES ARE CL III UNLESS OTHERWISE NOTED.
4. SEE DRN PROFILE SHTS FOR INFO.
5. LOCATION/ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY & LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
6. SEE WATER QUALITY DETAILS FOR BMP INFO & QUANTITIES.
7. SEE REMOVAL PLAN SHTS FOR DRN REMOVAL DETAILS.
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12. INLETS & MANHOLES TO BE GROUTED TO PROVIDE POSITIVE DRAINAGE. SUBSIDIARY TO INLET & MANHOLE ITEMS.

QUANTITY SUMMARY CSJ 2452-03-113

ITEM	DESCRIPTION	UNIT	QTY

LEGEND

- EXISTING PLANIMETRICS
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (xx-xx-xx) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

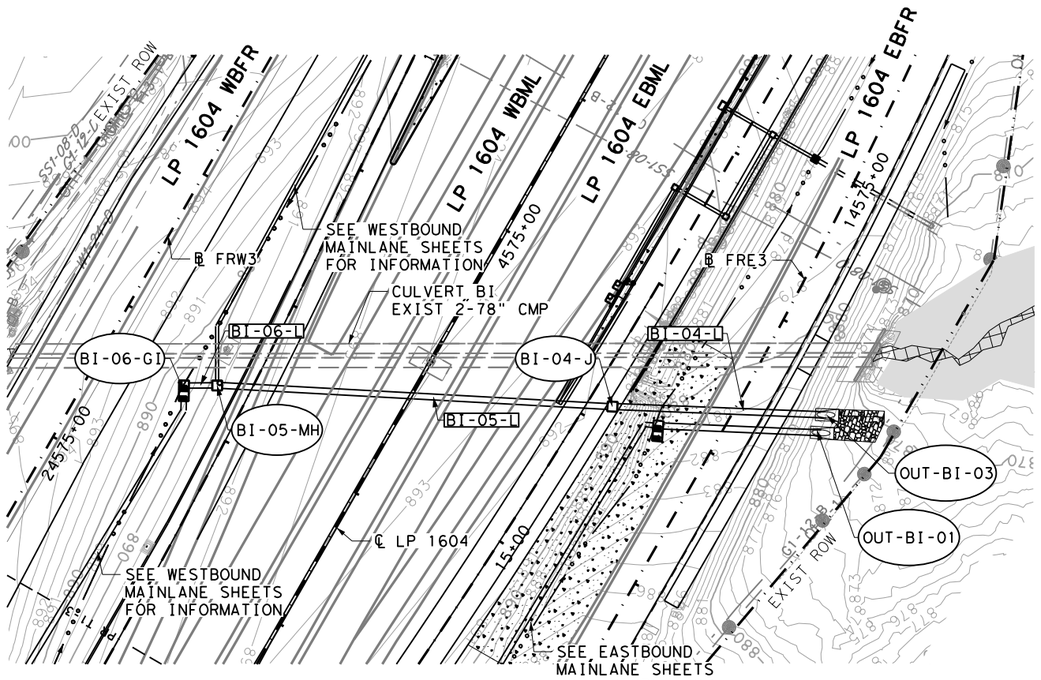
LJA Engineering, Inc.
FRN-F-1386

Texas Department of Transportation
©2023

LP 1604
WESTBOUND DRAINAGE PLAN AND PROFILE
STA 4620+00 TO END PROJECT

SHEET 24 OF 24

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1635



NOTE 13: FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WITH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

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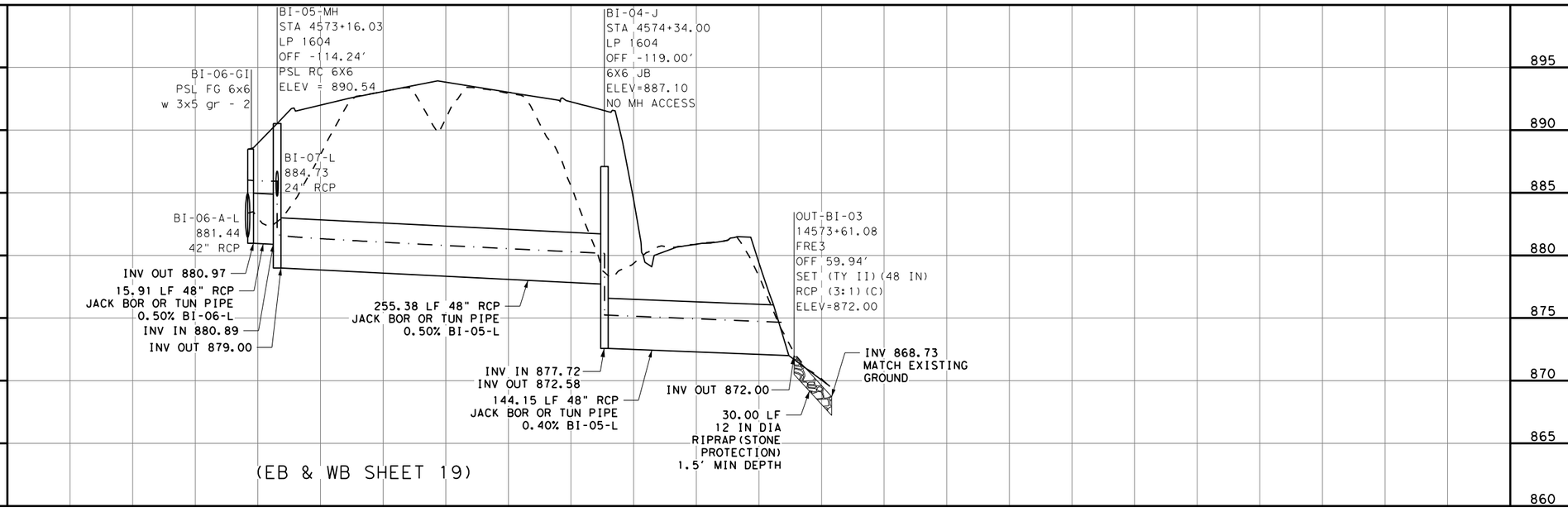

(EB & WB SHEET 19)

NOTES:
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LEGEND

- 870 — PROP 5' CONTOUR
- 867 — PROP 1' CONTOUR
- EXISTING UTILITY
- EXIST. DRAINAGE TO REMOVE
- EXIST. DRAINAGE TO REMAIN
- EXISTING DITCH FLOWLINE
- PROPOSED DITCH FLOWLINE
- PROPOSED DRAINAGE
- 10-YR HGL
- EXIST GROUND @ PIPE CL
- PROP GROUND @ PIPE CL
- ☆ SURVEYED ENVIRONMENTAL SENSITIVE FEATURE
- 100 YR FLOODPLAIN
- (XX-XX-XX) NODE NAMING CONVENTION
  - NODE TYPE
  - NODE ID
  - OUTFALL ID

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

0' 25' 50' 100'
SCALE: 1"=100'- HORZ
1"=10' - VERT

REV. NO.	DATE	DESCRIPTION	BY

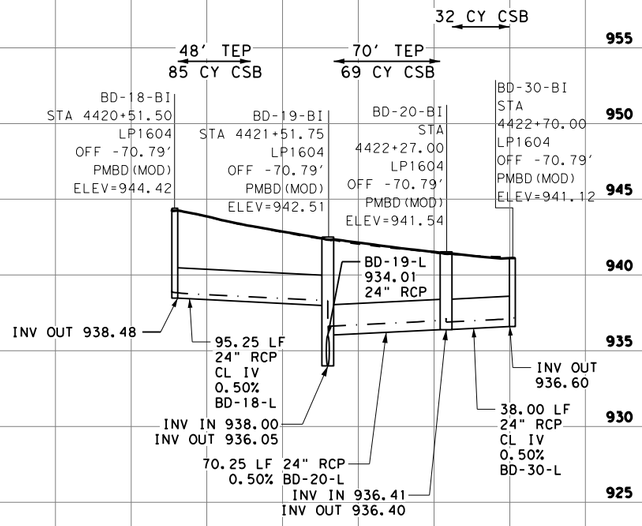
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

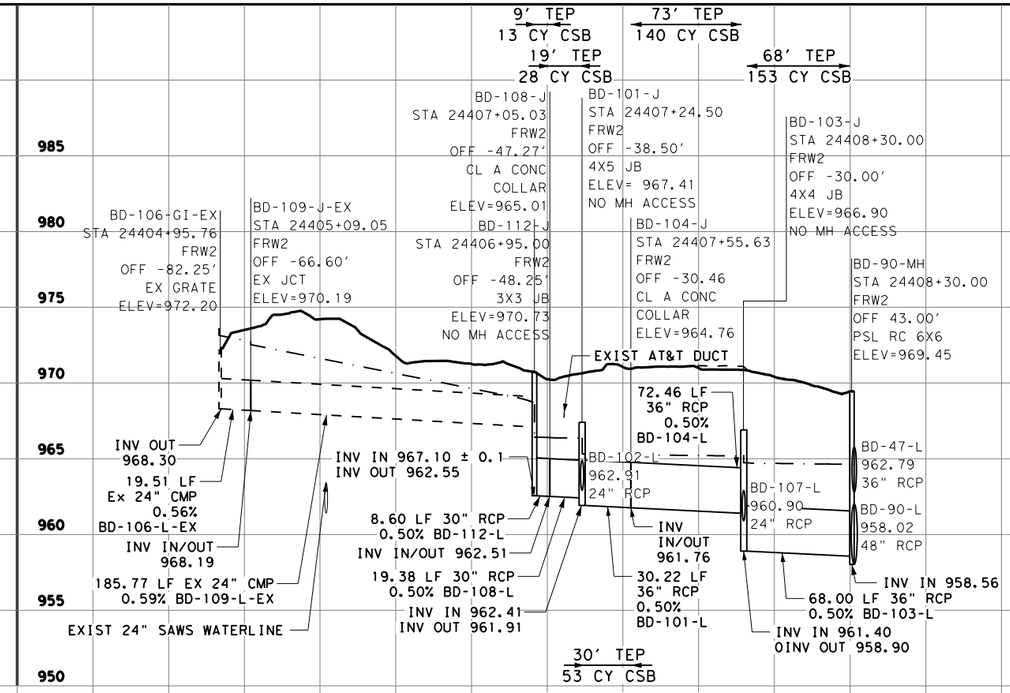
LP 1604
DRAINAGE CROSSING SYSTEM BI

SHEET 1 OF 1

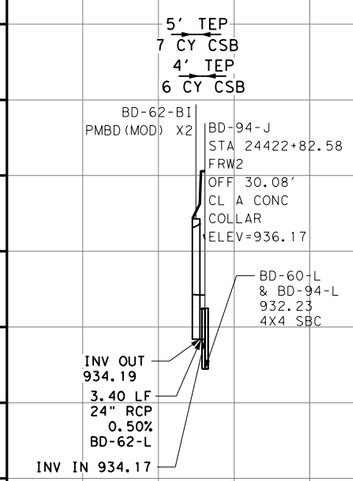
FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1636



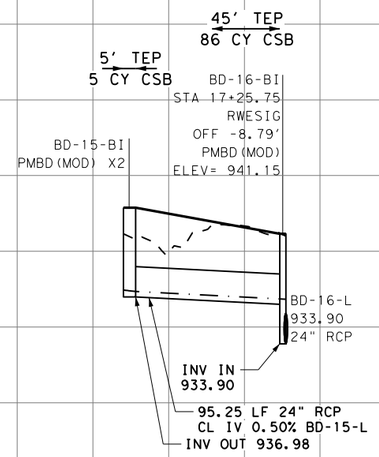
BD-18-BI
to
BD-30-BI
(WB SHEET 4)



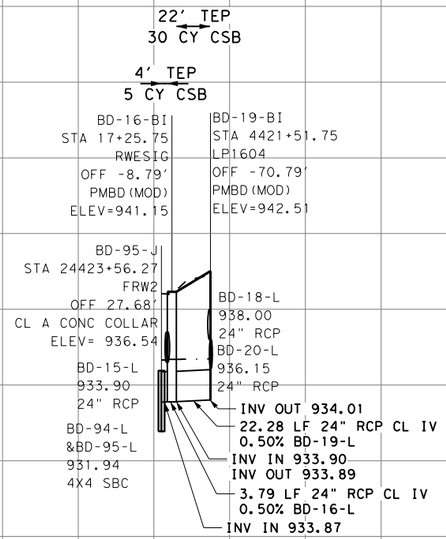
BD-106-GI-EX
to
BD-90-MH
(WB SHEET 2)



BD-62-BI
to
BD-94-J
(WB SHEET 4)



BD-15-BI
to
BD-16-BI
(WB SHEET 4)



BD-95-J
to
BD-19-BI
(WB SHEET 4)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

NOTES:
1. ALL REINFORCED CONCRETE PIPES ARE TO BE CLASS III UNLESS OTHERWISE NOTED.
2. SEE STORM SEWER HYDRAULIC DATA SHEETS FOR ADDITIONAL INFORMATION.
3. CI - CURB INLET
   BI - BARRIER INLET
   RW - RETAINING WALL INLET
   GI - GRATE INLET
   JB - JUNCTION BOX
   MH - MANHOLE
   J - JUNCTION
   EX - EXISTING STRUCTURE
4. THE LOCATION AND ELEVATION OF ALL UTILITIES ARE APPROXIMATE. CONTRACTOR TO VERIFY AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
5. FOR SYSTEMS TYING INTO CULVERTS, TAILWATER IS SET TO TOP OF CULVERT. FOR SYSTEMS OUTFALLING INTO DITCHES, TAILWATER IS SET TO CRITICAL DEPTH.
6. FOR INLETS/MANHOLES ON GRADE, TOPS SHALL BE PLACED FLUSH WTH THE SLOPE OF THE FINISHED GRADE AND SHALL NOT BE LEVEL. FOR NODES WITH MULTIPLE INLETS, THE ELEVATION SHOWN REPRESENTS THE CENTER ELEVATION. CONSTRUCT THE INLET TOPS ACCORDINGLY FLUSH WITH THE SLOPE OF THE FINISHED GRADE.

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

DRAINAGE PROFILES SYSTEM BD

SHEET 1 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1637

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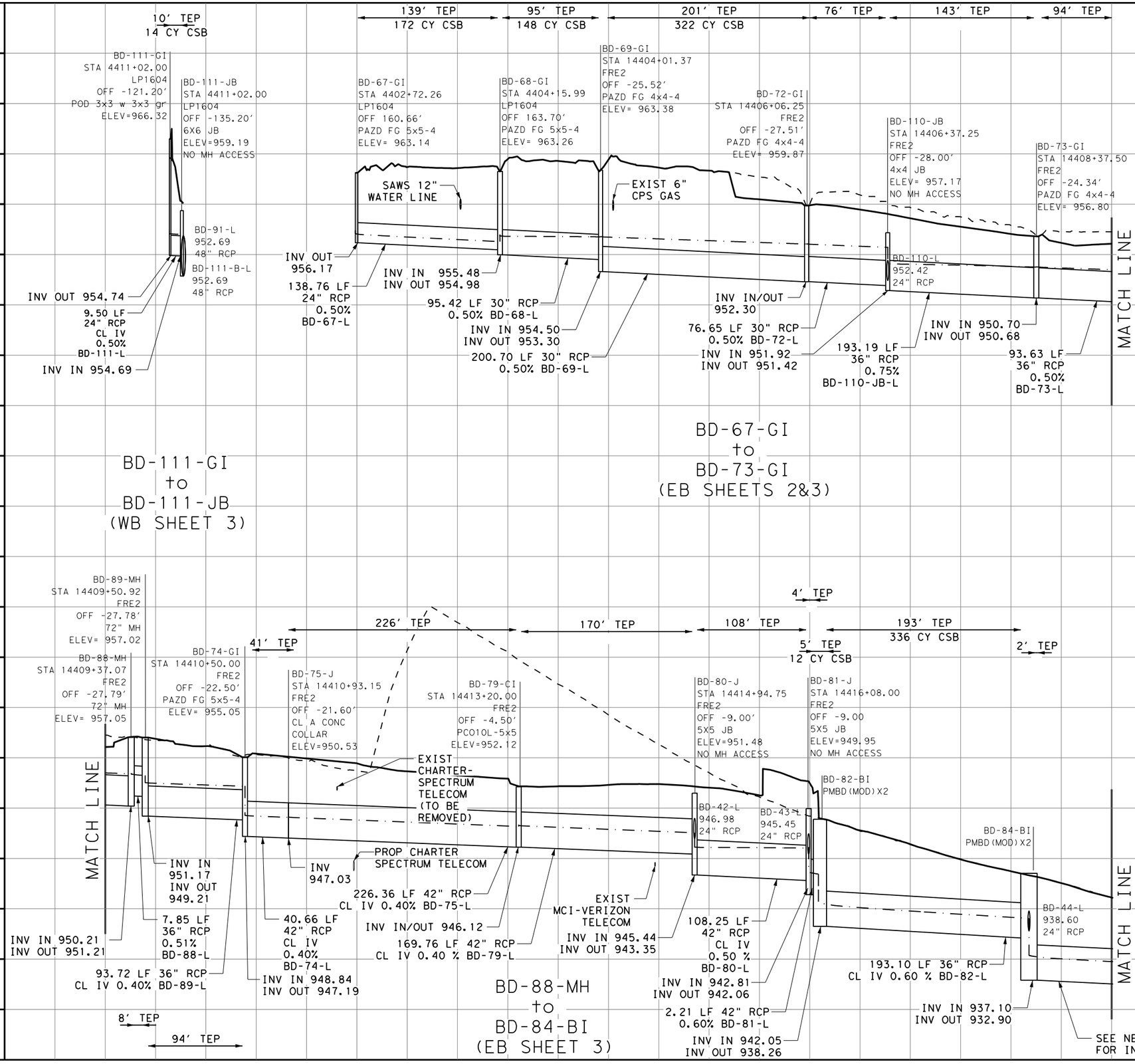

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

NOTES:

1. ALL REINFORCED CONCRETE PIPES ARE TO BE CLASS III UNLESS OTHERWISE NOTED.
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3. CI - CURB INLET
   BI - BARRIER INLET
   RW - RETAINING WALL INLET
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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES SYSTEM BD

SHEET 2 OF 21

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1638

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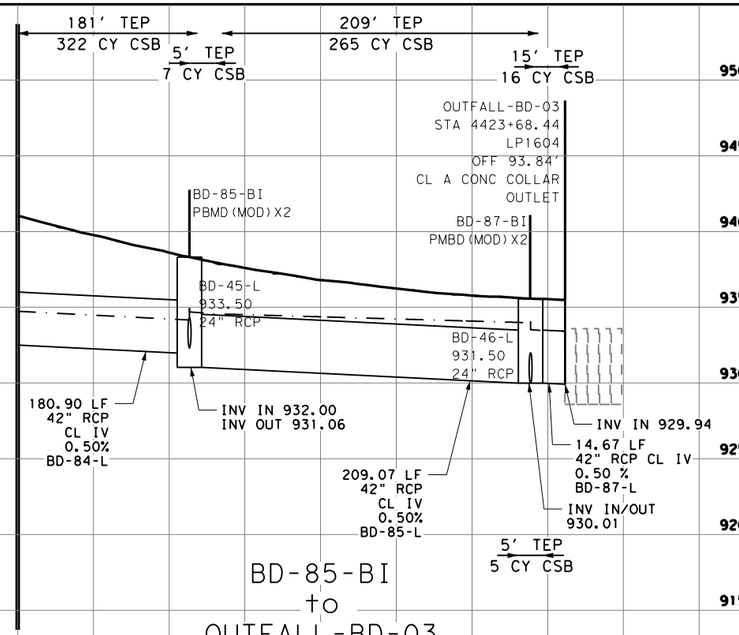
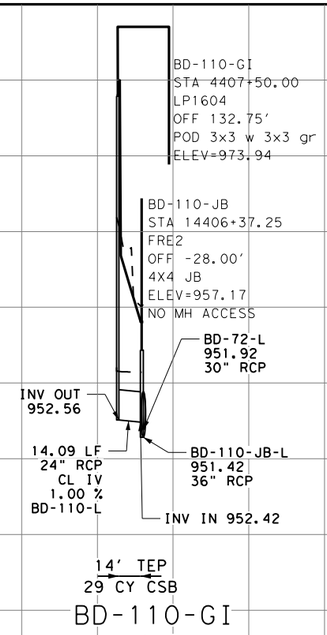
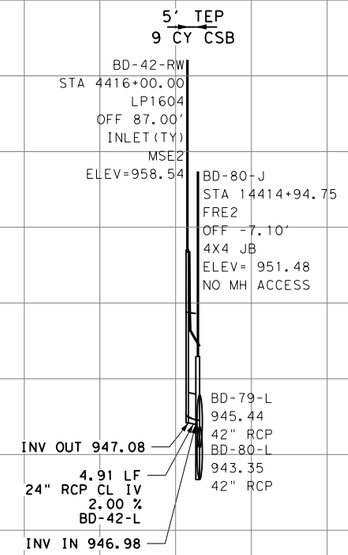


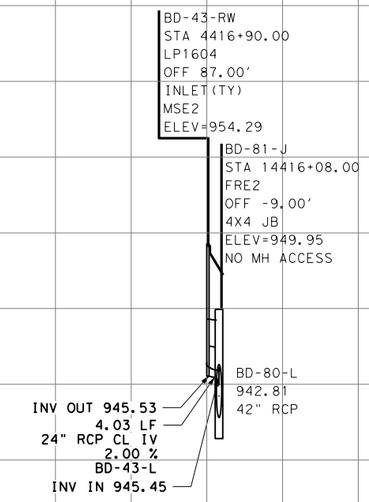
BD-85-BI
to
OUTFALL-BD-03
(EB SHEET 4)



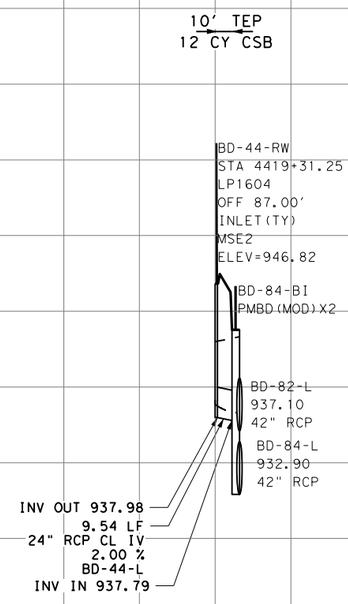
BD-110-GI
to
BD-110-JB
(EB SHEET 2)



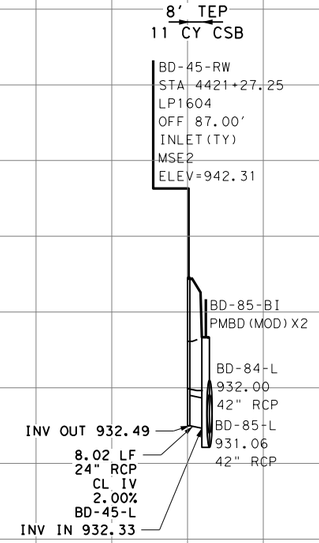
BD-42-RW
to
BD-80-J
(EB SHEET 3)



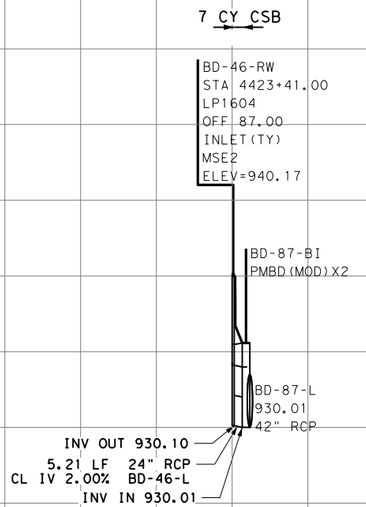
BD-43-RW
to
BD-82-CI
(EB SHEET 3)



BD-44-RW
to
BD-81-J
(EB SHEET 3)



BD-45-RW
to
BD-85-BI
(EB SHEET 4)



BD-46-RW
to
BD-87-BI
(EB SHEET 4)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

NOTES:
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2. SEE STORM SEWER HYDRAULIC DATA SHEETS FOR ADDITIONAL INFORMATION.
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   BI - BARRIER INLET
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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

DRAINAGE PROFILES
SYSTEM BD

SHEET 3 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1639

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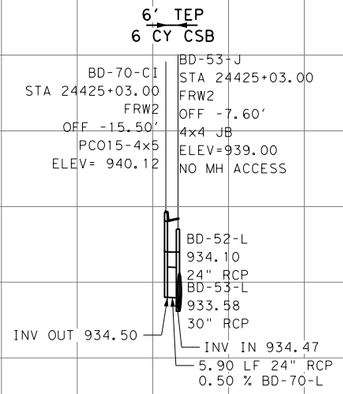
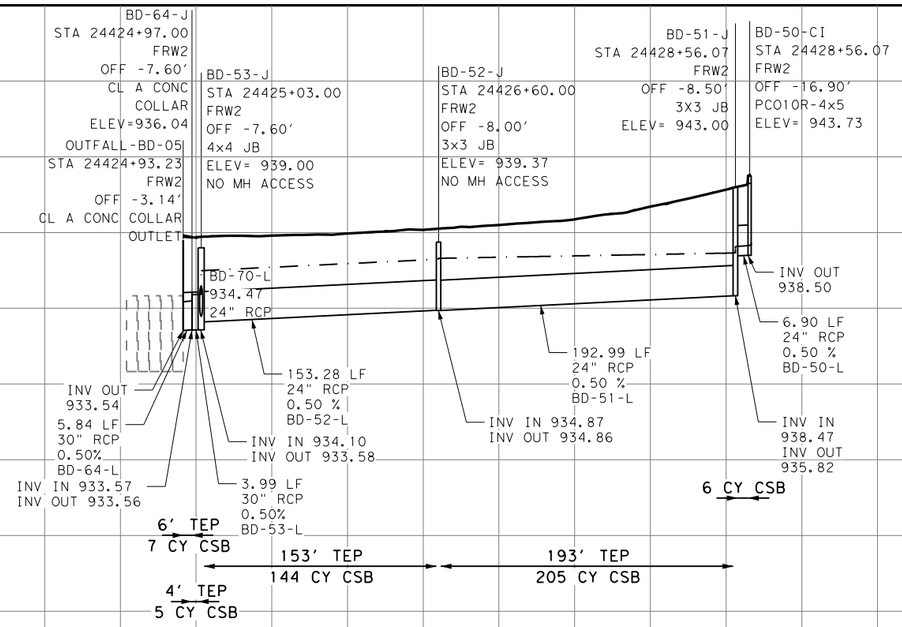
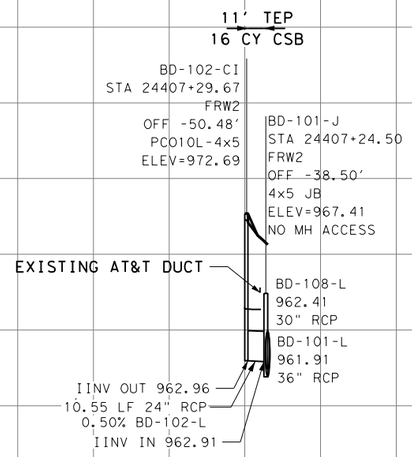


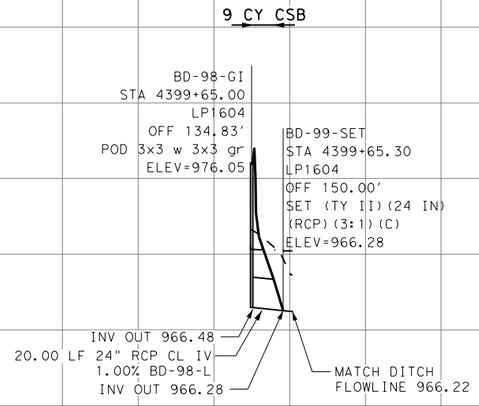
BD-70-CI
to
BD-53-J
(WB SHEET 4)



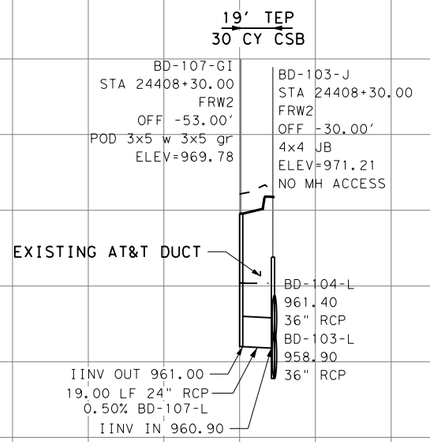
OUTFALL-BD-05
to
BD-50-CI
(WB SHEET 4)



BD-102-CI
to
BD-101-J
(WB SHEET 2)



BD-98-GI
to
BD-99-SET
(EB SHEET 1)



BD-107-GI
to
BD-103-J
(WB SHEET 2)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

NOTES:

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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

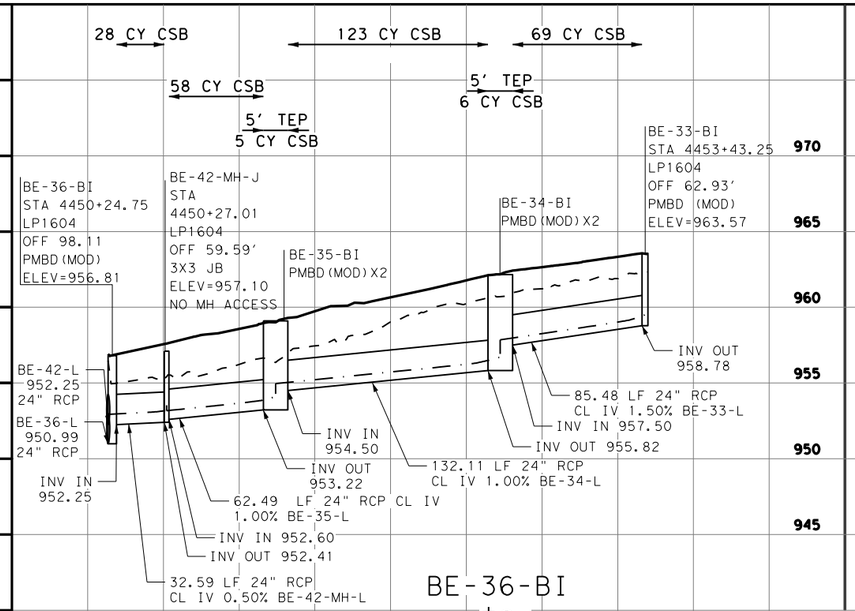
LJA Engineering, Inc.
FRN-F-1386

LP 1604

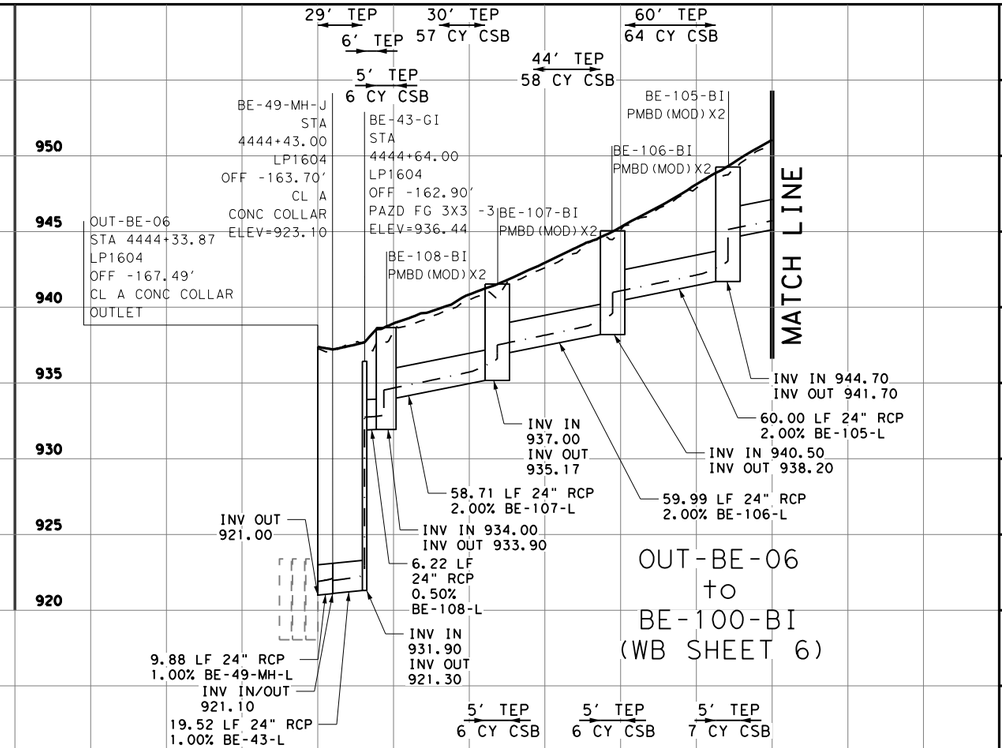
DRAINAGE PROFILES
SYSTEMS BD

SHEET 4 OF 21

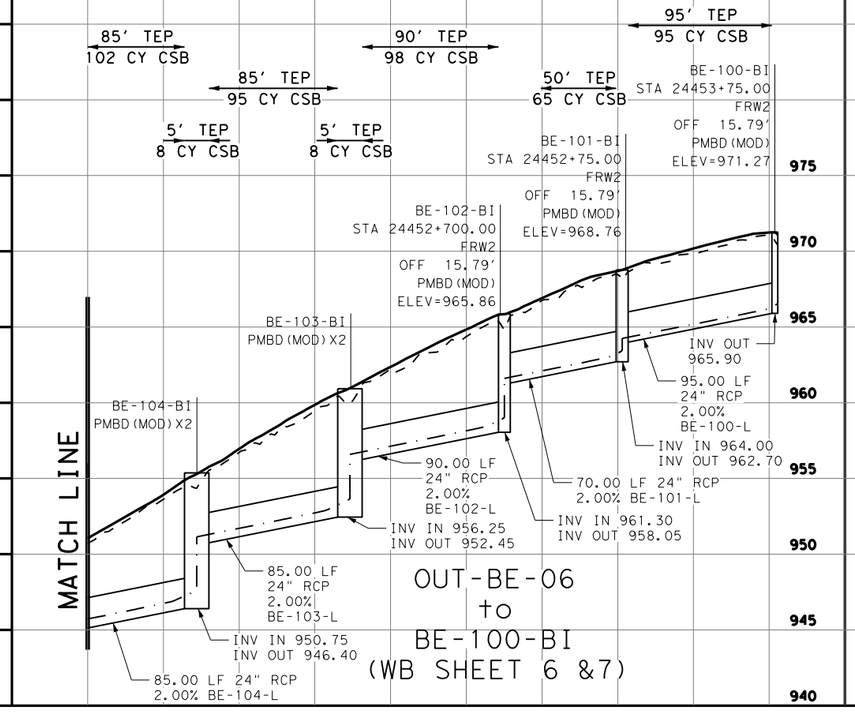
FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1640



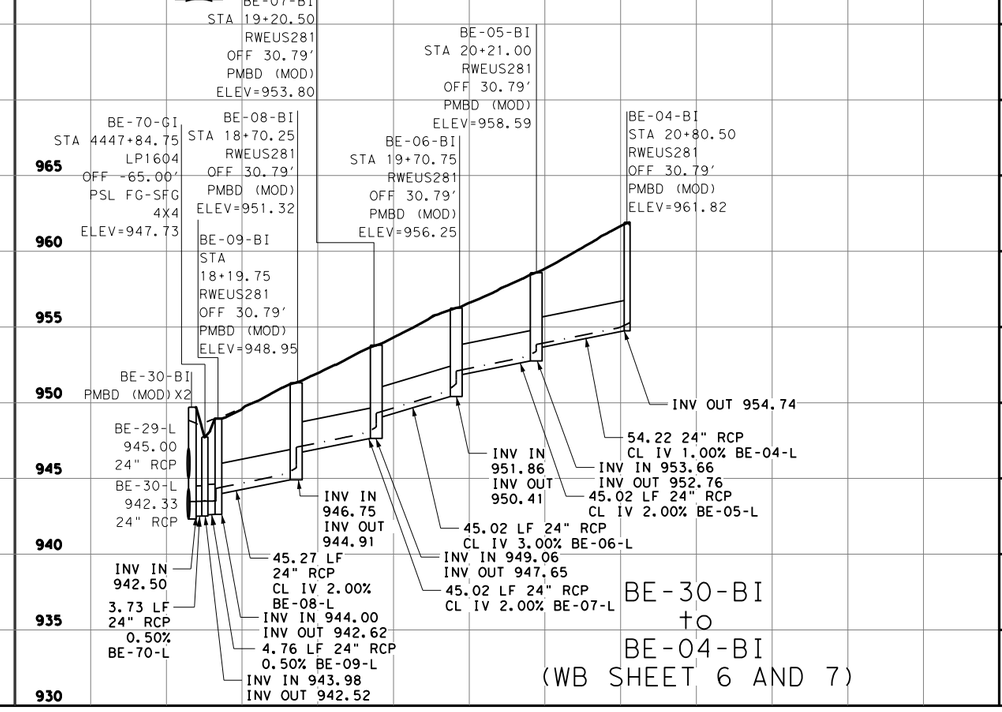
BE-36-BI to BE-33-BI (EB SHEET 7)



OUT-BE-06 to BE-100-BI (WB SHEET 6)



OUT-BE-06 to BE-100-BI (WB SHEET 6 &7)



BE-30-BI to BE-04-BI (WB SHEET 6 AND 7)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

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PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES SYSTEM BE

SHEET 5 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1641

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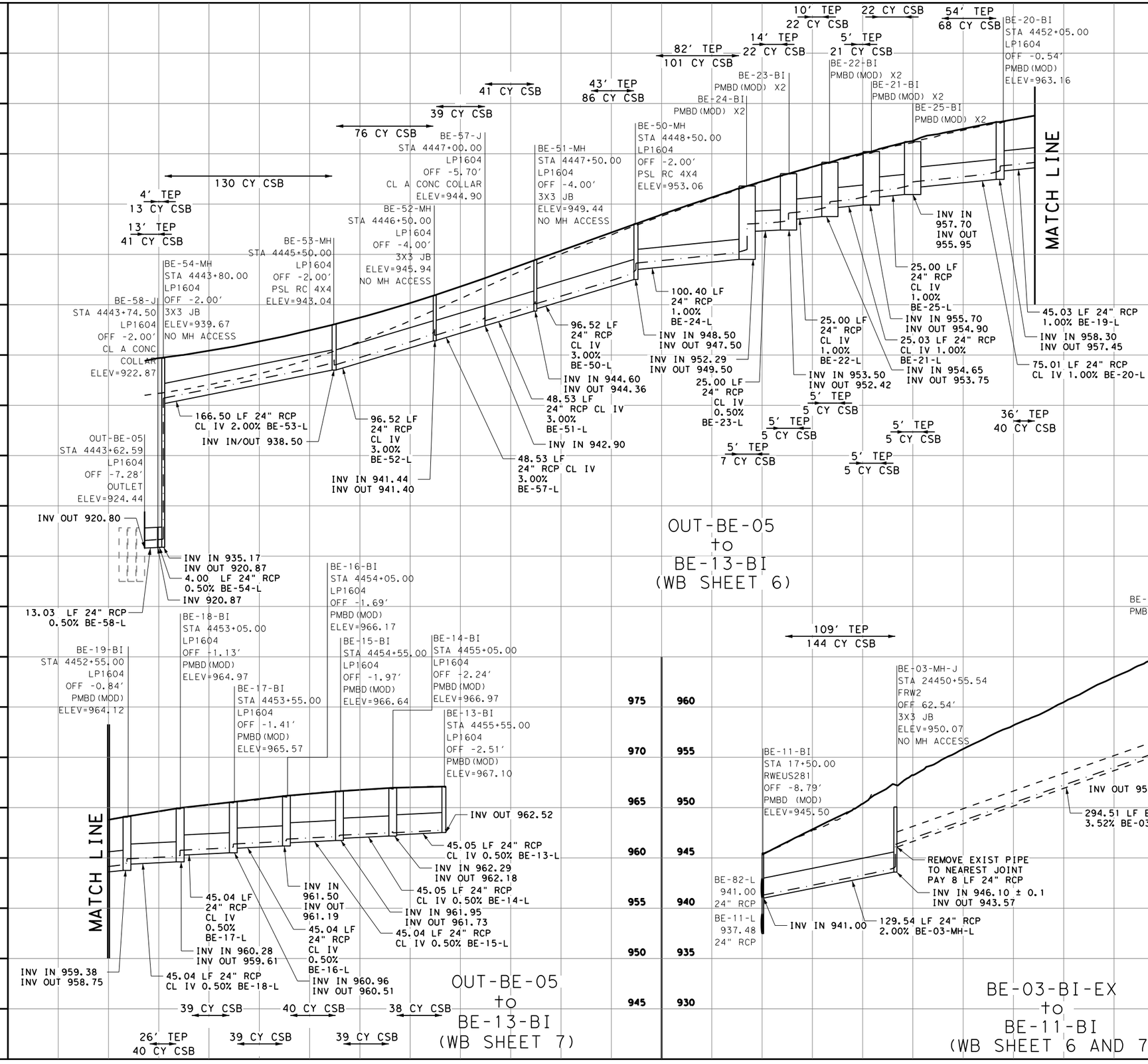

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

NOTES:

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STATE OF TEXAS
LUKE REED
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LUKE REED, P.E. — 2/27/2023 DATE

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PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

DRAINAGE PROFILES
SYSTEM BE

SHEET 6 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1642

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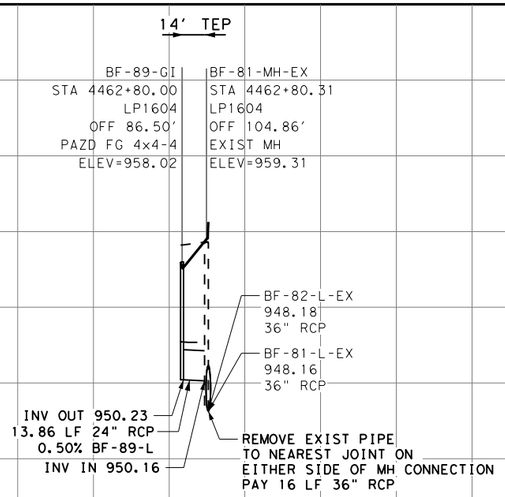
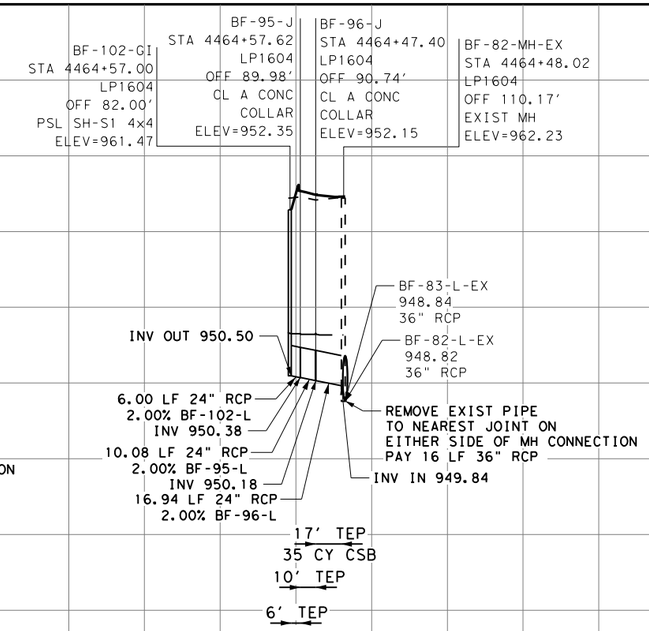
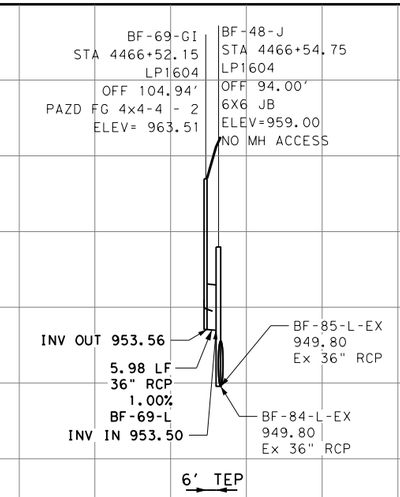


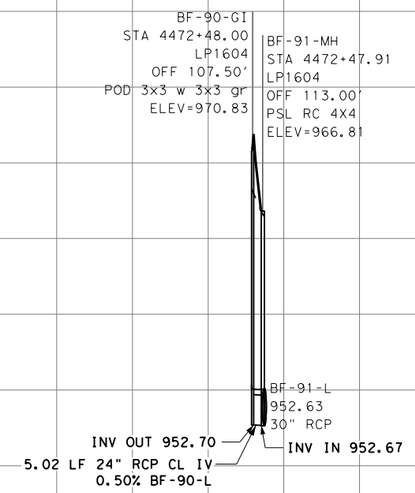
BF-89-GI
to
BF-81-MH-EX
(EB SHEET 8)



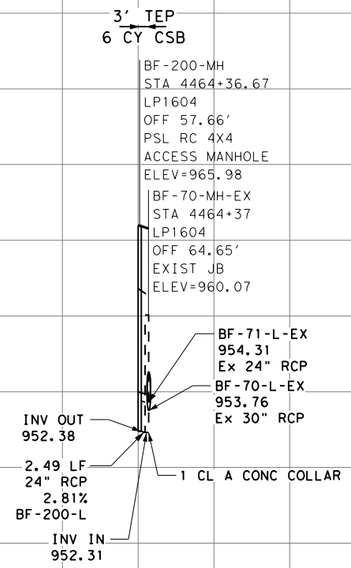
BF-102-GI
to
BF-82-MH-EX
(EB SHEET 8)



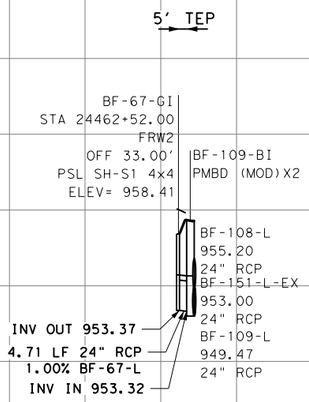
BF-69-GI
to
BF-48-J
(EB SHEET 8)



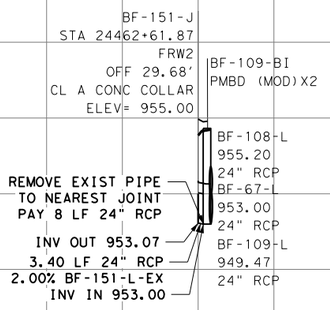
BF-90-GI
to
BF-91-MH
(EB SHEET 9)



BF-200-MH
to
BF-70-MH-EX
(EB SHEET 8)



BF-67-GI
to
BF-109-BI
(WB SHEET 8)



BF-151-J
to
BF-109-BI
(WB SHEET 8)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

NOTES:

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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

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PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES
SYSTEM BF

SHEET 7 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1643

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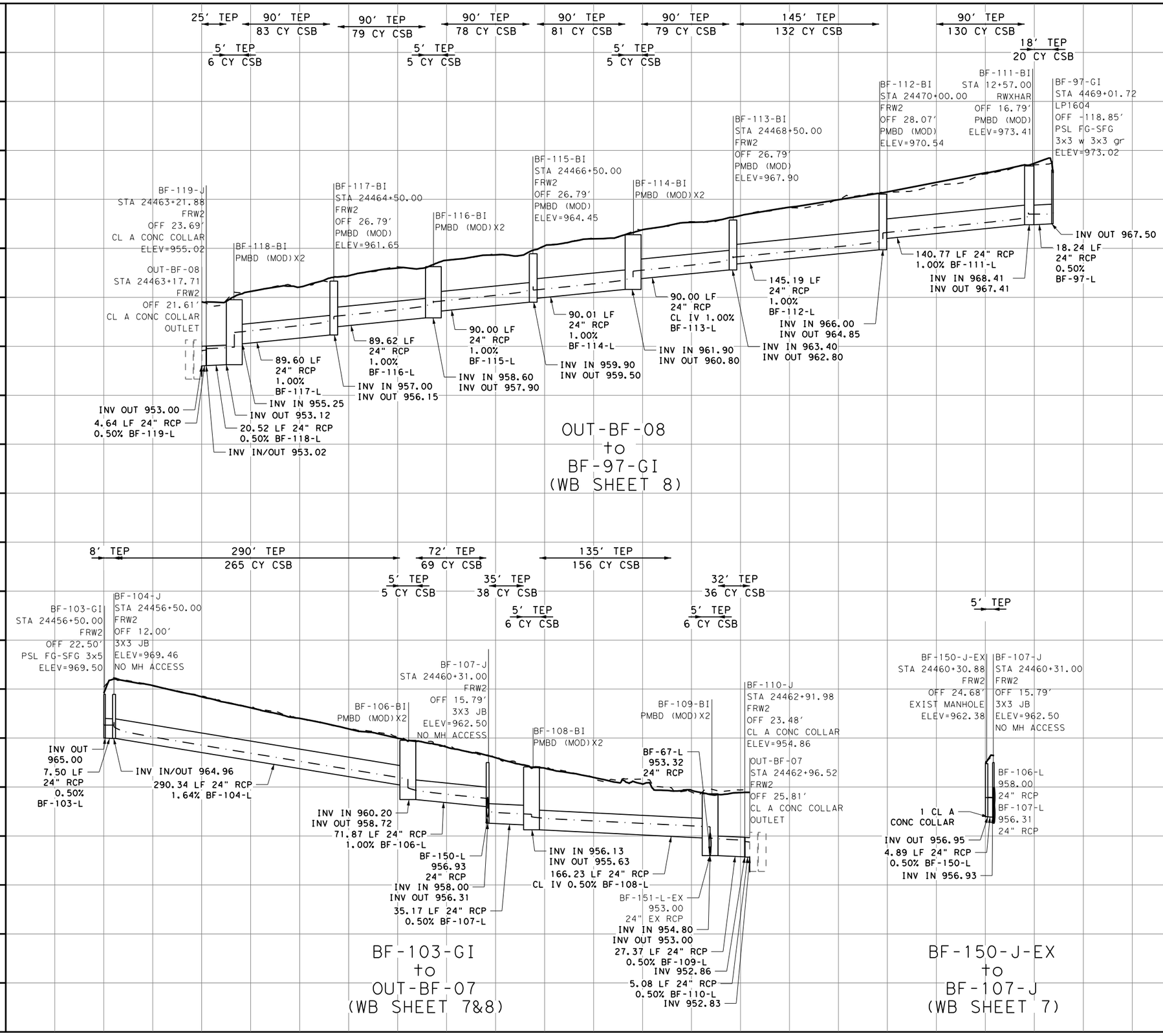

OUT-BF-08
to
BF-97-GI
(WB SHEET 8)

BF-103-GI
to
OUT-BF-07
(WB SHEET 7&8)

BF-150-J-EX
to
BF-107-J
(WB SHEET 7)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

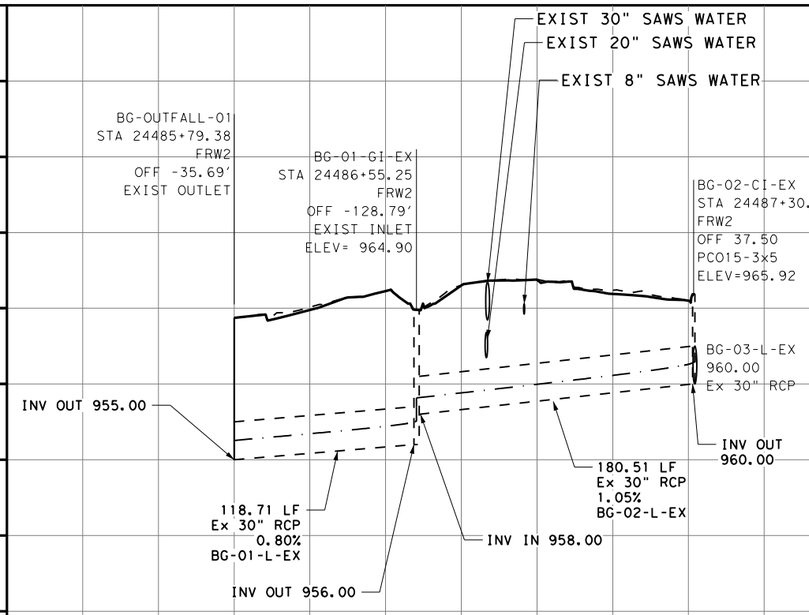
LJA Engineering, Inc.
FRN-F-1386

LP 1604

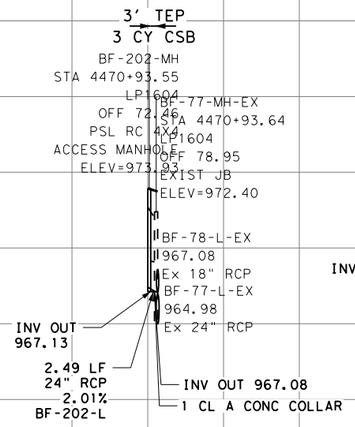
DRAINAGE PROFILES
SYSTEM BF

SHEET 8 OF 21

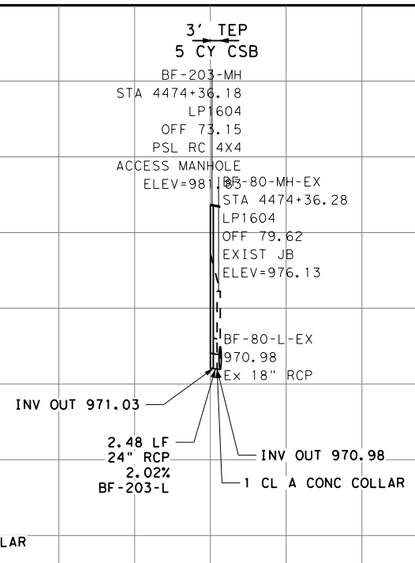
FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1644



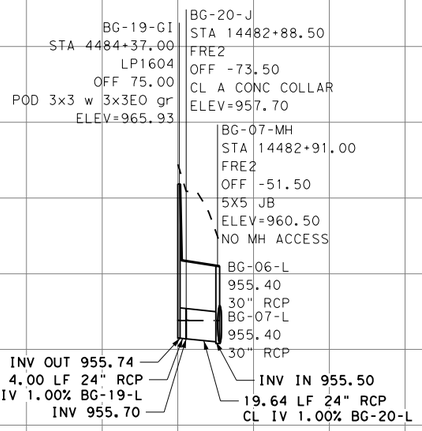
BG-02-CI-EX
to
BG-OUTFALL-01
(WB SHEET 10)



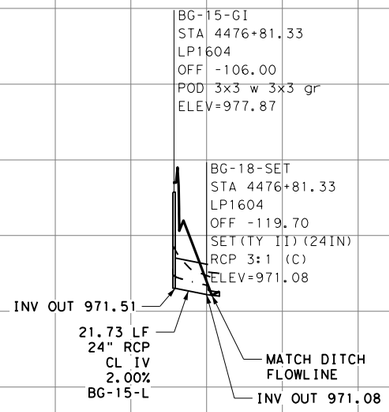
BF-202-MH
to
BF-77-MH-EX
(EB SHEET 9)



BF-203-MH
to
BF-80-MH-EX
(EB SHEET 9)



BG-19-GI
to
BG-07-MH
(EB SHEET 10)



BG-15-GI
to
BG-18-SET
(WB SHEET 9)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

NOTES:
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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

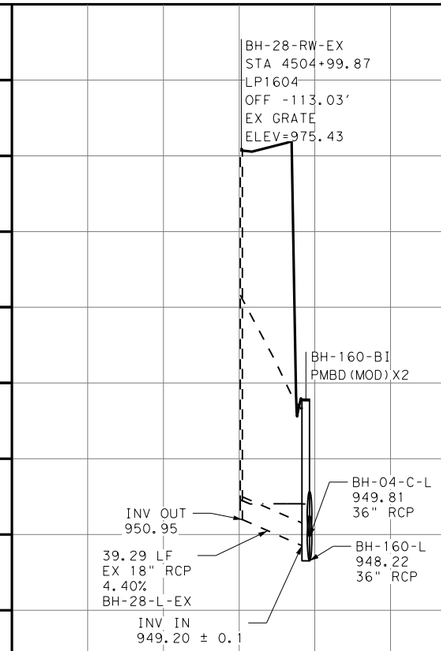
LJA Engineering, Inc.
FRN-F-1386

LP 1604

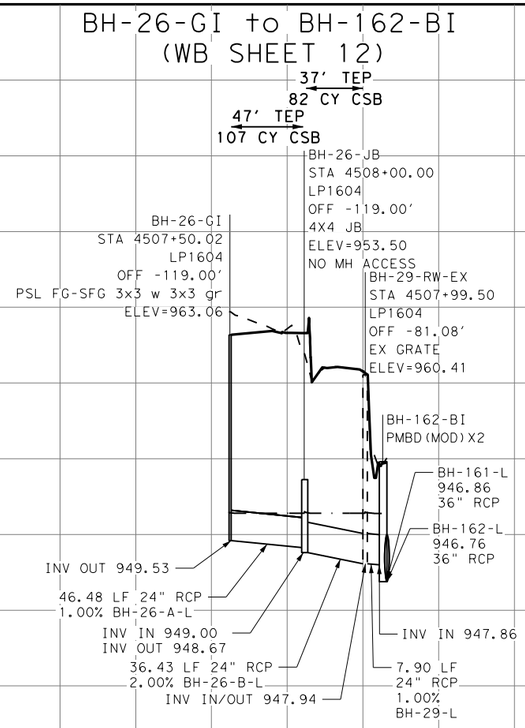
DRAINAGE PROFILES
SYSTEM BF, BG

SHEET 9 OF 21

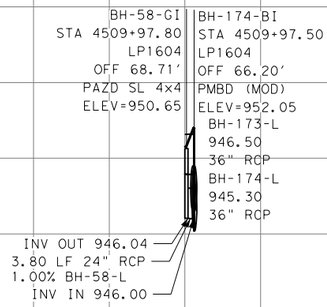
FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1645



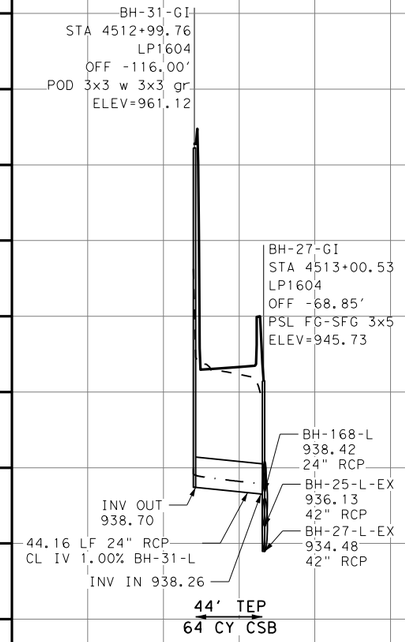
BH-28-RW-EX
to
BH-160-BI
(WB SHEET 12)



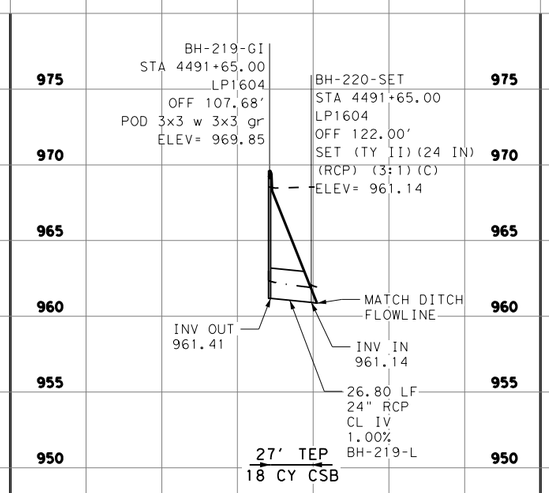
BH-26-GI to BH-162-BI
(WB SHEET 12)



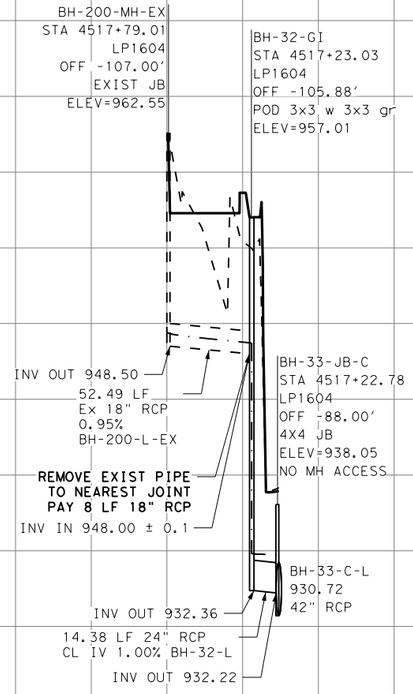
BH-58-GI
to
BH-174-BI
(EB SHEET 12)



BH-31-GI
to
BH-27-GI
(WB SHEET 13)



BH-219-GI-
to
BH-220-SET
(EB SHEET 11)



BH-200-MH-EX to BH-33-JB-B
(WB SHEET 13)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES
SYSTEM BH

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1646

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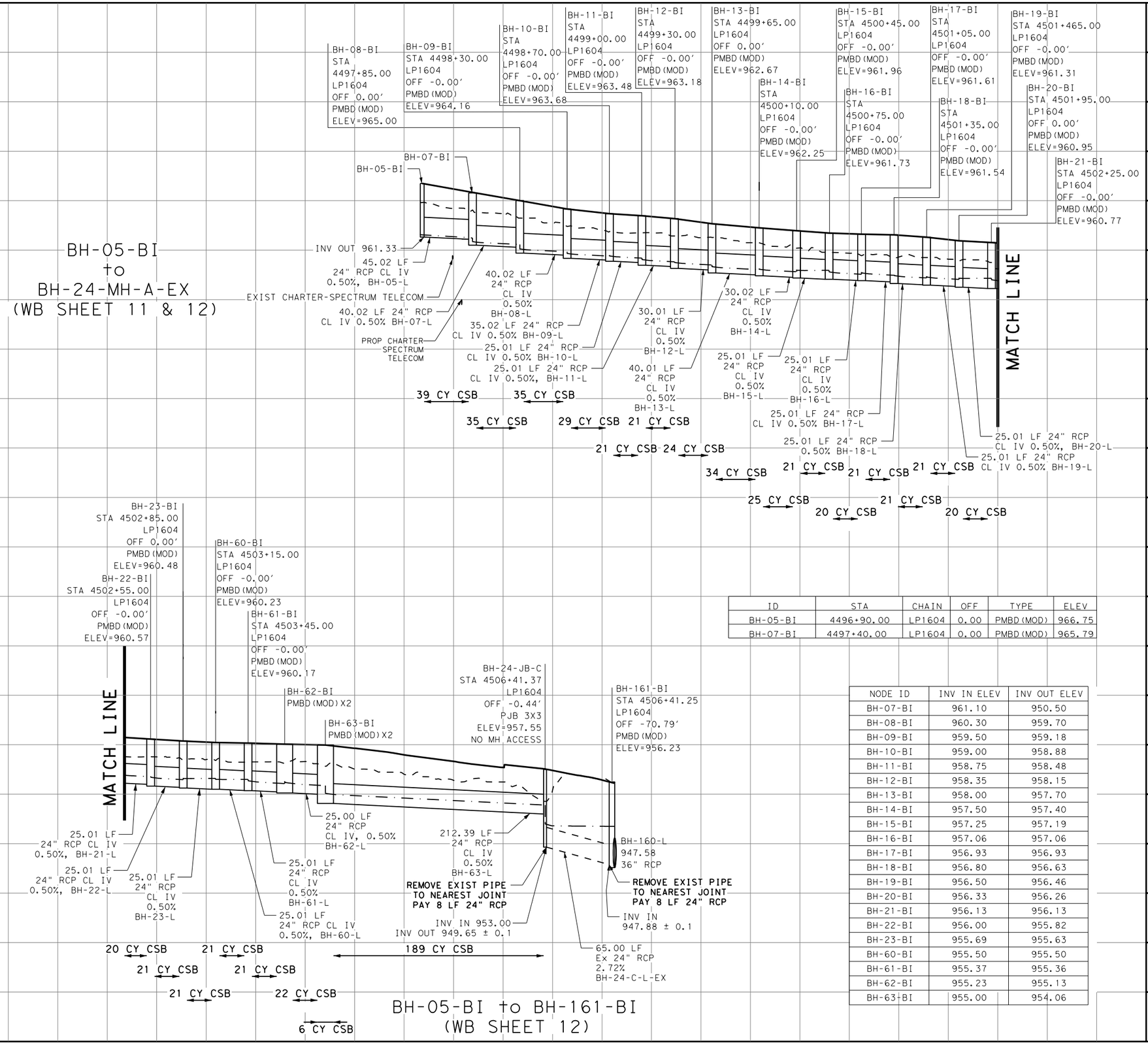

BH-05-BI to BH-161-BI
(WB SHEET 12)

ID	STA	CHAIN	OFF	TYPE	ELEV
BH-05-BI	4496+90.00	LP1604	0.00	PMBD (MOD)	966.75
BH-07-BI	4497+40.00	LP1604	0.00	PMBD (MOD)	965.79

NODE ID	INV IN ELEV	INV OUT ELEV
BH-07-BI	961.10	950.50
BH-08-BI	960.30	959.70
BH-09-BI	959.50	959.18
BH-10-BI	959.00	958.88
BH-11-BI	958.75	958.48
BH-12-BI	958.35	958.15
BH-13-BI	958.00	957.70
BH-14-BI	957.50	957.40
BH-15-BI	957.25	957.19
BH-16-BI	957.06	957.06
BH-17-BI	956.93	956.93
BH-18-BI	956.80	956.63
BH-19-BI	956.50	956.46
BH-20-BI	956.33	956.26
BH-21-BI	956.13	956.13
BH-22-BI	956.00	955.82
BH-23-BI	955.69	955.63
BH-60-BI	955.50	955.50
BH-61-BI	955.37	955.36
BH-62-BI	955.23	955.13
BH-63-BI	955.00	954.06

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

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STATE OF TEXAS
LUKE REED
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PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

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PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES
SYSTEM BH

SHEET 11 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1647

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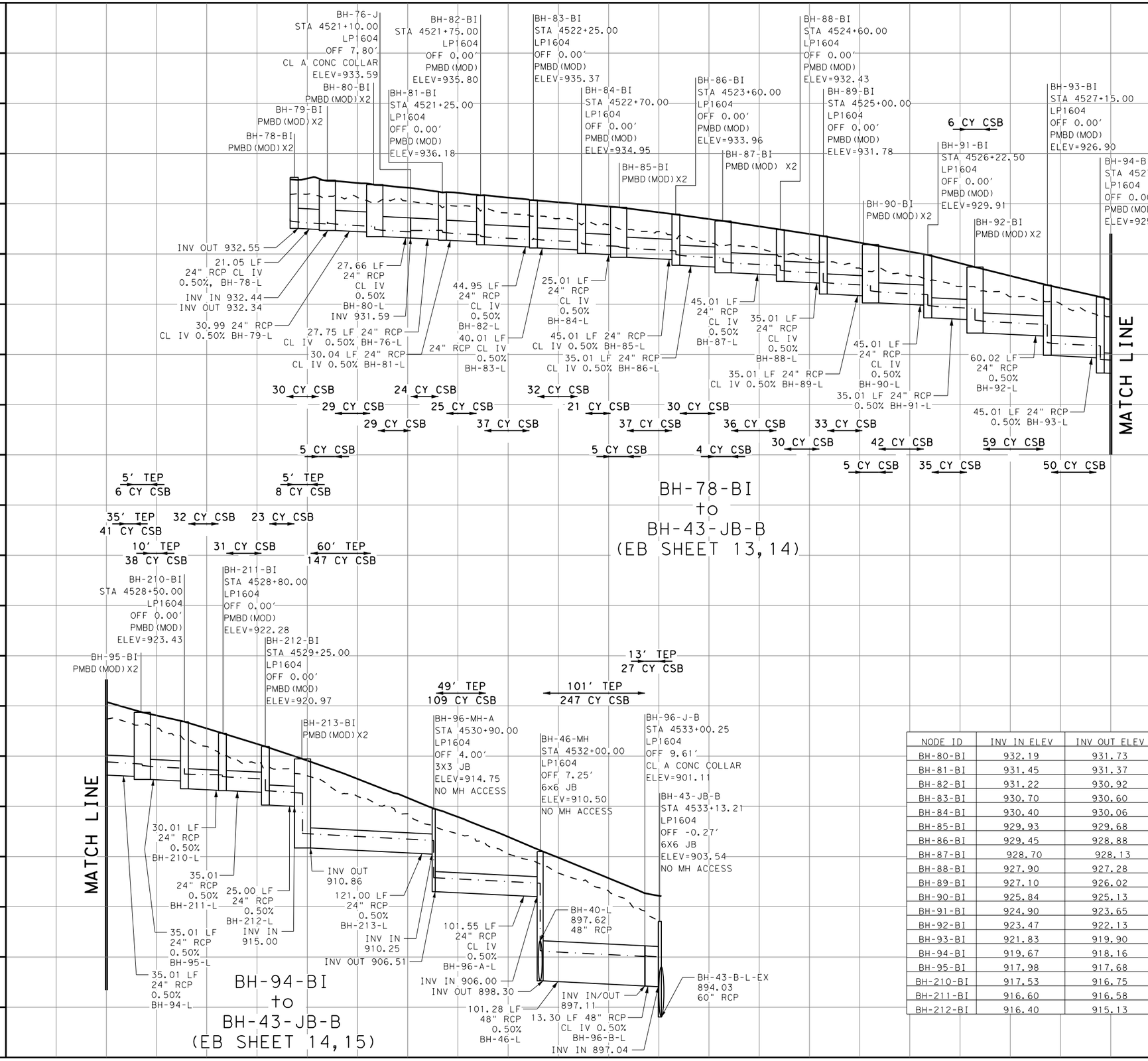

BH-78-BI
to
BH-43-JB-B
(EB SHEET 13,14)

BH-94-BI
to
BH-43-JB-B
(EB SHEET 14,15)

NODE ID	INV IN ELEV	INV OUT ELEV
BH-80-BI	932.19	931.73
BH-81-BI	931.45	931.37
BH-82-BI	931.22	930.92
BH-83-BI	930.70	930.60
BH-84-BI	930.40	930.06
BH-85-BI	929.93	929.68
BH-86-BI	929.45	928.88
BH-87-BI	928.70	928.13
BH-88-BI	927.90	927.28
BH-89-BI	927.10	926.02
BH-90-BI	925.84	925.13
BH-91-BI	924.90	923.65
BH-92-BI	923.47	922.13
BH-93-BI	921.83	919.90
BH-94-BI	919.67	918.16
BH-95-BI	917.98	917.68
BH-210-BI	917.53	916.75
BH-211-BI	916.60	916.58
BH-212-BI	916.40	915.13

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

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SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES
SYSTEM BH

SHEET 12 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1648

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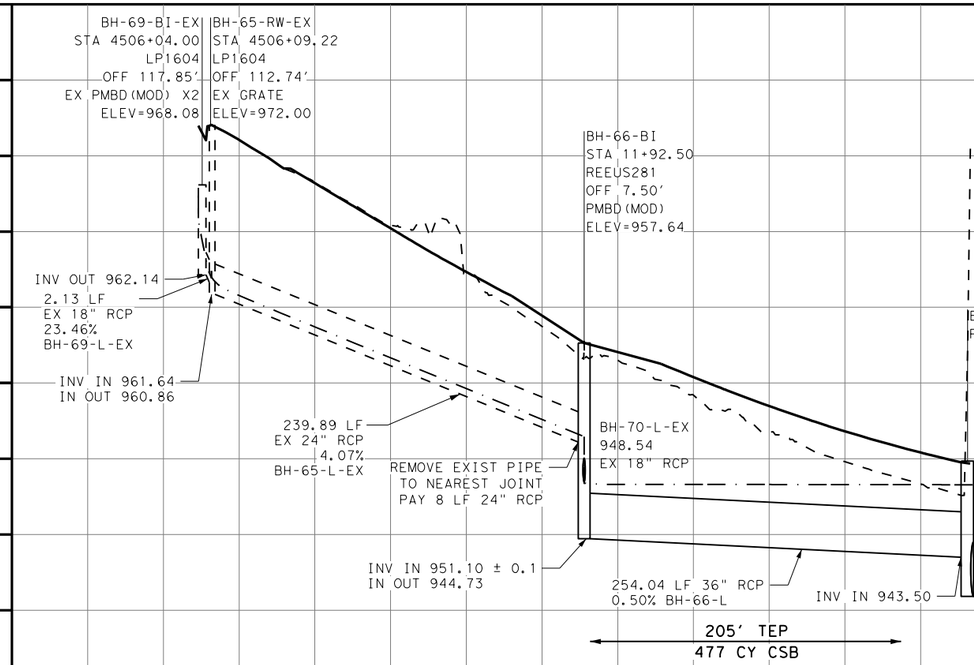

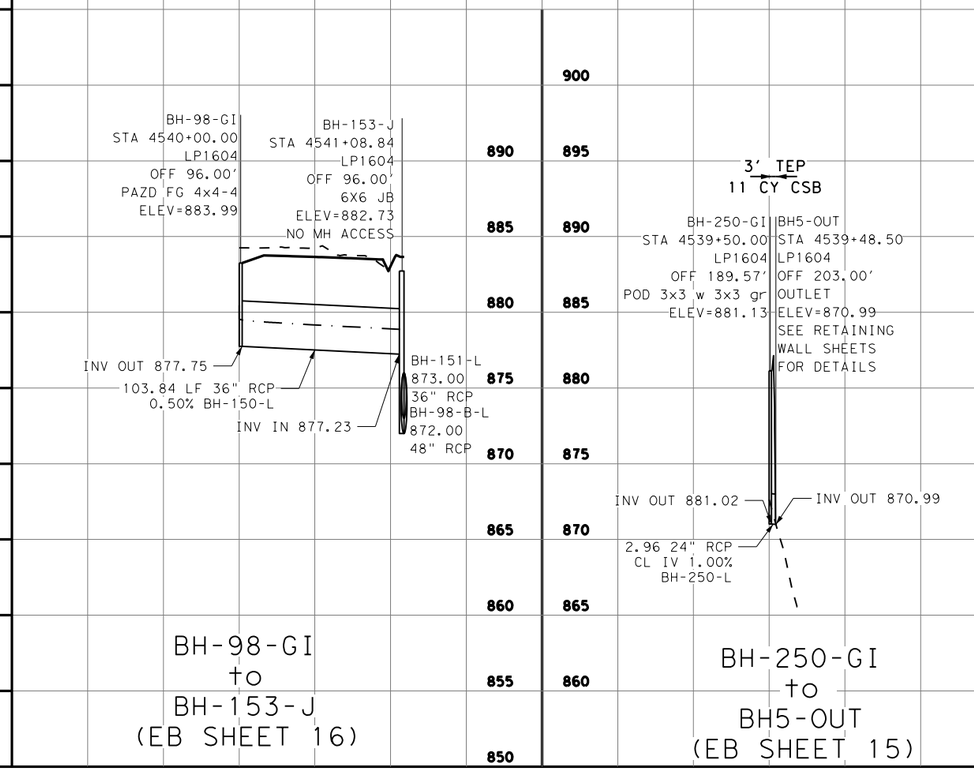

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

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LUKE REED, P.E. — 2/27/2023 DATE

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SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES
SYSTEM BH

SHEET 13 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1649

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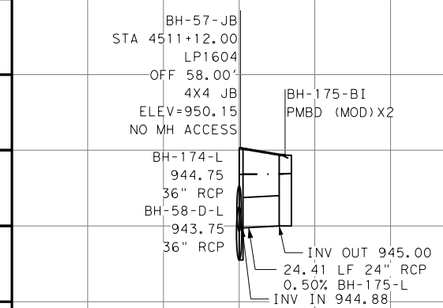
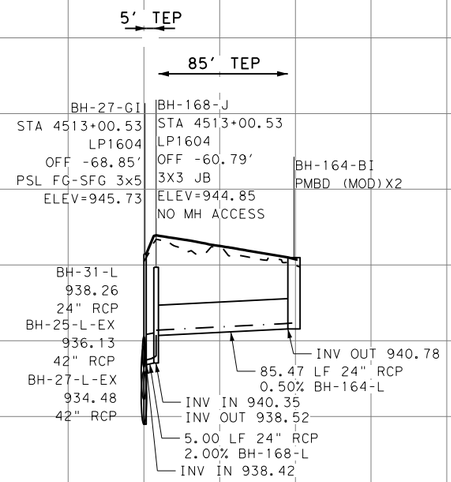
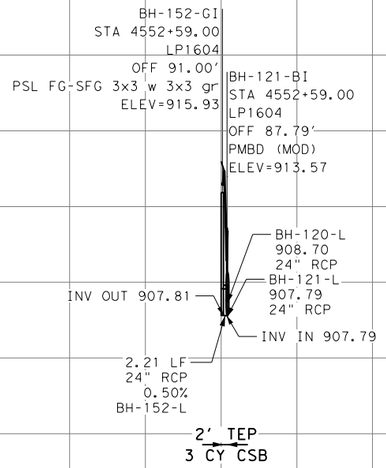


BH-57-JB
to
BH-175-BI
(EB SHEET 13)

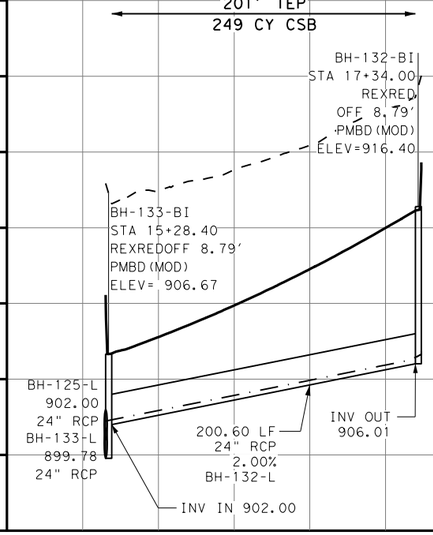


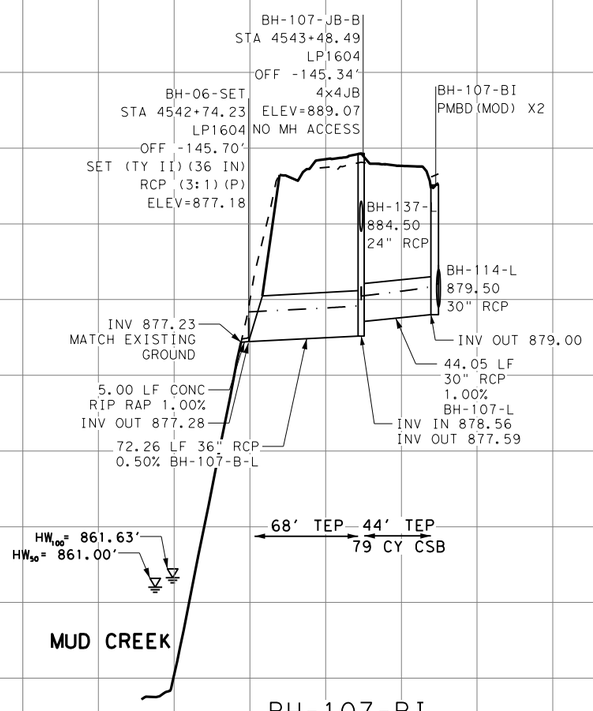
BH-27-GI
to
BH-164-BI
(WB SHEET 13)



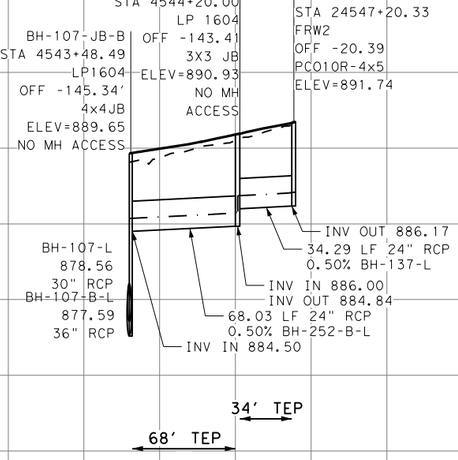
BH-152-GI
to
BH-121-BI
(EB SHEET 17)

BH-132-BI
to
BH-133-BI
(EB SHEET 17)





BH-107-BI
to
BH6-OUT
(WB SHEET 16)



BH-107-JB-B
to
BH-137-CI
(WB SHEET 16)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

DRAINAGE PROFILES
SYSTEM BH

SHEET 14 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1650

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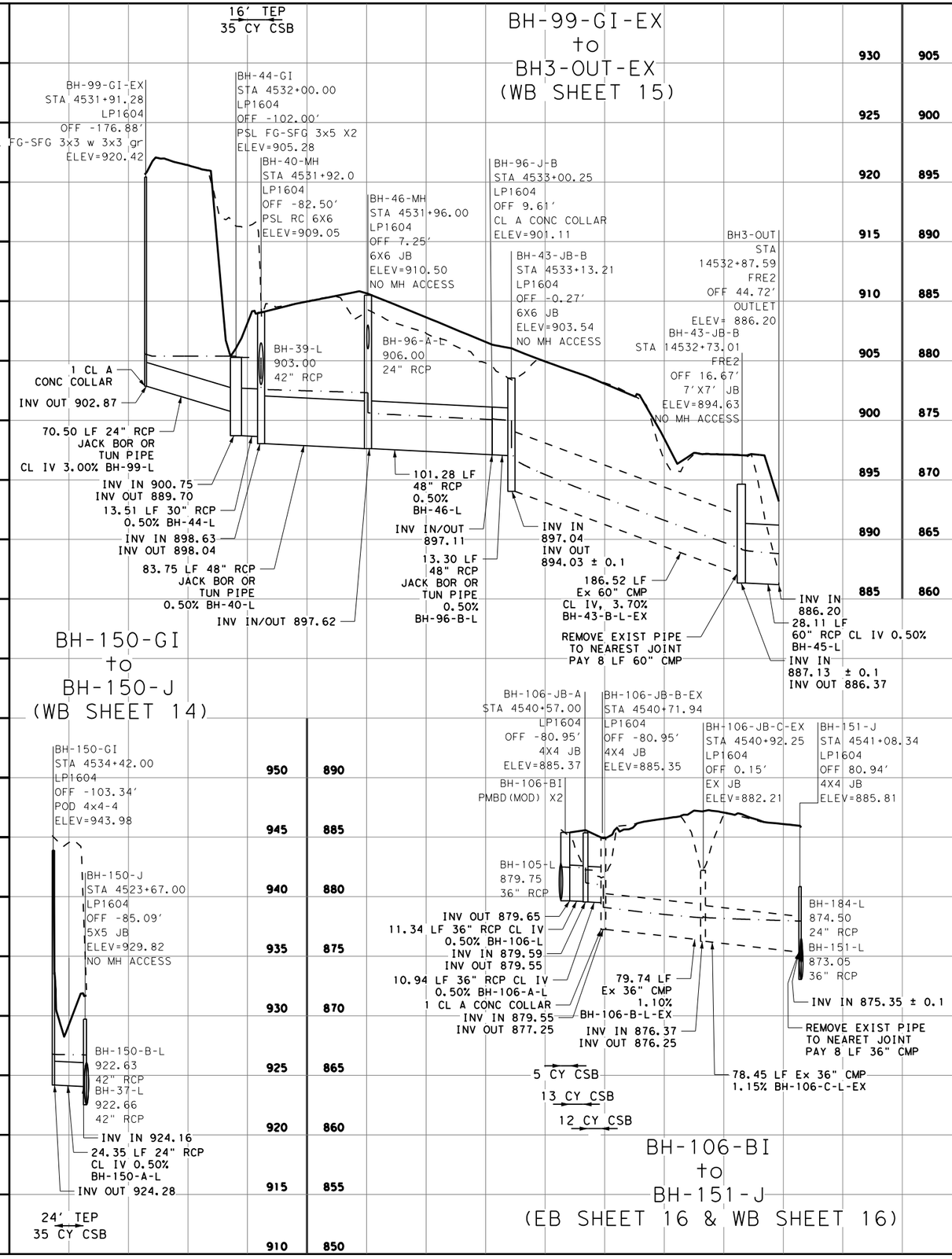

LEGEND

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FRN-F-1386

LP 1604

DRAINAGE PROFILES
SYSTEM BH

SHEET 15 OF 21

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1651

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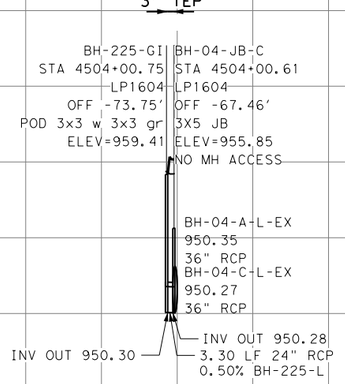
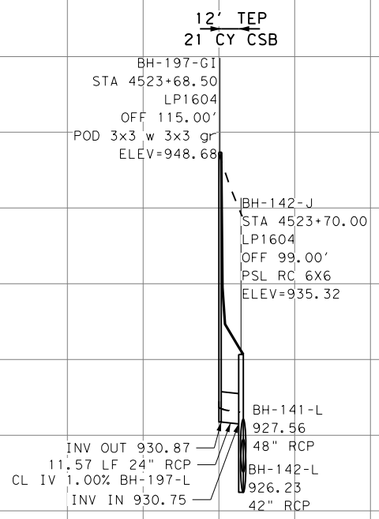
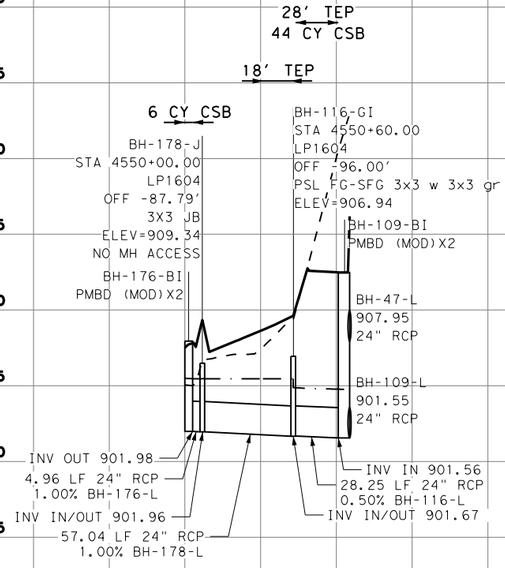


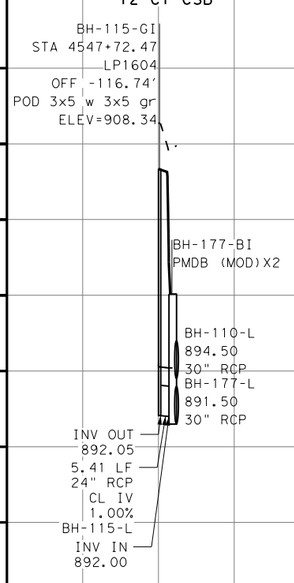
BH-225-GI
to
BH-04-JB-C
(WB SHEET 12)



BH-197-GI
to
BH-142-J
(EB SHEET 14)



BH-17-BI
to
BH-109-BI
(WB SHEET 17)



BH-115-GI
to
BH-177-BI
(WB SHEET 16)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

NOTES:

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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

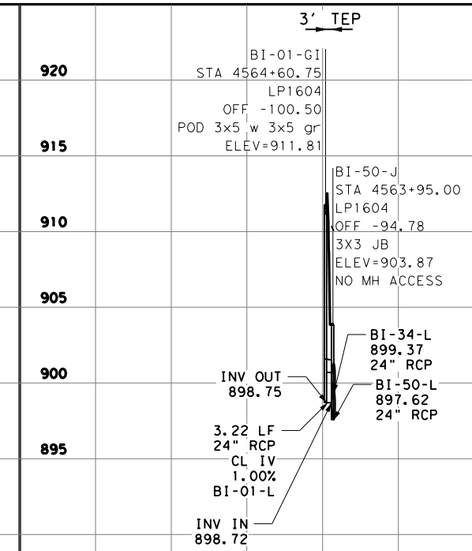
LJA Engineering, Inc.
FRN-F-1386

LP 1604

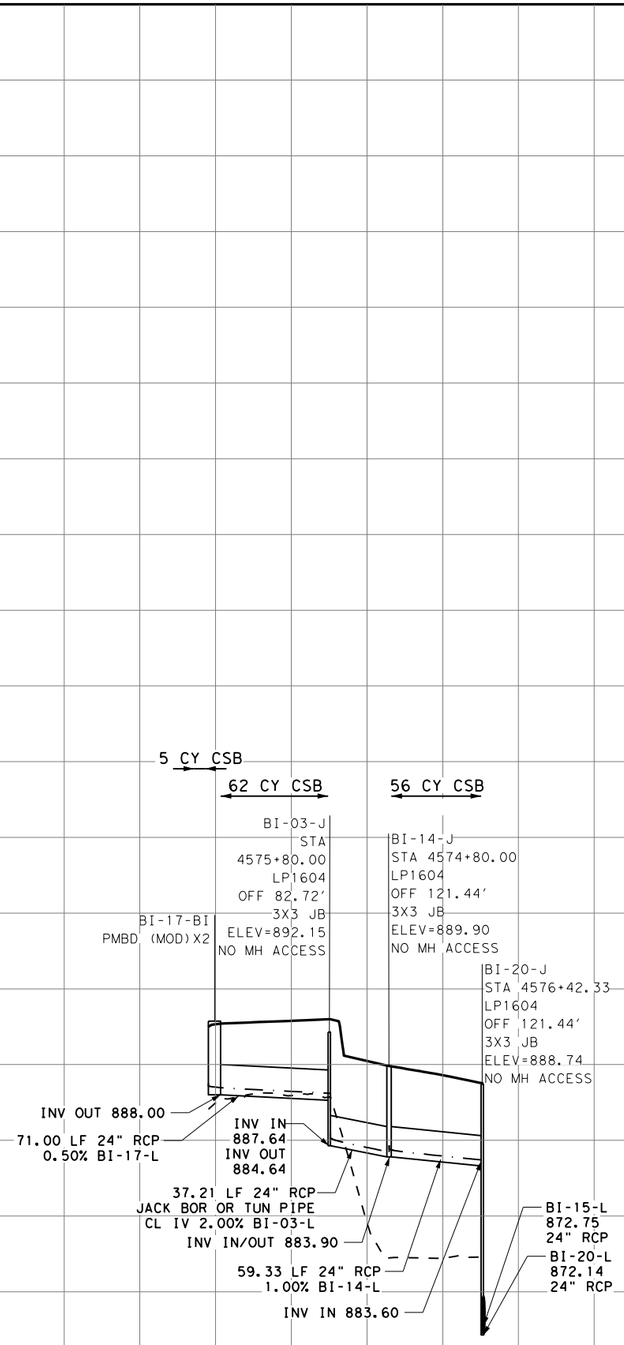
DRAINAGE PROFILES
SYSTEM BH

SHEET 16 OF 21

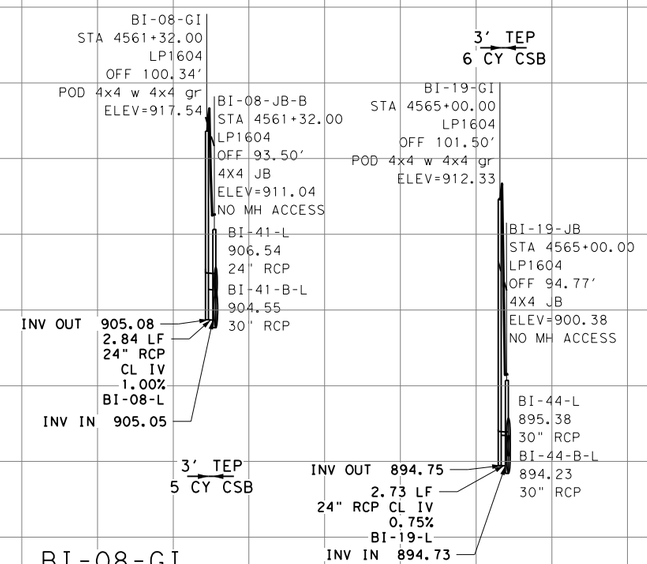
FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1652



BI-01-GI
to
BI-50-J
(WB SHEET 18)



BI-17-BI
to
BI-20-J
(EB SHEET 19)



BI-08-GI
to
BI-08-JB-B
(EB SHEET 18)

BI-19-GI
to
BI-19-JB
(EB SHEET 18)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

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STATE OF TEXAS
LUKE REED
90242
LICENSED PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO I AUSTIN I HOUSTON I FORT WORTH I DALLAS
2000 NW LOOP 410 I SAN ANTONIO, TX 78213 I 210.375.9000
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES
SYSTEM BI

SHEET 17 OF 21

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1653

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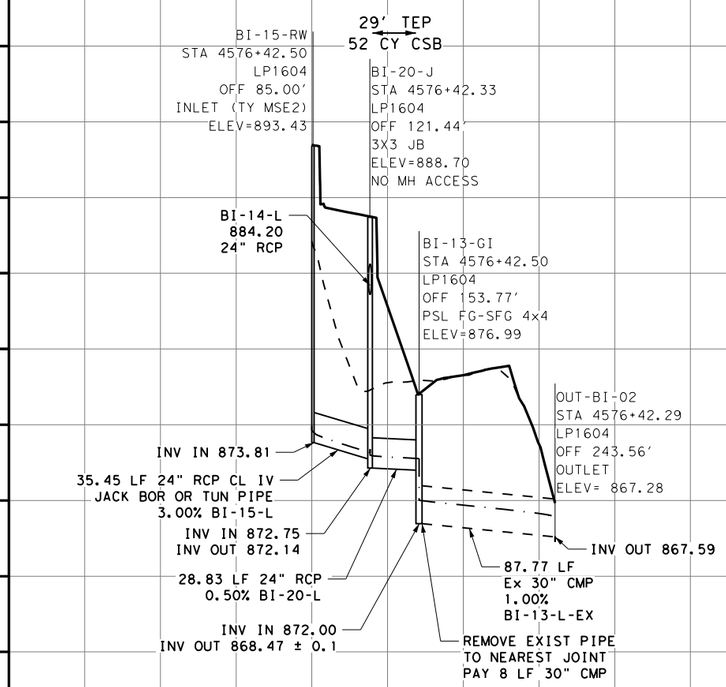
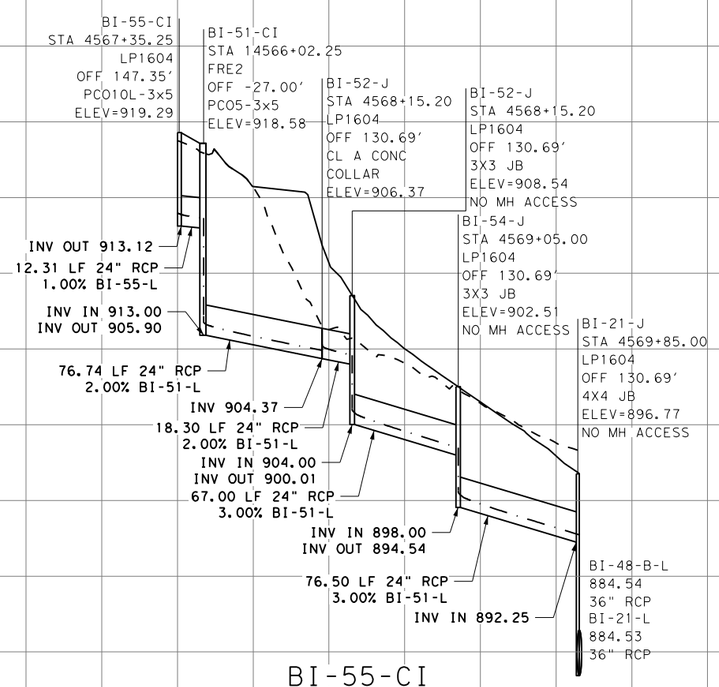


BI-15-RW
to
OUT-BI-02
(EB SHEET 19)



BI-55-CI
to
BI-21-J
(EB SHEET 18)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

NOTES:

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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

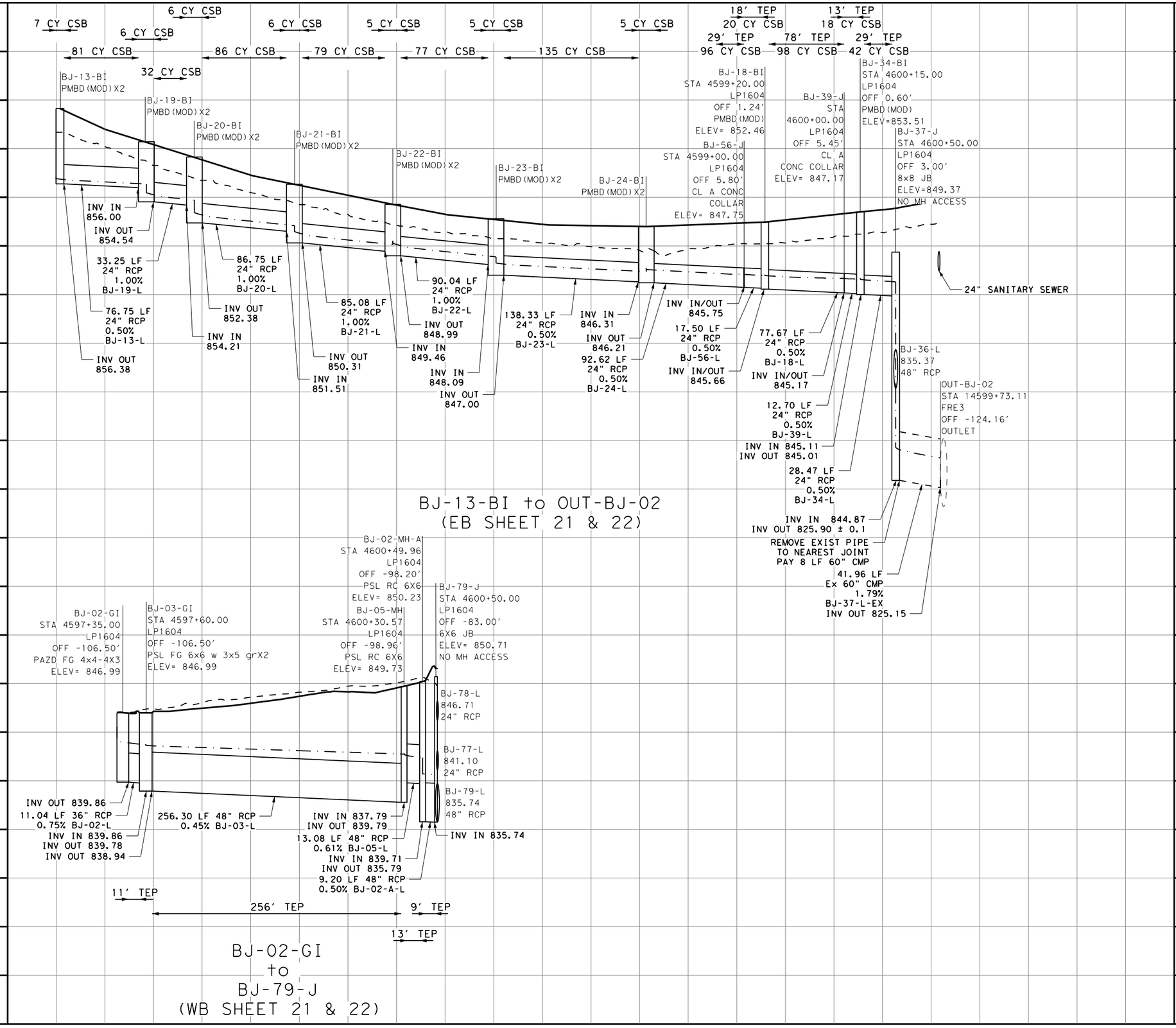
 Texas Department of Transportation

LP 1604

DRAINAGE PROFILES
SYSTEM BI

SHEET 18 OF 21

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1654



BJ-13-BI to OUT-BJ-02
(EB SHEET 21 & 22)

BJ-02-GI to BJ-79-J
(WB SHEET 21 & 22)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · — 10-YR HGL

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STATE OF TEXAS
LUKE REED
101242
LICENSED PROFESSIONAL ENGINEER
LUKE REED, P.E.
2/27/2023
DATE

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SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

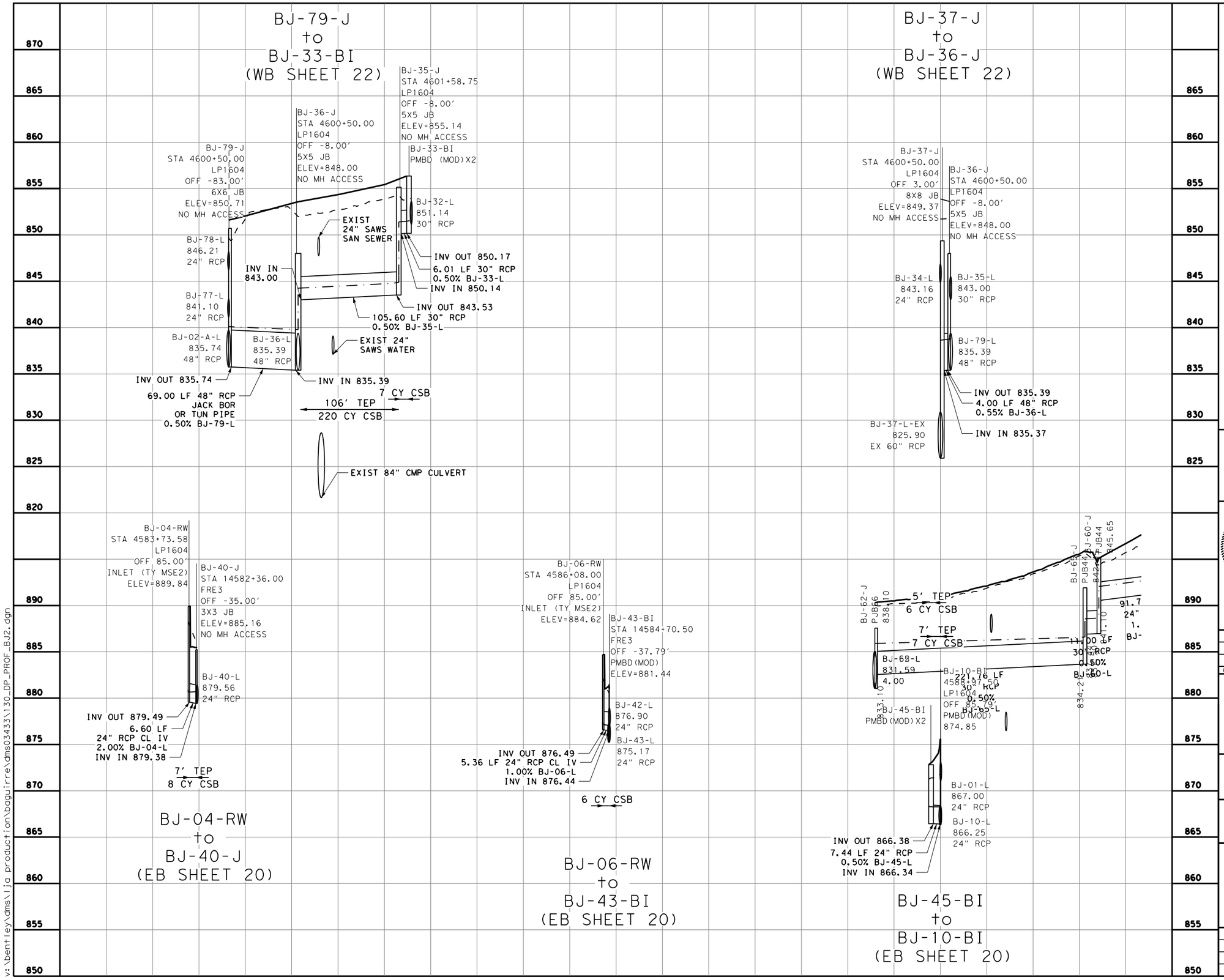
LJA Engineering, Inc.
FRN-F-1386

LP 1604

DRAINAGE PROFILES SYSTEM BJ

SHEET 19 OF 21

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1655


BJ-79-J
to
BJ-33-BI
(WB SHEET 22)
BJ-79-J
STA 4600+50.00
LP1604
OFF -83.00'
6X6 JB
ELEV=850.71
NO MH ACCESS
BJ-36-J
STA 4600+50.00
LP1604
OFF -8.00'
5X5 JB
ELEV=848.00
NO MH ACCESS
BJ-35-J
STA 4601+58.75
LP1604
OFF -8.00'
5X5 JB
ELEV=855.14
NO MH ACCESS
BJ-33-BI
PMBD (MOD) X2
BJ-32-L
851.14
30" RCP
EXIST
24" SAWS
SAN SEWER
INV OUT 850.17
6.01 LF 30" RCP
0.50% BJ-33-L
INV IN 850.14
INV IN
843.00
INV OUT 843.53
105.60 LF 30" RCP
0.50% BJ-35-L
BJ-78-L
846.21
24" RCP
BJ-77-L
841.10
24" RCP
BJ-02-A-L
835.74
48" RCP
BJ-36-L
835.39
48" RCP
EXIST 24"
SAWS WATER
INV OUT 835.74
69.00 LF 48" RCP
JACK BOR
OR TUN PIPE
0.50% BJ-79-L
INV IN 835.39
7 CY CSB
106' TEP
220 CY CSB
EXIST 84" CMP CULVERT
BJ-37-J
to
BJ-36-J
(WB SHEET 22)
BJ-37-J
STA 4600+50.00
LP1604
OFF 3.00'
8X8 JB
ELEV=849.37
NO MH ACCESS
BJ-36-J
STA 4600+50.00
LP1604
OFF -8.00'
5X5 JB
ELEV=848.00
NO MH ACCESS
BJ-34-L
843.16
24" RCP
BJ-35-L
843.00
30" RCP
BJ-79-L
835.39
48" RCP
INV OUT 835.39
4.00 LF 48" RCP
0.55% BJ-36-L
INV IN 835.37
BJ-37-L-EX
825.90
EX 60" RCP
BJ-04-RW
STA 4583+73.58
LP1604
OFF 85.00'
INLET (TY MSE2)
ELEV=889.84
BJ-40-J
STA 14582+36.00
FRE3
OFF -35.00'
3X3 JB
ELEV=885.16
NO MH ACCESS
BJ-40-L
879.56
24" RCP
INV OUT 879.49
6.60 LF
24" RCP CL IV
2.00% BJ-04-L
INV IN 879.38
7' TEP
8 CY CSB
BJ-04-RW
to
BJ-40-J
(EB SHEET 20)
BJ-06-RW
STA 4586+08.00
LP1604
OFF 85.00'
INLET (TY MSE2)
ELEV=884.62
BJ-43-BI
STA 14584+70.50
FRE3
OFF -37.79'
PMBD (MOD)
ELEV=881.44
BJ-42-L
876.90
24" RCP
BJ-43-L
875.17
24" RCP
INV OUT 876.49
5.36 LF 24" RCP CL IV
1.00% BJ-06-L
INV IN 876.44
6 CY CSB
BJ-06-RW
to
BJ-43-BI
(EB SHEET 20)
BJ-62-J
PJB6
838.10
5' TEP
6 CY CSB
7' TEP
7 CY CSB
BJ-68-L
831.59
4.00
BJ-10-BI
4588+37.50
LP1604
OFF 85.79'
PMBD (MOD)
874.85
BJ-45-BI
PMBD (MOD) X2
BJ-01-L
867.00
24" RCP
BJ-10-L
866.25
24" RCP
INV OUT 866.38
7.44 LF 24" RCP
0.50% BJ-45-L
INV IN 866.34
BJ-45-BI
to
BJ-10-BI
(EB SHEET 20)
LEGEND
EXISTING GROUND
PROPOSED GROUND
10-YR HGL
NOTES:
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STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER
LUKE REED, P.E.
2/27/2023
DATE
REV. NO. | DATE | DESCRIPTION | BY
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800
LJA Engineering, Inc.
FRN-F-1386
©2023 Texas Department of Transportation
LP 1604
DRAINAGE PROFILES
SYSTEM BJ
SHEET 20 OF 21
FED.RD. DIV.NO. 6 | STATE TEXAS | PROJECT NO. | HIGHWAY NO. LP1604
STATE DISTRICT SAT | COUNTY BEXAR | CONTROL NO. 2452 | SECTION NO. 02 | JOB NO. 130, ETC | SHEET NO. 1656
2/27/2023
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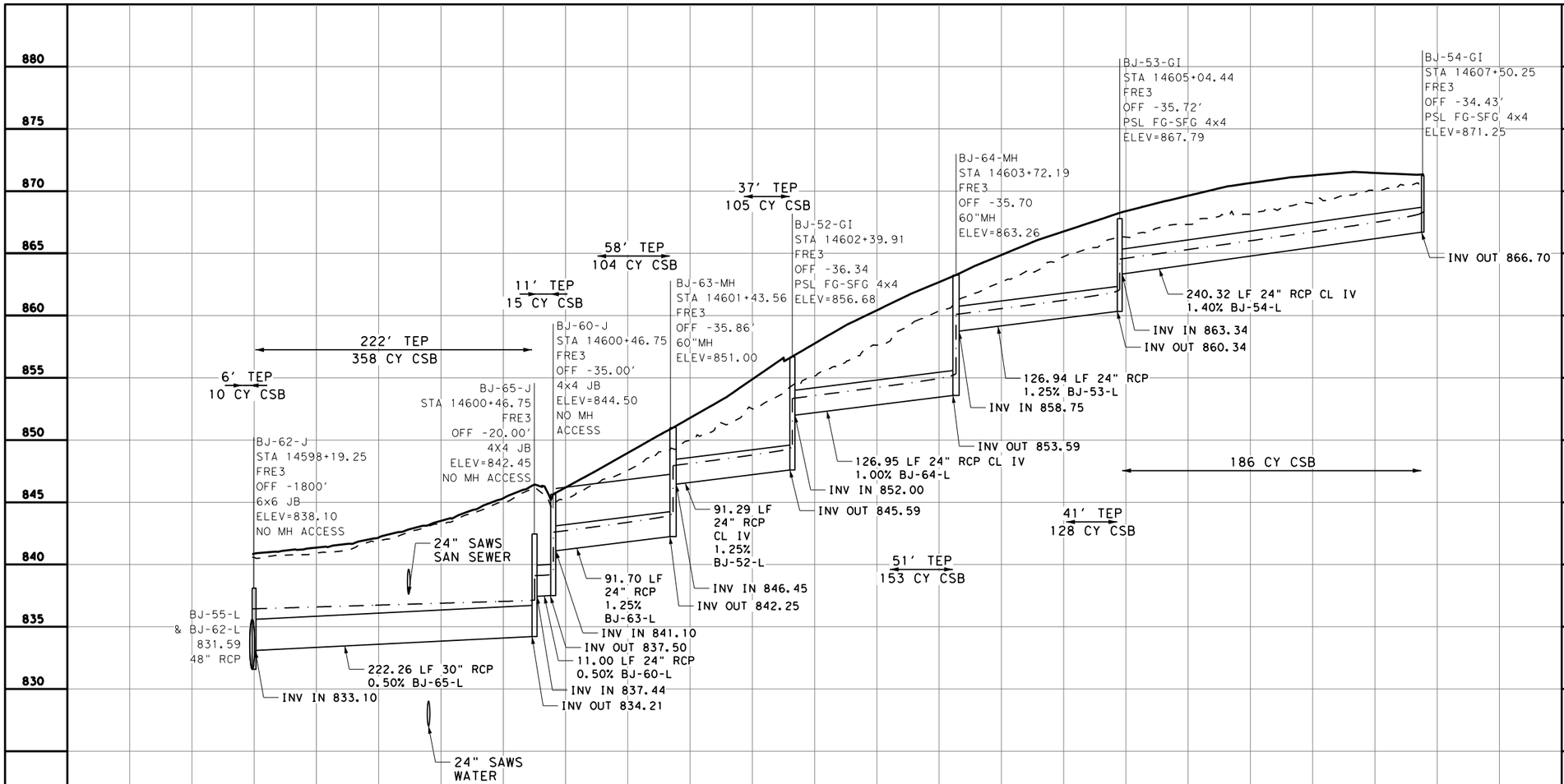

BJ-62-J
to
BJ-54-GI
(EB SHEET 22)

LEGEND

- - - - - EXISTING GROUND
——— PROPOSED GROUND
— · — · - 10-YR HGL

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LUKE REED, P.E. — 2/27/2023 DATE

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LJA Engineering, Inc.
FRN - F-1386

LP 1604

DRAINAGE PROFILES SYSTEM BJ

SHEET 21 OF 21

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1657

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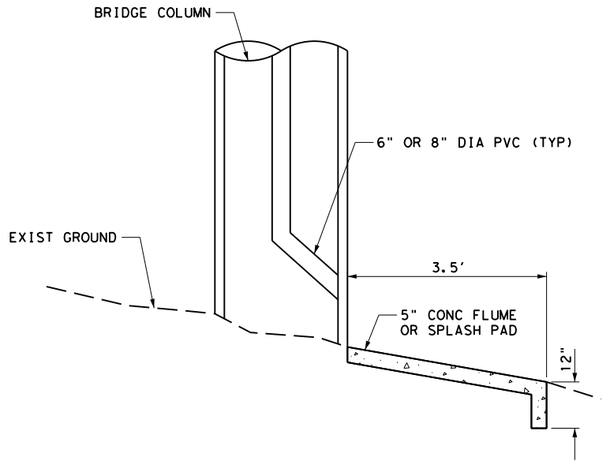
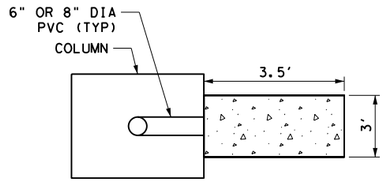
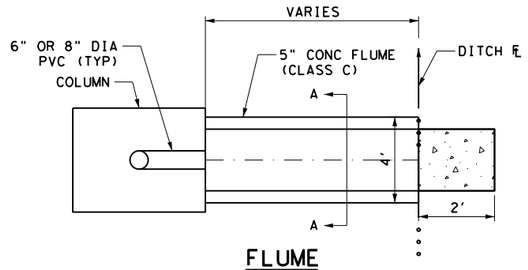


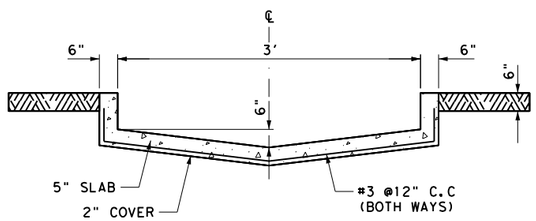
TYPICAL LONGITUDINAL SECTION WITH DECK DRAIN



SPLASH PAD

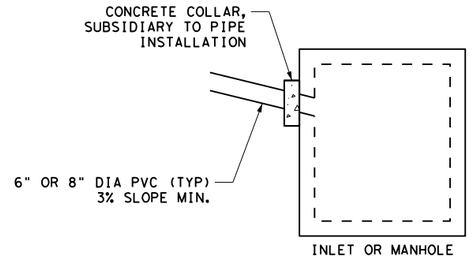


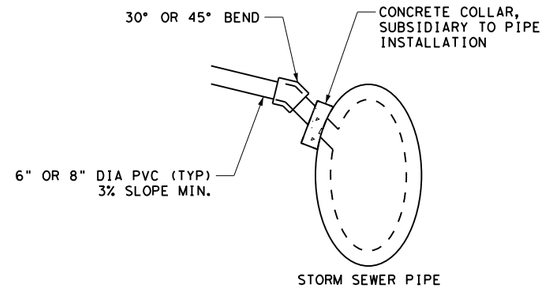
FLUME



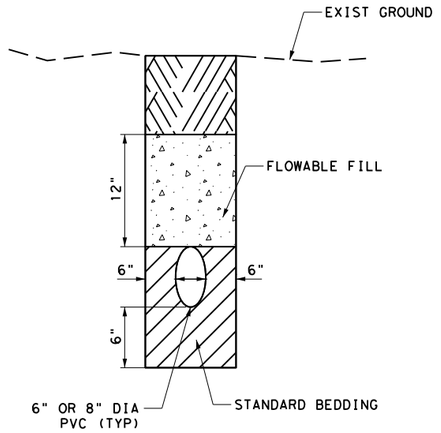
SECTION A-A

FLUME AND SPLASH PAD PAID FOR UNDER
ITEM 432-6002 "RIPRAP (CONC)(5 IN)





PVC DECK DRAIN CONNECTION DETAILS



PVC DECK DRAIN BACKFILL DETAIL

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

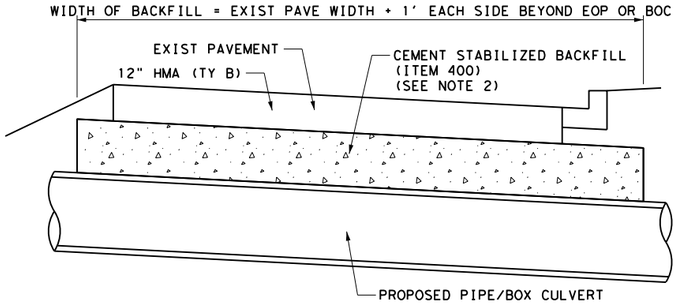
 Texas Department of Transportation

LP 1604

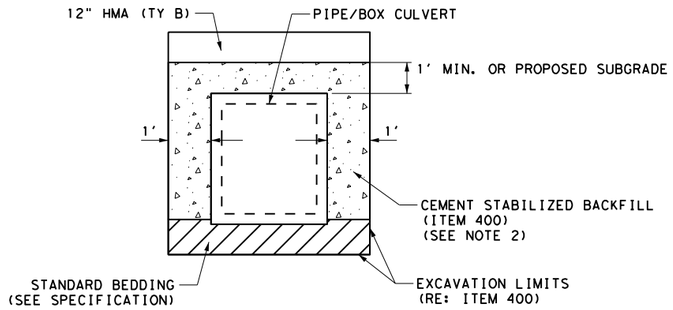
MISCELLANEOUS DRAINAGE DETAILS

SHEET 1 OF 7

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1658



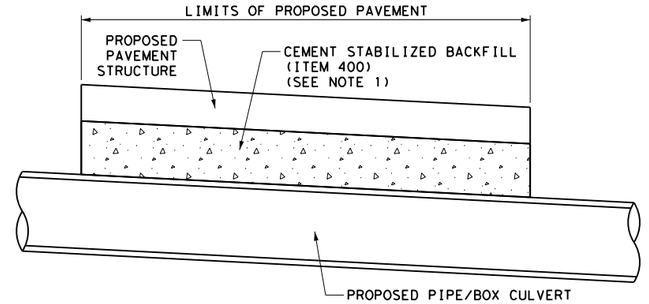
LONGITUDINAL VIEW



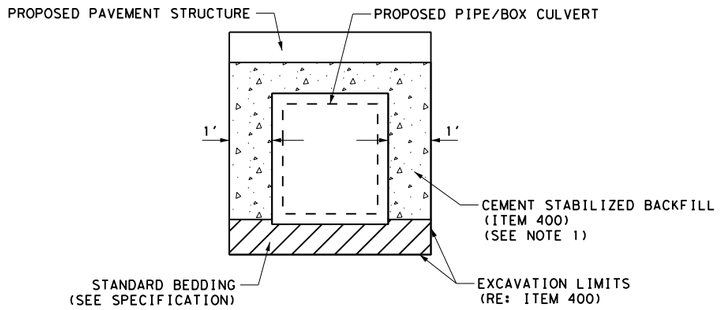
CROSS-SECTION VIEW

CUT AND RESTORE PAVEMENT DETAIL

NOTE:
1. PAVEMENT REPLACEMENT PAID AS ITEM 400-6006, CUT AND RESTORE PAVEMENT (SY).



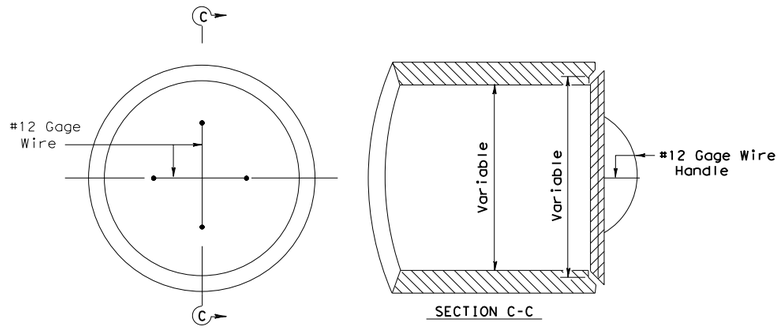
LONGITUDINAL VIEW



CROSS-SECTION VIEW

STORM SEWER UNDER PROPOSED PAVEMENT DETAIL

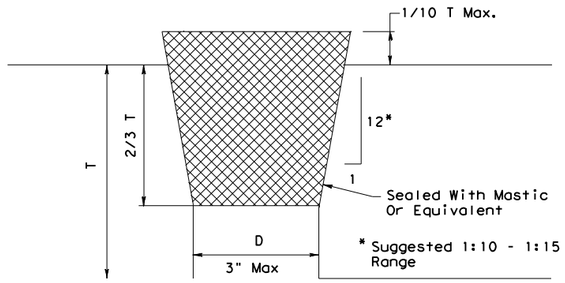
NOTE:
1. FLOWABLE FILL SHALL BE TESTED ACCORDING TO TEX-440-A, "INITIAL TIME OF SET OF FRESH CONCRETE". TEX-440-A REFERENCES ASTM C403 TEST PROCEDURE. A MINIMUM PENETRATION NUMBER OF 650 IS REQUIRED PRIOR TO PLACEMENT OF BACKFILL AND PAVEMENT SURFACE.
2. IF PROPOSED PIPE/CULVERT IS MORE THAN 5' BELOW THE BOTTOM OF SUBGRADE, CEMENT STABILIZED BACKFILL WAS NOT QUANTIFIED, UNLESS OTHERWISE SHOWN ON PLANS.



Note: The Price Of Plug Shall Be Subsidiary To The Unit Bid Price For Pipe Sewer Or RCP. Mortar Joints To Be Used As Directed By The Engineer. Removal Of The Existing Plugs For Storm Sewer Or RCP Conns. Shall Be Considered Incidental To Item "Excavation And Backfill For Structures."

Concrete Plug For End Of Pipe Culvert Or Sewer

CONCRETE PLUG FOR PIPE



T = Wall Thickness On Top Of Box Or Pipe
D = Diameter Of Lifting Hole

Minimum Length Of Plug Is 2/3 T +/-
Minimum Diameter At Bottom Of Plug = D - 1/8"
Maximum 1/10 T Of Plug Not Seated In Lifting Hole

Note: The Plug Shall Be Cast With The Same Taper As The Lifting Hole.

DETAIL OF PLUG FOR LIFTING HOLES IN RCB AND RCP

STATE OF TEXAS
LUKE REED
101242
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

LP 1604

MISCELLANEOUS DRAINAGE DETAILS

SHEET 2 OF 7

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1659

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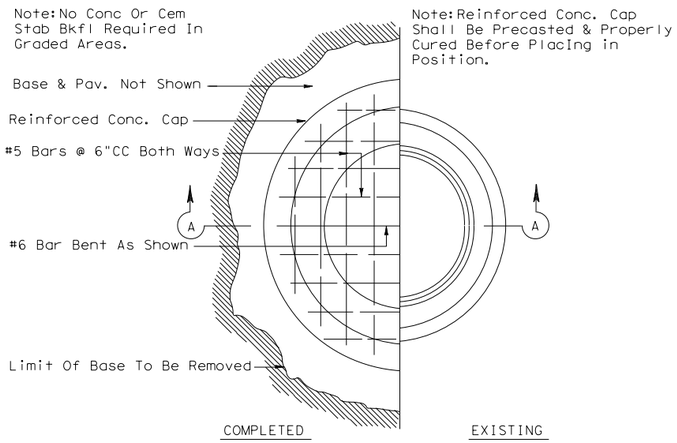
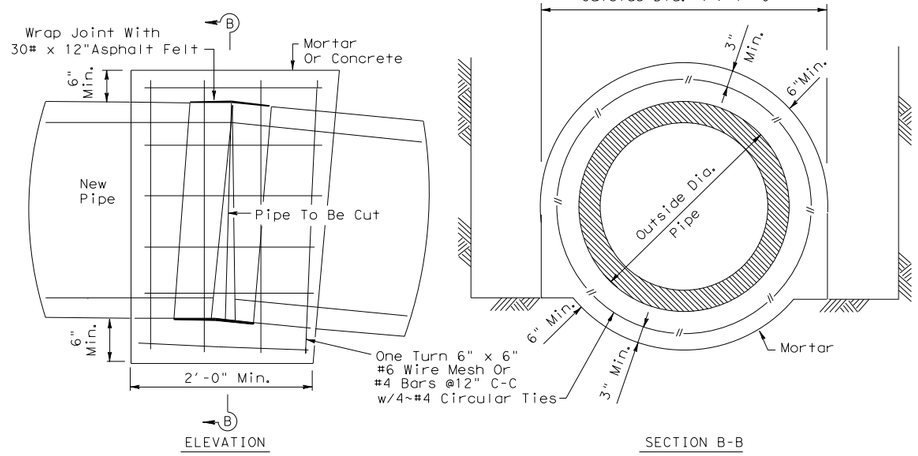
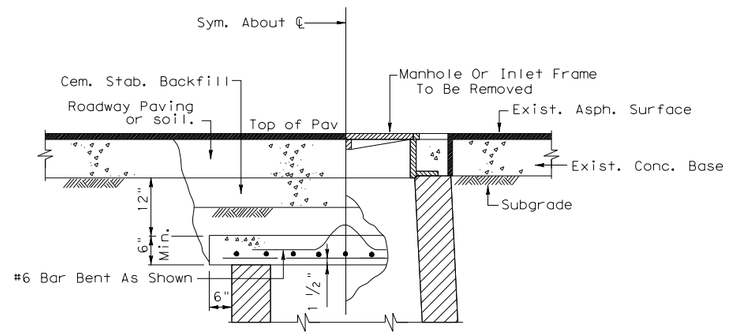


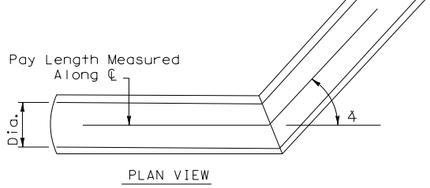


PIPE COLLAR DETAIL

For Horizontal Or Vertical Placement

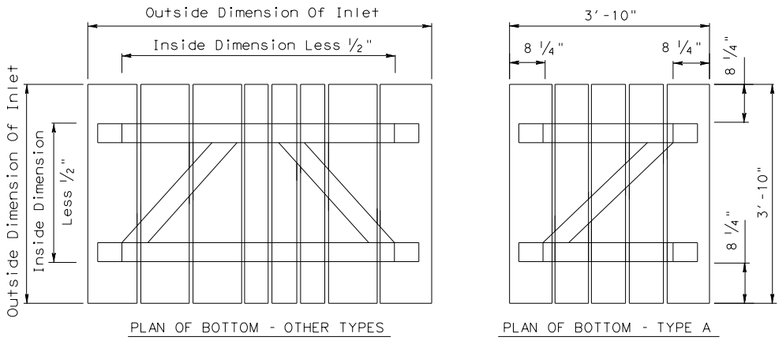


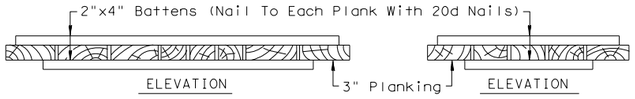
DETAIL SHOWING METHOD OF CAPPING ABANDONED MANHOLES OR INLETS (GRADED OR PAVED AREAS)



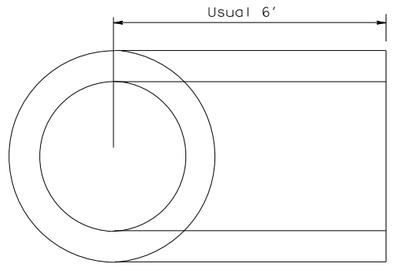
BENDING DETAIL

Note: Bending Of Proposed Pipe Sewer Or RCP In A Vertical & /Or Horizontal Plane Shall Be Accomplished By The Use Of A "Pipe Collar" Or A "Precast Elbow", As Approved By The Engineer.
Price Of "Pipe Collar" Or, "Precast Elbow" Shall Be Subsidiary To The Unit Prices Bid For Item Reinforced Concrete Pipe.
Pay Length Measurement To Be Along Horizontal ℄ & Horizontal Plane Of Pipes.





TEMPORARY COVERS FOR ALL TYPES OF INLETS



Note: Jointing Material Shall Conform To Requirements Of Item "Reinforced Concrete Pipe." Material For Tees Shall Conform To Requirements Of Item "Reinforced Concrete Pipe." Payment For Tee To Be In Accordance With Item "Reinforced Concrete Pipe."

PRECAST STORM SEWER TEE

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

 Texas Department of Transportation

LP 1604

MISCELLANEOUS DRAINAGE DETAILS

SHEET 3 OF 7

FED.RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1660

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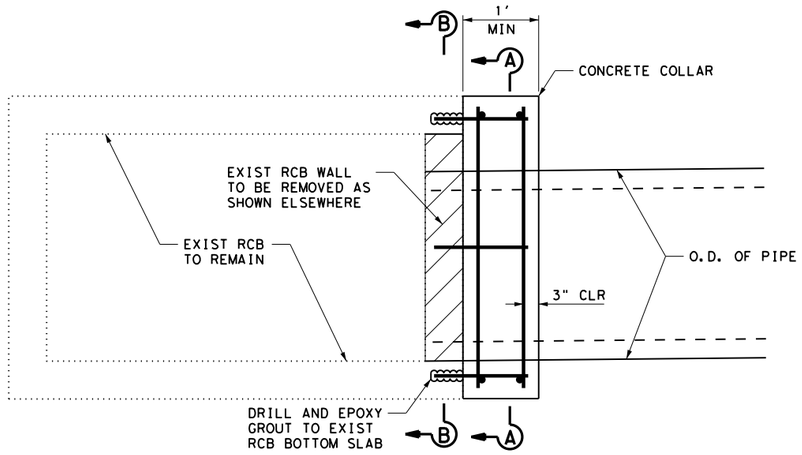
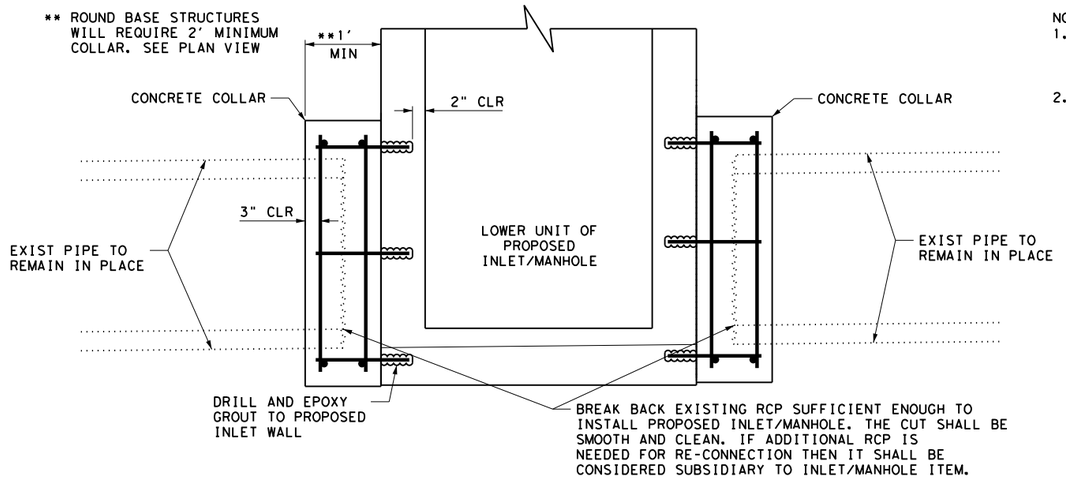
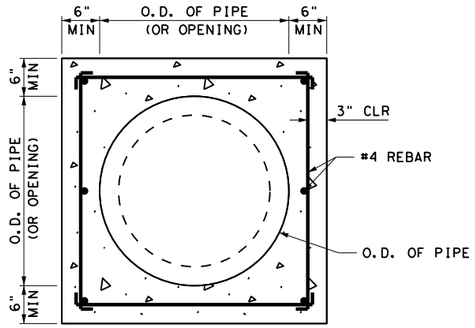


TIE-IN-DETAIL FOR PROP RCP TO EXISTING BOXES

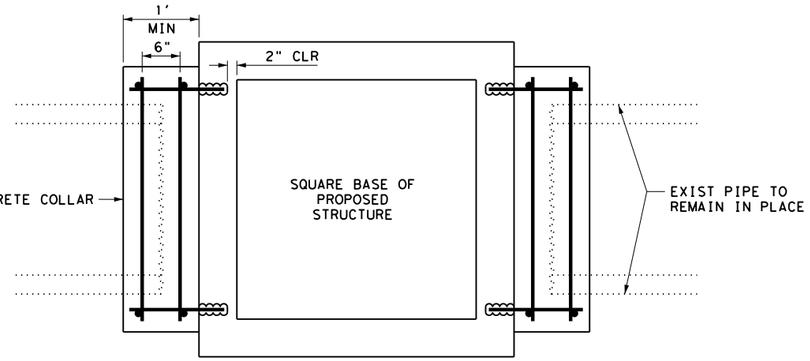


NOTE:
1. CONCRETE COLLARS ARE NOT PAID FOR DIRECTLY, BUT CONSIDERED SUBSIDIARY TO STORM SEWER ITEMS.
2. MINIMUM 6" BREAKOUT BEYOND THE O.D. OF PIPE. LEAVE MINIMUM 4" OF EXISTING REINFORCEMENT EXPOSED. CONCRETE REPAIR SHALL UTILITZE CLASS C CONCRETE AND MINIMUM COMPRESSIVE STRENGTH OF 3600 PSI.

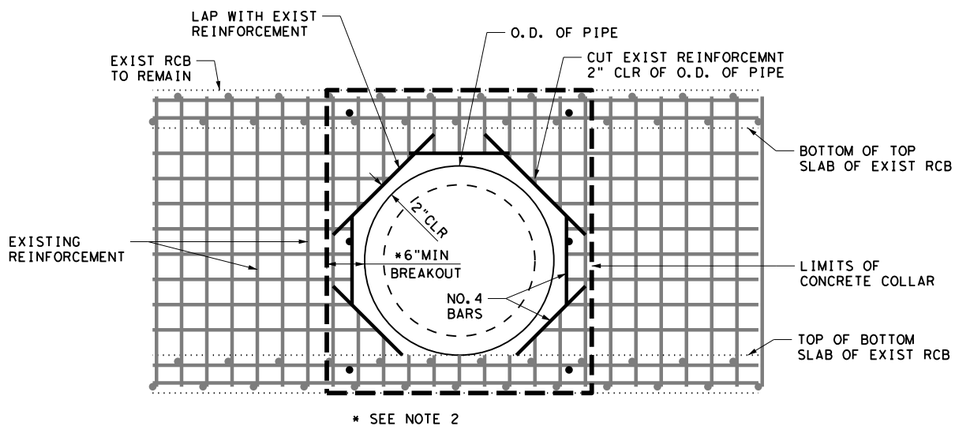
TIE-IN-DETAIL FOR PROP INLET/MANHOLE TO EXISTING RCP



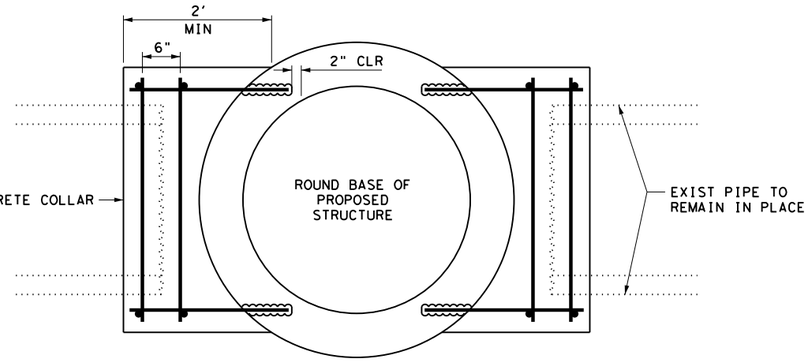
CONCRETE COLLAR DETAIL
SECTION A-A



SQUARE BASE - PLAN VIEW



SECTION B-B



ROUND BASE - PLAN VIEW

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN - F-1386

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LP 1604

MISCELLANEOUS DRAINAGE DETAILS

SHEET 4 OF 7

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1661

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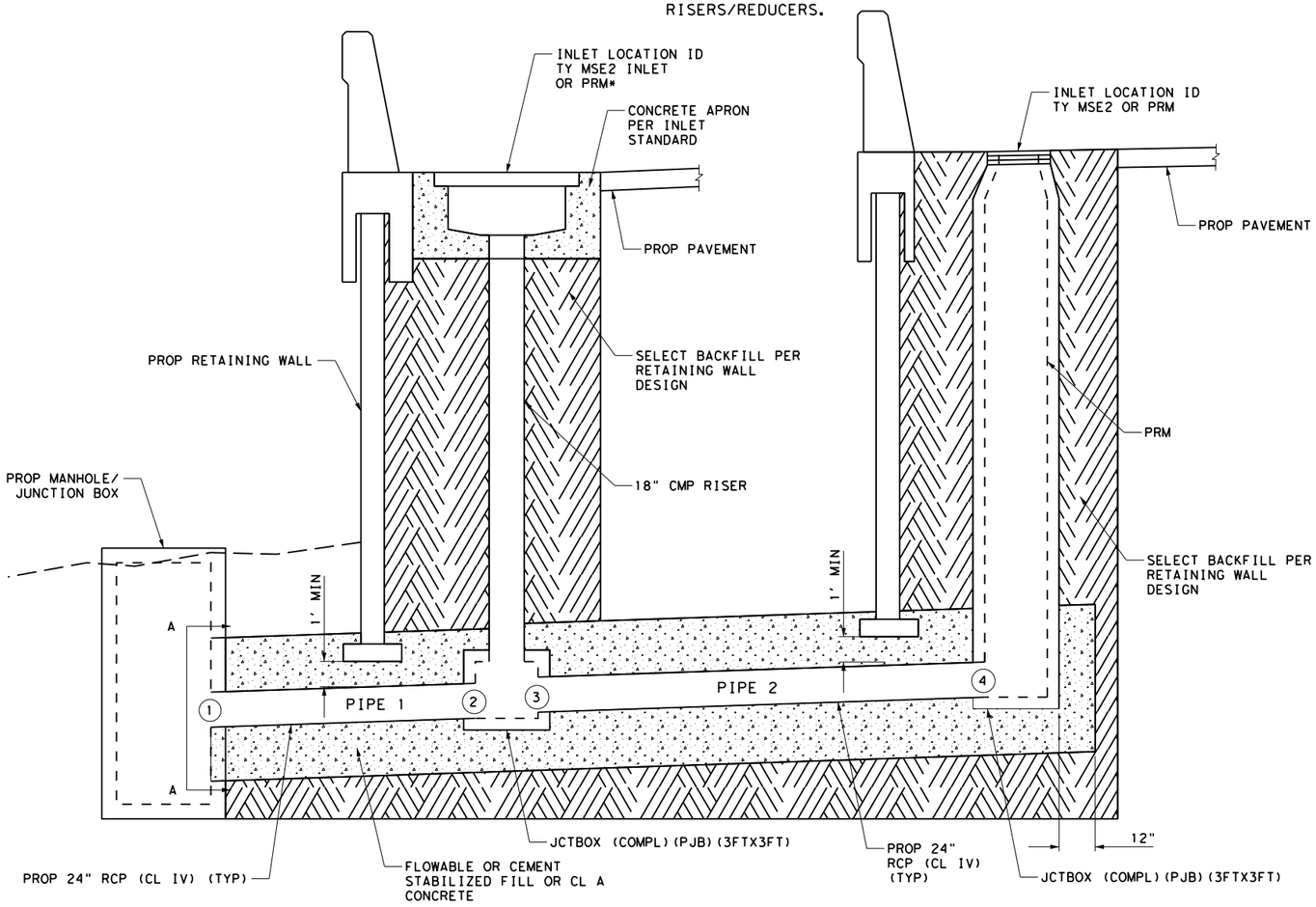
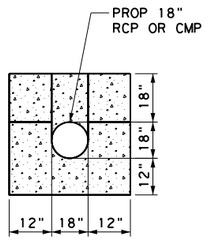
* PRM NOT SHOWN FOR CLARITY, SEE PRM STANDARD FOR RISERS/REDUCERS.





SECTION A-A

(TY MSE2) RETAINING WALL STORM SEWER TIE IN DETAIL*

* PAYMENT FOR RW(RI) INCLUDES RISER PIPE. PAYMENT FOR JUNCTION BOXES, LATERAL PIPES AND CEMENT STABILIZED BACKFILL AROUND LATERAL PIPES ARE SEPERATE ITEMS.

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

LJA Engineering, Inc.
FRN-F-1386

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MISCELLANEOUS DRAINAGE DETAILS

SHEET 5 OF 7

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1662

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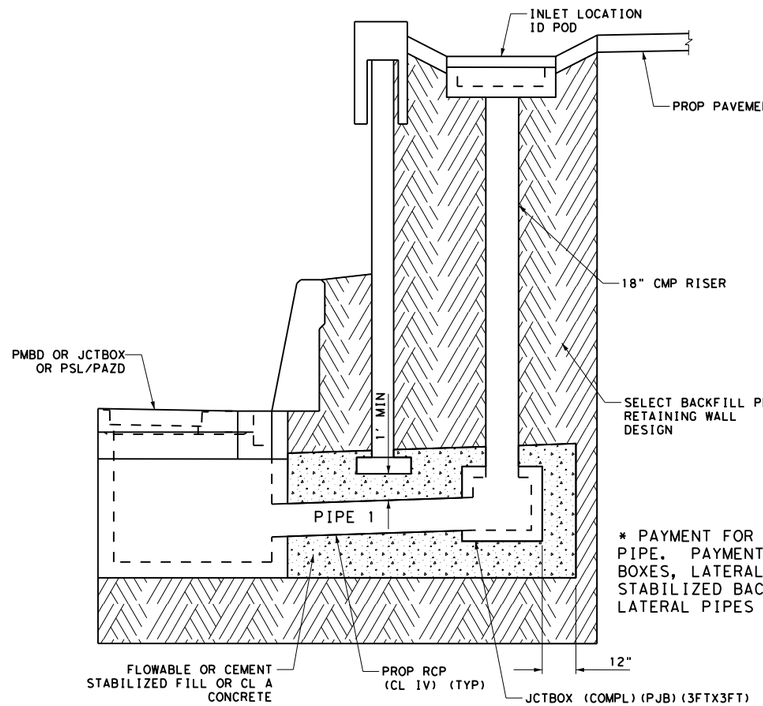


PRECAST OVERPASS DRAIN STORM SEWER TIE IN DETAILS*

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

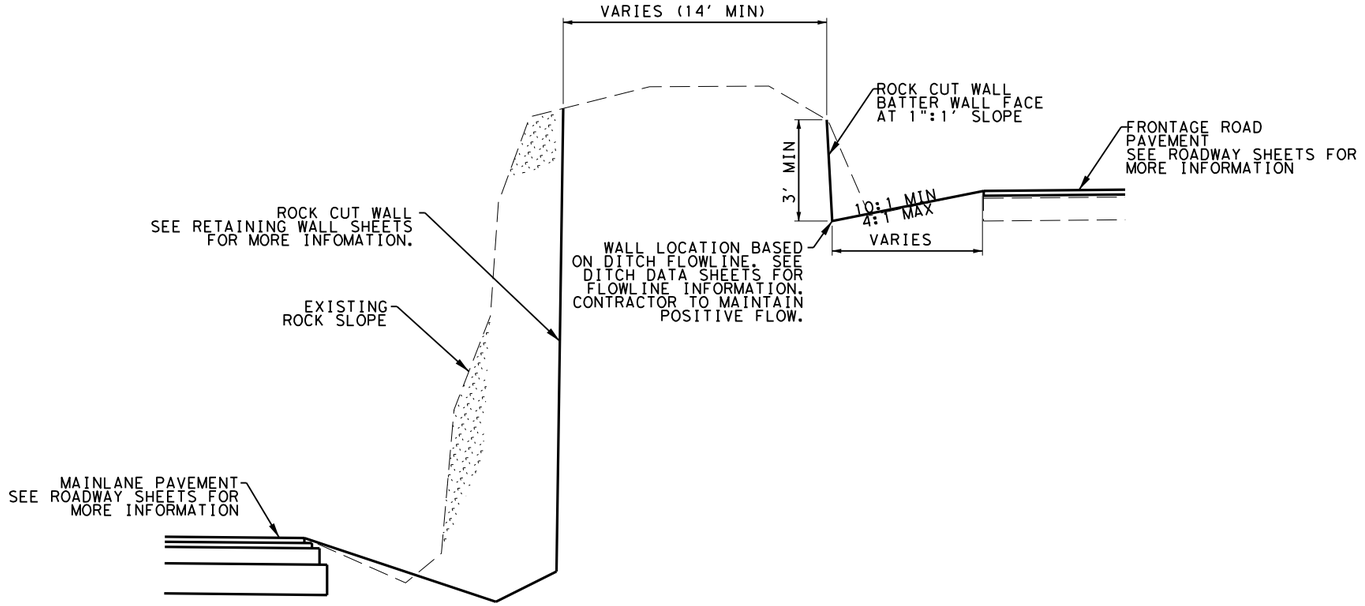
LJA Engineering, Inc.
FRN-F-1386

LP 1604

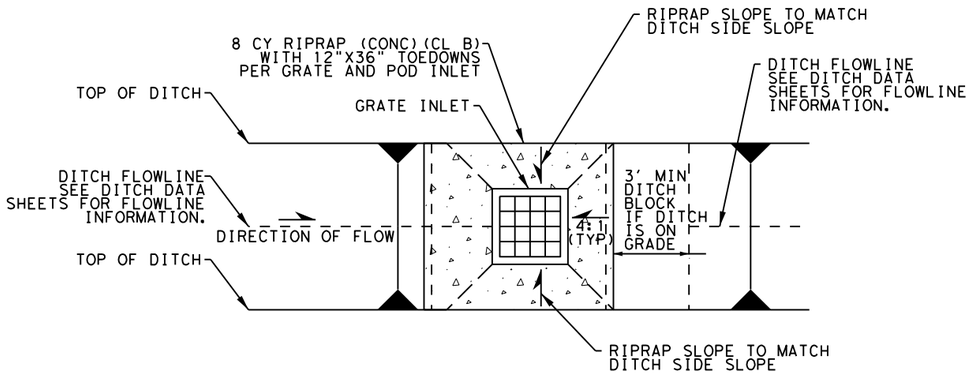
MISCELLANEOUS DRAINAGE DETAILS

SHEET 6 OF 7

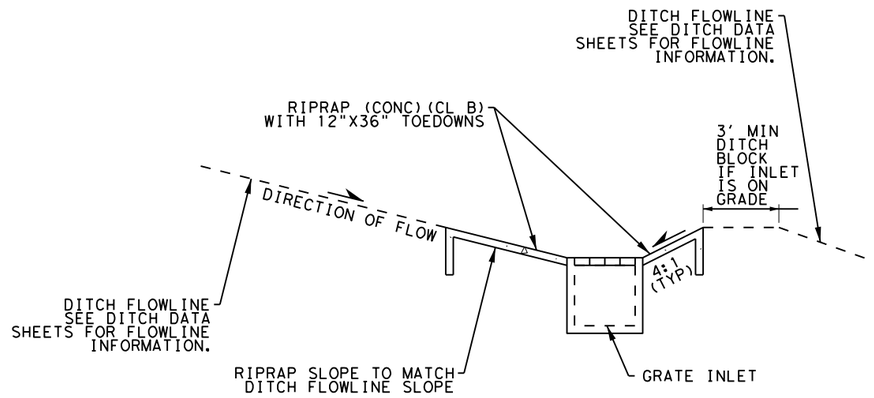
FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1663



ROCK CUT WALL DETAIL
NTS



RIPRAP APRON PLAN VIEW DETAIL
NTS



RIPRAP APRON PROFILE VIEW DETAIL
NTS

STATE OF TEXAS
LUKE REED
101242
LICENSED
PROFESSIONAL ENGINEER

LUKE REED, P.E. — 2/27/2023 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

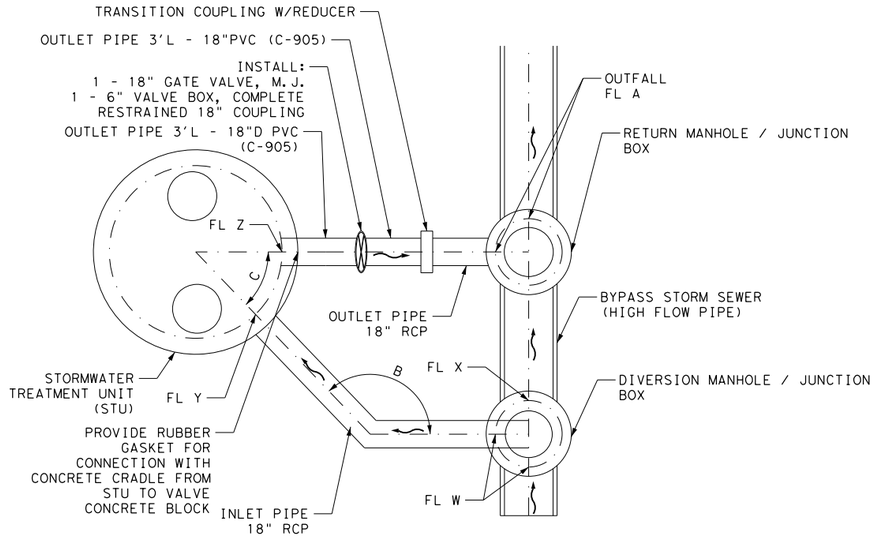
LJA Engineering, Inc.
FRN-F-1386

LP 1604

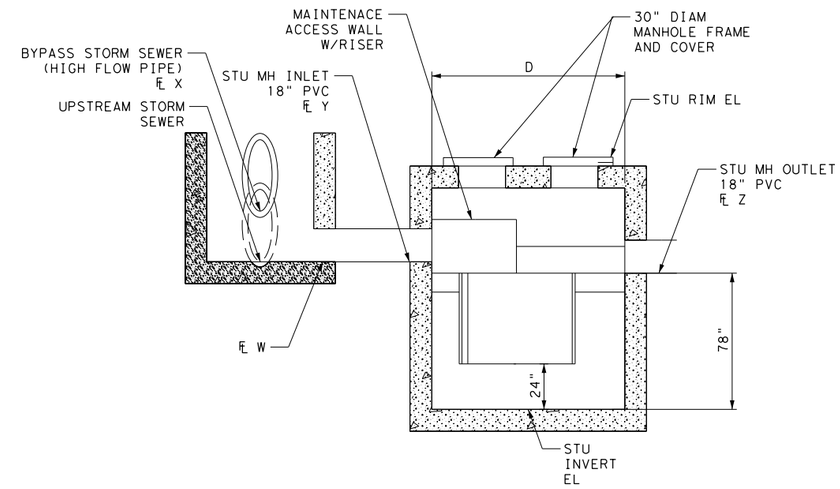
MISCELLANEOUS DRAINAGE DETAILS

SHEET 7 OF 7

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1664

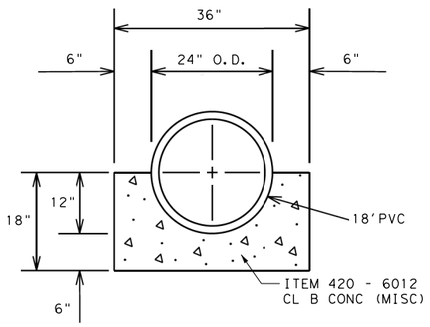


STORMWATER TREATMENT UNIT (STU) PLAN VIEW
CONFIGURATION 1

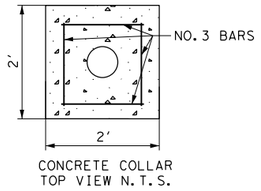


STORMWATER TREATMENT UNIT (STU) PROFILE VIEW

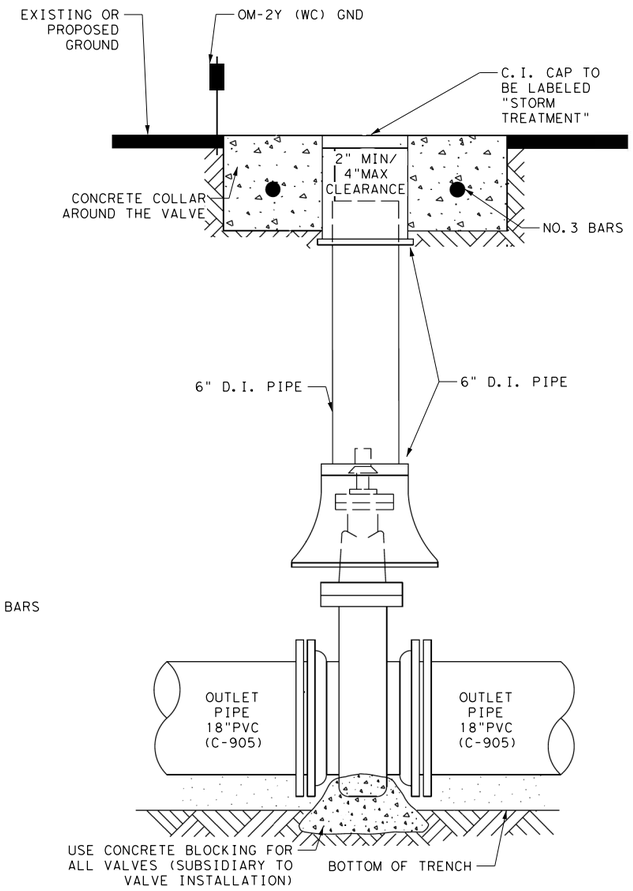
BMP	BD-1	BD-2	BE-1	BE-2	BE-3	BI-1	BI-2	BJ-1
REQUIRED TREATMENT FLOW RATE	3.66	3.29	3.72	0.99	3.30	3.28	3.32	2.83
PROVIDED TREATMENT FLOW RATE	3.74	3.39	3.74	1.16	3.39	3.39	3.39	2.85
TREATMENT AREA (AC)	23.62	6.30	7.43	1.30	5.03	5.86	6.48	22.17
IMPERVIOUS COVER (AC)	20.25	4.23	5.44	1.29	4.29	4.23	4.87	17.32
STU DIAMETER (FT)	10	10	10	6	10	10	10	10
# OF HI-FLOW CARTRIDGES	19	17	19	6	17	17	17	14
# OF DRAINDOWN CARTRIDGES	4	4	4	1	4	4	4	4
CARTRIDGE LENGTH (IN)	54	54	54	54	54	54	54	54
FL W	947.37	950.21	923.77	924.57	922.21	884.27	877.15	837.79
FL X	949.37	952.21	925.77	926.57	924.21	886.27	879.15	839.79
FL Y	947.12	949.96	923.52	924.32	921.96	884.02	876.90	837.54
FL Z	946.62	949.46	923.02	923.82	921.46	883.52	876.40	837.04
FL A	945.37	949.21	922.77	922.57	920.21	882.27	875.15	835.79
B (DEG)	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
C (DEG)	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
D (DEG)	120.0	120.0	120.0	120.0	120.0	120.0	120.0	120.0
CONFIG.	OFFLINE	OFFLINE	OFFLINE	OFFLINE	OFFLINE	OFFLINE	OFFLINE	OFFLINE
STU RIM EL	956.43	956.61	932.56	934.75	930.45	893.71	889.34	853.03
STU INVERT EL	940.12	942.96	916.52	917.32	914.96	877.02	869.90	830.54
18" RCP (FT)	10	6	12	12	12	12	12	12
18" PVC (FT)	6	6	6	6	6	6	6	6



CONCRETE CRADLE DETAIL N.T.S.



CONCRETE COLLAR
TOP VIEW N.T.S.



STU VALVE DETAIL N.T.S.

STATE OF TEXAS
ZACHARY B. RYAN
106276
LICENSED
PROFESSIONAL ENGINEER

2/14/2023

95% SUBMITTAL

0' 25' 50' 100'
SCALE: 1"=100'

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN-F-1386

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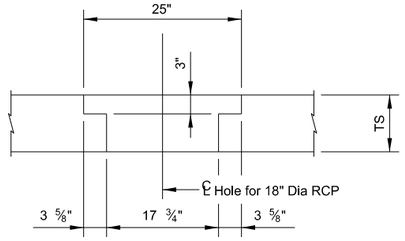
LP 1604
WATER QUALITY
DETAILS

SHEET 1 OF 1

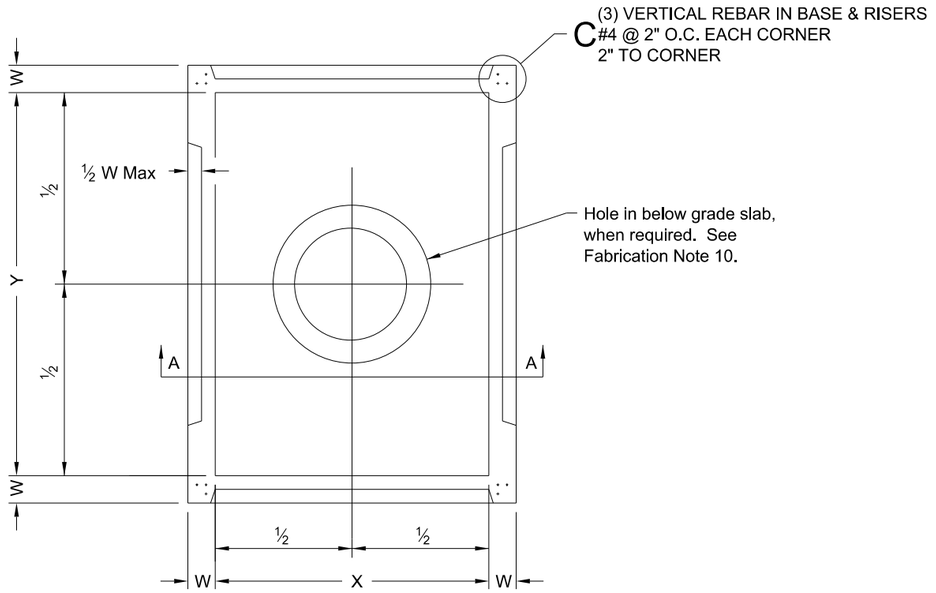
FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS	SEE TITLE SHEET			LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130	1665

$$$$$$SYSTIME$$$$$$ 2/14/2023
c:\workingdir\lja-pw.bentley.com_lja-pw-01\amelia stepnoski\dms03433\l130_WQDET01.dgn

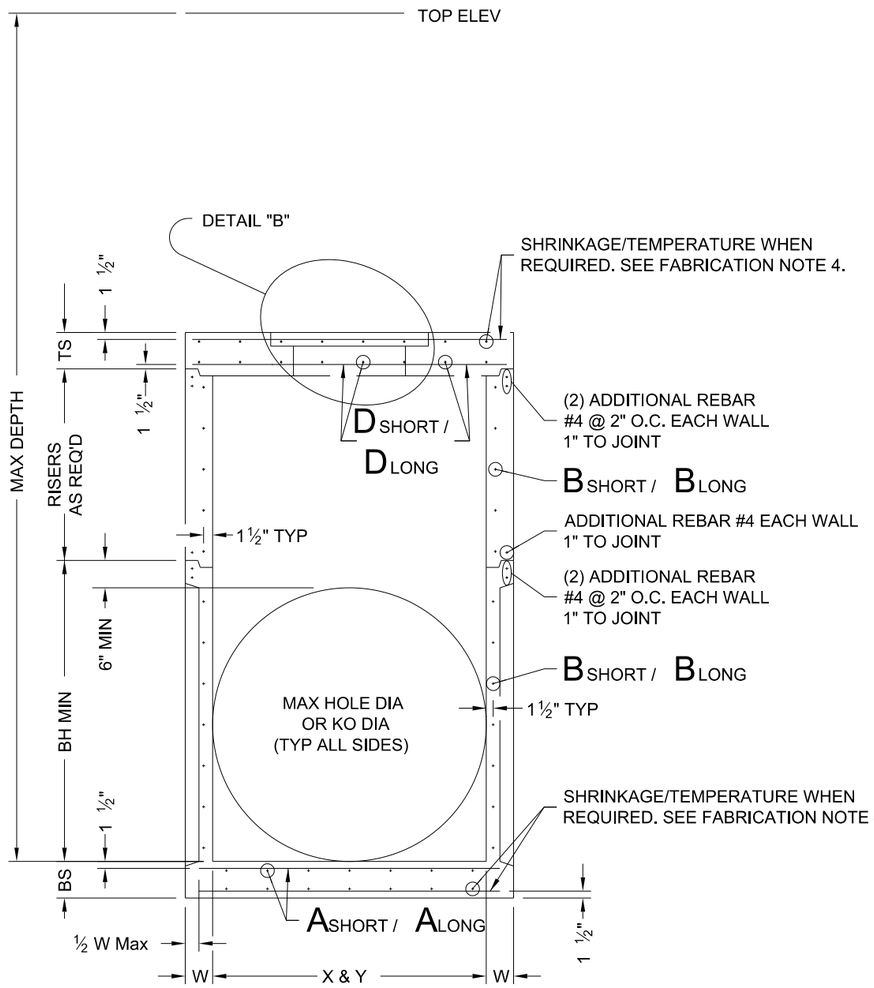
DATE: 1/24/2023 $TIME$
FILE: v:\bentley\dms\pjb production\adook\dms03433\PJB.dgn



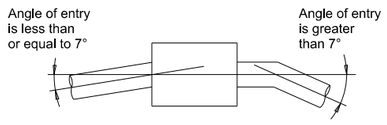
DETAIL "B"



PLAN VIEW



SECTION A-A



PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PJB wall.
If necessary, use pipe elbow or curved approach
alignment to stay within this limit.

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.
10. Provide hole in below grade slab only when PJB is installed with inlet type POD.

INSTALLATION NOTES:

1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to junction box.
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. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for junction box is per Item 465 "Junction Boxes, Manholes, and Inlets" by type and size.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

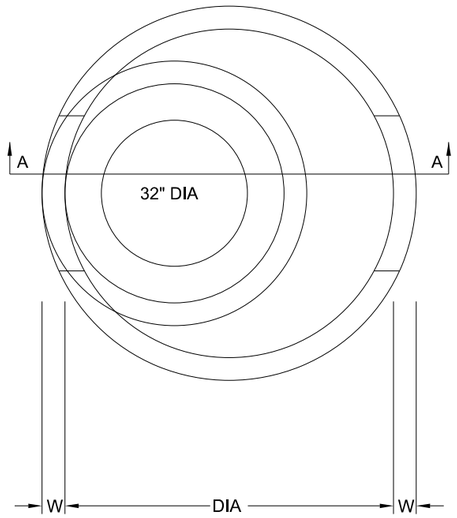
Texas Department of Transportation

Bridge Division Standard

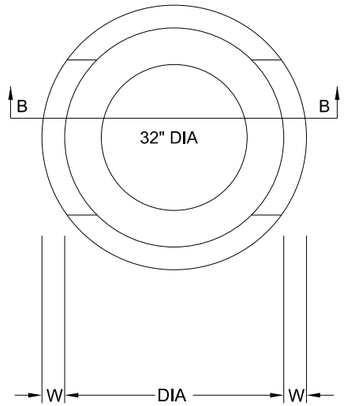
PRECAST JUNCTION BOX

PJB

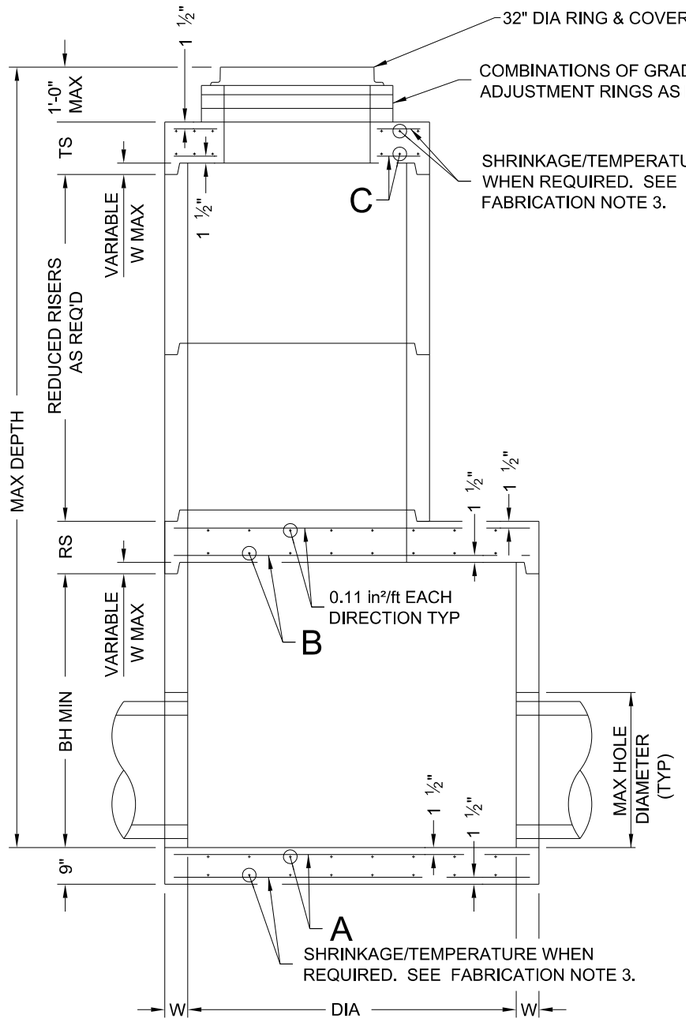
FILE: prestd09-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	2452	02	128, etc	LP 1604
	DIST	COUNTY		SHEET NO.
	SAT	BEXAR		1676



PLAN VIEW "A"

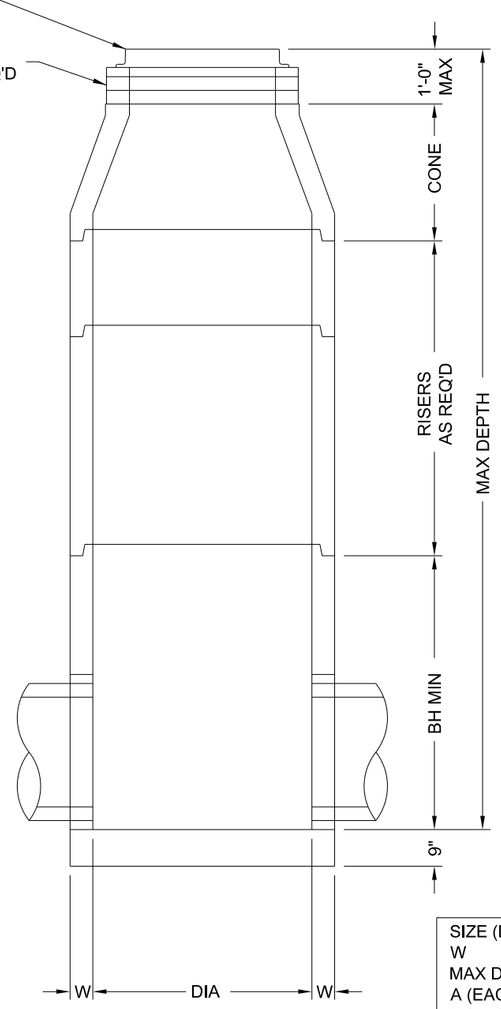


PLAN VIEW "B"



SECTION A-A

ROUND REDUCED RISER OPTION
SHOWING FLAT SLAB TOP



SECTION B-B

ROUND RISER OPTION
SHOWING CONE

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR. Provide circumferential reinforcing steel in vertical walls of base, riser and cone in accordance with ASTM C478.
3. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
4. Manufacture base and risers to nearest 3" increment.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
6. Provide lifting devices in conformance with Manufacturer's recommendations.
7. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

INSTALLATION NOTES:

1. Cones may be concentric or eccentric. Reduction cones are acceptable. See Manufacturer for cone dimensions.
2. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to this item.
3. 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.
4. Do not grout rubber gasket joints without Manufacturer's recommendation.
5. Initial installation of grade adjustment rings is limited to 1'-0" Max as shown.
6. Grade adjustment rings may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments may be made up to the Max depth shown. Structure must be evaluated if Max depth will be exceeded.

GENERAL NOTES:

1. Designed according to ASTM C478.
2. Payment for manhole is per Item 465, "Junction Boxes, Manholes, and Inlets" by type and size.
3. Pipe OD + placement tolerance must be equal or less than Max hole diameter. For rigid pipe, placement tolerance is 4" Max, 2" Min. For flexible pipe, consult boot/seal manufacturer's specification for placement tolerance.

Cover dimensions are clear dimensions, unless noted otherwise.

SIZE (DIA)	48 in	60 in	72 in
W	5 in	6 in	7 in
MAX DEPTH	25 ft	25 ft	25 ft
A (EACH WAY)	0.22 in²/ft	0.30 in²/ft	0.45 in²/ft
B (EACH WAY)	N/A	0.37 in²/ft	0.62 in²/ft
C (EACH WAY)	0.24 in²/ft	0.46 in²/ft	0.46 in²/ft
BH MIN	12 in	36 in	36 in
TS	9 in	9 in	9 in
RS	N/A	9 in	12 in
REDUCED RISER DIA	N/A	48 in	48/60 in
MAX HOLE DIA	32 in	40 in	54 in

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST ROUND MANHOLE

PRM

FILE: prestd02-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	2452	02	128, etc	LP 1604
	DIST	COUNTY		SHEET NO.
	SAT	BEXAR		1678

DATE: 1/24/2023 $TIME$
FILE: v:\bentley\dms\lfd_production\dodok\dms03433\PRM.dgn

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	B-321	District	San Antonio
Highway	LP 1604	Structure	Bridge 79	Date	6/18/2020
CSJ	2452-02-128	Station	4403+96.00	Grnd. Elev.	969.40 ft
		Offset	-72.80	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		GRAVEL, clayey, dense, dark brown to brown			7	28	11		#200(%)-23; 17-34-50/4in.; N=50/4in.
967.4		LIMESTONE, very hard, light gray to light tan, fractured							
5	50 (0) 50 (0)		0	10420	0			150	REC(%)-73; RQD(%)-53
10	50 (0) 50 (0)								REC(%)-30; RQD(%)-0
15	50 (0.5) 50 (0)								REC(%)-100; RQD(%)-20
20	50 (0) 50 (0)								REC(%)-92; RQD(%)-80
25	50 (0) 50 (0)		0	3144	0			142	REC(%)-100; RQD(%)-96
30	50 (0) 50 (0)								REC(%)-80; RQD(%)-68
35	50 (0) 50 (0)								REC(%)-85; RQD(%)-53
40	50 (0) 50 (0)								REC(%)-100; RQD(%)-100

Remarks: **Advance Method: Air Rotary 0-2, Rock Coring 2-70, Boring GPS coordinates: (29.609032, -98.49289). SPT testing was modified using a 170-lb hammer and 24-inch drop height.**

The ground water elevation was not determined during the course of this boring.

Driller: Eric Jones **Logger: Sterling Mcclelland** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	B-321	District	San Antonio
Highway	LP 1604	Structure	Bridge 79	Date	6/18/2020
CSJ	2452-02-128	Station	4403+96.00	Grnd. Elev.	969.40 ft
		Offset	-72.80	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		LIMESTONE, very hard, light gray to light tan, fractured							
45	50 (0.5) 50 (0)		0	1716	0			143	REC(%)-87; RQD(%)-78
50	50 (0) 50 (0)								REC(%)-97; RQD(%)-78
55	50 (0) 50 (0)								REC(%)-100; RQD(%)-100
60	50 (0.5) 50 (0)								REC(%)-100; RQD(%)-100
65	50 (0) 50 (0)		0	2400	0			145	REC(%)-83; RQD(%)-83
899.3 70	50 (0) 50 (0)								REC(%)-53; RQD(%)-69
75									
80									

Remarks: **Advance Method: Air Rotary 0-2, Rock Coring 2-70, Boring GPS coordinates: (29.609032, -98.49289). SPT testing was modified using a 170-lb hammer and 24-inch drop height.**

The ground water elevation was not determined during the course of this boring.

Driller: Eric Jones **Logger: Sterling Mcclelland** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

©2021

LP 1604

BORING LOG

SHEET 1 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1697

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DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	B-322	District	San Antonio
Highway	LP 1604	Structure	Bridge 79	Date	7/8/2020
CSJ	2452-02-128	Station	4403+24	Grnd. Elev.	967.80 ft
		Offset	140.7	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
965.3			GRAVEL, clayey, slightly compact, brown							#200(%)-41; 17-15-20; N=35
			LIMESTONE, very hard, light gray to light tan, fractured							50/0in.; N=50/0in.
										REC(%)-93; RQD(%)-93
5		50 (0) 50 (0)								
				0	1036	0			142	REC(%)-100; RQD(%)-77
10		50 (0) 50 (0)								
										REC(%)-100; RQD(%)-73
15		50 (0) 50 (0)								
										REC(%)-100; RQD(%)-53
20		50 (0) 50 (0)								
										REC(%)-100; RQD(%)-0
25		50 (0.5) 50 (0)								
				0	5702	0			142	REC(%)-100; RQD(%)-24
30		50 (0) 50 (0)								
										REC(%)-100; RQD(%)-0
35		50 (0.5) 50 (0)								
				0	2653	0			144	REC(%)-97; RQD(%)-36
40		50 (1) 50 (0)								

Remarks: **Advance Method: Air Rotary 0-2.5, Rock Coring 2.5-70, Boring GPS coordinates: (29.608406, -98.493008). SPT testing was modified using a 170-lb hammer and 24-inch drop height.**

The ground water elevation was not determined during the course of this boring.

Driller: Eric Jones **Logger: Sterling Mcclelland** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	B-322	District	San Antonio
Highway	LP 1604	Structure	Bridge 79	Date	7/8/2020
CSJ	2452-02-128	Station	4403+24	Grnd. Elev.	967.80 ft
		Offset	140.7	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light gray to light tan, fractured							REC(%)-98; RQD(%)-69
45		50 (1) 50 (0)								
										REC(%)-98; RQD(%)-76
50		50 (0) 50 (0)								
										REC(%)-70; RQD(%)-32
55		50 (0) 50 (0)								
				0	2283	0			137	REC(%)-94; RQD(%)-52
60		50 (0) 50 (0)								
										REC(%)-84; RQD(%)-36
65		50 (0) 50 (0)								
										REC(%)-68; RQD(%)-47
897.7 70		50 (0.5) 50 (0)								
75										
80										

Remarks: **Advance Method: Air Rotary 0-2.5, Rock Coring 2.5-70, Boring GPS coordinates: (29.608406, -98.493008). SPT testing was modified using a 170-lb hammer and 24-inch drop height.**

The ground water elevation was not determined during the course of this boring.

Driller: Eric Jones **Logger: Sterling Mcclelland** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 2 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1698

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DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	B-323	District	San Antonio
Highway	LP 1604	Structure	Bridge 79	Date	7/24/2020
CSJ	2452-02-128	Station	4405+08.00	Grnd. Elev.	969.30 ft
		Offset	79.80	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, slightly compact, brown to reddish brown			3	35	18		#200(%)-33; 11-37-40; N=77
						4	35	19		#200(%)-18; 39-29-50/4in.; N=50/4in.
965.3										
5		50 (0) 50 (0)	LIMESTONE, very hard, light gray to light tan, fractured	0	2701	0			161	REC(%)-100; RQD(%)-69
10		50 (0) 50 (0)								REC(%)-10; RQD(%)-70
15		50 (0) 50 (0.5)		0	2749	0			142	REC(%)-92; RQD(%)-60
20		50 (0) 50 (0)								REC(%)-100; RQD(%)-78
25		50 (0) 50 (0)								REC(%)-100; RQD(%)-93
943.3			VOID, between 26 and 27.5 feet							
941.8			LIMESTONE, very hard, light gray to light tan, fractured and vuggy							
30		50 (0) 50 (0)								REC(%)-100; RQD(%)-83
35		50 (0) 50 (0)		0	1577	0			134	REC(%)-98; RQD(%)-45
40		50 (0) 50 (0)								REC(%)-100; RQD(%)-48

Remarks: Advance Method: Air Rotary 0-4, Rock Coring 4-74, Boring GPS coordinates: (29.608604, -98.492497). SPT testing was modified using a 170-lb hammer and 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: Eric Jones **Logger:** Sterling Mcclelland **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	B-323	District	San Antonio
Highway	LP 1604	Structure	Bridge 79	Date	7/24/2020
CSJ	2452-02-128	Station	4405+08.00	Grnd. Elev.	969.30 ft
		Offset	79.80	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light gray to light tan, fractured and vuggy							
45		50 (0) 50 (0)								REC(%)-22; RQD(%)-0
923.3			VOID, between 46 and 48 feet							
921.3			LIMESTONE, very hard, light gray to light tan, fractured and vuggy							
50		50 (0.5) 50 (0)								REC(%)-47; RQD(%)-7
55		50 (0.5) 50 (0)		0	3294	0			136	REC(%)-98; RQD(%)-37
60		50 (0.5) 50 (0)								REC(%)-63; RQD(%)-13
65		50 (1) 50 (0)								REC(%)-55; RQD(%)-10
900.3			VOID, between 69 to 74 feet							
70										REC(%)-27; RQD(%)-27
895.3										
75										
80										

Remarks: Advance Method: Air Rotary 0-4, Rock Coring 4-74, Boring GPS coordinates: (29.608604, -98.492497). SPT testing was modified using a 170-lb hammer and 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: Eric Jones **Logger:** Sterling Mcclelland **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 3 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1699

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	B-324	District	San Antonio
Highway	LP 1604	Structure	Bridge 79	Date	7/9/2020
CSJ	2452-02-128	Station	4406+16.00	Grnd. Elev.	986.40 ft
		Offset	0.7	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, slightly compact to dense, dark brown to brown			10	34	16		#200(%)-43; 11-26-40; N=66
						8				18-19-22; N=41
5		12 (6) 14 (6)				5				#200(%)-24; 13-14-22; N=36
						13				7-7-8; N=15
10		50 (5) 50 (1.5)				7				#200(%)-18; 10-8-9; N=17
						16				#200(%)-15; 13-14-18; N=32
15		11 (6) 5 (6)								
						36	78	45		#200(%)-64; 2-1-21; N=22
966.4 20		50 (1) 50 (0.5)	LIMESTONE, very hard, light gray to light tan							
										50/2in.; N=50/2in.
25		50 (0.5) 50 (0)								
				0	4259	0			145	REC(%)-100; RQD(%)-85
30		50 (0) 50 (0)								
955.4			VOID, between 31 to 32 feet							
954.4			LIMESTONE, very hard, light gray to light tan, fractured							REC(%)-77; RQD(%)-53
35		50 (0) 50 (0)								
				0	4036	0			140	REC(%)-100; RQD(%)-57
40		50 (0) 50 (0)								

Remarks: Advance Method: Air Rotary 0-25, Rock Coring 25-70, Boring GPS coordinates: (29.608841, -98.492245). SPT testing was modified using a 170-lb hammer and 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: Eric Jones **Logger: Sterling Mcclelland** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	B-324	District	San Antonio
Highway	LP 1604	Structure	Bridge 79	Date	7/9/2020
CSJ	2452-02-128	Station	4406+16.00	Grnd. Elev.	986.40 ft
		Offset	0.7	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light gray to light tan, fractured							
944.4			VOID, between 42 to 46.5 feet							REC(%)-64; RQD(%)-29
45		50 (0.5) 50 (0)								
939.9			LIMESTONE, very hard, light gray to light tan, vuggy and fractured	0	1057	0			133	REC(%)-93; RQD(%)-42
50		50 (0) 50 (0)								
										REC(%)-98; RQD(%)-34
55		50 (0) 50 (0)								
										REC(%)-100; RQD(%)-36
60		50 (0) 50 (0.5)								
										REC(%)-63; RQD(%)-0
65		50 (0) 50 (0)								
				0	5593	0			149	REC(%)-100; RQD(%)-34
916.4 70		50 (0) 50 (0)								
75										
80										

Remarks: Advance Method: Air Rotary 0-25, Rock Coring 25-70, Boring GPS coordinates: (29.608841, -98.492245). SPT testing was modified using a 170-lb hammer and 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: Eric Jones **Logger: Sterling Mcclelland** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 4 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1700

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-401	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4481+54.55	Grnd. Elev.	962.10 ft
		Offset	67.6	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		GRAVEL, clayey, tan, with cobbles, with boulders							SPT:7-15-11;N=26
959.1					27				#200(%)-21; SPT:5-13-50: N=63
5	18 (6) 23 (6)	WEATHERED LIMESTONE BOULDERS, soft, tan, interbedded with clayey gravel layers							SPT:50/0
			0	11859				159	REC:43%; RQD:15%
10	23 (6) 47 (6)								REC:80%; RQD:0%
948.1									
15	50 (0) 50 (0)	LIMESTONE, very hard, light tan, fractured, vuggy layers, with clay filled cavities and chert seams							
			0	5624				155	REC:98%; RQD:18%
20	50 (0) 50 (0)								REC:83%; RQD:0%
25	50 (0) 50 (0)								REC:97%; RQD:0%
30	50 (0) 50 (0)								REC:63%; RQD:0%
35	50 (0) 50 (0)								
			0	4052				156	REC:80%; RQD:20%
40	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet the wet coring from 5 to 50 feet (coring refusal at 50 ft) then air rotary thereafter.
GPS: (Lat: 29.60903, Lon: -98.46873).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-401	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4481+54.55	Grnd. Elev.	962.10 ft
		Offset	67.6	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		LIMESTONE, very hard, light tan, fractured, vuggy layers, with clay filled cavities and chert seams							
			0	4767				152	REC:87%; RQD:15%
45	50 (0) 50 (0)								
									REC:40%; RQD:0%
50	50 (1) 50 (0)								
55	50 (2) 50 (1)								
60	50 (1) 50 (1)								
65	50 (0) 50 (0)								
892.1 70	50 (1) 50 (0)								
75									
80									

Remarks: Advancement Method: Air rotary to 5 feet the wet coring from 5 to 50 feet (coring refusal at 50 ft) then air rotary thereafter.
GPS: (Lat: 29.60903, Lon: -98.46873).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

 Texas Department of Transportation

LP 1604

BORING LOG

SHEET 5 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1701

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-401A	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/8/202
CSJ	2452-02-130 & 2452-03-113	Station	4480+63.72	Grnd. Elev.	964.40 ft
		Offset	-66.8	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
963.5			, 3in. Asphalt and 8in. Base							SPT:6-6-15
			GRAVEL, clayey, compact, tan, with cobbles, with boulders			21				SPT:50/1
961.4			WEATHERED LIMESTONE BOULDERS, very hard, tan, interbedded with clayey gravel layers			7				SPT:50/0
958.4		50 (0) 50 (0)	LIMESTONE, very hard, light tan, fractured, vuggy layers, with clay filled cavities and chert seams							REC:63%; RQD:48%
10		50 (0) 50 (0)		0	9153				161	REC:100%; RQD:52%
15		50 (0) 50 (0)								REC:95%; RQD:70%
20		50 (0) 50 (0)		0	3819				154	REC:97%; RQD:53%
25		50 (0) 50 (0)								REC:60%; RQD:7%
30		50 (0) 50 (0)		0	5436				151	REC:98%; RQD:67%
35		50 (0) 50 (0)								REC:98%; RQD:37%
40		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60949, Lon: -98.46898).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-401A	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/8/202
CSJ	2452-02-130 & 2452-03-113	Station	4480+63.72	Grnd. Elev.	964.40 ft
		Offset	-66.8	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers, with clay filled cavities and chert seams	0	4635				150	REC:97%; RQD:87%
919.4 45		50 (0) 50 (0)								
50										
55										
60										
65										
70										
75										
80										

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60949, Lon: -98.46898).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 6 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1702

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-402	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/6/2022
CSJ	2452-02-130 & 2452-03-113	Station	4483+16.40	Grnd. Elev.	962.80 ft
		Offset	-73.5	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, tan, with cobbles, weathered limestone with boulders below 2 feet			16				#200(%)-21; SPT:10-6-50/3
959.8			WEATHERED LIMESTONE BOULDERS, hard, tan, interbedded with clayey gravel layers							SPT:50/1
5		50 (0) 50 (0)								SPT:50/0
955.8			LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled cavities and chert seams, with some scattered soft rock layers between 55 and 65 feet							REC.:45%; RQD:7%
10		50 (0) 50 (0)		0	5849					REC:93%; RQD:37%
15		50 (0) 50 (0)							152	REC:83%; RQD:25%
20		50 (0) 50 (0)		0	7146					REC:90%; RQD:37%
25		50 (0) 50 (0)							156	REC:97%; RQD:45%
30		50 (0) 50 (0)		0	5256					REC:98%; RQD:37%
35		50 (0) 50 (0)							161	REC:92%; RQD:28%
40		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60930, Lon: -98.46811).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-402	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/6/2022
CSJ	2452-02-130 & 2452-03-113	Station	4483+16.40	Grnd. Elev.	962.80 ft
		Offset	-73.5	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled cavities and chert seams, with some scattered soft rock layers between 55 and 65 feet	0	7315					REC:100%; RQD:77%
45		50 (0) 50 (0)							155	REC:72%; RQD:13%
50		50 (0) 50 (0)								REC:50%; RQD:8%
55		47 (6) 50 (1)		0	8320					REC:90%; RQD:33%
60		44 (6) 50 (2)							155	REC:78%; RQD:35%
65		46 (6) 50 (1)		0	3837					REC:60%; RQD:15%
892.8 70		50 (0) 50 (0)							157	
75										
80										

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60930, Lon: -98.46811).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 7 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1703

DRILLING LOG

WinCore Version 3.3	County	Bexar	Hole	B-402A	District San Antonio
	Highway	LP 1604	Structure	Bridge	Date 4/11/2022
	CSJ	2452-02-130 & 2452-03-113	Station	4484+15.03	Grnd. Elev. 960.40 ft
			Offset	66.5	GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
958.9			, 11in. Asphalt and 7in. Base							
			GRAVEL, clayey, very dense, tan, with cobbles and boulders			10				#200(%)-22; SPT:7-6-7
957.4			WEATHERED LIMESTONE BOULDERS, very hard, tan, interbedded with clayey gravel layers							SPT:39-50/2
5		50 (1) 50 (0)								SPT:50/0
954.4			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams	0	8732				160	REC:63%; RQD:53%
10		50 (0) 50 (0)								
										REC:95%; RQD:77%
15		50 (0) 50 (0)								
				0	4678				148	REC:77%; RQD:58%
20		50 (0) 50 (0)								
										REC:83%; RQD:65%
25		50 (1) 50 (0)								
				0	9354				160	REC:95%; RQD:47%
30		50 (0) 50 (0)								
										REC:88%; RQD:60%
35		50 (0) 50 (0)								
										REC:27%; RQD:0%
40		50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60884, Lon: -98.46793).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3	County	Bexar	Hole	B-402A	District San Antonio
	Highway	LP 1604	Structure	Bridge	Date 4/11/2022
	CSJ	2452-02-130 & 2452-03-113	Station	4484+15.03	Grnd. Elev. 960.40 ft
			Offset	66.5	GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
919.4			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay							
918.9			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams							REC:10%; RQD:0%
915.4		50 (0) 50 (0)								
45										
50										
55										
60										
65										
70										
75										
80										

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60884, Lon: -98.46793).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 8 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1704

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-403	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/4/2022
CSJ	2452-02-130 & 2452-03-113	Station	4519+18.35	Grnd. Elev.	962.30 ft
		Offset	117.1	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
961.3			, 4in. Asphalt, 8in. Base			15				#200(%)-23; SPT:27-21-50/4
959.3			GRAVEL, clayey, very dense, tan, with cobbles, weathered limestone with boulders below 2 feet							SPT:50/2
5		50 (5) 16 (6)	WEATHERED LIMESTONE BOULDERS, soft, tan, interbedded with clayey gravel layers							SPT:50/0
955.3			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams							REC:55%; RQD:13%
10		47 (6) 50 (1)		0	7086				160	REC:72%; RQD:40%
15		50 (0) 50 (0)								REC:87%; RQD:67%
20		50 (0) 50 (0)		0	9835				161	REC:100%; RQD:77%
25		50 (1) 50 (0)								REC:100%; RQD:78%
30		50 (0) 50 (0)		0	11561				159	REC:93%; RQD:47%
35		50 (0) 50 (0)								REC:92%; RQD:20%
40		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 6 feet; Wet coring thereafter. GPS: (Lat: 29.60577, Lon: -98.45752).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-403	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/4/2022
CSJ	2452-02-130 & 2452-03-113	Station	4519+18.35	Grnd. Elev.	962.30 ft
		Offset	117.1	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams							REC:47%; RQD:0%
917.3 45		50 (0) 50 (0)								
50										
55										
60										
65										
70										
75										
80										

Remarks: Advancement Method: Air rotary to 6 feet; Wet coring thereafter. GPS: (Lat: 29.60577, Lon: -98.45752).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 9 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1705

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-404	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/1/2022
CSJ	2452-02-130 & 2452-03-113	Station	4519+41.60	Grnd. Elev.	959.20 ft
		Offset	-128.0	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
957.7			, 5in. Asphalt, 8in. Base			7				#200(%)-27; SPT:45-39-42
956.2			GRAVEL, clayey, dense to very dense, reddish brown to tan, with WEATHERED LIMESTONE BOULDERS, soft, tan, interbedded with clayey gravel layers							SPT:50/5
5		43 (6) 38 (6)								SPT:42-38-17
						22	75	46		SPT:29-50/4
951.2			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams							
10		50 (1) 50 (0)		0	7617				160	REC:93%; RQD:68%
15		50 (0) 50 (0)								REC:100%; RQD:83%
20		50 (1) 50 (0)		0	5091				157	REC:92%; RQD:57%
25		50 (0) 50 (0)								REC:97%; RQD:85%
30		50 (0) 50 (0)		0	5847				157	REC:95%; RQD:23%
35		50 (0) 50 (0)								REC:85%; RQD:60%
40		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 8 feet; Wet coring thereafter. GPS: (Lat: 29.60639, Lon: -98.45723).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-404	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/1/2022
CSJ	2452-02-130 & 2452-03-113	Station	4519+41.60	Grnd. Elev.	959.20 ft
		Offset	-128.0	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams	0	4386				145	REC:97%; RQD:53%
914.2 45		50 (0) 50 (0)								REC:75%; RQD:17%
50										
55										
60										
65										
70										
75										
80										

Remarks: Advancement Method: Air rotary to 8 feet; Wet coring thereafter. GPS: (Lat: 29.60639, Lon: -98.45723).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 10 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1706

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-404A	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/1/2022
CSJ	2452-02-130 & 2452-03-113	Station	4519+09.13	Grnd. Elev.	936.80 ft
		Offset	6.4	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, very dense, brown, with cobbles			19				#200(%)-41; SPT:13-50/4
934.8			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams, with some scattered soft rock layers between 25 and 40 feet							SPT:50/0
5		50 (0) 50 (0)		0	12623				161	REC:90%; RQD:33%
10		50 (0) 50 (0)								REC:100%; RQD:43%
15		50 (1) 50 (0)		0	4458				148	REC:97%; RQD:63%
20		50 (0) 50 (0)								REC:90%; RQD:42%
25		50 (5) 50 (2)		0	12396				159	REC:72%; RQD:15%
30		48 (6) 50 (2)								REC:68%; RQD:0%
35		42 (6) 50 (1)		0	6801				155	REC:87%; RQD:17%
40		46 (6) 50 (0)								REC:72%; RQD:35%

Remarks: Advancement Method: Air rotary to 2 feet; Wet coring thereafter. GPS: (Lat: 29.60606, Lon: -98.45741).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

C:\Users\ntyczkowski\Desktop\Working\Boring Logs\LP 1604 Bridge Borings.clg

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-404A	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/1/2022
CSJ	2452-02-130 & 2452-03-113	Station	4519+09.13	Grnd. Elev.	936.80 ft
		Offset	6.4	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
891.8		50 (0) 50 (0)	LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams, with some scattered soft rock layers between 25 and 40 feet	0	4256				150	REC:100%; RQD:31%
45										
50										
55										
60										
65										
70										
75										
80										

Remarks: Advancement Method: Air rotary to 2 feet; Wet coring thereafter. GPS: (Lat: 29.60606, Lon: -98.45741).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 11 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1707

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-405	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/23/2022
CSJ	2452-02-130 & 2452-03-113	Station	4540+57.93	Grnd. Elev.	885.20 ft
		Offset	-95.1	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		GRAVEL, clayey, slightly compact to dense, dark reddish tan to light tan, with cobbles			19				#200(%)-26; SPT:11-7-9
	8 (6) 13 (6)								SPT:13-7-9 SPT:50/2
879.2		WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, cobbles, interbedded with clayey gravel layers							REC:21%; RQD:0%
	9 (6) 7 (6)								REC:30%; RQD:0%
	20 (6) 38 (6)		0	10089				161	REC:33%; RQD:15%
	27 (6) 50 (3)								REC:32%; RQD:7%
	34 (6) 48 (6)								REC:20%; RQD:0%
	16 (6) 14 (6)								REC:37%; RQD:10%
	30 (6) 19 (6)								REC:20%; RQD:7%
	27 (6) 39 (6)								

Remarks: Advancement Method: Air rotary to 6 feet; Wet coring thereafter. GPS: (Lat: 29.60467, Lon: -98.45087).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones Logger: R. Vasquez Organization: Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-405	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/23/2022
CSJ	2452-02-130 & 2452-03-113	Station	4540+57.93	Grnd. Elev.	885.20 ft
		Offset	-95.1	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, cobbles, interbedded with clayey gravel layers	0	2258				143	REC:97%; RQD:68%
	41 (6) 50 (2)								
	37 (6) 42 (6)								REC:30%; RQD:0%
	48 (6) 50 (1)								REC:62%; RQD:0%
829.2		LIMESTONE, hard to very hard, light tan, fractured, vuggy layers, with clay filled cavities and chert seams							REC:57%; RQD:0%
	50 (2) 50 (2)		0	5646				158	REC:85%; RQD:10%
	50 (3) 50 (0)								REC:60%; RQD:7%
815.2	50 (2) 50 (0)								

Remarks: Advancement Method: Air rotary to 6 feet; Wet coring thereafter. GPS: (Lat: 29.60467, Lon: -98.45087).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones Logger: R. Vasquez Organization: Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 12 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1708

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-406	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4543+31.95	Grnd. Elev.	887.00 ft
		Offset	-95.9	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, compact, reddish brown to light tan, with cobbles and scattered boulders			15				SPT:5-6-13
						4				#200(%)-8; SPT:22-50/5
5		47 (6) 32 (6)								SPT:50/0
881.			WEATHERED LIMESTONE BOULDERS, soft, tan, interbedded with clayey gravel layers	0	11486				158	REC:20%; RQD:13%
10		17 (6) 15 (6)								REC:28%; RQD:15%
15		16 (6) 14 (6)								
				0	3945				159	REC:22%; RQD:10%
20		27 (6) 33 (3)								REC:67%; RQD:12%
25		25 (6) 14 (6)								REC:15%; RQD:0%
30		30 (6) 27 (6)								
				0	8465				155	REC:22%; RQD:20%
852. 35		50 (1) 50 (0)	LIMESTONE, hard to very hard, light tan, fractured, vuggy layers and with clay filled cavities and chert seams, interbedded with clay layers between 50 and 60 ft							REC:23%; RQD:7%
40		50 (2) 50 (4)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60447, Lon: -98.45005).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-406	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4543+31.95	Grnd. Elev.	887.00 ft
		Offset	-95.9	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to very hard, light tan, fractured, vuggy layers and with clay filled cavities and chert seams, interbedded with clay layers between 50 and 60 ft	0	4988				147	REC:48%; RQD:18%
45		50 (1) 50 (0)								REC:35%; RQD:0%
50		37 (6) 33 (6)								
55		28 (6) 50 (1)								REC:55%; RQD:13%
				0	4975				158	REC:32%; RQD:12%
60		41 (6) 50 (1)								REC:42%; RQD:13%
65		50 (0) 50 (0)								
				0	3263				142	REC:30%; RQD:0%
817. 70		50 (0) 50 (0)								
75										
80										

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60447, Lon: -98.45005).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 13 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1709

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-407	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/30/2022
CSJ	2452-02-130 & 2452-03-113	Station	4540+64.64	Grnd. Elev.	886.70 ft
		Offset	-134.5	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, slightly compact, reddish tan to light tan, with cobbles			10				#200(%)-20; SPT:8-17-10
5		15 (6) 27 (6)								SPT:9-12-22
										#200(%)-17; SPT:11-12-5
										SPT:10-13-11
10		14 (6) 16 (6)				8				#200(%)-14; SPT:12-12-11
871.7 15		20 (6) 37 (6)								SPT:13-13-25
			WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, interbedded with clayey gravel layers							
20		22 (6) 30 (6)								SPT:43-50/3
		48 (6) 50 (2)				15				#200(%)-23; SPT:9-19-27
25										SPT:50/2
30		37 (6) 31 (6)								
35		26 (6) 42 (6)								SPT:9-12-27
				0	4188				151	REC:93%; RQD:38%
40		38 (6) 36 (6)								

Remarks: Advancement Method: Air rotary to 35 feet; Wet coring thereafter. GPS: (Lat: 29.60478, Lon: -98.45082).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-407	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/30/2022
CSJ	2452-02-130 & 2452-03-113	Station	4540+64.64	Grnd. Elev.	886.70 ft
		Offset	-134.5	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, interbedded with clayey gravel layers							REC:77%; RQD:7%
841.7 45		50 (1) 50 (0)								
			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams	0	8897				161	REC:97%; RQD:40%
50		50 (1) 50 (0)								
										REC:87%; RQD:15%
55		50 (0) 50 (0)								
				0	6221				162	REC:100%; RQD:37%
60		50 (0) 50 (0)								
										REC:100%; RQD:18%
65		50 (0) 50 (0)								
				0	4048				163	REC:37%; RQD:22%
816.7 70		50 (0) 50 (0)								
75										
80										

Remarks: Advancement Method: Air rotary to 35 feet; Wet coring thereafter. GPS: (Lat: 29.60478, Lon: -98.45082).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 14 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1710

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-408	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/29/2022
CSJ	2452-02-130 & 2452-03-113	Station	4542+98.29	Grnd. Elev.	888.00 ft
		Offset	-133.8	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
887.		, 1in. Asphalt, 9in. Base			9				#200(%)-20; SPT:9-12-11
		GRAVEL, clayey, slightly compact, reddish brown to tan, with cobbles							
5	8 (6) 17 (6)				13				#200(%)-19; SPT:5-5-12
									SPT:7-12-9
10	9 (6) 23 (6)								SPT:15-9-17
874.									
15	40 (6) 44 (6)	WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, interbedded with clayey gravel layers							SPT:9-7-12
									REC:25%; RQD:0%
20	8 (6) 10 (6)		0	11669				162	REC:55%; RQD:12%
25	6 (6) 6 (6)								
			0	2037				134	REC:90%; RQD:28%
30	4 (6) 4 (6)								
								143	REC:92%; RQD:23%
35	4 (6) 4 (6)								
			0	3609					REC:70%; RQD:0%
40	5 (6) 5 (6)								

Remarks: Advancement Method: Dry auger to 15 feet; Wet coring thereafter. GPS: (Lat: 29.60460, Lon: -98.45011).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-408	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/29/2022
CSJ	2452-02-130 & 2452-03-113	Station	4542+98.29	Grnd. Elev.	888.00 ft
		Offset	-133.8	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, interbedded with clayey gravel layers							
								159	REC:83%; RQD:27%
844.									
45	50 (1) 50 (0)	LIMESTONE, very hard, light tan, fractured, clay filled cavities and chert seams, with clay layers between 44 to 50 feet							
			0	4642					REC:27%; RQD:7%
50	34 (6) 47 (6)								
									REC:53%; RQD:15%
55	50 (0) 50 (0)								
									REC:50%; RQD:0%
60	50 (0) 50 (0)								
									REC:100%; RQD:0%
65	50 (1) 50 (1)								
			0	5992				160	REC:63%; RQD:25%
818. 70	50 (2) 50 (0)								
75									
80									

Remarks: Advancement Method: Dry auger to 15 feet; Wet coring thereafter. GPS: (Lat: 29.60460, Lon: -98.45011).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 15 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1711

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-409	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/31/2022
CSJ	2452-02-130 & 2452-03-113	Station	4541+16.80	Grnd. Elev.	886.70 ft
		Offset	137.6	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
885.7			, 4in. Asphalt, 7in. Base			5				#200(%)-16; SPT:38-25-40
			GRAVEL, clayey, loose to slightly compact, reddish brown to tan, with cobbles, with scattered boulders							
		17 (6) 13 (6)								SPT:9-13-15
5										SPT:10-7-11
										SPT:42-17-28
		9 (6) 7 (6)				17				#200(%)-25; SPT:5-6-8
10										
872.7			WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, interbedded with clayey gravel layers							
15		23 (6) 50 (3)								SPT:3-3-6
										SPT:50/4
20		32 (6) 30 (6)								
										SPT:7-10-50/1
25		4 (6) 5 (6)								
										SPT:12-7-14
30		16 (6) 50 (4)								
										SPT:50/0
35		50 (1) 50 (0)								
848.7			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams							REC:38%; RQD:27%
40		50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 35 feet; Wet coring thereafter. GPS: (Lat: 29.60401, Lon: -98.45090).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-409	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/31/2022
CSJ	2452-02-130 & 2452-03-113	Station	4541+16.80	Grnd. Elev.	886.70 ft
		Offset	137.6	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers with clay filled cavities and chert seams	0	9756				152	REC:98%; RQD:78%
45		50 (1) 50 (0)								
										REC:97%; RQD:47%
50		50 (1) 50 (0)		0	6717				153	REC:20%; RQD:10%
55		50 (0) 50 (0)								
										REC:3%; RQD:0%
60		50 (0) 50 (0)		0	7506				159	REC:98%; RQD:20%
65		50 (0) 50 (0)								
										REC:100%; RQD:40%
816.7 70		50 (0) 50 (0)								
75										
80										

Remarks: Advancement Method: Air rotary to 35 feet; Wet coring thereafter. GPS: (Lat: 29.60401, Lon: -98.45090).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 16 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1712

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-410	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/31/2022
CSJ	2452-02-130 & 2452-03-113	Station	4543+44.94	Grnd. Elev.	889.20 ft
		Offset	139	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, slightly compact to dense, reddish brown to reddish tan, with cobbles with scattered boulders and highly weathered limestone below 30 feet							SPT:11-12-10
									15	#200(%)-13; SPT:17-12-12
5		50 (4) 50 (2)								SPT:13-7-8
										SPT:15-14-15
10		50 (1) 50 (0)								SPT:10-8-8
									25	#200(%)-38; SPT:5-4-11
15		50 (5) 50 (4)								
										SPT:5-5-6
20		49 (6) 50 (3)								
										SPT:9-9-12
25		28 (6) 20 (6)								
859.2 30		31 (6) 36 (6)	WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, interbedded with clayey gravel layers						17	#200(%)-21; SPT:7-11-20
										SPT:22-50/1
35		42 (6) 30 (6)								SPT:50/0
40		48 (6) 50 (5)								

Remarks: Advancement Method: Air rotary to 40 feet; Wet coring from 40 to 65 feet then air rotary from 65 to 70 feet. GPS: (Lat: 29.60384, Lon: -98.45019).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-410	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/31/2022
CSJ	2452-02-130 & 2452-03-113	Station	4543+44.94	Grnd. Elev.	889.20 ft
		Offset	139	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, interbedded with clayey gravel layers							
846.2				0	7531				152	REC:35%; RQD:12%
			LIMESTONE, very hard, light tan, fractured, with scattered clay filled cavities and chert seams							
45		50 (1) 50 (0)								
										REC:78%; RQD:30%
50		50 (1) 50 (0)								
				0	6045				150	REC:100%; RQD:32%
55		50 (0) 50 (0)								
										REC:100%; RQD:40%
60		50 (0) 50 (0)								
				0	8824				160	REC:35%; RQD:0%
824.2 65		50 (0) 50 (0)								
823.2			VOID, between 65 and 66 feet							
			LIMESTONE, very hard, light tan, fractured, with scattered clay filled cavities and chert seams							
819.2 70		50 (0) 50 (0)								
75										
80										

Remarks: Advancement Method: Air rotary to 40 feet; Wet coring from 40 to 65 feet then air rotary from 65 to 70 feet. GPS: (Lat: 29.60384, Lon: -98.45019).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 17 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1713

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-411	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/17/2022
CSJ	2452-02-130 & 2452-03-113	Station	4565+02.75	Grnd. Elev.	901.50 ft
		Offset	-70	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, dark reddish brown to tan, with cobbles			13				#200(%)-20; SPT:8-10-15
										SPT:22-50/3
897.5										SPT:50/1
5		50 (0) 50 (0)	LIMESTONE, very hard, light tan, fractured, vuggy layers with chert seams with clay filled voids between 20 and 25 feet	0	7381				150	REC:73%; RQD:22%
10		50 (0) 50 (0)								REC:70%; RQD:18%
15		50 (0) 50 (0)								REC:68%; RQD:18%
20		38 (6) 50 (3)		0	9676				154	REC:85%; RQD:50%
25		13 (6) 27 (6)								
				0	3663				144	REC:27%; RQD:8%
30		50 (0) 50 (0)								REC:92%; RQD:28%
35		50 (0) 50 (0)								
				0	2238				158	REC:20%; RQD:7%
40		50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60283, Lon: -98.44351).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-411	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/17/2022
CSJ	2452-02-130 & 2452-03-113	Station	4565+02.75	Grnd. Elev.	901.50 ft
		Offset	-70	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers with chert seams with clay filled voids between 20 and 25 feet							REC:85%; RQD:27%
856.5 45		50 (0) 50 (0)								
50										
55										
60										
65										
70										
75										
80										

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60283, Lon: -98.44351).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 18 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1714

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-412	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/21/2022
CSJ	2452-02-130 & 2452-03-113	Station	4565+81.20	Grnd. Elev.	899.00 ft
		Offset	77.6	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey,compact to very dense, dark reddish brown to tan, and with cobbles			10				SPT:3-3-6
	5	50 (0) 50 (0)								#200(%)-20; SPT:4-5-8
										SPT:8-8-7
						28				SPT:2-18-21
	10	27 (6) 24 (6)								SPT:17-50/3
887.			LIMESTONE, very hard, fractured, vuggy layers, chert seams with clay filled voids between 12 ad 16 ft							
	15	37 (6) 50 (4)								REC:92%; RQD:15%
	20	50 (1) 50 (0)								REC:40%; RQD:25%
877.			, VOID, between 22 and 25 ft							
874.	25	50 (2) 50 (0)	LIMESTONE, very hard, fractured, vuggy layers, chert seams							REC:53%; RQD:7%
	30	50 (0) 50 (0)								REC:77%; RQD:15%
	35	50 (0) 50 (0)								REC:87%; RQD:20%
	40	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 12 feet; Wet coring thereafter. GPS: (Lat: 29.60237, Lon: -98.44334).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-412	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	4/21/2022
CSJ	2452-02-130 & 2452-03-113	Station	4565+81.20	Grnd. Elev.	899.00 ft
		Offset	77.6	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, fractured, vuggy layers, chert seams							REC:67%; RQD:12%
854.	45	50 (0) 50 (0)								
	50									
	55									
	60									
	65									
	70									
	75									
	80									

Remarks: Advancement Method: Air rotary to 12 feet; Wet coring thereafter. GPS: (Lat: 29.60237, Lon: -98.44334).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 19 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1715

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-413	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/16/2022
CSJ	2452-02-130 & 2452-03-113	Station	4566+92.22	Grnd. Elev.	895.00 ft
		Offset	-72.3	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
893.			CLAY, with gravel, dark brown (CL)			15	37	21		SPT:32-50/2
			GRAVEL, clayey, slightly compact, brown to tan, with cobbles							SPT:7-11-9
5		18 (6) 16 (6)				13				#200(%)-15; SPT:23-18-8
										SPT:3-9-18
887.			WEATHERED LIMESTONE BOULDERS, soft to very hard seams, tan, with chert, interbedded with clayey gravel layers							
10		50 (4) 50 (0)								REC:35%; RQD:10%
15		50 (0) 50 (0)		0	10124				155	REC:100%; RQD:47%
20		41 (6) 48 (6)								REC:33%; RQD:0%
25		28 (6) 39 (6)		0	9783				153	REC:93%; RQD:43%
868.			LIMESTONE, very hard, fractured, vuggy layers, chert seams with clay filled voids between 26 and 30 ft							
30		47 (6) 50 (0)								REC:95%; RQD:60%
35		50 (0) 50 (0)		0	5819				152	REC:95%; RQD:77%
40		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 8 feet; Wet coring thereafter. GPS: (Lat: 29.60270, Lon: -98.44296).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-413	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/16/2022
CSJ	2452-02-130 & 2452-03-113	Station	4566+92.22	Grnd. Elev.	895.00 ft
		Offset	-72.3	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, fractured, vuggy layers, chert seams with clay filled voids between 26 and 30 ft	0	7652				149	REC:95%; RQD:65%
850. 45		50 (0) 50 (0)								REC:100%; RQD:83%
50										
55										
60										
65										
70										
75										
80										

Remarks: Advancement Method: Air rotary to 8 feet; Wet coring thereafter. GPS: (Lat: 29.60270, Lon: -98.44296).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 20 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1716

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-414	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/18/2022
CSJ	2452-02-130 & 2452-03-113	Station	4567+53.43	Grnd. Elev.	894.70 ft
		Offset	77.5	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, compact to dense, dark reddish brown to tan, with cobbles			13				SPT:8-9-9
						17				#200(%)-24; SPT:9-16-14
5		20 (6) 50 (5)								SPT:50/3
										SPT:50/0
886.7			WEATHERED LIMESTONE BOULDERS, soft, tan, with chert, with cobbles, many clay filled voids							REC:96%; RQD:0%
10		37 (6) 50 (3)								
				0	6483				161	REC:85%; RQD:43%
879.7	15	50 (1) 50 (1)	LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and chert seams							REC:82%; RQD:42%
20		50 (1) 50 (0)								
				0	8627				158	REC:87%; RQD:47%
25		50 (1) 50 (0)								
				0	5507				154	REC:90%; RQD:37%
30		50 (0) 50 (0)								
				0	3725				148	REC:100%; RQD:50%
35		50 (0) 50 (0)								
										REC:95%; RQD:80%
40		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 8 feet; Wet coring thereafter. GPS: (Lat: 29.60228, Lon: -98.44290).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	B-414	District	San Antonio
Highway	LP 1604	Structure	Bridge	Date	3/18/2022
CSJ	2452-02-130 & 2452-03-113	Station	4567+53.43	Grnd. Elev.	894.70 ft
		Offset	77.5	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and chert seams							
				0	7740				153	REC:60%; RQD:17%
849.7	45	50 (0) 50 (0)								
50										
55										
60										
65										
70										
75										
80										

Remarks: Advancement Method: Air rotary to 8 feet; Wet coring thereafter. GPS: (Lat: 29.60228, Lon: -98.44290).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 21 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1717

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	S-1	District	San Antonio
Highway	LP 1604	Structure	Sign Structures	Date	8/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4454+06.16	Grnd. Elev.	962.92 ft
		Offset	58.7726	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with sand, very dense, dark brown to tan, with some cobbles, and below 4 feet boulders			10	52	31		#200(%)-29; HP=4.5
						11				#200(%)-26; SPT(mod):10-25-27
						10				SPT(mod):15-26-50/4
957.9		50 (0.5) 50 (0)								
5			LIMESTONE, very hard, tan, highly fractured, with cobbles, and some clayey gravel seams							
				0	4589					REC:90%; RQD:28%
10		50 (1) 50 (0)								
										REC:75%; RQD:22%
15		50 (0.25) 50 (0)								
										REC:55%; RQD:18%
20		50 (0.5) 50 (0)								
										REC:27%; RQD:0%
25		50 (0.25) 50 (0)								
										REC:82%; RQD:10%
30		50 (0.5) 50 (0)								
				0	2210					REC:85%; RQD:28%
35		50 (0.25) 50 (0)								
										REC:32%; RQD:17%
922.9		40								

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. (MOD):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	S-2	District	San Antonio
Highway	LP 1604	Structure	Sign Structures	Date	8/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4492+21.30	Grnd. Elev.	977.94 ft
		Offset	54.0158	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
977.4			ASPHALT, 6.5 inches thick							
976.4			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact to very dense, dark brown to reddish tan, with fat clay (CH) seams, & limestone and chert cobbles			19				#200(%)-43; SPT(mod):7-9-15
		12 (6) 26 (6)				6				SPT(mod):36-37-14
5										
						11				SPT(mod):17-21-26
969.9			WEATHERED LIMESTONE BOULDERS, hard, reddish tan to tan, weathered, with fractured limestone, cobbles and clayey gravel seams							
		20 (6) 50 (5)				17				#200(%)-31; SPT(mod):13-10-37
10										
										SPT(mod):16-14-18
15		32 (6) 50 (2)								
										SPT(mod):34-50/4
20		50 (1) 50 (0)								
955.9			LIMESTONE, very hard, tan, highly fractured, with cobbles, and some clayey gravel seams							SPT(mod):50/0
25		50 (0) 50 (0)								
										REC:70%; RQD:20%
30		50 (0) 50 (0)								
										REC:53%; RQD:8%
35		50 (0) 50 (0)								
										REC:55%; RQD:12%
937.9		40 50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 25 feet; Wet coring thereafter. (MOD):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: D.G **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 22 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1718

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	S-3	District	San Antonio
Highway	LP 1604	Structure	Sign Structures	Date	8/23/2022
CSJ	2452-02-130 & 2452-03-113	Station	4498+61.50	Grnd. Elev.	964.40 ft
		Offset	-64.7909	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		GRAVEL, clayey, slightly compact, brown to tan, with limestone cobbles and reddish tan fat clay seams			2				SPT(mod):10-17-19
									#200(%)-12; SPT(mod):9-7-6
5	8 (6) 15 (6)								SPT(mod):3-3-5
957.4		WEATHERED LIMESTONE BOULDERS, hard, reddish tan to tan, weathered, with cobbles and clayey gravel seams							SPT(mod):50/0
10	50 (0.5) 50 (0)								SPT(mod):50/0.5
952.4		LIMESTONE, very hard, tan, vuggy, fractured, cobbles, and with clayey gravel seams							REC:77%; RQD:42%
15	50 (0.5) 50 (0)								
			0	6774					REC:97%; RQD:85%
20	50 (0.25) 50 (0)								REC:65%; RQD:38%
25	50 (0.25) 50 (0)								REC:78%; RQD:20%
30	50 (1) 50 (0)								
			0	5030					REC:90%; RQD:70%
35	50 (0.5) 50 (0)								REC:93%; RQD:47%
924.4 40	50 (0.5) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet coring thereafter. (MOD):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	S-4	District	San Antonio
Highway	LP 1604	Structure	Sign Structures	Date	8/29/2022
CSJ	2452-02-130 & 2452-03-113	Station	4546+38.05	Grnd. Elev.	895.46 ft
		Offset	-9.8353	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		GRAVEL, clayey, dense to very dense, brown to tan, with limestone cobbles and reddish tan fat clay seams			14				SPT(mod):10-13-17
					8				SPT(mod):17-27-22
5	50 (5) 50 (1)				13				#200(%)-42; SPT(mod):12-17-10
					11				SPT(mod):50/2
886.5					6				SPT(mod):27-17-14
10	50 (1) 50 (0)	WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, weathered, with highly fractured limestone seams, cobbles and clayey gravel							
15	50 (0) 50 (0)								SPT(mod):50/1
									REC:63%; RQD:0%
20	50 (0) 50 (0)								REC:45%; RQD:0%
25	50 (0) 50 (0)								
868.5		LIMESTONE, very hard, tan, vuggy, very fractured, cobbles, and with clayey gravel seams							REC:58%; RQD:10%
30	50 (0) 50 (0)								
			0	3954					REC:77%; RQD:37%
35	50 (0) 50 (0)								REC:75%; RQD:17%
855.5 40	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 15 feet; Wet coring thereafter. (MOD):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: D.G **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 23 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1719

DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	S-5	District	San Antonio
Highway	LP 1604	Structure	Sign Structures	Date	8/30/2022
CSJ	2452-02-130 & 2452-03-113	Station	4572+27.50	Grnd. Elev.	891.60 ft
		Offset	-86.8108	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, compact, brown to tan, with limestone cobbles and reddish tan fat clay seams			15	52	27		#200(%)-48; HP=2.5
		40 (6) 46 (6)								SPT(mod):21-12-19
5										
						12				#200(%)-38; SPT(mod):21-31-31
882.6						10				SPT(mod):27-50/3
10		50 (0) 50 (0)	WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, weathered, with cobbles and clayey gravel and highly fractured limestone seams							REC:37%; RQD:0%
15		50 (1) 50 (0)								REC:32%; RQD:12%
20		50 (1) 50 (0)								REC:23%; RQD:0%
25		50 (0) 50 (0)								REC:28%; RQD:0%
30		50 (1) 50 (0)								REC:22%; RQD:0%
35		50 (1) 50 (0)								REC:23%; RQD:0%
851.6	40	50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet coring thereafter. (MOD):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: D.G **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	S-6	District	San Antonio
Highway	LP 1604	Structure	Sign Structures	Date	8/29/2022
CSJ	2452-02-130 & 2452-03-113	Station	4571+33.61	Grnd. Elev.	888.46 ft
		Offset	94.8664	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, compact, dark brown to tan, with limestone cobbles and reddish tan fat clay seams			14	54	35		#200(%)-54; HP=4.5
		50 (4) 50 (1)								SPT(mod):50/2
5						17				
										SPT(mod):50/2
879.5						7				SPT(mod):50/2
10		50 (1) 50 (0)	WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, weathered, with cobbles and clayey gravel, and few highly fractured limestone seams							REC:32%; RQD:0%
15		50 (1) 50 (0)								REC:53%; RQD:15%
20		50 (0) 50 (0)								REC:13%; RQD:0%
25		50 (2) 50 (0)								REC:8%; RQD:0%
30		50 (1) 50 (0)								REC:40%; RQD:0%
35		50 (1) 50 (0)								REC:42%; RQD:0%
848.5	40	50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet coring thereafter. (MOD):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: D.G **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation
©2021

LP 1604

BORING LOG

SHEET 24 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1720

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	S-7	District	San Antonio
Highway	LP 1604	Structure	Sign Structures	Date	8/26/2022
CSJ	2452-02-130 & 2452-03-113	Station	4599+65	Grnd. Elev.	842.00 ft
		Offset	117.5	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
841.5			ASPHALT, 4 inches thick							
840.5			BASE MATERIAL, 15 inches thick							
			GRAVEL, clayey, slightly compact to dense, dark brown to tan, with limestone cobbles, and below 30 feet some limestone boulders			21				#200(%)-12; SPT(mod):15-14-9
5		10 (6) 12 (6)				25				SPT(mod):4-3-3
						14				#200(%)-31; SPT(mod):11-13-7
10		23 (6) 29 (6)								SPT(mod):10-21-23
15		9 (6) 20 (6)								SPT(mod):7-13-12
20		50 (4) 50 (2)								SPT(mod):8-12-8
25		10 (6) 29 (6)								SPT(mod):15-21-13
813.			WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, weathered, with cobbles and clayey gravel, and with highly fractured limestone seams							SPT(mod):50/0
30		50 (4) 50 (6)								REC:62%; RQD:0%
35		50 (2) 50 (3)								REC:30%; RQD:15%
802.	40	50 (2) 50 (1)								

Remarks: Advancement Method: Air rotary to 30 feet; Wet coring thereafter. (MOD):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: D.G **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	S-8	District	San Antonio
Highway	LP 1604	Structure	Sign Structures	Date	8/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4615+09.77	Grnd. Elev.	886.73 ft
		Offset	53.0607	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
886.2			ASPHALT, 4 inches thick							
885.7			BASE MATERIAL, 10 inches thick							
			GRAVEL, clayey, compact to very dense, dark brown to tan, with limestone cobbles, and sandy seams			18				SPT(mod):17-14-18
5		27 (6) 40 (6)				20				SPT(mod):4-5-5
						14				#200(%)-30; SPT(mod):47-50/2
10		50 (0) 50 (0)								SPT(mod):50/1
873.7			WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, weathered, with cobbles and clayey gravel, and with highly fractured limestone seams							REC:28%; RQD:0%
15		50 (1) 50 (0)								REC:73%; RQD:0%
20		50 (1) 50 (0)								REC:78%; RQD:10%
25		50 (0) 50 (0)								REC:60%; RQD:10%
30		50 (0) 50 (0)								REC:38%; RQD:0%
35		50 (0) 50 (0)								REC:42%; RQD:12%
846.7	40	50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet coring thereafter. (MOD):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: D.G **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 25 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1721

DRILLING LOG

		County	Bexar	Hole	W_4406_00L	District	San Antonio
WinCore		Highway	LP 1604	Structure	Retaining Wall 402	Date	7/20/2022
Version 3.1		CSJ	2452-02-130 & 2452-03-113	Station	4406+11.00	Grnd. Elev.	987.74 ft
				Offset	-70.5432	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
987.2			ASPHALT, 8 inches thick							
			BASE MATERIAL, 12 inches thick							
986.2			GRAVEL, clayey, slightly compact to very dense, brown to tan, with brown fat clay (CH) seams, some cobbles and boulders, as well as sandy seams			11				#200(%)-20; SPT(mod):10-11-10
						12				SPT(mod):6-8-9
5		11 (6) 12 (6)				6				SPT(mod):10-10-21
						14				SPT(mod):13-18-32
10		27 (6) 33 (6)								
						19				SPT(mod):16-50/5
15		50 (5) 50 (0)								
						32	61	37		#200(%)-53; SPT(mod):7-50/4
20		16 (6) 50 (2)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60904, Lon: -98.49220). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 26 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1722

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4406_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4406+00.84	Grnd. Elev.	988.10 ft
		Offset	52.339	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
987.6			ASPHALT, 4 inches thick							
987.1			BASE MATERIAL, 3 inches thick							
			GRAVEL, clayey with sand, slightly commact to very dense, brown to tan, with brown clay seams, some cobbles and boulders, as well as sandy seams			0				#200(%)-5; SPT(mod):47-50/3
						13	47	28		SPT(mod):7-3-9
						15				SPT(mod):7-50/5
5		50 (5) 50 (0)								
										SPT(mod):50/2.5
						19				SPT(mod):7-14-11
10		16 (6) 23 (6)								
						8				#200(%)-22; SPT(mod):50/4
15		17 (6) 18 (6)								
						26				SPT(mod):12-20-25
20		21 (6) 23 (6)								

Remarks: Advancement Method: Air rotary to 25 feet; Wet rotary thereafter. GPS: (Lat: 29.60869, Lon: -98.49221). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4406_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4406+00.84	Grnd. Elev.	988.10 ft
		Offset	52.339	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with sand, slightly commact to very dense, brown to tan, with brown clay seams, some cobbles and boulders, as well as sandy seams			6				SPT(mod):50/1
25		50 (0) 50 (0)								REC:13%; RQD:0%
958.1	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 25 feet; Wet rotary thereafter. GPS: (Lat: 29.60869, Lon: -98.49221). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 27 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1723

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4408_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 402	Date	7/20/2022
CSJ	2452-02-130 & 2452-03-113	Station	4408+52.97	Grnd. Elev.	983.15 ft
		Offset	-68.108	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
982.1			ASPHALT, 8 inches thick							
981.6			BASE MATERIAL, 12 inches thick							
			GRAVEL, clayey, loose to dense, brown to tan, with some cobbles and sandy seams			6				#200(%)-20; SPT(mod):21-12-10
						4				SPT(mod):6-12-9
5		6 (6) 11 (6)								
						9				SPT(mod):12-16-21
										SPT(mod):12-28-32
10		21 (6) 47 (6)								
										SPT(mod):12-16-50/4
15		46 (6) 50 (2)								
966.1			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with large fractured limestone seams, cobbles and many clayey gravel seams							SPT(mod):50/0
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60908, Lon: -98.49159). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4408_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 402	Date	7/20/2022
CSJ	2452-02-130 & 2452-03-113	Station	4408+52.97	Grnd. Elev.	983.15 ft
		Offset	-68.108	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with large fractured limestone seams, cobbles and many clayey gravel seams							
25		50 (0) 50 (0)								
953.1	30	50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60908, Lon: -98.49159). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 28 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1724

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4408_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4408+04.73	Grnd. Elev.	984.62 ft
		Offset	62.4713	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
984.1			ASPHALT, 4 inches thick							
983.6			BASE MATERIAL, 5 inches thick							
			GRAVEL, clayey, loose to very dense, brown to reddish tan, with brown fat clay (CH) seams, some cobbles and boulders							SPT(mod):14-17-4
						9				SPT(mod):9-14-9
						13				#200(%)-22; SPT(mod):5-7
5		9 (6) 9 (6)								
						15				SPT(mod):12-13-7
						15				SPT(mod):9-18-15
10		13 (6) 26 (6)								
										SPT(mod):50/2
15		50 (0) 50 (0)								
						21	61	37		#200(%)-45; SPT(mod):6-9-31
20		30 (6) 50 (2)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60870, Lon: -98.49156). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4408_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4408+04.73	Grnd. Elev.	984.62 ft
		Offset	62.4713	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, loose to very dense, brown to reddish tan, with brown fat clay (CH) seams, some cobbles and boulders							
962.6			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and clayey gravel seams							SPT(mod):50/2
25		50 (0) 50 (0)								
										SPT(mod):50/0
954.6	30	50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60870, Lon: -98.49156). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 29 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1725

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4410_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 402	Date	7/20/2022
CSJ	2452-02-130 & 2452-03-113	Station	4410+08.79	Grnd. Elev.	979.05 ft
		Offset	-65.851	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
978.1			ASPHALT, 16 inches thick							
			BASE MATERIAL , 12 inches thick							
977.1			GRAVEL, clayey, loose to compact, brown to tan, with cobbles and brown clay seams			4				SPT(mod):32-22-18
						4				SPT(mod):30-16-13
5		20 (6) 31 (6)								
										SPT(mod):17-17-36
						3				SPT(mod):10-12-6
10		6 (6) 5 (6)								
						22	57	32		SPT(mod):4-4-6
15		6 (6) 13 (6)								
961.1			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered,with large fractured limestone seams, cobbles and many clayey gravel seams							SPT(mod):50/1
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 20 feet; Wet rotary thereafter. GPS: (Lat: 29.60911, Lon: -98.49098). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4410_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 402	Date	7/20/2022
CSJ	2452-02-130 & 2452-03-113	Station	4410+08.79	Grnd. Elev.	979.05 ft
		Offset	-65.851	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered,with large fractured limestone seams, cobbles and many clayey gravel seams							REC:40%; RQD:0%
25		50 (0) 50 (0)								
949.1	30	50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 20 feet; Wet rotary thereafter. GPS: (Lat: 29.60911, Lon: -98.49098). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 30 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1726

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4410_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4410+26.96	Grnd. Elev.	981.01 ft
		Offset	59.6465	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
980.5			ASPHALT, 4 inches thick							
980.			BASE MATERIAL, 5 inches thick							SPT(mod):50/5
			GRAVEL, clayey, loose to dense, brown to reddish tan, with brown fat clay (CH) and sandy seams, some cobbles and boulders			20				#200(%)-33; SPT(mod):7-15-9
						3				SPT(mod):15-8
5		8 (6) 5 (6)								
										SPT(mod):3-3-7
						9				SPT(mod):6-6-15
10		10 (6) 11 (6)								
										SPT(mod):5-50/4
15		50 (5) 50 (5)								
						37	81	49		#200(%)-61; SPT(mod):7-6-50/2
20		50 (4) 50 (1)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60876, Lon: -98.49092). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4410_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4410+26.96	Grnd. Elev.	981.01 ft
		Offset	59.6465	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and clayey gravel seams							
										SPT(mod):50/1
25		50 (0) 50 (0)								
										SPT(mod):50/2
951. 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60876, Lon: -98.49092). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 31 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1727

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4412_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 402	Date	7/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4412+04.72	Grnd. Elev.	972.69 ft
		Offset	-67.0436	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
971.7			ASPHALT, 8 inches thick			1				SPT(mod):50/4
971.2			BASE MATERIAL, 12 inches thick							
			GRAVEL, clayey, compact , brown to tan, with some cobbles and sandy seams			6	23	8		#200(%)-22; SPT(mod):33-27-21
		23 (6) 37 (6)				4				SPT(mod):50/0
966.7			WEATHERED LIMESTONE BOULDERS, hard to very hard rock, tan, weathered, with large fractured limestone seams, cobbles and many clayey gravel seams							REC:46%; RQD:0%
		50 (3) 50 (2)								REC:55%; RQD:35%
		50 (0) 50 (0)								REC:60%; RQD:13%

Remarks: Advancement Method: Air rotary to 6 feet; Wet rotary thereafter. GPS: (Lat: 29.60915, Lon: -98.49030). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead Logger: R. Vasquez Organization: Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4429_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 403	Date	6/28/2022
CSJ	2452-02-130 & 2452-03-113	Station	4429+34.44	Grnd. Elev.	954.06 ft
		Offset	-96.4885	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
953.2			ASPHALT, 12 inches thick							
952.6			BASE MATERIAL, 4 inches thick							
			GRAVEL, clayey, dense, reddish brown to tan, with limestone cobbles, boulders and chert			6				#200(%)-27; SPT(mod):12-20-14
						19				SPT(mod):13-8-9
		18 (6) 50 (2)				11				SPT(mod):37-50/4
948.1			LIMESTONE, very hard, tan, fractured, with chert, cobbles, and clayey gravel seams	0	6417				159	REC:75%; RQD:32%
		50 (0) 50 (0)								REC:100%; RQD:18%
939.1		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60986, Lon: -98.48449). SPT testing was modified using a 170-lb hammer with a 24-inch drop height. Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead Logger: R. Vasquez Organization: Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 32 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1728

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4412_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4411+82.38	Grnd. Elev.	976.70 ft
		Offset	62.1564	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
976.2			ASPHALT, 4 inches thick							
			BASE MATERIAL, 12 inches thick							SPT(mod):15-50/5
975.2			GRAVEL, clayey, loose to compact, brown to reddish tan, with brown clay and sandy seams, some cobbles and boulders							
						11	34	19		SPT(mod):3-4-3
						10				SPT(mod):1-4
5		7 (6) 5 (6)								
						6				SPT(mod):3-5-4
						16				SPT(mod):3-5-7
10		23 (6) 25 (6)								
						10				#200(%)-42; SPT(mod):12-9-10
15		12 (6) 10 (6)								
						9				SPT(mod):50/5.5
957.7			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and clayey gravel seams							
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60881, Lon: -98.49034). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4412_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4411+82.38	Grnd. Elev.	976.70 ft
		Offset	62.1564	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and clayey gravel seams							
										SPT(mod):50/2
25		50 (0) 50 (0)								
										SPT(mod):50/1
946.7		50 (0) 50 (0)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60881, Lon: -98.49034). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 33 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1729

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4414_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/15/2022
CSJ	2452-02-130 & 2452-03-113	Station	4413+98.30	Grnd. Elev.	968.12 ft
		Offset	61.1926	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
967.6			ASPHALT, 6 inches thick							
			BASE MATERIAL, 12 inches thick			10				#200(%)-21; SPT(mod):7-5-3
966.6			GRAVEL, clayey, slightly compact, brown to reddish tan, with brown fat clay (CH) and sandy seams, some cobbles and boulders							
						16	52	31		SPT(mod):2-1-1
5		2 (6) 2 (6)								
						11	35	19		#200(%)-27; SPT(mod):5-15-50/4
										SPT(mod):7-7-7
10		8 (6) 14 (6)								
954.1			LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and clayey gravel seams							SPT(mod):50/5
15		50 (0) 50 (0)								
										REC:61%; RQD:28%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 17 feet; Wet rotary thereafter. GPS: (Lat: 29.60887, Lon: -98.48969). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4414_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/15/2022
CSJ	2452-02-130 & 2452-03-113	Station	4413+98.30	Grnd. Elev.	968.12 ft
		Offset	61.1926	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, fractured, with chert, cobbles and thin clayey gravel seams							
				0	3661				154	REC:95%; RQD:28%
25		50 (0) 50 (0)								
										REC:92%; RQD:52%
938.1	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 17 feet; Wet rotary thereafter. GPS: (Lat: 29.60887, Lon: -98.48969). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 34 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1730

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4416_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/15/2022
CSJ	2452-02-130 & 2452-03-113	Station	4416+09.37	Grnd. Elev.	958.82 ft
		Offset	59.254	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
958.3			ASPHALT, 7 inches thick							
			BASE MATERIAL, 10 inches thick			9				SPT(mod):6-50/5
957.3			GRAVEL, clayey, compact to very dense, brown to reddish tan, with brown clay and sandy seams, some cobbles and boulders							
										SPT(mod):8-8-3
5		17 (6) 24 (6)								
						9				SPT(mod):13-8-7
										#200(%)-10; SPT(mod):6-10-7
10		50 (0) 50 (0)								
947.8			LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and clayey gravel seams							
										SPT(mod):50/0
15		50 (0) 50 (0)								
941.8			LIMESTONE, very hard, tan, fractured, with cobbles and clayey gravel seams	0	4020				147	REC:78%; RQD:43%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 15 feet; Wet rotary thereafter. GPS: (Lat: 29.60894, Lon: -98.48905). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4416_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/15/2022
CSJ	2452-02-130 & 2452-03-113	Station	4416+09.37	Grnd. Elev.	958.82 ft
		Offset	59.254	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, fractured, with cobbles and clayey gravel seams							
										REC:82%; RQD:30%
25		50 (0) 50 (0)								
				0	5871				153	REC:95%; RQD:57%
928.8	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 15 feet; Wet rotary thereafter. GPS: (Lat: 29.60894, Lon: -98.48905). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 35 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1731

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4418_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/15/2022
CSJ	2452-02-130 & 2452-03-113	Station	4417+98.77	Grnd. Elev.	951.89 ft
		Offset	56.2102	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
950.9			ASPHALT, 16 inches thick							
949.9			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey with sand, dense to very dense, brown to reddish tan, with brown clay seams, some cobbles and boulders							SPT(mod):9-8-9
5		50 (3) 50 (1)								#200(%)-23; SPT(mod):25-50/2
										SPT(mod):50/2
10		50 (5) 50 (0)								
939.9			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with large fractured limestone seams, chert, cobbles and many clayey gravel seams							REC:28%; RQD:0%
15		50 (1) 50 (0)								REC:30%; RQD:15%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60902, Lon: -98.48841). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4418_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/15/2022
CSJ	2452-02-130 & 2452-03-113	Station	4417+98.77	Grnd. Elev.	951.89 ft
		Offset	56.2102	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with large fractured limestone seams, chert, cobbles and many clayey gravel seams	0	4065				157	REC:95%; RQD:52%
25		50 (0) 50 (0)								REC:22%; RQD:0%
921.9	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60902, Lon: -98.48841). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 36 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1732

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4420_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/19/2022
CSJ	2452-02-130 & 2452-03-113	Station	4420+16.30	Grnd. Elev.	945.33 ft
		Offset	49.5359	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
944.8			ASPHALT, 8 inches thick							
944.3			BASE MATERIAL, 4 inches thick							
			GRAVEL, clayey with sand, very dense, brown to reddish tan, with brown clay seams, some cobbles and boulders						12	#200(%)-40; SPT(mod):12-19-50/5
										SPT(mod):19-50/0
5		50 (1) 50 (0)								
939.3			LIMESTONE, very hard, tan, vuggy, fractured, with cobbles and clayey gravel seams							
				0	5259				152	REC:75%; RQD:45%
10		50 (0) 50 (0)								
									154	REC:100%; RQD:23%
15		50 (0) 50 (0)								
				0	3039					REC:90%; RQD:68%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60908, Lon: -98.48778). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4420_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/19/2022
CSJ	2452-02-130 & 2452-03-113	Station	4420+16.30	Grnd. Elev.	945.33 ft
		Offset	49.5359	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured, with cobbles and clayey gravel seams							
										REC:97%; RQD:48%
25		50 (0) 50 (0)								
										REC:85%; RQD:30%
915.3	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60908, Lon: -98.48778). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 37 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1733

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4422_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4422+40.15	Grnd. Elev.	941.90 ft
		Offset	43.7068	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
941.4			ASPHALT, 5 inches thick							
940.9			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey, compact, brown, with brown fat clay (CH) seams, some cobbles and boulders			11				SPT(mod):28-33-27
						21				#200(%)-34; SPT(mod):17-7-6
5		24 (6) 30 (6)				28	77	51		SPT(mod):15-7-11 REC:85%; RQD:57%
935.9			LIMESTONE, very hard, tan, vuggy, fractured, with cobbles and clayey gravel seams							
10		50 (5) 50 (0)								
				0	5395				157	REC:100%; RQD:90%
15		50 (0) 50 (0)								
										REC:97%; RQD:52%
20		50 (0) 50 (0)								

Remarks: **Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60916, Lon: -98.48712). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.**

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4422_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4422+40.15	Grnd. Elev.	941.90 ft
		Offset	43.7068	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured, with cobbles and clayey gravel seams							REC:70%; RQD:58%
25		50 (0) 50 (0)								
911.9	30	50 (0) 50 (0)								REC:97%; RQD:75%
35										
40										

Remarks: **Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60916, Lon: -98.48712). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.**

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 38 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1734

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4424_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/19/2022
CSJ	2452-02-130 & 2452-03-113	Station	4424+22.33	Grnd. Elev.	940.99 ft
		Offset	43.9957	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
940.5			ASPHALT, 5 inches thick							
940.			BASE MATERIAL, 9 inches thick			4				SPT(mod):50/5
			GRAVEL, clayey with sand, slightly compact, brown to tan, some cobbles and boulders							
						13				#200(%)-29; SPT(mod):7-14-19
5		16 (6) 16 (6)				6				SPT(mod):9-14-10
935.			LIMESTONE BOULDER, soft, tan, weathered, with cobbles and clayey gravel seams			7				SPT(mod):14-16-10
										REC:78%; RQD:56%
10		22 (6) 20 (6)								
										REC:100%; RQD:55%
927.			LIMESTONE, very hard, tan, vuggy, fractured, with cobbles and clayey gravel seams							
15		50 (0) 50 (0)								
				0	5352				157	REC:98%; RQD:68%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 7 feet; Wet rotary thereafter. GPS: (Lat: 29.60923, Lon: -98.48652). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4424_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/19/2022
CSJ	2452-02-130 & 2452-03-113	Station	4424+22.33	Grnd. Elev.	940.99 ft
		Offset	43.9957	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured, with cobbles and clayey gravel seams							
										REC:100%; RQD:22%
25		50 (0) 50 (0)								
										REC:80%; RQD:8%
911. 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 7 feet; Wet rotary thereafter. GPS: (Lat: 29.60923, Lon: -98.48652). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 39 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1735

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4426_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4426+38.66	Grnd. Elev.	942.94 ft
		Offset	43.3617	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
942.4			ASPHALT, 5 inches thick							
941.9			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey with sand, loose, brown to tan, with brown clay seams, some cobbles and boulders							
5		4 (6) 6 (6)								
936.9			LIMESTONE, hard to very hard, tan, vuggy, fractured, weathered, with cobbles and clayey gravel seams							
10		50 (2) 50 (0)								
15		50 (0) 50 (0)								
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60929, Lon: -98.48589). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4426_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4426+38.66	Grnd. Elev.	942.94 ft
		Offset	43.3617	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to very hard, tan, vuggy, fractured, weathered, with cobbles and clayey gravel seams							
25		50 (0) 50 (0)								
912.9 30		50 (2) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60929, Lon: -98.48589). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 40 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1736

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4428_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4428+07.54	Grnd. Elev.	946.00 ft
		Offset	42.8007	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
945.5			ASPHALT, 5 inches thick							
945.			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey with sand, brown, with brown clay seams			9				#200(%)-30; SPT(mod):34-22-50/2
						3				SPT(mod):50/0
942.			LIMESTONE, hard to very hard, tan, vuggy, fractured, with chert, cobbles and clayey gravel seams							
5		50 (0) 50 (0)								REC:90%; RQD:57%
10		50 (0) 50 (0)								REC:100%; RQD:73%
15		50 (0) 50 (0)								REC:95%; RQD:75%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 4 feet; Wet rotary thereafter. GPS: (Lat: 29.60936, Lon: -98.48532). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4428_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 401	Date	7/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4428+07.54	Grnd. Elev.	946.00 ft
		Offset	42.8007	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to very hard, tan, vuggy, fractured, with chert, cobbles and clayey gravel seams	0	3540				152	REC:100%; RQD:45%
25		50 (0) 50 (0)		0	13388				161	REC:100%; RQD:38%
916. 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 4 feet; Wet rotary thereafter. GPS: (Lat: 29.60936, Lon: -98.48532). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 41 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1737

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DRILLING LOG

	County	Bexar	Hole	W_4431_00L	District	San Antonio
WinCore	Highway	LP 1604	Structure	Retaining Wall 403	Date	6/28/2022
Version 3.1	CSJ	2452-02-130 & 2452-03-113	Station	4431+12.62	Grnd. Elev.	955.03 ft
			Offset	-104.6142	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
954.1			ASPHALT, 12 inches thick							
953.5			BASE MATERIAL, 5 inches thick							
			GRAVEL, clayey, very dense, reddish brown to tan, with limestone cobbles, boulders and chert							SPT(mod):27-36-47
										SPT(mod):50/1
	5	50 (0) 50 (0)								
948.			LIMESTONE, very hard, tan, fractured, with chert, cobbles, and clayey gravel seams	0	6245				144	REC:65%; RQD:15%
	10	50 (0) 50 (0)								REC:98%; RQD:33%
940.	15	50 (0) 50 (0)								
	20									

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60979, Lon: -98.48511). SPT testing was modified using a 170-lb hammer with a 24-inch drop height. Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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BORING LOG

SHEET 42 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1738

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4459_75R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 419	Date	7/21/2022
CSJ	2452-02-130 & 2452-03-113	Station	4459+85.09	Grnd. Elev.	963.82 ft
		Offset	37.267	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
963.3			ASPHALT, 5 inches thick							
962.8			BASE MATERIAL, 9 inches thick							
			SAND, clayey with gravel, compact, brown, with gravely clay seams (SC)			5				SPT:45-31-26
						7	41	26		#200(%)-30; SPT:16-25-8
5		37 (6) 29 (6)								SPT:14-48-20
						14				SPT:8-18-33
955.8			GRAVEL, clayey with sand, compact to dense, brown to tan, with some brown clay seam, and some cobbles and boulders							
10		21 (6) 23 (6)				10				#200(%)-22; SPT:10-6-7
						16				SPT:8-24-18
15		12 (6) 50 (5)								
										SPT:50/1
20		42 (6) 50 (5)								

Remarks: Advancement Method: Air rotary to 20 feet; Wet rotary thereafter. GPS: (Lat: 29.61020, Lon: -98.47541).

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4459_75R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 419	Date	7/21/2022
CSJ	2452-02-130 & 2452-03-113	Station	4459+85.09	Grnd. Elev.	963.82 ft
		Offset	37.267	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with sand, compact to dense, brown to tan, with some brown clay seam, and some cobbles and boulders							
940.8			LIMESTONE, hard to very hard, tan, vuggy, fractured, with chert, cobbles and clayey gravel seams							REC:75%; RQD:17%
25		50 (0) 50 (0)								
				0	4109					REC:93%; RQD:70%
933.8		50 (0) 50 (0)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to 20 feet; Wet rotary thereafter. GPS: (Lat: 29.61020, Lon: -98.47541).

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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TBPE REGISTRATION NO. F-3272

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LP 1604

BORING LOG

SHEET 43 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1739

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4462_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 419	Date	7/21/2022
CSJ	2452-02-130 & 2452-03-113	Station	4462+05.45	Grnd. Elev.	964.20 ft
		Offset	37.4499	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
963.7			ASPHALT, 7 inches thick							
963.2			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey with sand, dense, brown to tan, with brown clay, some cobbles and boulders			10				SPT(mod):11-20-22
						6				#200(%)-25; SPT(mod):17-28-50/2
5		50 (5) 50 (0)								SPT(mod):50
956.2			LIMESTONE, hard to very hard, tan, vuggy, fractured, with chert, cobbles and clayey gravel seams							REC:33%; RQD:0%
10		50 (4) 50 (0)								REC:75%; RQD:18%
15		50 (0) 50 (0)								REC:67%; RQD:38%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 6 feet; Wet rotary thereafter. GPS: (Lat: 29.61016, Lon: -98.47471).

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4462_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 419	Date	7/21/2022
CSJ	2452-02-130 & 2452-03-113	Station	4462+05.45	Grnd. Elev.	964.20 ft
		Offset	37.4499	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to very hard, tan, vuggy, fractured, with chert, cobbles and clayey gravel seams							REC:83%; RQD:18%
25		50 (0) 50 (0)								REC:70%; RQD:0%
934.2		50 (0) 50 (0)								REC:83%; RQD:71%
30										
35										
40										

Remarks: Advancement Method: Air rotary to 6 feet; Wet rotary thereafter. GPS: (Lat: 29.61016, Lon: -98.47471).

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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BORING LOG

SHEET 44 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1740

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4474_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 405	Date	7/20/2022
CSJ	2452-02-130 & 2452-03-113	Station	4473+38.45	Grnd. Elev.	979.97 ft
		Offset	51.3532	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
979.5			ASPHALT, 4 inches thick							
979.			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand , very dense, reddish brown to tan, with brown clay, some chert, cobbles and boulders			6				SPT(mod):37-50/4
						12				SPT(mod):17-23-42
						8				#200(%)-27; SPT(mod):29-37-39
5		50 (2) 50 (0)								
						8				SPT(mod):50/4
										SPT(mod):50/2
10		50 (1) 50 (0)								REC:0%; RQD:0%
15		50 (0) 50 (0)								REC:0%; RQD:0%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 7 feet; Wet rotary thereafter. GPS: (Lat: 29.60961, Lon: -98.47123). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4474_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 405	Date	7/20/2022
CSJ	2452-02-130 & 2452-03-113	Station	4473+38.45	Grnd. Elev.	979.97 ft
		Offset	51.3532	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with sand , very dense, reddish brown to tan, with brown clay, some chert, cobbles and boulders							REC:17%; RQD:0%
955.	25	50 (0) 50 (0)								
	30									
	35									
	40									

Remarks: Advancement Method: Air rotary to 7 feet; Wet rotary thereafter. GPS: (Lat: 29.60961, Lon: -98.47123). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 45 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1741

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4476_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 405	Date	7/20/2022
CSJ	2452-02-130 & 2452-03-113	Station	4475+61.42	Grnd. Elev.	984.57 ft
		Offset	52.7959	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
984.1			ASPHALT, 4 inches thick							
983.6			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact to very dense, reddish brown to tan, with brown clay, chert, cobbles and boulders			7				SPT(mod):42-15-21
						10				#200(%)-34; SPT(mod):33-21-17
						9				SPT(mod):20-26-15
5		33 (6) 41 (6)								
										REC:33%; RQD:0%
10		19 (6) 13 (6)								
										REC:37%; RQD:0%
15		21 (6) 11 (6)								
										REC:35%; RQD:0%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60946, Lon: -98.47053). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4476_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 405	Date	7/20/2022
CSJ	2452-02-130 & 2452-03-113	Station	4475+61.42	Grnd. Elev.	984.57 ft
		Offset	52.7959	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with sand, slightly compact to very dense, reddish brown to tan, with brown clay, chert, cobbles and boulders			65	43			#200(%)-96; REC:38%; RQD:0%
959.6	25	50 (0) 50 (0)								
	30									
	35									
	40									

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60946, Lon: -98.47053). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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BORING LOG

SHEET 46 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1742

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DRILLING LOG

		County	Bexar	Hole	W_4477_00L	District	San Antonio
WinCore		Highway	LP 1604	Structure	Retaining Wall 404	Date	7/12/2022
Version 3.1		CSJ	2452-02-130 & 2452-03-113	Station	4477+06.71	Grnd. Elev.	987.95 ft
				Offset	-49.1384	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
987.4			ASPHALT, 5 inches thick							
986.9			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey, very loose to slightly compact, dark brown to light tan, with brown and chalky light tan clay seams, and trace cobbles			6				SPT(mod):40-37-32
						5				SPT(mod):15-42-47
						7				#200(%)-31; SPT(mod):9-8
5		20 (6) 13 (6)								
						11				SPT(mod):13-28-22
						19	64	41		SPT(mod):5-3-7
10		4 (6) 3 (6)								
						6				SPT(mod):17-15-19
972.9	15	11 (6) 12 (6)								
	20									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60964, Lon: -98.47006). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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BORING LOG

SHEET 47 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1743

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4478_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 405	Date	7/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4478+24.50	Grnd. Elev.	988.50 ft
		Offset	53.1452	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
988.			ASPHALT, 5 inches thick							
987.5			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact to very dense, reddish brown to dark reddish tan, with brown fat clay seams, chert, cobbles and few boulders			6				SPT(mod):25-11-12
						12				SPT(mod):6-11-8
						17				#200(%)-26; SPT(mod):25-24-33
5		10 (6) 21 (6)								
						15	49	30		SPT(mod):6-11-6
						11				SPT(mod):10-18-13
10		17 (6) 23 (6)								
						13				SPT(mod):12-14-9
15		17 (6) 21 (6)								
						25				SPT(mod):8-8-17
20		12 (6) 16 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60931, Lon: -98.46977). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4478_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 405	Date	7/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4478+24.50	Grnd. Elev.	988.50 ft
		Offset	53.1452	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with sand, slightly compact to very dense, reddish brown to dark reddish tan, with brown fat clay seams, chert, cobbles and few boulders							
						32	68	41		#200(%)-51; SPT(mod):13-16-38
963.5 25		50 (2) 50 (1)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60931, Lon: -98.46977). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E.J. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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TBPE REGISTRATION NO. F-3272

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BORING LOG

SHEET 48 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1744

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DRILLING LOG

		County	Bexar	Hole	W_4479_00L	District	San Antonio
WinCore		Highway	LP 1604	Structure	Retaining Wall 404	Date	7/12/2022
Version 3.1		CSJ	2452-02-130 & 2452-03-113	Station	4479+61.54	Grnd. Elev.	989.42 ft
				Offset	-50.3639	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
988.9			ASPHALT, 5 inches thick							
			BASE MATERIAL, 8 inches thick followed by a one foot seam of dark brown fat clay (CH)			12				SPT(mod):28-10-10
987.4			GRAVEL, CLAYEY, loose, dark brown to light tan, with some brown clay seams, and trace cobbles			21	47	28		#200(%)-27; SPT(mod):7-11-5
						16				SPT(mod):6-6-11
5		7 (6) 12 (6)								
						12				#200(%)-27; SPT(mod):7-8-6
						9				SPT(mod):5-24-10
10		10 (6) 10 (6)								
						7				SPT(mod):5-14-7
974.4		5 (6) 8 (6)								
15										
20										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60950, Lon: -98.46938). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
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02/20/2023
TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 49 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1745

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4479_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 405	Date	7/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4479+36.45	Grnd. Elev.	989.18 ft
		Offset	52.2853	GW Elev.	966.18 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
988.7			ASPHALT, 5 inches thick							
988.2			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact to very dense, reddish brown to dark reddish tan, with some lean clay seams, chert, cobbles and few boulders			10				SPT(mod):46-33-15
						1032	43	26		#200(%)-30; SPT(mod):10-11-14
						10				SPT(mod):11-50/2
5		50 (3) 50 (0)								
						12				SPT(mod):15-14-12
						14				SPT(mod):12-6-6
10		11 (6) 9 (6)								
						14				#200(%)-29; SPT(mod):7-10-10
15		12 (6) 17 (6)								
						5				SPT(mod):37-15-12
20		26 (6) 23 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60928, Lon: -98.46950). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

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

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4479_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 405	Date	7/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4479+36.45	Grnd. Elev.	989.18 ft
		Offset	52.2853	GW Elev.	966.18 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with sand, slightly compact to very dense, reddish brown to dark reddish tan, with some lean clay seams, chert, cobbles and few boulders							
						16				SPT(mod):12-18-21
964.2	25	37 (6) 44 (6)								
	30									
	35									
	40									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60928, Lon: -98.46950). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

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

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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02/20/2023

TBPE REGISTRATION NO. F-3272

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LP 1604

BORING LOG

SHEET 50 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1746

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4484_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 407	Date	7/12/2022
CSJ	2452-02-130 & 2452-03-113	Station	4485+50.12	Grnd. Elev.	988.55 ft
		Offset	-50.151	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
988.			ASPHALT, 4 inches thick							
987.5			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey with sand, loose to slightly compact, dark brown to light tan, with some brown clay and seams, and cobbles			6				SPT(mod):16-18-21
										SPT(mod):13-8-9
		5 (6) 5 (6)				14				#200(%)-51; SPT(mod):4-2
5										
						28	59	36		SPT(mod):2-2-5
						21				SPT(mod):3-5-8
10		6 (6) 7 (6)								
						12				#200(%)-31; SPT(mod):5-14-18
15		12 (6) 12 (6)								
						7				SPT(mod):7-15-8
20		8 (6) 9 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60908, Lon: -98.46746). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4485_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 406	Date	7/11/2022
CSJ	2452-02-130 & 2452-03-113	Station	4484+93.16	Grnd. Elev.	989.07 ft
		Offset	52.7525	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
988.6			ASPHALT, 4.5 inches thick							
988.1			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey with sand, loose to slightly compact, dark brown to reddish tan, with some fat clay (CH) seams, chert, and cobbles			20				SPT(mod):12-4-4
						13	55	34		#200(%)-35; SPT(mod):4-4-6
		10 (6) 10 (6)				23				SPT(mod):6-8
5										
						10				#200(%)-54; SPT(mod):12-20-13
						7				SPT(mod):7-6-7
10		14 (6) 12 (6)								
						4				SPT(mod):12-14-15
15		16 (6) 13 (6)								
						28				SPT(mod):11-14-12
20		13 (6) 10 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60886, Lon: -98.46775). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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LP 1604

BORING LOG

SHEET 51 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1747

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4486_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 407	Date	7/12/2022
CSJ	2452-02-130 & 2452-03-113	Station	4486+57.56	Grnd. Elev.	987.53 ft
		Offset	-51.6238	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
987.			ASPHALT, 4 inches thick							
986.5			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, loose to compact, dark brown to light tan, with clay seams, and cobbles			6				SPT(mod):18-22-35
						15				#200(%)-45; SPT(mod):7-7-12
						26	58	37		SPT(mod):4-7
5		16 (6) 17 (6)								
						14				SPT(mod):5-20-26
						5				#200(%)-23; SPT(mod):11-23-15
10		11 (6) 13 (6)								
						14				SPT(mod):10-17-17
15		10 (6) 7 (6)								
						17				SPT(mod):6-6-7
20		5 (6) 4 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60900, Lon: -98.46707). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4487_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 406	Date	7/11/2022
CSJ	2452-02-130 & 2452-03-113	Station	4486+85.19	Grnd. Elev.	987.81 ft
		Offset	51.514	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
987.3			ASPHALT, 4.5 inches thick							
986.8			BASE MATERIAL, 8.5 inches thick							
			GRAVEL, CLAYEY WITH SAND, loose to slightly compact, dark brown to reddish tan, with some clay seams, chert, cobbles, and below 18 feet some boulders			6				SPT(mod):15-12-14
						24	70	46		#200(%)-49; SPT(mod):6-6-4
		6 (6) 7 (6)				15				SPT(mod):8-8
5										
						10				SPT(mod):20-13-11
						8				#200(%)-23; SPT(mod):5-13-17
10		7 (6) 8 (6)								
						21				SPT(mod):13-6-7
15		8 (6) 12 (6)								
										SPT(mod):50/1
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60875, Lon: -98.46716). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 52 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1748

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4488_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 407	Date	7/12/2022
CSJ	2452-02-130 & 2452-03-113	Station	4488+64.88	Grnd. Elev.	984.88 ft
		Offset	-51.2617	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
984.4			ASPHALT, 4 inches thick							
983.9			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, loose to dense, reddish brown , with some clay seams, cobbles			5				SPT(mod):34-19-9
						17				SPT(mod):8-8-7
		40 (6) 44 (6)				4				#200(%)-18; SPT(mod):14-29
5										SPT(mod):50/4
		12 (6) 12 (6)								SPT(mod):11-11-13
10										SPT(mod):6-10-11
15		8 (6) 6 (6)								
						25	54	33		#200(%)-65; SPT(mod):8-8-7
20		9 (6) 7 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60887, Lon: -98.46647). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4489_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 406	Date	7/11/2022
CSJ	2452-02-130 & 2452-03-113	Station	4488+92.47	Grnd. Elev.	984.61 ft
		Offset	52.3757	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
984.1			ASPHALT, 5 inches thick							
983.6			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, loose to very dense, dark brown to light tan, with some clay seams, chert, cobbles, and below 18 feet some boulders			12				SPT(mod):16-11-5
						12	72	45		#200(%)-49; SPT(mod):4-7-14
		50 (3) 37 (6)				27				SPT(mod):5-8
5										
						6				SPT(mod):12-12-23
		4 (6) 8 (6)				33				SPT(mod):3-6-7
10										
						14				#200(%)-24; SPT(mod):13-6-18
15		15 (6) 13 (6)								
						17				SPT(mod):9-14-12
20		11 (6) 11 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60858, Lon: -98.46648). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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TBPE REGISTRATION NO. F-3272

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LP 1604

BORING LOG

SHEET 53 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1749

DRILLING LOG

		County	Bexar	Hole	W_4491_00R	District	San Antonio
WinCore		Highway	LP 1604	Structure	Retaining Wall 406	Date	7/11/2022
Version 3.1		CSJ	2452-02-130 & 2452-03-113	Station	4491+05.73	Grnd. Elev.	980.74 ft
				Offset	51.8404	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
980.2			ASPHALT, 5 inches thick							
979.7			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact to very dense, brown and tan, with some fat clay seams, chert, cobbles, and boulders			6				SPT(mod):14-21-7
						15	53	34		#200(%)-45; SPT(mod):8-10-13
						11				SPT(mod):6-4
5		9 (6) 9 (6)								
						21				#200(%)-80; SPT(mod):3-8-8
						16				SPT(mod):18-6-20
10		15 (6) 10 (6)								
						25				SPT(mod):9-16-14
15		13 (6) 17 (6)								
										SPT(mod):19-50/1
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60843, Lon: -98.46583). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S.V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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BORING LOG

SHEET 54 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1750

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4506_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/23/2022
CSJ	2452-02-130 & 2452-03-113	Station	4506+46.61	Grnd. Elev.	967.28 ft
		Offset	-140.8065	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
966.8			ASPHALT, 5 inches thick							
966.3			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact, tan, with limestone cobbles, boulders and chert			8				SPT(mod):20-18-19
						1				SPT(mod):28-50/5
										SPT(mod):50/0
5		22 (6) 13 (6)								
961.3			WEATHERED LIMESTONE BOULDERS, soft to very hard rock, reddish tan to tan, weathered, with cobbles and compact clayey gravel seams							REC:60%; RQD:30%
10		41 (6) 48 (6)								
956.3			LIMESTONE, very hard, tan, vuggy, fractured, with chert, cobbles, and clayey gravel seams							
				0	6702				157	REC:100%; RQD:57%
15		50 (1) 50 (0)								
				0	2671				148	REC:100%; RQD:63%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60768, Lon: -98.46102). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4506_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/23/2022
CSJ	2452-02-130 & 2452-03-113	Station	4506+46.61	Grnd. Elev.	967.28 ft
		Offset	-140.8065	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured, with chert, cobbles, and clayey gravel seams							REC:100%; RQD:25%
25		50 (0) 50 (0)								
										REC:100%; RQD:20%
937.3 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60768, Lon: -98.46102). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 55 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1751

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4508_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4508+55.00	Grnd. Elev.	966.92 ft
		Offset	-138.5639	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
966.4			ASPHALT, 5 inches thick							
965.9			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, tan, with limestone cobbles, boulders and chert			11				#200(%)-20; SPT(mod):22-29-26
						5				SPT(mod):18-16-9
962.9			WEATHERED LIMESTONE BOULDERS, very hard, reddish tan to tan, weathered, with cobbles and clayey gravel seams							
5		50 (2) 50 (0)								SPT(mod):50/5
										SPT(mod):50/0
										REC:71%; RQD:50%
10		50 (1) 50 (0)								
				0	4823				155	REC:98%; RQD:20%
15		38 (6) 50 (1)								
950.9			LIMESTONE, soft to very hard rock, tan, vuggy, fractured, with chert, cobbles, and clayey gravel seams							REC:85%; RQD:85%
20		48 (6) 50 (1)								

Remarks: Advancement Method: Air rotary to 8 feet; Wet rotary thereafter. GPS: (Lat: 29.60748, Lon: -98.46040). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4508_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4508+55.00	Grnd. Elev.	966.92 ft
		Offset	-138.5639	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, soft to very hard rock, tan, vuggy, fractured, with chert, cobbles, and clayey gravel seams							
25		50 (1) 50 (0)								REC:100%; RQD:45%
				0	1532				130	REC:95%; RQD:68%
936.9 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 8 feet; Wet rotary thereafter. GPS: (Lat: 29.60748, Lon: -98.46040). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 56 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1752

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4510_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4510+40.32	Grnd. Elev.	966.47 ft
		Offset	-138.2581	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
966.			ASPHALT, 5 inches thick							
965.5			BASE MATERIAL, 7.5 inches thick							
			GRAVEL, clayey with sand, dense to very dense, tan, with limestone cobbles, boulders and chert			6				SPT:39-19-26
						5				#200(%)-14; SPT:14-12-15
962.5			WEATHERED LIMESTONE BOULDERS, very hard, reddish tan to tan, weathered, with cobbles and clayey gravel seams							
5		50 (1) 50 (0)								SPT:50/1
959.5			LIMESTONE, very hard, tan, vuggy, fractured, cobbles, and clayey gravel seams							REC:60%; RQD:32%
10		50 (0) 50 (0)								REC:100%; RQD:58%
15		50 (0) 50 (0)								
				0	4958				155	REC:90%; RQD:53%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 6 feet; Wet rotary thereafter. GPS: (Lat: 29.60728, Lon: -98.45980). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4510_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4510+40.32	Grnd. Elev.	966.47 ft
		Offset	-138.2581	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured, cobbles, and clayey gravel seams							
				0	5684				158	REC:97%; RQD:88%
25		50 (0) 50 (0)								REC:97%; RQD:85%
936.5	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 6 feet; Wet rotary thereafter. GPS: (Lat: 29.60728, Lon: -98.45980). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 57 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1753

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4512_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/8/2022
CSJ	2452-02-130 & 2452-03-113	Station	4512+62.87	Grnd. Elev.	966.05 ft
		Offset	-142.1851	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
965.6			ASPHALT, 7.5 inches thick							
965.1			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, very dense, tan, with limestone cobbles, boulders and chert			4	19	5		SPT(mod):42-48-21
						4				#200(%)-20; SPT(mod):24-15-50/4
962.1										SPT(mod):50/0
			LIMESTONE, very hard, tan, vuggy, fractured, cobbles, and clayey gravel seams							REC:50%; RQD:0%
5		50 (0) 50 (0)								
				0	6776				160	REC:100%; RQD:32%
10		50 (0) 50 (0)								
										REC:100%; RQD:17%
15		50 (0) 50 (0)								
				0	4215				153	REC:97%; RQD:23%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 4 feet; Wet rotary thereafter. GPS: (Lat: 29.60707, Lon: -98.45920). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4512_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/8/2022
CSJ	2452-02-130 & 2452-03-113	Station	4512+62.87	Grnd. Elev.	966.05 ft
		Offset	-142.1851	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured, cobbles, and clayey gravel seams							
										REC:90%; RQD:17%
25		50 (0) 50 (0)								
										REC:100%; RQD:13%
936.1 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 4 feet; Wet rotary thereafter. GPS: (Lat: 29.60707, Lon: -98.45920). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 58 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1754

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4513_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	6/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4512+85.92	Grnd. Elev.	970.08 ft
		Offset	124.8519	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
969.6			ASPHALT, 6 inches thick							
969.1			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, brown and tan, with limestone cobbles, boulders and chert			13	53	30		SPT:27-18-21
										SPT:50/2
967.1			WEATHERED LIMESTONE BOULDERS, very hard, reddish tan to tan, weathered, with cobbles and clayey gravel seams							
										SPT:50/0
5		50 (1) 50 (0)								
				0	10482				154	REC:47%; RQD:20%
961.1			LIMESTONE, very hard, tan, vuggy, fractured with chert, cobbles, and clayey gravel seams							
10		50 (1) 50 (0)								
										REC:72%; RQD:0%
15		50 (0) 50 (0)								
										REC:85%; RQD:0%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60635, Lon: -98.45934).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4513_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	6/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4512+85.92	Grnd. Elev.	970.08 ft
		Offset	124.8519	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured with chert, cobbles, and clayey gravel seams							
										REC:100%; RQD:42%
25		50 (0) 50 (0)								
				0	6751				159	REC:90%; RQD:55%
940.1		50 (0) 50 (0)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60635, Lon: -98.45934).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 59 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1755

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4514_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/8/2022
CSJ	2452-02-130 & 2452-03-113	Station	4514+49.44	Grnd. Elev.	965.55 ft
		Offset	-139.1464	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
965.1			ASPHALT, 6.5 inches thick							
964.6			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, tan, with limestone cobbles, boulders and chert			5				SPT(mod):49-50/5
										SPT(mod):8-12-11
961.6			WEATHERED LIMESTONE BOULDERS, very hard, reddish tan to tan, weathered, with cobbles and clayey gravel seams			1				#200(%)-10; SPT(mod):5-50/3
5		50 (1) 50 (0)								
958.6			LIMESTONE, very hard, tan, vuggy, fractured, cobbles, and clayey gravel seams							REC:92%; RQD:7%
10		50 (1) 50 (0)								REC:80%; RQD:27%
15		50 (0) 50 (0)								
				0	6152				158	REC:100%; RQD:33%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60688, Lon: -98.45919). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4514_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/8/2022
CSJ	2452-02-130 & 2452-03-113	Station	4514+49.44	Grnd. Elev.	965.55 ft
		Offset	-139.1464	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured, cobbles, and clayey gravel seams							
				0	2754				143	REC:97%; RQD:23%
25		50 (0) 50 (0)								REC:90%; RQD:47%
935.6	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60688, Lon: -98.45919). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 60 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1756

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4515_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	6/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4514+88.14	Grnd. Elev.	967.58 ft
		Offset	110.6164	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
967.1			ASPHALT, 6 inches thick							
966.6			BASE MATERIAL, 7.5 inches thick							
			GRAVEL, clayey with sand, brown and tan, with limestone cobbles, boulders and chert			12				#200(%)-22; SPT:21-19-50/3
964.6			WEATHERED LIMESTONE BOULDERS, very hard, reddish tan to tan, weathered, with cobbles and clayey gravel seams							SPT:50/4
										SPT:50/0
5		50 (0) 50 (0)								
										REC:27%; RQD:7%
957.6	10	50 (0) 50 (0)	LIMESTONE, very hard, tan, vuggy, fractured with chert, cobbles, and clayey gravel seams							
				0	10648				161	REC:87%; RQD:17%
15		50 (0) 50 (0)								
										REC:55%; RQD:0%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60621, Lon: -98.45880).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4515_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	6/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4514+88.14	Grnd. Elev.	967.58 ft
		Offset	110.6164	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured with chert, cobbles, and clayey gravel seams							
				0	4931				153	REC:78%; RQD:32%
25		50 (0) 50 (0)								
										REC:90%; RQD:90%
937.6	30	50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60621, Lon: -98.45880).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 61 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1757

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4516_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4516+54.28	Grnd. Elev.	964.70 ft
		Offset	-139.113	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
964.2			ASPHALT, 6 inches thick							
963.7			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, compact, brown and tan, with limestone cobbles, boulders and chert			4				#200(%)-9; SPT(mod):40-35-19
						2				SPT(mod):16-17-22
						4				SPT(mod):4-7-8
5		18 (6) 50 (3)								
958.7			WEATHERED LIMESTONE BOULDERS, very hard, reddish tan to tan, weathered, with cobbles and clayey gravel seams			1				SPT(mod):8-17-50/1
										REC:100%; RQD:0%
10		50 (1) 50 (0)								
952.7			LIMESTONE, hard to very hard, tan, vuggy, fractured with chert, cobbles, and clayey gravel seams, between 15 and 20 feet very vuggy	0	6317				159	REC:90%; RQD:25%
15		50 (1) 50 (0)								
										REC:85%; RQD:12%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60667, Lon: -98.45801). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4516_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	6/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4516+54.28	Grnd. Elev.	964.70 ft
		Offset	-139.113	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard to very hard, tan, vuggy, fractured with chert, cobbles, and clayey gravel seams, between 15 and 20 feet very vuggy							
				0	1760				142	REC:87%; RQD:17%
25		50 (0) 50 (0)								
				0	4384				153	REC:92%; RQD:67%
934.7		50 (0) 50 (0)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60667, Lon: -98.45801). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 62 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1758

DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	W_4517_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	6/29/2022
CSJ	2452-02-130 & 2452-03-113	Station	4516+88.47	Grnd. Elev.	965.27 ft
		Offset	110.6452	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
964.8			ASPHALT, 6.5 inches thick							
			BASE MATERIAL, 11 inches thick							
963.8			GRAVEL, clayey with sand, brown and tan, with limestone cobbles, boulders and chert			14				#200(%)-26; SPT(mod):16-12-50/4
962.3			LIMESTONE, very hard, tan, vuggy, fractured with chert, cobbles, and clayey gravel seams							SPT(mod):50/1
										REC:83%; RQD:17%
5		50 (0) 50 (0)								
				0	8844				166	REC:100%; RQD:48%
10		50 (0) 50 (0)								
										REC:100%; RQD:35%
15		50 (0) 50 (0)								
										REC:100%; RQD:17%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 4 feet; Wet rotary thereafter. GPS: (Lat: 29.60602, Lon: -98.45817). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	W_4517_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	6/29/2022
CSJ	2452-02-130 & 2452-03-113	Station	4516+88.47	Grnd. Elev.	965.27 ft
		Offset	110.6452	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, vuggy, fractured with chert, cobbles, and clayey gravel seams							
										REC:100%; RQD:42%
25		50 (0) 50 (0)								
				0	6830				146	REC:100%; RQD:45%
935.3 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 4 feet; Wet rotary thereafter. GPS: (Lat: 29.60602, Lon: -98.45817). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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BORING LOG

SHEET 63 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1759

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4520_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4520+58.46	Grnd. Elev.	956.32 ft
		Offset	-126.224	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
955.8		ASPHALT, 5 inches thick							
955.1		BASE MATERIAL, 7 inches thick							
		GRAVEL, clayey, brown to reddish tan, with cobbles and reddish tan clay seams			10				#200(%)-30; SPT:21-23-36
					16				#200(%)-59; SPT:11-27-43
952.3									SPT:50/0
5	50 (3) 50 (3)	WEATHERED LIMESTONE BOULDERS, soft, tan, with chert and limestone cobbles, many clay filled voids							
			0	10505				149	REC:38%; RQD:15%
948.3		LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and with interbedded chert							
10	50 (0) 50 (0)								REC:98%; RQD:50%
15	50 (0) 50 (0)								
			0	7199				157	REC:100%; RQD:27%
20	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60629, Lon: -98.45690).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4520_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4520+58.46	Grnd. Elev.	956.32 ft
		Offset	-126.224	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and with interbedded chert							
									REC:88%; RQD:7%
25	50 (0) 50 (0)								
			0	8510				157	REC:95%; RQD:53%
926.3 30	50 (0) 50 (0)								
35									
40									

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60629, Lon: -98.45690).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 64 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1760

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4522_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4522+55.30	Grnd. Elev.	951.16 ft
		Offset	-145.2448	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
950.7			ASPHALT, 5 inches thick							
949.9			BASE MATERIAL, 7 inches thick							
			GRAVEL, clayey, light brown, with cobbles			6				#200(%)-32; SPT:17-28-37
										SPT:49-50/0
948.2			WEATHERED LIMESTONE BOULDERS, very hard, tan, with chert, with cobbles, many clay filled voids							
										SPT:50/0
5		50 (0) 50 (0)								
945.2			LIMESTONE, very hard, light tan, fractured, with vuggy seams, and clay filled voids	0	5154				154	REC:72%; RQD:17%
10		50 (0) 50 (0)								REC:100%; RQD:32%
15		50 (0) 50 (0)								REC:88%; RQD:15%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60615, Lon: -98.45626).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4522_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4522+55.30	Grnd. Elev.	951.16 ft
		Offset	-145.2448	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, with vuggy seams, and clay filled voids							
				0	9024				160	REC:92%; RQD:22%
25		50 (0) 50 (0)								REC:96%; RQD:15%
921.2		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60615, Lon: -98.45626).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 65 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1761

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4524_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4524+73.64	Grnd. Elev.	945.45 ft
		Offset	-150.1038	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
944.9			ASPHALT, 5 inches thick							
944.4			BASE MATERIAL, 7 inches thick							
			GRAVEL, clayey, brown to tan, with cobbles			7				#200(%)-24; SPT:24-23-17
						5				SPT:12-37-50/1
941.4										SPT:50/0
5		50 (1) 50 (0)	WEATHERED LIMESTONE BOULDERS, very hard, tan, with cobbles, many clay filled voids							
939.4			LIMESTONE, very hard, light tan, fractured, vuggy layers, and clay filled voids	0	5348				147	REC:72%; RQD:32%
10		50 (0) 50 (0)								REC:100%; RQD:72%
15		50 (0) 50 (0)		0	2782				146	REC:95%; RQD:57%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60598, Lon: -98.45564).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4524_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4524+73.64	Grnd. Elev.	945.45 ft
		Offset	-150.1038	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers, and clay filled voids							
				0	633				133	REC:82%; RQD:37%
25		50 (0) 50 (0)								REC:62%; RQD:0%
915.4 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60598, Lon: -98.45564).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 66 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1762

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4524_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	5/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4524+42.09	Grnd. Elev.	954.32 ft
		Offset	147.1769	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
953.8			ASPHALT, 5 inches thick							
953.2			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey, with fat clay seams, compact, brown to dark reddish tan, with cobbles			11				SPT:18-10-12
						12	16	2		#200(%)-35; SPT:8-8-10
5		15 (6) 50 (5)				19	54	35		SPT:3-7-25
948.3			WEATHERED LIMESTONE BOULDERS, very hard, tan, with chert and limestone cobbles, many clay filled voids							SPT:50/1
										SPT:50/0
10		50 (0) 50 (0)								
943.3			LIMESTONE, very hard, light tan, fractured, vuggy seams, clay filled voids and interbedded with chert lens	0	3549				147	REC:90%; RQD:48%
15		50 (0) 50 (0)								REC:92%; RQD:72%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60523, Lon: -98.45599).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4524_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	5/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4524+42.09	Grnd. Elev.	954.32 ft
		Offset	147.1769	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy seams, clay filled voids and interbedded with chert lens	0	1872				143	REC:100%; RQD:40%
25		50 (0) 50 (0)								REC:82%; RQD:63%
924.3		50 (0) 50 (0)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet coring thereafter. GPS: (Lat: 29.60523, Lon: -98.45599).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
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02/20/2023
TBPE REGISTRATION NO. F-3272

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BORING LOG

SHEET 67 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1763

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4526_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/18/2022
CSJ	2452-02-130 & 2452-03-113	Station	4526+43.49	Grnd. Elev.	940.96 ft
		Offset	-146.2272	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
940.5		ASPHALT, 5 inches thick							
940.		BASE MATERIAL, 7 inches thick							
		GRAVEL, clayey, tan, with cobbles						4	SPT:16-27-33
								3	#200(%)-15; SPT:27-16-31
936.5									SPT:37-50/0
5	50 (0) 50 (0)	WEATHERED LIMESTONE BOULDERS, very hard, tan, with chert, with cobbles, many clay filled voids							REC:57%; RQD:53%
933.		LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and some chert							
10	50 (0) 50 (0)		0	13662				163	REC:95%; RQD:93%
15	50 (0) 50 (0)								REC:97%; RQD:93%
20	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60583, Lon: -98.45509).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4526_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/18/2022
CSJ	2452-02-130 & 2452-03-113	Station	4526+43.49	Grnd. Elev.	940.96 ft
		Offset	-146.2272	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
		LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and some chert							
			0	7776				162	REC:90%; RQD:48%
25	50 (0) 50 (0)								REC:100%; RQD:85%
911. 30	50 (0) 50 (0)								
35									
40									

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60583, Lon: -98.45509).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 68 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1764

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4526_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	6/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4526+60.70	Grnd. Elev.	945.95 ft
		Offset	161.3664	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
945.5			ASPHALT, 5 inches thick							
944.9			BASE MATERIAL, 7.5 inches thick							
			GRAVEL, clayey, tan, with cobbles			5				SPT:38-28-21
						5				#200(%)-12; SPT:11-27-41
942.										SPT:50/0
5		50 (0) 50 (0)	WEATHERED LIMESTONE BOULDERS, very hard, tan, with chert and limestone cobbles, many clay filled voids							
939.			LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and interbedded with chert lens	0	4960				161	REC:52%; RQD:18%
10		50 (0) 50 (0)								REC:90%; RQD:23%
15		50 (0) 50 (0)								
				0	4403				146	REC:98%; RQD:47%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60502, Lon: -98.45536).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4526_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 409	Date	6/24/2022
CSJ	2452-02-130 & 2452-03-113	Station	4526+60.70	Grnd. Elev.	945.95 ft
		Offset	161.3664	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and interbedded with chert lens							REC:97%; RQD:58%
25		50 (0) 50 (0)		0	9611				160	REC:92%; RQD:20%
916. 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60502, Lon: -98.45536).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023
TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 69 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1765

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4528_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/18/2022
CSJ	2452-02-130 & 2452-03-113	Station	4528+61.35	Grnd. Elev.	935.20 ft
		Offset	-143.4865	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
934.7			ASPHALT, 8 inches thick							
934.			BASE MATERIAL, 7 inches thick							
			GRAVEL, clayey, sightly compact, brown to tan, with cobbles			4				SPT:17-13-10
						4				SPT:18-21-33
5		17 (6) 10 (6)				5				#200(%)-42; SPT:8-8-13
928.2			WEATHERED LIMESTONE BOULDERS, soft, tan, with cobbles, chert, and many clay filled voids							SPT:50/0
10		50 (5) 50 (3)								REC:25%; RQD:0%
922.2			LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and chert	0	9868				163	REC:67%; RQD:52%
15		50 (0) 50 (0)								
				0	9059				162	REC:92%; RQD:87%
20		50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 8 feet; Wet rotary thereafter. GPS: (Lat: 29.60566, Lon: -98.45446).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4528_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 408	Date	5/18/2022
CSJ	2452-02-130 & 2452-03-113	Station	4528+61.35	Grnd. Elev.	935.20 ft
		Offset	-143.4865	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, vuggy layers, clay filled voids and chert							REC:78%; RQD:45%
25		50 (0) 50 (0)								
905.2		50 (0) 50 (0)								REC:53%; RQD:10%
30										
35										
40										

Remarks: Advancement Method: Air rotary to 8 feet; Wet rotary thereafter. GPS: (Lat: 29.60566, Lon: -98.45446).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 70 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1766

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4538_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	6/3/2022
CSJ	2452-02-130 & 2452-03-113	Station	4538+20	Grnd. Elev.	891.00 ft
		Offset	-136	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
890.5			ASPHALT, 6 inches thick							
890.			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey, compact to very dense, dark reddish tan with tan, with cobbles with some boulders			7				#200(%)-32; SPT:21-29-18
						12				SPT:15-50/5
5		50 (1) 50 (0)				8				SPT:27-11-11
						2				SPT:19-33-20
						8				SPT:14-11-9
10		37 (6) 28 (6)								
						15				#200(%)-16; SPT:7-17-11
15		20 (6) 28 (6)								
						4				SPT:10-31-50/2
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60493, Lon: -98.45155). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4538_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	6/3/2022
CSJ	2452-02-130 & 2452-03-113	Station	4538+20	Grnd. Elev.	891.00 ft
		Offset	-136	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, very hard, reddish tan to tan, with chert and limestone cobbles, many clay and clayey gravel filled voids							
										SPT:50/0
25		50 (0) 50 (0)								
										SPT:50/0
861.	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60493, Lon: -98.45155). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 71 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1767

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4538_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall RW-410	Date	6/8/2022
CSJ	2452-02-130 & 2452-03-113	Station	4538+17.97	Grnd. Elev.	885.70 ft
		Offset	138.01	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
885.3			ASPHALT, 4 inches thick							
884.7			BASE MATERIAL, 6 inches thick							
			GRAVEL, clayey, compact, reddish tan with tan, with cobbles with some boulders			7				#200(%)-22; SPT:39-21-18
						12	57	32		SPT:12-17
5		15 (6) 30 (6)								SPT:50/0--11
						8				SPT:5-14-20
										SPT:50/2
10		27 (6) 37 (6)								REC:7%; RQD:0%
15		20 (6) 20 (6)								
869.7			WEATHERED LIMESTONE BOULDERS, hard to very hard, with chert and clayey gravel seams							REC:47%; RQD:8%
20		50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 16 feet; Wet rotary thereafter. GPS: (Lat: 29.60419, Lon: -98.45176).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4538_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall RW-410	Date	6/8/2022
CSJ	2452-02-130 & 2452-03-113	Station	4538+17.97	Grnd. Elev.	885.70 ft
		Offset	138.01	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, hard to very hard, with chert and clayey gravel seams	0	2593					REC:50%; RQD:23%
25		50 (3) 50 (0)								
855.7		50 (1) 50 (0)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to 16 feet; Wet rotary thereafter. GPS: (Lat: 29.60419, Lon: -98.45176).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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REV. NO.	DATE	DESCRIPTION	BY

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BORING LOG

SHEET 72 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1768

DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4540_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall RW-410	Date	6/9/2022
CSJ	2452-02-130 & 2452-03-113	Station	4539+86.32	Grnd. Elev.	885.80 ft
		Offset	138.09	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
885.3			ASPHALT, 5 inches thick							
884.8			BASE MATERIAL, 6 inches thick							
			GRAVEL, clayey, compact to very dense, tan, with cobbles with some boulders			8	32	17		SPT:39-27-31
						5				#200(%)-14; SPT:11-9-13
5		26 (6) 18 (6)								SPT:50/4
						3				SPT:37-31-42
						8				SPT:21-11-14
10		50 (1) 50 (0)								
871.8			WEATHERED LIMESTONE WITH BOULDERS, soft to hard, with chert and clayey gravel seams			26	12			SPT:50/0
15		50 (0) 50 (0)								
						0	2958			REC:38%; RQD:12%
20		46 (6) 50 (5)								

Remarks: Advancement Method: Air rotary to 14 feet; Wet rotary thereafter. GPS: (Lat: 29.60407, Lon: -98.45122).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar County	Hole	W_4540_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall RW-410	Date	6/9/2022
CSJ	2452-02-130 & 2452-03-113	Station	4539+86.32	Grnd. Elev.	885.80 ft
		Offset	138.09	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE WITH BOULDERS, soft to hard, with chert and clayey gravel seams							REC:22%; RQD:0%
25		50 (1) 50 (0)								
										REC:32%; RQD:0%
855.8 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 14 feet; Wet rotary thereafter. GPS: (Lat: 29.60407, Lon: -98.45122).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 73 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1769

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4540_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	6/3/2022
CSJ	2452-02-130 & 2452-03-113	Station	4539+82.88	Grnd. Elev.	887.07 ft
		Offset	-128.2895	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
886.6			ASPHALT, 3 inches thick							
886.1			BASE MATERIAL, 5 inches thick							
			GRAVEL, clayey, slightly compact to compact, brown to reddish tan, with cobbles with some boulders			7				SPT:20-33-20
										SPT:9-4-4
5		12 (6) 23 (6)				12				#200(%)-14; SPT:11-7-9
						16				SPT:14-10-9
						5				SPT:13-16-9
10		36 (6) 46 (6)								
						5				SPT:16-11-12
15		30 (6) 17 (6)								
						13				SPT:22-50/5
20		13 (6) 22 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60484, Lon: -98.45109). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4540_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	6/3/2022
CSJ	2452-02-130 & 2452-03-113	Station	4539+82.88	Grnd. Elev.	887.07 ft
		Offset	-128.2895	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, slightly compact to compact, brown to reddish tan, with cobbles with some boulders							
865.1			WEATHERED LIMESTONE BOULDERS, soft to very hard, reddish tan to tan, with chert and limestone cobbles, many clay and clayey gravel filled voids							SPT:47-50/0
25		24 (6) 20 (6)								
										SPT:50/0
857.1		50 (0) 50 (0)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60484, Lon: -98.45109). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 74 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1770

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4544_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	6/3/2022
CSJ	2452-02-130 & 2452-03-113	Station	4543+86.35	Grnd. Elev.	889.68 ft
		Offset	-129.2615	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
889.2			ASPHALT, 3 inches thick							
888.7			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey, compact to very dense, brown to reddish tan, with limestone and chert cobbles with some boulders			9				#200(%)-27; SPT:18-16-13
						11				SPT:49-50/0
5		7 (6) 13 (6)				4				SPT:18-28-15
						4				SPT:10-13-21
						5				SPT:14-11-12
10		31 (6) 27 (6)								
						6				#200(%)-23; SPT:18-15-13
15		27 (6) 30 (6)								
						6				SPT:10-9-8
20		12 (6) 7 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60452, Lon: -98.44983). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4544_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	6/3/2022
CSJ	2452-02-130 & 2452-03-113	Station	4543+86.35	Grnd. Elev.	889.68 ft
		Offset	-129.2615	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, compact to very dense, brown to reddish tan, with limestone and chert cobbles with some boulders							
25		38 (6) 31 (6)				6				SPT:8-5-17
						7				SPT:50/2
859.7 30		43 (6) 50 (3)								
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60452, Lon: -98.44983). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

 Texas Department of Transportation

LP 1604

BORING LOG

SHEET 75 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1771

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4544_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall RW-413	Date	6/9/2022
CSJ	2452-02-130 & 2452-03-113	Station	4545+54.02	Grnd. Elev.	896.90 ft
		Offset	139.77	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
895.9			, 5in. Asphalt and 6in. Base							
			GRAVEL, clayey, loose to very dense, tan, with cobbles with some boulders and clay seams			6				SPT(mod):30-24-25
						5				#200(%)-18; SPT(mod):7-8-13
5		21 (6) 22 (6)				9				SPT(mod):11-50/4
						4				SPT(mod):6-14-17
						6				SPT(mod):8-20-15
10		23 (6) 7 (6)								
						13				SPT(mod):5-18-2
15		14 (6) 22 (6)								
										SPT(mod):4-6-50/2
20		7 (6) 10 (6)								

Remarks: Advancement Method: Air rotary to 15 feet; Wet rotary thereafter. GPS: (Lat: 29.60381, Lon: -98.44995). SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4544_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall RW-413	Date	6/9/2022
CSJ	2452-02-130 & 2452-03-113	Station	4545+54.02	Grnd. Elev.	896.90 ft
		Offset	139.77	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, loose to very dense, tan, with cobbles with some boulders and clay seams							
25		27 (6) 19 (6)								SPT(mod):6-7-50/5
										SPT(mod):50/2
866.9 30		50 (2) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 15 feet; Wet rotary thereafter. GPS: (Lat: 29.60381, Lon: -98.44995). SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 76 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1772

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4545_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	6/3/2022
CSJ	2452-02-130 & 2452-03-113	Station	4544+91.03	Grnd. Elev.	893.12 ft
		Offset	-130.5341	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
892.6			ASPHALT, 3 inches thick							
892.1			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey, slightly compact to very dense, brown to reddish tan, with cobbles, with some boulders			8				SPT:32-14-16
						8				#200(%)-29; SPT:5-15-16
5		31 (6) 34 (6)				16				SPT:14-7-13
						7				SPT:12-16-29
						6				SPT:9-8-16
10		12 (6) 18 (6)								
						2				SPT:8-11-18
15		16 (6) 11 (6)								
						3				#200(%)-14; SPT:12-14-19
20		16 (6) 43 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60445, Lon: -98.44948). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4545_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	6/3/2022
CSJ	2452-02-130 & 2452-03-113	Station	4544+91.03	Grnd. Elev.	893.12 ft
		Offset	-130.5341	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, slightly compact to very dense, brown to reddish tan, with cobbles, with some boulders							
869.1			WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, with chert and limestone cobbles, many clay and clayey gravel filled voids			4				SPT:13-13-17
25		50 (3) 50 (1)								
						5				SPT:20-21-50/2
863.1	30	50 (1) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60445, Lon: -98.44948). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 77 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1773

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4545_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall RW-413	Date	6/10/2022
CSJ	2452-02-130 & 2452-03-113	Station	4544+34.49	Grnd. Elev.	891.90 ft
		Offset	137.52	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			, 5in. Asphalt and 5.5in. Base							
890.9			GRAVEL, clayey, dense to very dense, tan, with cobbles and some boulders			6				#200(%)-32; SPT(mod):3-36-18
						26	48	27		SPT(mod):3-4-5
5		50 (5) 50 (0)								SPT(mod):50/2
										SPT(mod):50/0
						8				SPT(mod):9-3-3
										SPT(mod):50/0
10		46 (6) 54 (6)								
										SPT(mod):8-9-50/2
876.9 15		50 (3) 50 (0)	WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, with cobbles and clayey gravel seams							
20		50 (2) 50 (0)								

Remarks: Advancement Method: Air rotary to 8.5 feet; Wet rotary thereafter. GPS: (Lat: 29.60368, Lon: -98.44958). SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4545_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall RW-413	Date	6/10/2022
CSJ	2452-02-130 & 2452-03-113	Station	4544+34.49	Grnd. Elev.	891.90 ft
		Offset	137.52	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, with cobbles and clayey gravel seams							#200(%)-20; SPT(mod):15-50/3
25		50 (0) 50 (0)								
										SPT(mod):50/2
861.9 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 8.5 feet; Wet rotary thereafter. GPS: (Lat: 29.60368, Lon: -98.44958). SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 78 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1774

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4546_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/31/2022
CSJ	2452-02-130 & 2452-03-113	Station	4545+86.74	Grnd. Elev.	897.97 ft
		Offset	-134.2735	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
897.5			ASPHALT, 3 inches thick							
897.			BASE MATERIAL, 10 inches thick							
			GRAVEL, clayey, compact, tan, with cobbles			7	23	8		SPT:37-21-25
						7				#200(%)-30; SPT:12-34-40
894.			WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, with chert and limestone cobbles, many clay and clayey gravel filled voids							SPT:50/0
5		28 (6) 21 (6)								REC:25%; RQD:15%
10		50 (4) 50 (3)								REC:33%; RQD:0%
15		50 (1) 50 (0)								REC:35%; RQD:0%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60441, Lon: -98.44922).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4546_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/31/2022
CSJ	2452-02-130 & 2452-03-113	Station	4545+86.74	Grnd. Elev.	897.97 ft
		Offset	-134.2735	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, with chert and limestone cobbles, many clay and clayey gravel filled voids							REC:38%; RQD:0%
874.			LIMESTONE, very hard, light tan, weathered, fractured, with many vuggy layers, and clay filled seams and voids							REC:98%; RQD:0%
25		50 (0) 50 (0)								
868. 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60441, Lon: -98.44922).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 79 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1775

DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	W_4547_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 414	Date	6/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4547+16.60	Grnd. Elev.	907.30 ft
		Offset	118.7006	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
906.8			ASPHALT, 4 inches thick							
906.3			BASE MATERIAL, 7.5 inches thick			5				#200(%)-27; SPT(mod):32-50/5
			GRAVEL, clayey with sand, dense, tan, with cobbles and some boulders							
						5				SPT(mod):19-15-19
						6	19	4		SPT(mod):21-23-50/2
5		50 (5.5) 50 (1)								
						3				SPT(mod):50/5
898.3			WEATHERED LIMESTONE BOULDERS, very hard, tan, with cobbles and clayey gravel seams							SPT(mod):50/3
10		50 (0) 50 (0)								SPT(mod):50/0 REC:10%; RQD:0%
15		50 (1) 50 (0)								REC:33%; RQD:0%
20		50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 13 feet; Wet rotary thereafter. GPS: (Lat: 29.60364, Lon: -98.44907). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: A. Coreco **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore
Version 3.1

County	Bexar	Hole	W_4547_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/31/2022
CSJ	2452-02-130 & 2452-03-113	Station	4547+48.60	Grnd. Elev.	910.13 ft
		Offset	-125.4563	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
909.6			ASPHALT, 3 inches thick							
909.1			BASE MATERIAL, 9 inches thick			9	24	10		SPT:37-28-31
			GRAVEL, very hard, tan, gravely with reddish tan with some leanclay seams and cobbles							
						7				#200(%)-38; SPT:33-50/4
906.6			WEATHERED LIMESTONE BOULDERS, very hard, tan, with chert and limestone cobbles, many clay filled voids							SPT:50/0
5		50 (0) 50 (0)								
903.1			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, and clay filled voids							REC:90%; RQD:28%
10		50 (0) 50 (0)								
						0	4294			REC:72%; RQD:27%
15		50 (0) 50 (0)								REC:98%; RQD:8%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60426, Lon: -98.44880). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 80 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1776

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4549_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/27/2022
CSJ	2452-02-130 & 2452-03-113	Station	4549+18.68	Grnd. Elev.	922.58 ft
		Offset	-150.3364	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
922.1			ASPHALT, 3 inches thick							
921.6			BASE MATERIAL, 8 inches thick			13				#200(%)-34; SPT:28-50/4
			GRAVEL, brown, with cobbles							
										SPT:50/1
918.6			WEATHERED LIMESTONE BOULDERS, very hard, tan, with chert and limestone cobbles, many clay filled voids							SPT:50/0
5		50 (0) 50 (0)								
915.1			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, and clay filled voids - highly fractured with chalky clay filled voids below 25 feet							REC:87%; RQD:33%
10		50 (0) 50 (0)								
				0	6618					REC:98%; RQD:42%
15		50 (0) 50 (0)								
										REC:95%; RQD:50%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60421, Lon: -98.44827). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4549_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/27/2022
CSJ	2452-02-130 & 2452-03-113	Station	4549+18.68	Grnd. Elev.	922.58 ft
		Offset	-150.3364	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, and clay filled voids - highly fractured with chalky clay filled voids below 25 feet							
				0	3461					REC:88%; RQD:57%
25		50 (0) 50 (0)								
										REC:35%; RQD:0%
892.6 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60421, Lon: -98.44827). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 81 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1777

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DRILLING LOG

	County	Bexar	Hole	W_4549_00R	District	San Antonio
WinCore	Highway	LP 1604	Structure	Retaining Wall 414	Date	6/15/2022
Version 3.1	CSJ	2452-02-130 & 2452-03-113	Station	4549+07.65	Grnd. Elev.	919.84 ft
			Offset	133.1662	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
919.3			ASPHALT, 4 inches thick							
918.8			BASE MATERIAL, 7.5 inches thick							
			GRAVEL, clayey with sand, very dense, tan, with cobbles and some boulders			8				#200(%)-35; SPT(mod):28-21-50/2
										SPT(mod):50/0
										SPT(mod):50/0
5		50 (2) 50 (0)								
913.8			WEATHERED LIMESTONE BOULDERS, hard to very hard, tan, with cobbles and clayey gravel seams							
				0	4339				148	REC:98%; RQD:40%
10		50 (1) 50 (0)								
				0	6268				150	REC:86%; RQD:25%
15		50 (0) 50 (0)								
										REC:23%; RQD:0%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60345, Lon: -98.44847). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: A. Coreco **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 82 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1778

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4551_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/27/2022
CSJ	2452-02-130 & 2452-03-113	Station	4551+13.27	Grnd. Elev.	933.34 ft
		Offset	-177.0459	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
932.8			ASPHALT, 3 inches thick							
932.3			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey, reddish tan, with cobbles			7				SPT:33-21-23
						23				#200(%)-33; SPT:14-9-5
929.3			WEATHERED LIMESTONE BOULDERS, very hard, tan, with limestone cobbles, and many clay filled voids							SPT:48-50/0
5		50 (0) 50 (0)								
925.8			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, and clay filled voids	0	4968					REC:52%; RQD:43%
10		50 (0) 50 (0)								REC:97%; RQD:32%
15		50 (0) 50 (0)								REC:100%; RQD:0%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60413, Lon: -98.44762). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4551_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/27/2022
CSJ	2452-02-130 & 2452-03-113	Station	4551+13.27	Grnd. Elev.	933.34 ft
		Offset	-177.0459	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, and clay filled voids	0	8581					REC:88%; RQD:58%
25		50 (0) 50 (0)								REC:100%; RQD:35%
903.3 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60413, Lon: -98.44762). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 83 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1779

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4551_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4551+19.70	Grnd. Elev.	929.86 ft
		Offset	154.7569	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
929.4			ASPHALT, 3 inches thick							
928.9			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, very hard, reddish tan with tan, with clay seams, cobbles and some boulderss			16	39	21		SPT:33-15-17
						11				#200(%)-49; SPT:28-17-27
										SPT:50/0
5		50 (0) 50 (0)								
922.9			LIMESTONE, very hard, light tan, weathered, fractured, with many vuggy layers, and clay filled seams and voids							REC:60%; RQD:7%
10		50 (1) 50 (0)								REC:95%; RQD:28%
15		50 (0) 50 (0)		0	5478				156	REC:80%; RQD:10%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60326, Lon: -98.44788).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4551_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4551+19.70	Grnd. Elev.	929.86 ft
		Offset	154.7569	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, weathered, fractured, with many vuggy layers, and clay filled seams and voids							REC:93%; RQD:8%
25		50 (0) 50 (0)		0	8251				151	REC:82%; RQD:20%
899.9 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60326, Lon: -98.44788).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

 Texas Department of Transportation

LP 1604

BORING LOG

SHEET 84 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1780

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4553_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/26/2022
CSJ	2452-02-130 & 2452-03-113	Station	4553+14.63	Grnd. Elev.	940.23 ft
		Offset	-190.8026	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
939.7			ASPHALT, 3 inches thick							
939.2			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey, very dense, tan, with cobbles			9				#200(%)-34; SPT:32-30-33
						7				#200(%)-19; SPT:13-10-11
5		11 (6) 50 (5)				2				SPT:6-50/0
934.2			WEATHERED LIMESTONE BOULDERS, very hard, reddish tan to tan, with limestone cobbles, and many clay filled voids							REC:30%; RQD:0%
10		50 (2) 50 (0)								
929.2			LIMESTONE, hard very hard, light tan, weathered, highly fractured, with many vuggy layers, and clay filled voids							REC:90%; RQD:28%
15		50 (1) 50 (0)								REC:100%; RQD:28%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60401, Lon: -98.44700). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4553_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/26/2022
CSJ	2452-02-130 & 2452-03-113	Station	4553+14.63	Grnd. Elev.	940.23 ft
		Offset	-190.8026	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			LIMESTONE, hard very hard, light tan, weathered, highly fractured, with many vuggy layers, and clay filled voids							REC:87%; RQD:23%
25		50 (0) 50 (0)		0	4290					REC:78%; RQD:27%
910.2	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60401, Lon: -98.44700). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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02/20/2023

TBPE REGISTRATION NO. F-3272

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LP 1604

BORING LOG

SHEET 85 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1781

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4553_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4553+28.50	Grnd. Elev.	935.16 ft
		Offset	173.0767	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
934.7			ASPHALT, 3 inches thick							
934.2			BASE MATERIAL, 6 inches thick							
			GRAVEL, clayey with sand, very dense, tan, with cobbles and some boulders			15				SPT:18-15-6
						15				SPT:10-50/5
										SPT:50/0
5		50 (0) 50 (0)								
929.2			LIMESTONE, very dense, tan, vuggy with cobbles and clayey gravel seams, below 24 feet vuggy and highy fractured with clayey gravel filled voids and seams							REC:67%; RQD:52%
10		50 (1) 50 (0)								
				0	10038				158	REC:92%; RQD:28%
15		50 (0) 50 (0)								
										REC:92%; RQD:20%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60304, Lon: -98.44725).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4553_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4553+28.50	Grnd. Elev.	935.16 ft
		Offset	173.0767	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very dense, tan, vuggy with cobbles and clayey gravel seams, below 24 feet vuggy and highy fractured with clayey gravel filled voids and seams							
				0	8067				154	REC:90%; RQD:28%
25		50 (0) 50 (0)								
										REC:53%; RQD:0%
905.2 30		50 (1) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60304, Lon: -98.44725).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 86 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1782

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4554_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/26/2022
CSJ	2452-02-130 & 2452-03-113	Station	4554+68.61	Grnd. Elev.	942.09 ft
		Offset	-188.4495	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
941.6			ASPHALT, 4 inches thick							
941.1			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey, compact, reddish tan, with cobbles			10				#200(%)-29; SPT:30-22-17
						7				SPT:50/2
938.1			WEATHERED LIMESTONE BOULDERS, soft to very hard, tan, with chert and limestone cobbles, many clay filled voids							SPT:50/0
5		36 (6) 12 (6)								
										REC:50%; RQD:7%
10		50 (0) 50 (0)								
931.1			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, clay filled voids and interbedded with chert lens	0	4449					REC:73%; RQD:50%
15		50 (0) 50 (0)								
				0	3714					REC:100%; RQD:53%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60391, Lon: -98.44654). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4554_50L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall	Date	5/26/2022
CSJ	2452-02-130 & 2452-03-113	Station	4554+68.61	Grnd. Elev.	942.09 ft
		Offset	-188.4495	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, clay filled voids and interbedded with chert lens							REC:100%; RQD:7%
25		50 (0) 50 (0)								
										REC:92%; RQD:15%
912.1 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60391, Lon: -98.44654). Ground elevation based on Google Earth Imagery.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 87 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1783

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4555_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4555+55.75	Grnd. Elev.	937.96 ft
		Offset	177.38	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
937.5		ASPHALT, 4 inches thick							
937.		BASE MATERIAL, 9 inches thick							
		GRAVEL, clayey with sand, slightly compact, tan, with cobbles, some boulders and lean clay (CL) seams			17				#200(%)-42; SPT(mod):15-16-10
					13	26	8		#200(%)-46; SPT(mod):9-11-14
5	27 (6) 28 (6)								
					13				#200(%)-21; SPT(mod):7-14-50/4
931.		WEATHERED LIMESTONE BOULDERS, very hard, tan, with cobbles and clayey gravel seams							
10	50 (0) 50 (0)								
927.		LIMESTONE, very hard, tan, vuggy layers with cobbles and clayey gravel seams							REC:80%; RQD:25%
15	50 (0) 50 (0)								REC:100%; RQD:27%
20	50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 7 feet; Wet rotary thereafter. GPS: (Lat: 29.60287, Lon: -98.44656). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4555_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4555+55.75	Grnd. Elev.	937.96 ft
		Offset	177.38	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
		LIMESTONE, very hard, tan, vuggy layers with cobbles and clayey gravel seams							REC:85%; RQD:8%
25	50 (0) 50 (0)								
			0	9965				158	REC:93%; RQD:17%
908. 30	50 (0) 50 (0)								
35									
40									

Remarks: Advancement Method: Air rotary to 7 feet; Wet rotary thereafter. GPS: (Lat: 29.60287, Lon: -98.44656). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: S. V. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 88 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1784

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4556_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	5/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4556+74.01	Grnd. Elev.	942.69 ft
		Offset	-192.4388	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
942.2			ASPHALT, 3 inches thick							
941.7			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey, compact, brown to reddish tan, with cobbles			9				#200(%)-39; SPT:22-12-12
						7				SPT:50/3
938.7										SPT:50/0
5		36 (6) 24 (6)	WEATHERED LIMESTONE BOULDERS, soft, reddish tan to tan, with limestone cobbles, many clay filled voids and chalkiy seams							
935.7			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, clay filled voids and interbedded with chalkiy seams and some chert	0	2435				150	REC:65%; RQD:22%
10		50 (0) 50 (0)								REC:100%; RQD:33%
15		50 (0) 50 (0)								REC:100%; RQD:8%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60377, Lon: -98.44592).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4556_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	5/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4556+74.01	Grnd. Elev.	942.69 ft
		Offset	-192.4388	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, weathered, fractured, with vuggy layers, clay filled voids and interbedded with chalkiy seams and some chert							REC:92%; RQD:10%
25		50 (0) 50 (0)								REC:93%; RQD:7%
912.7 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60377, Lon: -98.44592).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 89 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1785

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4557_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/15/2022
CSJ	2452-02-130 & 2452-03-113	Station	4557+71.39	Grnd. Elev.	937.13 ft
		Offset	184.6926	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
936.6			ASPHALT, 2 inches thick							
936.1			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, very dense, dark brown to tan, with cobbles with some boulders						17	#200(%)-20; SPT:17-50/5
									11	SPT:50/3
5		50 (1) 50 (0)								SPT:50/0
931.1			LIMESTONE, very hard, tan, fractured vuggy layers with cobbles and clayey gravel seams							REC:90%; RQD:32%
10		50 (1) 50 (0)								REC:98%; RQD:38%
15		50 (0) 50 (0)								
				0	2488				140	REC:100%; RQD:37%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 4.5 feet; Wet rotary thereafter. GPS: (Lat: 29.60271, Lon: -98.44595).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4557_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/15/2022
CSJ	2452-02-130 & 2452-03-113	Station	4557+71.39	Grnd. Elev.	937.13 ft
		Offset	184.6926	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, tan, fractured vuggy layers with cobbles and clayey gravel seams							REC:92%; RQD:20%; SCR:43%
25		50 (1) 50 (0)								REC:98%; RQD:0%
907.1 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 4.5 feet; Wet rotary thereafter. GPS: (Lat: 29.60271, Lon: -98.44595).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 90 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1786

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4558_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	6/30/2022
CSJ	2452-02-130 & 2452-03-113	Station	4558+59.79	Grnd. Elev.	941.16 ft
		Offset	-175.1741	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, very dense, redish tan, with some cobbles and brown lean clay seams			16	37	21		SPT(mod):2-12-11
						12				#200(%)-17; SPT(mod):6-8-21
937.2			WEATHERED LIMESTONE BOULDERS, hard, tan, with clay filled seams							
5		50 (2) 50 (0)								
										SPT(mod):50/4
										SPT(mod):50/1
932.2			LIMESTONE, very hard, light tan, highly fractured and somewhat bouldery, with clay filled cavities and clayey gravel (GC) seams							
10		50 (0) 50 (0)								
				0	4880				156	REC:90%; RQD:63%
15		50 (0) 50 (0)								
										REC:57%; RQD:45%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60356, Lon: -98.44537). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4558_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	6/30/2022
CSJ	2452-02-130 & 2452-03-113	Station	4558+59.79	Grnd. Elev.	941.16 ft
		Offset	-175.1741	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, highly fractured and somewhat bouldery, with clay filled cavities and clayey gravel (GC) seams							
										REC:58%; RQD:7%
25		50 (0) 50 (0)								
										REC:52%; RQD:0%
911.2		50 (0) 50 (0)								
30										
35										
40										

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60356, Lon: -98.44537). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 91 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1787

DRILLING LOG

	County	Bexar	Hole	W_4559_50R	District	San Antonio
WinCore	Highway	LP 1604	Structure	Retaining Wall 415	Date	6/15/2022
Version 3.1	CSJ	2452-02-130 & 2452-03-113	Station	4559+67.02	Grnd. Elev.	935.70 ft
			Offset	203.757	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
935.2			ASPHALT, 2 inches thick							
934.7			BASE MATERIAL, 9 inches thick							
			GRAVEL, clayey with sand, dense to very dense, tan, with cobbles							#200(%)-16; SPT(mod):17-37-50/3
933.7			WEATHERED LIMESTONE BOULDERS, hard to very hard, tan, with cobbles and clayey gravel seams							SPT(mod):50/3
930.7	5	50 (0) 50 (0)								SPT(mod):50/1
			LIMESTONE, hard to very hard, tan, fractured vuggy layers with cobbles and clayey gravel seams	0	3691				136	REC:70%; RQD:28%
	10	50 (0) 50 (0)								REC:48%; RQD:17%
	15	50 (0) 50 (0)								REC:53%; RQD:20%
	20	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 7 feet; Wet rotary thereafter. GPS: (Lat: 29.60255, Lon: -98.44533). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: A. Coreco **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 92 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1788

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4560_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	6/17/2022
CSJ	2452-02-130 & 2452-03-113	Station	4560+54.65	Grnd. Elev.	937.13 ft
		Offset	-172.1025	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, dense to very dense, dark brown to tan, with cobbles and below 8 feet bouldery seams			5				SPT(mod):50/4-24-19
						7	23	9		#200(%)-32; SPT(mod):37-50/4
5		50 (5) 23 (6)				8				SPT(mod):50/5
										REC:62%; RQD:0%; SCR:28%
10		50 (0) 50 (0)								REC:72%; RQD:0%; SCR:23%
923.1			WEATHERED LIMESTONE BOULDERS, soft to very hard, tan, with clay and gravel filled seams and layers							
15		50 (0) 50 (0)								REC:73%; RQD:43%; SCR:48%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 8 feet; Wet rotary thereafter. GPS: (Lat: 29.60342, Lon: -98.44474). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: A. Coreco **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4560_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	6/17/2022
CSJ	2452-02-130 & 2452-03-113	Station	4560+54.65	Grnd. Elev.	937.13 ft
		Offset	-172.1025	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, soft to very hard, tan, with clay and gravel filled seams and layers	0	7197				165	REC:38%; RQD:22%; SCR:35%
25		31 (0) 50 (0)								REC:73%; RQD:53%; SCR:57%
907.1 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 8 feet; Wet rotary thereafter. GPS: (Lat: 29.60342, Lon: -98.44474). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: A. Coreco **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 93 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1789

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DRILLING LOG

		County	Bexar	Hole	W_4561_50R	District	San Antonio
WinCore		Highway	LP 1604	Structure	Retaining Wall 415	Date	6/16/2022
Version 3.1		CSJ	2452-02-130 & 2452-03-113	Station	4561+95.28	Grnd. Elev.	932.16 ft
				Offset	203.6458	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Properties: Wet Den. (pcf)	Additional Remarks
931.7			ASPHALT, 4 inches thick							
931.2			BASE MATERIAL, 7.5 inches thick							
			GRAVEL, clayey with sand, very dense, tan, with cobbles and boulders			8				#200(%)-34; SPT(mod):17-24-19
						5				SPT(mod):14-18-43
927.2	5	50 (3) 50 (0)								
			LIMESTONE, hard to very hard, tan, fractured vuggy layers with many cobbles and clayey gravel seams	0	6569				160	REC:47%; RQD:7%
	10	50 (0) 50 (0)								REC:25%; RQD:0%
	15	50 (0) 50 (0)								REC:85%; RQD:7%
	20	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 6 feet; Wet rotary thereafter. GPS: (Lat: 29.60243, Lon: -98.44463). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: A. Coreco **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 94 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1790

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4562_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	6/17/2022
CSJ	2452-02-130 & 2452-03-113	Station	4562+55.18	Grnd. Elev.	932.90 ft
		Offset	-174.4601	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey, very dense, dark brown, with sandy seams, and some cobbles and boulders			5	47	28		#200(%)-37; SPT (mod):11-23-22
						3				SPT (mod):13-23-50/3
5		50 (0) 50 (0)								REC:0%; RQD:0%; SCR:0%
923.9			LIMESTONE, very hard, light tan, fractured, with clayey gravel filled cavities, and some fossiliferous and chert seams							REC:37%; RQD:8%; SCR:25%
10		50 (0) 50 (0)								REC:55%; RQD:33%; SCR:35%
15		50 (0) 50 (0)								
				0	4859				154	REC:82%; RQD:18%; SCR:43%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 4 feet; Wet rotary thereafter. GPS: (Lat: 29.60330, Lon: -98.44420). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4562_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	6/17/2022
CSJ	2452-02-130 & 2452-03-113	Station	4562+55.18	Grnd. Elev.	932.90 ft
		Offset	-174.4601	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, fractured, with clayey gravel filled cavities, and some fossiliferous and chert seams							REC:62%; RQD:35%; SCR:48%
25		50 (0) 50 (0)								
				0	9186				162	REC:90%; RQD:63%; SCR:77%
902.9 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 4 feet; Wet rotary thereafter. GPS: (Lat: 29.60330, Lon: -98.44420). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
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02/20/2023
TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 95 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1791

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DRILLING LOG

		County	Bexar	Hole	W_4563_50R	District	San Antonio
WinCore		Highway	LP 1604	Structure	Retaining Wall 415	Date	6/16/2022
Version 3.1		CSJ	2452-02-130 & 2452-03-113	Station	4563+74.64	Grnd. Elev.	927.50 ft
				Offset	174.3442	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
927.			ASPHALT, 3 inches thick							
926.5			BASE MATERIAL, 9 inches thick			10				SPT(mod):49-50/1
			GRAVEL, clayey with sand, dense, tan, with limestone cobbles, boulders and chert							
						2				#200(%)-10; SPT(mod):11-15-11
5		40 (6) 50 (2)								
920.5			LIMESTONE, very hard, tan, fractured vuggy layers with cobbles and clayey gravel seams	0	9031				160	REC:70%; RQD:38%
10		50 (0) 50 (0)		0	10006				161	REC:100%; RQD:47%
15		50 (0) 50 (0)								REC:92%; RQD:20%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60227, Lon: -98.44406). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: A. Coreco **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 96 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1792

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4564_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	6/30/2022
CSJ	2452-02-130 & 2452-03-113	Station	4564+51.53	Grnd. Elev.	928.49 ft
		Offset	-170.64	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with gravel, very hard, brown and tan, with fat clay (CH) and sand seams with some boulders			5				SPT(mod):50/4
						15				SPT(mod):50/2
						12				SPT(mod):50/5
5		50 (0) 50 (0)								SPT(mod):50/4
922.5			WEATHERED LIMESTONE BOULDERS, very hard, tan, with clay and gravel (GW) filled seams and thin weathered limestone seams							SPT(mod):50/2
										SPT(mod):50/1
10		50 (0) 50 (0)								
						14				#200(%)-41; SPT(mod):50/2
15		50 (0) 50 (0)								
										SPT(mod):50/2
908.5 20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 20 feet; Wet rotary thereafter. GPS: (Lat: 29.60314, Lon: -98.44352). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4564_50L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	6/30/2022
CSJ	2452-02-130 & 2452-03-113	Station	4564+51.53	Grnd. Elev.	928.49 ft
		Offset	-170.64	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, highly fractured, with clayey gravel filled cavities and chert seams							REC:65%; RQD:7%
25		50 (0) 50 (0)								
										REC:68%; RQD:0%
898.5 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 20 feet; Wet rotary thereafter. GPS: (Lat: 29.60314, Lon: -98.44352). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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TBPE REGISTRATION NO. F-3272

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BORING LOG

SHEET 97 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1793

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DRILLING LOG

WinCore Version 3.1	County	Bexar	Hole	W_4565_50R	District	San Antonio
	Highway	LP 1604	Structure	Retaining Wall 415	Date	6/24/2022
	CSJ	2452-02-130 & 2452-03-113	Station	4565+87.64	Grnd. Elev.	922.34 ft
			Offset	166.9751	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
921.6			ASPHALT, 8 inches thick							
920.8			BASE MATERIAL, 11 inches thick							
			GRAVEL, clayey with sand, compact, brown and tan, with limestone cobbles, boulders, fat clay seams, and chert			24				#200(%)-40; SPT:13-8-9
						14	57	36		SPT:8-11-18
5		27 (6) 31 (6)				9				SPT:6-8-10
						9	71	46		SPT:10-50/5
914.3			WEATHERED LIMESTONE BOULDERS, hard to very hard, reddish tan to tan, with cobbles and clayey gravel seams			15				SPT:50/3
10		50 (1) 50 (0)								
										REC:96%; RQD:17%
907.3	15	50 (0) 50 (0)								
			LIMESTONE, very hard, tan, fractured with cobbles and clayey gravel seams							
										REC:77%; RQD:0%
902.3	20	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 13 feet; Wet rotary thereafter. GPS: (Lat: 29.60216, Lon: -98.44343).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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BORING LOG

SHEET 98 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1794

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4568_00L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	5/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4566+88.33	Grnd. Elev.	918.22 ft
		Offset	-180.1306	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
917.2			ASPHALT, 12 inches thick							
916.7			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey, very dense, brown, with cobbles			13				#200(%)-45; SPT:10-8-8
914.2			WEATHERED LIMESTONE BOULDERS, very hard, tan, with clay filled seams			2				SPT:50/1
5		50 (1) 50 (0)								SPT:7-21-50/4
										REC:22%; RQD:17%
909.2			LIMESTONE, very hard, light tan, highly fractured, vuggy layers with clay filled cavities and chert seams							
10		50 (0) 50 (0)								
				0	4385				164	REC:90%; RQD:30%
15		50 (0) 50 (0)								
										REC:78%; RQD:20%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60300, Lon: -98.44282).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4568_00L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	5/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4566+88.33	Grnd. Elev.	918.22 ft
		Offset	-180.1306	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			LIMESTONE, very hard, light tan, highly fractured, vuggy layers with clay filled cavities and chert seams							REC:92%; RQD:12%
25		50 (0) 50 (0)								
				0	3879				162	REC:82%; RQD:7%
888.2 30		50 (0) 50 (0)								
35										
40										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60300, Lon: -98.44282).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 99 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1795

DRILLING LOG

	County	Bexar	Hole	W_4568_00R	District	San Antonio
WinCore	Highway	LP 1604	Structure	Retaining Wall 415	Date	6/29/2022
Version 3.1	CSJ	2452-02-130 & 2452-03-113	Station	4568+10.93	Grnd. Elev.	918.22 ft
			Offset	174.8608	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
917.7			ASPHALT, 3 inches thick							
917.2			BASE MATERIAL, 7.5 inches thick			2				SPT(mod):50/2-50/0
			GRAVEL, clayey, very dense, brown, with cobbles							SPT(mod):50/1-50/0
914.2			WEATHERED LIMESTONE BOULDERS, hard to very hard, tan, with clay filled seams, and highly weathered limestone seams							
5		50 (1) 50 (0)								REC:77%; RQD:18%
10		50 (1) 50 (0)								REC:17%; RQD:0%
903.2	15	50 (0) 50 (0)	LIMESTONE, very hard, light tan, highly fractured, vuggy layers with clay filled cavities and chert seams	0	6464				156	REC:73%; RQD:8%
	20	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60197, Lon: -98.44276). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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TBPE REGISTRATION NO. F-3272

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BORING LOG

SHEET 100 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1796

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4569_00L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	5/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4568+86.07	Grnd. Elev.	906.73 ft
		Offset	-179.4358	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
905.7			ASPHALT, 12 inches thick							
905.2			BASE MATERIAL, 7.5 inches thick			18				SPT:20-50/4
			GRAVEL, clayey, dense, brown to reddish tan, with cobbles and clay seams			14				SPT:48-50/0
5		50 (5) 50 (2)				10				SPT:50/5
						10				#200(%)-32; SPT:41-39-50/5
897.7			WEATHERED LIMESTONE BOULDERS, soft to hard, tan, fractured with reddish fat tan clay filled voids from 26 to 30 feet							SPT:50/0
10		50 (1) 50 (0)								REC:75%; RQD:20%
15		50 (1) 50 (0)								REC:62%; RQD:12%
20		50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60284, Lon: -98.44220).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4569_00L	District	San Antonio
Highway	LP 1604	Structure	Reatining Wall 418	Date	5/25/2022
CSJ	2452-02-130 & 2452-03-113	Station	4568+86.07	Grnd. Elev.	906.73 ft
		Offset	-179.4358	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			WEATHERED LIMESTONE BOULDERS, soft to hard, tan, fractured with reddish fat tan clay filled voids from 26 to 30 feet							REC:95%; RQD:0%;SCR:70%
25		31 (6) 50 (4)				24	67	41		REC:88%; RQD:0%;SCR:5%
876.7	30	50 (0) 50 (0)								
	35									
	40									

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60284, Lon: -98.44220).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
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02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

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LP 1604

BORING LOG

SHEET 101 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1797

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4570_00R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 415	Date	6/30/2022
CSJ	2452-02-130 & 2452-03-113	Station	4569+89.06	Grnd. Elev.	914.72 ft
		Offset	174.7135	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
914.2			ASPHALT, 3 inches thick							
913.7			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey, slightly compact to compact, brown to tan, with sandy seams, cobbles and chalky seams below 5 feet			11	31	14		#200(%)-36; SPT(mod):48-22-22
						2				#200(%)-18; SPT(mod):39-50/1
5		13 (6) 14 (6)								SPT(mod):50/0-50/4
						4				SPT(mod):50/2
										SPT(mod):25-50/2
10		23 (6) 31 (6)								
										SPT(mod):47-50/1
899.7		50 (1) 50 (0)								
15			WEATHERED LIMESTONE BOULDERS, hard, tan, with clay filled and thin weathered limestone seams							REC:52%; RQD:0%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 15 feet; Wet rotary thereafter. GPS: (Lat: 29.60183, Lon: -98.44217). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Morehead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4573_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 416	Date	7/12/2022
CSJ	2452-02-130 & 2452-03-113	Station	4573+85.41	Grnd. Elev.	892.38 ft
		Offset	78.5376	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
891.9			ASPHALT, 7.5 inches thick							
891.4			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact to compact brown and tan, with gravely clay seams			13	47	29		#200(%)-29; SPT:30-13-6
						21				SPT:6-11-10
5		17 (6) 43 (6)								
						9				SPT:7-21-28
						13	44	29		SPT:7-13-8
						8				SPT:8-7-19
10		22 (6) 13 (6)								
						13				#200(%)-29; SPT:6-6-10
15		17 (6) 22 (6)								
						18				SPT:8-11-6
20		7 (6) 35 (6)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60189, Lon: -98.44098).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: P.L.** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
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TBPE REGISTRATION NO. F-3272

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BORING LOG

SHEET 102 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1798

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4575_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 421	Date	7/12/2022
CSJ	2452-02-130 & 2452-03-113	Station	4575+63.32	Grnd. Elev.	893.32 ft
		Offset	64.4583	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
892.6			ASPHALT, 9 inches thick							
891.8			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact to compact, tan to reddish tan, with clay seams			8				SPT:25-31-38
						5				#200(%)-14; SPT:16-11-17
5		40 (6) 17 (6)				12				SPT:8-10-11
						11				SPT:8-7-9
						6				SPT:7-14-7
10		20 (6) 15 (6)								
										SPT:50/2
878.3	15	18 (6) 16 (6)	WEATHERED LIMESTONE BOULDERS, soft rock, tan, weathered, with cobbles and slightly compact clayey gravel seams							REC:62%; RQD:18%
873.3	20	13 (6) 25 (6)								

Remarks: Advancement Method: Air rotary to 15 feet; Wet rotary thereafter. GPS: (Lat: 29.60176, Lon: -98.44041).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: P.L.** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4577_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 421	Date	7/12/2022
CSJ	2452-02-130 & 2452-03-113	Station	4577+62.40	Grnd. Elev.	894.25 ft
		Offset	66.672	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
893.5			ASPHALT, 8 inches thick							
892.8			BASE MATERIAL, 8 inches thick			10	56	39		SPT:10-15-10
			GRAVEL, clayey with sand, compact, brown and tan, with fat clay (CH) seams							
						10				#200(%)-35; SPT:17-8-10
5		22 (6) 40 (6)				17				SPT:5-8-16
887.3			WEATHERED LIMESTONE BOULDERS, soft to very hard rock, tan, weathered, with cobbles and slightly compact clayey gravel seams							SPT:50/2
10		50 (0) 50 (0)								REC:50%; RQD:0%
882.3			LIMESTONE, very hard, tan, fractured, with chert, cobbles, and clayey gravel seams							
15		50 (0) 50 (0)		0	8157				154	REC:100%; RQD:37%
874.3	20	50 (0) 50 (0)								REC:100%; RQD:25%

Remarks: Advancement Method: Air rotary to 8 feet; Wet rotary thereafter. GPS: (Lat: 29.60162, Lon: -98.43979).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: P.L.** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 103 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1799

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4579_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 421	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4579+81.51	Grnd. Elev.	894.66 ft
		Offset	50.7085	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
894.2			ASPHALT, 6 inches thick							
			BASE MATERIAL, 8 inches thick			7				#200(%)-13; SPT(mod):27-41-17
893.2			GRAVEL, clayey with sand, tan to reddish tan, with some cobbles and sandy seams			9				SPT(mod):25-50/3
		50 (0) 50 (0)								SPT(mod):50/0
5										
887.7			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and clayey gravel seams							REC:48%; RQD:13%
		50 (0) 50 (0)								
10										
882.7			LIMESTONE, very hard, tan, fractured, with chert, cobbles, and clayey gravel seams							REC:75%; RQD:23%
		50 (0) 50 (0)								
15										
										REC:62%; RQD:35%
874.7		50 (0) 50 (0)								
20										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60146, Lon: -98.43917). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones Logger: P.L. Organization: Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4581_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 421	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4581+86.77	Grnd. Elev.	893.21 ft
		Offset	50.6422	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
892.7			ASPHALT, 4 inches thick							
			BASE MATERIAL, 7.5 inches thick			5				#200(%)-34; SPT(mod):39-33-50/5
891.7			GRAVEL, clayey with sand, dense, tan to reddish tan, with some cobbles and sandy seams			4				SPT(mod):41-50/5
		31 (6) 47 (6)				9	41	24		#200(%)-39; SPT(mod):4-12-18
5										
887.2			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and many clayey gravel seams							REC:37%; RQD:0%
		50 (1) 50 (0)								
10										REC:52%; SRC:28%; RQD:13%
		50 (0) 50 (0)	LIMESTONE, very hard, tan, fractured, with cobbles, and some clayey gravel seams							
15				0	3631				151	REC:92%; RQD:80%
877.2		50 (0) 50 (0)								
20										

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60130, Lon: -98.43848). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones Logger: P.L. Organization: Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023
TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 104 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1800

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4583_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 421	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4584+26.46	Grnd. Elev.	889.29 ft
		Offset	50.6066	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
888.8		ASPHALT, 4 inches thick							
888.3		BASE MATERIAL, 8 inches thick							
		GRAVEL, clayey with sand, dense, brown to tan, with some cobbles and sandy seams			30	93	63		SPT(mod):8-13-19
					10				#200(%)-31; SPT(mod):31-50/2
	50 (0) 50 (0)				6				SPT(mod):44-50/2
5									
883.3		WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and many clayey gravel seams							SCR:33%; REC:65%; RQD:0%
	50 (0) 50 (0)								
10									
	50 (0) 50 (0)								SCR:47%; REC:58%; RQD:15%
15									
	50 (0) 50 (0)								
			0	8471				156	SCR:70%; REC:97%; RQD:27%
870.3		LIMESTONE, very hard, tan, fractured, with cobbles, and some clayey gravel seams							
20	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60116, Lon: -98.43787). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger:** P.L. **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4585_50R	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 421	Date	7/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4585+66.34	Grnd. Elev.	886.07 ft
		Offset	50.1742	GW Elev.	N/A

Elev. (ft)	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
885.6		ASPHALT, 4 inches thick							
885.1		BASE MATERIAL, 7 inches thick							
		GRAVEL, clayey with sand, hard, reddish tan, with some cobbles and fat clay (CH) seams			24				SPT(mod):8-9-15
					18				#200(%)-54; SPT(mod):18-22-39
882.1					7				SPT(mod):29-50/5
	38 (6) 50 (3)								
5		WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and many clayey gravel seams							REC:43%; RQD:15%
878.1		LIMESTONE, very hard, tan, fractured, with cobbles, and some clayey gravel seams							
	50 (0) 50 (0)								
10									REC:95%; RQD:57%
	50 (0) 50 (0)								
15									
			0	2026				152	REC:100%; RQD:73%
	50 (0) 50 (0)								
20									

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.60102, Lon: -98.43736). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger:** P.L. **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 105 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1801

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4592_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4592+01.61	Grnd. Elev.	862.77 ft
		Offset	51.8215	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
862.3			ASPHALT, 4 inches thick							
861.8			BASE MATERIAL, 7.5 inches thick							
			GRAVEL, clayey with sand, slightly compact, brown and tan, with some cobbles, and boulders			15				SPT(mod):18-8-21
						5				#200(%)-11; SPT(mod):18-21-29
5		13 (6) 9 (6)				16				SPT(mod):18-17-17
						19				SPT(mod):13-20-16
						12				SPT(mod):16-23-20
10		13 (6) 24 (6)								
850.8			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, with cobbles and many clayey gravel seams							REC:23%; RQD:0%
847.8		50 (0) 50 (0)	LIMESTONE, very hard, tan, fractured, with cobbles, and some clayey gravel seams							
15				0	5419				158	REC:97%; RQD:67%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.60057, Lon: -98.43541). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: P.L.** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4594_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4593+99.88	Grnd. Elev.	856.07 ft
		Offset	51.8749	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
855.6			ASPHALT, 4.5 inches thick							
855.1			BASE MATERIAL, 7 inches thick							
			GRAVEL, clayey with sand, dense, brown to tan, with some cobbles and fat clay CH) seams			12				#200(%)-53; SPT(mod):11-12-26
						12				SPT(mod):13-14-12
5		26 (6) 50 (5)								
						16				SPT(mod):5-7-4
						12				SPT(mod):6-8-5
10		7 (6) 8 (6)								
843.1			WEATHERED LIMESTONE BOULDERS, soft to very hard rock, tan, weathered, with cobbles and many clayey gravel seams			6				#200(%)-18; SPT(mod):50/1
15		34 (6) 50 (0)								
20		50 (5) 50 (2)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60042, Lon: -98.43479). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: M.** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 106 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1802

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4596_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4596+10.83	Grnd. Elev.	851.82 ft
		Offset	50.2253	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
851.3			ASPHALT, 5 inches thick							
			BASE MATERIAL, 12 inches thick							
850.3			GRAVEL, clayey with sand, slightly compact, brown and tan, with clay seams, some cobbles, and boulders			4				SPT(mod):21-17-31
						6				SPT(mod):28-50/5
5		19 (6) 17 (6)				8				SPT(mod):11-17-14
						13				#200(%)-23; SPT(mod):7-8-9
10		12 (6) 10 (6)								
						14				SPT(mod):3-4-5
15		13 (6) 14 (6)								
						19				SPT(mod):10-7-7
20		7 (6) 10 (6)								

Remarks: Advancement Method: Wet rotary to completion. GPS: (Lat: 29.60029, Lon: -98.43418). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: M.** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4598_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/7/2022
CSJ	2452-02-130 & 2452-03-113	Station	4598+16.86	Grnd. Elev.	850.63 ft
		Offset	48.6844	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
850.1			ASPHALT, 5 inches thick							
			BASE MATERIAL, 12 inches thick							
849.1			GRAVEL, clayey with sand, slightly compact to compact, brown and tan, with clay seams, some cobbles, and boulders			17				SPT(mod):24-14-4
						7				SPT(mod):5-7-11
5		32 (6) 24 (6)								SPT(mod):10-10-4
										SPT(mod):8-6-8
10		15 (6) 13 (6)								
										#200(%)-10; SPT(mod):4-3-8
15		17 (6) 19 (6)								
										SPT(mod):9-5-4
20		18 (6) 16 (6)								

Remarks: Advancement Method: Wet rotary to completion. GPS: (Lat: 29.60016, Lon: -98.43353). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: M.** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 107 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1803

DRILLING LOG

		County	Bexar	Hole	W_4598_00L	District	San Antonio
WinCore		Highway	LP 1604	Structure	Retaining Wall 423	Date	10/13/2022
Version 3.1		CSJ	2452-02-130 & 2452-03-113	Station	4598+00	Grnd. Elev.	853.00 ft
				Offset	-166	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
852.5			ASPHALT, 4 inches thick							
852.			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, compact to dense, tan, with clay seams and limestone cobbles and some boulders below 5'			6				SPT(mod):5-5-6
						6				#200(%)-25; SPT(mod):16-19-21
						6				SPT(mod):17-22-24
5		50 (4) 50 (3)								
						7				SPT(mod):50/2
						5				SPT(mod):50/2
10		22 (6) 22 (6)								
						5				SPT(mod):23-26-25
838. 15		25 (6) 25 (6)								
20										

Remarks: Advancement Method: Air rotary to the termination depth. GPS: (29.600734°, -98.433414°). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height. Survey information is estimated from Google Earth.

The ground water elevation was not determined during the course of this boring.

Driller: J.C. **Logger: A.T.** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 108 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1804

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4600_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 423	Date	10/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4600+00	Grnd. Elev.	855.00 ft
		Offset	-157	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
854.5			ASPHALT, 4 inches thick							
854.			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact to compact, tan, with lean clay (CL) seams and limestone cobbles and some boulders below 5'			0				SPT(mod):3-6-5
						5				#200(%)-20; SPT(mod):12-11-12
						12				SPT(mod):6-8-8
5		13 (6) 12 (6)				19				SPT(mod):13-50-50/0
						8				SPT(mod):17-50-50/0
10		16 (6) 36 (6)								
						14				#200(%)-30; SPT(mod):16-14-11
15		12 (6) 13 (6)								
						8				SPT(mod):18-17-15
20		25 (6) 20 (6)								

Remarks: Advancement Method: Air rotary to the termination depth. GPS: (29.600629°, -98.432800°). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height. Survey information is estimated from Google Earth

The ground water elevation was not determined during the course of this boring.

Driller: J.C. **Logger: A.T.** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4600_00L	District	San Antonio
Highway	LP 1604	Structure	Retaining Wall 423	Date	10/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4600+00	Grnd. Elev.	855.00 ft
		Offset	-157	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
			GRAVEL, clayey with sand, slightly compact to compact, tan, with lean clay (CL) seams and limestone cobbles and some boulders below 5'			13				#200(%)-29; SPT(mod):10-7-10
830.	25	18 (6) 26 (6)								
	30									
	35									
	40									

Remarks: Advancement Method: Air rotary to the termination depth. GPS: (29.600629°, -98.432800°). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height. Survey information is estimated from Google Earth

The ground water elevation was not determined during the course of this boring.

Driller: J.C. **Logger: A.T.** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

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LP 1604

BORING LOG

SHEET 109 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1805

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4600_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/21/2022
CSJ	2452-02-130 & 2452-03-113	Station	4599+90.32	Grnd. Elev.	851.72 ft
		Offset	52.4654	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
851.2			ASPHALT, 5 inches thick							
			BASE MATERIAL, 12 inches thick							
850.2			GRAVEL, clayey with sand, slightly compact to compact, reddish brown and tan, with sandy clay seams, some cobbles and scattered boulders			7				SPT(mod):7-17-15
						3				SPT(mod):10-1 3-11
5		20 (6) 18 (6)				2				SPT(mod):17-8-10
						10				#200(%)-29; SPT(mod):6-4-4
10		2 (6) 8 (6)				7				SPT(mod):4-6-17
15		32 (6) 15 (6)				6				SPT(mod):21-14-4
20		15 (6) 13 (6)								

Remarks: Advancement Method: Dry auger to completion. GPS: (Lat: 29.60007, Lon: -98.43295). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4602_00L	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 424	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4602+00	Grnd. Elev.	863.00 ft
		Offset	-132	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
862.5			ASPHALT, 4 inches thick							
862.			BASE MATERIAL, 8 inches thick			10				#200(%)-25; SPT(mod):11-16-12
			GRAVEL, clayey with sand, slightly compact to compact, tan, with lean clay (CL) seams and limestone cobbles							SPT(mod):11-12-19
5		23 (6) 33 (6)								SPT(mod):17-15-6
										SPT(mod):50/3
10		13 (6) 23 (6)				14				SPT(mod):16-14-9
848. 15		14 (6) 14 (6)				4				#200(%)-17; SPT(mod):14-12-10
20										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60050, Lon: -98.43219). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

 Texas Department of Transportation

LP 1604

BORING LOG

SHEET 110 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1806

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4602_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/8/2022
CSJ	2452-02-130 & 2452-03-113	Station	4602+07.67	Grnd. Elev.	855.93 ft
		Offset	52.4377	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
855.4			ASPHALT, 5 inches thick							
			BASE MATERIAL, 12 inches thick							
854.4			GRAVEL, clayey with sand, slightly compact to very dense, brown and tan, with clay seams, some cobbles, and boulders below 15 feet							SPT(mod):50/2
						4				SPT(mod):10-11-16
5		23 (6) 14 (6)								
						6				SPT(mod):4-6-8
						5				SPT(mod):3-8-17
10		22 (6) 22 (6)								
						7				#200(%)-14; SPT(mod):10-13-12
15		50 (2) 50 (0)								
										SPT(mod):50/2
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.59997, Lon: -98.43227). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: M.** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4604_00L	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 424	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4604+00	Grnd. Elev.	872.00 ft
		Offset	-130	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	LL	PI	Wet Den. (pcf)	Additional Remarks
871.5			ASPHALT, 3.5 inches thick							
			BASE MATERIAL, 8 inches thick							
871.			GRAVEL, Clayey with sand, loose to very dense, reddish tan to tan, with lean clay seams, limestone cobbles, boulders and chert			18				SPT(mod):24-9-12
						10	34	17		SPT(mod):20-22-19
						14				#200(%)-36; SPT(mod):8-5-6
5		7 (6) 7 (6)								
						20				SPT(mod):5-6-8
						11				SPT(mod):8-25-23
10		19 (6) 36 (6)								
										SPT(mod):50/2
857. 15		50 (1) 50 (1)								
20										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60043, Lon: -98.43160). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

 Texas Department of Transportation

LP 1604

BORING LOG

SHEET 111OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1807

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4604_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/8/2022
CSJ	2452-02-130 & 2452-03-113	Station	4603+99.55	Grnd. Elev.	862.35 ft
		Offset	51.312	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
861.9			ASPHALT, 5 inches thick							
			BASE MATERIAL, 12 inches thick							
860.9			GRAVEL, clayey with sand, very dense, brown and tan, with clayey sand with gravel (SC) seams, and some cobbles, and boulders			9				SPT(mod):50/5
						5				#200(%)-29; SPT(mod):32-50/2
857.4	5	50 (0) 50 (0)	LIMESTONE, hard to very hard, tan, fractured, with cobbles, some clayey gravel seams, and between 10 to 15 feet very bouldery and highly weathered.							REC:75%; RQD:8%
	10	50 (0) 50 (0)		0	6506				159	REC:47%; SCR:27%; RQD:15%
	15	50 (2) 50 (0)								REC:67%; RQD:27%
842.4	20	50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.59991, Lon: -98.43165). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger:** M. **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4606_00L	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 424	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4606+00	Grnd. Elev.	881.00 ft
		Offset	-128	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
880.5			ASPHALT, 3.5 inches thick							
880.			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, stiff to very hard, reddish tan to tan, with limestone cobbles, lean clay (CL) seams, some boulders and chert			14	45	25		SPT(mod):16-9-13
						10				#200(%)-29; SPT(mod):14-14-10
						4				SPT(mod):50/2
876.	5	50 (1) 50 (0)	WEATHERED LIMESTONE BOULDERS, hard rock, reddish tan to tan, weathered, with cobbles and with very hard limestone seams							
	10	50 (0) 50 (0)								
866.	15	50 (1) 50 (0)								
	20									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60039, Lon: -98.43099). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 112 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1808

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DRILLING LOG

1 of 1

WinCore
Version 3.1

County	Bexar	Hole	W_4607_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/11/2022
CSJ	2452-02-130 & 2452-03-113	Station	4607+06.57	Grnd. Elev.	874.14 ft
		Offset	51.6956	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
873.6			ASPHALT, 5 inches thick							
			BASE MATERIAL, 18 inches thick							
872.1			GRAVEL, clayey with sand, very dense, reddish tan, with clayey sand with gravel (SC) seams and some cobbles			7				#200(%)-18; SPT(mod):20-18-16
869.1	5	50 (0) 50 (0)	LIMESTONE, very hard, tan, fractured, cobbles, some clayey gravel seams, and between 10 to 15 feet very bouldery and highly weathered.	0	9564				165	REC:98%; RQD:48%
	10	50 (0) 50 (0)							164	REC:75%; RQD:47%
	15	50 (1) 50 (0)		0	6436					REC:65%; RQD:33%
854.1	20	50 (2) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.59986, Lon: -98.43070). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger:** J. Case **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

1 of 1

WinCore
Version 3.1

County	Bexar	Hole	W_4608_00L	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 424	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4608+00	Grnd. Elev.	887.00 ft
		Offset	-127	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
886.5			ASPHALT, 4.5 inches thick							
886.			BASE MATERIAL, 8 inches thick			18				#200(%)-56; SPT(mod):15-13-17
			SAND, clayey with gravel, slightly compact to dense, reddish tan to tan, limestone cobbles, clayey gravel seams, some boulders and chert (SC)			16	39	21		SPT(mod):12-12-26
	5	50 (5) 50 (4)				18				SPT(mod):19-22-24
						19				SPT(mod):9-12-15
	10	19 (6) 20 (6)				18				SPT(mod):14-12-13
874.			WEATHERED LIMESTONE BOULDERS, hard rock, reddish tan to tan, weathered, with cobbles and with very hard limestone seams							
872.	15	50 (0) 50 (0)								
	20									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60037, Lon: -98.43036). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER
02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 113 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1809

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4609_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/11/2022
CSJ	2452-02-130 & 2452-03-113	Station	4609+08.29	Grnd. Elev.	879.88 ft
		Offset	52.2621	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
879.4			ASPHALT, 5 inches thick							
878.9			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, dense, to very dense, tan with reddish brown, with clay seams, and cobbles, below 5 feet boulders			14				#200(%)-29; SPT(mod):36-14-50/5
						10				SPT(mod):50/4
5		50 (2) 50 (1)								REC:37%; RQD:8%
10		50 (2) 50 (0)								REC:43%; RQD:17%
15		50 (1) 50 (0)								REC:17%; RQD:0%
20		39 (6) 50 (3.5)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.59984, Lon: -98.43005). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4610_00L	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 424	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4610+00	Grnd. Elev.	889.00 ft
		Offset	-125	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
888.5			ASPHALT, 11 inches thick							
888.			BASE MATERIAL, 8 inches thick							
			SAND, clayey with gravel, slightly compact to dense, reddish tan to tan, limestone cobbles, some boulders and chert (SC)			8	31	16		SPT(mod):12-8-11
						18				SPT(mod):14-41-35
						11				#200(%)-42; SPT(mod):19-50/4
884. 5		50 (5) 50 (1)								
			WEATHERED LIMESTONE BOULDERS, soft to hard rock, reddish tan to tan, weathered, with cobbles and with very hard limestone seams below 10 feet							SPT(mod):50/1
10		50 (1) 50 (0)								
874. 15		50 (1) 50 (0)								
20										

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60036, Lon: -98.42975).

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 114 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1810

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4611_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/12/2022
CSJ	2452-02-130 & 2452-03-113	Station	4611+07.92	Grnd. Elev.	883.93 ft
		Offset	51.7448	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
883.4			ASPHALT, 5 inches thick							
882.9			BASE MATERIAL, 7 inches thick							
			SAND, clayey with gravel, very dense, reddish tan, with some cobbles and clayey gravel with sand (GC) seams. (SC)			9				#200(%)-48; SPT(mod):32-10-6
						14				#200(%)-33; SPT(mod):21-28-22
5		22 (6) 50 (4)								
						8				SPT(mod):32-50/2
876.9			LIMESTONE, very hard, tan, fractured, with cobbles, some clayey gravel seams, and vuggy below 15 feet	0	8762				133	REC:86%; RQD:28%
10		50 (1) 50 (0)								
										REC:82%; RQD:27%
15		50 (1) 50 (0)								
				0	6161				166	REC:90%; RQD:20%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 7 feet; Wet rotary thereafter. GPS: (Lat: 29.59985, Lon: -98.42943). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger:** J. Case **Organization:** Terracon Consultants, Inc.

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4612_00L	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 424	Date	7/22/2022
CSJ	2452-02-130 & 2452-03-113	Station	4612+00	Grnd. Elev.	889.00 ft
		Offset	-120	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
888.5			ASPHALT, 9 inches thick							
888.			BASE MATERIAL, 8 inches thick							
			SAND, clayey with gravel, very dense, reddish tan to tan, with brown sandy clay seams, limestone cobbles, some boulders and chert (SC)			8				SPT(mod):22-7-7
						14				#200(%)-49; SPT(mod):9-11-13
		50 (0) 50 (0)								SPT(mod):50/3
884.	5		WEATHERED LIMESTONE BOULDERS, soft to very hard rock, reddish tan to tan, weathered, with cobbles and with very hard limestone seams below 10 feet			6	41	22		#200(%)-76; SPT(mod):18-21-30
		50 (1) 50 (0)								SPT(mod):50/2
	10									
		50 (1) 50 (0)								
874.	15									
	20									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60036, Lon: -98.42910). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: J. Moorhead **Logger:** R. Vasquez **Organization:** Terracon Consultants, Inc.

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation ©2021

LP 1604

BORING LOG

SHEET 115 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1811

DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4613_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4613+08.29	Grnd. Elev.	886.21 ft
		Offset	52.5493	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
885.7			ASPHALT, 4 inches thick							
885.2			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, slightly compact, dark brown to tan, with dark brown clay and clayey sand (SC) seams, cobbles and some boulders			13				#200(%)-25; SPT(mod):41-16-8
						24				SPT(mod):8-50/4
5		50 (0) 50 (0)								
880.2			LIMESTONE, very hard, tan, fractured, with cobbles and clayey gravel seams							REC:70%; RQD:40%
10		50 (0) 50 (0)		0	2992				138	REC:88%; RQD:42%
15		50 (0) 50 (0)								REC:75%; RQD:25%
20		50 (0) 50 (0)								

Remarks: Advancement Method: Air rotary to 5 feet; Wet rotary thereafter. GPS: (Lat: 29.59987, Lon: -98.42879). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.1

County	Bexar	Hole	W_4615_00R	District	San Antonio
Highway	Loop 1604	Structure	Retaining wall 422	Date	7/13/2022
CSJ	2452-02-130 & 2452-03-113	Station	4615+05.74	Grnd. Elev.	886.89 ft
		Offset	51.1746	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
886.4			ASPHALT, 4 inches thick							
885.9			BASE MATERIAL, 8 inches thick							
			GRAVEL, clayey with sand, very dense, reddish tan, with cobbles below 5 feet			20				SPT(mod):31-15-9
						11				#200(%)-29; SPT(mod):9-11-15
5		50 (2) 50 (1)								
879.9			WEATHERED LIMESTONE BOULDERS, very hard rock, tan, weathered, cobbles and some limestone seams and many clayey gravel seams			15				SPT(mod):21-50/3
										SPT(mod):50/5
10		50 (0) 50 (0)		0	3686				160	REC:75%; RQD:22%
15		50 (1) 50 (0)								REC:43%; RQD:7%
20		50 (1) 50 (0)								

Remarks: Advancement Method: Air rotary to 10 feet; Wet rotary thereafter. GPS: (Lat: 29.59991, Lon: -98.42817). (mod):SPT testing was modified using a 170-lb hammer with a 24-inch drop height.

The ground water elevation was not determined during the course of this boring.

Driller: C.G. **Logger: J. Case** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation
©2021

LP 1604

BORING LOG

SHEET 116 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1812

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	W-4532_50L	District	San Antonio
Highway	LP 1604	Structure	RW-408	Date	12/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4532+71.66	Grnd. Elev.	916.46 ft
		Offset	-127.37	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
916.			PAVEMENT, asphalt, 6.1in							
			GRAVEL, clayey, dark brown and tan			10				#200(%)-49; SPT:14-50/5in
914.5			WEATHERED LIMESTONE, highly fractured, tan							SPT:50/0in
5										SPT:50/0in
										SPT:50/0in
										SPT:50/0in
10										
										SPT:50/0in
15										
										SPT:50/0in
20										
										SPT:50/0in
891.5	25									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60531, Lon: -98.45315).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: N. McDonald** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	W-4534_50L	District	San Antonio
Highway	LP 1604	Structure	RW-408	Date	12/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4534+60.28	Grnd. Elev.	905.07 ft
		Offset	-121.01	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test Lateral Press. (psi)	Triaxial Test Deviator Stress (psi)	Properties MC	Properties LL	Properties PI	Properties Wet Den. (pcf)	Additional Remarks
904.1			PAVEMENT, asphalt, 5.5in; base, 6.2in			7				#200(%)-49; SPT:20-13-25
			GRAVEL, clayey, brown and red (FILL)							
						9	30	11		SPT:10-18-9
5						15				SPT:10-6-50/4in
899.1			WEATHERED LIMESTONE, highly fractured, tan							SPT:50/0in
										SPT:50/0in
10										
										SPT:50/0in
15										
										SPT:50/0in
20										
										SPT:50/0in
880.1	25									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.6051, Lon: -98.45257).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: N. McDonald** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation
© 2021

LP 1604

BORING LOG

SHEET 117 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1813

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	W_4534_00R	District	San Antonio
Highway	LP 1604	Structure	RW-408	Date	12/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4534+53.44	Grnd. Elev.	895.47 ft
		Offset	159.12	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
894.7			PAVEMENT, asphalt, 6.2 in; base, 4in			8	27	8		SPT:37-42-25
			GRAVEL, clayey, dark reddish tan (FILL)							
						12				#200(%)-58; SPT:9-12-10
5						11				SPT:3-50/5in
889.5			WEATHERED LIMESTONE, highly fractured, tan							SPT:50/0in
										SPT:50/0in
10										
										SPT:50/0in
15										
										SPT:50/0in
20										
										SPT:50/0in
870.5	25									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60442, Lon: -98.452944).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: N. McDonald** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	W_4536_00R	District	San Antonio
Highway	LP 1604	Structure	RW-408	Date	12/14/2022
CSJ	2452-02-130 & 2452-03-113	Station	4536+53.49	Grnd. Elev.	888.02 ft
		Offset	146.51	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
887.2			PAVEMENT, asphalt, 5in; base 5.5in			8				#200(%)-54; SPT:31-50/5in
			GRAVEL, clayey, reddish light tan (FILL)							
						7	27	11		SPT:14-9-12
5						12				SPT:17-18-14
						6				#200(%)-46; SPT:12-20-11
						13				SPT:5-5-5
878.	10		WEATHERED LIMESTONE, highly fractured, tan							
										SPT:50/0in
15										
										SPT:50/0in
20										
										SPT:50/0in
863.	25									

Remarks: Advancement Method: Air rotary to completion. GPS: (Lat: 29.60437, Lon: -98.4524).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: N. McDonald** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

Texas Department of Transportation

LP 1604

BORING LOG

SHEET 118 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1814

DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	W-4595_50L	District	San Antonio
Highway	LP 1604	Structure	RW-423	Date	2/6/2023
CSJ	2452-02-130 & 2452-03-113	Station	4595+36.18	Grnd. Elev.	847.87 ft
		Offset	-110.92	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
847.4			CLAY, fat (FILL) (CH)							SPT:4-19-21
			GRAVEL, with fat clay, brown, compact to dense							
		47 (6) 50 (5)								SPT:10-18-18
5										
										SPT:24-16-17
		16 (6) 35 (6)								SPT:11-12-13
10										
										SPT:50/4in
832.9 15		50 (0) 50 (0)	LIMESTONE, highly fractured, tan							REC:77%; RQD:10%
										-with clay seams, 18 to 19ft
20										
										REC:53%; RQD:35%
25										

Remarks: Advancement Method: Air rotary to 15 feet; Wet coring thereafter. GPS: (Lat: 29.60079, Lon: -98.43427).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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DRILLING LOG

WinCore Version 3.3

County	Bexar	Hole	W-4595_50L	District	San Antonio
Highway	LP 1604	Structure	RW-423	Date	2/6/2023
CSJ	2452-02-130 & 2452-03-113	Station	4595+36.18	Grnd. Elev.	847.87 ft
		Offset	-110.92	GW Elev.	N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	Properties: LL	Properties: PI	Properties: Wet Den. (pcf)	Additional Remarks
			LIMESTONE, highly fractured, tan							REC:93%; RQD:65%
30										
										REC:98%; RQD:88%
										-with clay seams, 34.5 to 35ft
35										
										REC:97%; RQD:55%
807.9 40										
45										
50										

Remarks: Advancement Method: Air rotary to 15 feet; Wet coring thereafter. GPS: (Lat: 29.60079, Lon: -98.43427).

The ground water elevation was not determined during the course of this boring.

Driller: E. Jones **Logger: R. Vasquez** **Organization: Terracon Consultants, Inc.**

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STATE OF TEXAS
M. GHAZAWI
90139
LICENSED
PROFESSIONAL ENGINEER

02/20/2023

TBPE REGISTRATION NO. F-3272

REV. NO.	DATE	DESCRIPTION	BY

Terracon

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LP 1604

BORING LOG

SHEET 119 OF 119

FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				LP1604
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
SAT	BEXAR	2452	02	130, ETC	1815

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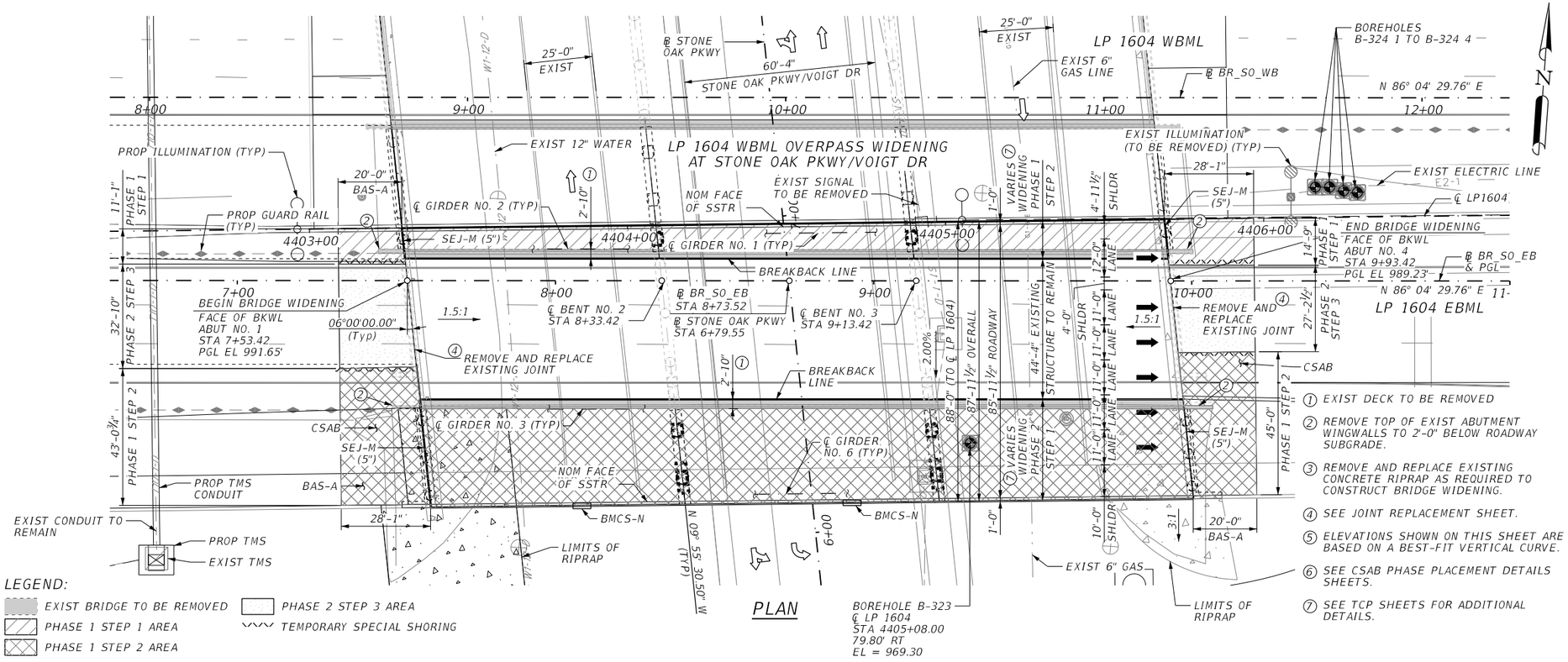


GENERAL NOTES:

WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020).

GIRDER END CONDITIONS:
D: DENOTES DOWEL AT EXTERIOR GIRDERS
BLANK: DENOTES NO DOWEL

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

CONTRACTOR WILL VERIFY THE LOCATION OF EXISTING BRIDGE ELEMENTS PRIOR TO CONSTRUCTION OR FABRICATION.

CONTRACTOR WILL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION OR FABRICATION. APPROXIMATE UTILITY LOCATIONS SHOWN IN THE ELEVATION VIEW. REFER TO UTILITY LAYOUTS FOR ACTUAL LOCATIONS.

⊕ - DENOTES SOIL BORING LOCATIONS, SEE BORING LOG SHEETS.

SEE BL STANDARD SHEET FOR ILLUMINATION POLE BRACKET DETAILS.

SEE AESTHETIC DETAILS SHEETS FOR SAN ANTONIO DISTRICT "HILL COUNTRY REGION" AESTHETIC TREATMENT DETAILS.

PER ITEM 7.16.2 OF THE 2014 CONSTRUCTION SPECIFICATIONS, IF ERECTING GIRDERS FROM THE EXISTING BRIDGE DECK, DISTRICT APPROVAL AND A STRUCTURAL ANALYSIS MUST BE PERFORMED BY AN ENGINEER THAT THE BRIDGE STRUCTURE CAN ACCOMMODATE THE CRANE AND GIRDER LOADS.

HL-93 LOADING:
SUPERSTRUCTURE INV/OPR RATINGS = 1.06/1.93
SUBSTRUCTURE NOT RATED.

EXIST NBI NUMBER: 15-015-0-2452-02-102
FUNCTION CLASSIFICATION: URBAN FREEWAY
DESIGN SPEED: 60 MPH
ADT (2025): 90,500 VPD
ADT (2045): 126,600 VPD

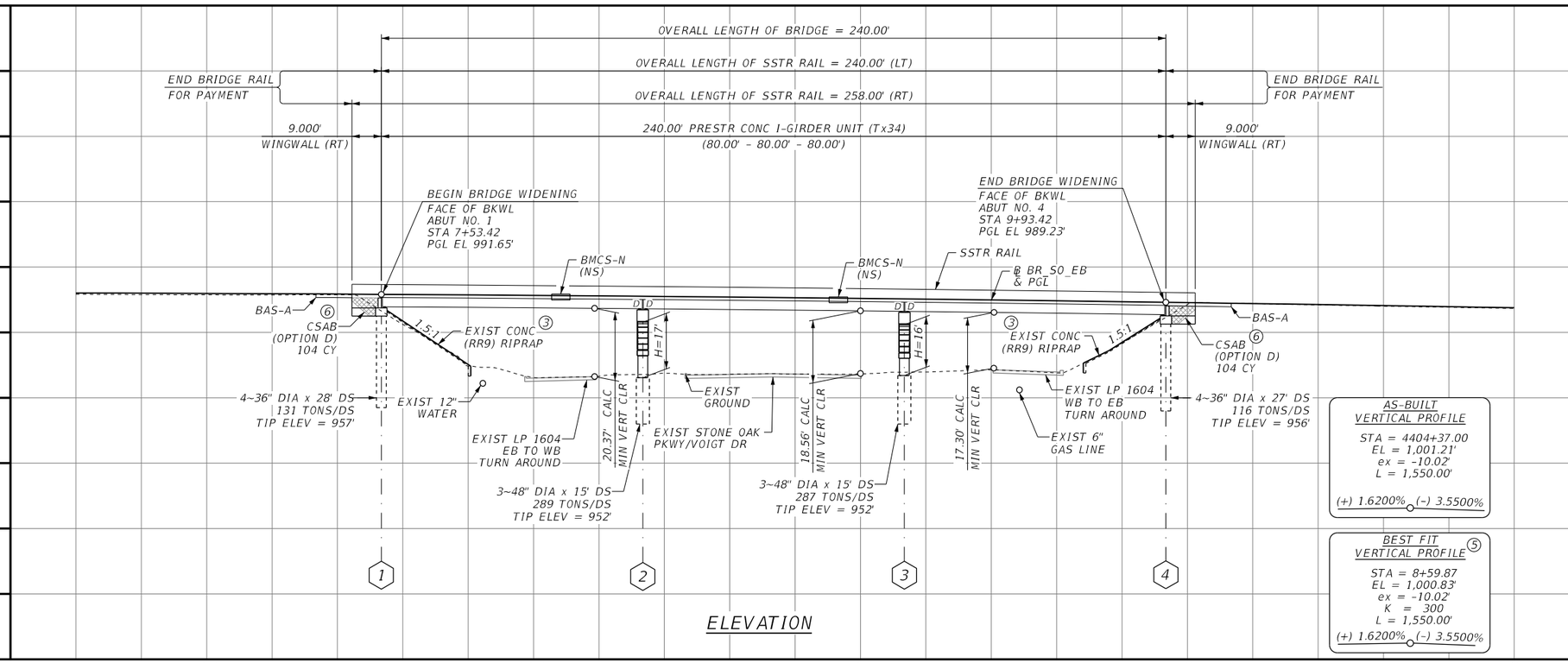
1. EXIST DECK TO BE REMOVED
2. REMOVE TOP OF EXIST ABUTMENT WINGWALLS TO 2'-0" BELOW ROADWAY SUBGRADE.
3. REMOVE AND REPLACE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE WIDENING.
4. SEE JOINT REPLACEMENT SHEET.
5. ELEVATIONS SHOWN ON THIS SHEET ARE BASED ON A BEST-FIT VERTICAL CURVE.
6. SEE CSAB PHASE PLACEMENT DETAILS SHEETS.
7. SEE TCP SHEETS FOR ADDITIONAL DETAILS.

LEGEND:

- EXIST BRIDGE TO BE REMOVED
- PHASE 1 STEP 1 AREA
- PHASE 1 STEP 2 AREA
- PHASE 2 STEP 3 AREA
- TEMPORARY SPECIAL SHORING

BOREHOLE B-323
℄ LP 1604
STA 4405+08.00
79.80' RT
EL = 969.30

HL93 LOADING (PROPOSED WIDENING)
HL93 LOADING (EXISTING WIDENING)
HS20 LOADING (EXISTING)



ELEVATION

AS-BUILT VERTICAL PROFILE
STA = 4404+37.00
EL = 1,001.21'
ex = -10.02'
L = 1,550.00'
(+) 1.6200% (-) 3.5500%

BEST FIT VERTICAL PROFILE (5)
STA = 8+59.87
EL = 1,000.83'
ex = -10.02'
K = 300
L = 1,550.00'
(+) 1.6200% (-) 3.5500%

STATE OF TEXAS
DAVID N. PRETORIUS
130358
PROFESSIONAL LICENSED ENGINEER
2.17.2023

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

BRIDGE LAYOUT

LP 1604 EBML OVERPASS WIDENING
AT STONE OAK PKWY/VOIGT DR

DESIGNED: VS	FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
CHECKED: DNP	6	TEXAS				LP1604
DRAWN: GZ	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED: DNP	SAT	BEXAR	2452	02	130, ETC	1816

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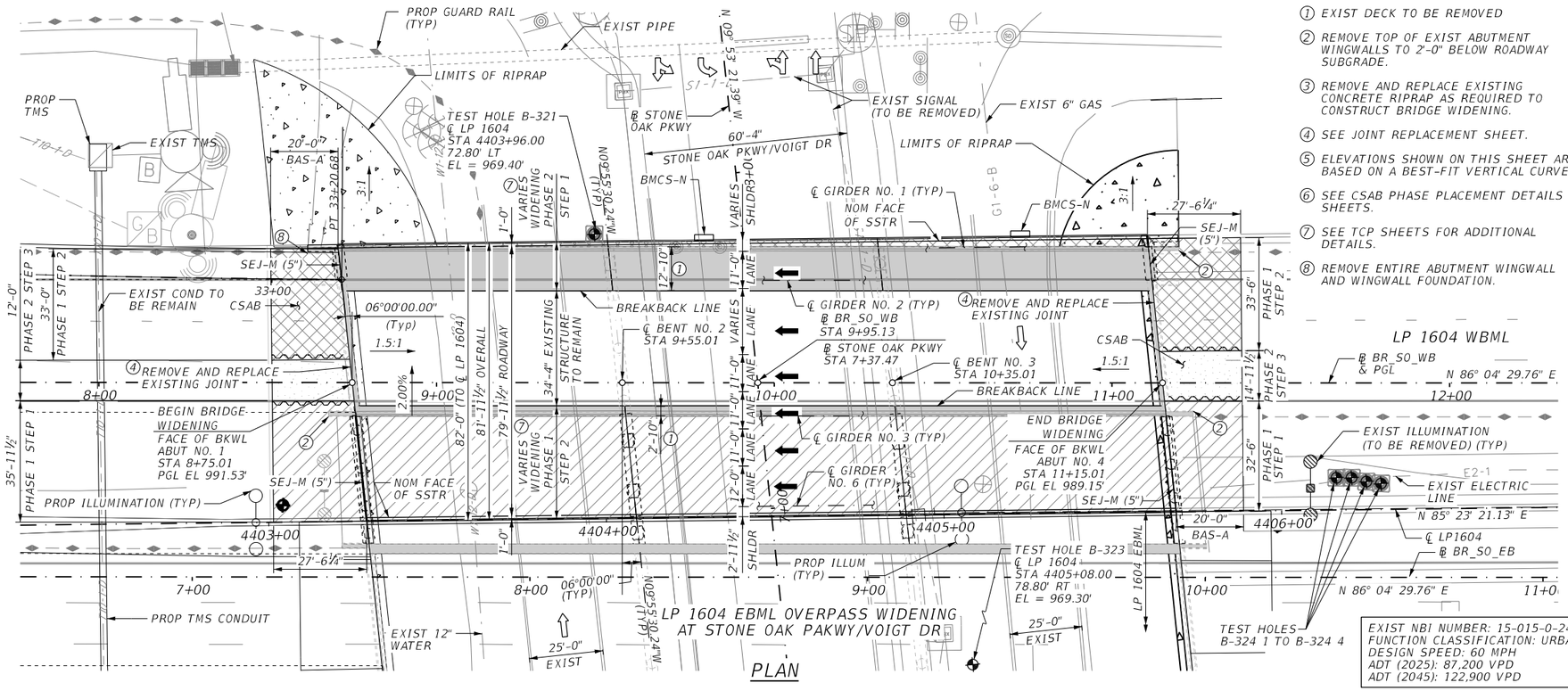


1. EXIST DECK TO BE REMOVED
2. REMOVE TOP OF EXIST ABUTMENT WINGWALLS TO 2'-0" BELOW ROADWAY SUBGRADE.
3. REMOVE AND REPLACE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE WIDENING.
4. SEE JOINT REPLACEMENT SHEET.
5. ELEVATIONS SHOWN ON THIS SHEET ARE BASED ON A BEST-FIT VERTICAL CURVE.
6. SEE CSAB PHASE PLACEMENT DETAILS SHEETS.
7. SEE TCP SHEETS FOR ADDITIONAL DETAILS.
8. REMOVE ENTIRE ABUTMENT WINGWALL AND WINGWALL FOUNDATION.

GENERAL NOTES:

WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020).

GIRDER END CONDITIONS:
D: DENOTES DOWEL AT EXTERIOR GIRDERS
BLANK: DENOTES NO DOWEL

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

CONTRACTOR WILL VERIFY THE LOCATION OF EXISTING BRIDGE ELEMENTS PRIOR TO CONSTRUCTION OR FABRICATION.

CONTRACTOR WILL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION OR FABRICATION. APPROXIMATE UTILITY LOCATIONS SHOWN IN THE ELEVATION VIEW. REFER TO UTILITY LAYOUTS FOR ACTUAL LOCATIONS.

◆ - DENOTES SOIL BORING LOCATIONS, SEE BORING LOG SHEETS.

SEE BL STANDARD SHEET FOR ILLUMINATION POLE BRACKET DETAILS.

SEE AESTHETIC DETAILS SHEETS FOR SAN ANTONIO DISTRICT "HILL COUNTRY REGION" AESTHETIC TREATMENT DETAILS.

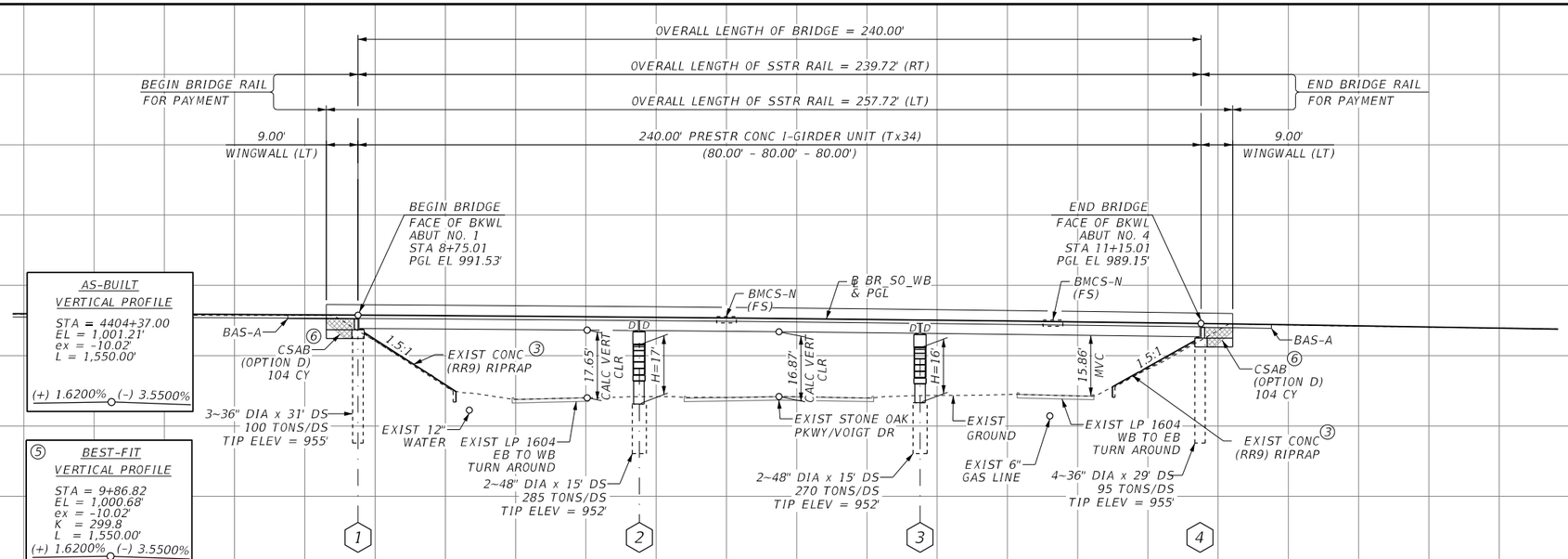
PER ITEM 7.16.2 OF THE 2014 CONSTRUCTION SPECIFICATIONS, IF ERECTING GIRDERS FROM THE EXISTING BRIDGE DECK, DISTRICT APPROVAL AND A STRUCTURAL ANALYSIS MUST BE PERFORMED BY AN ENGINEER THAT THE BRIDGE STRUCTURE CAN ACCOMMODATE THE CRANE AND GIRDER LOADS.

HL-93 LOADING:
SUPERSTRUCTURE INV/OPR RATINGS = 1.01/1.88
SUBSTRUCTURE NOT RATED.

LEGEND:

- EXIST BRIDGE TO BE REMOVED
- PHASE 1 STEP 1 AREA
- PHASE 1 STEP 2 AREA
- PHASE 2 STEP 3 AREA
- TEMP SPL SHORING

HL93 LOADING (PROPOSED WIDENING)
HL93 LOADING (EXISTING WIDENING)
HS20 LOADING (EXISTING)



LJA Engineering, Inc.
FRN-F-1386

Texas Department of Transportation
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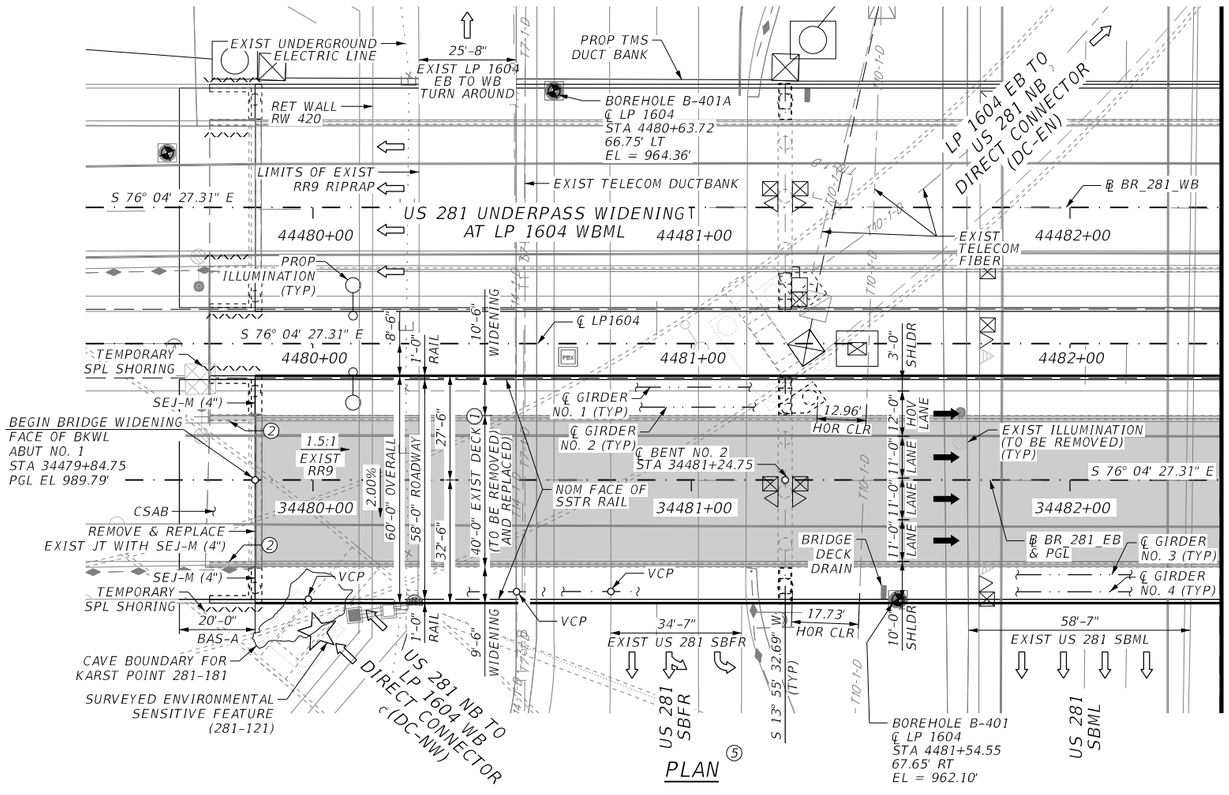
LP 1604

BRIDGE LAYOUT

LP 1604 WBML OVERPASS WIDENING AT STONE OAK PKWY/VOIGT DR

REV. NO.	DATE	DESCRIPTION	BY

DESIGNED: IRR	FED.RD. DIV.NO.	STATE	PROJECT NO.				HIGHWAY NO.
CHECKED: DNP	6	TEXAS					LP1604
DRAWN: GZ	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		SHEET NO.
CHECKED: DNP	SAT	BEXAR	2452	02	130, ETC		1839



LEGEND:

- EXIST DECK, RAIL, AND TOP OF ABUTMENT WINGWALL TO BE REMOVED (PHASE 2 - STEP 1 - STAGE 2).
- TEMP SPL SHORING.

1. EXIST DECK TO BE REMOVED
2. REMOVE TOP OF EXIST ABUTMENT WINGWALLS TO 2'-0" BELOW ROADWAY SUBGRADE.
3. REMOVE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE WIDENING.
4. ELEVATIONS SHOWN ON THIS SHEET ARE BASED ON A BEST-FIT VERTICAL CURVE.
5. SEE TCP SHEETS FOR ADDITIONAL DETAILS.
6. SEE ABUTMENT NO. 1 DETAIL SHEETS OF US 281 UNDERPASS AT EASTBOUND FRONTAGE RD ON LP 1604 AS WELL AS ABUTMENT NO. 1 DETAIL SHEETS OF US 281 UNDERPASS AT WESTBOUND FRONTAGE RD ON LP 1604.

GENERAL NOTES:

WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (NOV 2021).

GIRDER END CONDITIONS:
E: DENOTES EXPANSION BEARING
F: DENOTES FIXED BEARING

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

CONTRACTOR WILL VERIFY THE LOCATION OF EXISTING BRIDGE ELEMENTS PRIOR TO CONSTRUCTION OR FABRICATION.

CONTRACTOR WILL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION OR FABRICATION. APPROXIMATE UTILITY LOCATIONS SHOWN IN THE ELEVATION VIEW. REFER TO UTILITY LAYOUTS FOR ACTUAL LOCATIONS.

✥ - DENOTES SOIL BORING LOCATIONS, SEE BORING LOG SHEETS.

▌- BRIDGE DECK DRAIN. SEE "BRIDGE DECK DRAIN DETAILS" & "SLAB PLAN" SHEETS FOR LOCATION.

SEE BL STANDARD SHEET FOR ILLUMINATION POLE BRACKET DETAILS.

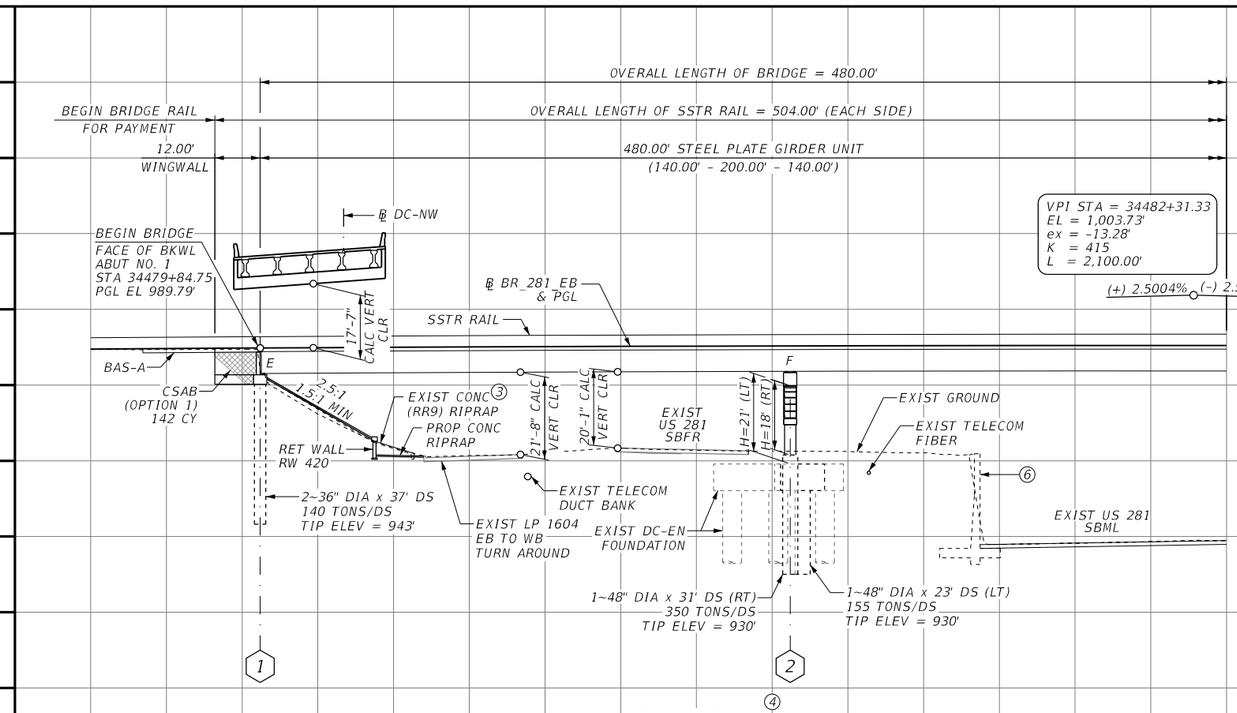
SEE AESTHETIC DETAILS SHEETS FOR SAN ANTONIO DISTRICT "HILL COUNTRY REGION" AESTHETIC TREATMENT DETAILS.

PER ITEM 7.16.2 OF THE 2014 CONSTRUCTION SPECIFICATIONS, IF ERECTING GIRDERS FROM THE EXISTING BRIDGE DECK, DISTRICT APPROVAL AND A STRUCTURAL ANALYSIS MUST BE PERFORMED BY AN ENGINEER THAT THE BRIDGE STRUCTURE CAN ACCOMMODATE THE CRANE AND GIRDER LOADS.

HL-93 LOADING:
SUPERSTRUCTURE INV/OPR RATINGS = 1.37/1.78
SUBSTRUCTURE NOT RATED.

EXIST NBI NUMBER: 15-015-0-0253-04-251
FUNCTION CLASSIFICATION: URBAN FREEWAY
DESIGN SPEED: 60 MPH
ADT (2025): 57,400 VPD
ADT (2045): 79,000 VPD

HL93 LOADING (WIDENING)
HS20 LOADING (EXISTING)



ELEVATION 4

02/17/2023

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

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN-F-1386

Texas Department of Transportation
©2023

LP 1604

BRIDGE LAYOUT

US 281 UNDERPASS WIDENING AT LP 1604 EBML

SHEET 1 OF 2

DESIGNED: VS	FED.RD. DIV.NO.	STATE	PROJECT NO.				HIGHWAY NO.
CHECKED: CTH	6	TEXAS					LP1604
DRAWN: GZ	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		SHEET NO.
CHECKED: VS	SAT	BEXAR	2452	02	130, ETC		1860

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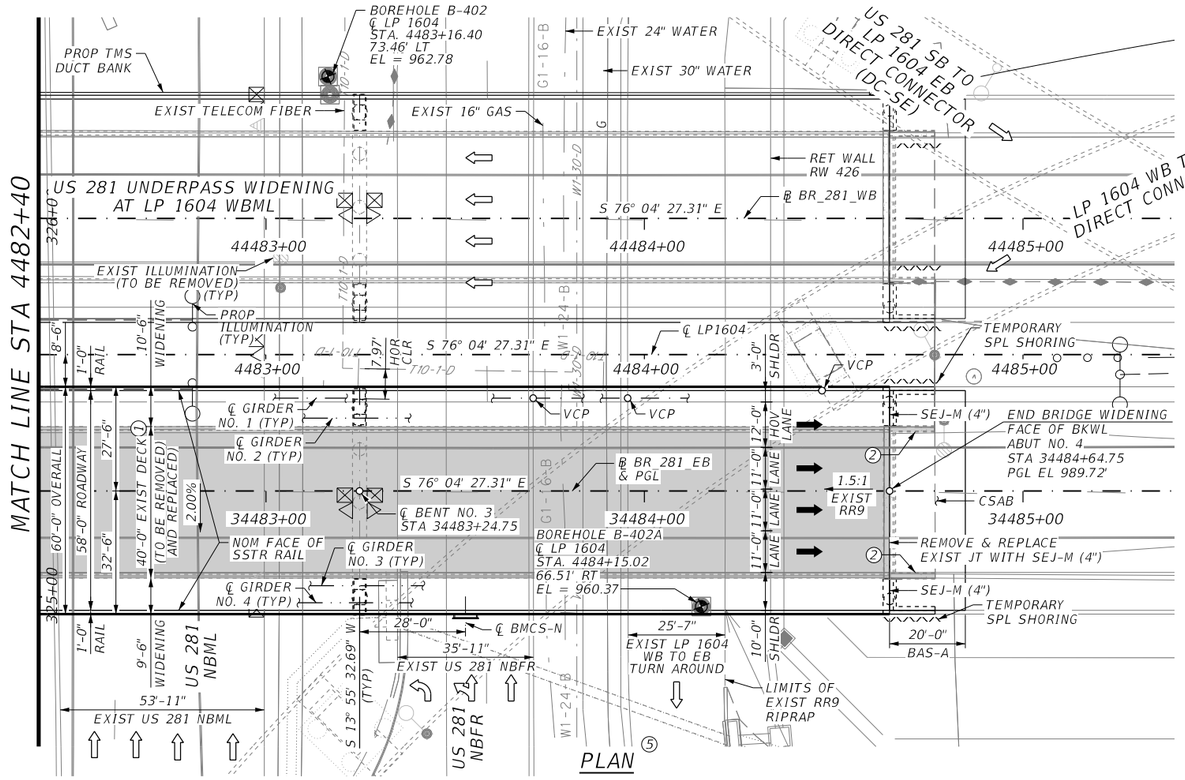


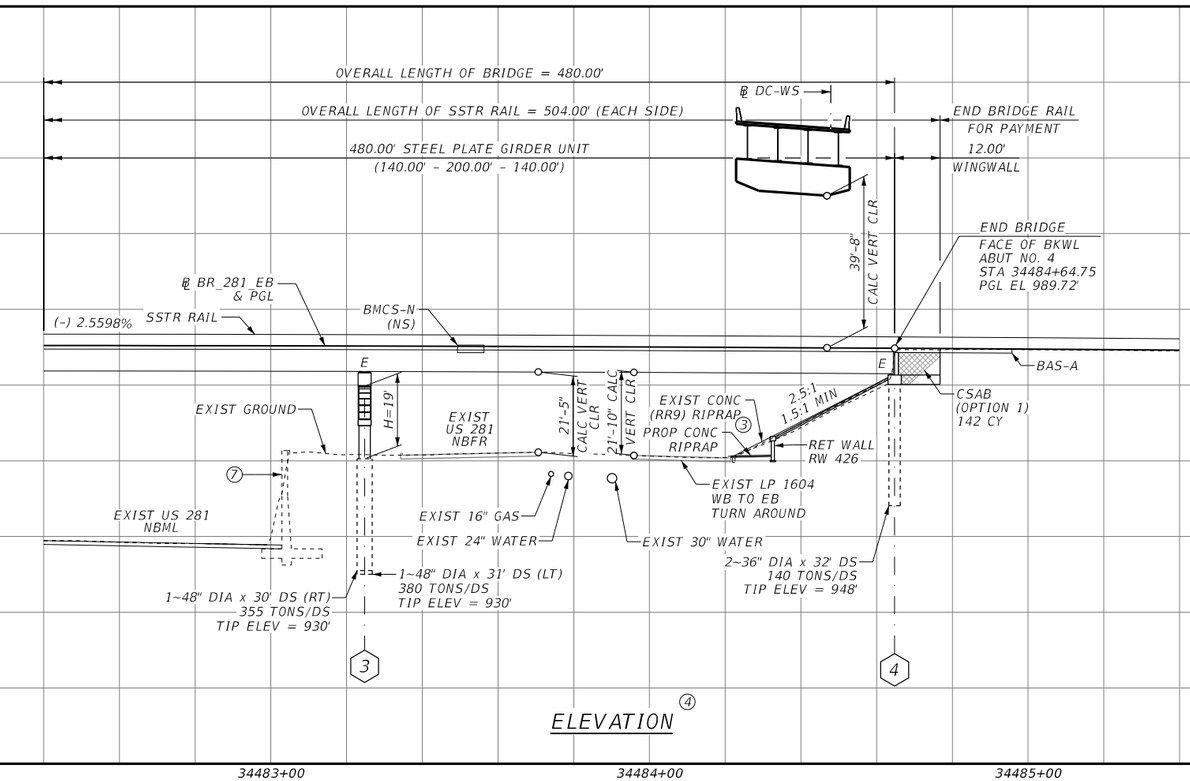
LEGEND:

EXIST DECK, RAIL, AND TOP OF ABUTMENT WINGWALL TO BE REMOVED (PHASE 2 - STEP 1 - STAGE 2).

TEMP SPL SHORING.

1. EXIST DECK TO BE REMOVED
2. REMOVE TOP OF EXIST ABUTMENT WINGWALLS TO 2'-0" BELOW ROADWAY SUBGRADE.
3. REMOVE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE WIDENING.
4. ELEVATIONS SHOWN ON THIS SHEET ARE BASED ON A BEST-FIT VERTICAL CURVE.
5. SEE TCP SHEETS FOR ADDITIONAL DETAILS.
7. SEE ABUTMENT NO. 2 DETAIL SHEETS OF US 281 UNDERPASS AT EASTBOUND FRONTAGE RD ON LP 1604 AS WELL AS ABUTMENT NO. 2 DETAIL SHEETS OF US 281 UNDERPASS AT WESTBOUND FRONTAGE RD ON LP 1604.

HL93 LOADING (WIDENING)
HS20 LOADING (EXISTING)



STATE OF TEXAS
VASILEIOS SAMARAS
119161
LICENSED
PROFESSIONAL ENGINEER
02/17/2023

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

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN - F-1386

LP 1604

BRIDGE LAYOUT

US 281 UNDERPASS WIDENING AT LP 1604 EBML

SHEET 2 OF 2

DESIGNED: VS	FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
CHECKED: CTH	6	TEXAS				LP1604
DRAWN: GZ	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED: VS	SAT	BEXAR	2452	02	130, ETC	1861

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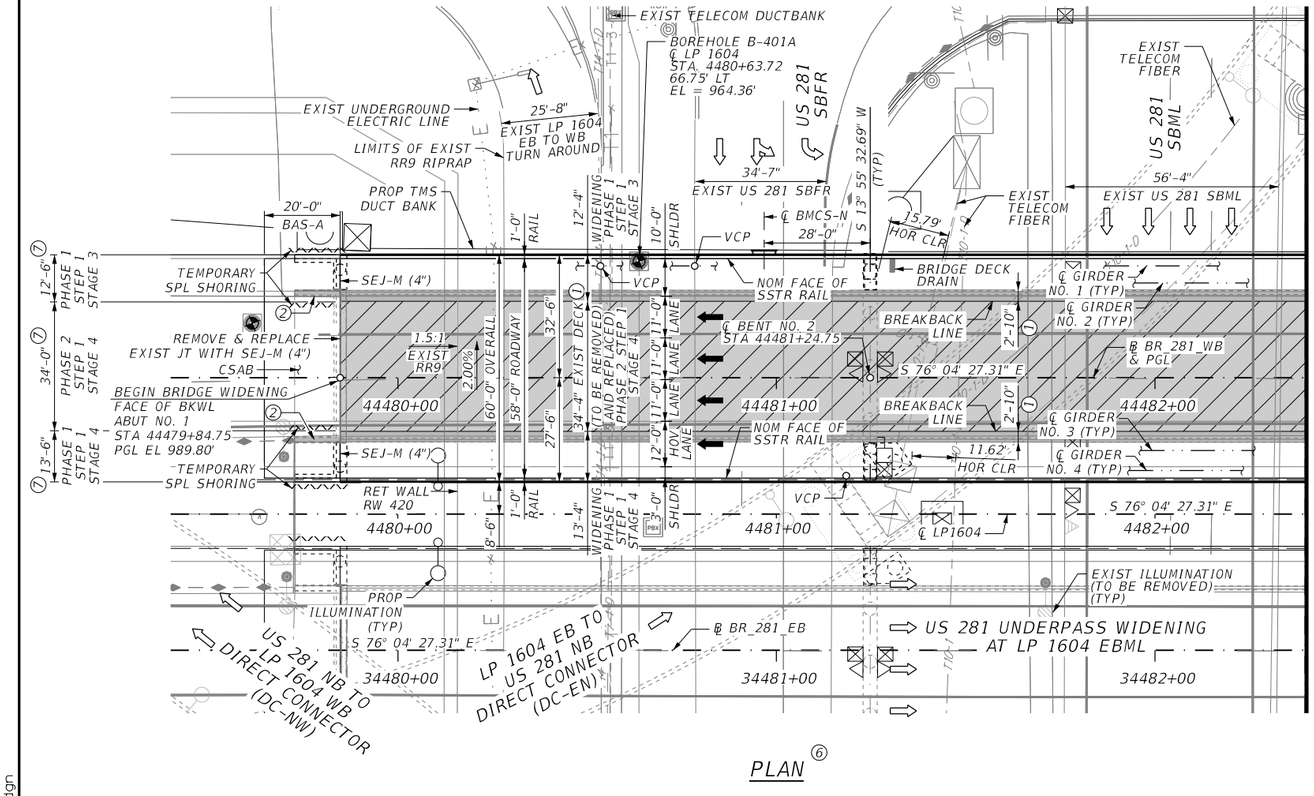


PLAN ⑥

LEGEND:

- EXIST DECK, RAIL, AND TOP OF ABUTMENT WINGWALL TO BE REMOVED (PHASE 1 – STEP 1 – STAGE 3 & 4).
- EXIST BRIDGE DECK TO BE REMOVED (PHASE 2 – STEP 1 – STAGE 4).
- TEMP SPL SHORING.

① EXIST DECK TO BE REMOVED

② REMOVE TOP OF EXIST ABUTMENT WINGWALLS TO 2'-0" BELOW ROADWAY SUBGRADE.

③ REMOVE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE WIDENING.

④ ELEVATIONS SHOWN ON THIS SHEET ARE BASED ON A BEST-FIT VERTICAL CURVE.

⑤ SEE CSAB PHASE PLACEMENT DETAILS SHEETS.

⑥ SEE TCP SHEETS FOR ADDITIONAL DETAILS.

⑦ PHASED CONSTRUCTION OF APPROACH SLAB. SEE TCP SHEETS FOR MORE INFORMATION.

⑧ SEE ABUTMENT NO. 1 DETAIL SHEETS OF US 281 UNDERPASS AT EASTBOUND FRONTAGE RD ON LP 1604 AS WELL AS ABUTMENT NO. 1 DETAIL SHEETS OF US 281 UNDERPASS AT WESTBOUND FRONTAGE RD ON LP 1604.

GENERAL NOTES:

WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (NOV 2021).

GIRDER END CONDITIONS:
E: DENOTES EXPANSION BEARING
F: DENOTES FIXED BEARING

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

CONTRACTOR WILL VERIFY THE LOCATION OF EXISTING BRIDGE ELEMENTS PRIOR TO CONSTRUCTION OR FABRICATION.

CONTRACTOR WILL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION OR FABRICATION. APPROXIMATE UTILITY LOCATIONS SHOWN IN THE ELEVATION VIEW. REFER TO UTILITY LAYOUTS FOR ACTUAL LOCATIONS.

◆ – DENOTES SOIL BORING LOCATIONS, SEE BORING LOG SHEETS.

▌– BRIDGE DECK DRAIN. SEE "BRIDGE DECK DRAIN DETAILS" & "SLAB PLAN" SHEETS FOR LOCATION.

SEE BL STANDARD SHEET FOR ILLUMINATION POLE BRACKET DETAILS.

SEE AESTHETIC DETAILS SHEETS FOR SAN ANTONIO DISTRICT "HILL COUNTRY REGION" AESTHETIC TREATMENT DETAILS.

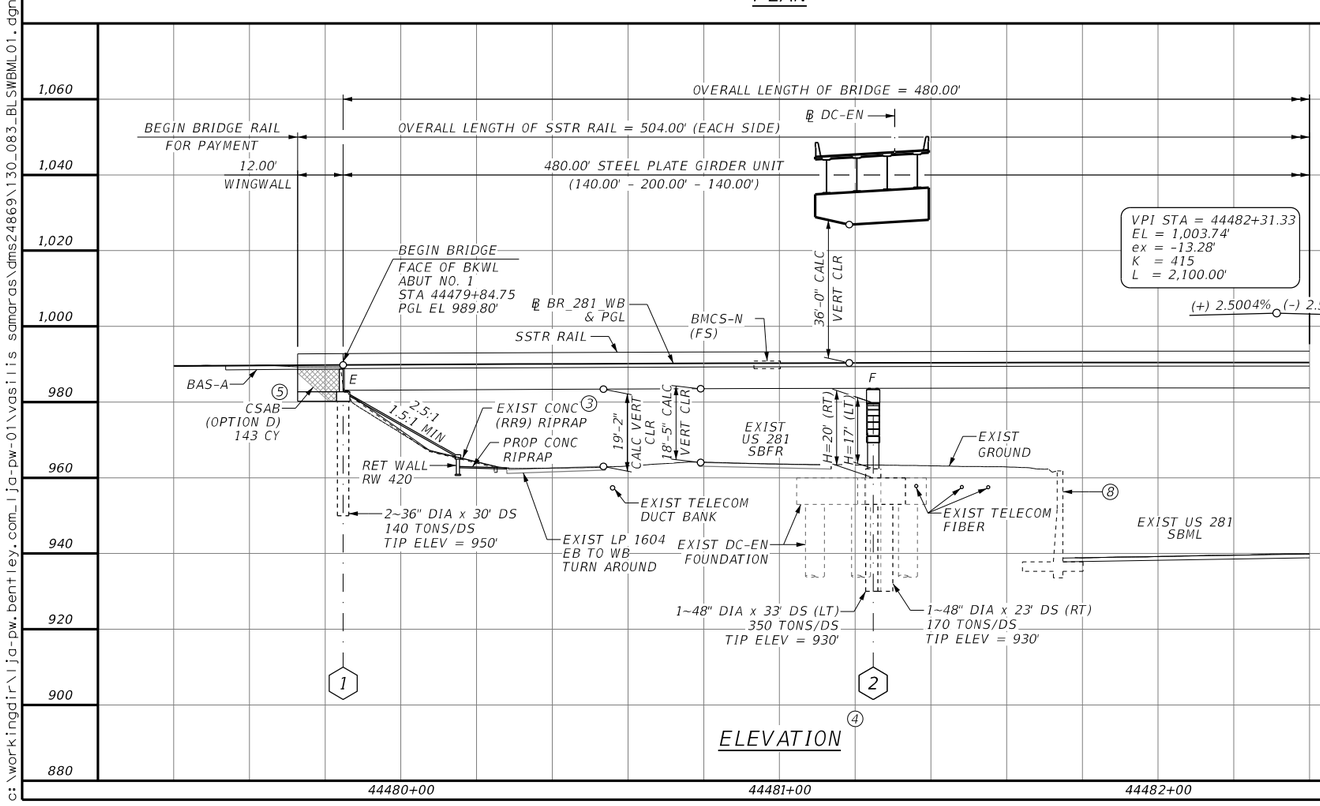
PER ITEM 7.16.2 OF THE 2014 CONSTRUCTION SPECIFICATIONS, IF ERECTING GIRDERS FROM THE EXISTING BRIDGE DECK, DISTRICT APPROVAL AND A STRUCTURAL ANALYSIS MUST BE PERFORMED BY AN ENGINEER THAT THE BRIDGE STRUCTURE CAN ACCOMMODATE THE CRANE AND GIRDER LOADS.

HL-93 LOADING:
SUPERSTRUCTURE INV/OPR RATINGS = 1.36/1.76
SUBSTRUCTURE NOT RATED.

EXIST NBI NUMBER: 15-015-0-0253-04-105
FUNCTION CLASSIFICATION: URBAN FREEWAY
DESIGN SPEED: 60 MPH
ADT (2025): 54,600 VPD
ADT (2045): 76,000 VPD

WELDING IS NOT ALLOWED AT THE SEJ-M WIDENING SPLICES. STUDS ON BOTH SIDES OF THESE SPLICES MUST BE LOCATED 2" FROM ℄ SPLICE. THE LIMITS OF THE PHASED CONSTRUCTION OF THE APPROACH SLAB ARE SHOWN ON THIS SHEET. SEE ABUTMENT DETAILS AND 480.00' STEEL PLATE GIRDER UNIT SHEETS FOR MORE INFORMATION.

HL93 LOADING (WIDENING)
HS20 LOADING (EXISTING)



ELEVATION ④

STATE OF TEXAS
VASILEIOS SAMARAS
119161
LICENSED
PROFESSIONAL ENGINEER
02/17/2023

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

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN - F-1386

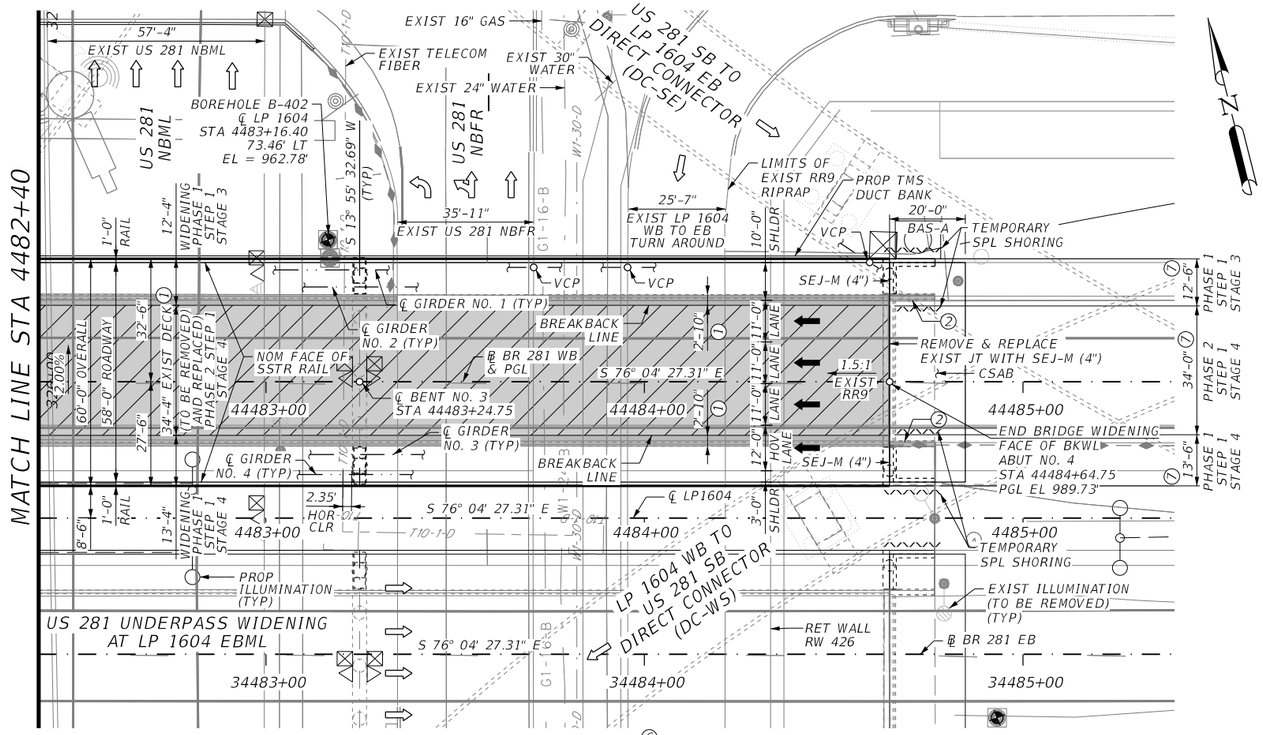
LP 1604

BRIDGE LAYOUT

US 281 UNDERPASS WIDENING AT LP 1604 WBML

SHEET 1 OF 2

DESIGNED: VS	FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
CHECKED: CTH	6	TEXAS				LP1604
DRAWN: GZ	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED: VS	SAT	BEXAR	2452	02	130, ETC	1884



PLAN ⑥

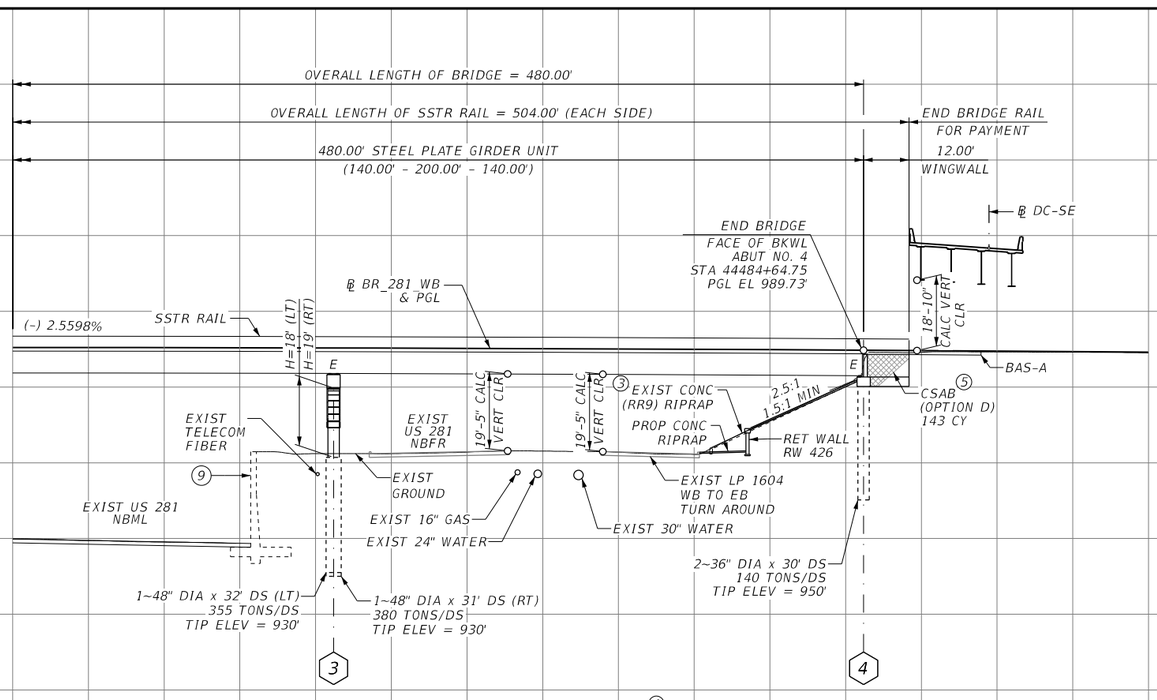
LEGEND:

- *EXIST DECK, RAIL, AND TOP OF ABUTMENT WINGWALL TO BE REMOVED (PHASE 1 – STEP 1 – STAGE 3 & 4).*
- *EXIST BRIDGE DECK TO BE REMOVED (PHASE 2 – STEP 1 – STAGE 4).*
- *TEMP SPL SHORING.*

1. *EXIST DECK TO BE REMOVED*
2. *REMOVE TOP OF EXIST ABUTMENT WINGWALLS TO 2'-0" BELOW ROADWAY SUBGRADE.*
3. *REMOVE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE WIDENING.*
4. *ELEVATIONS SHOWN ON THIS SHEET ARE BASED ON A BEST-FIT VERTICAL CURVE.*
5. *SEE CSAB PHASE PLACEMENT DETAILS SHEETS.*
6. *SEE TCP SHEETS FOR ADDITIONAL DETAILS.*
7. *PHASED CONSTRUCTION OF APPROACH SLAB. SEE TCP SHEETS FOR MORE INFORMATION.*
9. *SEE ABUTMENT NO. 2 DETAIL SHEETS OF US 281 UNDERPASS AT EASTBOUND FRONTAGE RD ON LP 1604 AS WELL AS ABUTMENT NO. 2 DETAIL SHEETS OF US 281 UNDERPASS AT WESTBOUND FRONTAGE RD ON LP 1604.*

WELDING IS NOT ALLOWED AT THE SEJ-M WIDENING SPLICES. STUDS ON BOTH SIDES OF THESE SPLICES MUST BE LOCATED 2" FROM ℄ SPLICE. THE LIMITS OF THE PHASED CONSTRUCTION OF THE APPROACH SLAB ARE SHOWN ON THIS SHEET. SEE ABUTMENT DETAILS AND 480.00' STEEL PLATE GIRDER UNIT SHEETS FOR MORE INFORMATION.

HL93 LOADING (WIDENING)
HS20 LOADING (EXISTING)



ELEVATION ④

VASILEIOS SAMARAS
119161
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
02/17/2023

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

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN - F-1386

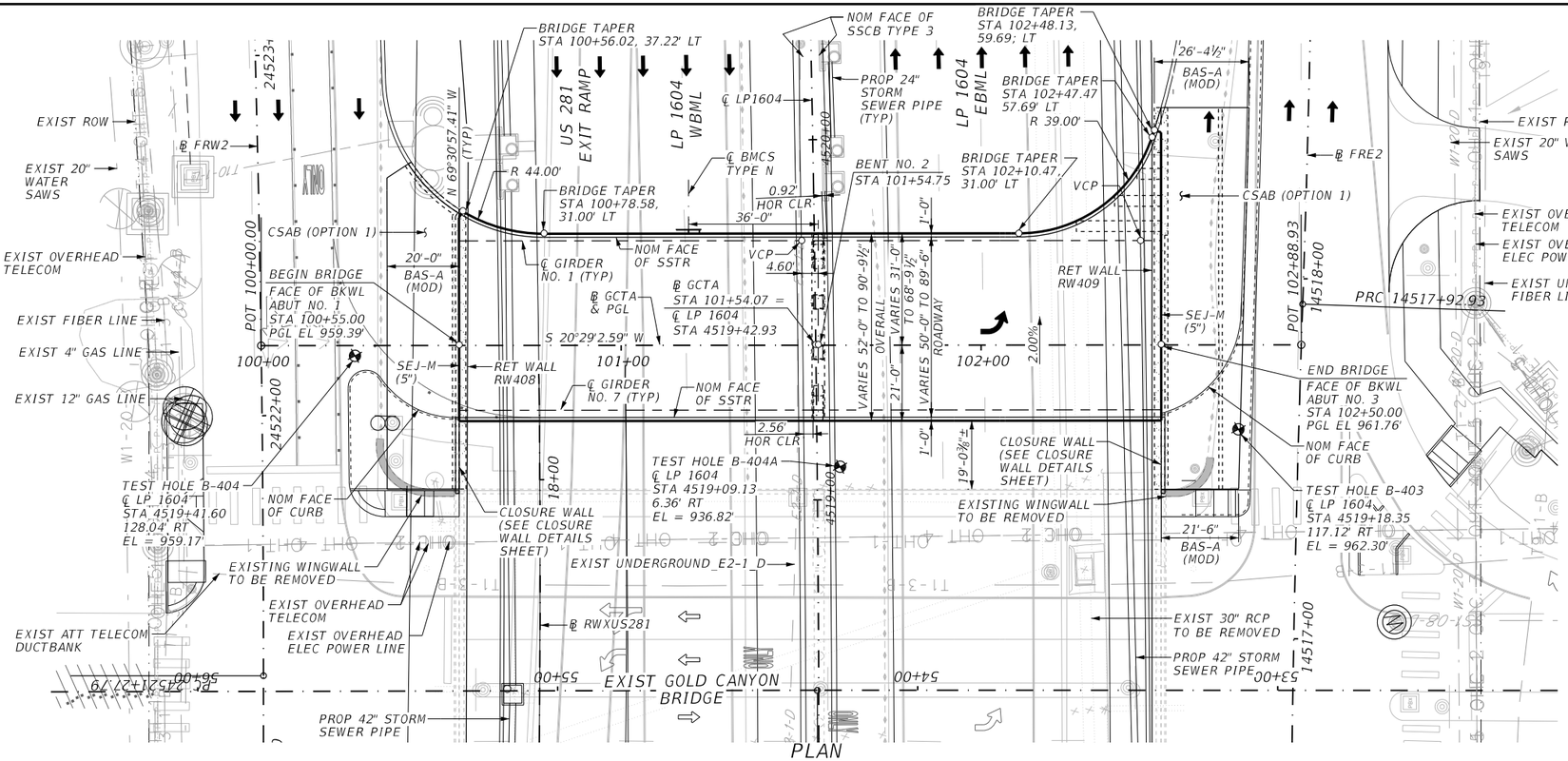
LP 1604

BRIDGE LAYOUT

US 281 UNDERPASS WIDENING AT LP 1604 WBML

SHEET 2 OF 2

DESIGNED: VS	FED.RD. DIV.NO.	STATE	PROJECT NO.				HIGHWAY NO.
CHECKED: CTH	6	TEXAS					LP1604
DRAWN: GZ	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		SHEET NO.
CHECKED: VS	SAT	BEXAR	2452	02	130, ETC		1885



PLAN

GENERAL NOTES:

DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (NOV 2021).

GIRDER END CONDITIONS:
D: DENOTES DOWEL AT EXTERIOR GIRDERS
BLANK: DENOTES NO DOWEL

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

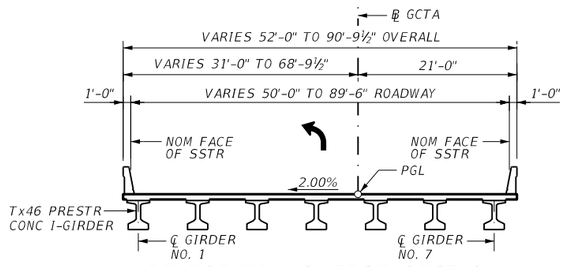
◆ - DENOTES SOIL BORING LOCATIONS, SEE BORING LOG SHEETS.

▨ - EXIST BRIDGE RAIL & ABUTMENT WINGWALL PARTIAL TO BE REMOVED. REMOVE EXISTING WINGWALL AT LEAST 2' BELOW FINISHED GRADE ELEVATION.

SEE AESTHETIC DETAILS SHEETS FOR SAN ANTONIO DISTRICT "HILL COUNTRY REGION" AESTHETIC TREATMENT DETAILS.

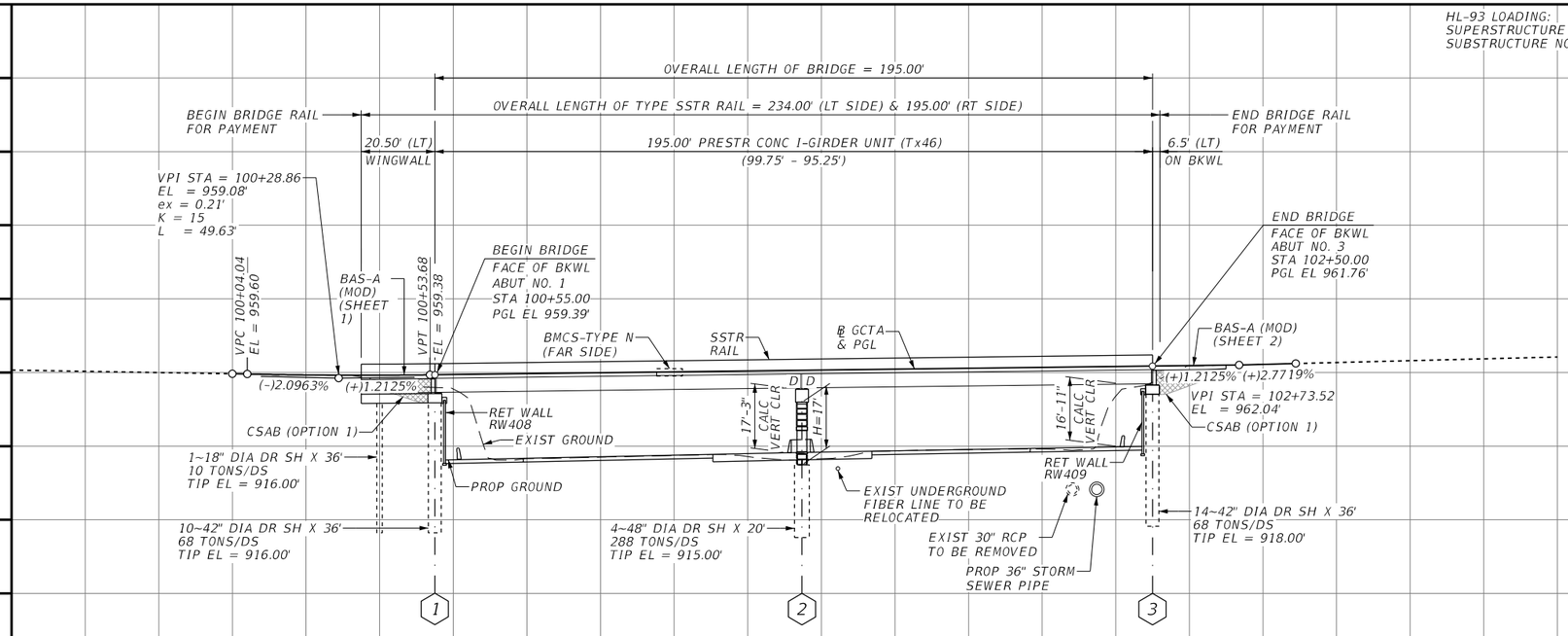
HL-93 LOADING:
SUPERSTRUCTURE INV/OPR RATINGS = 1.06/2.09
SUBSTRUCTURE NOT RATED.

PROPOSED NBI NUMBER: 15-015-0-2452-03-313
FUNCTIONAL CLASSIFICATION: URBAN MAJOR COLLECTOR
DESIGN SPEED: 10 MPH
ADT (2025): 800 VPD
ADT (2045): 1,100 VPD

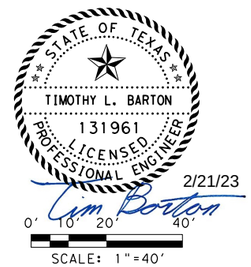


BRIDGE TRANSVERSE SECTION

HL93 LOADING



ELEVATION



REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN-F-1386

 Texas Department of Transportation

LP 1604

BRIDGE LAYOUT

LP 1604 UNDERPASS AT GOLD CANYON RD
WEST TO EAST TURNAROUND

DESIGNED: TB	FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
CHECKED: NK	6	TEXAS				LP1604
DRAWN: CW	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED: ZH	SAT	BEXAR	2452	02	130, ETC	1915

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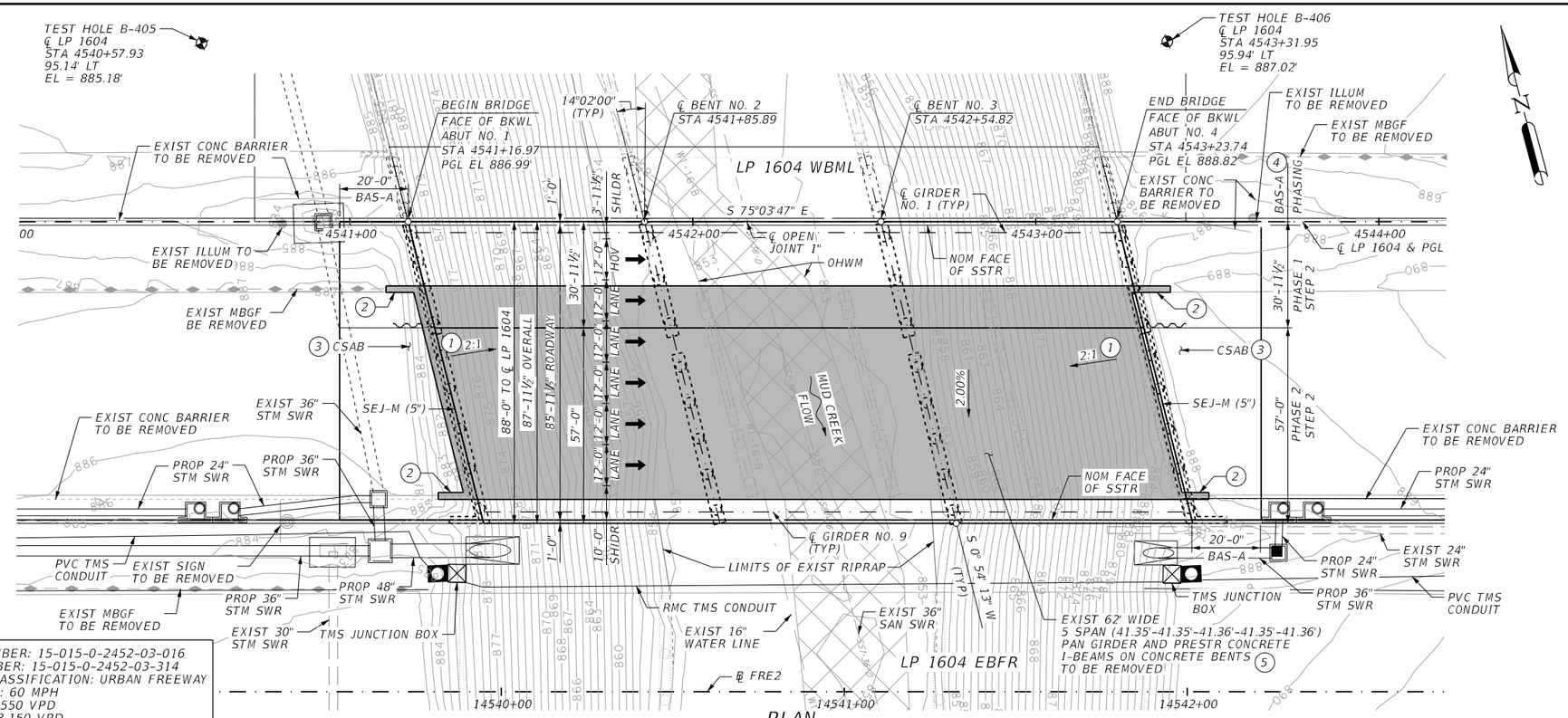


PLAN

EXIST NBI NUMBER: 15-015-0-2452-03-016
PROP NBI NUMBER: 15-015-0-2452-03-314
FUNCTIONAL CLASSIFICATION: URBAN FREEWAY
DESIGN SPEED: 60 MPH
ADT (2025): 85,550 VPD
ADT (2045): 118,150 VPD

GENERAL NOTES:

DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (NOV 2021).

GIRDER END CONDITIONS:
D: DENOTES DOWEL AT EXTERIOR GIRDERS
BLANK: DENOTES NO DOWEL

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

◆ – DENOTES SOIL BORING LOCATION, SEE BORING LOG SHEETS.

APPROXIMATE UTILITY LOCATIONS SHOWN IN THE ELEVATION VIEW. REFER TO UTILITY LAYOUTS FOR ACTUAL LOCATIONS.

LEGEND:

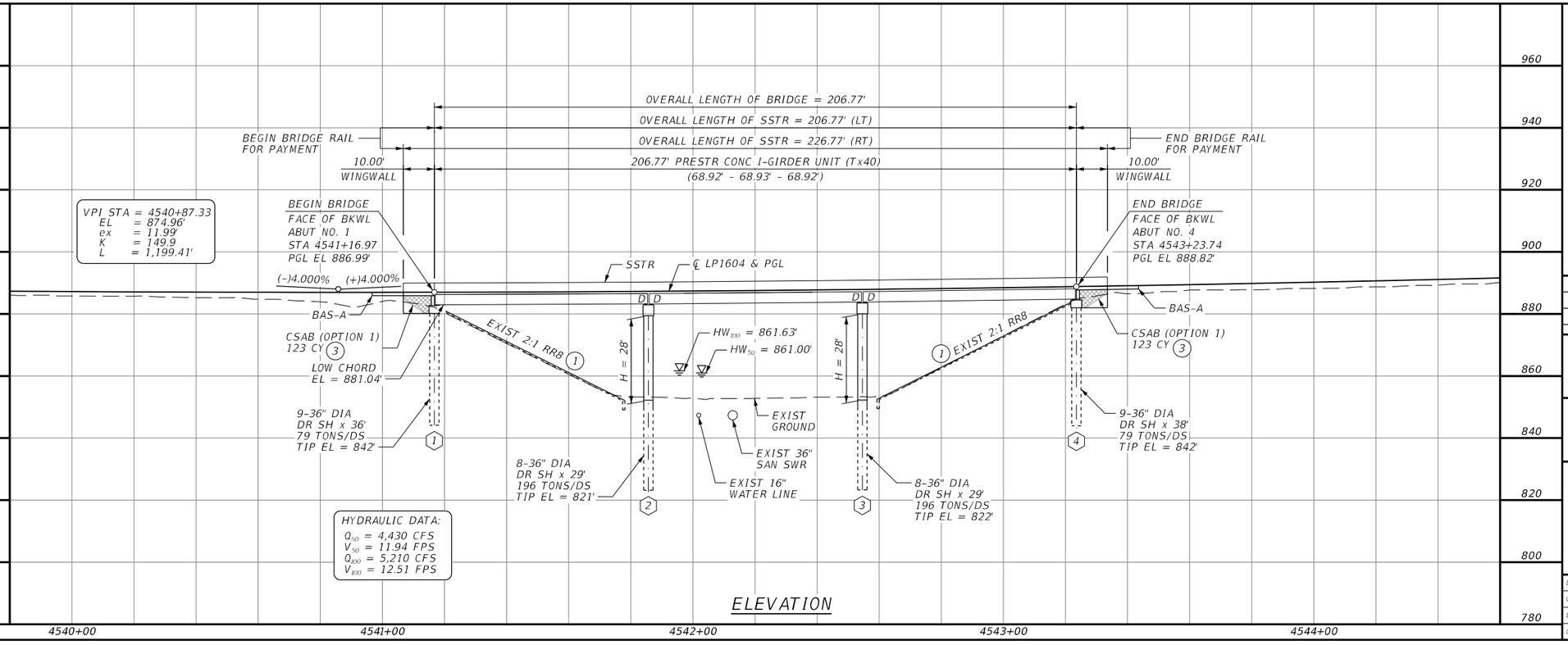
- EXIST BRIDGE TO BE REMOVED.
- WOUS
- TEMPORARY SPECIAL SHORING
- (1) REMOVE AND REPLACE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE.
- (2) REMOVE TOP OF EXIST ABUTMENT WINGWALLS TO 2' BELOW FINISH GRADE.
- (3) SEE CSAB PHASE PLACEMENT DETAILS SHEETS.
- (4) SEE TCP SHEETS FOR ADDITIONAL DETAILS.
- (5) SEE EXIST ABUTMENT AND INTERIOR BENT REMOVAL SHEETS FOR ADDITIONAL DETAILS.

FOUNDATION NOTES:

THE CONTRACTOR SHALL HAVE HEAVY DUTY EXCAVATION EQUIPMENT FOR THIS PROJECT. VERY HARD LIMESTONE WILL BE ENCOUNTERED FOR MOST DRILLING ACTIVITES.

THE CONTRACTOR SHALL BE PREPARED FOR TEMPORARY CASING AND/OR SLURRY CONSTRUCTION METHOD FOR THE INSTALLATION OF DRILLED SHAFTS WHERE GROUNDWATER IS PRESENT IN THE SAND AND GRAVEL SOILS.

HL93 LOADING



ELEVATION

STATE OF TEXAS
LORI NEUWIRTH-HIRSCH
115919
LICENSED
PROFESSIONAL ENGINEER
Lori Neuwirth-Hirsch
02/17/2023

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

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN-F-1386

LP 1604

BRIDGE LAYOUT

LP 1604 EBML BRIDGE AT MUD CREEK

DESIGNED: BN	FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
CHECKED: LNH	6	TEXAS				LP1604
DRAWN: PS	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED: LNH	SAT	BEXAR	2452	02	130, ETC	1937

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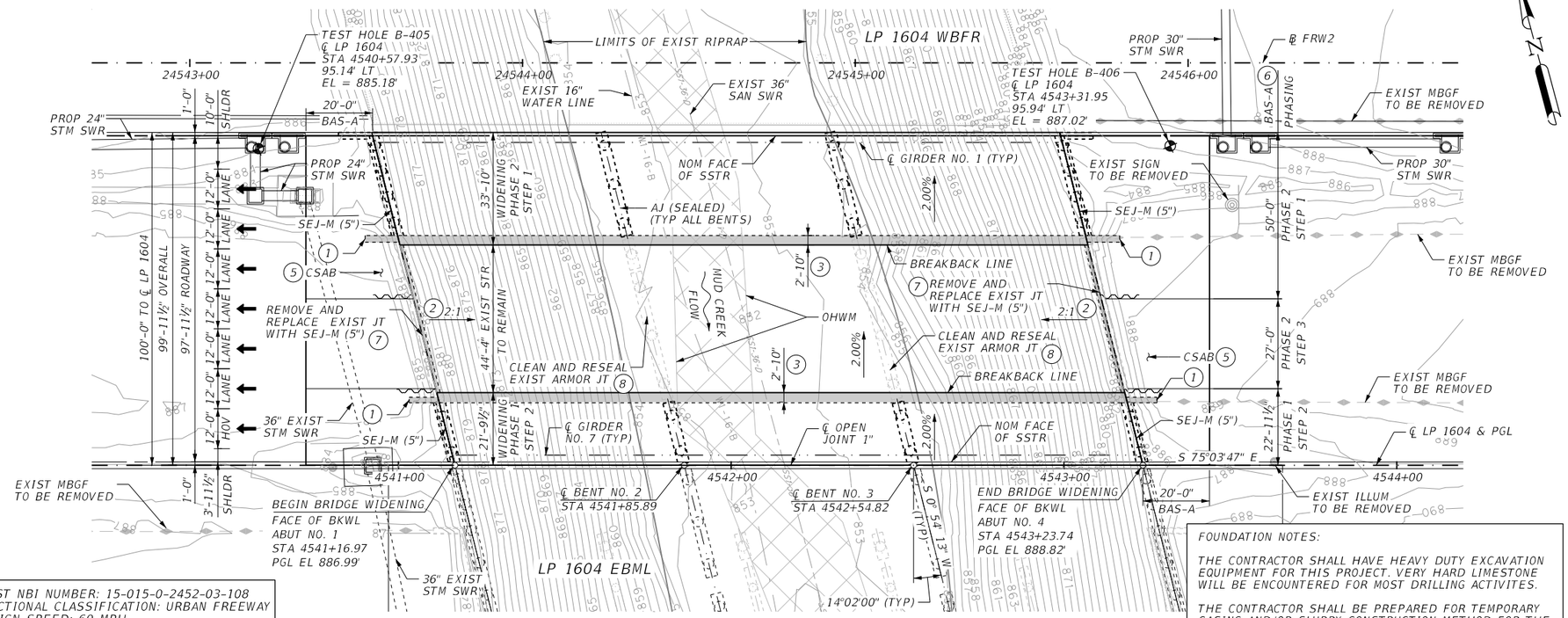


PLAN

EXIST NBI NUMBER: 15-015-0-2452-03-108
FUNCTIONAL CLASSIFICATION: URBAN FREEWAY
DESIGN SPEED: 60 MPH
ADT (2025): 83,200 VPD
ADT (2045): 117,150 VPD

FOUNDATION NOTES:

THE CONTRACTOR SHALL HAVE HEAVY DUTY EXCAVATION EQUIPMENT FOR THIS PROJECT. VERY HARD LIMESTONE WILL BE ENCOUNTERED FOR MOST DRILLING ACTIVITES.

THE CONTRACTOR SHALL BE PREPARED FOR TEMPORARY CASING AND/OR SLURRY CONSTRUCTION METHOD FOR THE INSTALLATION OF DRILLED SHAFTS WHERE GROUNDWATER IS PRESENT IN THE SAND AND GRAVEL SOILS.

GENERAL NOTES:

WIDENING DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020) AND TXDOT BRIDGE DESIGN MANUAL (NOV 2021).

GIRDER END CONDITIONS:
D: DENOTES DOWEL AT EXTERIOR GIRDERS
BLANK: DENOTES NO DOWEL

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

◆ – DENOTES SOIL BORING LOCATION, SEE BORING LOG SHEETS.

CONTRACTOR MUST VERIFY THE LOCATION OF EXISTING BRIDGE ELEMENTS PRIOR TO CONSTRUCTION OR FABRICATION.

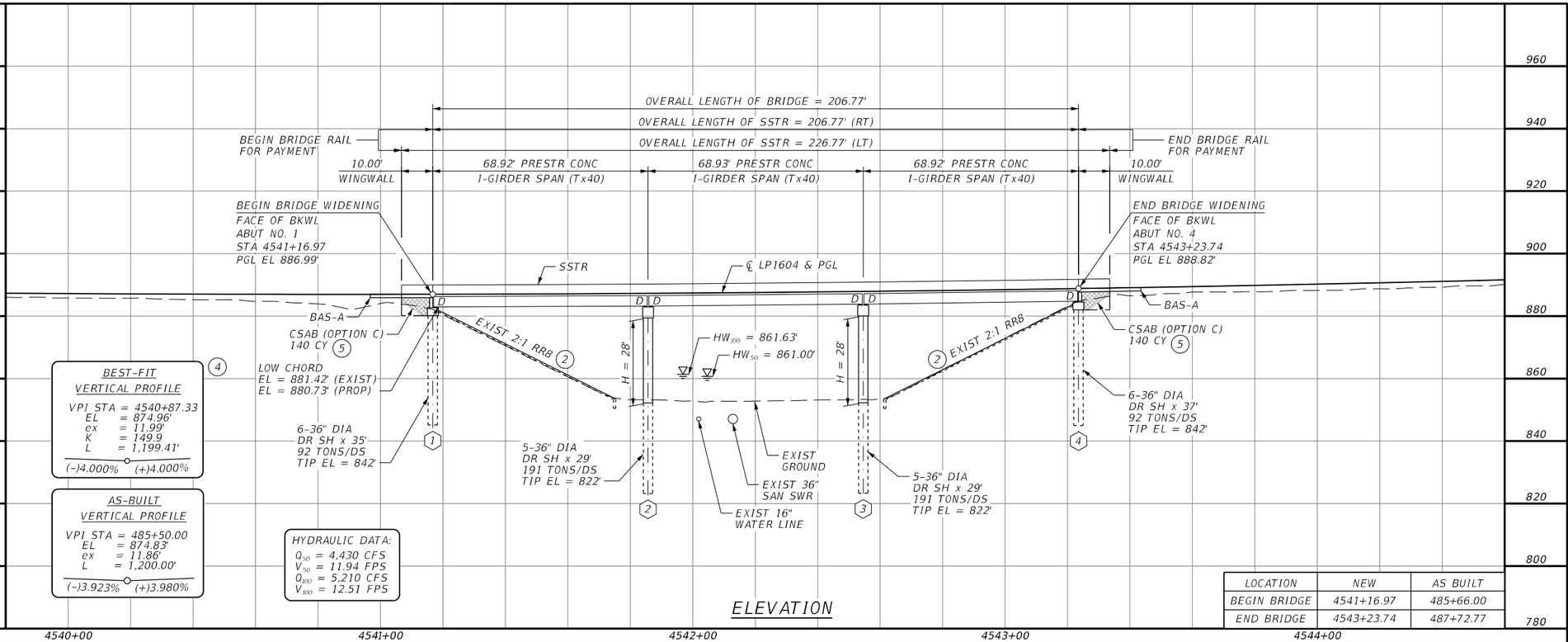
APPROXIMATE UTILITY LOCATIONS SHOWN IN THE ELEVATION VIEW. REFER TO UTILITY LAYOUTS FOR ACTUAL LOCATIONS.

PER ITEM 7.16.2 OF THE 2014 CONSTRUCTION SPECIFICATIONS, IF ERECTING GIRDERS FROM THE EXISTING BRIDGE DECK, DISTRICT APPROVAL AND A STRUCTURAL ANALYSIS MUST BE PERFORMED BY AN ENGINEER THAT THE BRIDGE STRUCTURE CAN ACCOMMODATE THE CRANE AND GIRDER LOADS.

LEGEND:

- EXIST BRIDGE TO BE REMOVED.
- WOUS
- TEMPORARY SPECIAL SHORING
- (1) REMOVE TOP OF EXIST ABUTMENT WINGWALLS TO 2' BELOW FINISH GRADE.
- (2) REMOVE AND REPLACE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE WIDENING.
- (3) EXIST DECK TO BE REMOVED.
- (4) ELEVATIONS SHOWN ON THIS SHEET ARE BASED ON A BEST-FIT VERTICAL CURVE.
- (5) SEE CSAB PHASE PLACEMENT DETAILS SHEETS.
- (6) SEE TCP SHEETS FOR ADDITIONAL DETAILS.
- (7) SEE JOINT REPLACEMENT SHEET FOR DETAILS.
- (8) SEE CLEANING AND SEALING EXISTING BRIDGE JOINTS SHEET FOR DETAILS.

HL93 LOADING (PROPOSED WIDENING)
HL93 LOADING (EXISTING WIDENING)
HS20 LOADING (EXISTING)



ELEVATION

BEST-FIT VERTICAL PROFILE
VPI STA = 4540+87.33
EL = 874.96'
ex = 11.99'
K = 149.9
L = 1,199.41'
(-)4.000% (+)4.000%

AS-BUILT VERTICAL PROFILE
VPI STA = 485+50.00
EL = 874.83'
ex = 11.86'
L = 1,200.00'
(-)3.923% (+)3.980%

HYDRAULIC DATA:
Q_{50} = 4,430 CFS
V_{50} = 11.94 FPS
Q_{100} = 5,210 CFS
V_{100} = 12.51 FPS

LOCATION	NEW	AS BUILT
BEGIN BRIDGE	4541+16.97	485+66.00
END BRIDGE	4543+23.74	487+72.77

STATE OF TEXAS
LORI NEUWIRTH-HIRSCH
115919
LICENSED
PROFESSIONAL ENGINEER

Lori Neuwirth-Hirsch
02/17/2023

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

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN-F-1386

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LP 1604

BRIDGE LAYOUT

LP 1604 WBML BRIDGE WIDENING AT MUD CREEK

DESIGNED: BN	FED.RD. DIV.NO.	STATE	PROJECT NO.				HIGHWAY NO.
CHECKED: LNH	6	TEXAS					LP1604
DRAWN: PS	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.		SHEET NO.
CHECKED: LNH	SAT	BEXAR	2452	02	130, ETC		1955

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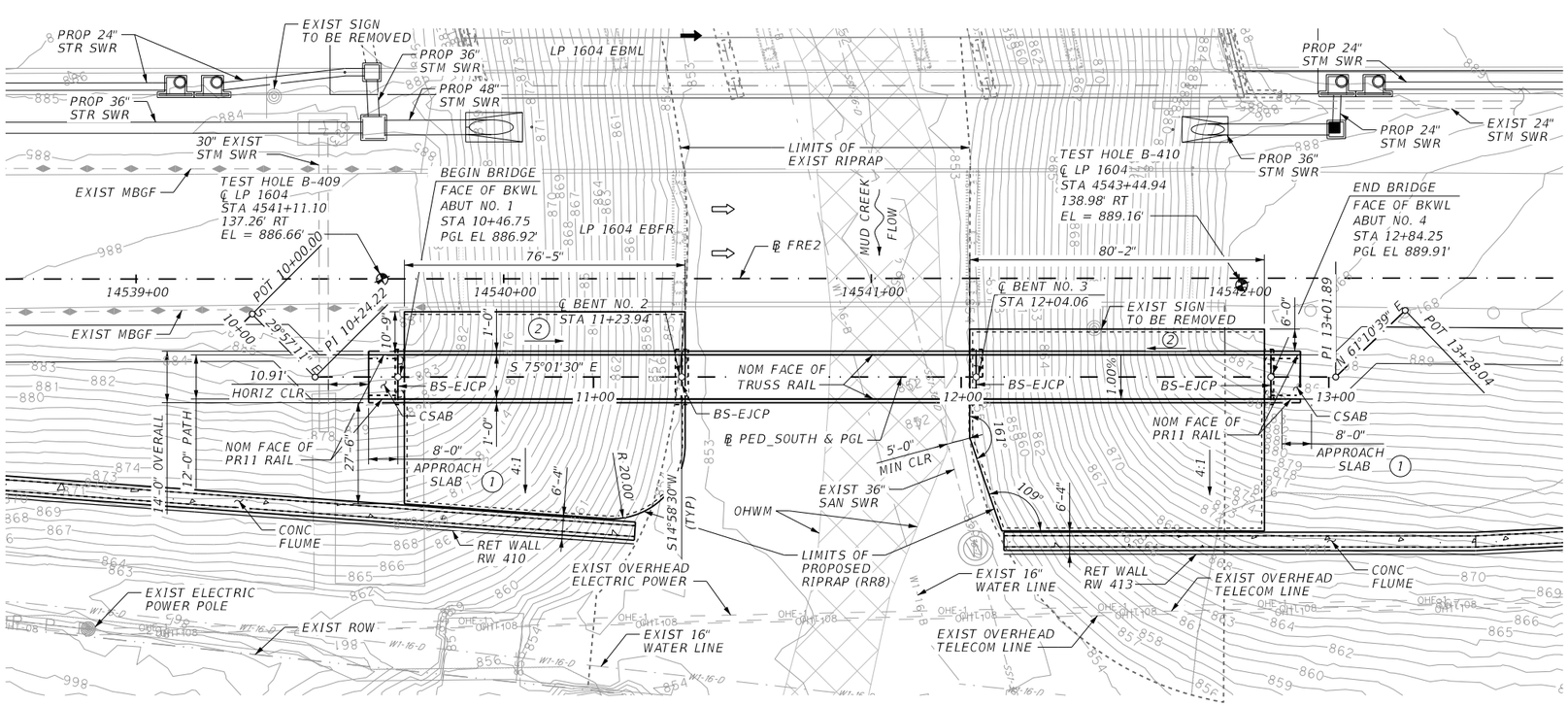
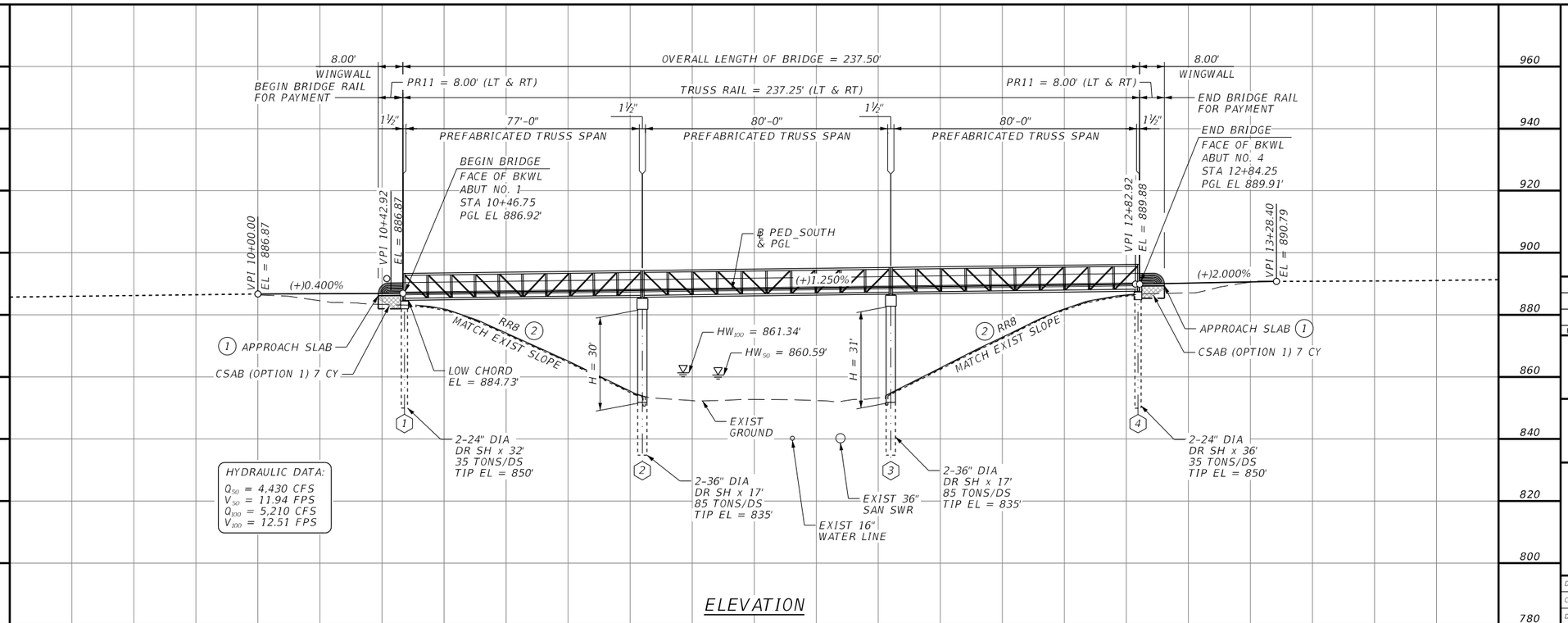


PLAN



ELEVATION

GENERAL NOTES:

DESIGNED ACCORDING TO THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, 2ND EDITION WITH 2015 INTERIM REVISIONS AND TXDOT BRIDGE DESIGN MANUAL (NOV 2021).

PREFABRICATED TRUSS SPANS MUST MEET REQUIREMENTS IN SS4196, "PREFABRICATED PEDESTRIAN STEEL TRUSS BRIDGE SPAN."

TRUSS TYPE AND HEIGHT SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY, ACTUAL TYPE AND SIZE MAY VARY.

FOR BRIDGE TYPICAL SECTION, SEE BRIDGE TYPICAL SECTION SHEET.

THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS. CONTRACTOR IS RESPONSIBLE FOR CALCULATING ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

◆ – DENOTES SOIL BORING LOCATION, SEE BORING LOG SHEETS.

APPROXIMATE UTILITY LOCATIONS SHOWN IN THE ELEVATION VIEW. REFER TO UTILITY LAYOUTS FOR ACTUAL LOCATIONS.

LEGEND:

WOUS

(1) FOR APPROACH SLAB DETAILS SEE ABUTMENT DETAIL SHEETS.

(2) REMOVE AND REPLACE EXISTING CONCRETE RIPRAP AS REQUIRED TO CONSTRUCT BRIDGE.

FOUNDATION NOTES:

THE CONTRACTOR SHALL HAVE HEAVY DUTY EXCAVATION EQUIPMENT FOR THIS PROJECT. VERY HARD LIMESTONE WILL BE ENCOUNTERED FOR MOST DRILLING ACTIVITES.

THE CONTRACTOR SHALL BE PREPARED FOR TEMPORARY CASING AND/OR SLURRY CONSTRUCTION METHOD FOR THE INSTALLATION OF DRILLED SHAFTS WHERE GROUNDWATER IS PRESENT IN THE SAND AND GRAVEL SOILS.

H-10 LOADING

STATE OF TEXAS
LORI NEUWIRTH-HIRSCH
115919
LICENSED
PROFESSIONAL ENGINEER

Lori Neuwirth-Hirsch
02/17/2023

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

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN - F-1386

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LP 1604

BRIDGE LAYOUT

LP 1604 EB PEDESTRIAN BRIDGE AT MUD CREEK

DESIGNED: BN	FED.RD. DIV.NO. 6	STATE TEXAS	PROJECT NO.				HIGHWAY NO. LP1604	
CHECKED: LNH								
DRAWN: PS	STATE DISTRICT SAT	COUNTY BEXAR	CONTROL NO. 2452	SECTION NO. 02	JOB NO. 130, ETC		SHEET NO. 1976	
CHECKED: LNH								

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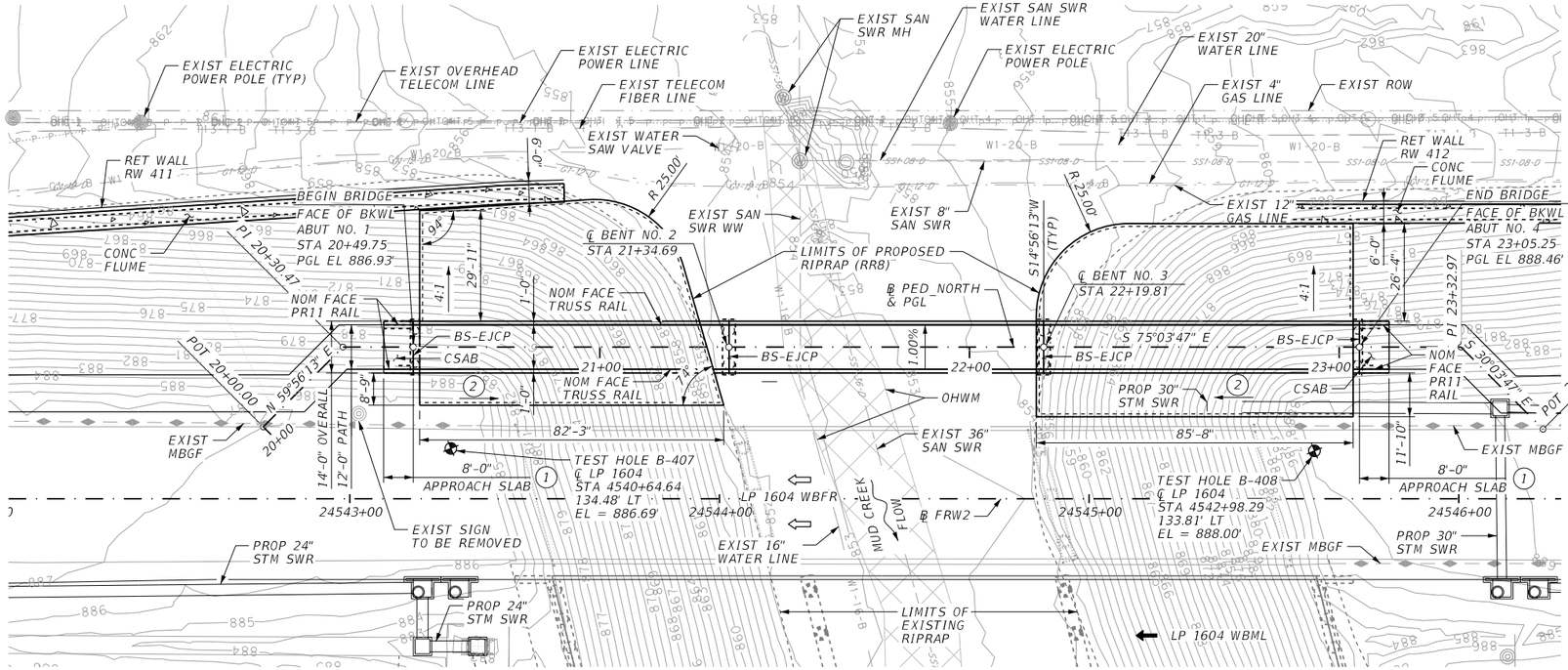

PLAN

GENERAL NOTES:

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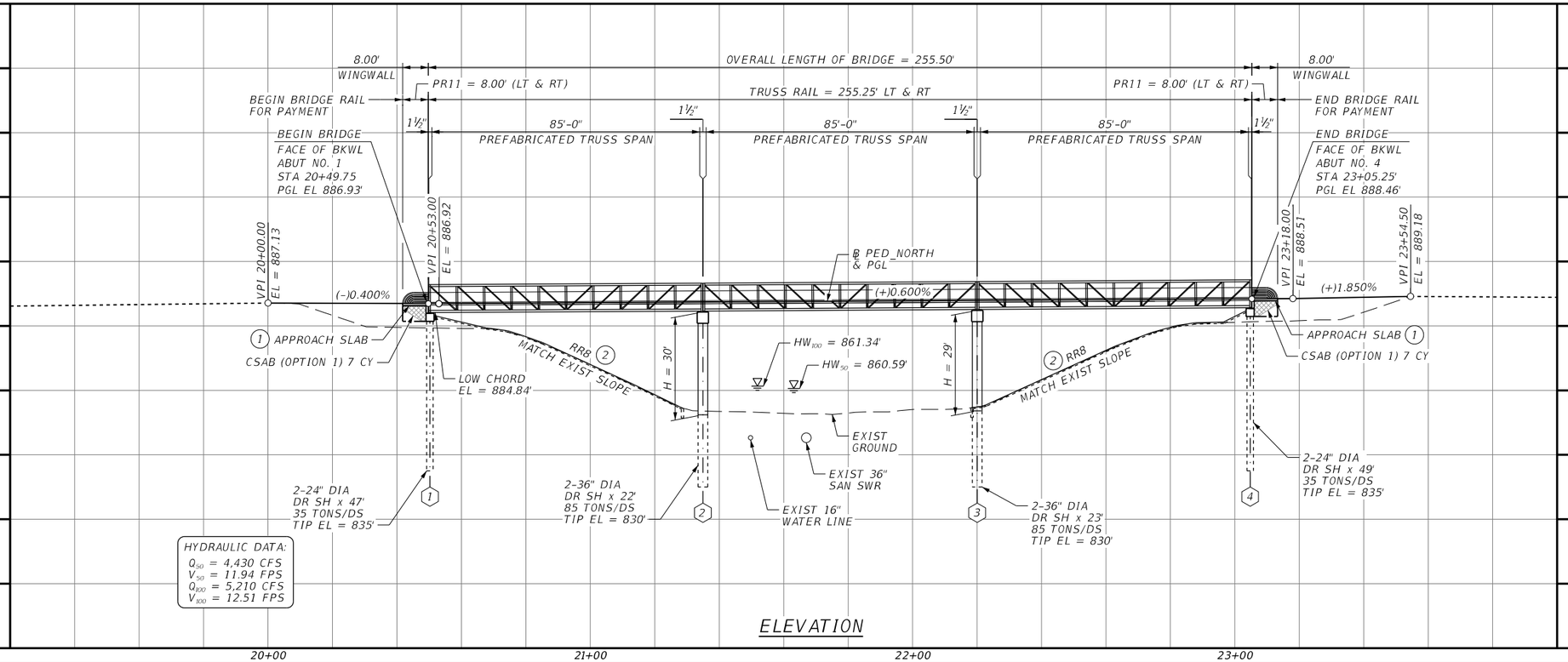
H-10 LOADING



ELEVATION

HYDRAULIC DATA:
Q_{50} = 4,430 CFS
V_{50} = 11.94 FPS
Q_{100} = 5,210 CFS
V_{100} = 12.51 FPS

STATE OF TEXAS
LORI NEUWIRTH-HIRSCH
115919
LICENSED
PROFESSIONAL ENGINEER

Lori Neuwirth-Hirsch
02/17/2023

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

REV. NO.	DATE	DESCRIPTION	BY

LJA Engineering, Inc.
FRN - F-1386

Texas Department of Transportation
©2023

LP 1604

BRIDGE LAYOUT

LP 1604 WB PEDESTRIAN BRIDGE AT MUD CREEK

DESIGNED: BN	FED.RD. DIV.NO.	STATE	PROJECT NO.			HIGHWAY NO.
CHECKED: LNH	6	TEXAS				LP1604
DRAWN: PS	STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
CHECKED: LNH	SAT	BEXAR	2452	02	130, ETC	1984

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