

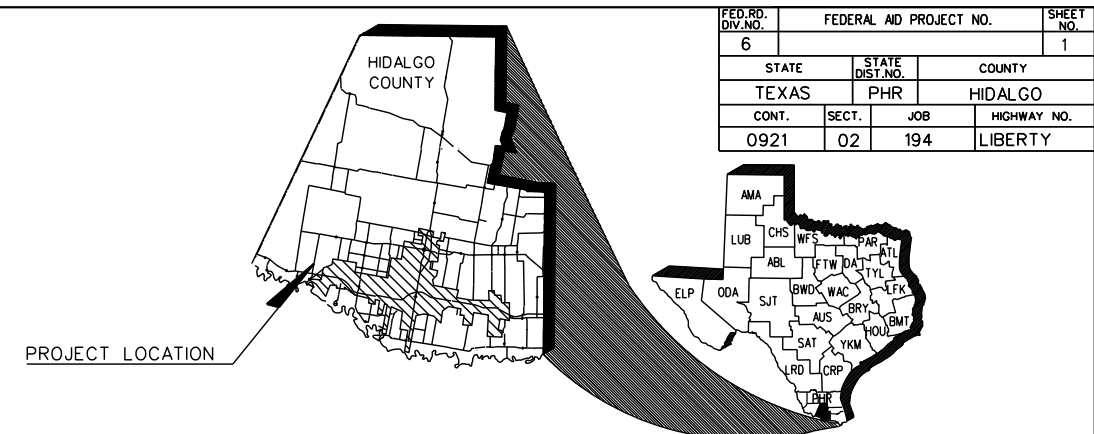
Exhibit B

INDEX DATA
SHEET ON PAGE 2

HIDALGO COUNTY PRECINCT No.3

PLANS OF PROPOSED ROADWAY IMPROVEMENT LIBERTY BLVD

CSJ: 0921-02-194 •
PROJECT LENGTH: 12632.72 FT. • 2.393 MI.
INCIDENTAL LENGTH: 1564.28 FT. • 0.296 MI.
TOTAL LENGTH: 14197 FT. • 2.689 MI.



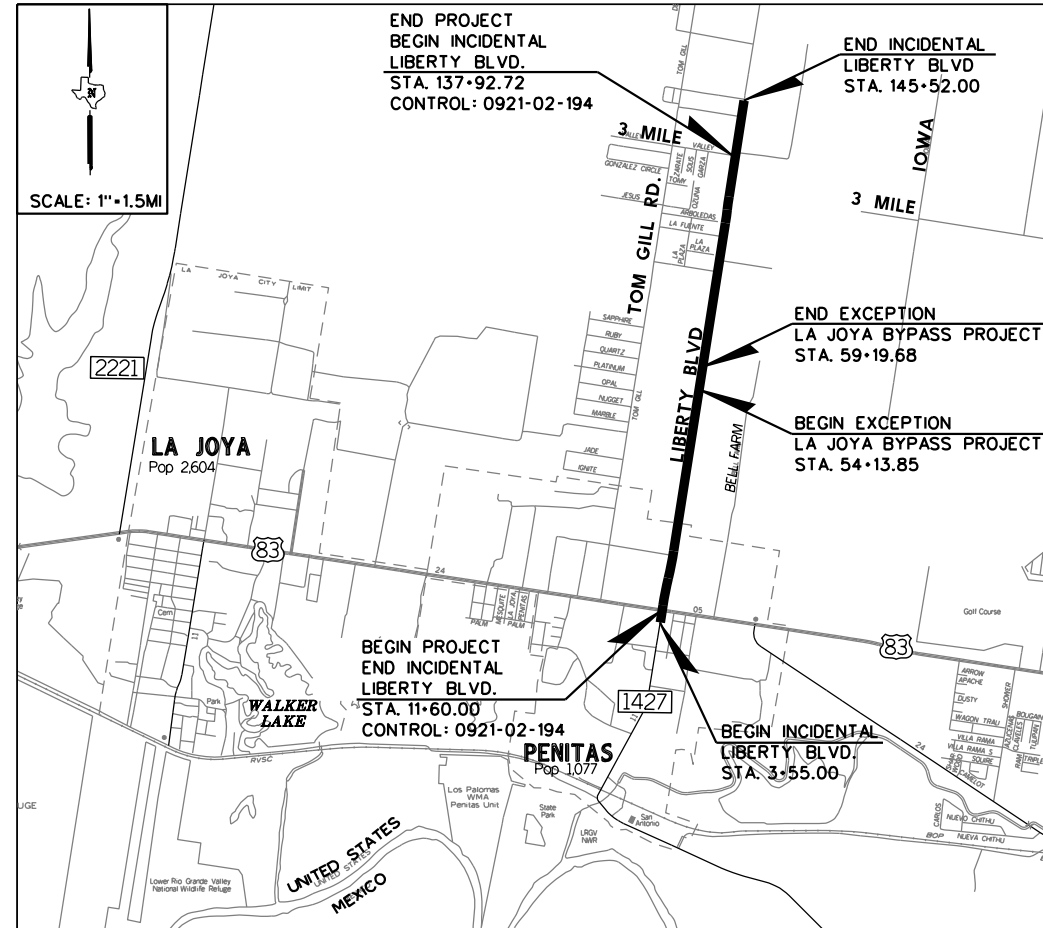
LIBERTY BLVD 0921-02-194

HIDALGO COUNTY COMMISSIONERS COURT

RICHARD F. CORTEZ
DAVID L. FUENTES
EDUARDO "EDDIE" CANTU
JOE M. FLORES
ELLIE TORRES

COUNTY JUDGE
COMMISSIONER PCT. 1
COMMISSIONER PCT. 2
COMMISSIONER PCT. 3
COMMISSIONER PCT. 4

LIMITS: FROM US 83 TO MILE 3 RD.
RECONSTRUCTION AND WIDENING OF A NON-FREEWAY FACILITY
CONSISTING OF GRADING, LIME TREATED SUBGRADE, FLEXIBLE BASE, STRUCTURES
ASPHALTIC CONCRETE PAVEMENT, CURB AND GUTTER, DRAINAGE STRUCTURE,
STORM SEWER, SIGNING, DELINEATION, AND PAVEMENT MARKINGS.



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LIBERTY BLVD PROJECT DATA (CSJ: 0921-02-194)	
DESIGN SPEED: LIBERTY RD.: 55 mph	FUNCTION CLASS: LIBERTY RD.: MAJOR COLLECTOR
EXCEPTIONS: STA. 54+13.85 TO STA. 59+19.68	BRIDGE STA. 40+96.66 - STA. 41+31.66
RAILROAD CROSSINGS: NONE	ADT LIBERTY BLVD: 6,900 (2016) 10,300 (2036)
EQUATIONS: NONE	

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION ON 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, MAY 2012).

LOCAL ENTITIES	
HIDALGO COUNTY IRRIG. DISTRICT NO. 6 CONCURRENCE :	DATE : <input type="text"/>
NAME <input type="text"/>	TITLE <input type="text"/>
HIDALGO COUNTY IRRIG. DISTRICT NO. 16 CONCURRENCE :	DATE : <input type="text"/>
NAME <input type="text"/>	TITLE <input type="text"/>
HIDALGO CO. DRAINAGE DIST. NO. 1 CONCURRENCE :	DATE : <input type="text"/>
NAME <input type="text"/>	TITLE <input type="text"/>

L&G Engineering Highway / Civil Structural / Bridge Environmental Firm No. : F-4105	2100 W. Expressway 83 Mercedes, TX. 78570 Phone : (956) 585-9813 Fax : (956) 585-9018
	900 S. Stewart Rd., Ste. 10 Mission, TX. 78572 Phone : (956) 585-1909 Fax : (956) 585-1927
NAME <input type="text"/>	TITLE <input type="text"/>
DATE : <input type="text"/>	<input type="text"/>

© 2020 Texas Department of Transportation	
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DATE : <input type="text"/>	<input type="text"/>

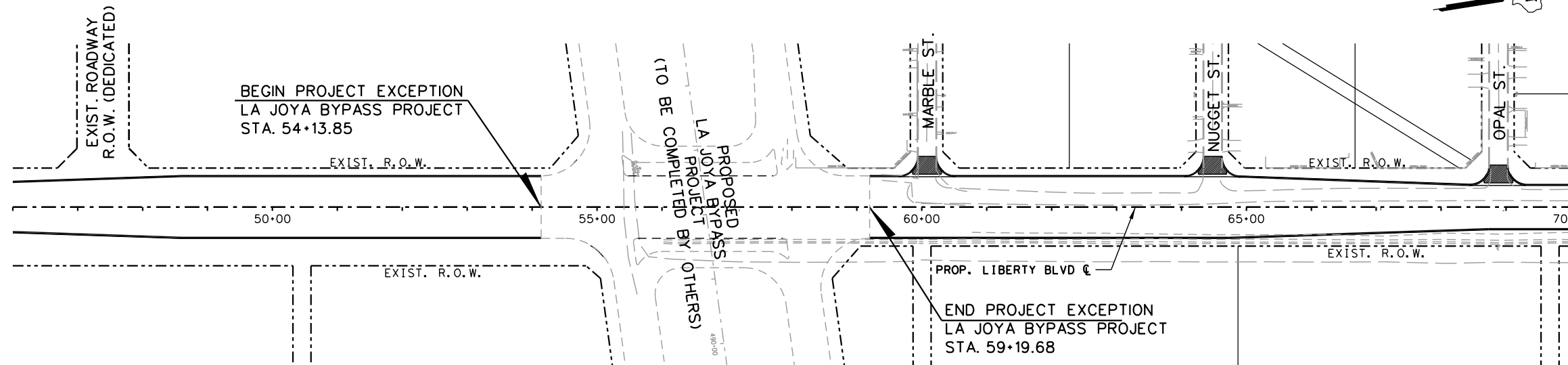
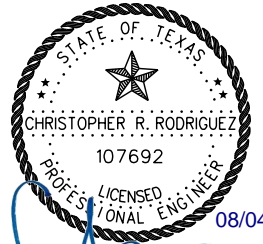
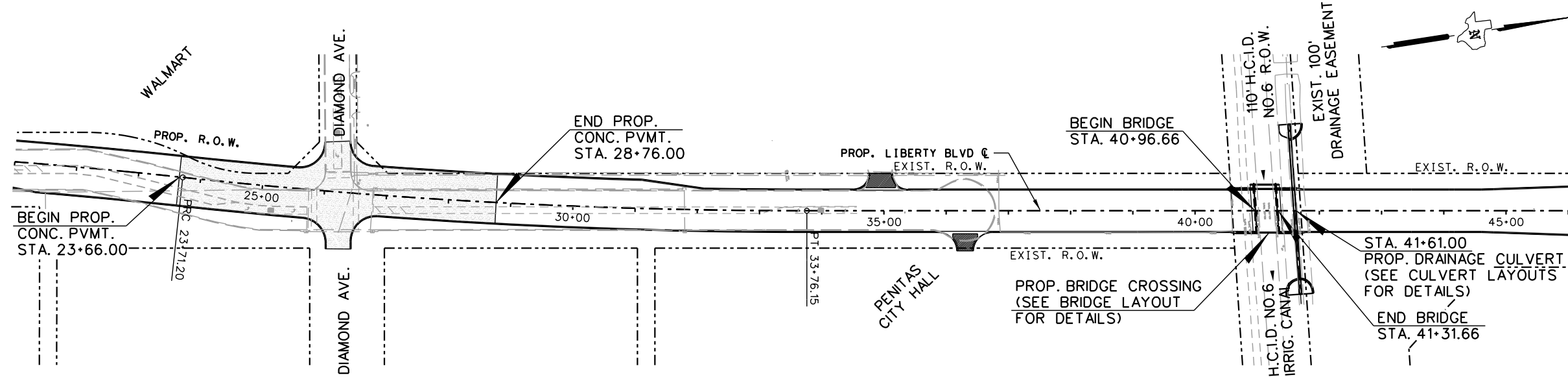
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	TITLE <input type="text"/>
	DATE : <input type="text"/>

THE COUNTY OF HIDALGO TEXAS	NAME <input type="text"/>
	TITLE <input type="text"/>
	DATE : <input type="text"/>

REGISTERED ACCESSIBILITY SPECIALIST (RAS) INSPECTION REQUIRED TDLR NO. _____

BEGIN INCIDENTAL
LIBERTY BLVD
STA. 3+55.00

BEGIN PROJECT
END INCIDENTAL
LIBERTY BLVD
CSJ: 0921-02-194
STA. 11+60.00



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Structural / Bridge
Environmental
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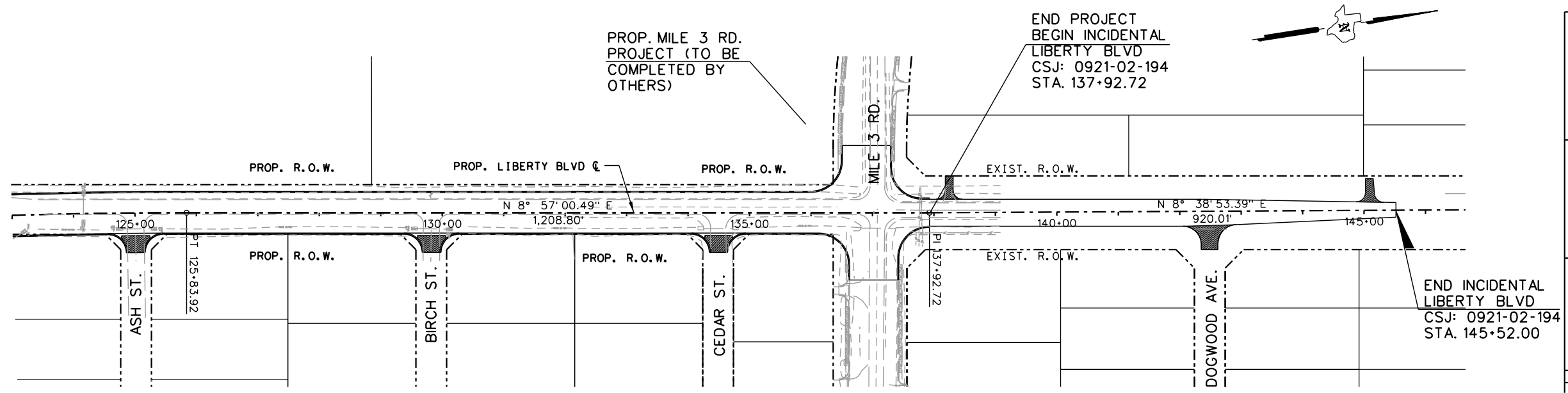
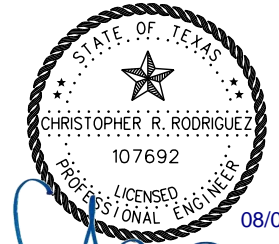
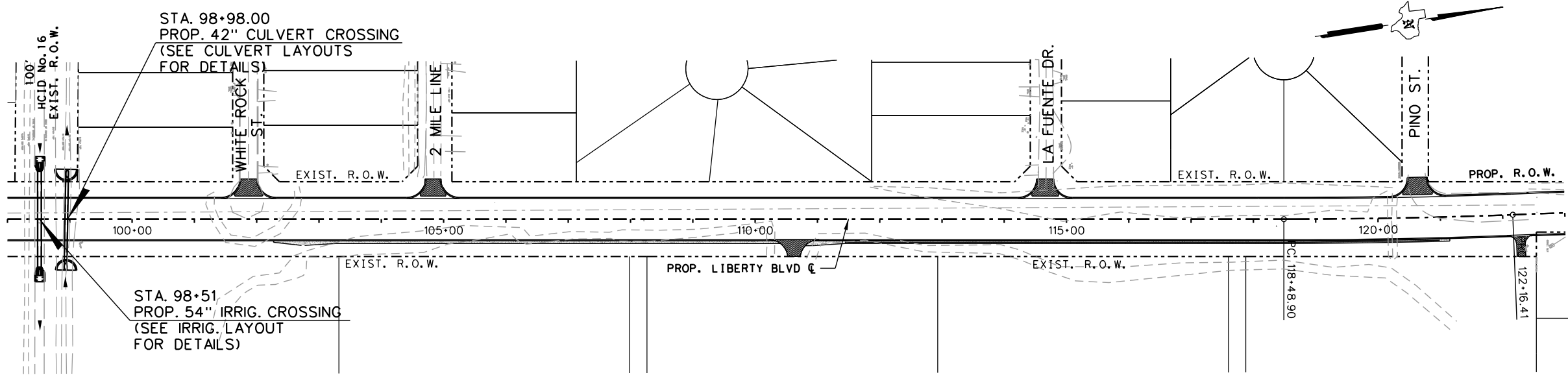
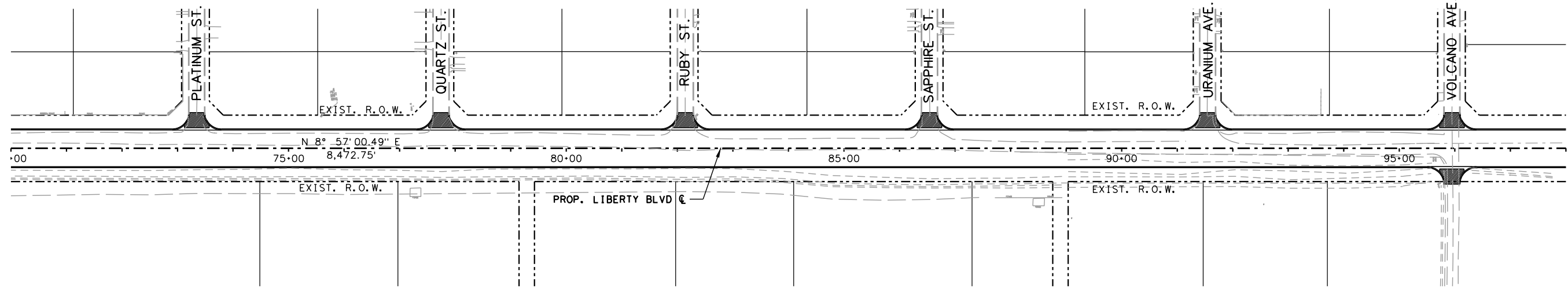
900 S. Stewart Rd., Ste. 10
Mission, TX, 78572
Phone : (956) 585-1909
Fax : (956) 585-1927

**LIBERTY BLVD
PROJECT LAYOUT**

SCALE 1" = 200' SHEET 1 OF 2

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		3
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	SECTION NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				JOB NO.:
CK TR:				194
				HIGHWAY NO.:
				LIBERTY

P:\Clients\Firms\L&G\Liberty Rd (US83 to Mile 3)\01 GENERAL\03 Proj\Layout\Liberty_Playout1.dgn 8/4/2020



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**LIBERTY BLVD
 PROJECT LAYOUT**

SCALE 1" = 200' SHEET 2 OF 2

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		4
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	SECTION NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				JOB NO.:
CK TR:				194
				HIGHWAY NO.:
				LIBERTY

8/4/2020 P:\Clients\Firms\L&G\Liberty Rd (US83 to Mile 3)\01 GENERAL\03 Proj\Layout\Liberty_Playout02.dgn

GENERAL NOTES:
 WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS, THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE TOP 4 INCHES (MIN.) OF THE PROP. FLEXBASE SHALL BE NEW MATERIAL.

WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTR. JOINTS SHALL FALL ON STRIPING LINES AS SHOWN ON STRIPING DETAILS.

ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS.

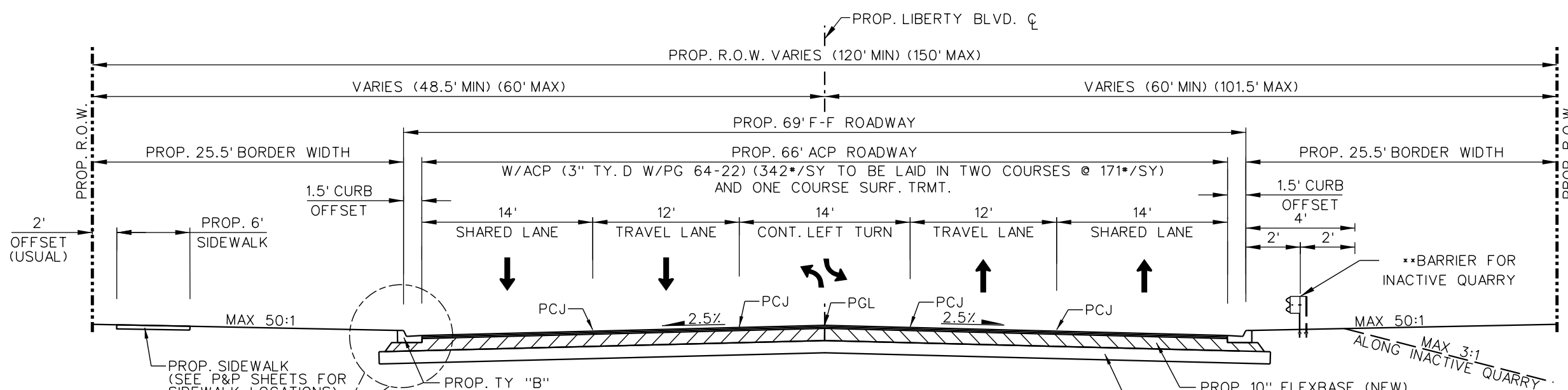
114#/SY OF ACP IS EQUIVALENT TO 1" DEPTH OF ACP.

PGL - DENOTES PROFILE GRADE LINE

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

A STATION IS EQUIVALENT TO 100 FT.

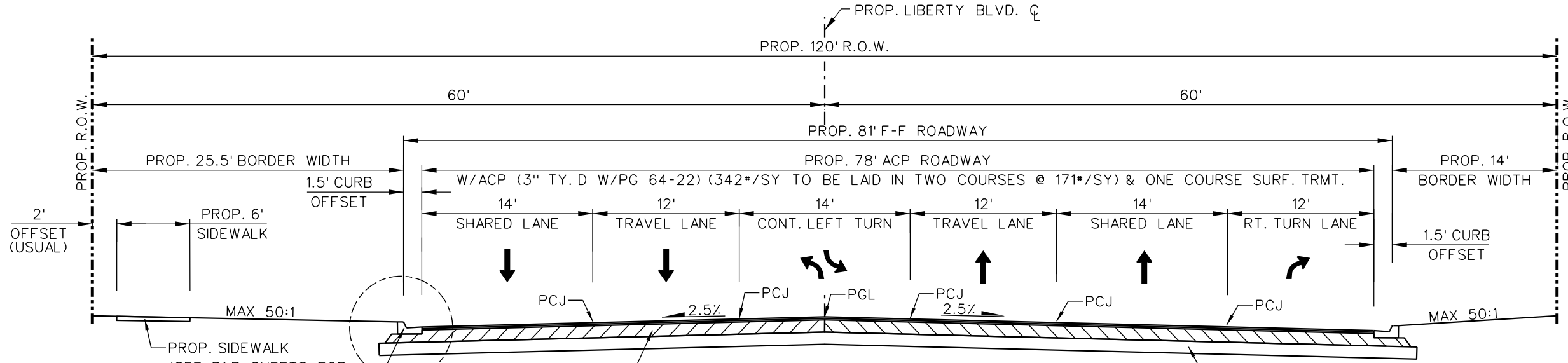
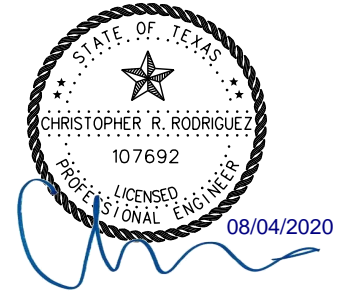
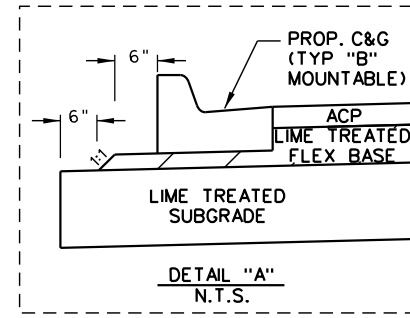
LIMITS OF BARRIER
 STA. 100+00.00 TO STA. 121+50.00



PROP. LIBERTY BLVD. TYPICAL SECTION

- STA. 11+60.00 TO STA. 20+37.00
- STA. 20+37.00 TO STA. 21+38.00 (TRANSITION 69' F-F TO 81' F-F RDWY)
- STA. 32+10.00 TO STA. 40+96.66
- STA. 40+96.66 TO STA. 41+31.66 (PROP. BRIDGE LAYOUT)
- STA. 41+31.66 TO STA. 44+61.00
- STA. 44+61.00 TO STA. 48+61.00 (TRANSITION 69' F-F TO 96' F-F RDWY)
- STA. 68+73.00 TO STA. 136+12.00
- STA. 136+12.00 TO STA. 137+92.72 (TRANSITION 69' F-F TO 44' F-F RDWY)

- PROP. 10" FLEXBASE (NEW) (EST. 213.89 CY/STA) W/ 2% LIME ADMIX BY WT. (EST. 7.22 TONS/STA)
- PROP. 12" LIME TREATED SUBGRADE (EST. 811.11 SY/STA) W/ 4% LIME ADMIX BY WT. (EST. 16.06 TONS/STA)



PROP. LIBERTY BLVD. TYPICAL SECTION

- STA. 21+38.00 TO STA. 23+66.00
- STA. 28+76.00 TO STA. 31+10.00
- STA. 31+10.00 TO STA. 32+10.00 (TRANSITION 81' F-F TO 69' F-F RDWY)

- PROP. 12" LIME TREATED SUBGRADE (EST. 944.44 SY/STA) W/ 4% LIME ADMIX BY WT. (EST. 18.70 TONS/STA)



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 Fax : (956) 585-1927

**LIBERTY BLVD
 PROPOSED TYPICAL SECTIONS**

NTS SHEET 1 OF 3

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		9
DW:				
CK DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	SECTION NO.:
TR:	PHR	HIDALGO	0921	02
CK TR:				JOB NO.:
				194
				HIGHWAY NO.:
				LIBERTY

8/4/2020 P:\Clients\Firms\L&G\Liberty Rd US83 to Me 31\01 GENERAL\04 Typical Sections\LIBERTY_PROP TYP SECT.dgn

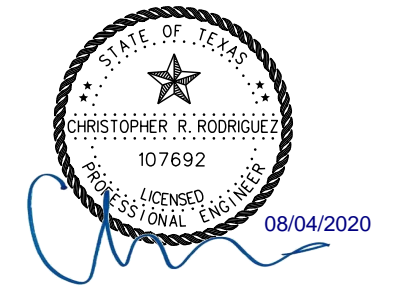
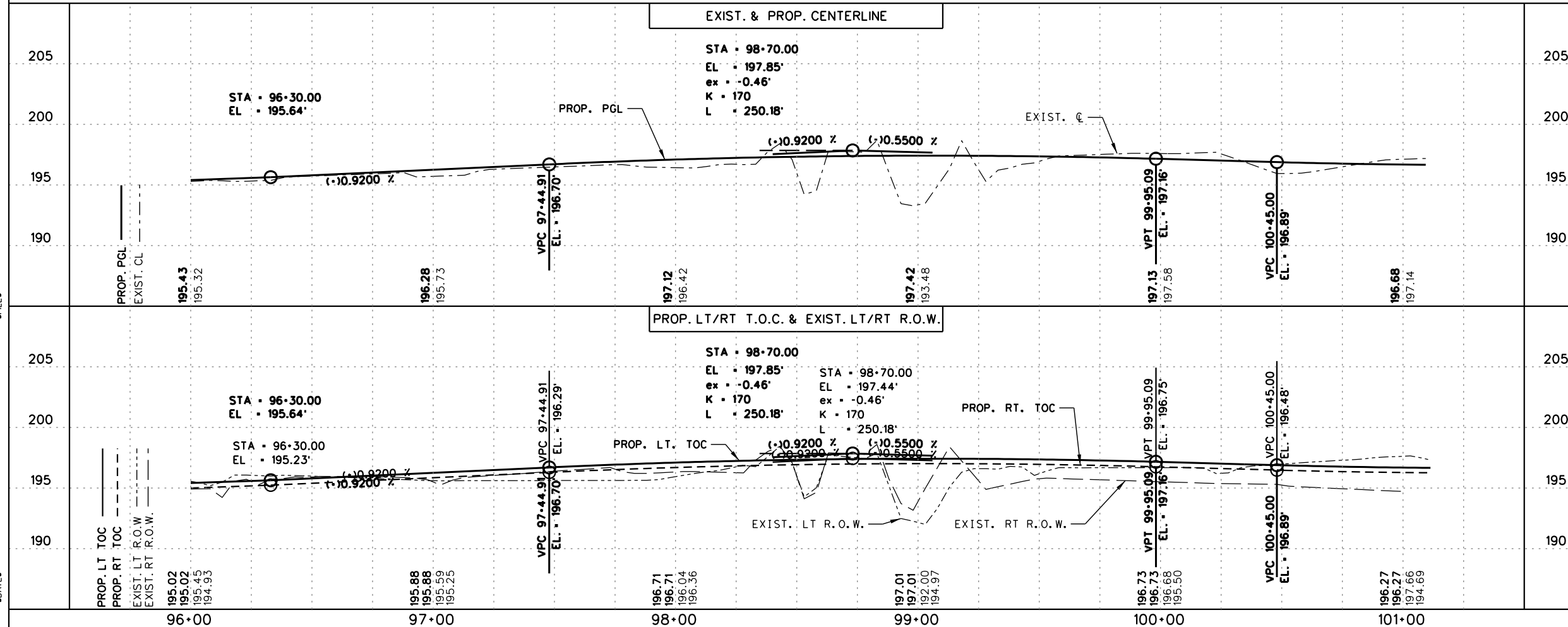
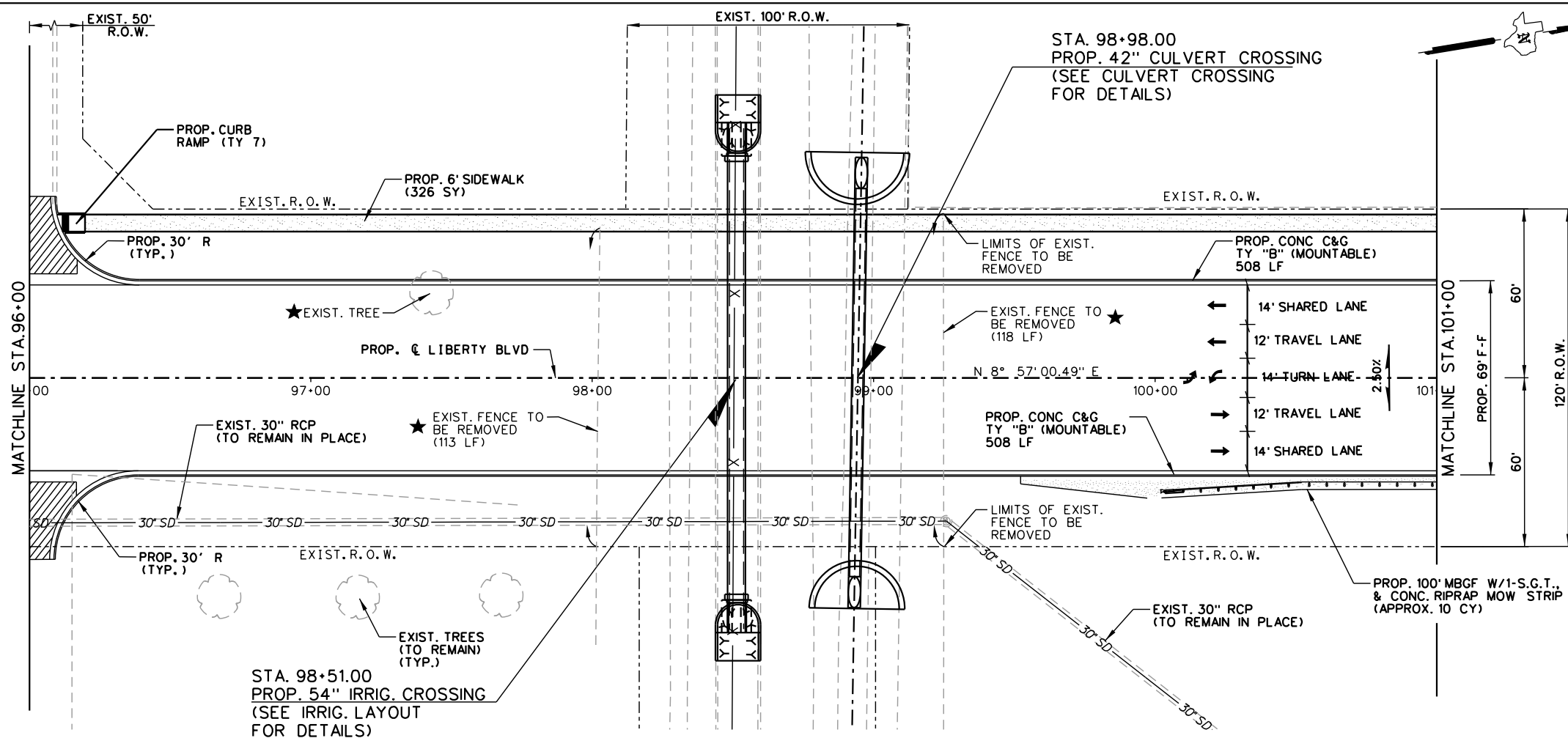
SHEET SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY
529	CONC CURB & GUTTER (TY-B) (MOUNTABLE)	LF	1016
531	CONCRETE SIDEWALKS	SY	326
531	CURB RAMPS (TY 7)	EA	1
432	RIPRAP (MOW STRIP)(4")	CY	10
540	METAL BEAM GUARD FENCE	LF	100
544	GUARDRAIL END TRTMT (INSTALL)	EA	1

LEGEND:

- PROPOSED DRIVEWAY OR TURNOUT (SEE DRIVEWAY/TURNOUT TABLE FOR QUANTITIES & PIPE QUANTITIES)
- PROPOSED PLANNING (0-1 1/2")
- PROPOSED WIDENING
- PROPOSED OVERLAY
- EXIST ROAD TO BE REMOVED (ITEM 110)
- DIRECTION OF TRAFFIC
- TO BE REMOVED UNDER ITEM 496 INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES
- REMOVAL, RELOCATION AND INSTALLATION OF MAILBOXES ITEM 560
- TO BE REMOVED UNDER ITEM 100 "PREP. ROW"
- DITCH

- NOTES:
- SEE ALIGNMENT DATA SHEET FOR PROP. & EXIST. CENTERLINE DATA.
 - SEE SURVEY DATA SHEETS FOR BM STATIONS, OFFSET, ELEV, ETC.
 - FOR DRAINAGE & UTILITIES INFORMATION SEE U&D'S SHEETS



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LIBERTY BLVD
 PLAN AND PROFILE
 STA. 96+00 TO STA. 101+00

SCALE:
 HOR: 1" = 50'
 VER: 1" = 10'

SHEET 19 OF 28

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		91
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	JOB NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				194
CK TR:				LIBERTY

SHEET SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY
400	STRUCT EXCAVATION (NON-PAY)	CY	50
400	STRUCT EXCAVATION (SPL)	CY	-
400	SAND BACKFILL	CY	21
400	CUT & RESTORE	SY	-
402	TRENCH EXCAVATION PROT.	LF	66
464	18" RCP SEWER (CL III)(SPL)	LF	66

SEE STORM DRAINAGE TABLE FOR PROPOSED DRAINAGE INLET STRUCTURE INFORMATION

LEGEND

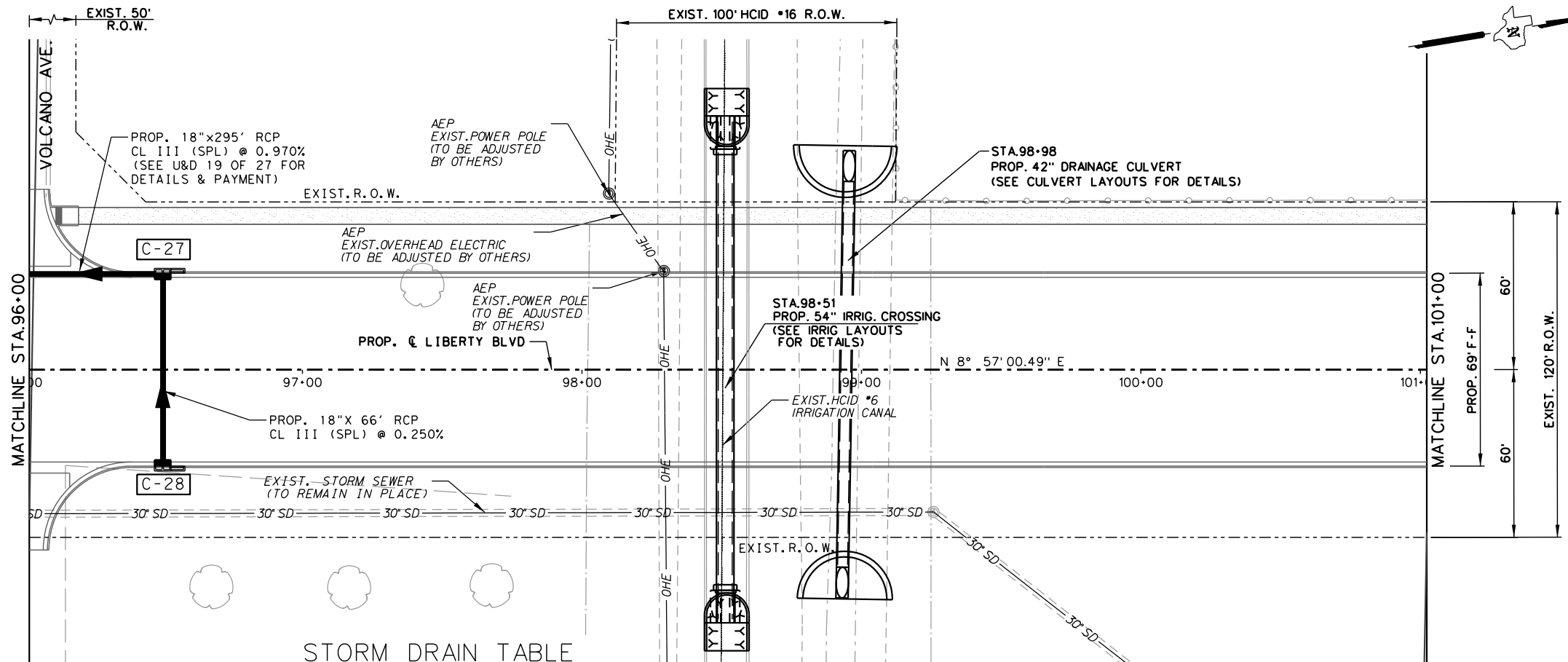
- SEE P&P SHEETS FOR DETAILS
- TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
- DIRECTION OF PROPOSED DITCH
- LIMITS OF PROP. CUT & RESTORE (ITEM 400)
- NON-PAY, SUBSIDIARY TO PERTINENT ITEMS

NOTES:
SEE ALIGNMENT DATA SHEET FOR PROPOSED CENTERLINE DATA.

ALL RCP SHALL BE CL III(SPL) UNLESS OTHERWISE NOTED.

SEE HYD. DATA SHEETS FOR HYDRAULIC GRADE LINE (H.G.L.) ELEVATIONS

THE CONTRACTOR SHALL CONFIRM THAT CONFLICTS WITH EXISTING UTILITIES HAVE BEEN RESOLVED IN ADVANCE OF CONSTRUCTION. DAMAGES CAUSED BY OR TO EXISTING UTILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

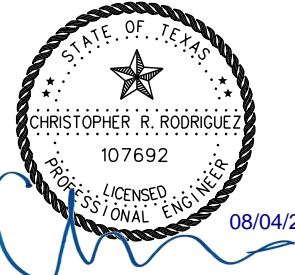
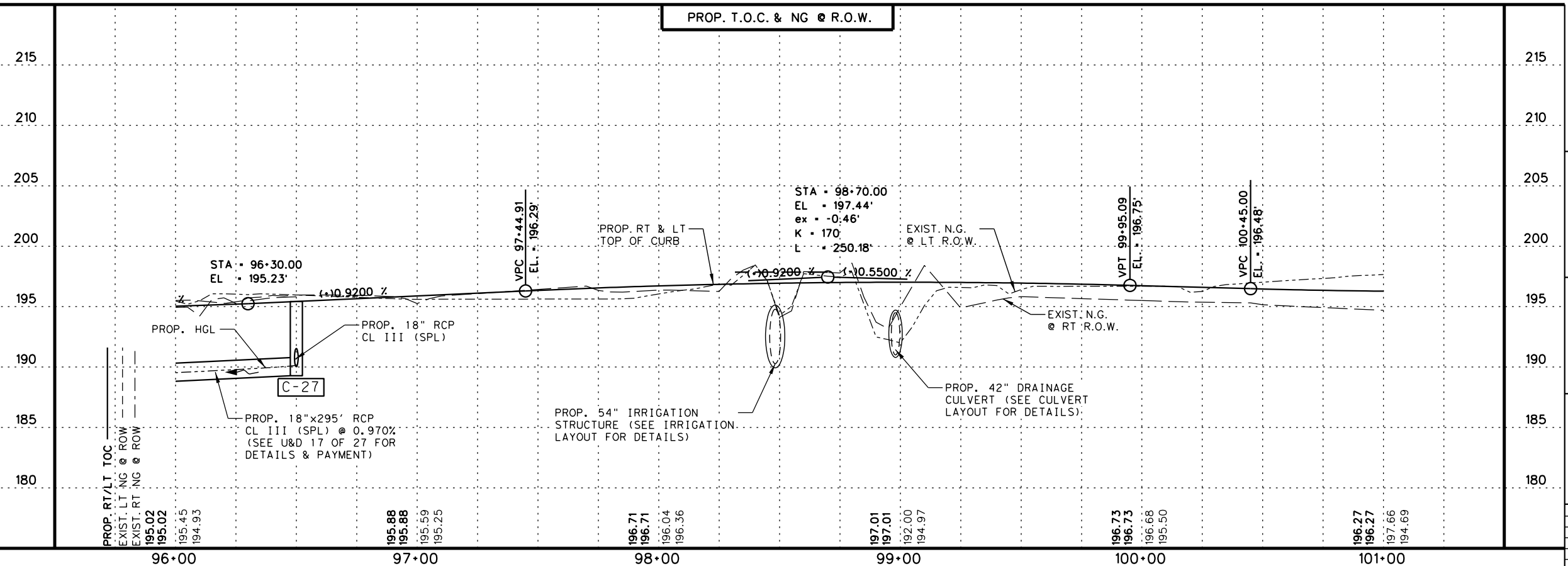


STORM DRAIN TABLE

STRUCTURE ID	DESCRIPTION	STATION / OFFSET TO FACE OF CURB	TOP OF STR. ELEVATION	PROP. FL. OF STRUCTURE	PROP. FL. OF PIPE (NORTH)	PROP. FL. OF PIPE (SOUTH)	PROP. FL. OF PIPE (EAST)	PROP. FL. OF PIPE (WEST)
C-27	PCU10R-3x5	96+50.00-34.50	195.42	189.30		189.30	190.03	
C-28	PCU10L-3x5	96+50.00-34.50	195.42	190.20				190.20

UTILITIES LEGEND

AEP	AMERICAN ELECTRIC POWER
AT&T	AMERICAN TELEPHONE & TELEGRAPH
TGS	TEXAS GAS SERVICE
HILCORP	HILCORP ENERGY COMPANY
ENTERPRISE	ENTERPRISE PRODUCTS
UNITED	UNITED IRRIGATION DISTRICT
HCID#6	HIDALGO COUNTY IRRIGATION DISTRICT No 6



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LIBERTY BLVD
 UTILITY AND DRAINAGE
 STA. 96+00 TO STA. 101+00

SCALE:
 HOR: 1" = 50'
 VER: 1" = 10'

SHEET 18 OF 27

DN:	FED. NO. / DIV. NO.	STATE	PROJECT NO.	SHEET NO.		
CK DN:	6	TEXAS		161		
CK DW:	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	HIGHWAY NO.
TR:	PHR	HIDALGO	0921	02	194	LIBERTY
CK TR:						

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 8/4/2020

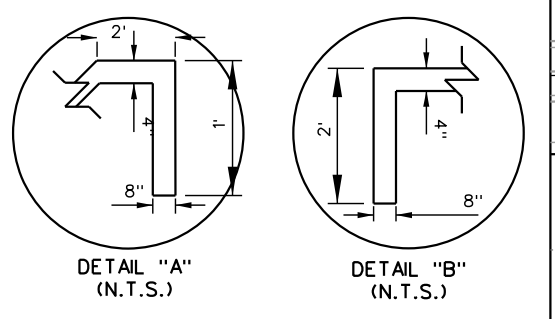
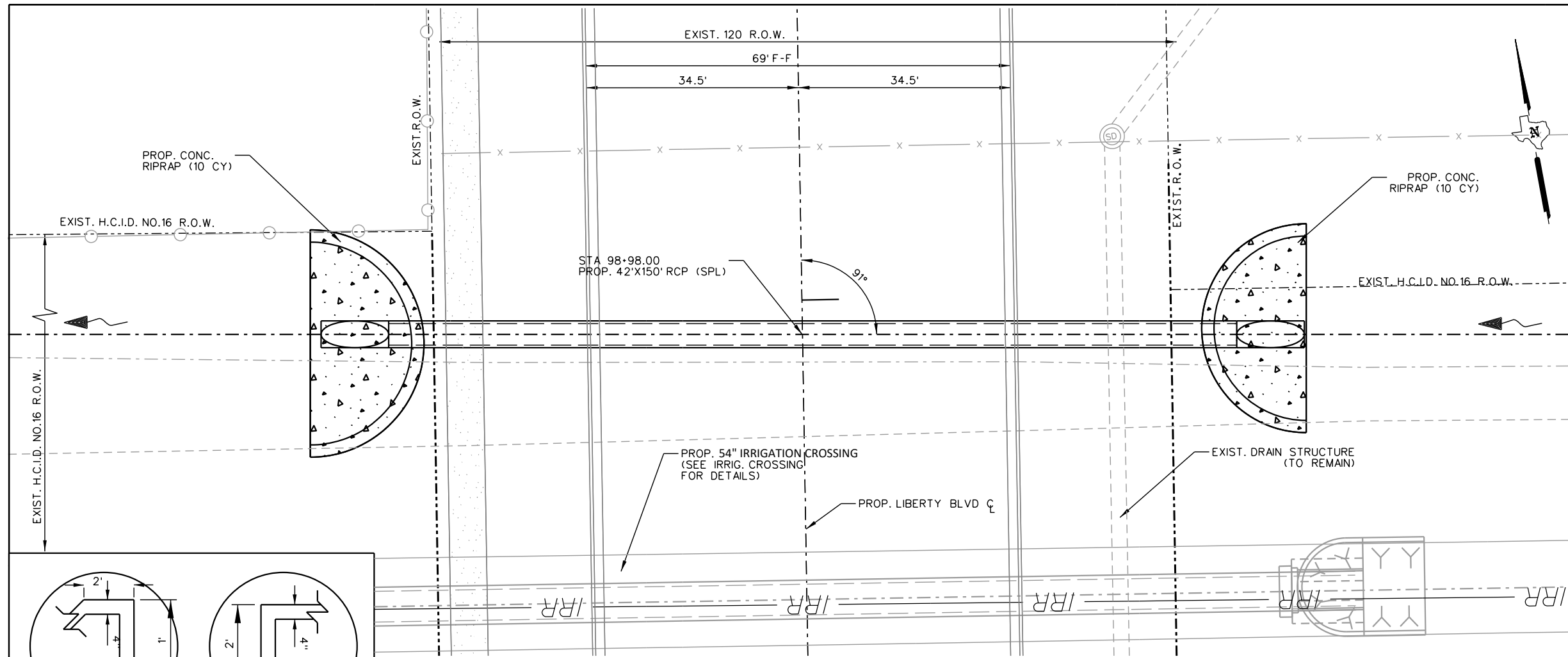
SHEET SUMMARY			
ITEM	DESCRIPTION	UNIT	QUANTITY
132	EMBANKMENT (FINAL)(DC)(TY C)	CY	111
400	STRUCT. EXCAVATION (NON-PAY)	-	-
400	STRUCT. EXCAVATION (SPL)	CY	28
400	SAND BACKFILL	CY	77
432	RIPRAP (CONC.) (4")	CY	20
464	RC PIPE (CL III) (42 IN)	LF	140

* FOR CONTRACTORS INFORMATION ONLY

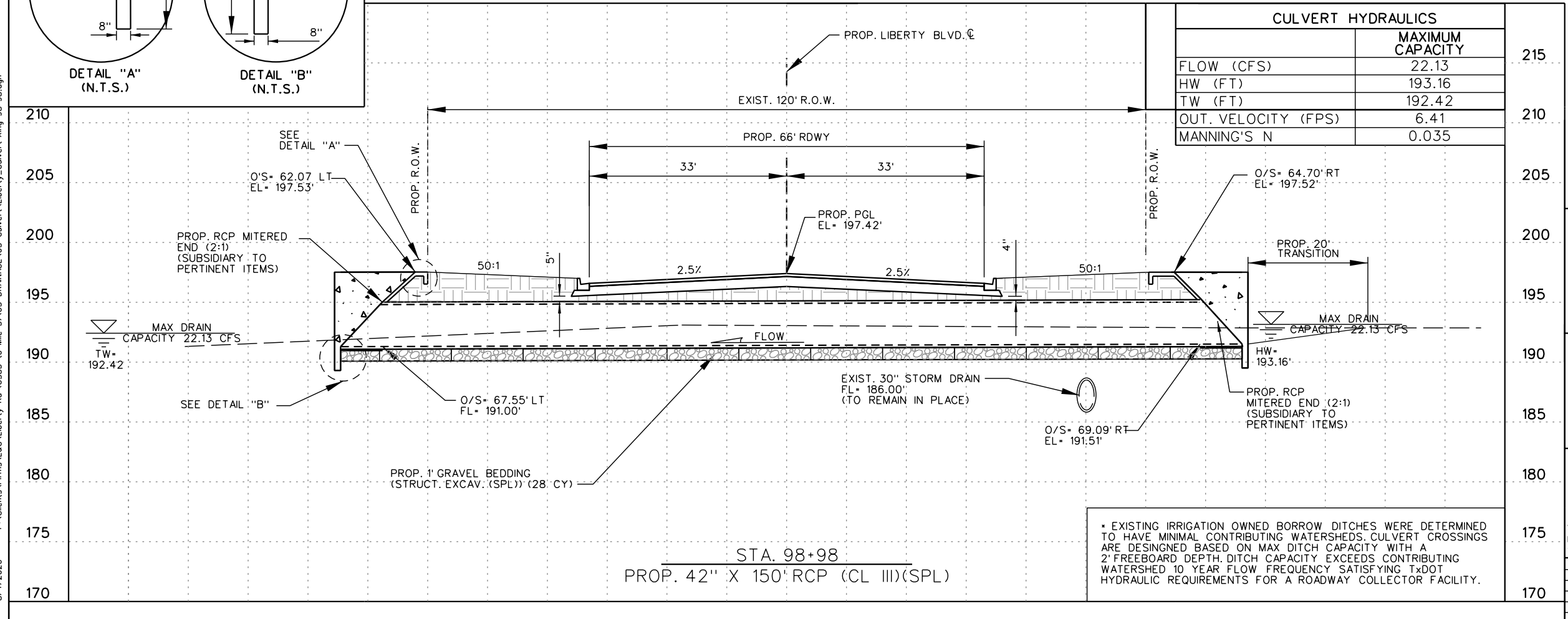
LEGEND

- SEE P&P SHEETS FOR DETAILS
- ⊗ NON-PAY, SUBSIDIARY TO PERTINENT BID ITEMS.
- ⊕ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
- ⊙ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
- ▨ PROPOSED DRIVEWAY OR TURNOUT (SEE DRIVEWAY/ TURNOUT TABLE FOR QUANTITIES AND DETAILS)

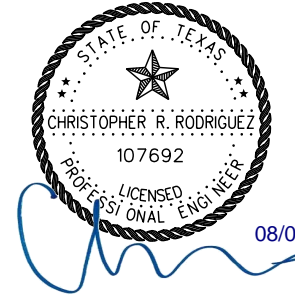
- NOTE:
- THE CONTRACTOR WILL COORDINATE WITH HIDALGO COUNTY IRRIG DISTRICT *16. 72 HOURS PRIOR TO ANY WORK DONE ON OR NEAR THE IRRIGATION STRUCTURES.
 - PRIOR TO WORKING OUTSIDE THE ROW THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER. CAUTION SHALL BE TAKEN NOT TO DAMAGE EXISTING FENCES, TREES, ETC. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS WHEN WORKING OUTSIDE THE ROW. ANY DAMAGES DONE TO THEIR PROPERTY SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
 - THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO CONSTRUCTION.
 - ALL PVC ELBOWS, AND CONNECTIONS SHALL BE SUBSIDIARY TO PERTINENT BID ITEMS.
 - SEE ALIGNMENT DATA SHEET FOR PROPOSED CENTERLINE DATA.



CULVERT HYDRAULICS		
	MAXIMUM CAPACITY	
FLOW (CFS)	22.13	215
HW (FT)	193.16	
TW (FT)	192.42	210
OUT. VELOCITY (FPS)	6.41	
MANNING'S N	0.035	



* EXISTING IRRIGATION OWNED BORROW DITCHES WERE DETERMINED TO HAVE MINIMAL CONTRIBUTING WATERSHEDS. CULVERT CROSSINGS ARE DESIGNED BASED ON MAX DITCH CAPACITY EXCEEDS CONTRIBUTING WATERSHED 10 YEAR FLOW FREQUENCY SATISFYING TxDOT HYDRAULIC REQUIREMENTS FOR A ROADWAY COLLECTOR FACILITY.



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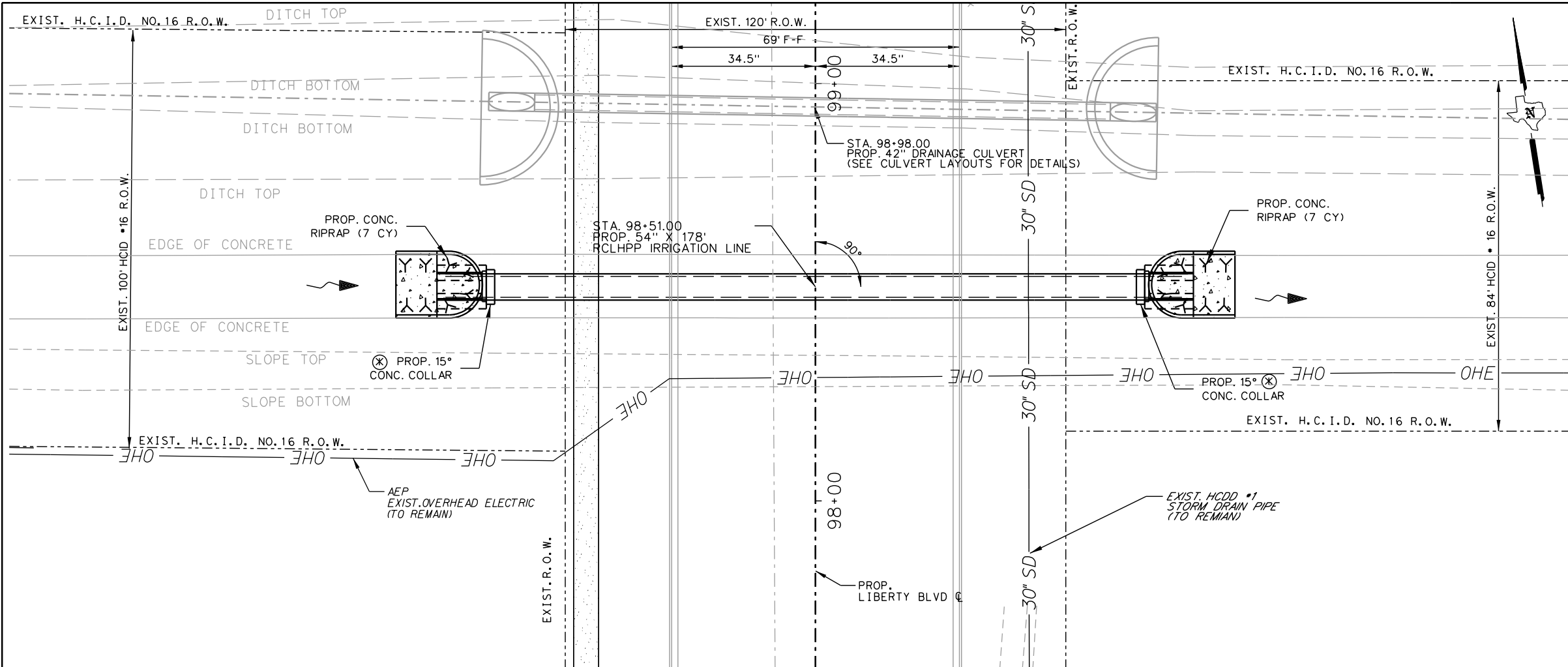
**LIBERTY BLVD
 CULVERT CROSSING
 STA 98+98**

SCALE:
 HOR: 1" = 20'
 VER: 1" = 10'

SHEET 2 OF 2

DN:	FED. NO. 6	STATE TEXAS	PROJECT NO. 0921	SHEET NO. 175
CK DN:				
DW:				
CK DW:	STATE DIST. NO. PHR	COUNTY HIDALGO	CONTROL NO. 02	SECTION NO. 02
TR:				JOB NO. 194
CK TR:				HIGHWAY NO. LIBERTY

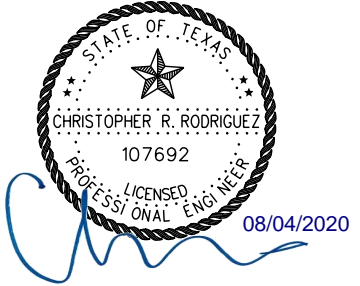
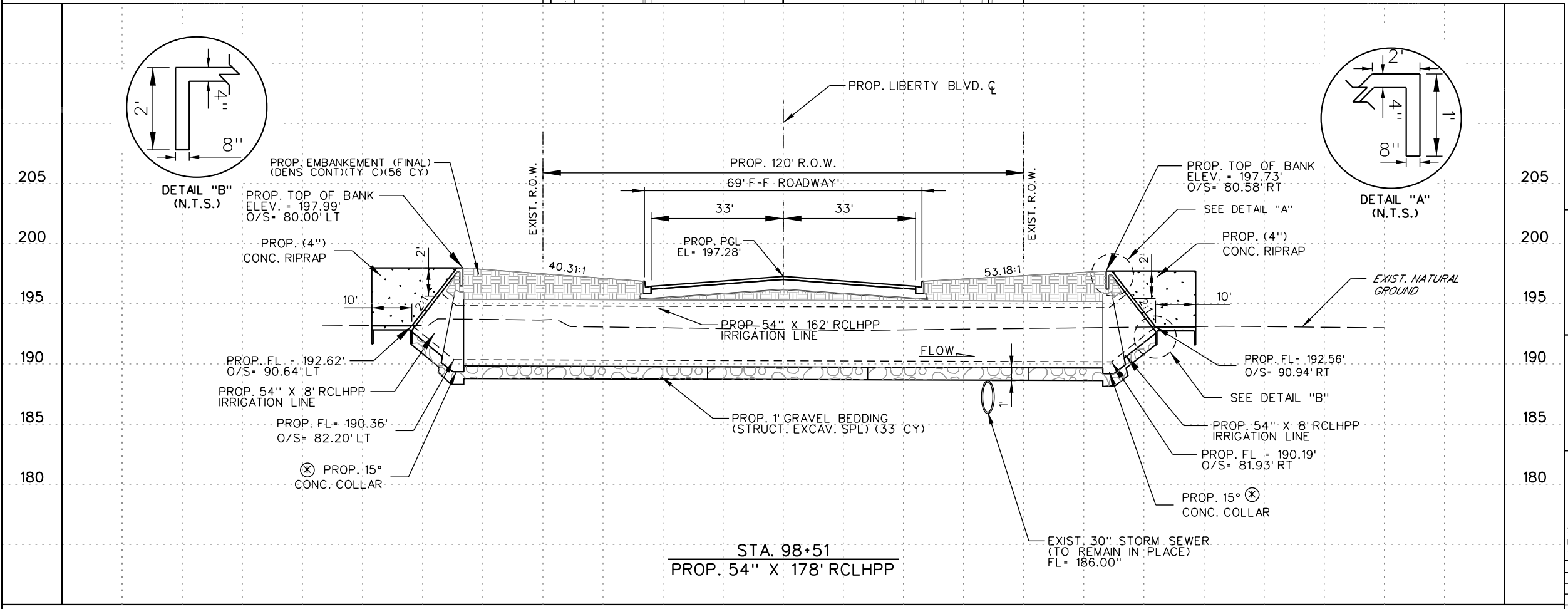
P:\Clients\Firms\L&G\Liberty Rd US83 to Mile 3\1\05 DRAINAGE\05 Culvert\Liberty_Culvert_Xing 98+98.dgn



SHEET SUMMARY			
ITEM	DESCRIPTION	UNIT	QUANTITY
104	REMOVING CONC. (RIPRAP)	SY	490
132	EMBANKMENT (FINAL)(DC)(TY C)	CY	56
400	STRUCT. EXCAVATION (NON-PAY)	CY	809
400	STRUCT. EXCAVATION (SPL)	CY	33
400	SAND BACKFILL	CY	275
402	TRENCH EXCAV. PROTECTION	LF	178
4.32	RIPRAP (CONC.) (4")	CY	14
4024	RCLHPP CLIII (54")	LF	178

- LEGEND**
- SEE P&P SHEETS FOR DETAILS
 - ⊗ NON-PAY, SUBSIDIARY TO PERTINENT BID ITEMS.
 - ⊕ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
 - ⊙ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
 - ▨ LIMITS OF PROP. CUT & RESTORE (ITEM 400)

- NOTE:**
- THE CONTRACTOR WILL COORDINATE WITH HIDALGO COUNTY IRRIG DISTRICT #16. 72 HOURS PRIOR TO ANY WORK DONE ON OR NEAR THE IRRIGATION STRUCTURES.
 - PRIOR TO WORKING OUTSIDE THE ROW THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER. CAUTION SHALL BE TAKEN NOT TO DAMAGE EXISTING FENCES, TREES, ETC. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS WHEN WORKING OUTSIDE THE ROW. ANY DAMAGES DONE TO THEIR PROPERTY SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
 - THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO CONSTRUCTION.
 - ALL PVC ELBOWS, AND CONNECTIONS SHALL BE SUBSIDIARY TO PERTINENT BID ITEMS.
 - SEE ALIGNMENT DATA SHEET FOR PROPOSED CENTERLINE DATA.



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 Fax : (956) 565-9018

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 Mission, TX, 78572
 Phone : (956) 585-1909
 Fax : (956) 585-1927

**LIBERTY BLVD
 IRRIGATION LAYOUT
 STA. 98+51**

SCALE:
 HOR: 1" = 30'
 VER: 1" = 10'

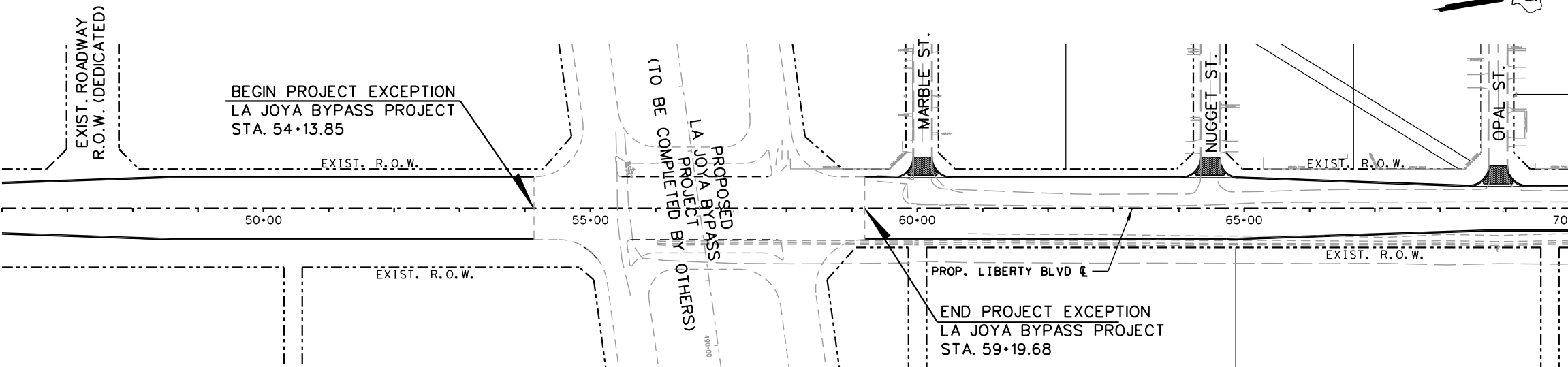
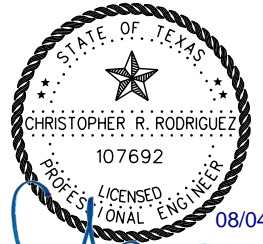
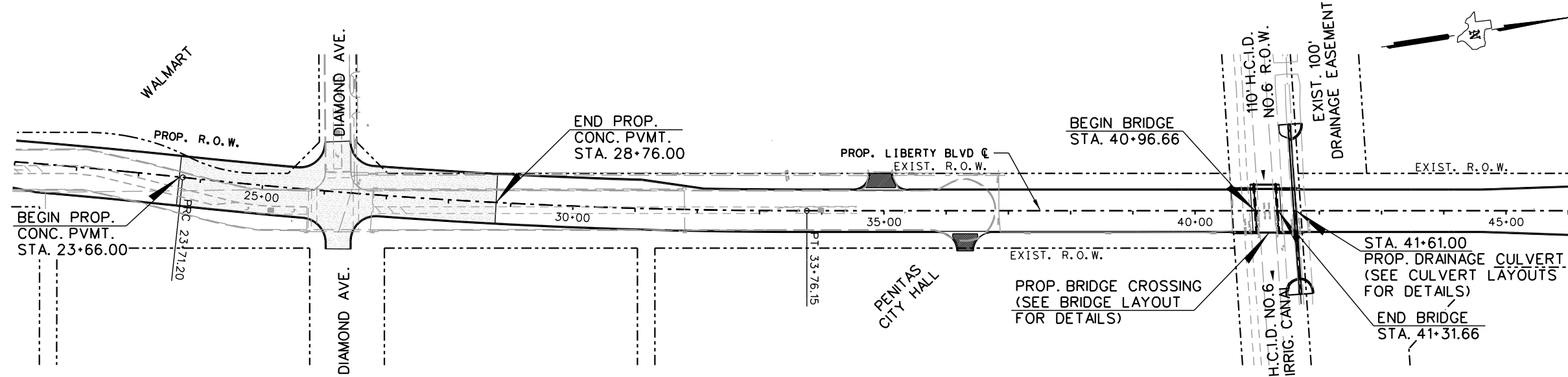
SHEET 1 OF 1

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		176
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	JOB NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				194
CK TR:				LIBERTY

P:\Clients\Firms\L&G\Liberty Rd (US83 to Mile 31)\05 DRAINAGE\06 Irrigation\Liberty_IRRIG_XING.dgn

BEGIN INCIDENTAL
LIBERTY BLVD
STA. 3+55.00

BEGIN PROJECT
END INCIDENTAL
LIBERTY BLVD
CSJ: 0921-02-194
STA. 11+60.00



L & G Engineering
Highway / Civil
Structural / Bridge
Environmental
Firm No. : F-4105

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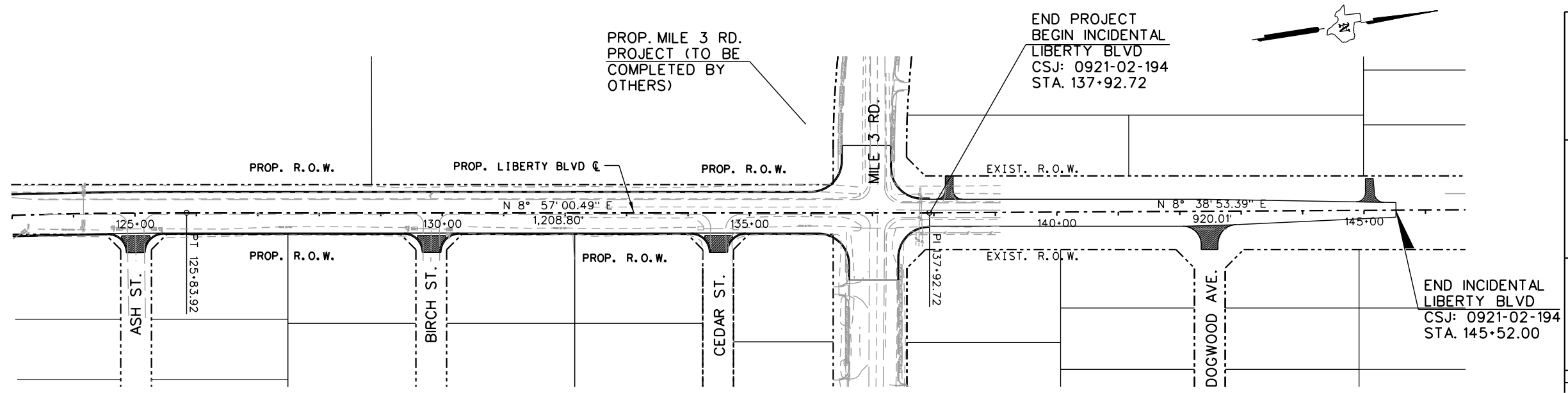
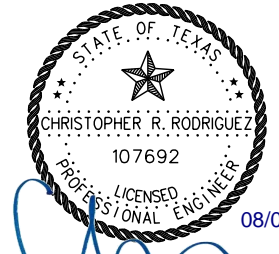
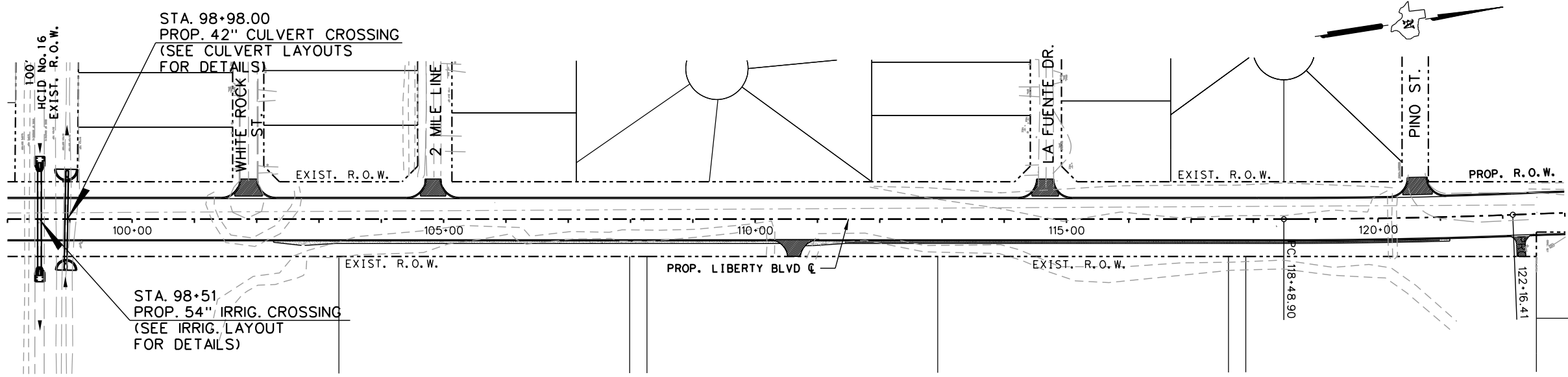
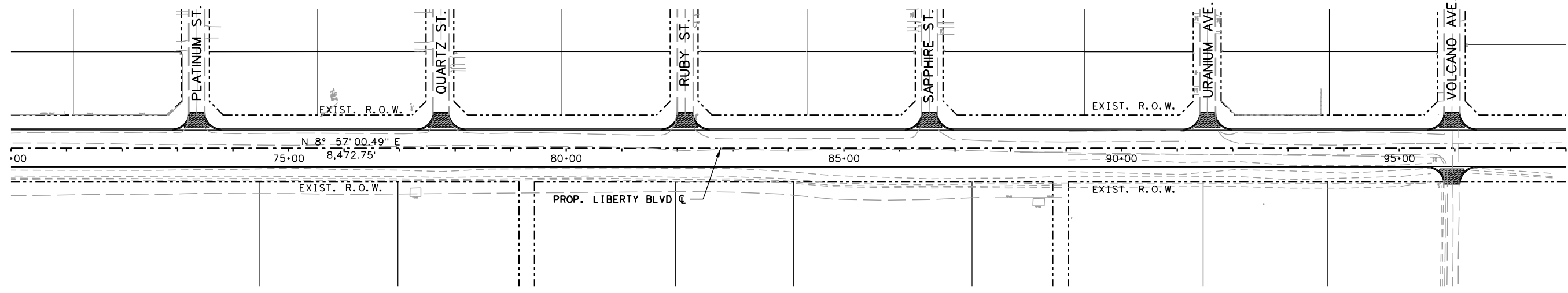
900 S. Stewart Rd., Ste. 10
Mission, TX, 78572
Phone : (956) 585-1909
Fax : (956) 585-1927

**LIBERTY BLVD
PROJECT LAYOUT**

SCALE 1" = 200' SHEET 1 OF 2

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		3
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	JOB NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				194
CK TR:				LIBERTY

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 Environmental
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**LIBERTY BLVD
 PROJECT LAYOUT**

SCALE 1" = 200' SHEET 2 OF 2

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		4
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	JOB NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				194
CK TR:				LIBERTY

8/4/2020 P:\Clients\Firms\L&G\Liberty Rd (US83 to Mile 3)\01 GENERAL\03 Proj\Layout\Liberty_Playout02.dgn

GENERAL NOTES:
 WHERE REQUIRED BY FIXTURES OR UNUSUAL CONDITIONS, THE GOVERNING SLOPES MAY BE VARIED WHEN SPECIFICALLY DIRECTED BY THE ENGINEER.

THE TOP 4 INCHES (MIN.) OF THE PROP. FLEXBASE SHALL BE NEW MATERIAL.

WHERE POSSIBLE AND UNLESS OTHERWISE DIRECTED BY THE ENGINEER, PERMISSIBLE CONSTR. JOINTS SHALL FALL ON STRIPING LINES AS SHOWN ON STRIPING DETAILS.

ALL GRADING SHALL BE WITHIN THE R.O.W. LIMITS.

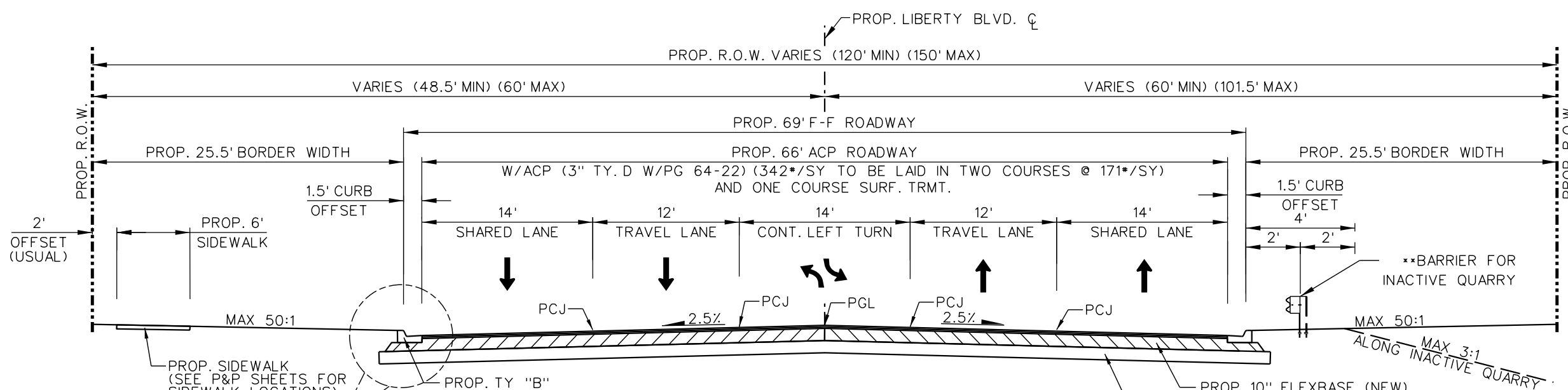
114#/SY OF ACP IS EQUIVALENT TO 1" DEPTH OF ACP.

PGL - DENOTES PROFILE GRADE LINE

PCJ - DENOTES PERMISSIBLE CONSTRUCTION JOINT

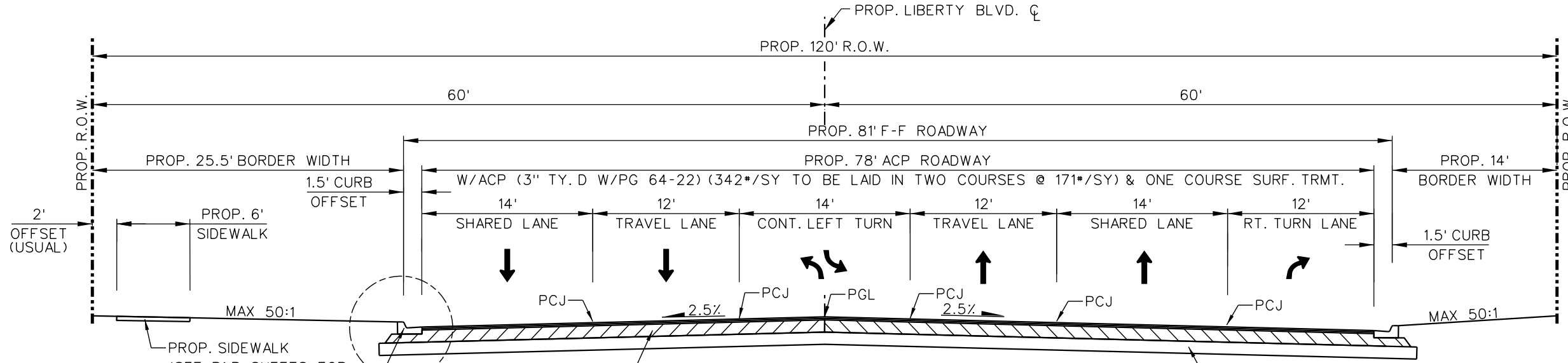
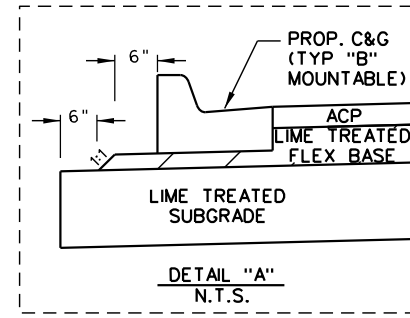
A STATION IS EQUIVALENT TO 100 FT.

LIMITS OF BARRIER
 STA. 100+00.00 TO STA. 121+50.00



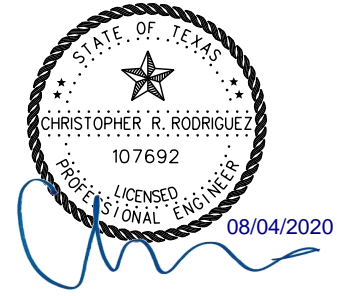
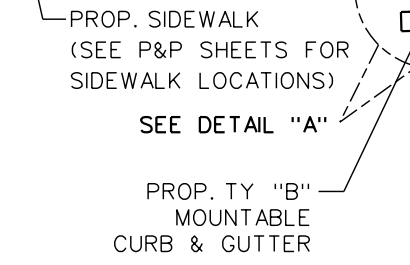
PROP. LIBERTY BLVD. TYPICAL SECTION

- STA. 11+60.00 TO STA. 20+37.00
- STA. 20+37.00 TO STA. 21+38.00 (TRANSITION 69' F-F TO 81' F-F RDWY)
- STA. 32+10.00 TO STA. 40+96.66
- STA. 40+96.66 TO STA. 41+31.66 (PROP. BRIDGE LAYOUT)
- STA. 41+31.66 TO STA. 44+61.00
- STA. 44+61.00 TO STA. 48+61.00 (TRANSITION 69' F-F TO 96' F-F RDWY)
- STA. 68+73.00 TO STA. 136+12.00
- STA. 136+12.00 TO STA. 137+92.72 (TRANSITION 69' F-F TO 44' F-F RDWY)



PROP. LIBERTY BLVD. TYPICAL SECTION

- STA. 21+38.00 TO STA. 23+66.00
- STA. 28+76.00 TO STA. 31+10.00
- STA. 31+10.00 TO STA. 32+10.00 (TRANSITION 81' F-F TO 69' F-F RDWY)



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**LIBERTY BLVD
 PROPOSED TYPICAL SECTIONS**

NTS SHEET 1 OF 3

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		9
DW:				
CK DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	SECTION NO.:
TR:	PHR	HIDALGO	0921	02
CK TR:				JOB NO.:
				194
				HIGHWAY NO.:
				LIBERTY

8/4/2020 P:\Clients\Firms\L&G\Liberty Rd US83 to Me 31\01 GENERAL\04 Typical Sections\LIBERTY_PROP TYP SECT.dgn

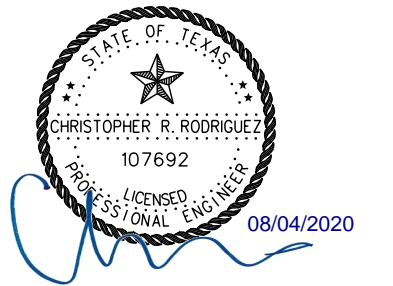
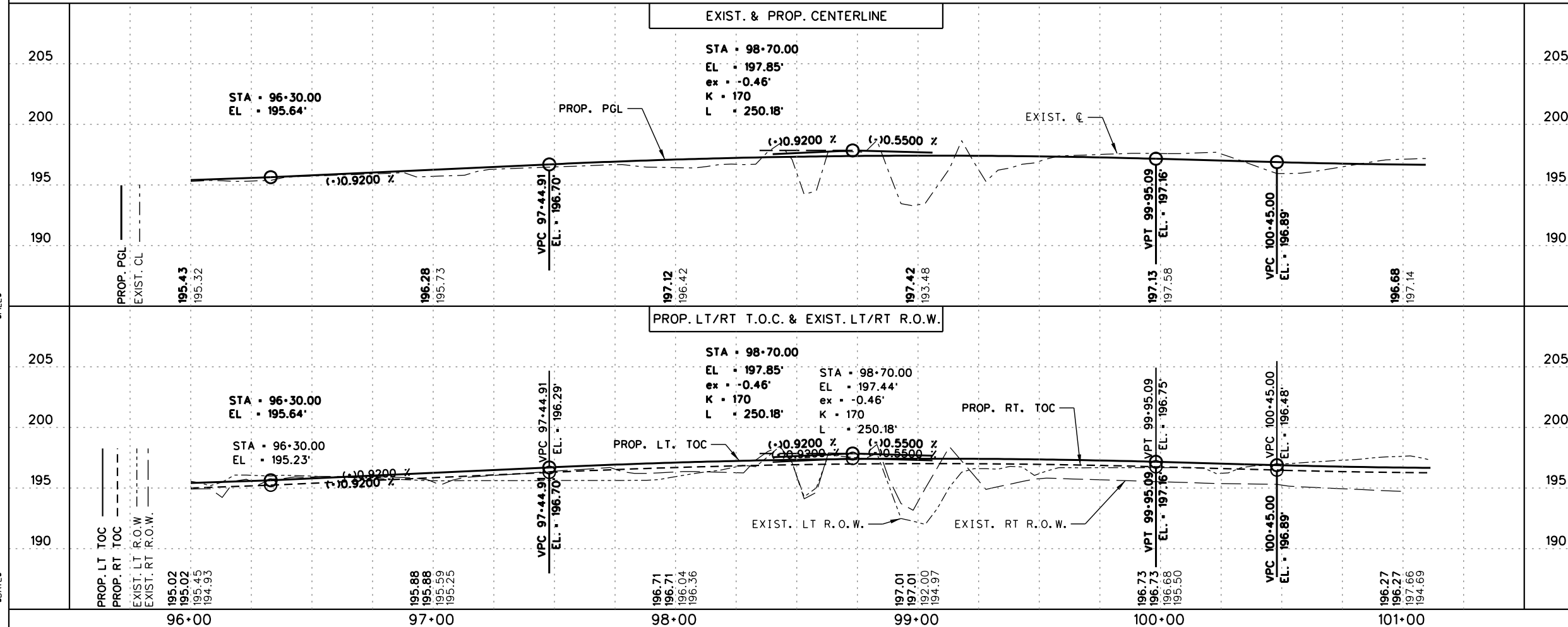
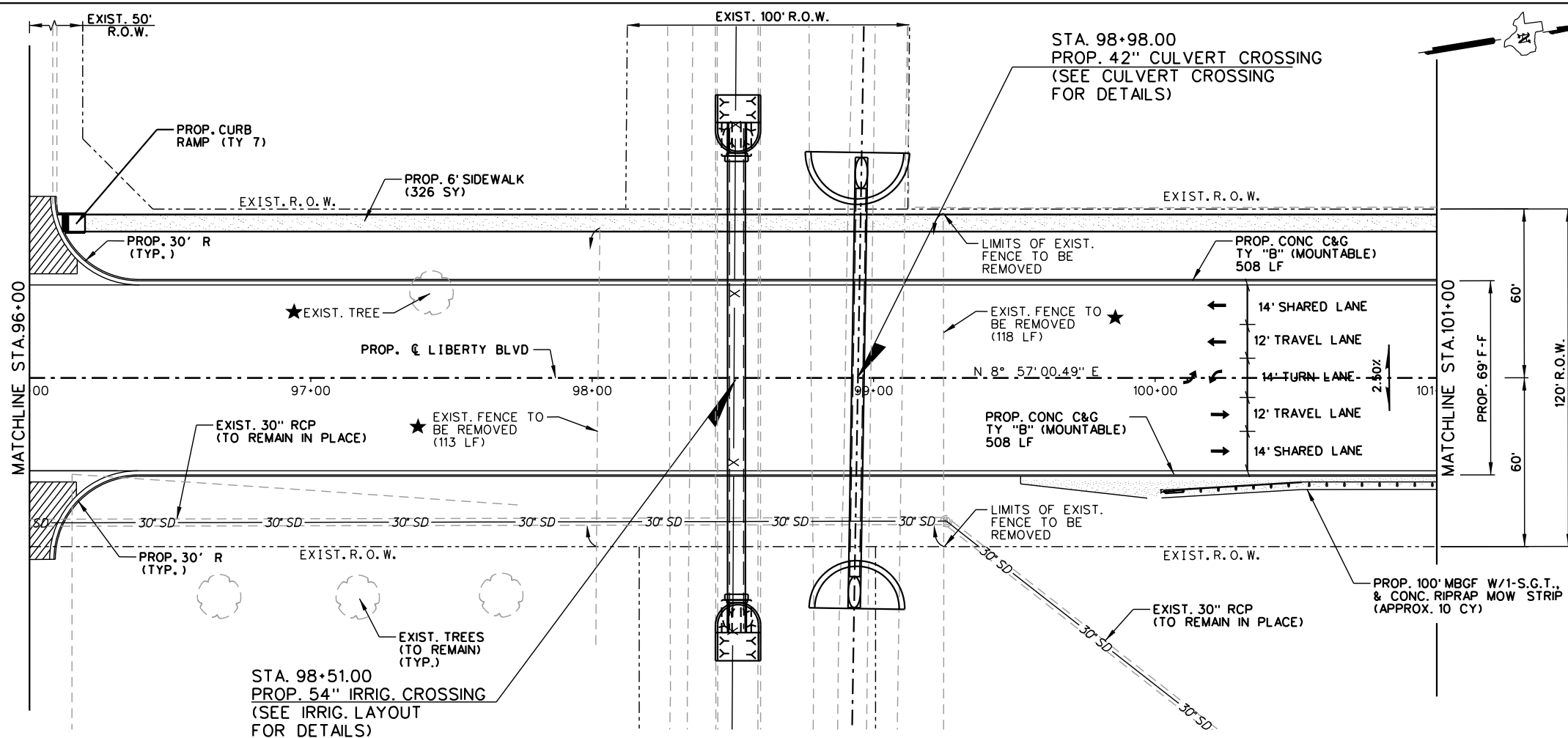
SHEET SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY
529	CONC CURB & GUTTER (TY-B) (MOUNTABLE)	LF	1016
531	CONCRETE SIDEWALKS	SY	326
531	CURB RAMPS (TY 7)	EA	1
432	RIPRAP (MOW STRIP)(4")	CY	10
540	METAL BEAM GUARD FENCE	LF	100
544	GUARDRAIL END TRTMT (INSTALL)	EA	1

LEGEND:

- PROPOSED DRIVEWAY OR TURNOUT (SEE DRIVEWAY/TURNOUT TABLE FOR QUANTITIES & PIPE QUANTITIES)
- PROPOSED PLANING (0-1 1/2")
- PROPOSED WIDENING
- PROPOSED OVERLAY
- EXIST ROAD TO BE REMOVED (ITEM 110)
- DIRECTION OF TRAFFIC
- TO BE REMOVED UNDER ITEM 496 INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES
- REMOVAL, RELOCATION AND INSTALLATION OF MAILBOXES ITEM 560
- TO BE REMOVED UNDER ITEM 100 "PREP. ROW"
- DITCH

- NOTES:
- SEE ALIGNMENT DATA SHEET FOR PROP. & EXIST. CENTERLINE DATA.
 - SEE SURVEY DATA SHEETS FOR BM STATIONS, OFFSET, ELEV, ETC.
 - FOR DRAINAGE & UTILITIES INFORMATION SEE U&D'S SHEETS



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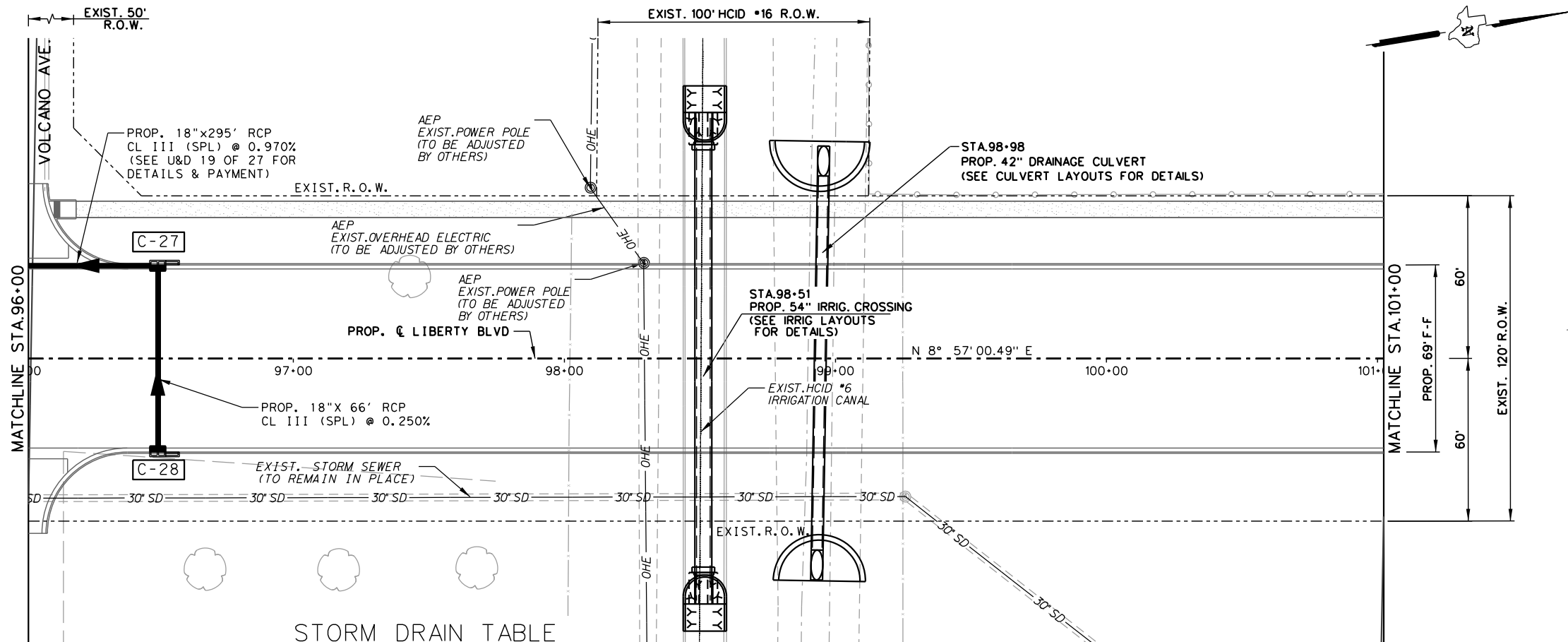
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LIBERTY BLVD
 PLAN AND PROFILE
 STA. 96+00 TO STA. 101+00

SCALE:
 HOR: 1" = 50'
 VER: 1" = 10'

SHEET 19 OF 28

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		91
DW:				
CK DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	SECTION NO.:
TR:	PHR	HIDALGO	0921	02
CK TR:				
				JOB NO.:
				194
				HIGHWAY NO.:
				LIBERTY



SHEET SUMMARY			
ITEM	DESCRIPTION	UNIT	QUANTITY
400	STRUCT EXCAVATION (NON-PAY)	CY	50
400	STRUCT EXCAVATION (SPL)	CY	-
400	SAND BACKFILL	CY	21
400	CUT & RESTORE	SY	-
402	TRENCH EXCAVATION PROT.	LF	66
464	18" RCP SEWER (CL III)(SPL)	LF	66

SEE STORM DRAINAGE TABLE FOR PROPOSED DRAINAGE INLET STRUCTURE INFORMATION

- LEGEND**
- SEE P&P SHEETS FOR DETAILS
 - TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
 - DIRECTION OF PROPOSED DITCH
 - LIMITS OF PROP. CUT & RESTORE (ITEM 400)
 - NON-PAY, SUBSIDIARY TO PERTINENT ITEMS

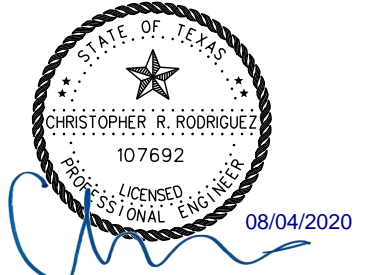
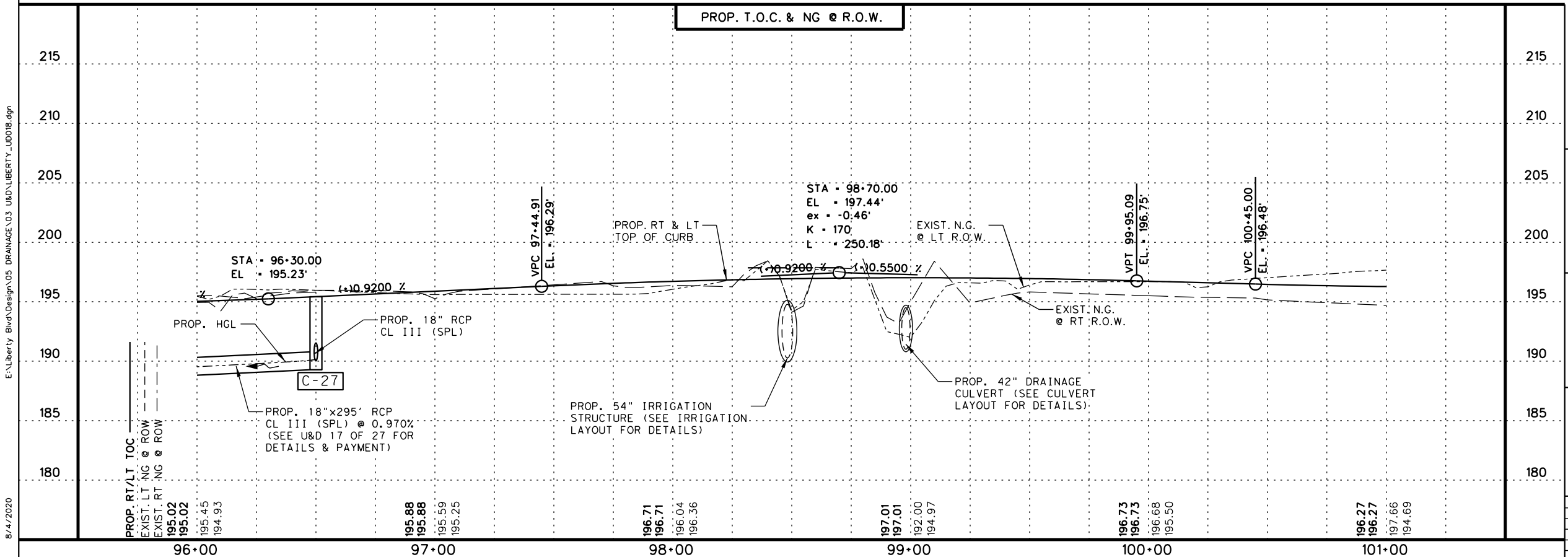
NOTES:
 SEE ALIGNMENT DATA SHEET FOR PROPOSED CENTERLINE DATA.
 ALL RCP SHALL BE CL III(SPL) UNLESS OTHERWISE NOTED.
 SEE HYD. DATA SHEETS FOR HYDRAULIC GRADE LINE (H.G.L.) ELEVATIONS
 THE CONTRACTOR SHALL CONFIRM THAT CONFLICTS WITH EXISTING UTILITIES HAVE BEEN RESOLVED IN ADVANCE OF CONSTRUCTION. DAMAGES CAUSED BY OR TO EXISTING UTILITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

STORM DRAIN TABLE

STRUCTURE ID	DESCRIPTION	STATION / OFFSET TO FACE OF CURB	TOP OF STR. ELEVATION	PROP. FL. OF STRUCTURE	PROP. FL. OF PIPE (NORTH)	PROP. FL. OF PIPE (SOUTH)	PROP. FL. OF PIPE (EAST)	PROP. FL. OF PIPE (WEST)
C-27	PCU10R-3x5	96+50.00-34.50	195.42	189.30		189.30	190.03	
C-28	PCU10L-3x5	96+50.00-34.50	195.42	190.20				190.20

UTILITIES LEGEND

AEP	AMERICAN ELECTRIC POWER
AT&T	AMERICAN TELEPHONE & TELEGRAPH
TGS	TEXAS GAS SERVICE
HILCORP	HILCORP ENERGY COMPANY
ENTERPRISE	ENTERPRISE PRODUCTS
UNITED	UNITED IRRIGATION DISTRICT
HCID#6	HIDALGO COUNTY IRRIGATION DISTRICT No 6



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**LIBERTY BLVD
 UTILITY AND DRAINAGE
 STA. 96+00 TO STA. 101+00**

SCALE:
 HOR: 1" = 50'
 VER: 1" = 10'

SHEET 18 OF 27

DN:	FED. NO. 6	STATE TEXAS	PROJECT NO. 0921	SHEET NO. 161
CK DN:				
DW:				
CK DW:	STATE DIST. NO. PHR	COUNTY HIDALGO	CONTROL NO. 02	SECTION NO. 02
TR:				JOB NO. 194
CK TR:				HIGHWAY NO. LIBERTY

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 8/4/2020

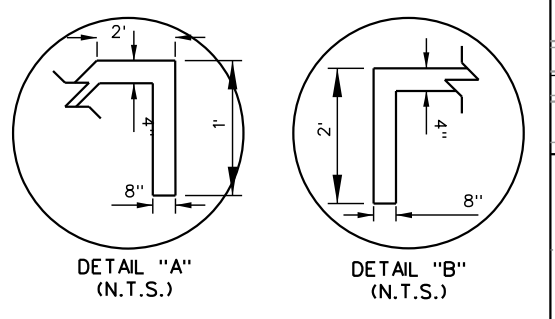
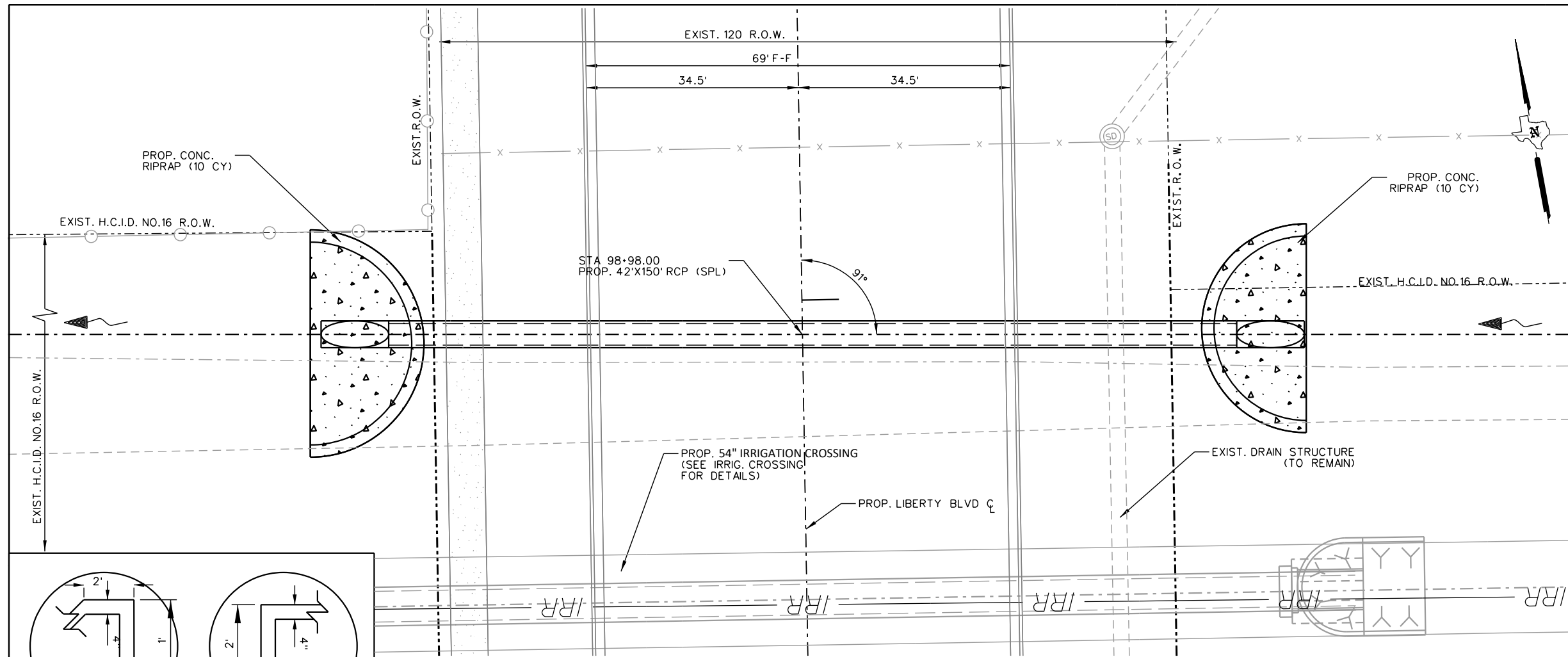
SHEET SUMMARY			
ITEM	DESCRIPTION	UNIT	QUANTITY
132	EMBANKMENT (FINAL)(DC)(TY C)	CY	111
400	STRUCT. EXCAVATION (NON-PAY)	-	-
400	STRUCT. EXCAVATION (SPL)	CY	28
400	SAND BACKFILL	CY	77
432	RIPRAP (CONC.) (4")	CY	20
464	RC PIPE (CL III) (42 IN)	LF	140

* FOR CONTRACTORS INFORMATION ONLY

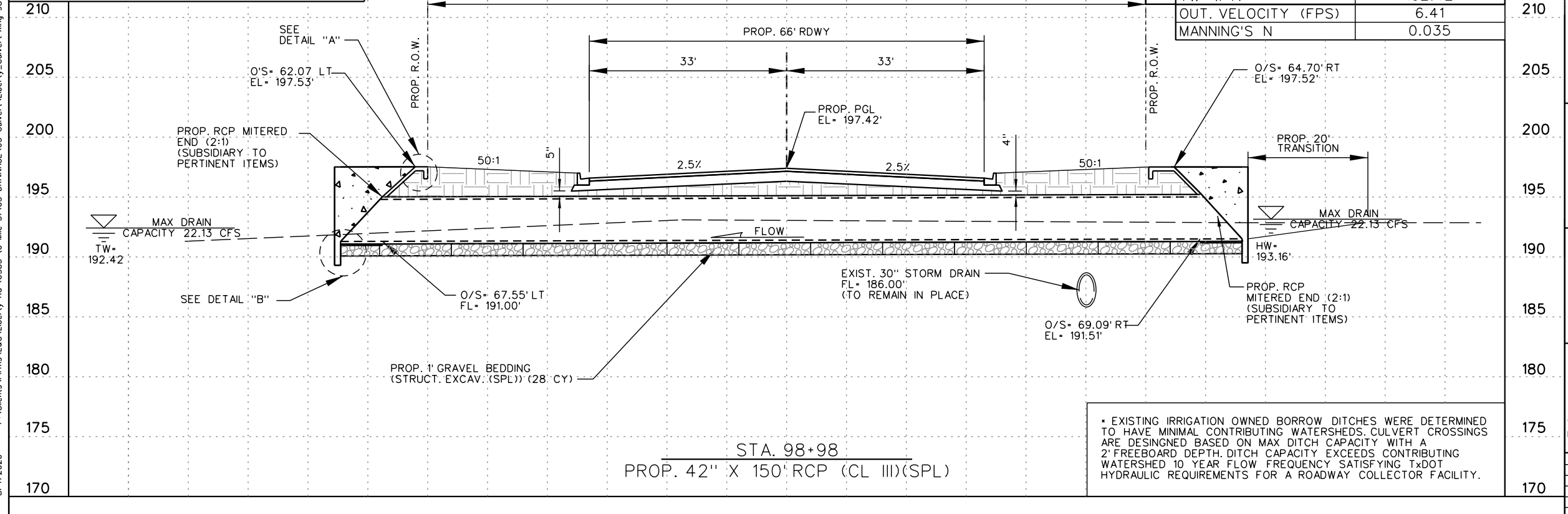
LEGEND

- SEE P&P SHEETS FOR DETAILS
- ⊗ NON-PAY, SUBSIDIARY TO PERTINENT BID ITEMS.
- ⊕ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
- ⊙ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
- ▨ PROPOSED DRIVEWAY OR TURNOUT (SEE DRIVEWAY/ TURNOUT TABLE FOR QUANTITIES AND DETAILS)

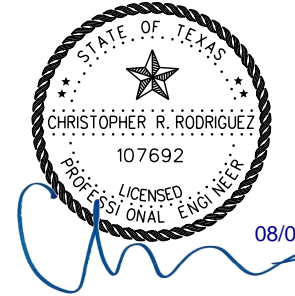
- NOTE:
- THE CONTRACTOR WILL COORDINATE WITH HIDALGO COUNTY IRRIG DISTRICT *16. 72 HOURS PRIOR TO ANY WORK DONE ON OR NEAR THE IRRIGATION STRUCTURES.
 - PRIOR TO WORKING OUTSIDE THE ROW THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER. CAUTION SHALL BE TAKEN NOT TO DAMAGE EXISTING FENCES, TREES, ETC. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS WHEN WORKING OUTSIDE THE ROW. ANY DAMAGES DONE TO THEIR PROPERTY SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
 - THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO CONSTRUCTION.
 - ALL PVC ELBOWS, AND CONNECTIONS SHALL BE SUBSIDIARY TO PERTINENT BID ITEMS.
 - SEE ALIGNMENT DATA SHEET FOR PROPOSED CENTERLINE DATA.



CULVERT HYDRAULICS		
	MAXIMUM CAPACITY	
FLOW (CFS)	22.13	215
HW (FT)	193.16	
TW (FT)	192.42	210
OUT. VELOCITY (FPS)	6.41	
MANNING'S N	0.035	



* EXISTING IRRIGATION OWNED BORROW DITCHES WERE DETERMINED TO HAVE MINIMAL CONTRIBUTING WATERSHEDS. CULVERT CROSSINGS ARE DESIGNED BASED ON MAX DITCH CAPACITY EXCEEDS CONTRIBUTING WATERSHED 10 YEAR FLOW FREQUENCY SATISFYING TxDOT HYDRAULIC REQUIREMENTS FOR A ROADWAY COLLECTOR FACILITY.



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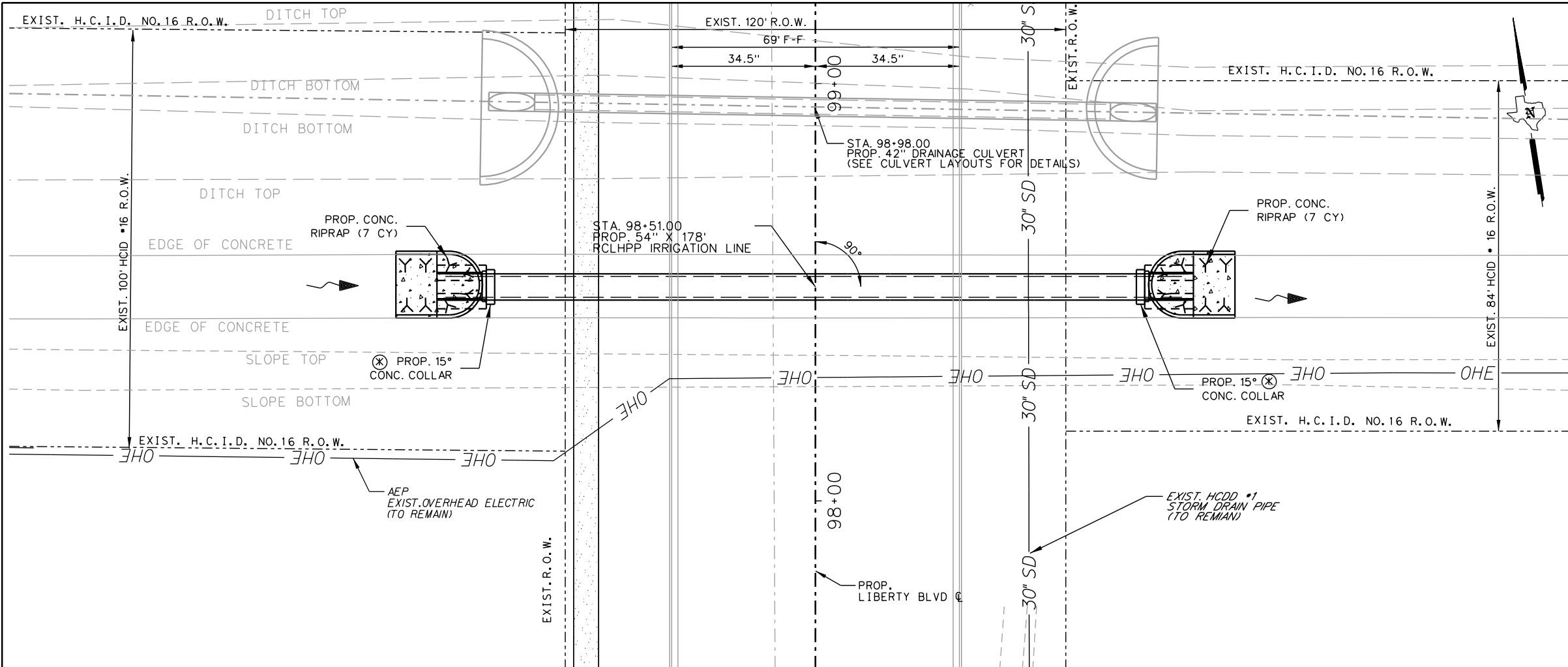
**LIBERTY BLVD
CULVERT CROSSING
STA 98+98**

SCALE:
HOR: 1" = 20'
VER: 1" = 10'

SHEET 2 OF 2

DN:	FED. NO.	STATE	PROJECT NO.	SHEET NO.
CK DN:	6	TEXAS		175
DW:	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.
CK DW:	PHR	HIDALGO	0921	02
TR:				JOB NO.
CK TR:				194
				HIGHWAY NO.
				LIBERTY

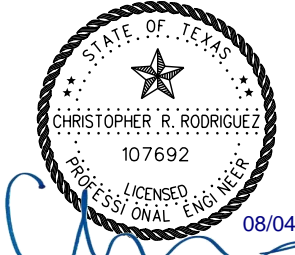
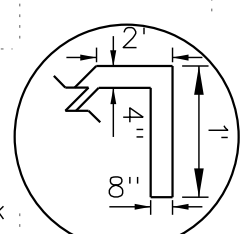
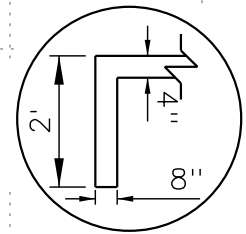
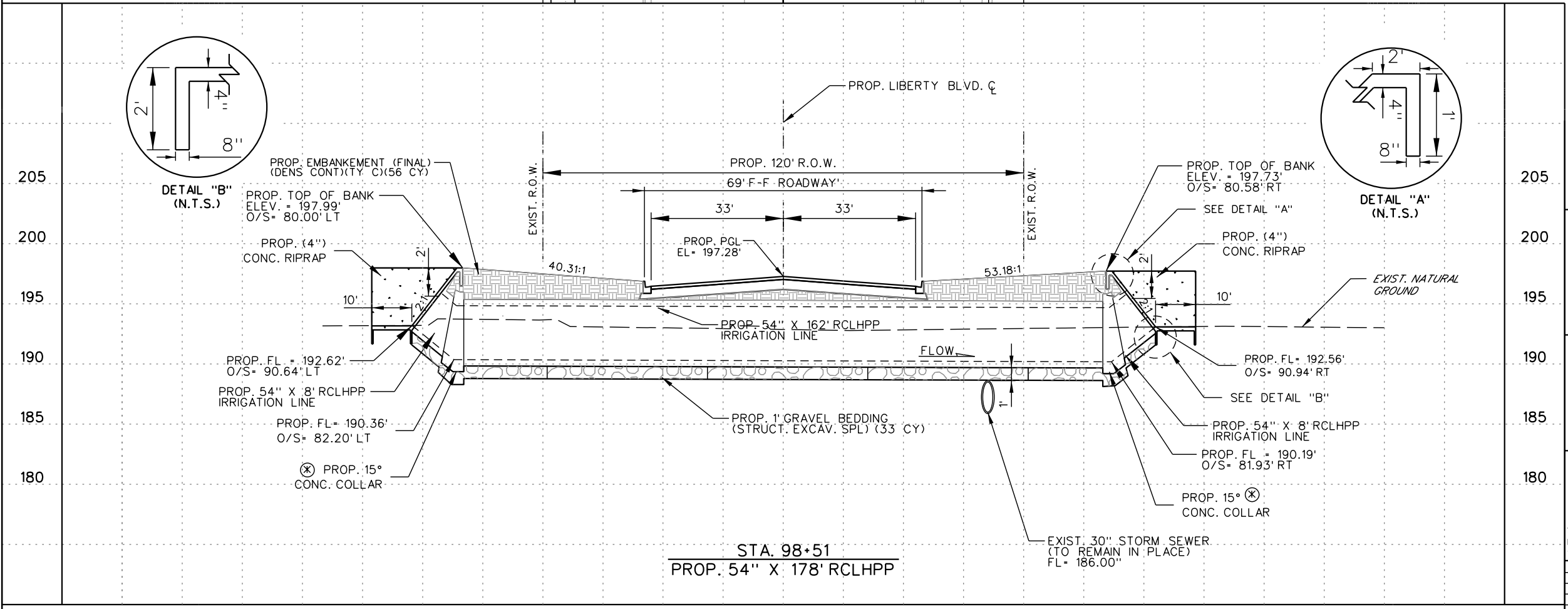
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8/4/2020



SHEET SUMMARY			
ITEM	DESCRIPTION	UNIT	QUANTITY
104	REMOVING CONC. (RIPRAP)	SY	490
132	EMBANKMENT (FINAL)(DC)(TY C)	CY	56
400	STRUCT. EXCAVATION (NON-PAY)	CY	809
400	STRUCT. EXCAVATION (SPL)	CY	33
400	SAND BACKFILL	CY	275
402	TRENCH EXCAV. PROTECTION	LF	178
4.32	RIPRAP (CONC.) (4")	CY	14
4024	RCLHPP CLIII (54")	LF	178

- LEGEND**
- SEE P&P SHEETS FOR DETAILS
 - ⊗ NON-PAY, SUBSIDIARY TO PERTINENT BID ITEMS.
 - ⊕ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
 - ⊛ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
 - ▨ LIMITS OF PROP. CUT & RESTORE (ITEM 400)

- NOTE:**
- THE CONTRACTOR WILL COORDINATE WITH HIDALGO COUNTY IRRIG DISTRICT #16. 72 HOURS PRIOR TO ANY WORK DONE ON OR NEAR THE IRRIGATION STRUCTURES.
 - PRIOR TO WORKING OUTSIDE THE ROW THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER. CAUTION SHALL BE TAKEN NOT TO DAMAGE EXISTING FENCES, TREES, ETC. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS WHEN WORKING OUTSIDE THE ROW. ANY DAMAGES DONE TO THEIR PROPERTY SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
 - THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO CONSTRUCTION.
 - ALL PVC ELBOWS, AND CONNECTIONS SHALL BE SUBSIDIARY TO PERTINENT BID ITEMS.
 - SEE ALIGNMENT DATA SHEET FOR PROPOSED CENTERLINE DATA.



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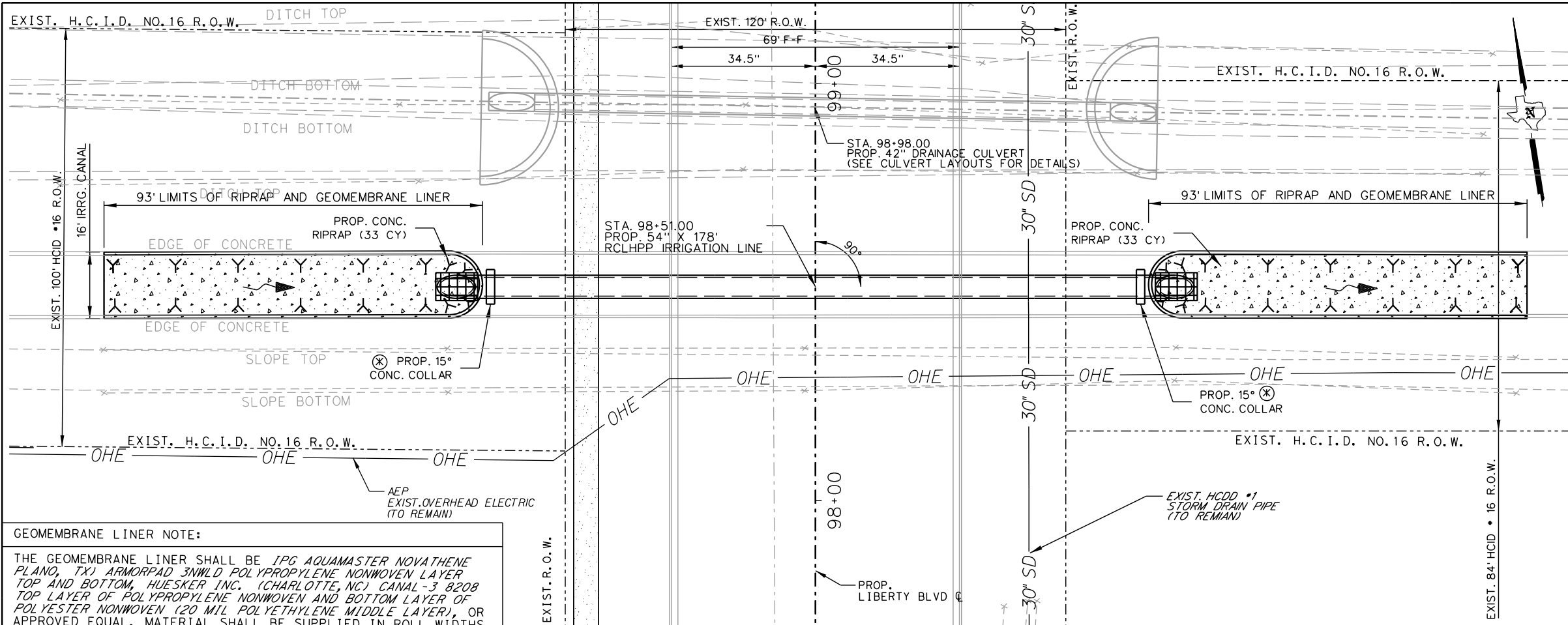
**LIBERTY BLVD
 IRRIGATION LAYOUT
 STA. 98+51**

SCALE:
 HOR: 1" = 30'
 VER: 1" = 10'

SHEET 1 OF 1

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		176
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	JOB NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				194
CK TR:				LIBERTY

P:\Clients\Firms\L&G\Liberty Rd (US83 to Mile 31)\05 DRAINAGE\06 Irrigation\Liberty_IRRIG_XING.dgn



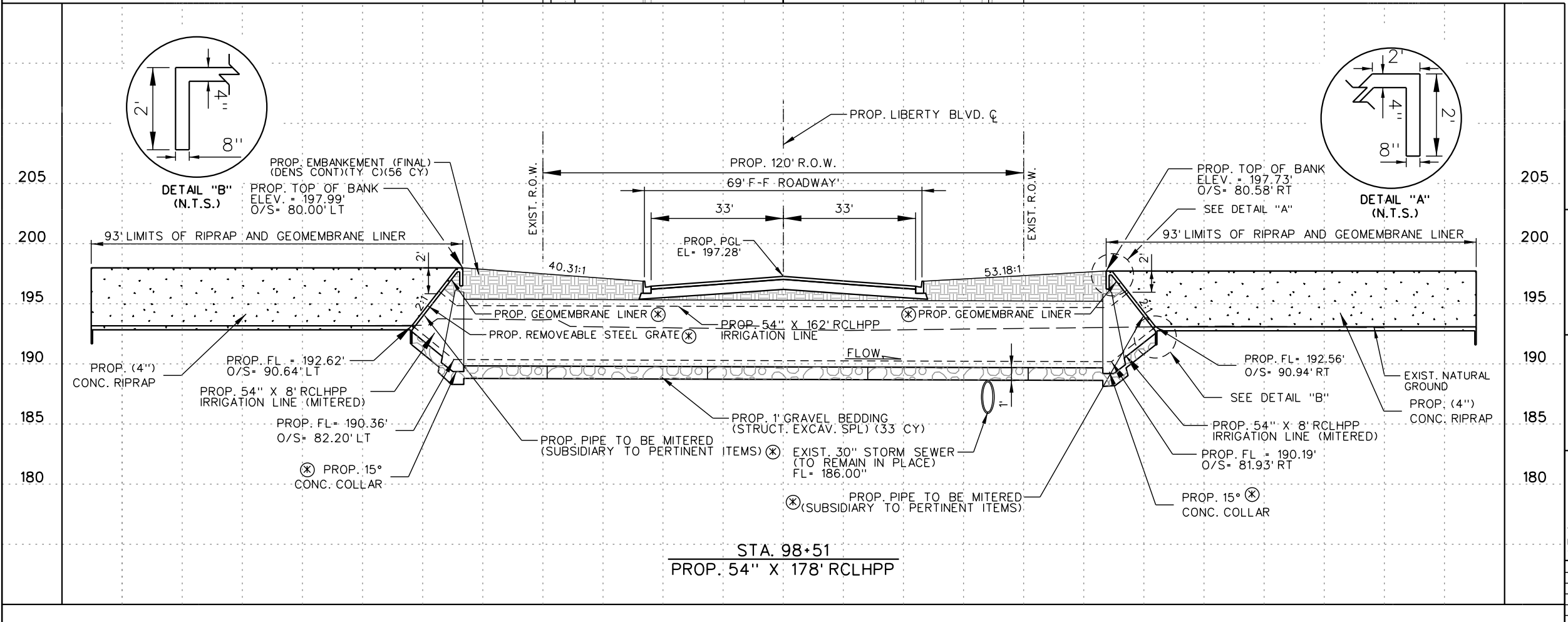
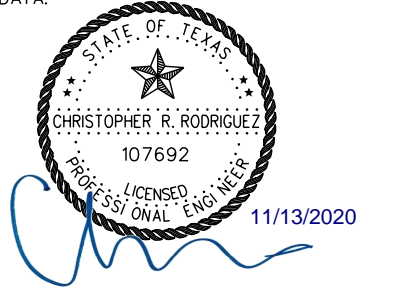
GEOMEMBRANE LINER NOTE:

THE GEOMEMBRANE LINER SHALL BE *IPG AQUAMASTER NOVATHENE PLANO, TX* ARMORPAD 3NWL D POLYPROPYLENE NONWOVEN LAYER TOP AND BOTTOM, *HUESKER INC. (CHARLOTTE, NC)* CANAL-3 8208 TOP LAYER OF POLYPROPYLENE NONWOVEN AND BOTTOM LAYER OF POLYESTER NONWOVEN (20 MIL POLYETHYLENE MIDDLE LAYER), OR APPROVED EQUAL. MATERIAL SHALL BE SUPPLIED IN ROLL WIDTHS AND LENGTHS WHICH WILL MINIMIZE SEAMS. TO BE INSTALLED AS PER MANUFACTURER RECOMMENDATIONS AND SHALL BE CONSIDERED SUBSIDIARY TO PERTINENT ITEMS.

SHEET SUMMARY			
ITEM	DESCRIPTION	UNIT	QUANTITY
104	REMOVING CONC. (RIPRAP)	SY	490
132	EMBANKMENT (FINAL)(DC)(TY C)	CY	56
⊗ 400	STRUCT. EXCAVATION (NON-PAY)	CY	809
⊕ 400	STRUCT. EXCAVATION (SPL)	CY	33
⊗ 400	CEMENT STABILIZED BACKFILL	CY	275
⊕ 402	TRENCH EXCAV. PROTECTION	LF	178
⊗ 4.32	RIPRAP (CONC.) (4")	CY	66
⊕ 4024	RCLHPP CLIII (54")	LF	178
⊗ 4000	GEOMEMBRANE LINER (NON-PAY)	SY	331
⊗ 4000	REMOVEABLE STEELGRATE (60")	EA	1

- LEGEND**
- SEE P&P SHEETS FOR DETAILS
 - ⊗ NON-PAY, SUBSIDIARY TO PERTINENT BID ITEMS.
 - ⊕ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
 - ⊗ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
 - ▨ LIMITS OF PROP. CUT & RESTORE (ITEM 400)

- NOTE:**
- THE CONTRACTOR WILL COORDINATE WITH HIDALGO COUNTY IRRIG DISTRICT #16. 72 HOURS PRIOR TO ANY WORK DONE ON OR NEAR THE IRRIGATION STRUCTURES.
 - PRIOR TO WORKING OUTSIDE THE ROW THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER, CAUTION SHALL BE TAKEN NOT TO DAMAGE EXISTING FENCES, TREES, ETC. THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS WHEN WORKING OUTSIDE THE ROW. ANY DAMAGES DONE TO THEIR PROPERTY SHALL BE REPAIRED AT CONTRACTORS EXPENSE.
 - THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO CONSTRUCTION.
 - ALL PVC ELBOWS, AND CONNECTIONS SHALL BE SUBSIDIARY TO PERTINENT BID ITEMS.
 - SEE ALIGNMENT DATA SHEET FOR PROPOSED CENTERLINE DATA.



L & G Engineering
 Highway / Civil
 Structural / Bridge
 Environmental
 Firm No. : F-4105

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 Fax : (956) 565-9018

900 S. Stewart Rd., Ste. 10
 Mission, TX, 78572
 Phone : (956) 585-1909
 Fax : (956) 585-1927

LIBERTY BLVD IRRIGATION LAYOUT STA. 98+51

SCALE:
 HOR: 1" = 30'
 VER: 1" = 10'

SHEET 1 OF 1

DN:	FED. NO. / DIV. NO.	STATE	PROJECT NO.	SHEET NO.
CK DN:	6	TEXAS		176A
DW:				
CK DW:	STATE DIST. NO.	COUNTY	CONTROL NO.	SECTION NO.
TR:	PHR	HIDALGO	0921	02
CK TR:				JOB NO. / HIGHWAY NO.
				194 / LIBERTY

11/13/2020 P:\Clients\Firms\L&G\Liberty Rd (US83 to Mile 3)\05 DRAINAGE\06 Irrigation\Liberty_IRRIG_XING.dgn

CONCRETE:

CONCRETE PROPOSED FOR THE CANAL LINER SHALL BE TYPE I PORTLAND CEMENT, AND SHALL HAVE A COMPRESSIVE STRENGTH (F'c) OF 3,000 PSI AT 28 DAYS.

MINIMUM CEMENT RATIO TO BE: 5 SACKS PER CUBIC YARD FOR 3,000 PSICONCRETE, MAXIMUM WATER CEMENT RATIO TO BE 0.50.

CHAMFER ALL EXPOSED CONC. CORNERS 1"

ALL CONCRETE REINFORCEMENT BARS SHALL CONFORM TO ASTM A615, GRADE 60, ALL WELDED WIRE FABRIC TO BE HOT DIPPED GALVANIZED AND SHALL CONFORM TO ASTM 185.

DETAILING, FABRICATION AND PLACING CONCRETE REINFORCEMENT AND ACCESSORIES SHALL BE IN ACCORDANCE WITH ASISP-66, LATEST EDITION.

CONTINUOUS REINFORCEMENTS SHALL HAVE A MINIMUM LAP AT SPLICES AS FOLLOWS (UNLESS OTHERWISE NOTED):

NO. 3 BARS...16"	NO. 4 BARS 22"	NO. 5 BARS...27"
NO. 6 BARS...36"	NO. 7 BARS 48"	NO. 5 BARS...63"
NO. 9 BARS...80"	NO. 10 BARS 101"	NO. 5 BARS...125"

WELDING WIRE FABRIC SHALL LAP SO THAT THE OVERLAP MEASURED BETWEEN OUTMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF THE WIRES PLUS 2".

REINFORCING BARS MAY NOT BE WELDED WITHOUT OF THE APPROVAL OF THE ENGINEER.

CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE AS FOLLOWS, (SEE SECTION 7.7 ACI 318, LATEST EDITION, FOR CONDITIONS NOT NOTED):

ALL CONCRETE FORMED AGAINST THE GROUND.....	3"
ALL CONCRETE FORMED AGAINST THE WATER.....	3"
SIDES AND BOTTOMS OF GRADE BEAMS.....	3"
WALLS AND SIDES OF BEAMS ABOVE GRADE.....	1 1/2"
SLABS ABOVE GRADE.....	3/4"

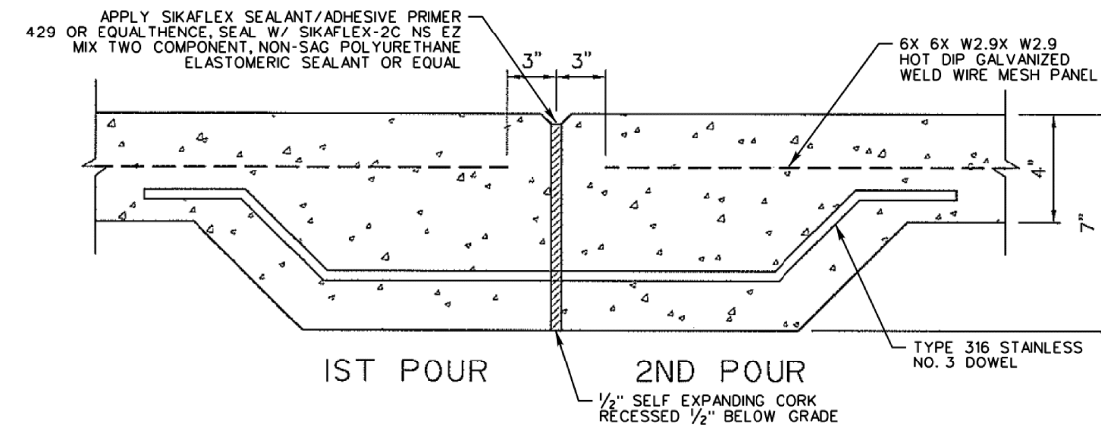
ALL MIXING, TRANSPORTING, PLACING AND CURING OF CONCRETE SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATION OF THE LATEST EDITIONS OF THE AMERICAN CONCRETE INSTITUTE ACI 318, ACI 301, ACI 309, ACI 305 AND ACI 306. MAXIMUM FREE FALL FOR CONCRETE TO BE 3'-0".

NO HORIZONTAL JOINTS WILL BE PERMITTED IN CONCRETE EXCEPT AT CONSTRUCTION JOINTS EXCEPT WHERE THEY NORMALLY OCCUR OR WHERE DETAILED.

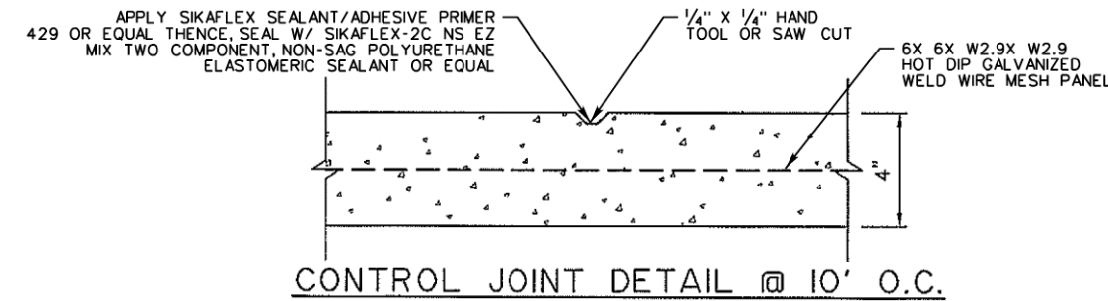
HORIZONTAL REINFORCING SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

FRESHLY DEPOSITED CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING AND EXCESSIVE HOT OR COLD TEMPERATURES FOR THE PERIOD OF TIME NECESSARY FOR THE HYDRATION OF THE CEMENT AND PROPER HARDENING OF THE CONCRETE. THIS SHALL BE A MINIMUM OF SEVEN DAYS AFTER THE CONCRETE IS POURED.

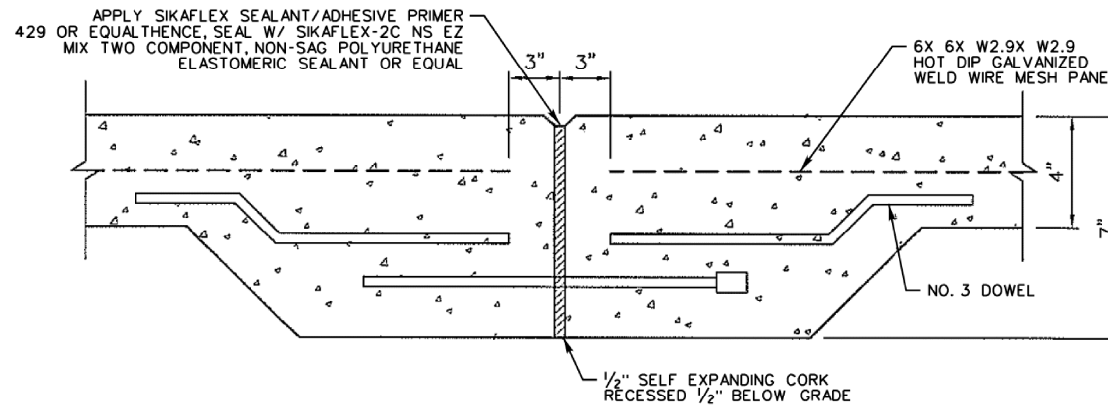
ALL CONCRETE, INCLUDING DRILLED FOOTINGS, SHALL BE CONSOLIDATED BY VIBRATION, SPADING OR RODDING, SO THAT THE CONCRETE IS THOROUGHLY WORKED AROUND THE REINFORCEMENT. EMBEDDED ITEMS, AND INTO CORNERS OF FORMS, ELIMINATING ALL AIR OR STONE POCKETES WHICH MAY CAUSE HONEYCOMBING. CARE SHALL BE TAKEN NOT TO OVER VIBRATE AND CAUSE SEGREGATION.



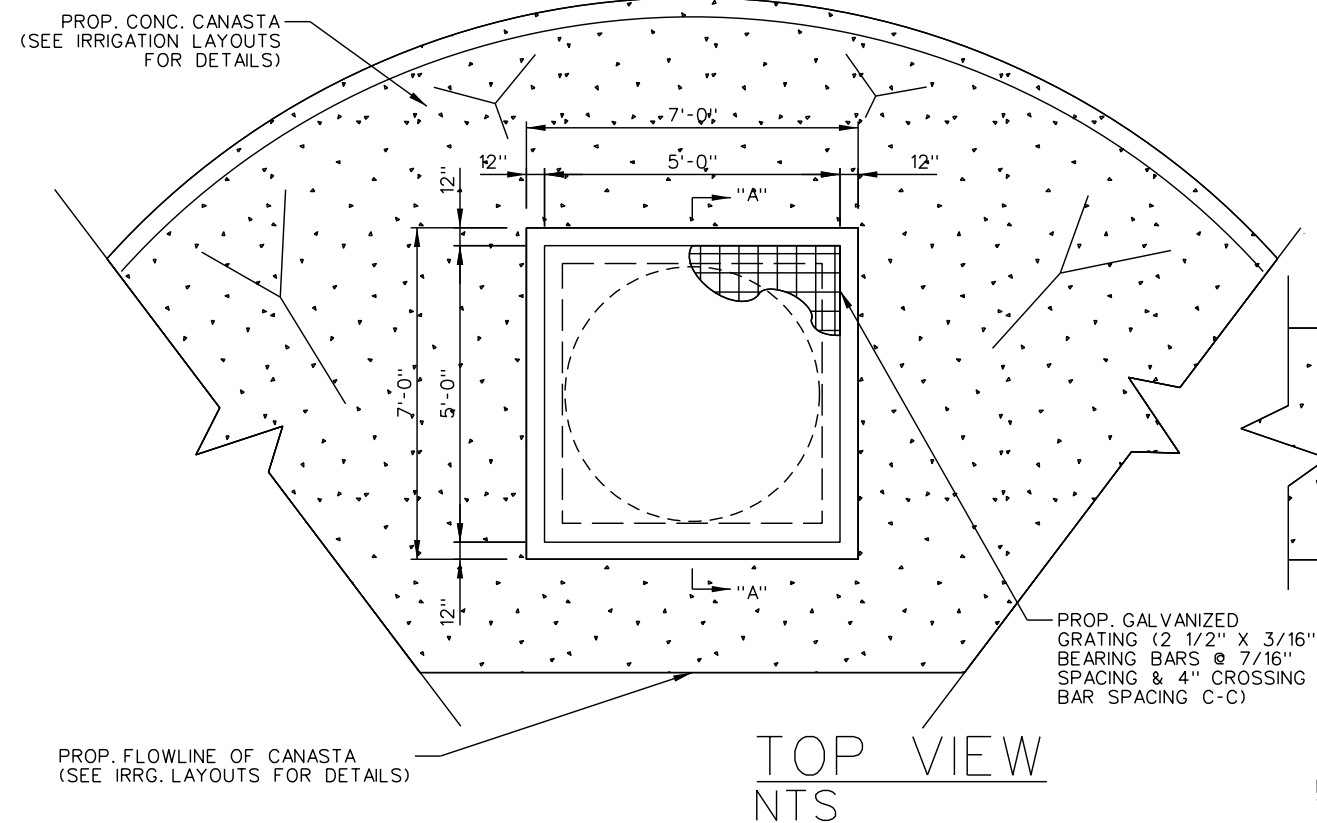
CONSTRUCTION JOINT DETAIL AS NEEDED



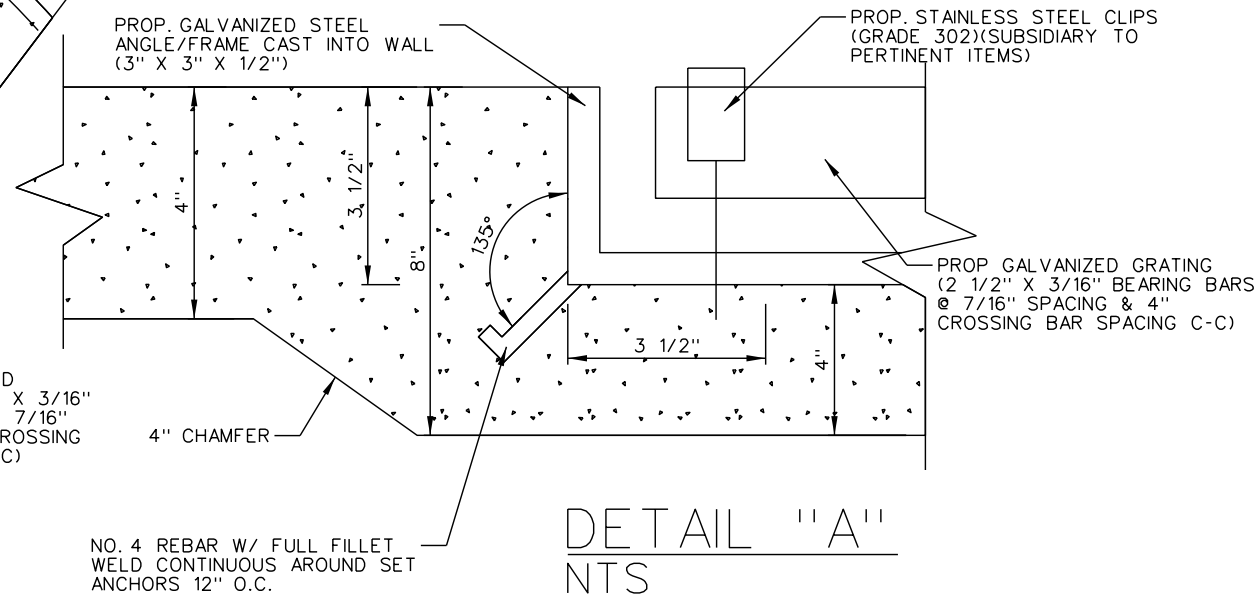
CONTROL JOINT DETAIL @ 10' O.C.



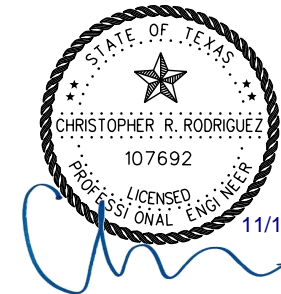
EXPANSION JOINT DETAIL @ 50' APART



TOP VIEW NTS



DETAIL "A" NTS



11/13/2020



L & G Engineering

Highway / Civil
Structural / Bridge
Environmental
Firm No. : F-4105

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**LIBERTY BLVD
MISC IRRIGATION
DETAILS**

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		176C
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	JOB NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				194
CK TR:				LIBERTY

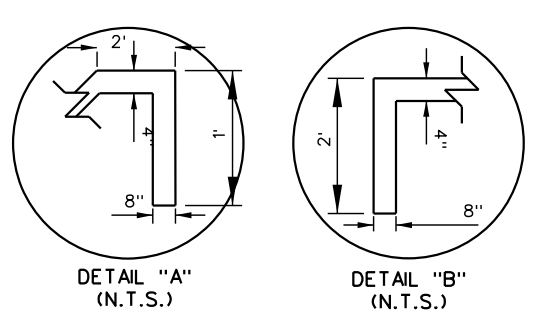
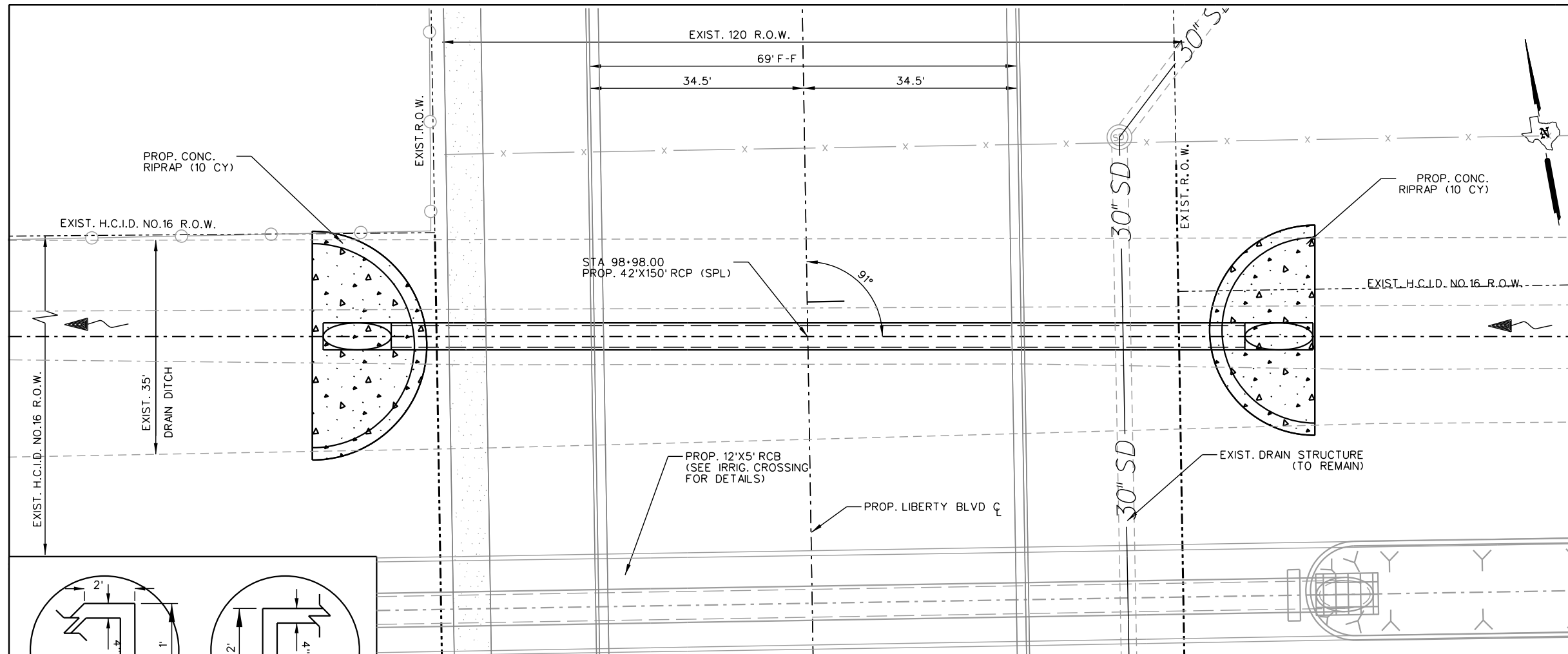
SHEET SUMMARY			
ITEM	DESCRIPTION	UNIT	QUANTITY
132	EMBANKMENT (FINAL)(DC)(TY C)	CY	111
400	STRUCT. EXCAVATION (NON-PAY)	-	-
400	STRUCT. EXCAVATION (SPL)	CY	28
400	CEMENT STABILIZED BACKFILL	CY	77
432	RIPRAP (CONC.) (4")	CY	20
464	RC PIPE (CL III) (42 IN)	LF	150

* FOR CONTRACTORS INFORMATION ONLY

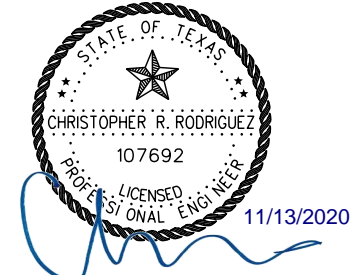
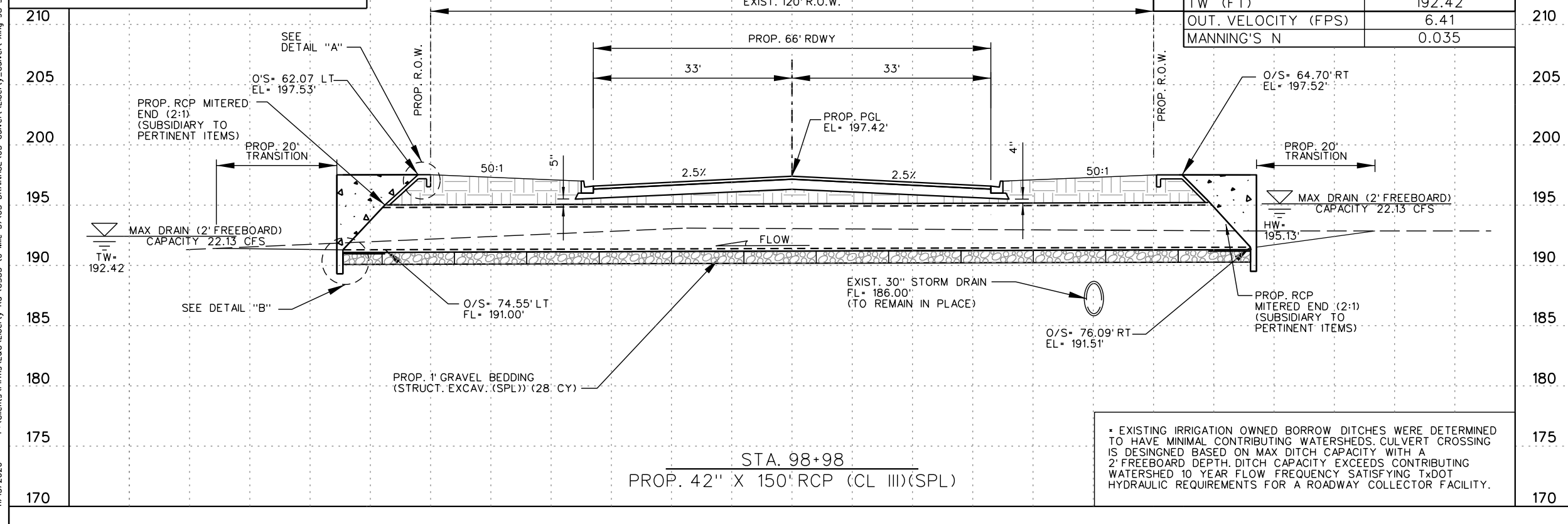
LEGEND

- SEE P&P SHEETS FOR DETAILS
- ⊗ NON-PAY, SUBSIDIARY TO PERTINENT BID ITEMS.
- ⊕ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
- ⊛ TO BE REMOVED UNDER ITEM 496. INCLUDES PAYMENT FOR REMOVAL OF ALL APPURTENANCES.
- ▨ PROPOSED DRIVEWAY/ TURNOUT (SEE DRIVEWAY/ TURNOUT TABLE FOR QUANTITIES AND DETAILS)

- NOTE:
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CULVERT HYDRAULICS		
		MAXIMUM CAPACITY (2' FREEBOARD)
FLOW (CFS)		22.13
HW (FT)		195.13
TW (FT)		192.42
OUT. VELOCITY (FPS)		6.41
MANNING'S N		0.035



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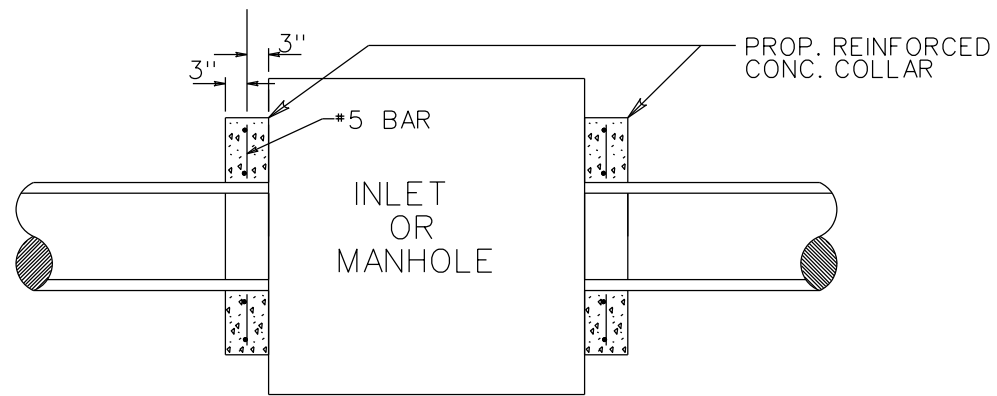
**LIBERTY BLVD
CULVERT CROSSING
STA 98+98**

SCALE:
HOR: 1" = 20'
VER: 1" = 10'

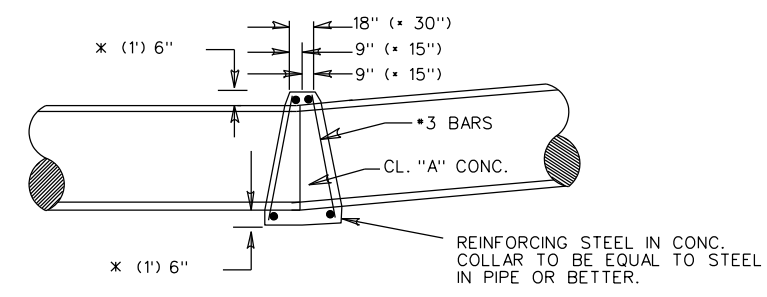
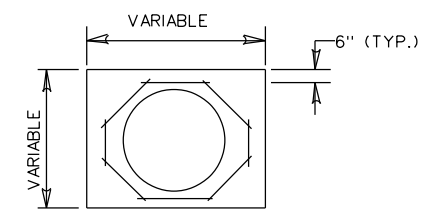
SHEET 2 OF 2

DN:	FED. NO.:	STATE:	PROJECT NO.:	SHEET NO.:
CK DN:	6	TEXAS		175
DW:	STATE DIST. NO.:	COUNTY:	CONTROL NO.:	JOB NO.:
CK DW:	PHR	HIDALGO	0921	02
TR:				194
CK TR:				LIBERTY

11/13/2020 P:\Clients\Firms\L&G\Liberty Rd US83 to Mile 3\A05 DRAINAGE\05 Culvert\Liberty_Culvert_Xing 98+98.dgn

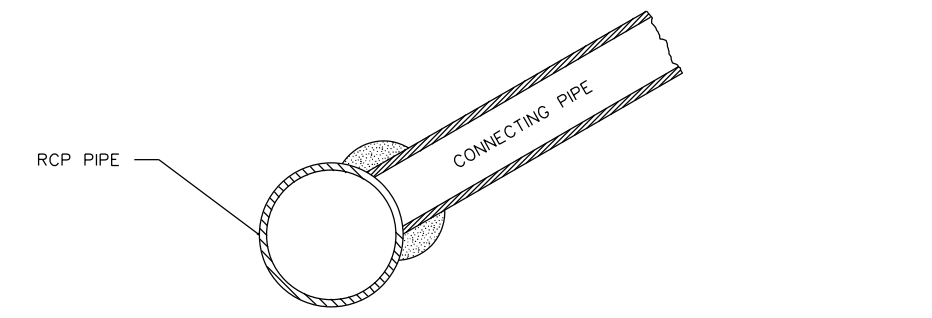


INLET OR MANHOLE CONNECTION
PLAN VIEW

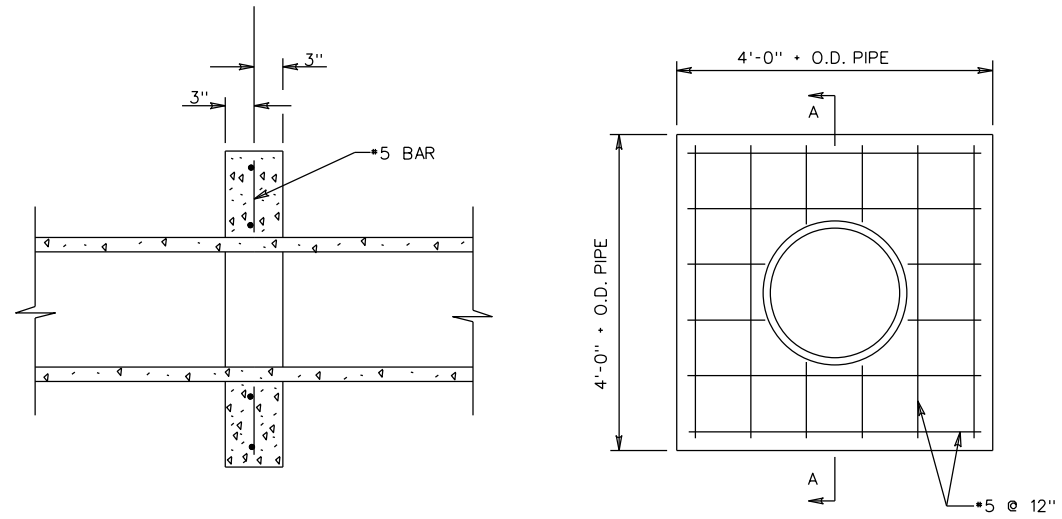


DETAIL FOR CONC. COLLARS
DRAINAGE STRUCTURES AND PIPE
SIPHONS (HORIZ. & VERT. BENDS)

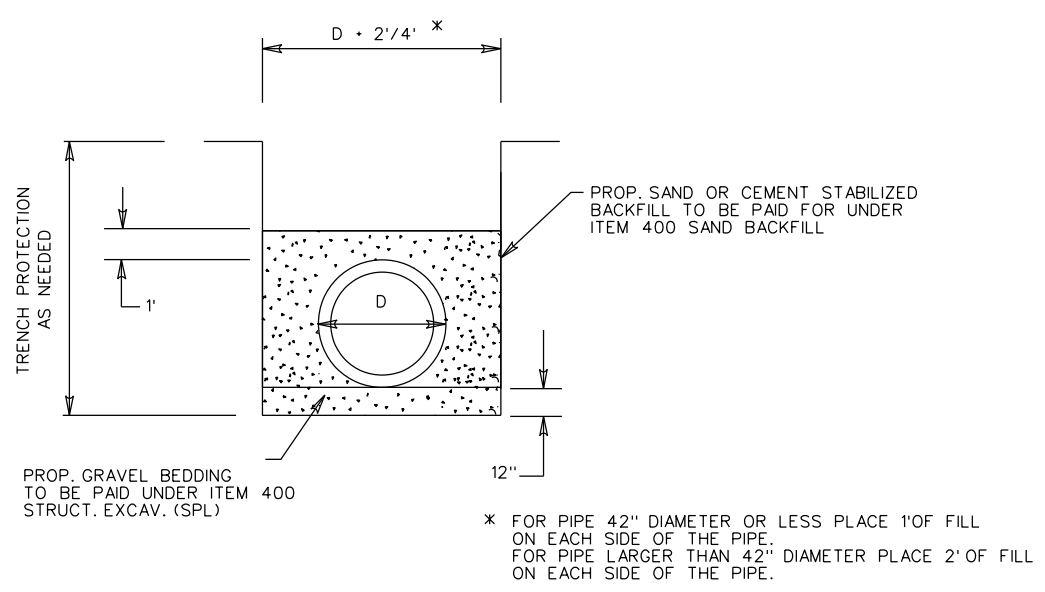
NOTE: PROP. CONC. COLLAR WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO THE BIDS ITEMS INVOLVED.
* FOR 42" DIAMETER AND LARGER PIPE



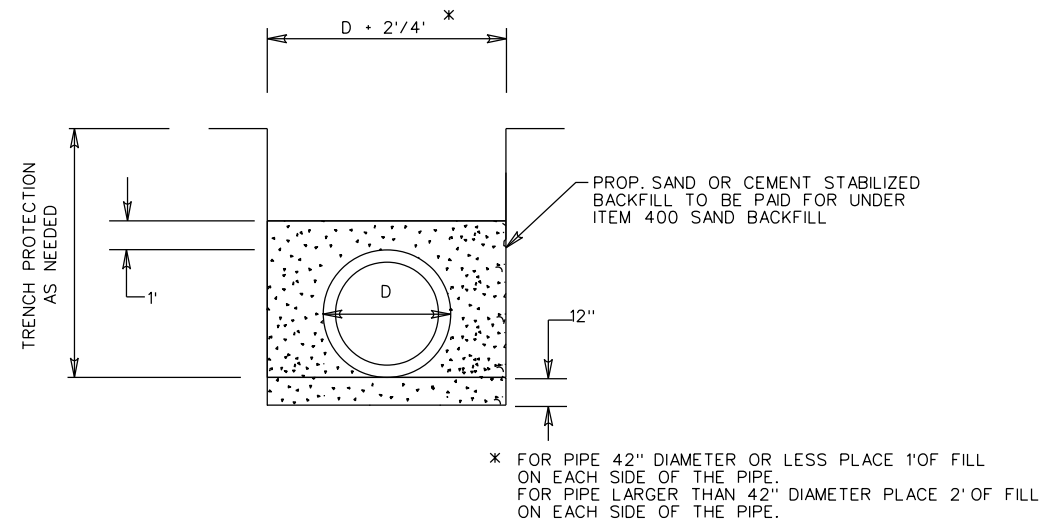
TYPICAL REINFORCED CONC. PIPE
CONNECTION WITHOUT MANHOLE



SECTION A-A
FRONT ELEVATION
CONCRETE PIPE COLLAR



SPIRAL RIB CMP
TYPICAL BACKFILL DETAIL
GRAVEL & SAND



REINFORCED CONCRETE PIPE
TYPICAL BACKFILL DETAIL-GRAVEL & SAND

FILE: P:\Clients\Firms\L&G\Liberty Rd (US83 to Mile 3)\10 STANDARDS\03 DRAINAGE\MISC. PIPE.dgn
DATE: 8/4/2020 6:24:04 PM

© TxDOT 2019 PHARR DISTRICT STANDARD



MISCELLANEOUS
PIPE STANDARD

REV. 2/19		MISC.PIPE.DGN			
FED. DIV. NO.	FEDERAL AID PROJECT NO.	FILE NO.	SHEET NO.		
6			188		
STATE	STATE DIST. NO.	COUNTY	CONT.	SECT.	JOB HIGHWAY NO.
TEXAS	21	HIDALGO	0921	02	194 LIBERTY