Work Package	**M07 – Main Span - Tower Table (Diaphragm)**
Revision	**00**
Submittal Stage	**RFC**
Date	**09-18-2018**

.

MAIN SPAN INDEX OF DRAWINGS

	NO.	REVISION	TITLE
*	NHB01	B0	INDEX OF DRAWINGS I
*	NHB02	B0	INDEX OF DRAWINGS II
	NHB03	B0	INDEX OF DRAWINGS III
	NHB03A	B0	INDEX OF DRAWINGS IV
*	NHB03B	B0	INDEX OF DRAWINGS V
	NHB04	C0/B1	BRIDGE LAYOUT I
	NHB05	C0	BRIDGE LAYOUT II
	NHB06	02	FOUNDATION LAYOUT I - TOWERS 1NT & 1ST
	NHB07	00	FOUNDATION LAYOUT II - PIERS 1N & 2N
	NHB08	00	FOUNDATION LAYOUT III - PIERS 1S & 2S
	NHB08A	00	GEOMETRY CONTROL
	NHB08B	00	BORING LOGS TERMS AND SYMBOLS
	NHB09	00	BORING LOGS I (NP-1) (SHEET 1 OF 4)
	NHB10	00	BORING LOGS I (NP-1) (SHEET 2 OF 4)
	NHB11	00	BORING LOGS I (NP-1) (SHEET 3 OF 4)
	NHB12	00	BORING LOGS I (NP-1) (SHEET 4 OF 4)
	NHB13	00	BORING LOGS II (NP-2) (SHEET 1 OF 4)
	NHB14	00	BORING LOGS II (NP-2) (SHEET 2 OF 4)
	NHB15	00	BORING LOGS II (NP-2) (SHEET 3 OF 4)
	NHB16	00	BORING LOGS II (NP-2) (SHEET 4 OF 4)
	NHB17	00	BORING LOGS III (SP-1) (SHEET 1 OF 4)
	NHB18	00	BORING LOGS III (SP-1) (SHEET 2 OF 4)
	NHB19	00	BORING LOGS III (SP-1) (SHEET 3 OF 4)
	NHB20	00	BORING LOGS III (SP-1) (SHEET 4 OF 4)
	NHB21	00	BORING LOGS IV (SP-2) (SHEET 1 OF 4)
	NHB22	00	BORING LOGS IV (SP-2) (SHEET 2 OF 4)
	NHB23	00	BORING LOGS IV (SP-2) (SHEET 3 OF 4)
	NHB24	00	BORING LOGS IV (SP-2) (SHEET 4 OF 4)
	NHB25	B0	BORING LOGS V (AS-11) (SHEET 1 OF 3)
	NHB26	B0	BORING LOGS V (AS-11) (SHEET 2 OF 3)
	NHB27	B0	BORING LOGS V (AS-11) (SHEET 3 OF 3)
	NHB28	B0	BORING LOGS VI (AS-12) (SHEET 1 OF 2)
	NHB29	B0	BORING LOGS VI (AS-12) (SHEET 2 OF 2)
	NHB29A	00	PILE DATA TABLE
	NHB29B	00	PILE TENSION DETAILS
	NHB30A	01	DRILLED SHAFT LAYOUT - TOWER 1NT
	NHB30B	00	DRILLED SHAFT LAYOUT - TOWER 1ST
	NHB31	01	DRILLED SHAFT DETAILS TYPE A
	NHB32	01	DRILLED SHAFT DETAILS TYPE B
	NHB32A	00	DRILLED SHAFT DETAILS TYPE C
	NHB32B	01	DRILLED SHAFT DETAILS TYPE D
	NHB32C	01	DRILLED SHAFT DETAILS TYPE E
	NHB32D	01	DRILLED SHAFT DETAILS TYPE F
	NHB32E	01	DRILLED SHAFT DETAILS TYPE G (8' DIA)
	NHB33	B0	TRANSITION PIER 2N & 2S DIMENSIONS
	NHB34	B0	TRANSITION PIER 2N & 2S REINFORCEMENT I
	NHB34A	B0	TRANSITION PIER 2N & 2S REINFORCEMENT II
	NHB35	B0	TRANSITION PIER 2N & 2S - NB CAP DIMENSIONS
	NHB35A	B0	TRANSITION PIER 2N & 2S - NB CAP REINFORCEMENT I
	NHB36	B0	TRANSITION PIER 2N & 2S - NB CAP REINFORCEMENT II
	NHB37	B0	TRANSITION PIER 2N & 2S - NB CAP REINFORCEMENT III
	NHB38	B0	TRANSITION PIER 2N & 2S - SB CAP DIMENSIONS
	NHB39	B0	TRANSITION PIER 2N & 2S - SB CAP REINFORCEMENT I
	NHB39A	B0	TRANSITION PIER 2N & 2S - SB CAP REINFORCEMENT II
	NHB40	B0	TRANSITION PIER 2N & 2S - SB CAP REINFORCEMENT III
	NHB41	B0	BACKSPAN PIER 1N & 1S DIMENSIONS
	NHB41A	B0	BACKSPAN PIER 1N & 1S REINFORCEMENT I
	NHB41B	B0	BACKSPAN PIER 1N & 1S REINFORCEMENT II
	NHB42	B0	BACKSPAN PIER 1N & 1S REINFORCEMENT III
	NHB42A	B0	BACKSPAN PIER 1N & 1S - NB CAP DIMENSIONS
	NHB42B	B0	BACKSPAN PIER 1N & 1S - NB CAP REINFORCEMENT I
	NHB43	B0	BACKSPAN PIER 1N & 1S - NB CAP REINFORCEMENT II
	NHB44	B0	BACKSPAN PIER 1N & 1S - NB CAP REINFORCEMENT III
	NHB45	B0	BACKSPAN PIER 1N & 1S - SB CAP DIMENSIONS
	NHB46	B0	BACKSPAN PIER 1N & 1S - SB CAP REINFORCEMENT I
	NHB47	B0	BACKSPAN PIER 1N & 1S - SB CAP REINFORCEMENT II
	NHB48	B0	BACKSPAN PIER 1N & 1S - SB CAP REINFORCEMENT III
	NHB49	00	TOWER 1NT FOOTING DIMENSIONS
	NHB50	00	TOWER 1NT FOOTING REINFORCEMENT I
	NHB51	00	TOWER 1NT FOOTING REINFORCEMENT II
	NHB52	00	TOWER 1NT FOOTING REINFORCEMENT III
	NHB53	00	TOWER 1NT FOOTING REINFORCEMENT IV
	NHB54	00	TOWER 1ST FOOTING DIMENSIONS
	NHB55	00	TOWER 1ST FOOTING REINFORCEMENT I
	NHB56	00	TOWER 1ST FOOTING REINFORCEMENT II
	NHB57	00	TOWER 1ST FOOTING REINFORCEMENT III
	NHB58	00	TOWER 1ST FOOTING REINFORCEMENT IV
	NHB59	B0	TRANSITION PIER 2N NB & SB FOOTING DIMENSIONS
	NHB60	B0	TRANSITION PIER 2N NB & SB FOOTING REINFORCEMENT I
	NHB61	B0	TRANSITION PIER 2N NB & SB FOOTING REINFORCEMENT II
	NHB62	B0	TRANSITION PIER 2S NB & SB FOOTING DIMENSIONS
	NHB63	B0	TRANSITION PIER 2S NB & SB FOOTING REINFORCEMENT I
	NHB64	B0	TRANSITION PIER 2S NB & SB FOOTING REINFORCEMENT II
	NHB65	00	BACKSPAN PIER 1N NB & SB FOOTING DIMENSIONS
	NHB66	B0	BACKSPAN PIER 1N NB & SB FOOTING REINFORCEMENT I
	NHB67	B0	BACKSPAN PIER 1N NB & SB FOOTING REINFORCEMENT II
	NHB68	00	BACKSPAN PIER 1S NB & SB FOOTING DIMENSIONS
	NHB69	B0	BACKSPAN PIER 1S NB & SB FOOTING REINFORCEMENT I
	NHB70	B0	BACKSPAN PIER 1S NB & SB FOOTING REINFORCEMENT II
	NHB71	00	TOWER 1NT ELEVATION & DIMENSIONS I
	NHB72	00	TOWER 1NT ELEVATION & DIMENSIONS II
	NHB73	00	TOWER 1ST ELEVATION & DIMENSIONS I
	NHB74	00	TOWER 1ST ELEVATION & DIMENSIONS II
	NHB75	00	LOWER TOWER DETAILS
	NHB76	00	LOWER TOWER REINFORCEMENT I
	NHB77	00	LOWER TOWER REINFORCEMENT II
	NHB78	00	LOWER TOWER REINFORCEMENT III
	NHB79	00	LOWER TOWER REINFORCEMENT IV
	NHB79A	00	LOWER TOWER REINFORCEMENT V
	NHB79B	00	LOWER TOWER REINFORCEMENT VI
	NHB79C	00	LOWER TOWER REINFORCEMENT VII
*	NHB80	B0	NODAL ZONE DETAILS I
*	NHB80A	B0	NODAL ZONE DETAILS II
*	NHB80B	B0	NODAL ZONE DETAILS III
*	NHB81	B0	NODAL ZONE REINFORCEMENT I (PRECAST ELEMENT)
*	NHB82	B0	NODAL ZONE REINFORCEMENT II (SOLID SECTION)
*	NHB82A	B0	NODAL ZONE REINFORCEMENT III (STEM)
*	NHB82B	B0	NODAL ZONE REINFORCEMENT IV (VOIDED SECTION)
*	NHB82C	B0	NODAL ZONE REINFORCEMENT V
*	NHB82D	B0	NODAL ZONE REINFORCEMENT VI
*	NHB83	B0	MAIN SPAN LEFT STRUT DETAILS
*	NHB84	B0	MAIN SPAN RIGHT STRUT DETAILS
*	NHB85	B0	STRUT REINFORCMENT I (PRECAST ELEMENT)
*	NHB86	B0	STRUT REINFORCMENT II (LEFT CIP CONNECTION)
*	NHB86A	B0	STRUT REINFORCMENT III (LEFT CIP CONNECTION)
*	NHB86B	B0	STRUT REINFORCMENT IV (RIGHT CIP CONNECTION)
*	NHB86C	B0	STRUT REINFORCMENT V (RIGHT CIP CONNECTION)
*	NHB86D	B0	STRUT REINFORCMENT VI

NOTE: * SHEETS INCLUDED IN (M7) TOWER TABLE (DIAPHRAGM) RFC SUBMITTAL

LEGEND

AO = ADVANCED STATUS
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TBPE FIRM #F-4883 P.E. NO. DATE

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NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC
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Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
INDEX OF DRAWINGS I

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
MF	X	(See Title Sheet)		US-181
GRAPHICS CFR	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MF	TEXAS	CRP	NUECES	NHB 1
CHECK	CONTROL	SECTION	JOB	
JMW	0101	06	095	

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DATE: 9/18/2018 TIME: 7:18:23 PM USER: lcavanaugh

MAIN SPAN INDEX OF DRAWINGS

NO.	REVISION	TITLE
NHB87		NODAL ZONE TOWER TABLE BASE DIMENSIONS
NHB87A		NODAL ZONE TOWER TABLE BASE REINFORCEMENT I
NHB87B		NODAL ZONE TOWER TABLE BASE REINFORCEMENT II
NHB87C		NODAL ZONE TOWER TABLE BASE REINFORCEMENT III
NHB88	BO	TYPICAL CROSS-SECTIONS I
NHB89	BO	TYPICAL CROSS-SECTIONS II
* NHB90	OO	TOWER TABLE DIMENSIONS I
* NHB91	OO	TOWER TABLE DIMENSIONS II (1NT-NB01)
* NHB91A	OO	TOWER TABLE DIMENSIONS III (1NT-NB02)
* NHB91B	OO	TOWER TABLE DIMENSIONS IV (1NT-NB03)
* NHB91C	OO	TOWER TABLE DIMENSIONS V (1NT-NB04)
* NHB91D	OO	TOWER TABLE DIMENSIONS VI (1NT-NB05)
* NHB91E	OO	TOWER TABLE DIMENSIONS VII (1NT-NB06)
* NHB91F	OO	TOWER TABLE DIMENSIONS VIII (1NT-NB06)
* NHB91G	OO	TOWER TABLE DIMENSIONS IX (1NT-SB01)
* NHB91H	OO	TOWER TABLE DIMENSIONS X (1NT-SB02)
* NHB91J	OO	TOWER TABLE DIMENSIONS XI (1NT-SB03)
* NHB91K	OO	TOWER TABLE DIMENSIONS XII (1NT-SB04)
* NHB91M	OO	TOWER TABLE DIMENSIONS XIII (1NT-SB05)
* NHB91N	OO	TOWER TABLE DIMENSIONS XIV (1NT-SB06)
* NHB91P	OO	TOWER TABLE DIMENSIONS XV (1NT-SB06)
* NHB92	OO	TOWER TABLE REINFORCEMENT I (1NT-NB01)
* NHB93	OO	TOWER TABLE REINFORCEMENT II (1NT-NB02)
* NHB94	OO	TOWER TABLE REINFORCEMENT III (1NT-NB03)
* NHB95	OO	TOWER TABLE REINFORCEMENT IV (1NT-NB04)
* NHB96	OO	TOWER TABLE REINFORCEMENT V (1NT-NB05)
* NHB97	OO	TOWER TABLE REINFORCEMENT VI (1NT-NB06)
* NHB97A	OO	TOWER TABLE REINFORCEMENT VII (1NT-NB06)
* NHB98	OO	TOWER TABLE REINFORCEMENT VIII (1NT-NB06)
* NHB99	OO	TOWER TABLE REINFORCEMENT IX (1NT-SB01)
* NHB99A	OO	TOWER TABLE REINFORCEMENT X (1NT-SB02)
* NHB99B	OO	TOWER TABLE REINFORCEMENT XI (1NT-SB03)
* NHB99C	OO	TOWER TABLE REINFORCEMENT XII (1NT-SB04)
* NHB99D	OO	TOWER TABLE REINFORCEMENT XIII (1NT-SB05)
* NHB99E	OO	TOWER TABLE REINFORCEMENT XIV (1NT-SB06)
* NHB99F	OO	TOWER TABLE REINFORCEMENT XV (1NT-SB06)
* NHB99G	OO	TOWER TABLE REINFORCEMENT XVI (1NT-SB06)
* NHB99H	OO	TOWER TABLE REINFORCEMENT XVII (1NT-NB06 CIP BLOCKOUT)
* NHB99J	OO	TOWER TABLE REINFORCEMENT XVIII (1NT-SB06 CIP BLOCKOUT)
* NHB99K	OO	TOWER TABLE REINFORCEMENT XIX
* NHB99L	OO	TOWER TABLE REINFORCEMENT XX
* NHB99M	OO	TOWER TABLE REINFORCEMENT XXI
* NHB99N	OO	TOWER TABLE REINFORCEMENT XXII
NHB100	OO	TOWER TABLE 3D INTEGRATED DETAILS I
NHB101	OO	TOWER TABLE 3D INTEGRATED DETAILS II
NHB102	OO	TOWER TABLE 3D INTEGRATED DETAILS III
NHB103	OO	UPPER TOWER REINFORCEMENT I
NHB103A	OO	UPPER TOWER REINFORCEMENT II
NHB103B	OO	UPPER TOWER REINFORCEMENT III
NHB104	OO	UPPER TOWER REINFORCEMENT IV
NHB104A	OO	UPPER TOWER REINFORCEMENT V
NHB105	OO	UPPER TOWER REINFORCEMENT VI
NHB105A	OO	UPPER TOWER REINFORCEMENT VII
NHB106	OO	UPPER TOWER REINFORCEMENT VIII
NHB106A	OO	UPPER TOWER REINFORCEMENT IX
NHB107	OO	UPPER TOWER REINFORCEMENT X
NHB107A	OO	UPPER TOWER REINFORCEMENT XI
NHB108	OO	UPPER TOWER REINFORCEMENT XII

NO.	REVISION	TITLE
NHB108A	OO	UPPER TOWER REINFORCEMENT XIII
NHB109	OO	UPPER TOWER REINFORCEMENT XIV
NHB109A	OO	UPPER TOWER REINFORCEMENT XV
NHB110	OO	UPPER TOWER REINFORCEMENT XVI
NHB111	OO	UPPER TOWER REINFORCEMENT XVII
NHB112	OO	UPPER TOWER REINFORCEMENT XVIII
NHB112A	OO	UPPER TOWER REINFORCEMENT XIX
NHB112B	OO	UPPER TOWER REINFORCEMENT XX
NHB112C	OO	UPPER TOWER REINFORCEMENT XXI
NHB112D	OO	UPPER TOWER REINFORCEMENT XXII
NHB112E	OO	UPPER TOWER REINFORCEMENT XXIII
NHB112F	OO	UPPER TOWER REINFORCEMENT XXIV
NHB112G	OO	UPPER TOWER REINFORCEMENT XXV
NHB112H	OO	UPPER TOWER REINFORCEMENT XXVI
NHB112J	OO	UPPER TOWER REINFORCEMENT XXVII
NHB112K	OO	UPPER TOWER REINFORCEMENT XXVIII
NHB112L	OO	UPPER TOWER REINFORCEMENT XXIX
NHB112M	OO	UPPER TOWER REINFORCEMENT XXX
NHB112N	OO	UPPER TOWER REINFORCEMENT XXXI
NHB112P	OO	UPPER TOWER REINFORCEMENT XXXII
NHB112Q	OO	UPPER TOWER REINFORCEMENT XXXIII
NHB112R	OO	UPPER TOWER REINFORCEMENT XXXIV
NHB112T	OO	UPPER TOWER REINFORCEMENT XXXV
NHB112U	OO	UPPER TOWER REINFORCEMENT XXXVI
NHB112V	OO	UPPER TOWER REINFORCEMENT XXXVII
NHB112W	OO	UPPER TOWER REINFORCEMENT XXXVIII
NHB112X	OO	UPPER TOWER REINFORCEMENT XXXIX
NHB113	OO	STAY CABLE LAYOUT TOWER 1NT
NHB113A	OO	STAY CABLE LAYOUT TOWER 1ST
NHB114	OO	STAY CABLE DETAILS I
NHB115	OO	STAY CABLE DETAILS II
NHB115A	OO	STAY CABLE DETAILS III
NHB116	OO	STAY CABLE DETAILS IV
NHB116A	OO	STAY CABLE DETAILS V
NHB116B	OO	STAY CABLE DETAILS VI
NHB116C	OO	STAY CABLE DETAILS VII
NHB117	OO	STAY CABLE DETAILS VIII
NHB117A	OO	STAY CABLE DETAILS IX
NHB118	OO	STAY CABLE DETAILS X
NHB118A	OO	STAY CABLE DETAILS XI
NHB119	OO	STAY CABLE CRADLE SUGGESTED FABRICATION
NHB120	OO	STAY CABLE FORCE SCHEDULE I
NHB120A	OO	STAY CABLE FORCE SCHEDULE II
NHB120B	OO	STAY CABLE STRESSING TABLE
NHB121	BO	BEARING DETAILS I
NHB122	BO	BEARING DETAILS II
NHB123	BO	BEARING DETAILS III
NHB124	BO	BEARING DETAILS IV
NHB124A	BO	BEARING DETAILS V
NHB124B	BO	BEARING DETAILS VI
NHB125	BO	SEGMENT LAYOUT NB I
NHB126	BO	SEGMENT LAYOUT NB II
NHB127	BO	SEGMENT LAYOUT SB I
NHB128	BO	SEGMENT LAYOUT SB II
NHB129	BO	SEGMENT SCHEDULE I
NHB130	BO	SEGMENT SCHEDULE II
NHB131	BO	SEGMENT SCHEDULE III
NHB132	BO	SEGMENT SCHEDULE IV
NHB133	BO	SEGMENT SCHEDULE V

NOTE: * SHEETS INCLUDED IN (M7) TOWER TABLE (DIAPHRAGM) RFC SUBMITTAL

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MAIN SPAN
INDEX OF DRAWINGS II

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MF	X	(See Title Sheet)		US-181
GRAPHICS CFR	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MF	TEXAS	CRP	NUECES	NHB 2
CHECK	CONTROL	SECTION	JOB	
JMW	0101	06	095	

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DATE: 9/18/2018 TIME: 7:18:23 PM USER: lcavanaugh

MAIN SPAN INDEX OF DRAWINGS

NO.	REVISION	TITLE
NHB231	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT I
NHB232	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT II
NHB233	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT III
NHB234	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT IV
NHB235	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT V
NHB236	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT VI
NHB237	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT VII
NHB238	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT VIII
NHB239	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT IX
NHB240	BO	LONGITUDINAL POST-TENSIONING NB LAYOUT X
NHB241	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT I
NHB242	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT II
NHB243	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT III
NHB244	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT IV
NHB245	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT V
NHB246	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT VI
NHB247	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT VII
NHB248	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT VIII
NHB249	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT IX
NHB250	BO	LONGITUDINAL POST-TENSIONING SB LAYOUT X
NHB251	BO	LONGITUDINAL POST-TENSIONING NB DETAILS I
NHB252		NOT USED
NHB253		NOT USED
NHB254		NOT USED
NHB255		NOT USED
NHB256	BO	LONGITUDINAL POST-TENSIONING SB DETAILS I
NHB257		NOT USED
NHB258		NOT USED
NHB259		NOT USED
NHB260		NOT USED
NHB261		NOT USED
NHB262		NOT USED
NHB263		NOT USED
NHB264		NOT USED
NHB265		NOT USED
* NHB266	00	TOWER TABLE POST-TENSIONING DETAILS I
* NHB267	00	TOWER TABLE POST-TENSIONING DETAILS II
* NHB267A	00	TOWER TABLE STRESSING SCHEDULE I
* NHB267B	00	TOWER TABLE STRESSING SCHEDULE II
NHB268		3'-11" CLOSURE DIMENSIONS & REINFORCEMENT
NHB269		1'-7" CLOSURE DIMENSIONS & REINFORCEMENT
NHB270		NOT USED
NHB271		LONGITUDINAL POST-TENSIONING QUANTITIES & STRESSING SCHEDULE NB
NHB272		LONGITUDINAL POST-TENSIONING QUANTITIES & STRESSING SCHEDULE SB
NHB273		POST-TENSIONING ANCHOR & GROUTING DETAILS I
NHB274		POST-TENSIONING ANCHOR & GROUTING DETAILS II
NHB275	BO	EXPANSION JOINT DETAILS I
NHB276	BO	EXPANSION JOINT DETAILS II
NHB276A	BO	EXPANSION JOINT DETAILS III

NO.	REVISION	TITLE
NHB277	BO	CUSTOM FENCE DETAILS I
NHB277A	BO	CUSTOM FENCE DETAILS II
NHB277B	BO	CUSTOM FENCE DETAILS III
NHB277C	BO	CUSTOM FENCE DETAILS IV
NHB278	BO	CUSTOM FENCE DETAILS V
NHB279	BO	MEDIAN SLAB DETAILS I
NHB280	BO	MEDIAN SLAB DETAILS II
NHB281	BO	MEDIAN SLAB DETAILS III
NHB281A	BO	MEDIAN SLAB DETAILS IV
NHB281B	BO	MEDIAN SLAB DETAILS V
NHB281C	BO	MEDIAN SLAB DETAILS VI
NHB281D	BO	MEDIAN SLAB DETAILS VII
NHB281E	BO	MEDIAN SLAB DETAILS VIII
NHB281F	BO	MEDIAN SLAB DETAILS IX
NHB281G	BO	MEDIAN SLAB DETAILS X
NHB282	BO	DRAINAGE DETAILS I
NHB283	BO	DRAINAGE DETAILS II
NHB284		NOT USED
NHB285	BO	SEGMENT ACCESS DETAILS I
NHB286	BO	SEGMENT ACCESS DETAILS II
NHB287	BO	VERMIN GUARD DETAILS NB
NHB287A	BO	VERMIN GUARD DETAILS SB
NHB288		MISCELLANEOUS DETAILS I
NHB289		MISCELLANEOUS DETAILS II
NHB290		BELVEDERE DETAILS I
NHB291		BELVEDERE DETAILS II
NHB292	BO	UTILITY DETAILS I
NHB293	BO	UTILITY DETAILS II
NHB293A	BO	UTILITY DETAILS III
NHB294	BO	NAVIGATIONAL LIGHTING DETAILS
NHB295	BO	AVIATION LIGHTING DETAILS
NHB296		NOT USED
NHB297		NOT USED
NHB298		NOT USED
NHB299		NOT USED
NHB300		NOT USED
NHB301		NOT USED
NHB302		NOT USED
NHB303		NOT USED
NHB304		NOT USED
NHB305		NOT USED
NHB306		NOT USED
NHB307	BO	TOWER ACCESS DETAILS I
NHB308	BO	TOWER ACCESS DETAILS II
NHB309	BO	TOWER ACCESS DETAILS III
NHB310	BO	TOWER ACCESS DETAILS IV
NHB311	BO	TOWER ACCESS DETAILS V
NHB312	BO	TOWER ACCESS DETAILS VI
NHB313	BO	TOWER ACCESS DETAILS VII
NHB314	BO	TOWER ACCESS DETAILS VIII
NHB315	BO	TOWER ACCESS DETAILS IX
NHB316	BO	TOWER ACCESS DETAILS X
NHB317	BO	TOWER ENTRANCE DETAILS I
NHB318		TOWER ENTRANCE DETAILS II

NOTE: * SHEETS INCLUDED IN (M7) TOWER TABLE (DIAPHRAGM) RFC SUBMITTAL

FIGG BRIDGE ENGINEERS, INC.
PRELIMINARY - FOR INTERIM REVIEW ONLY

THESE DOCUMENTS ARE FOR INTERIM REVIEW AND NOT INTENDED FOR REGULATORY APPROVAL, PERMIT, BIDDING OR CONSTRUCTION PURPOSES. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

W. DENNEY PATE 108057 09/18/2018
TBPE FIRM #F-4883 P.E. NO. DATE

LEGEND
AO = ADVANCED STATUS
BO = PRE-FINAL
CO = ESOC OR FINAL DESIGN SUBMITTAL
OO = RFC

HL-93 LOADING

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC
FIGG TBPE FIRM #F-4883
Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
INDEX OF DRAWINGS V

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
MF	X	(See Title Sheet)		US-181
GRAPHICS CFR	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MF	TEXAS	CRP	NUECES	NHB 3B
CHECK	CONTROL	SECTION	JOB	
JMW	0101	06	095	

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

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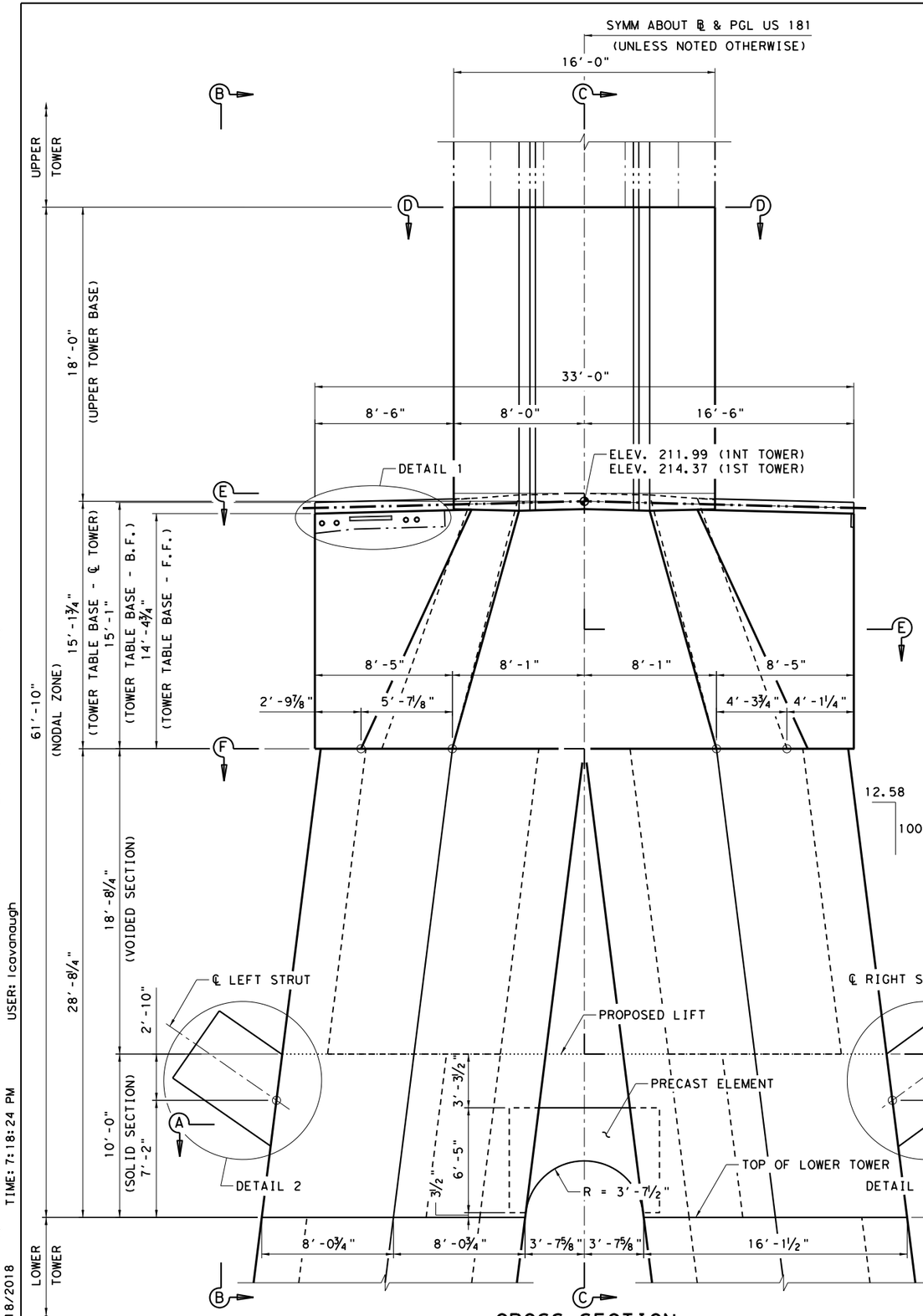
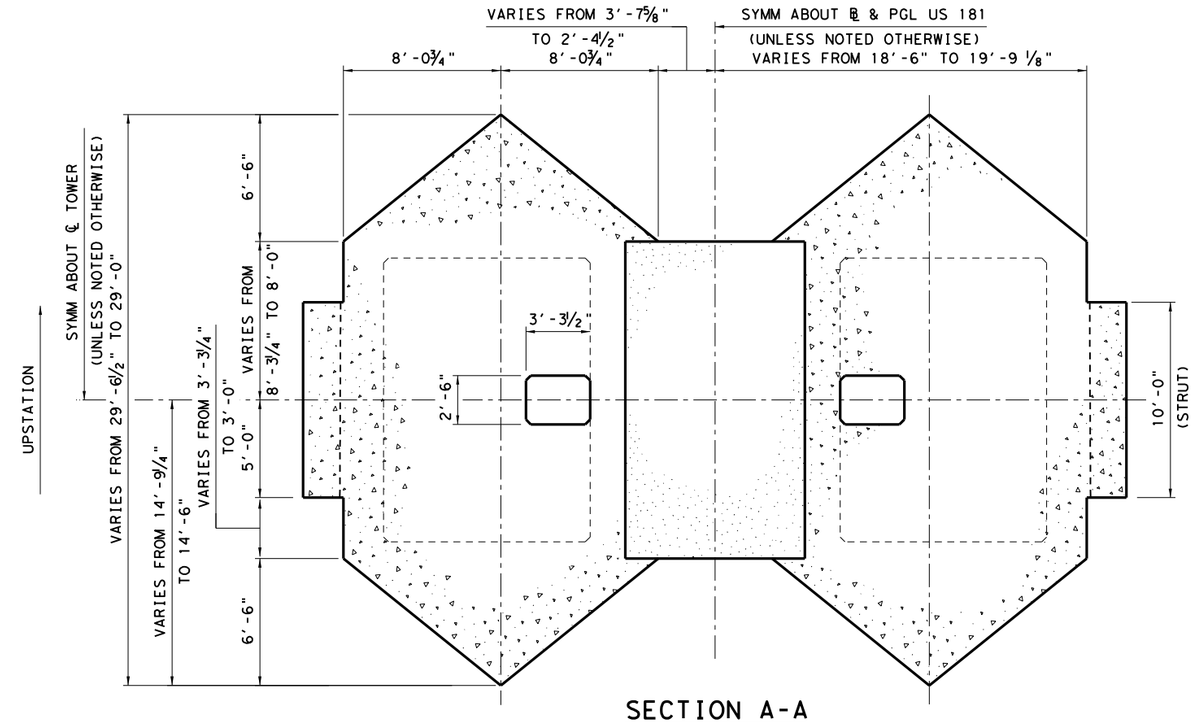


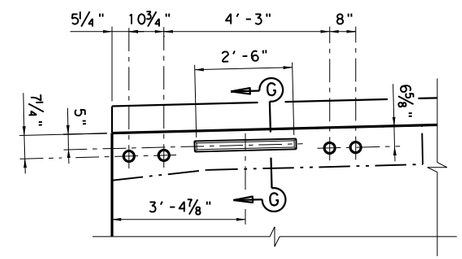
CROSS-SECTION

(LOOKING UPSTATION - TOWER 1NT)
(TOWER 1ST SIMILAR)

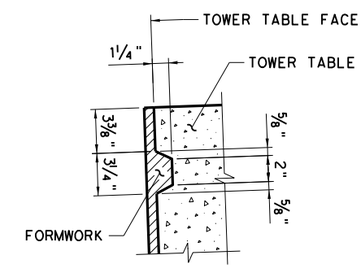


SECTION A-A

(SOLID SECTION)



DETAIL 1



SECTION G-G

NOTES:

1. FOR LOWER TOWER DETAILS, SEE MAIN SPAN LOWER TOWER DETAILS AND REINFORCEMENT SHEETS.
2. FOR TOWER STRUT DETAILS, SEE MAIN SPAN TOWER STRUT DIMENSIONS AND REINFORCEMENT SHEETS.
3. FOR TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT SHEETS.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

HL-93 LOADING

0 4 8
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE DETAILS I

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DCB	TEXAS	CRP	NUECES	NHB 80
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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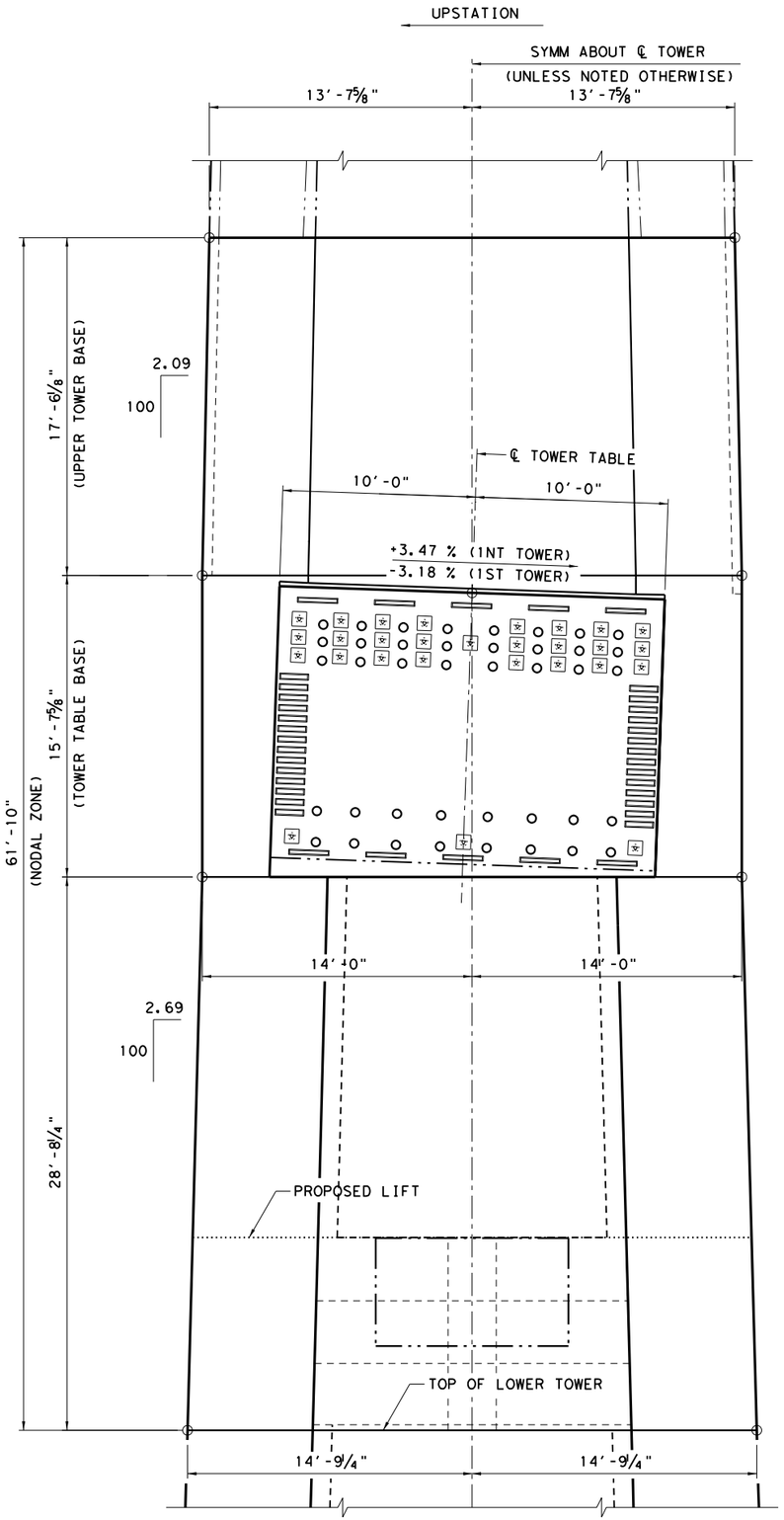
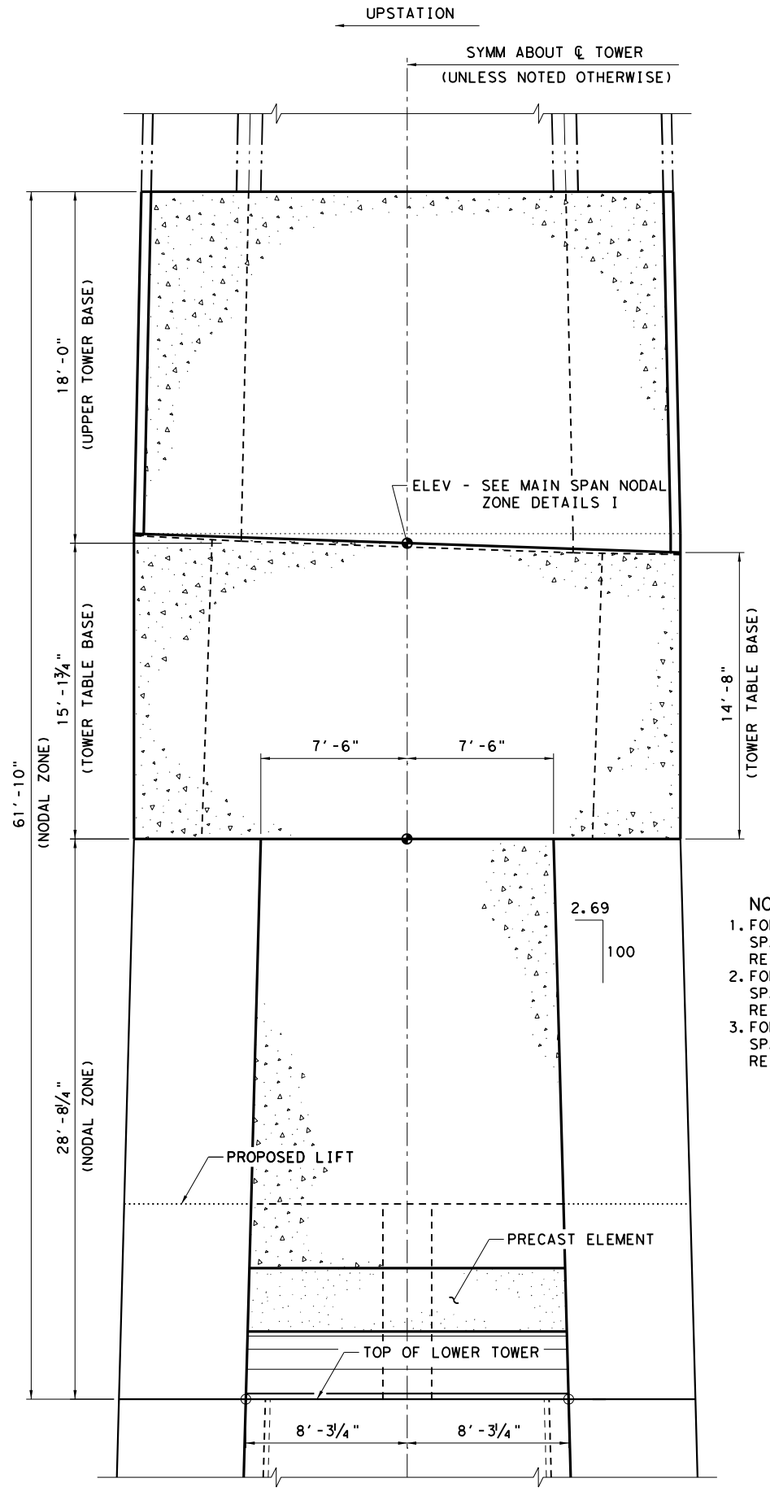
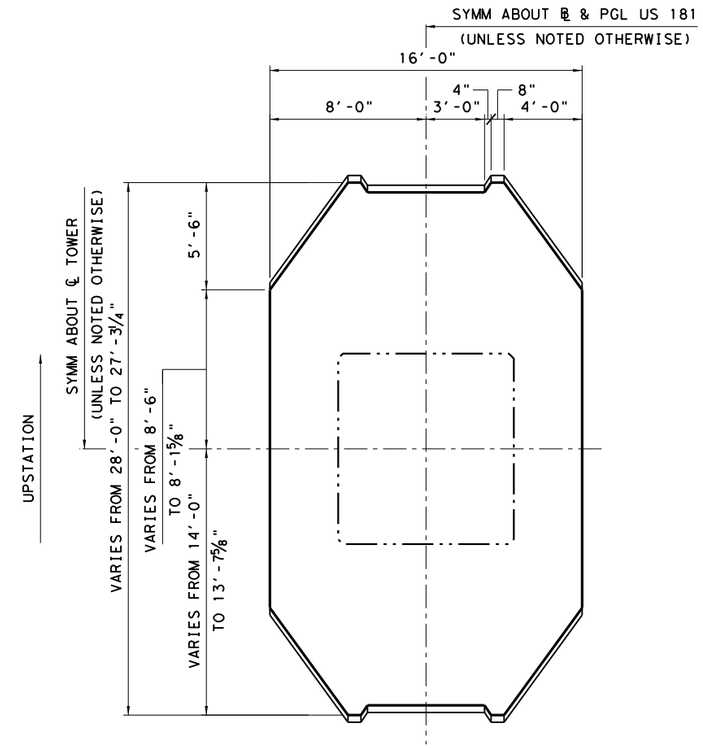


VIEW B-B



SECTION C-C

(POST-TENSIONING NOT SHOWN)



SECTION D-D

(UPPER TOWER BASE)

NOTES:

1. FOR LOWER TOWER DETAILS, SEE MAIN SPAN LOWER TOWER DETAILS AND REINFORCEMENT SHEETS.
2. FOR TOWER STRUT DETAILS, SEE MAIN SPAN TOWER STRUT DIMENSIONS AND REINFORCEMENT SHEETS.
3. FOR TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT SHEETS.

HL-93 LOADING

0 4 8
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

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TBPE FIRM #F-4883

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STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE DETAILS II

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 80A
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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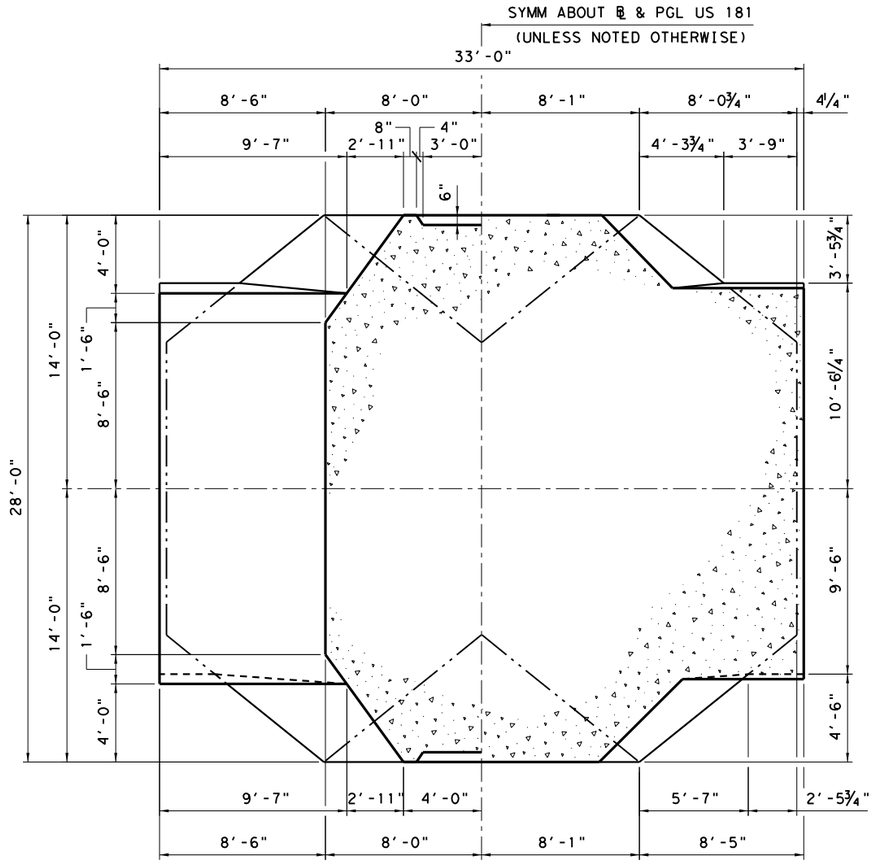
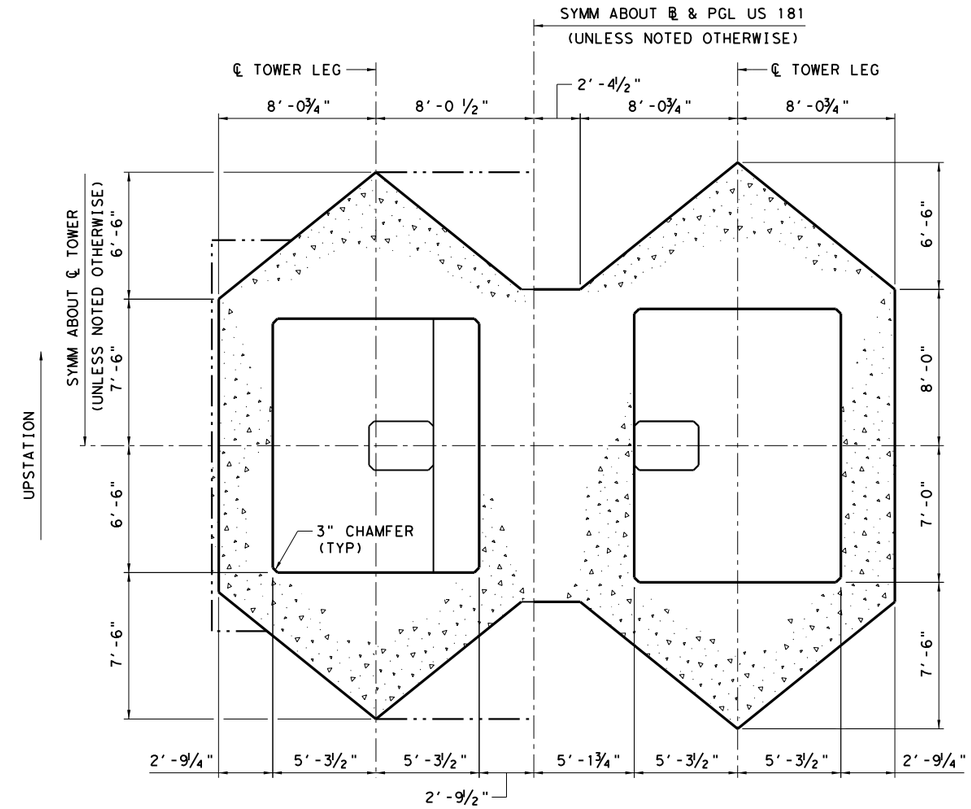


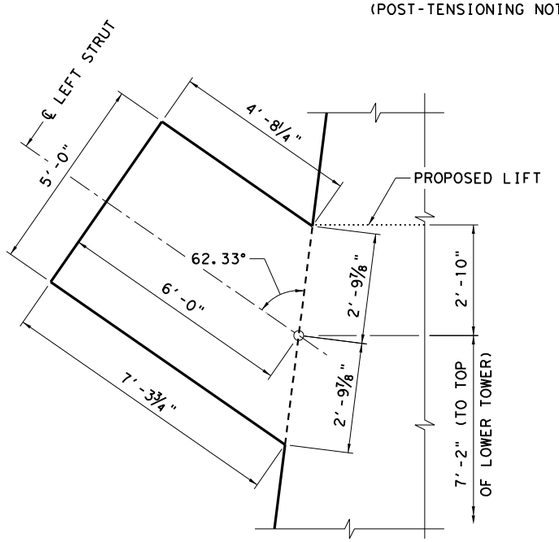
SECTION E-E

(TOWER TABLE BASE)
(POST-TENSIONING NOT SHOWN FOR CLARITY)



SECTION F-F

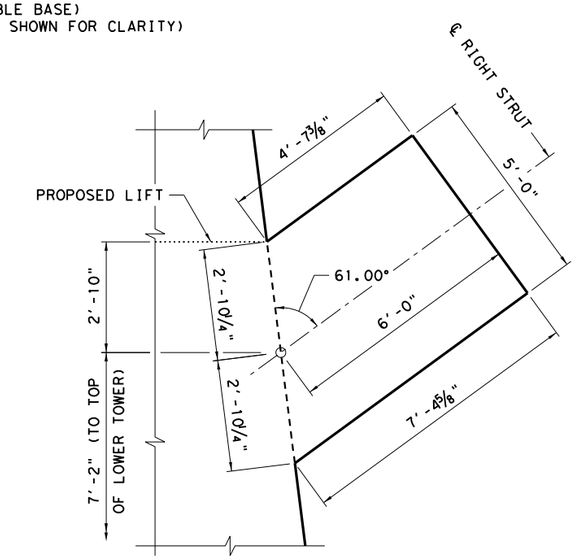
(VOIDED SECTION)



DETAIL 2

(LEFT STRUT STEM)

0 2 4
SCALE IN FEET



DETAIL 3

(RIGHT STRUT STEM)

0 2 4
SCALE IN FEET

NOTES:

1. FOR LOWER TOWER DETAILS, SEE MAIN SPAN LOWER TOWER DETAILS AND REINFORCEMENT SHEETS.
2. FOR TOWER STRUT DETAILS, SEE MAIN SPAN TOWER STRUT DIMENSIONS AND REINFORCEMENT SHEETS.
3. FOR TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT SHEETS.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

HL-93 LOADING

0 4 8
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

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TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE DETAILS III

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 80B
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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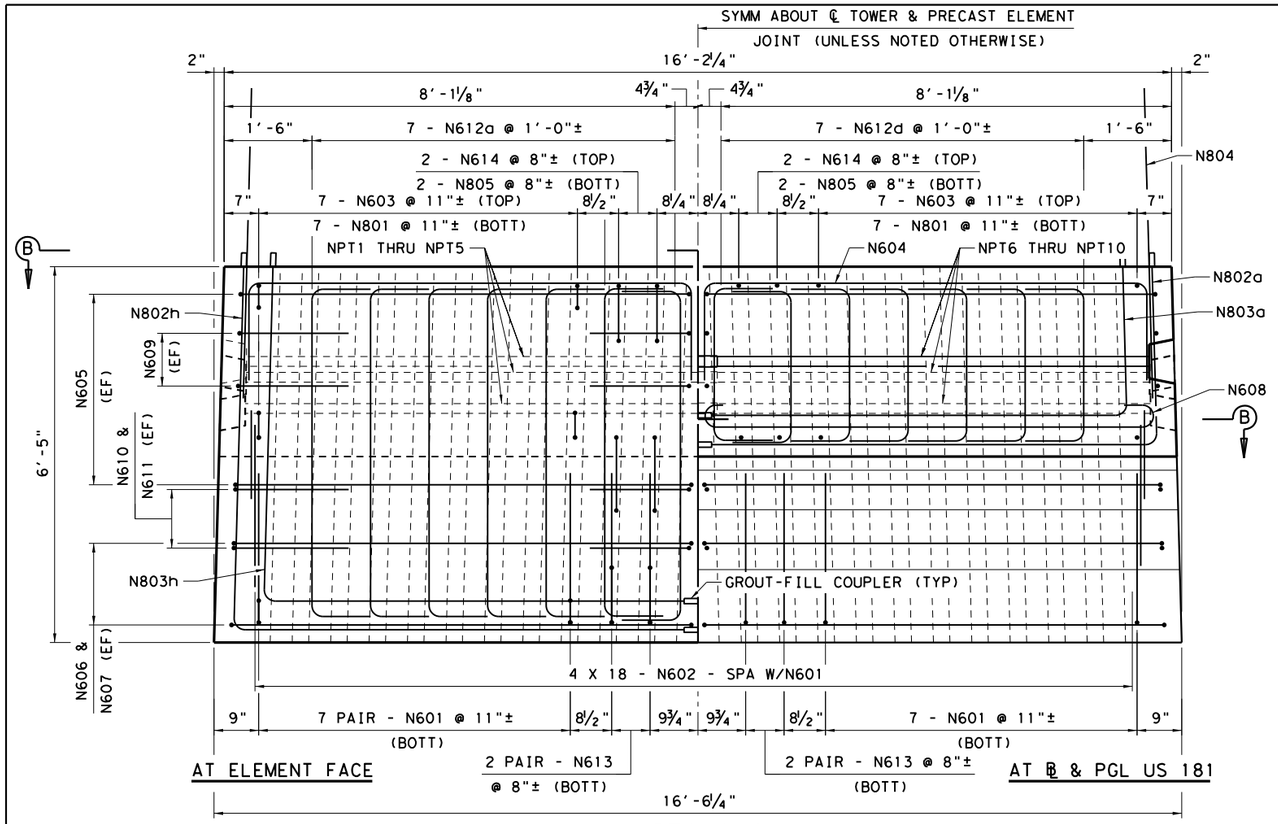

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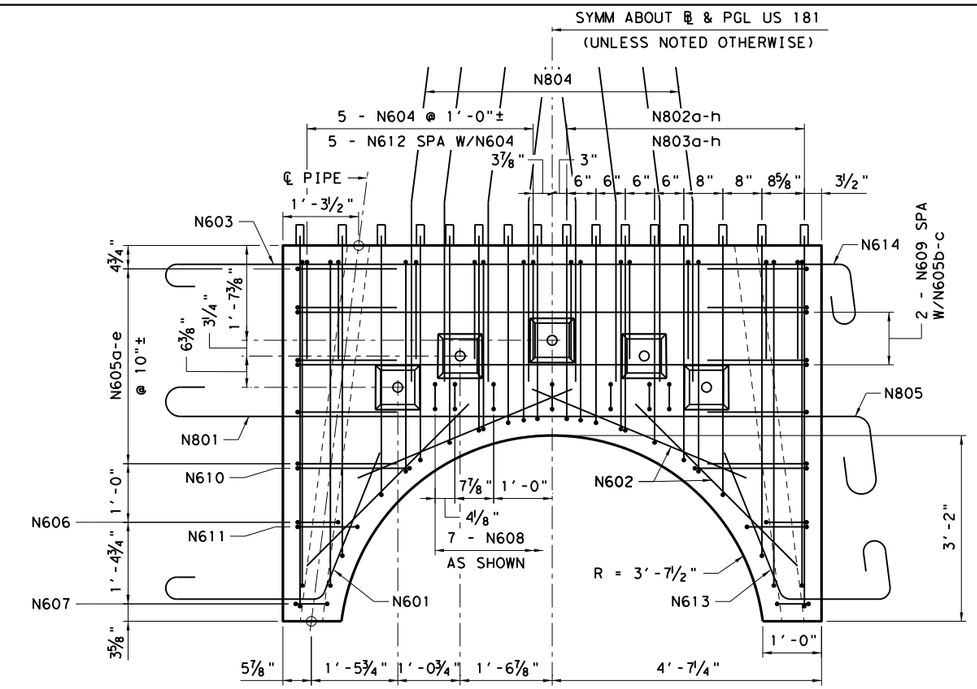
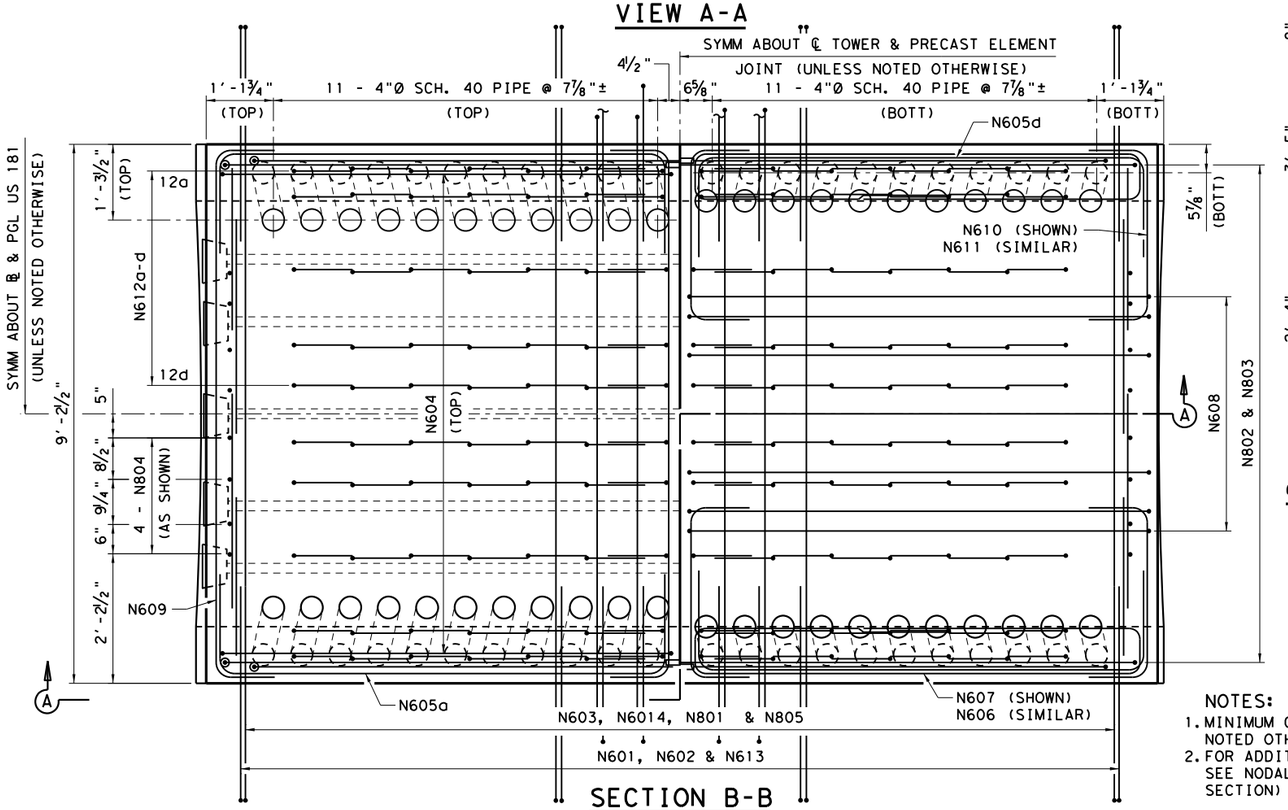
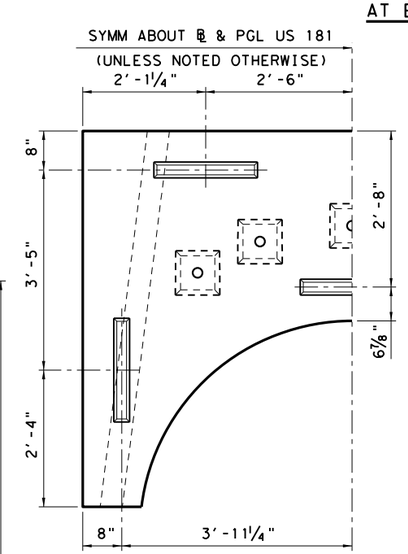


AT ELEMENT FACE

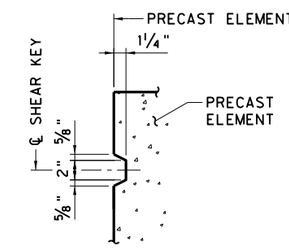
CROSS-SECTION



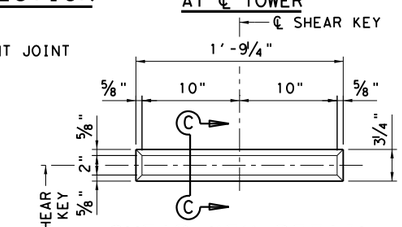
SECTION B-B



PARTIAL CROSS-SECTION
@ PRECAST ELEMENT JOINT
(SHEAR KEY LAYOUT)



SECTION C-C
(NTS)



SHEAR KEY DETAIL
(NTS)

HL-93 LOADING

SCALE IN FEET 0 1 2

NOTES:
1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. FOR ADDITIONAL NODAL ZONE REINFORCEMENT, SEE NODAL ZONE REINFORCEMENT (SOLID SECTION) SHEETS.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC — FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE REINFORCEMENT I
(PRECAST ELEMENT)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 81
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

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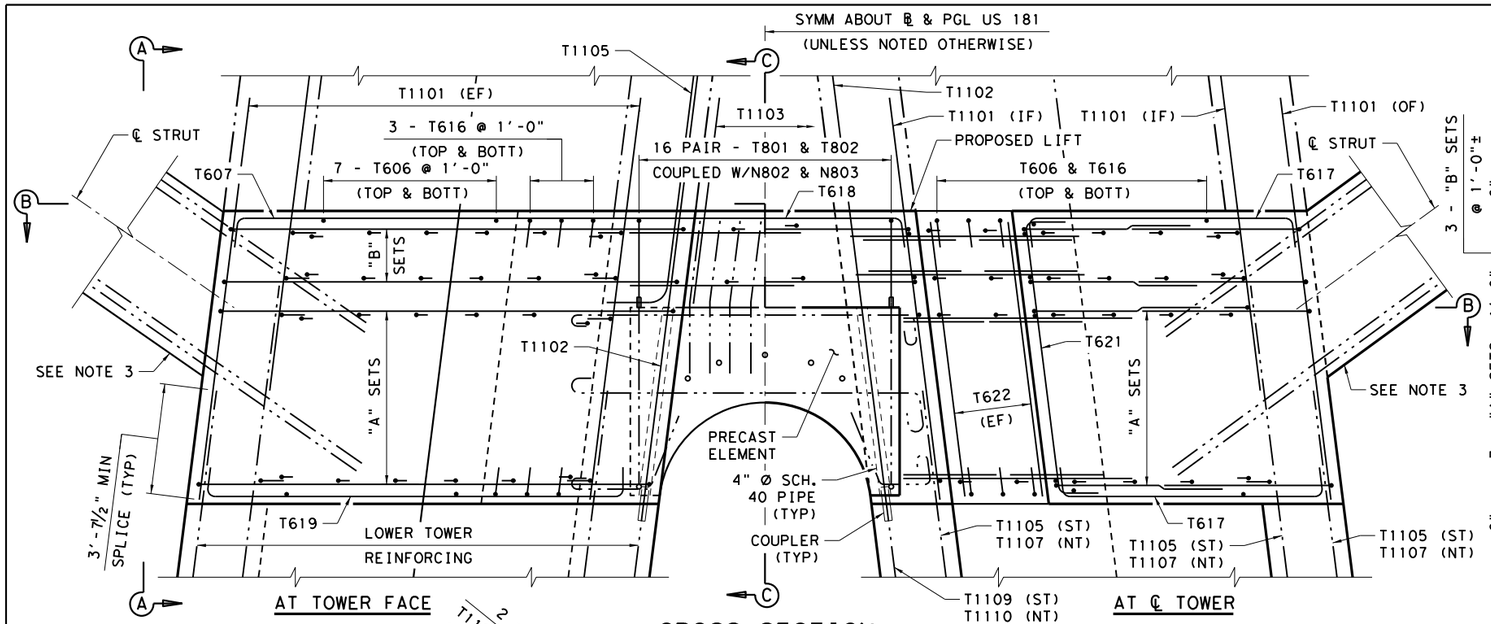
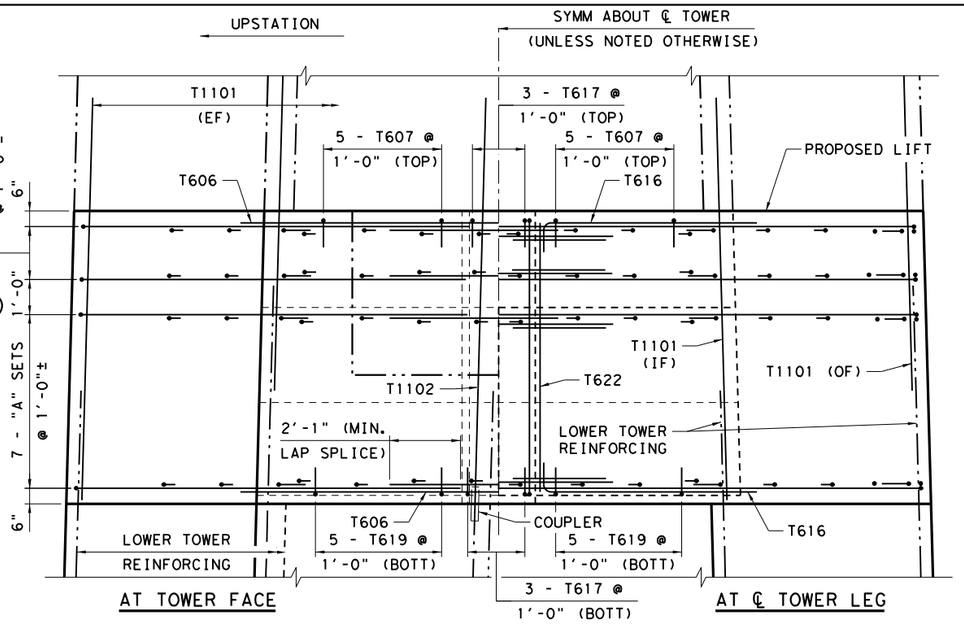
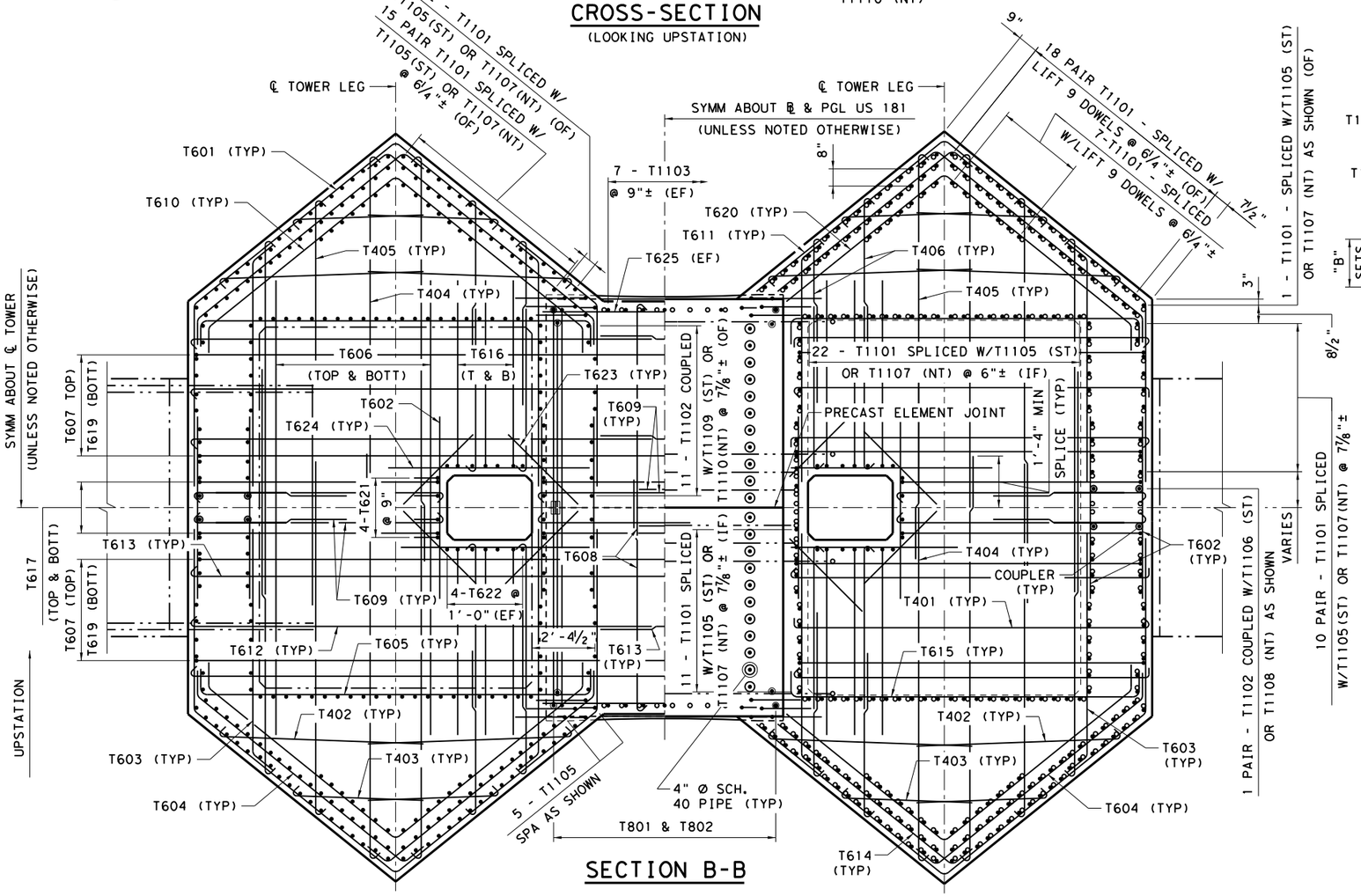


CROSS-SECTION

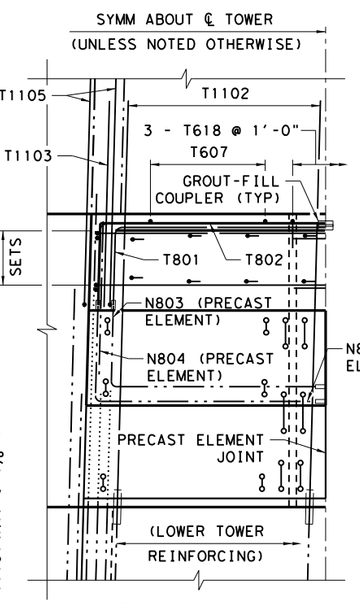
(LOOKING UPSTATION)



VIEW A-A



SECTION B-B



HALF SECTION C-C

NOTES:

1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. FOR NODAL ZONE - PRECAST ELEMENT REINFORCEMENT, SEE NODAL ZONE REINFORCEMENT I (PRECAST ELEMENT) SHEET.
3. FOR NODAL ZONE - STRUT STEM REINFORCEMENT, SEE NODAL ZONE REINFORCEMENT III (STEM) SHEET.
4. "A" SETS INCLUDE 6 - T401, 4 - T402, 4 - T403, 4 - T404, 4 - T405, 8 - T406, 4 - T602, 4 - T603, 2 - T604, 4 - T609, 2 - T611, 2-T614, 2 - T615, 2 - T620, 4 - T623, AND 2 - T624.
5. "B" SET INCLUDES 8 - T402, 8 - T403, 8 - T404, 8 - T405, 16 - T406, 4 - T601, 10 - T602, 8 - T603, 8 - T604, 4 - T605, 4 - T608, 12 - T609, 4 - T610, 6 - T612, 6 - T613, 8 - T623, 4 - T624, AND 2 - T625.
6. T & B DENOTES TOP AND BOTTOM.

HL-93 LOADING

0 2 4
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE REINFORCEMENT II
(SOLID SECTION)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
EDL	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EDL	TEXAS	CRP	NUECES	NHB 82
CHECK	CONTROL	SECTION	JOB	
MF	0101	06	095	

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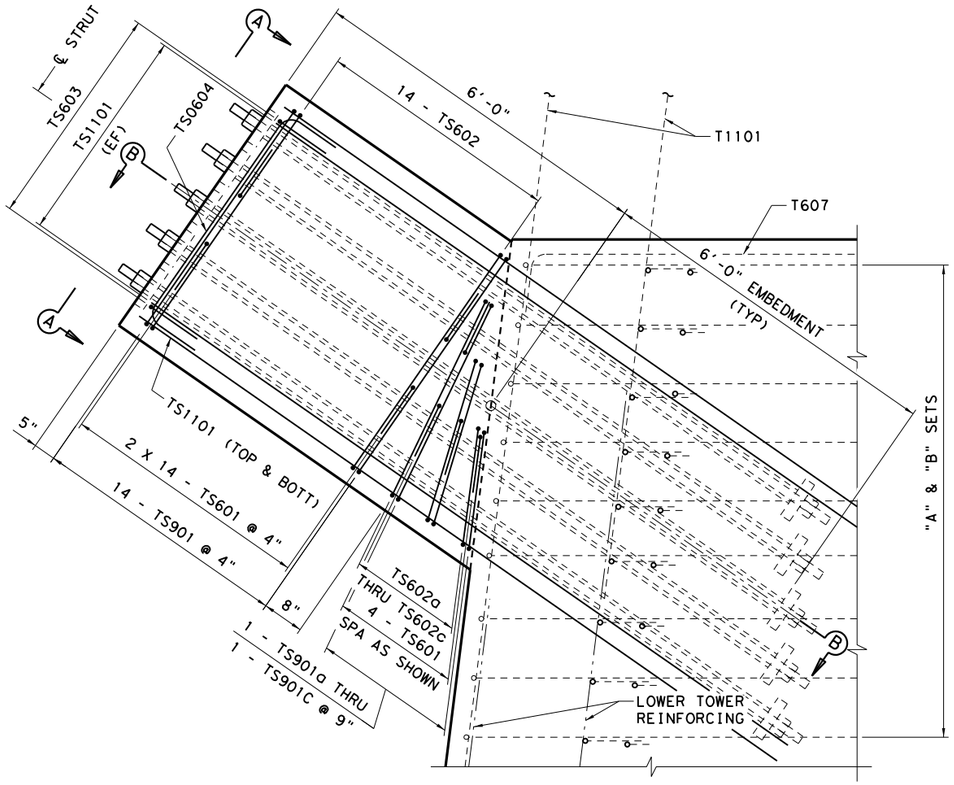
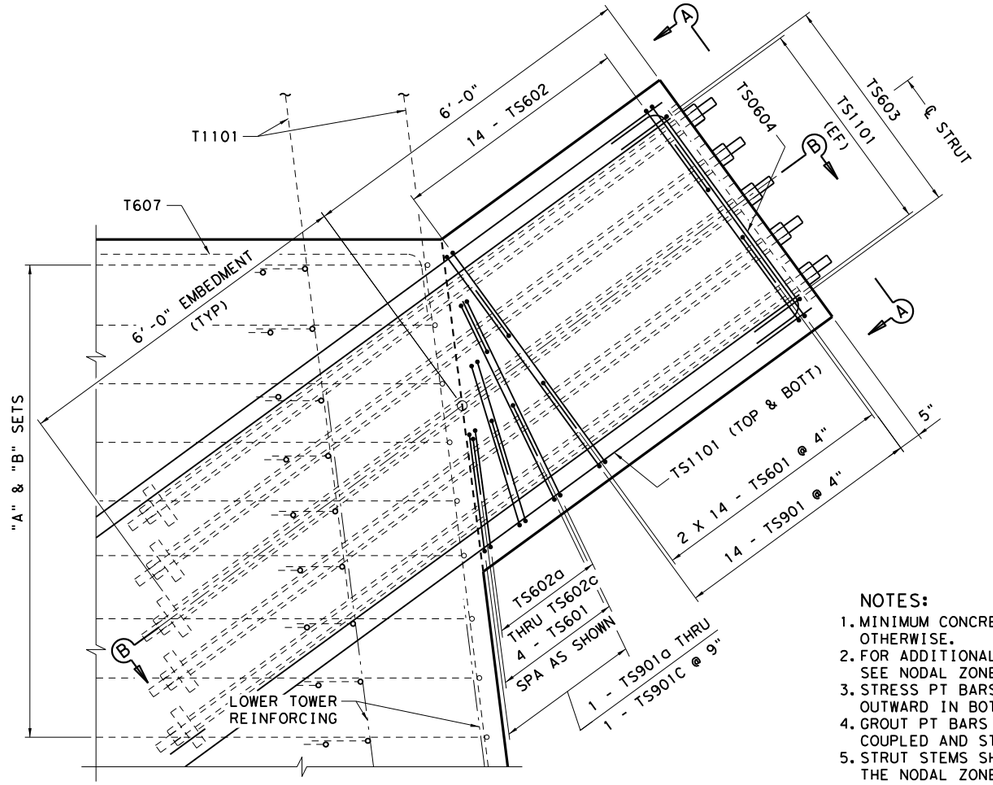


PARTIAL ELEVATION
(LEFT STRUT STEM)

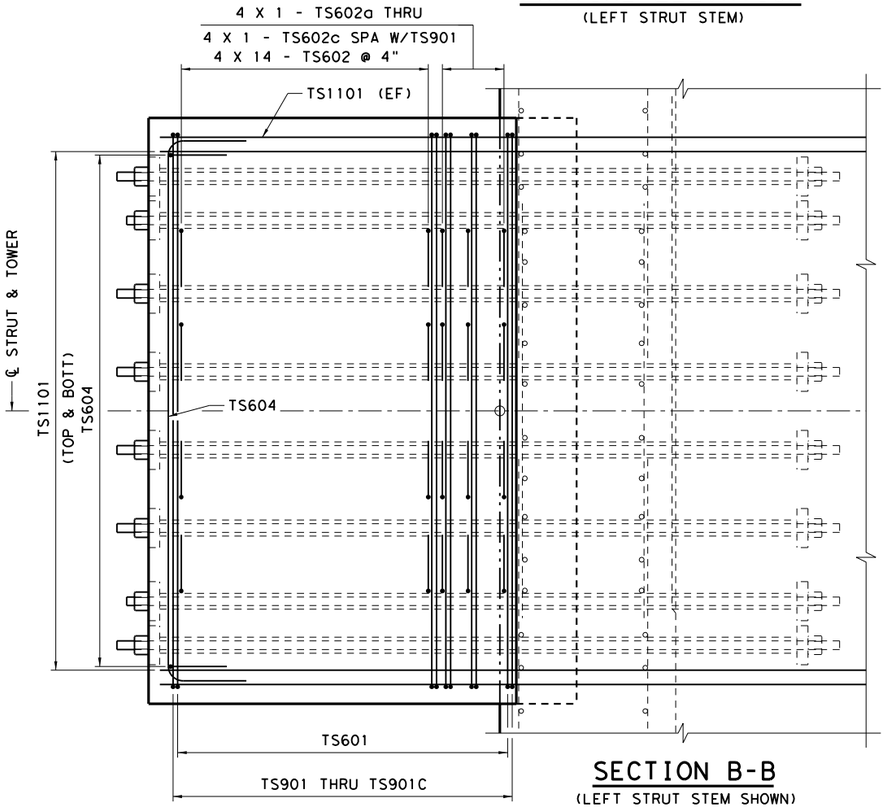


PARTIAL ELEVATION
(RIGHT STRUT STEM)

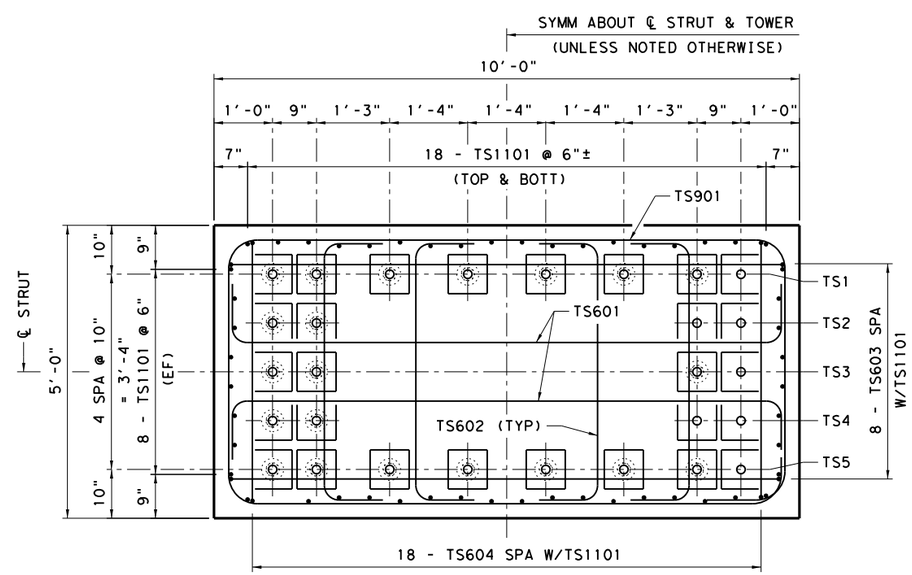
STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

NOTES:
1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. FOR ADDITIONAL TOWER REINFORCEMENT (SOLID SECTION), SEE NODAL ZONE REINFORCEMENT (SOLID SECTION) SHEETS.
3. STRESS PT BARS SYMMETRICALLY FROM CENTER OF STEM OUTWARD IN BOTH DIRECTIONS.
4. GROUT PT BARS ONLY AFTER THE PT BARS HAVE BEEN COUPLED AND STRESSED TO THE PRECAST STRUT SECTION.
5. STRUT STEMS SHALL BE MONOLITHIC AND CAST ALONG WITH THE NODAL ZONE SOLID SECTION.



SECTION B-B
(LEFT STRUT STEM SHOWN)



VIEW A-A

HL-93 LOADING

0 1 2
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE REINFORCEMENT III
(STEM)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DCB	TEXAS	CRP	NUECES	NHB 82A
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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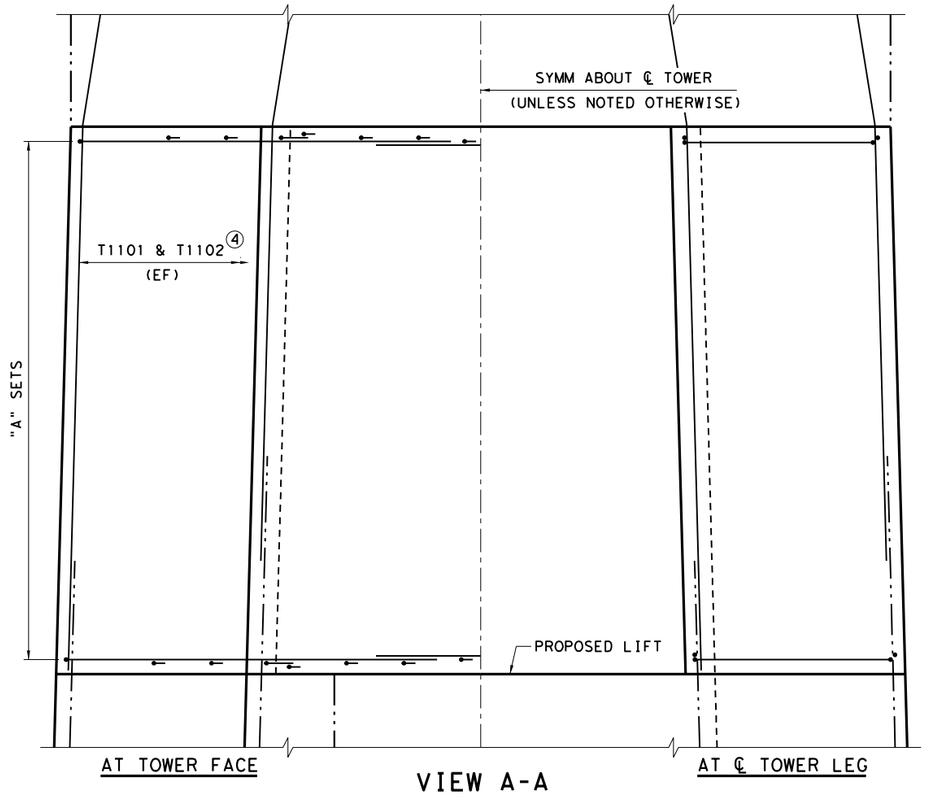
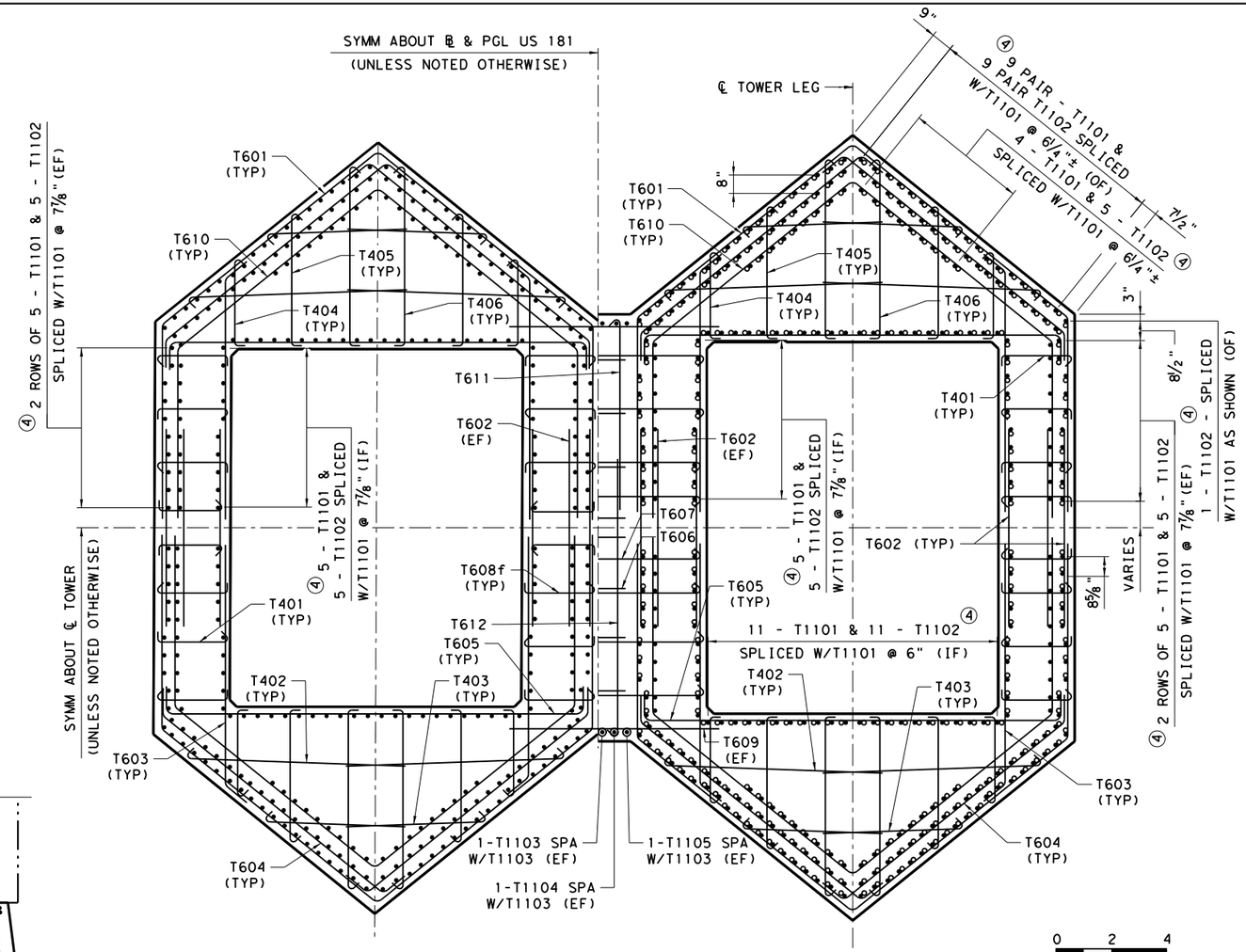


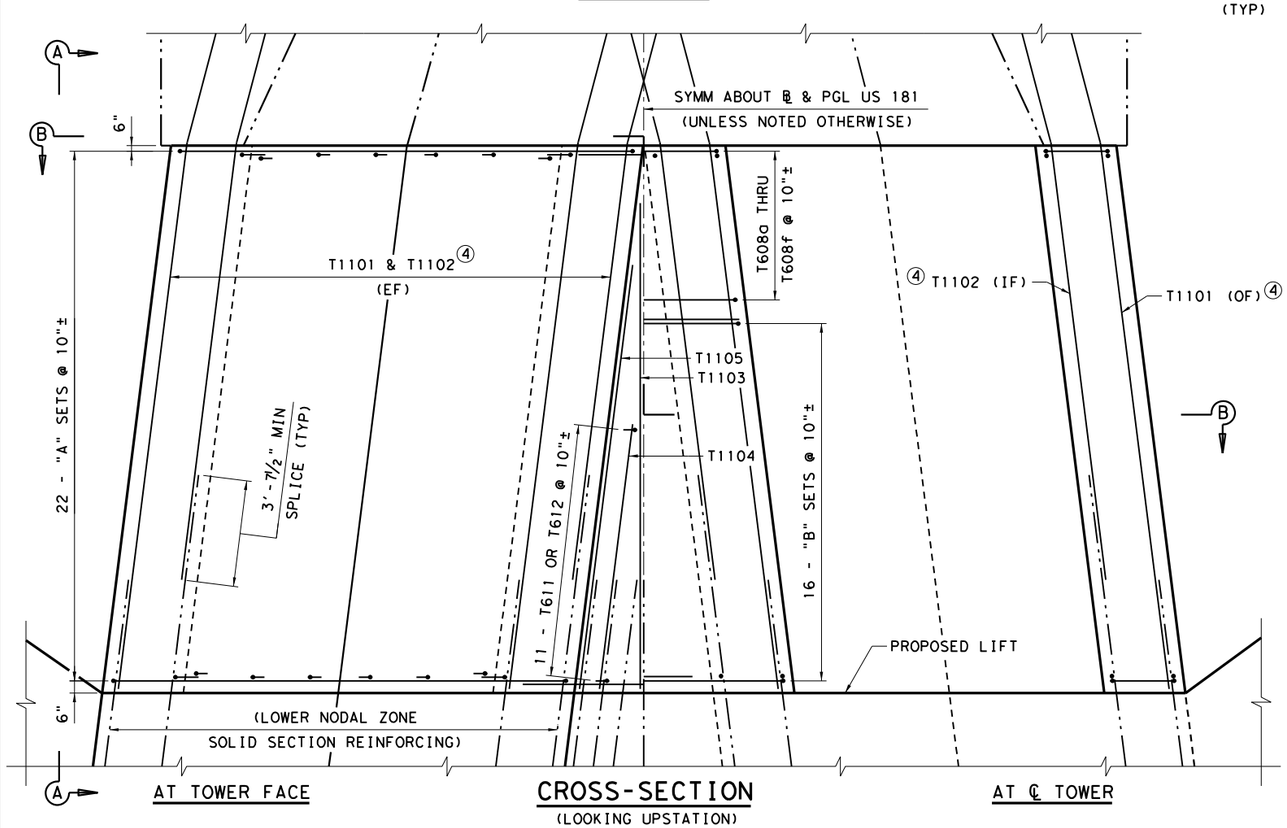
VIEW A-A



SECTION B-B

HL-93 LOADING

0 2 4
SCALE IN FEET



CROSS-SECTION
(LOOKING UPSTATION)

NOTES:

1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 16 - T401, 8 - T402, 8 - T403, 8 - T404, 8 - T405, 8 - T406, 4 - T601, 12 - T602, 8 - T603, 8 - T604, 4 - T605, 2 - T609 AND 4 - T610.
3. "B" SETS INCLUDE 8 - T606 AND 8 - T607.

④ SPECIAL ATTENTION SHOULD BE GIVEN WHEN PLACING AND ROTATING T1101 AND T1102 BARS. UPPER LEGS WILL NEED TO AVOID TRANSVERSE TENDONS IN THE TOWER TABLE BASE REGION WHILE MAINTAINING ADEQUATE CONCRETE COVER.

STATE OF TEXAS
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NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE REINFORCEMENT IV
(VOIDED SECTION)

DESIGN EDL	FED. RD. DIV. NO. X	FEDERAL AID PROJECT NO. (See Title Sheet)		HIGHWAY NO. US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK EDL	TEXAS	CRP	NUECES	NHB 82B
CHECK MF	CONTROL 0101	SECTION 06	JOB 095	

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DATE: 9/18/2018 TIME: 7:18:26 PM USER: lcavanaugh

BAR LIST - SOLID SECTION & STRUT STEMS

BAR	NO	SIZE	BEND TYPE	A	B	C	D	G	N	O	P	LENGTH
T401	84	4	18	4½"	13'-9"			4½"				14'-6"
T402	80	4	4		7'-9¾"	4½"			45°			8'-2¼"
T403	80	4	4		4'-11½"	4½"			45°			5'-4"
T404	80	4	4		13'-7¾"	4½"			45°			14'-0¼"
T405	80	4	4		15'-6"	4½"			45°			15'-10½"
T406	160	4	4		6'-4"	4½"			45°			6'-8½"
T601	12	6	28		6'-11"	10'-0⅜"			102°	129°		33'-10¾"
T602	86	6	1		7'-2"							7'-2"
T603	80	6	3		8'-9"	1'-0"			129°			9'-9"
T604	52	6	10		10'-6¾"	1'-0"	1'-0"		102°	129°		12'-6¾"
T605	12	6	6		15'-7½"	1'-0"	1'-0"					17'-7½"
T606	28	6	1		18'-0"							18'-0"
T607	10	6	10		36'-5"	1'-0"	1'-0"		97°	97°		38'-5"
T608	12	6	4		8'-11"	8"			45°			9'-7"
T609	92	6	4		6'-1"	8"			45°			6'-9"
T610	12	6	28		1'-0"	9'-9¼"			102°	129°		21'-6½"
T611	28	6	9		10'-0⅜"	9'-6"	6'-11"		102°	129°		26'-5⅜"
T612	18	6	4		17'-3"	8"			45°			17'-11"
T613	18	6	4		22'-3"	8"			45°			22'-11"
T614	28	6	3		9'-0"	1'-0"			102°			10'-0"
T615	28	6	6		13'-10¾"	1'-0"	1'-0"					15'-10¾"
T616	24	6	2		7'-3"	1'-0"						8'-3"
T617	12	6	9		9'-6"	1'-0"	1'-0"		83°	97°		11'-6"
T618	3	6	10		9'-8½"	1'-0"	1'-0"		97°	97°		11'-8½"
T619	20	6	9		14'-6"	1'-0"	1'-0"		83°	90°		16'-6"
T620	28	6	9		9'-9¼"	7'-10"	1'-0"		102°	129°		18'-7¼"
T621	8	6	9		9'-6½"	1'-0"	1'-0"		83°	97°		11'-6½"
T622	16	6	1		9'-6½"							9'-6½"
T623	80	6	1		4'-0"							4'-0"
T624	40	6	1		7'-10"							7'-10"
T625	6	6	1		9'-6"							9'-6"
T801	32	8	3		7'-2"	2'-6½"			92°			9'-8½"
T802	32	8	3		7'-8"	2'-9½"			92°			10'-5½"
T1101	552	11	1		13'-10¼"							13'-10¼"
T1102	52	11	1		18'-0"							18'-0"
T1103	14	11	1		8'-1"							8'-1"
T1105	20	11	3		10'-10"	2'-0"			97°			12'-10"
TS601	56	6	6		9'-6"	1'-0"	1'-0"					11'-6"
TS602	112	6	6		4'-6"	1'-0"	1'-0"					6'-6"
TS602a	8	6	6		3'-9"	1'-0"	1'-0"					5'-9"
TS602b	8	6	6		2'-11"	1'-0"	1'-0"					4'-11"
TS602c	8	6	6		2'-1"	1'-0"	1'-0"					4'-1"
TS603	16	6	6		9'-3½"	1'-0"	1'-0"					11'-3½"
TS604	36	6	6		4'-3½"	1'-0"	1'-0"					6'-3½"
TS901	28	9	12	1'-7"	4'-6"	9'-6"		1'-7"				31'-2"
TS901a	2	9	12	1'-7"	3'-9"	9'-6"		1'-7"				29'-8"
TS901b	2	9	12	1'-7"	2'-11"	9'-6"		1'-7"				28'-0"
TS901c	2	9	12	1'-7"	2'-1"	9'-6"		1'-7"				26'-4"
TS1101	104	11	20		13'-4"							13'-4"

BAR LIST - VOIDED SECTION

BAR	NO	SIZE	BEND TYPE	A	B	C	D	G	N	O	P	LENGTH
T401	352	4	18	4½"	2'-3¾"			4½"				3'-0¾"
T402	176	4	4		7'-9¾"	4½"			45°			8'-2¼"
T403	176	4	4		4'-11½"	4½"			45°			5'-4"
T404	176	4	18	4½"	2'-11⅜"			4½"				3'-8⅜"
T405	176	4	18	4½"	4'-6¼"			4½"				5'-3¼"
T406	176	4	18	4½"	6'-2¾"			4½"				6'-11¾"
T601	88	6	28		6'-6"	10'-0⅜"			102°	129°		33'-0¾"
T602	264	6	1		7'-2"							7'-2"
T603	176	6	3		8'-4"	1'-0"			129°			9'-4"
T604	176	6	10		10'-6¾"	1'-0"	1'-0"		102°	129°		12'-6¾"
T605	88	6	6		15'-7½"	1'-0"	1'-0"					17'-7½"
T606	128	6	4		6'-7"	8"			45°			7'-3"
T607	128	6	4		5'-3"	8"			45°			5'-11"
T608a	8	6	18	8"	6'-3½"			1'-0"				7'-11½"
T608b	8	6	18	8"	6'-1"			1'-0"				7'-9"
T608c	8	6	18	8"	5'-10½"			1'-0"				7'-6½"
T608d	8	6	18	8"	5'-8"			1'-0"				7'-4"
T608e	8	6	18	8"	5'-5½"			1'-0"				7'-1½"
T608f	8	6	18	8"	5'-3"			1'-0"				6'-11"
T609	44	6	1		7'-7½"							7'-7½"
T610	88	6	28		5'-7½"	9'-3¾"			102°	129°		29'-10½"
T611	22	6	4		7'-6"	8"						8'-2"
T612	22	6	4		10'-2"	8"						10'-10"
T1101	340	11	3		18'-9"	10'-10"			169°			29'-7"
T1102	356	11	3		15'-1½"	10'-10"			169°			25'-11½"
T1103	2	11	1		16'-7¾"							16'-7¾"
T1104	4	11	1		8'-10"							8'-10"
T1105	4	11	1		14'-4"							14'-4"

HL-93 LOADING

NOTES:
1. FOR BAR BENDS, SEE BAR BENDING DETAILS I SHEET.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE
REINFORCEMENT V

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MSK	TEXAS	CRP	NUECES	NHB 82C
CHECK	CONTROL	SECTION	JOB	
MF	0101	06	095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N080-N083*Nodal*Zone*Details*&*Reinf.dgn
DATE: 9/18/2018 TIME: 7:18:27 PM USER: lcavanaugh

BAR LIST - PRECAST ELEMENT

BAR	NO	SIZE	BEND TYPE	A	B	C	D	E	F	G	H	J	K	N	O	P	LENGTH
N601	28	6	32	8"	2'-8"	2'-8 3/8"									111°		6'-0 3/8"
N602	72	6	1		3'-11 5/8"												3'-11 5/8"
N603	14	6	27	8"	13'-2 3/8"					8"							14'-6 3/8"
N604	20	6	6		7'-7 1/8"	1'-8"	1'-8"										10'-11 1/8"
N605a	4	6	6		7'-5"	1'-8"	1'-8"										10'-9"
N605b	4	6	6		7'-5 1/4"	1'-8"	1'-8"										10'-9 1/4"
N605c	4	6	6		7'-5 1/2"	1'-8"	1'-8"										10'-9 1/2"
N605d	4	6	6		7'-5 3/4"	1'-8"	1'-8"										10'-9 3/4"
N605e	4	6	6		7'-6"	1'-8"	1'-8"										10'-10"
N606	4	6	11		9"	7'-6 1/2"	9"	1'-0"	1'-0"								11'-0 1/2"
N607	4	6	11		7 1/4"	7'-6 3/4"	7 1/4"	4'-8 1/2"	4'-8 1/2"								18'-2 1/4"
N608	14	6	27	8"	7'-5 3/4"					8"							8'-9 3/4"
N609	8	6	6		8'-8 3/8"	1'-8"	1'-8"										12'-0 3/8"
N610	8	6	6		1'-11 1/2"	1'-8"	1'-8"										5'-3 1/2"
N611	8	6	6		1'-0 3/4"	1'-8"	1'-8"										4'-4 3/4"
N612a	56	6	6		5'-7 1/4"	1'-0"	1'-0"										7'-7 1/4"
N612b	28	6	6		3'-7 3/4"	1'-0"	1'-0"										5'-7 3/4"
N612c	28	6	6		2'-11"	1'-0"	1'-0"										4'-11"
N612d	28	6	6		2'-9 3/8"	1'-0"	1'-0"										4'-9 3/8"
N613	8	6	35		1'-10"	1'-0"	2'-8 3/8"	-	-		8"	1'-0"	2'-6"	83°	112°	-	5'-6 3/8"
N614	4	6	30		10'-2"	1'-0"	6"	6"						97°	90°		14'-2"
N801	14	8	27	11"	13'-2 3/8"					11"							15'-0 3/8"
N802a	4	8	2		7'-10 7/8"	3'-0"								88°			10'-10 7/8"
N802b	4	8	2		7'-11"	3'-0 3/4"								88°			10'-11 3/4"
N802c	4	8	2		7'-11"	3'-2 3/8"								88°			11'-1 3/8"
N802d	4	8	2		7'-11 1/8"	3'-4 7/8"								88°			11'-4"
N802e	4	8	2		7'-11 1/8"	3'-8 3/8"								88°			11'-7 1/2"
N802f	4	8	2		7'-11 3/8"	4'-3 1/2"								88°			12'-2 7/8"
N802g	4	8	2		7'-11 3/4"	5'-4"								88°			13'-3 3/4"
N802h	4	8	2		8'-0"	6'-1 7/8"								88°			14'-1 7/8"
N803a	4	8	2		7'-4 7/8"	2'-6"								88°			9'-10 7/8"
N803b	4	8	2		7'-5"	2'-6 3/4"								88°			9'-11 3/4"
N803c	4	8	2		7'-5"	2'-8 3/8"								88°			10'-1 3/8"
N803d	4	8	2		7'-5 1/8"	2'-10 7/8"								88°			10'-4"
N803e	4	8	2		7'-5 1/8"	3'-2 3/8"								88°			10'-7 1/2"
N803f	4	8	2		7'-5 3/8"	4'-9 1/2"								88°			11'-2 7/8"
N803g	4	8	2		7'-5 3/4"	4'-10"								88°			12'-3 3/4"
N803h	4	8	2		7'-6"	5'-7 7/8"								88°			13'-1 7/8"
N804	16	8	3		3'-4"	2'-5"								173°			5'-9"
N805	4	8	30		10'-10"	1'-3 1/2"	8"	8"						97°	90°		16'-1"

NOTES:
1. FOR BAR BENDS, SEE BAR BENDING DETAILS I SHEET.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

HL-93 LOADING

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
NODAL ZONE
REINFORCEMENT VI

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK MSK	TEXAS	CRP	NUECES	NHB 82D
CHECK MF	CONTROL 0101	SECTION 06	JOB 095	

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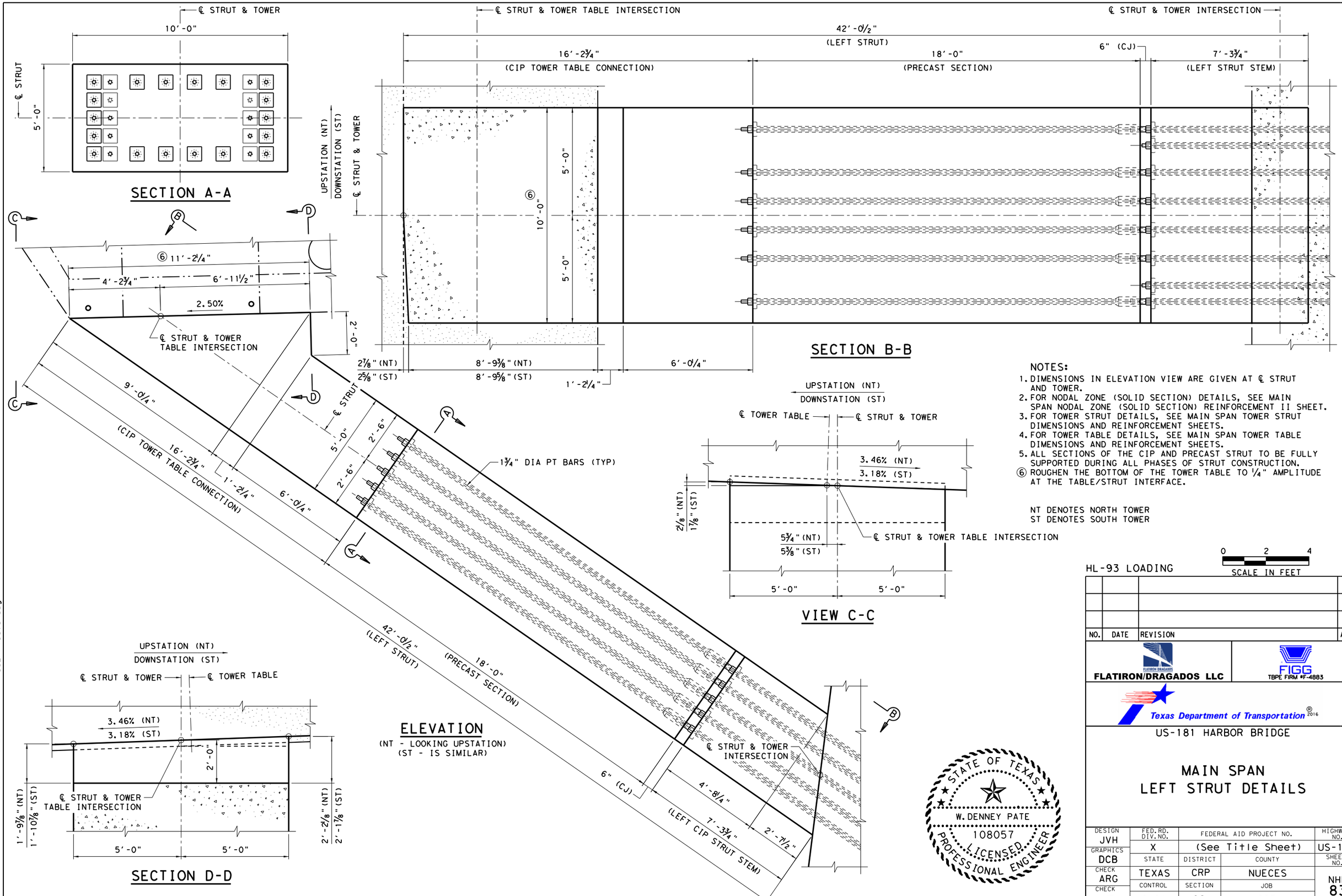

NOTES:

1. DIMENSIONS IN ELEVATION VIEW ARE GIVEN AT ℄ STRUT AND TOWER.
2. FOR NODAL ZONE (SOLID SECTION) DETAILS, SEE MAIN SPAN NODAL ZONE (SOLID SECTION) REINFORCEMENT II SHEET.
3. FOR TOWER STRUT DETAILS, SEE MAIN SPAN TOWER STRUT DIMENSIONS AND REINFORCEMENT SHEETS.
4. FOR TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT SHEETS.
5. ALL SECTIONS OF THE CIP AND PRECAST STRUT TO BE FULLY SUPPORTED DURING ALL PHASES OF STRUT CONSTRUCTION.

⑥ ROUGHEN THE BOTTOM OF THE TOWER TABLE TO ¼" AMPLITUDE AT THE TABLE/STRUT INTERFACE.

NT DENOTES NORTH TOWER
ST DENOTES SOUTH TOWER

HL-93 LOADING

0 2 4
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN LEFT STRUT DETAILS

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ARG	TEXAS	CRP	NUECES	NHB 83
CHECK MF	CONTROL 0101	SECTION 06	JOB 095	

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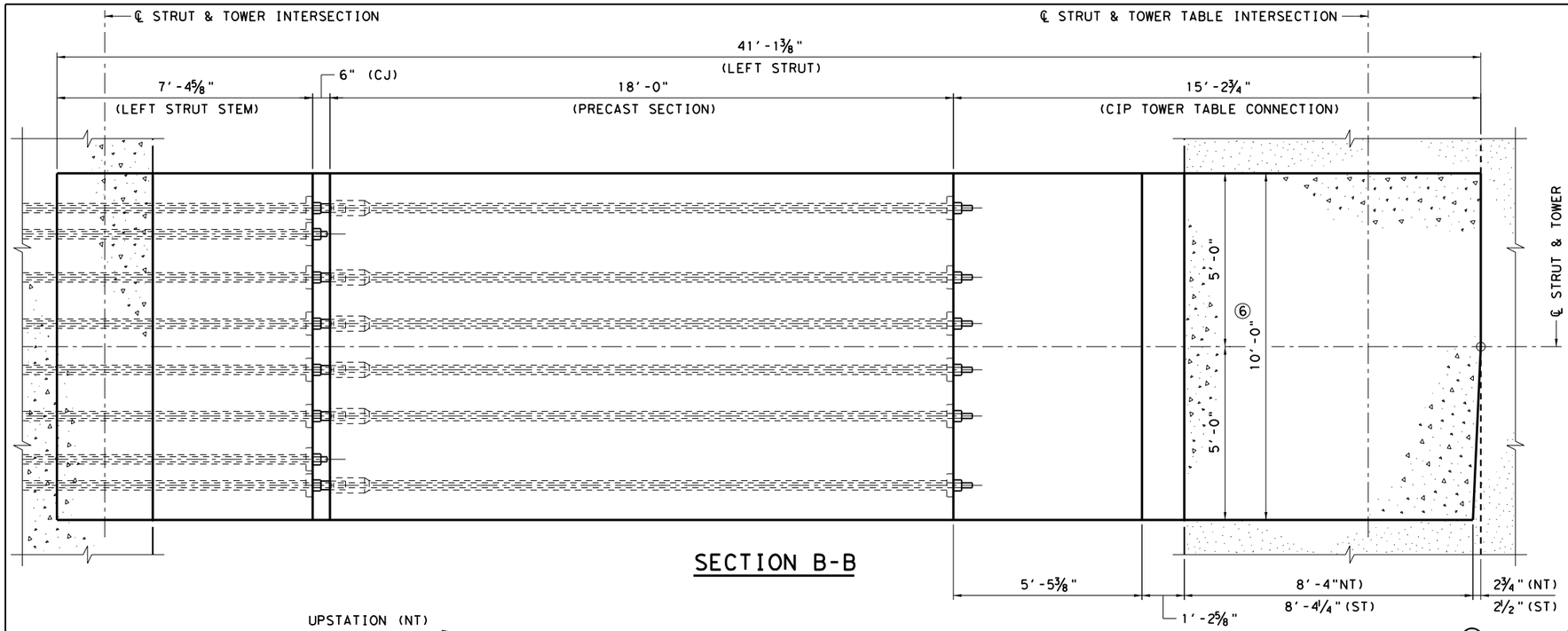
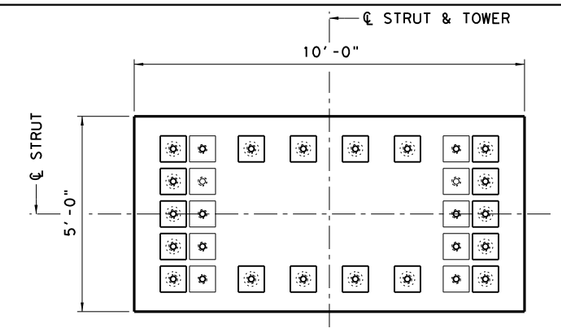
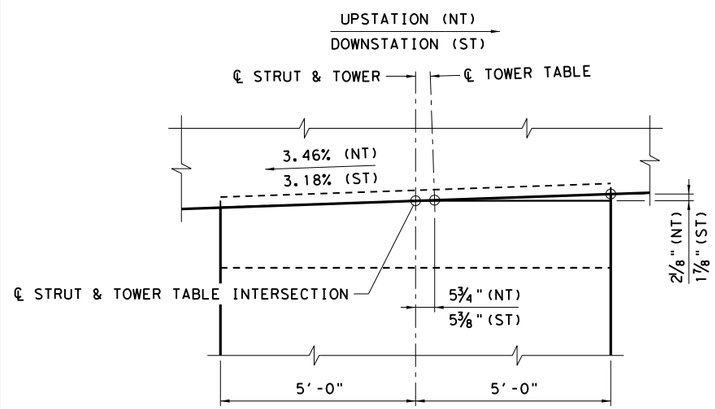
09/18/18



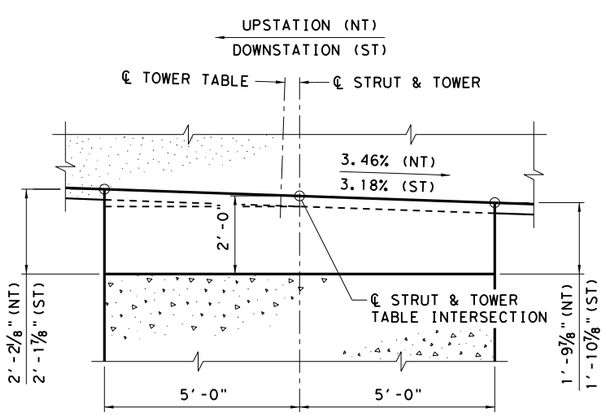
SECTION B-B



SECTION A-A



VIEW C-C



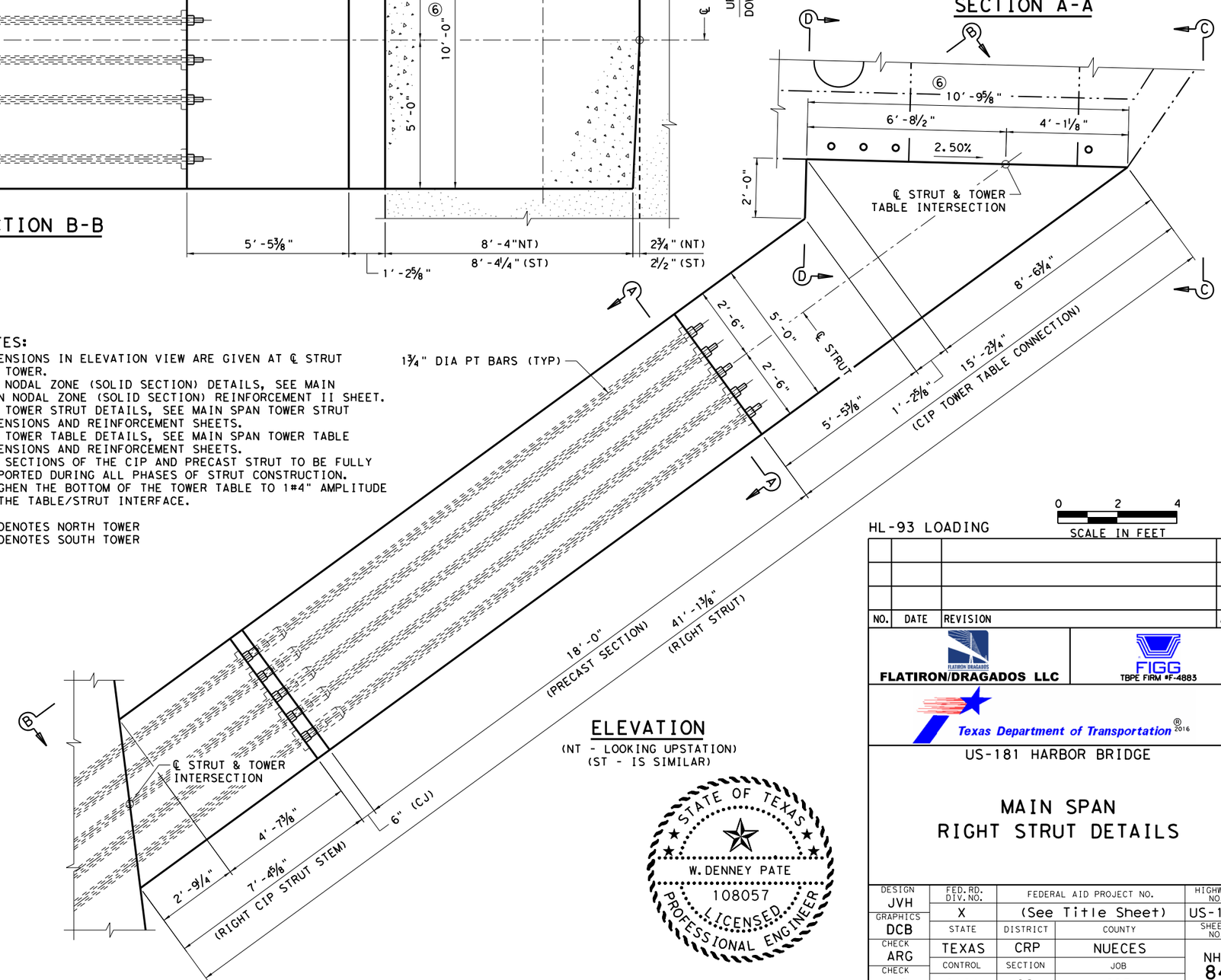
SECTION D-D

NOTES:

1. DIMENSIONS IN ELEVATION VIEW ARE GIVEN AT ℄ STRUT AND TOWER.
2. FOR NODAL ZONE (SOLID SECTION) DETAILS, SEE MAIN SPAN NODAL ZONE (SOLID SECTION) REINFORCEMENT II SHEET.
3. FOR TOWER STRUT DETAILS, SEE MAIN SPAN TOWER STRUT DIMENSIONS AND REINFORCEMENT SHEETS.
4. FOR TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT SHEETS.
5. ALL SECTIONS OF THE CIP AND PRECAST STRUT TO BE FULLY SUPPORTED DURING ALL PHASES OF STRUT CONSTRUCTION.

⑥ ROUGHEN THE BOTTOM OF THE TOWER TABLE TO 1#4" AMPLITUDE AT THE TABLE/STRUT INTERFACE.

NT DENOTES NORTH TOWER
ST DENOTES SOUTH TOWER



ELEVATION

(NT - LOOKING UPSTATION)
(ST - IS SIMILAR)

HL-93 LOADING

0 2 4
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
RIGHT STRUT DETAILS

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ARG	TEXAS	CRP	NUECES	NHB 84
CHECK	CONTROL	SECTION	JOB	
MF	0101	06	095	

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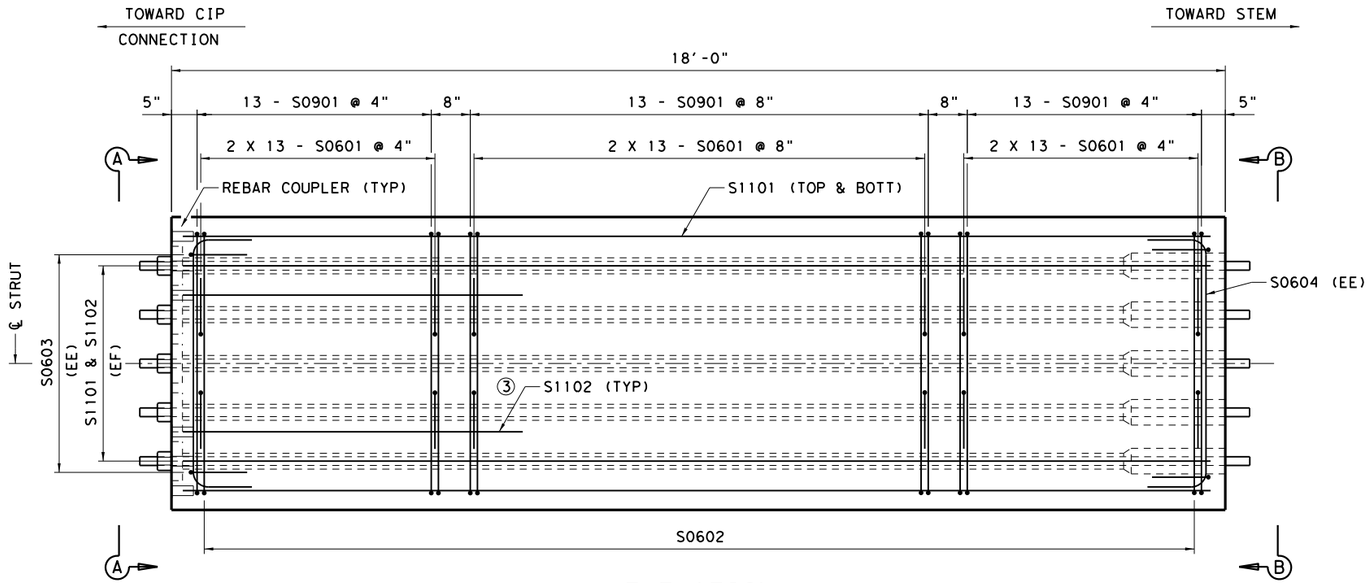
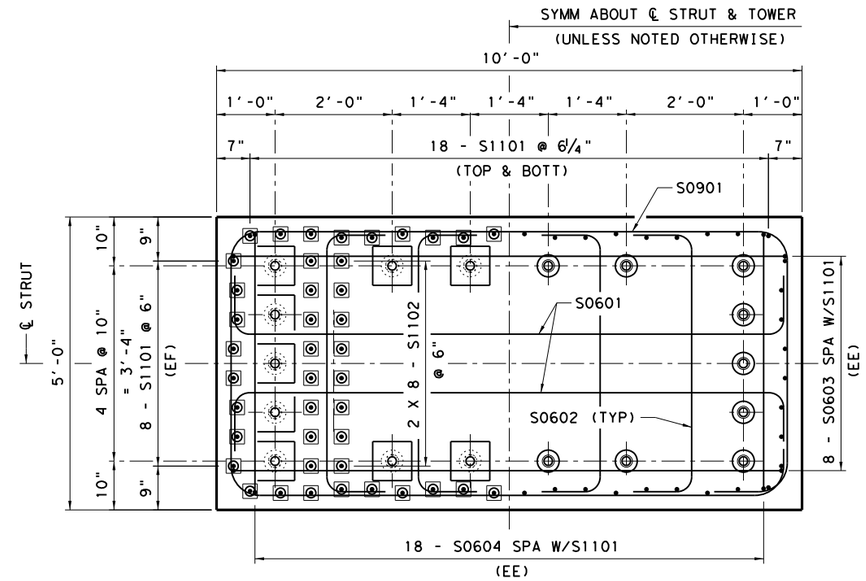


ELEVATION



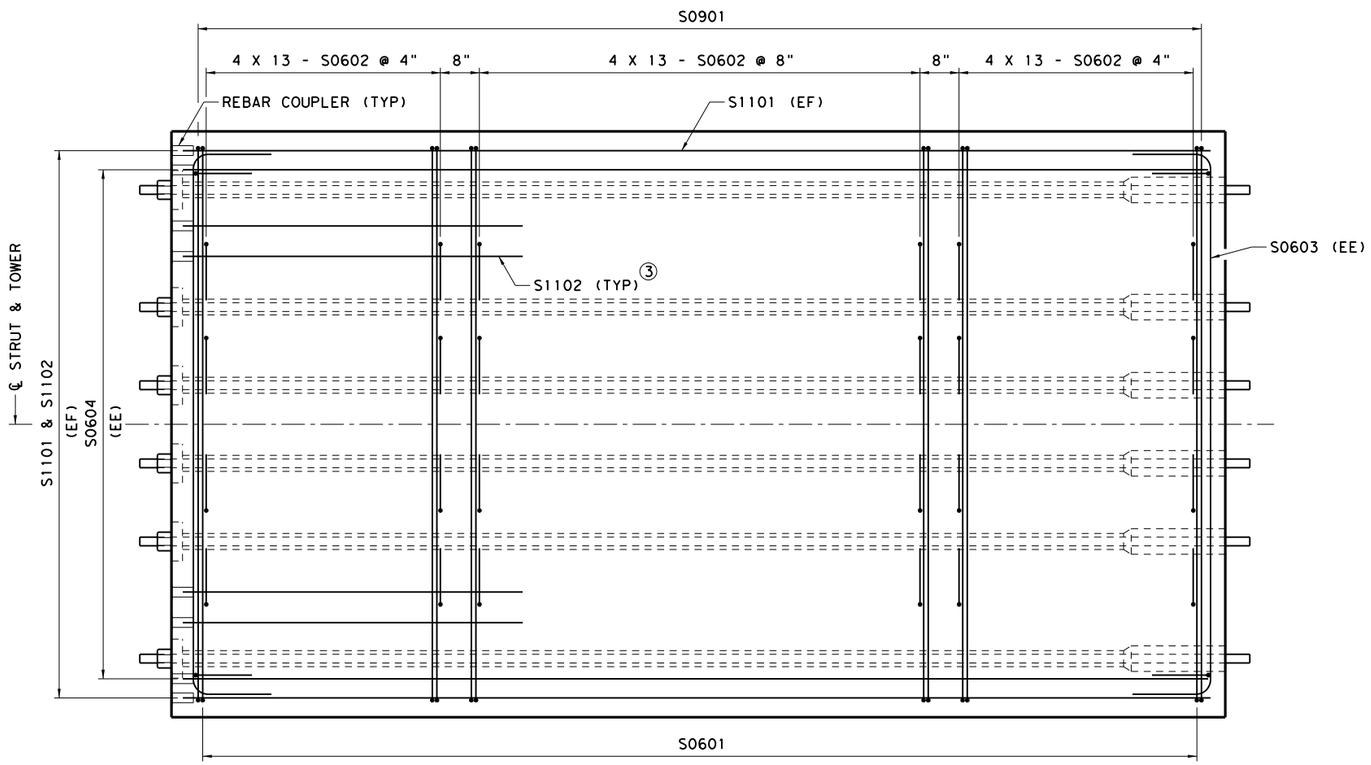
HALF VIEW A-A HALF VIEW B-B

NOTES:

1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. SPECIAL EFFORTS SHOULD BE MADE BY THE CONTRACTOR TO ASSURE THAT THE PT BAR SPACING MATCHES THE PT BAR SPACING USED IN THE STRUT'S STARTER SECTION.

3 S1101 BARS NOT SHOWN FOR CLARITY.

EE DENOTES EACH END
EF DENOTES EACH FACE



PLAN VIEW

HL-93 LOADING

0 1 2
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
STRUT REINFORCEMENT I
(PRECAST ELEMENT)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ARG	TEXAS	CRP	NUECES	NHB 85
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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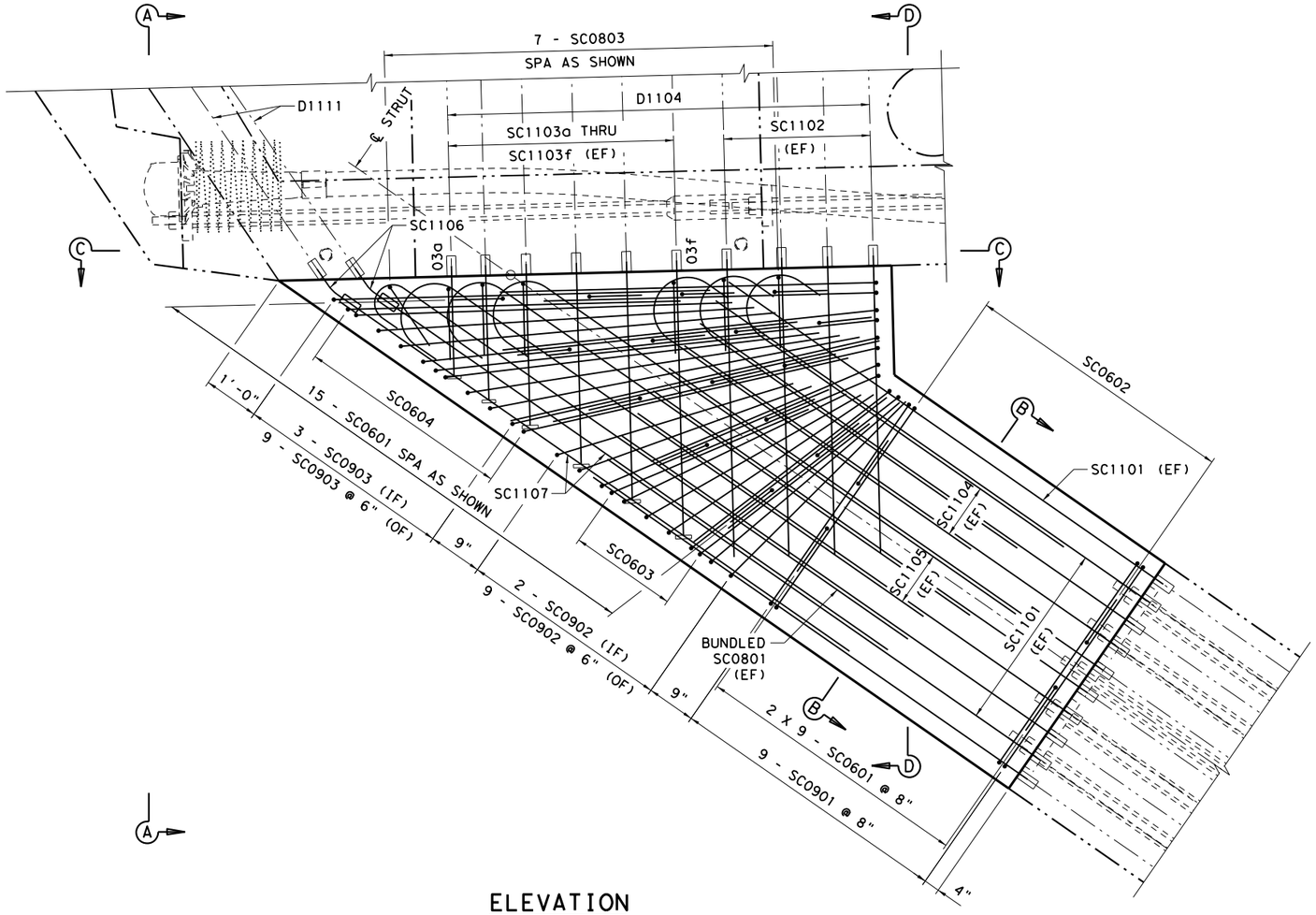
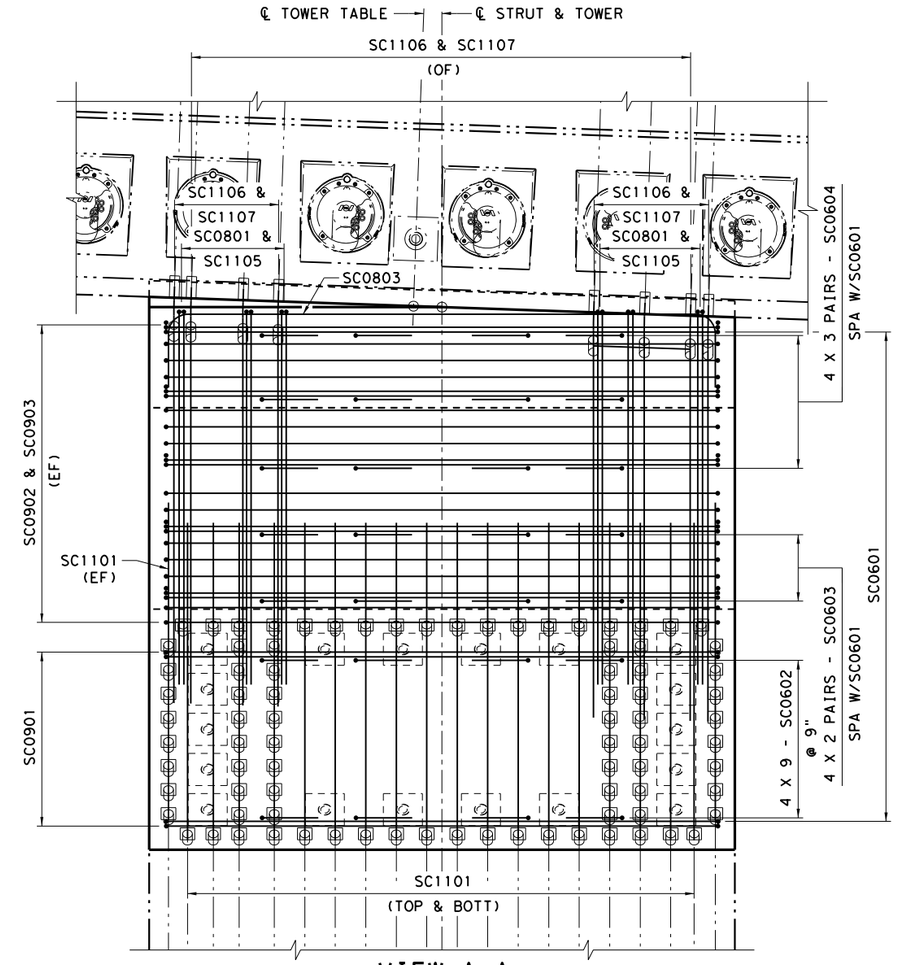


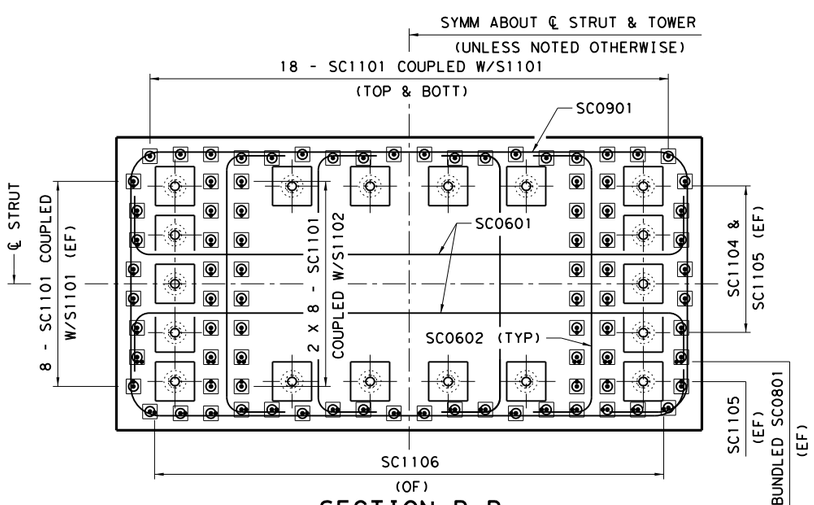
ELEVATION



VIEW A-A

HL-93 LOADING

0 1 2
SCALE IN FEET



SECTION B-B

NOTES:

1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. THE CONTRACTOR'S MEANS AND METHODS SHALL ADDRESS ANY REQUIRED VENT HOLES OR OTHER OPENINGS IN THE FORMWORK FOR THE PLACEMENT, CONSOLIDATION AND VIBRATION OF THE CONCRETE IN THE CIP CLOSURE CONNECTION.

EF DENOTES EACH FACE
IF DENOTES INSIDE FACE
OF DENOTES OUTSIDE FACE

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
STRUT REINFORCEMENT II
(LEFT CIP CONNECTION)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ARG	TEXAS	CRP	NUECES	NHB 86
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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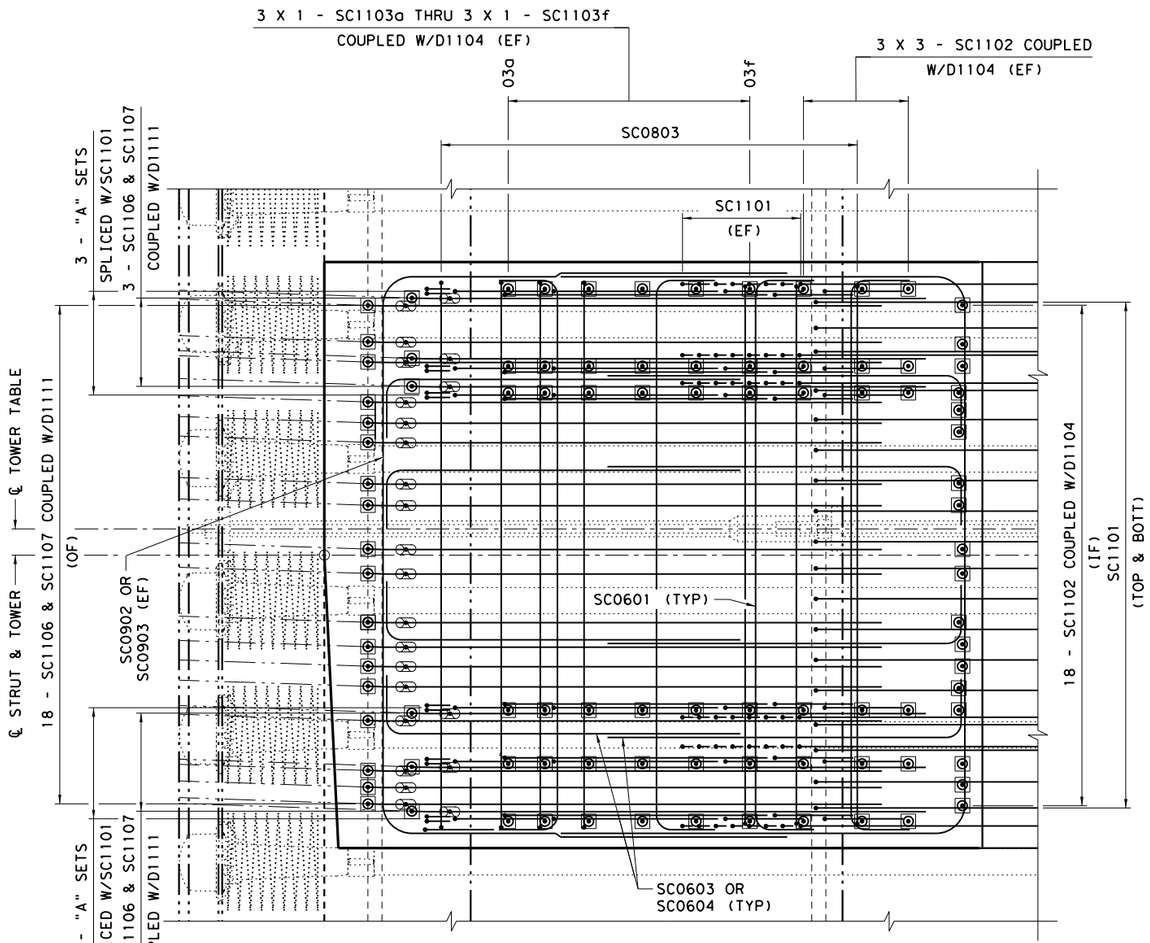
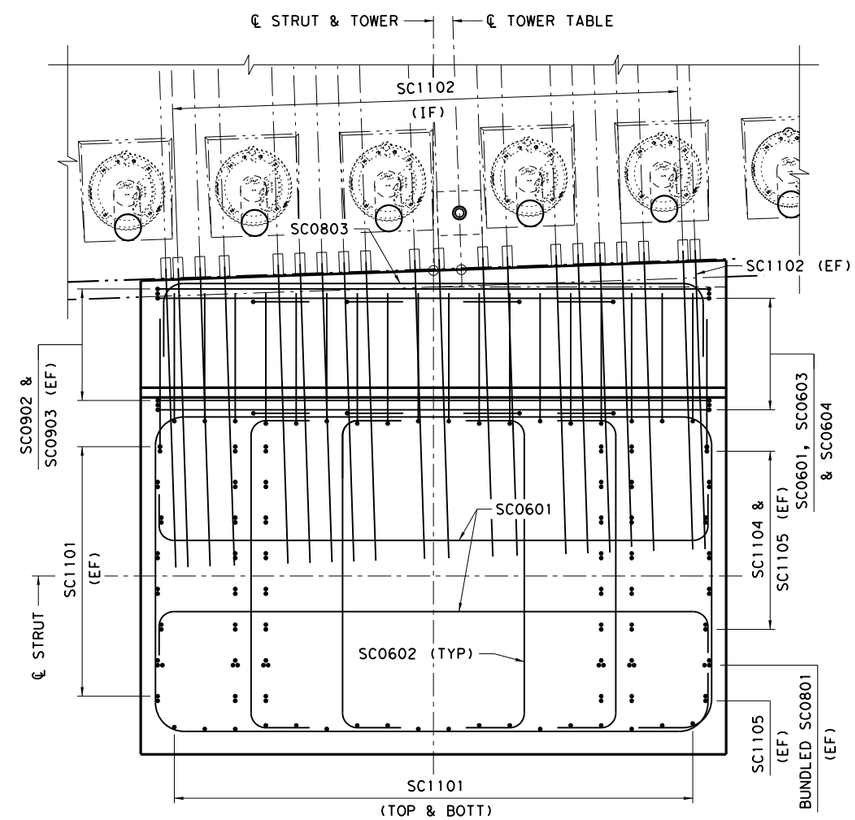
DATE: 9/18/2018 TIME: 7:18:29 PM USER: lcavanaugh



SECTION C-C



SECTION D-D

HL-93 LOADING

0 1 2
SCALE IN FEET

NOTES:

1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. FOR TOWER TABLE DOWEL LOCATIONS, SEE MAIN SPAN TOWER TABLE REINFORCEMENT SHEETS.
3. "A" SETS INCLUDE 2 BUNDLED - SC0801, 3 - SC1104 AND 3 - SC1105.

EF DENOTES EACH FACE
IF DENOTES INSIDE FACE
OF DENOTES OUTSIDE FACE

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
STRUT REINFORCEMENT III
(LEFT CIP CONNECTION)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DCB	TEXAS	CRP	NUECES	NHB 86A
CHECK	CONTROL	SECTION	JOB	
ARG	0101	06	095	
CHECK				
WDP				

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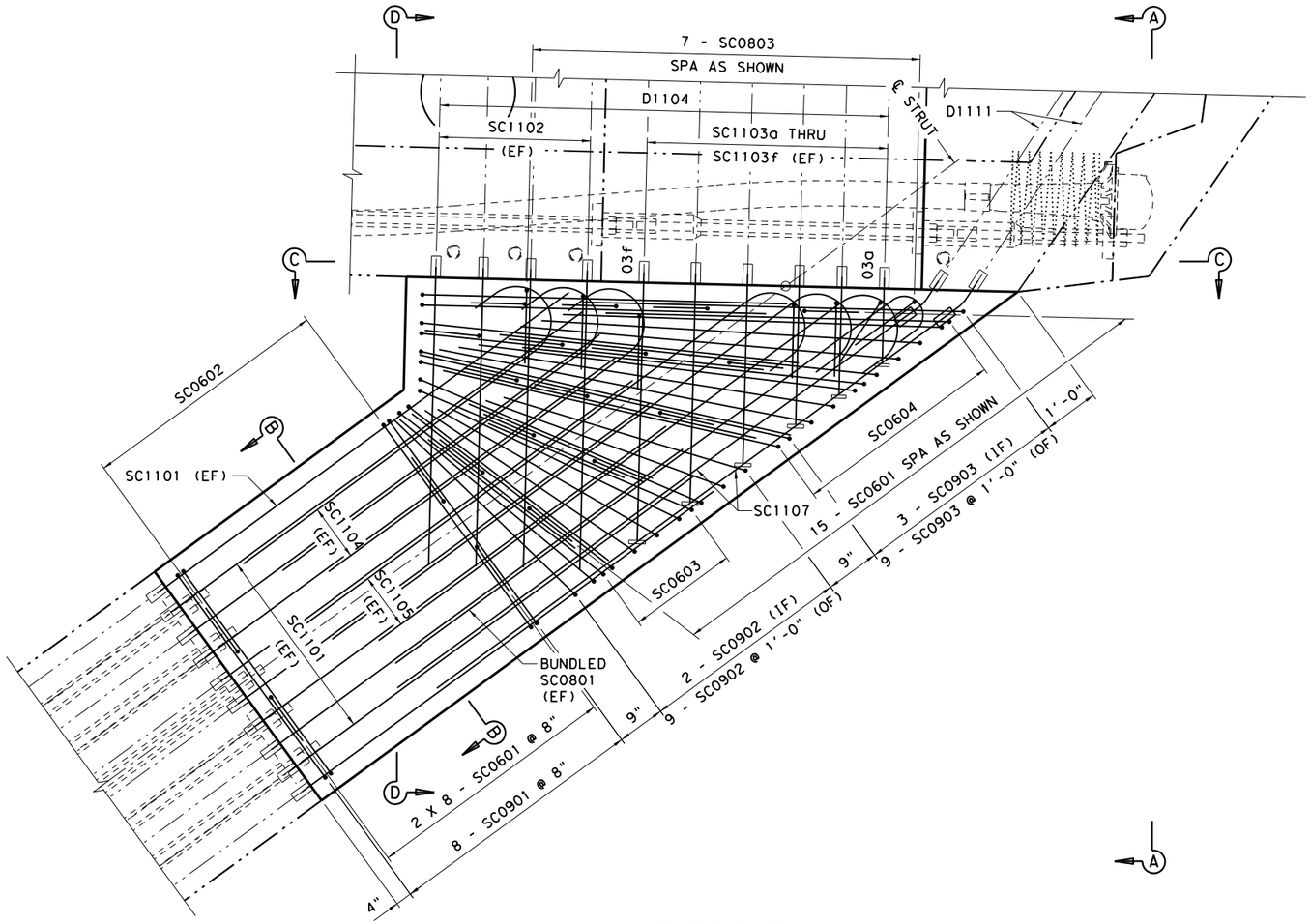
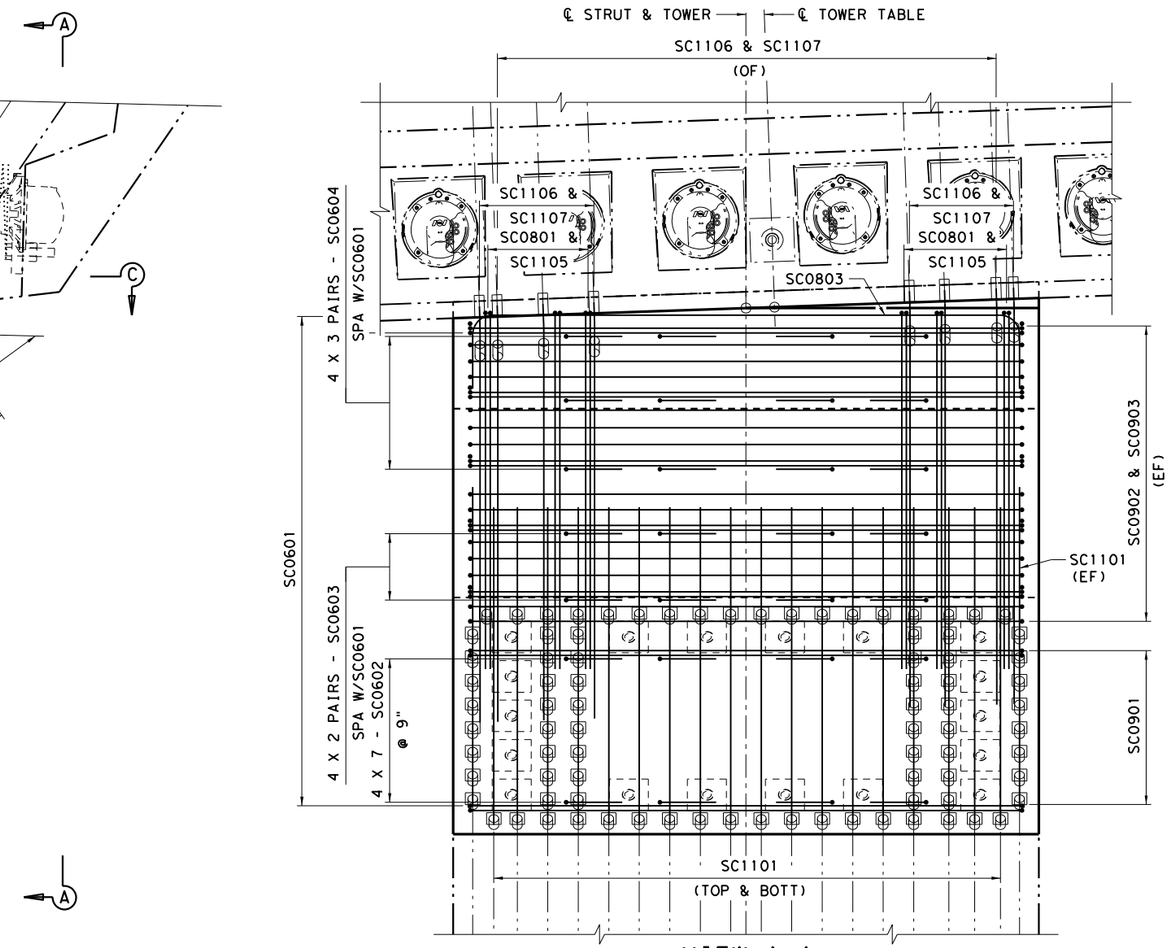


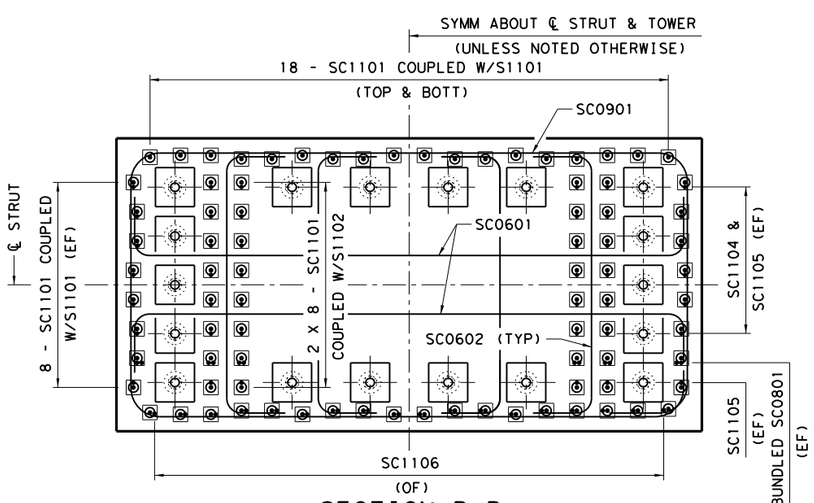
ELEVATION



VIEW A-A

HL-93 LOADING

0 1 2
SCALE IN FEET



SECTION B-B

NOTES:

1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. THE CONTRACTOR'S MEANS AND METHODS SHALL ADDRESS ANY REQUIRED VENT HOLES OR OTHER OPENINGS IN THE FORMWORK FOR THE PLACEMENT, CONSOLIDATION AND VIBRATION OF THE CONCRETE IN THE CIP CLOSURE CONNECTION.

EF DENOTES EACH FACE
IF DENOTES INSIDE FACE
OF DENOTES OUTSIDE FACE

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

NO.	DATE	REVISION	APRV

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TBPE FIRM #F-4883

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US-181 HARBOR BRIDGE

MAIN SPAN
STRUT REINFORCEMENT IV
(RIGHT CIP CONNECTION)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ARG	TEXAS	CRP	NUECES	NHB 86B
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

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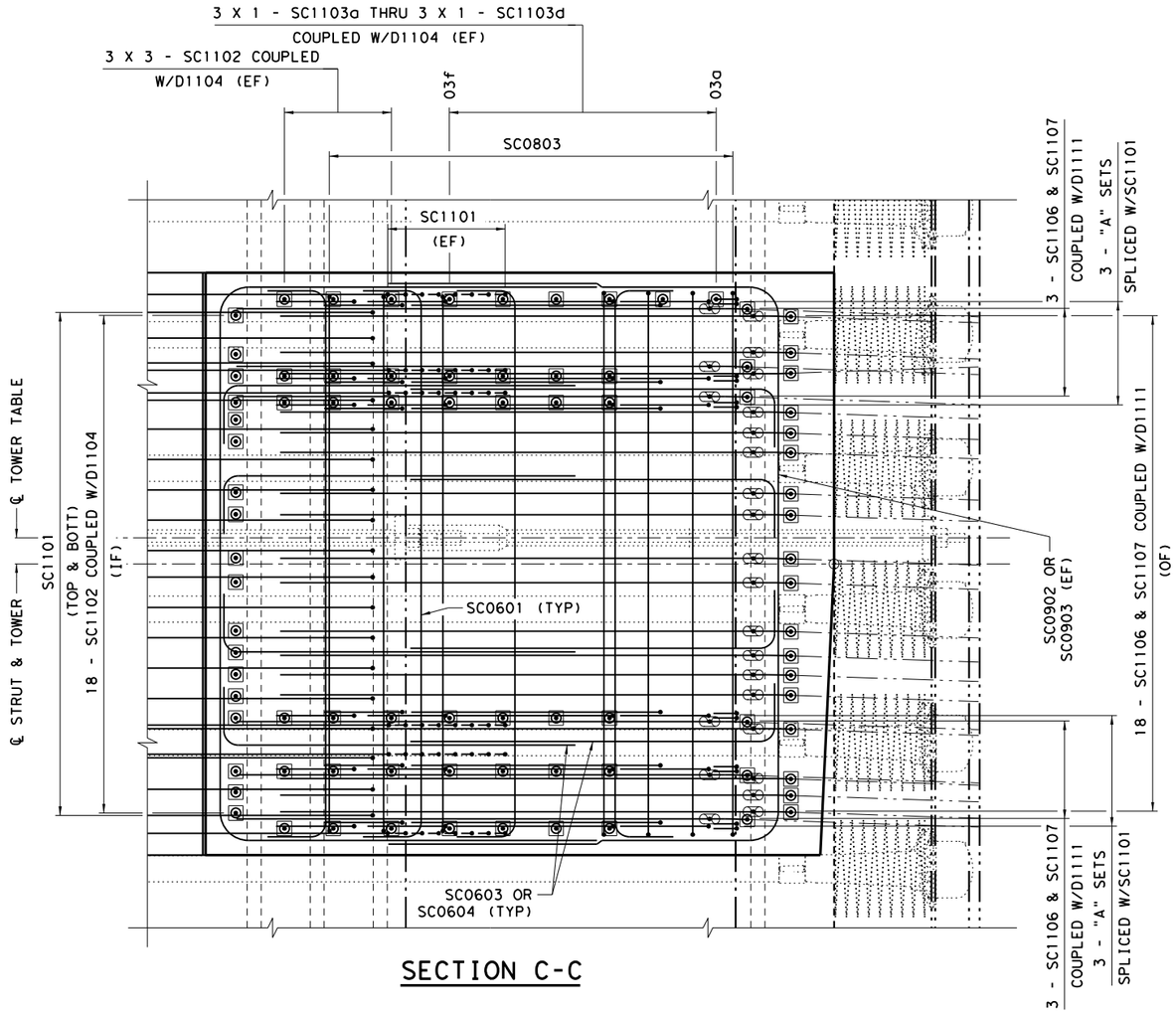
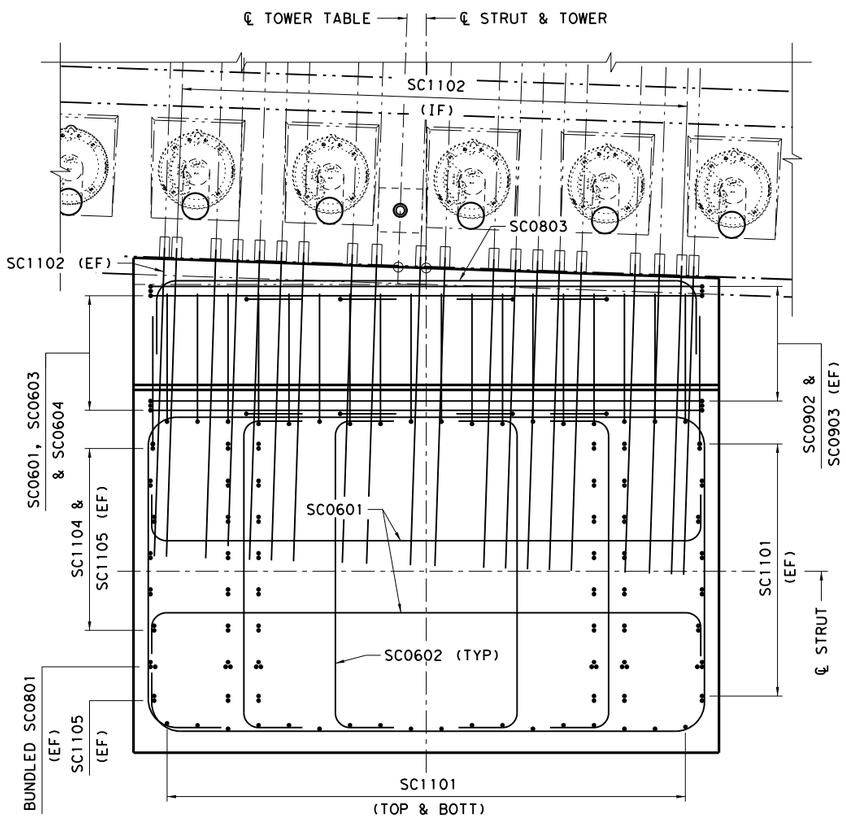


SECTION C-C



SECTION D-D

HL-93 LOADING

0 1 2
SCALE IN FEET

NOTES:

1. MINIMUM CONCRETE COVER IS 3", UNLESS NOTED OTHERWISE.
2. FOR TOWER TABLE DOWEL LOCATIONS, SEE MAIN SPAN TOWER TABLE REINFORCEMENT SHEETS.
3. "A" SETS INCLUDE 2 BUNDLED - SC0801, 3 - SC1104 AND 3 - SC1105.

EF DENOTES EACH FACE
IF DENOTES INSIDE FACE
OF DENOTES OUTSIDE FACE

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

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TBPE FIRM #F-4883

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US-181 HARBOR BRIDGE

MAIN SPAN
STRUT REINFORCEMENT V
(RIGHT CIP CONNECTION)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ARG	TEXAS	CRP	NUECES	NHB 86C
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

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DATE: 9/18/2018 TIME: 7:18:30 PM USER: lcavanaugh

BAR LIST - PRECAST STRUT SEGMENT (ONE ELEMENT)

BAR	NO	SIZE	BEND TYPE	A	B	C	D	G	N	O	P	LENGTH
S0601	78	6	6		9'-6"	1'-0"	1'-0"					11'-6"
S0602	156	6	6		4'-6"	1'-0"	1'-0"					6'-6"
S0603	16	6	6		9'-3½"	1'-0"	1'-0"					11'-3½"
S0604	36	6	6		4'-3½"	1'-0"	1'-0"					6'-3½"
S0901	39	9	12	1'-7"	4'-6"	9'-6"		1'-7"				31'-2"
S1101	52	11	20		17'-7"							17'-7"
S1102	32	11	20		6'-0"							6'-0"

BAR LIST - LEFT CIP TOWER TABLE CONNECTION (ONE ELEMENT)

	BAR	NO	SIZE	BEND TYPE	A	B	C	D	G	N	O	P	LENGTH
	SC0601	33	6	6		9'-6"	1'-0"	1'-0"					11'-6"
	SC0602	36	6	6		4'-6"	1'-0"	1'-0"					6'-6"
	SC0603	16	6	2		4'-0"	1'-0"						5'-0"
	SC0604	24	6	2		6'-2"	1'-0"						7'-2"
	SC0801	12	8	17	11"	11'-6"							12'-5"
	SC0803	7	8	6		9'-3½"	1'-4"	1'-4"					11'-11½"
	SC0901	9	9	12	1'-7"	4'-6"	9'-6"		1'-7"				31'-2"
	SC0902	11	9	6		9'-6"	4'-6"	4'-6"					18'-6"
	SC0903	12	9	6		9'-6"	6'-11"	6'-11"					23'-4"
②	SC1101	84	11	36		9'-8"							9'-8"
②	SC1102	36	11	36		5'-6"							5'-6"
④	SC1103a	6	11	38		2'-0"							2'-0"
④	SC1103b	6	11	38		2'-5"							2'-5"
④	SC1103c	6	11	38		3'-0"							3'-0"
④	SC1103d	6	11	38		3'-8"							3'-8"
④	SC1103e	6	11	38		4'-4"							4'-4"
④	SC1103f	6	11	38		5'-0"							5'-0"
	SC1104	18	11	17	1'-7"	7'-5"							9'-0"
	SC1105	18	11	17	1'-7"	11'-1"							12'-8"
②	SC1106	24	11	3		6"	6"				158.0°		1'-0"
②	SC1107	24	11	36		11'-2"							11'-2"

BAR LIST - RIGHT CIP TOWER TABLE CONNECTION (ONE ELEMENT)

	BAR	NO	SIZE	BEND TYPE	A	B	C	D	G	N	O	P	LENGTH
	SC0601	31	6	6		9'-6"	1'-0"	1'-0"					11'-6"
	SC0602	33	6	6		4'-6"	1'-0"	1'-0"					6'-6"
	SC0603	16	6	2		4'-0"	1'-0"						5'-0"
	SC0604	24	6	2		6'-2"	1'-0"						7'-2"
	SC0801	12	8	17	11"	11'-3"							12'-2"
	SC0803	7	8	6		9'-3½"	1'-4"	1'-4"					11'-11½"
	SC0901	8	9	12	1'-7"	4'-6"	9'-6"		1'-7"				31'-2"
	SC0902	11	9	6		9'-6"	4'-6"	4'-6"					18'-6"
	SC0903	12	9	6		9'-6"	6'-9"	6'-9"					23'-0"
②	SC1101	84	11	36		9'-0"							9'-0"
②	SC1102	36	11	36		5'-4"							5'-4"
④	SC1103a	6	11	38		2'-0"							2'-0"
④	SC1103b	6	11	38		2'-5"							2'-5"
④	SC1103c	6	11	38		3'-0"							3'-0"
④	SC1103d	6	11	38		3'-8"							3'-8"
④	SC1103e	6	11	38		4'-4"							4'-4"
④	SC1103f	6	11	38		5'-0"							5'-0"
	SC1104	18	11	17	1'-7"	7'-3"							8'-10"
	SC1105	18	11	17	1'-7"	10'-9"							12'-4"
②	SC1106	24	11	3		6"	6"				160.0°		1'-0"
②	SC1107	24	11	36		11'-2"							11'-2"

NOTES:

1. FOR BAR BENDS, SEE BAR BENDING DETAILS I SHEET.
② BAR SHALL BE PREPARED WITH A THREADED END FOR COUPLING.
③ BAR SHALL BE PREPARED WITH A REBAR ANCHOR.
④ BAR SHALL BE PREPARED WITH A THREADED END FOR COUPLING AND A REBAR ANCHOR.

HL-93 LOADING

NOT TO SCALE

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

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Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
STRUT REINFORCEMENT VI

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK ARG	TEXAS	CRP	NUECES	NHB 86D
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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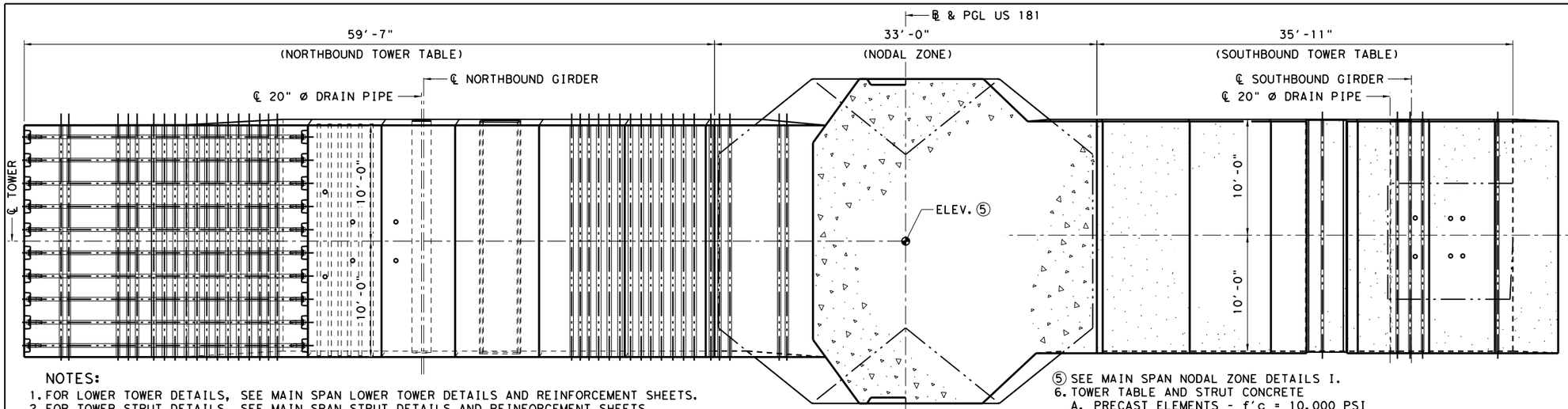
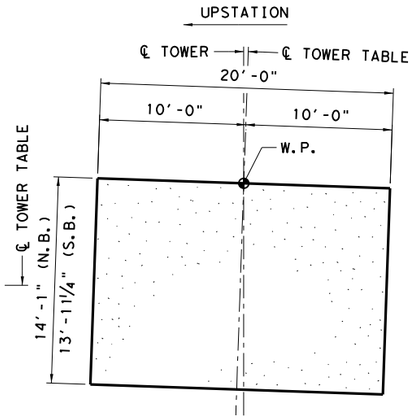


SECTION A-A



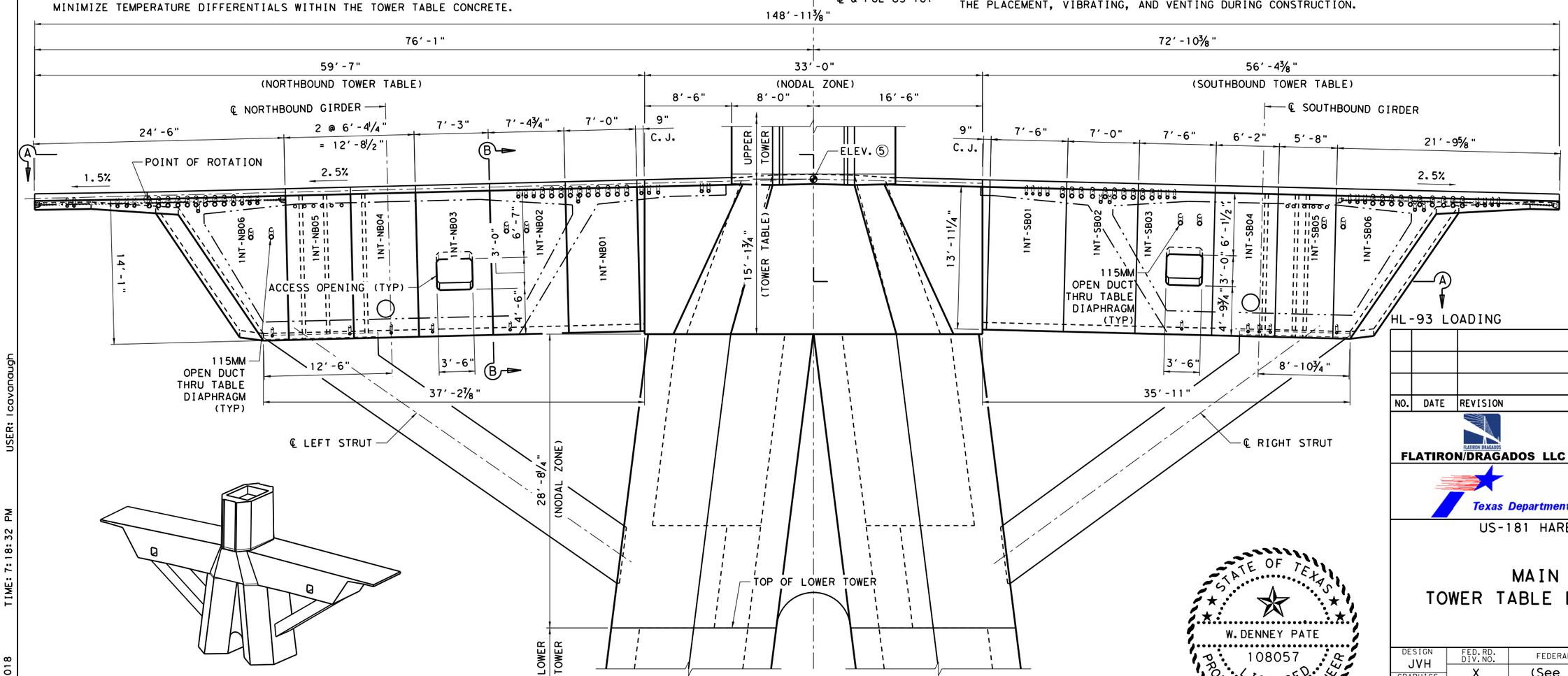
SECTION B-B

NOTES:

1. FOR LOWER TOWER DETAILS, SEE MAIN SPAN LOWER TOWER DETAILS AND REINFORCEMENT SHEETS.
2. FOR TOWER STRUT DETAILS, SEE MAIN SPAN STRUT DETAILS AND REINFORCEMENT SHEETS.
3. FOR NODAL ZONE DETAILS, SEE MAIN SPAN NODAL ZONE DETAILS AND REINFORCEMENT SHEETS.
4. THE CONTRACTOR'S MEANS AND METHODS SHALL ADDRESS TEMPERATURE RELATED ISSUES DURING SEGMENT CASTING AND CURING. A THERMAL CONTROL PLAN SHALL BE DEVELOPED DESCRIBING THE PROCEDURES TO BE USED TO MINIMIZE TEMPERATURE DIFFERENTIALS WITHIN THE TOWER TABLE CONCRETE.

⑤ SEE MAIN SPAN NODAL ZONE DETAILS I.

6. TOWER TABLE AND STRUT CONCRETE
   A. PRECAST ELEMENTS - f'c = 10,000 PSI
   B. CIP JOINTS - f'c = 10,000 PSI
   THE CONTRACTOR'S MEANS AND METHODS SHALL ADDRESS THE CIP STRUT CONCRETE CONSOLIDATION AT THE TOWER TABLE/STRUT INTERFACE. A CONCRETING PLAN SHALL BE DEVELOPED, INCLUDING A MOCK-UP TEST, AND ADDRESS THE PLACEMENT, VIBRATING, AND VENTING DURING CONSTRUCTION.



ISOMETRIC VIEW

CROSS-SECTION

(LOOKING UPSTATION - TOWER 1NT)
(TOWER 1ST SIMILAR)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

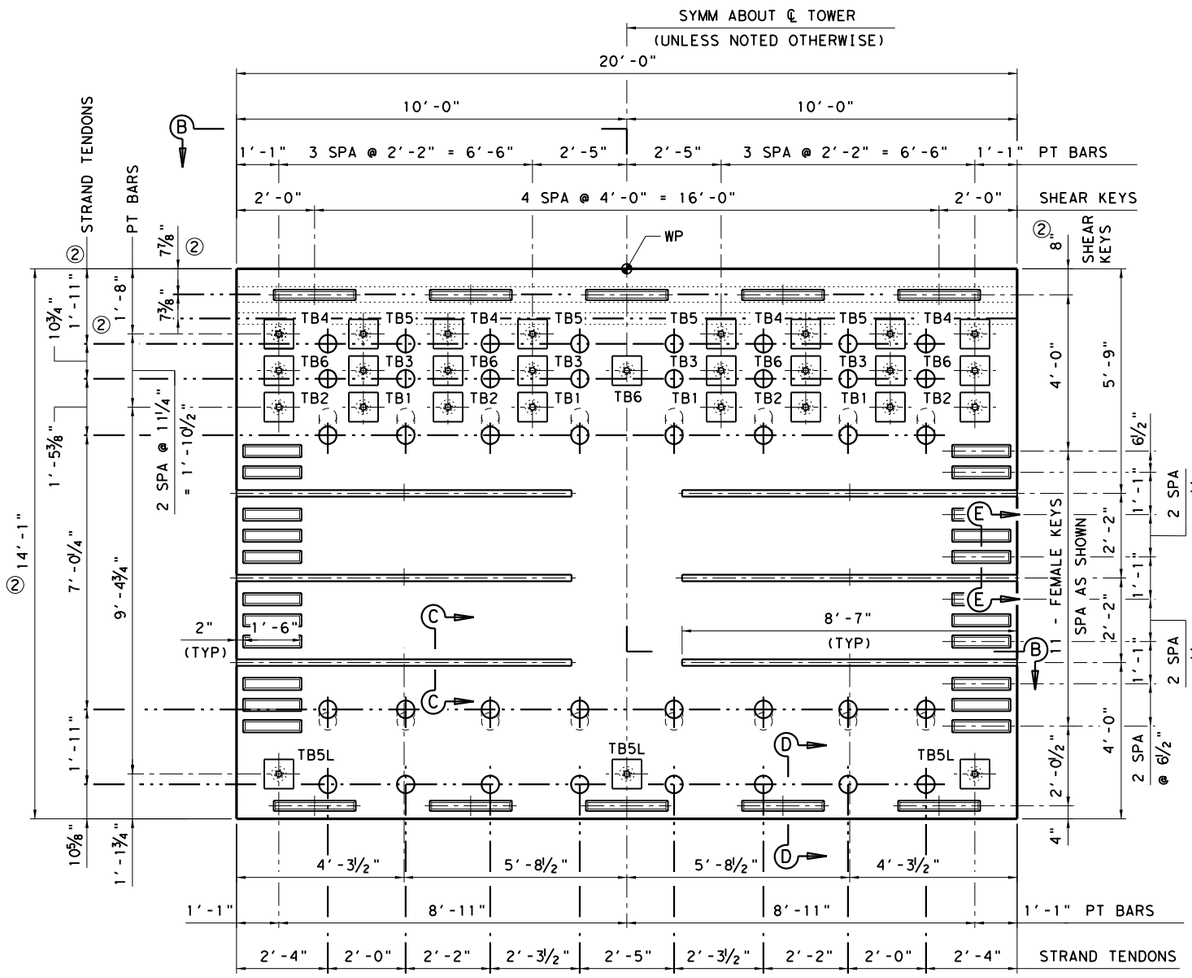
MAIN SPAN
TOWER TABLE DIMENSIONS I

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DCB	TEXAS	CRP	NUECES	NHB 90
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:32 PM USER: lcavanaugh

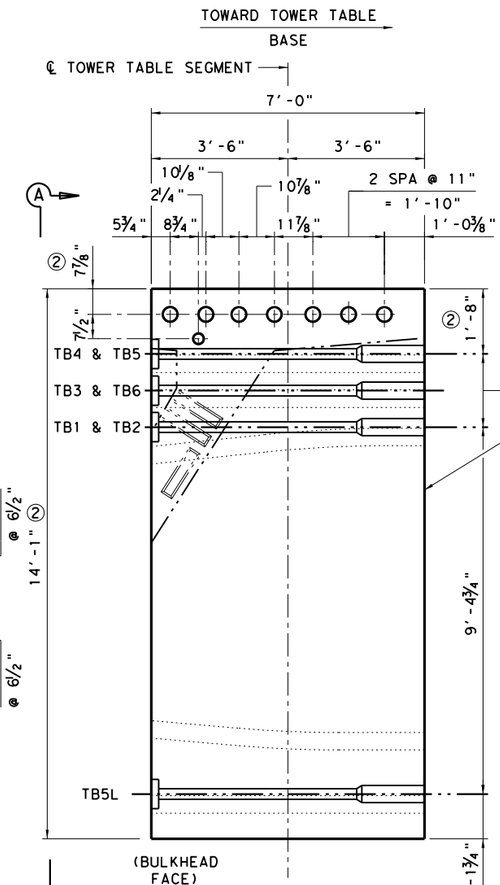
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES 1/2" INTEGRAL WEARING SURFACE PLUS 1/2" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. ALL DIMENSION AND REINFORCING SHEETS SHOWN FOR THE NORTH TOWER TABLE. DIMENSION AND REINFORCING FOR SOUTH TOWER TABLE SIMILAR.
6. 7 3/4"Ø x 1 1/2" DEEP BLOCKOUT AT EACH TENDON.



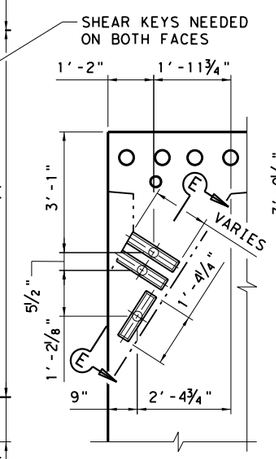
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)

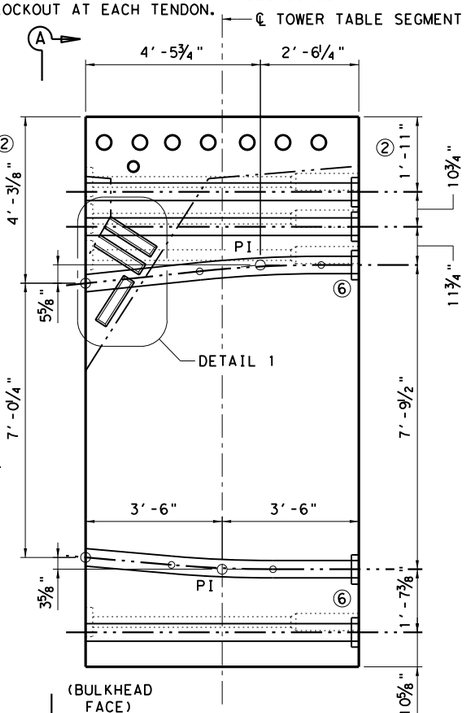


ELEVATION

(1¾" Ø P.T. BARS)

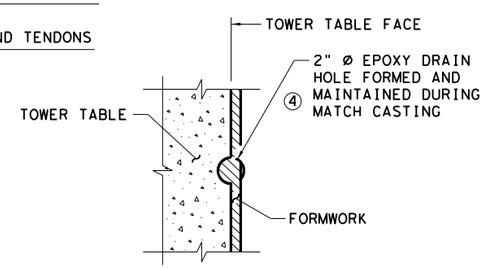


DETAIL 1



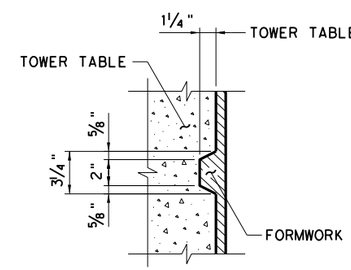
ELEVATION

(STRAND TENDONS)



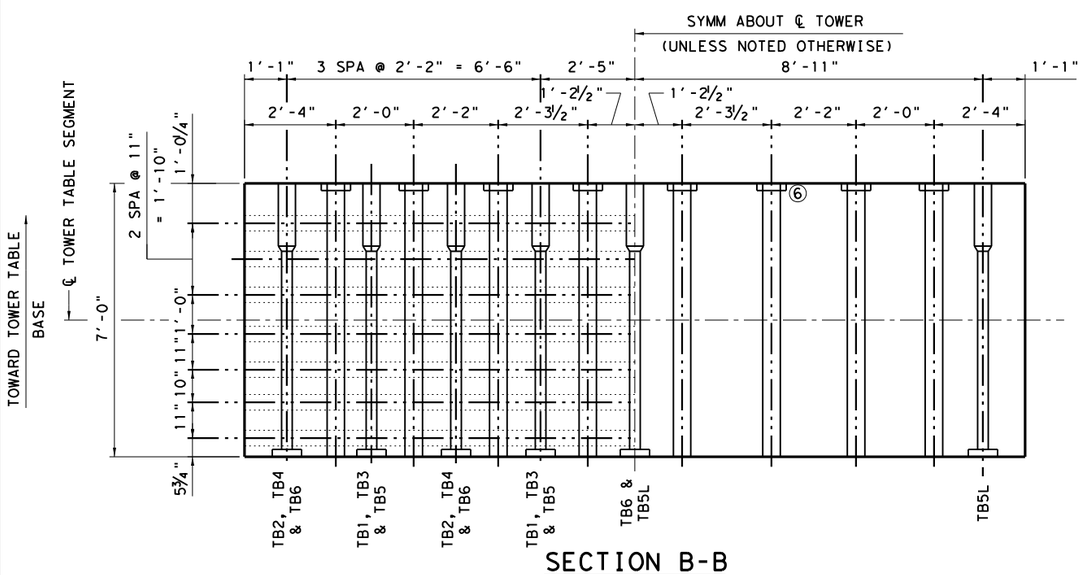
SECTION C-C

(NTS)

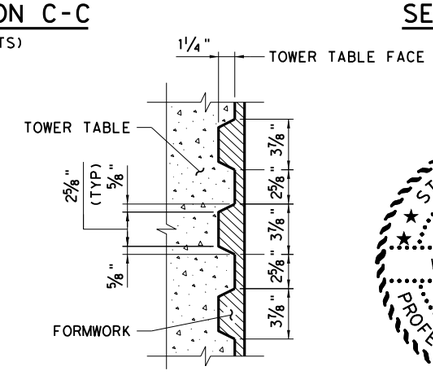


SECTION D-D

(NTS)



SECTION B-B



SECTION E-E

(NTS)

STATE OF TEXAS
W. DENNEY PATE
108057
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09/18/18

HL-93 LOADING

0 2 4
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

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US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE DIMENSIONS II
(1NT-NB01)

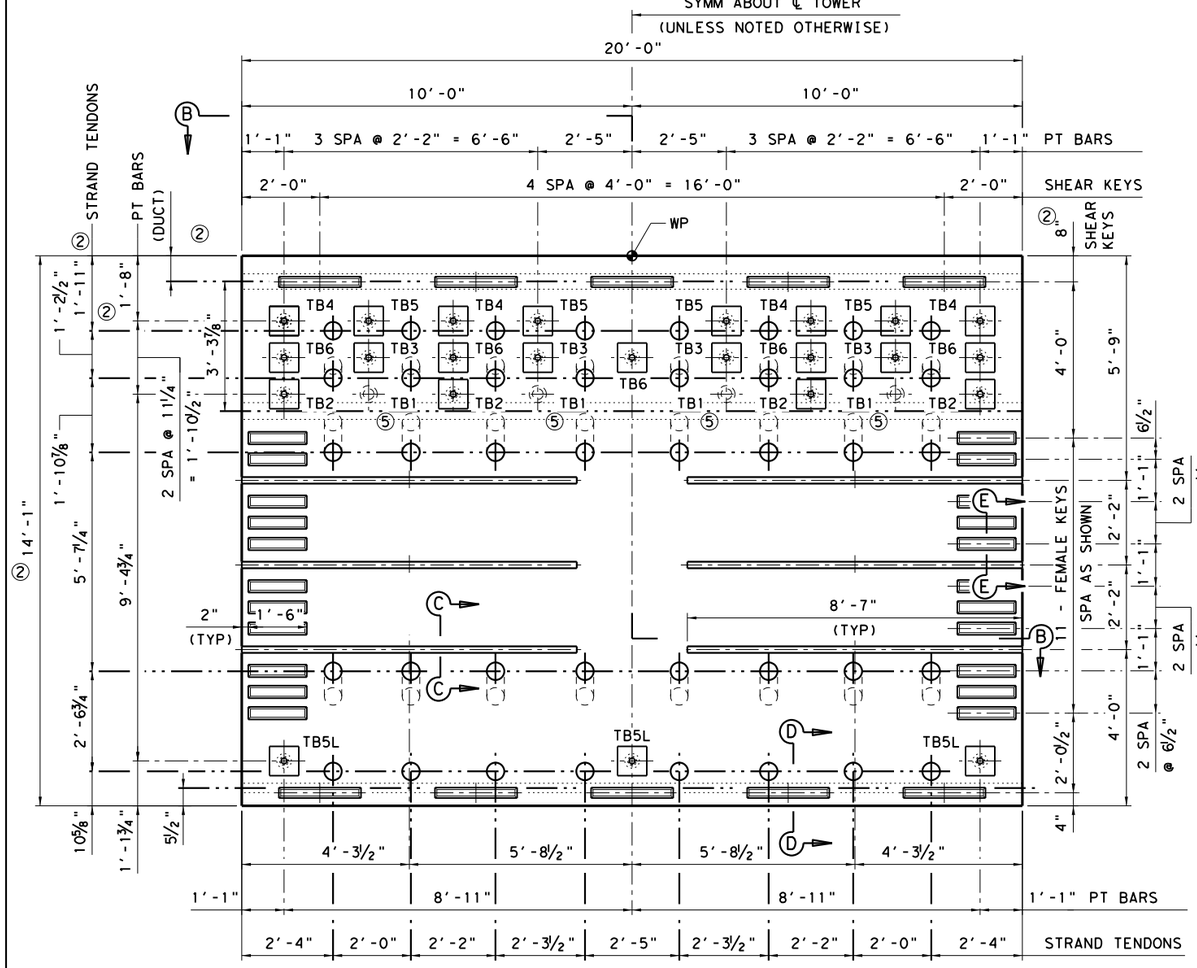
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:33 PM USER: lcavanaugh

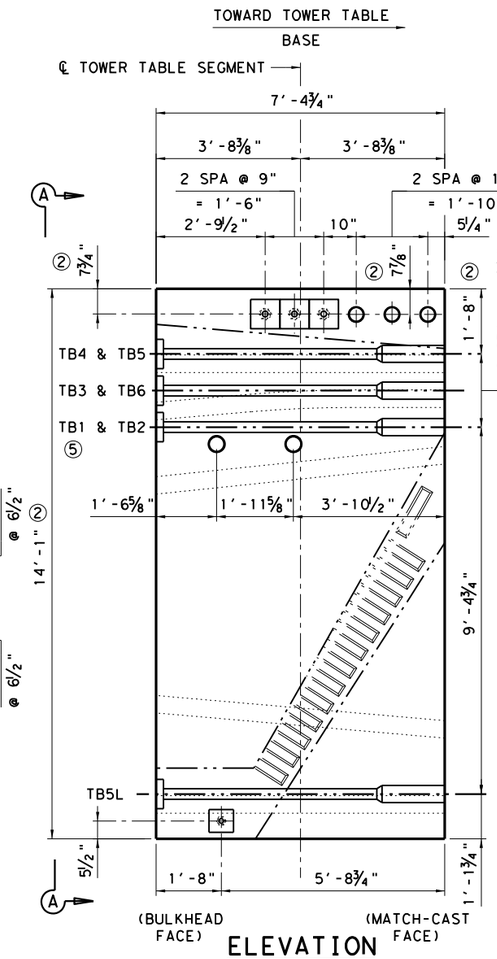
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES 1/2" INTEGRAL WEARING SURFACE PLUS 1/2" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB1 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.



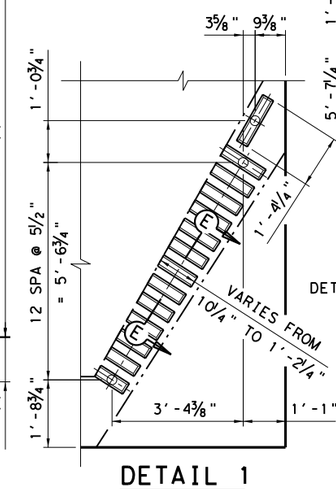
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)

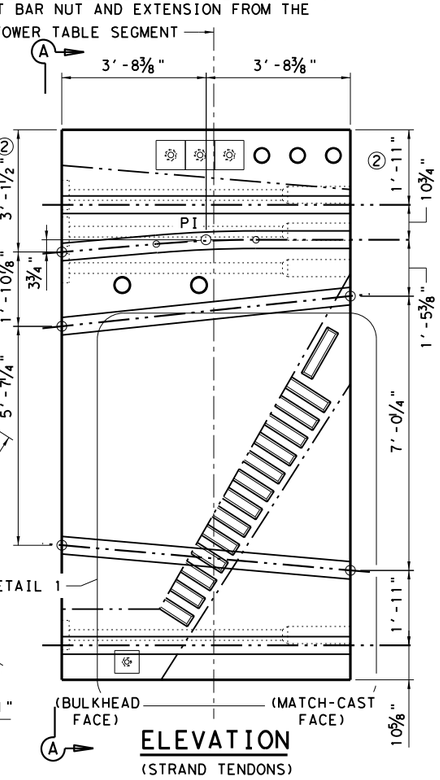


ELEVATION

(1¾" Ø P.T. BARS)

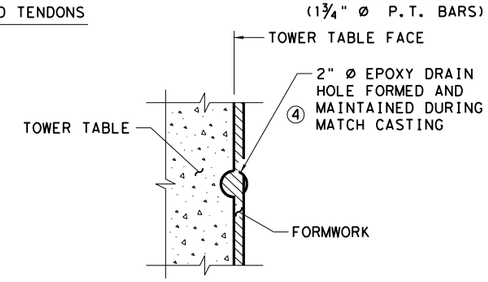


DETAIL 1



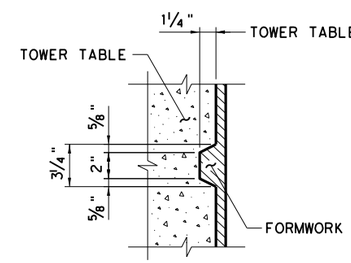
ELEVATION

(STRAND TENDONS)



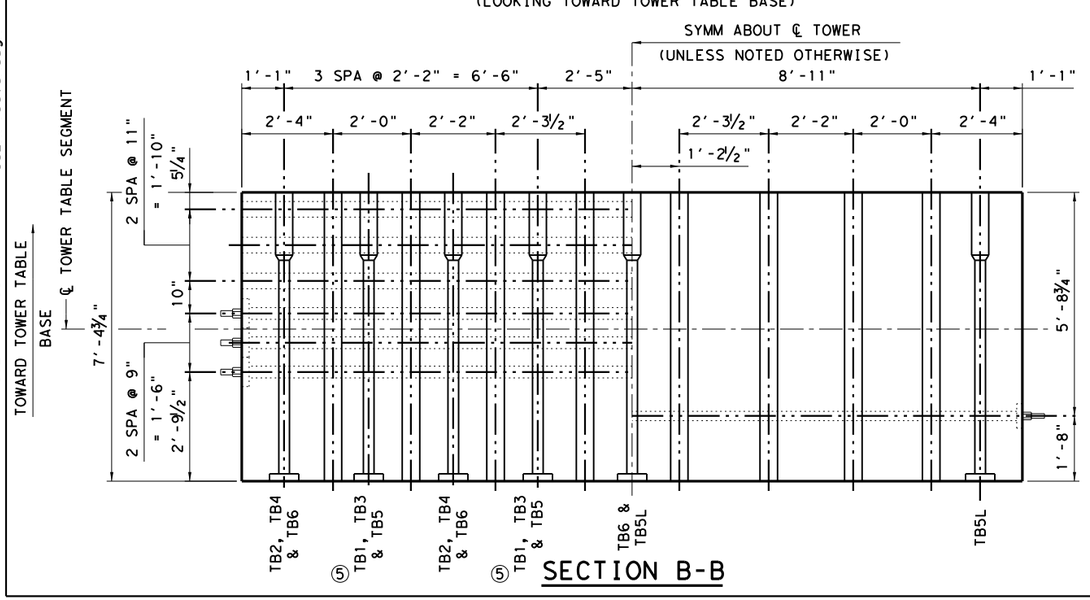
SECTION C-C

(NTS)

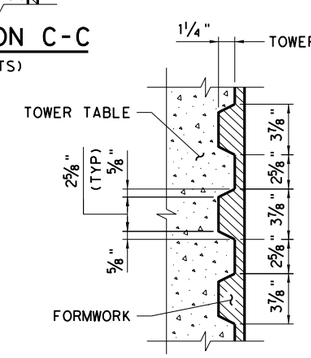


SECTION D-D

(NTS)

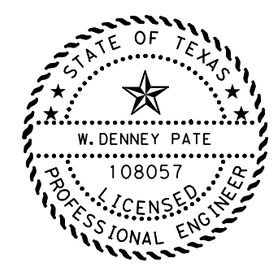


SECTION B-B



SECTION E-E

(NTS)



09/18/18

HL-93 LOADING

0 2 4
SCALE IN FEET

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

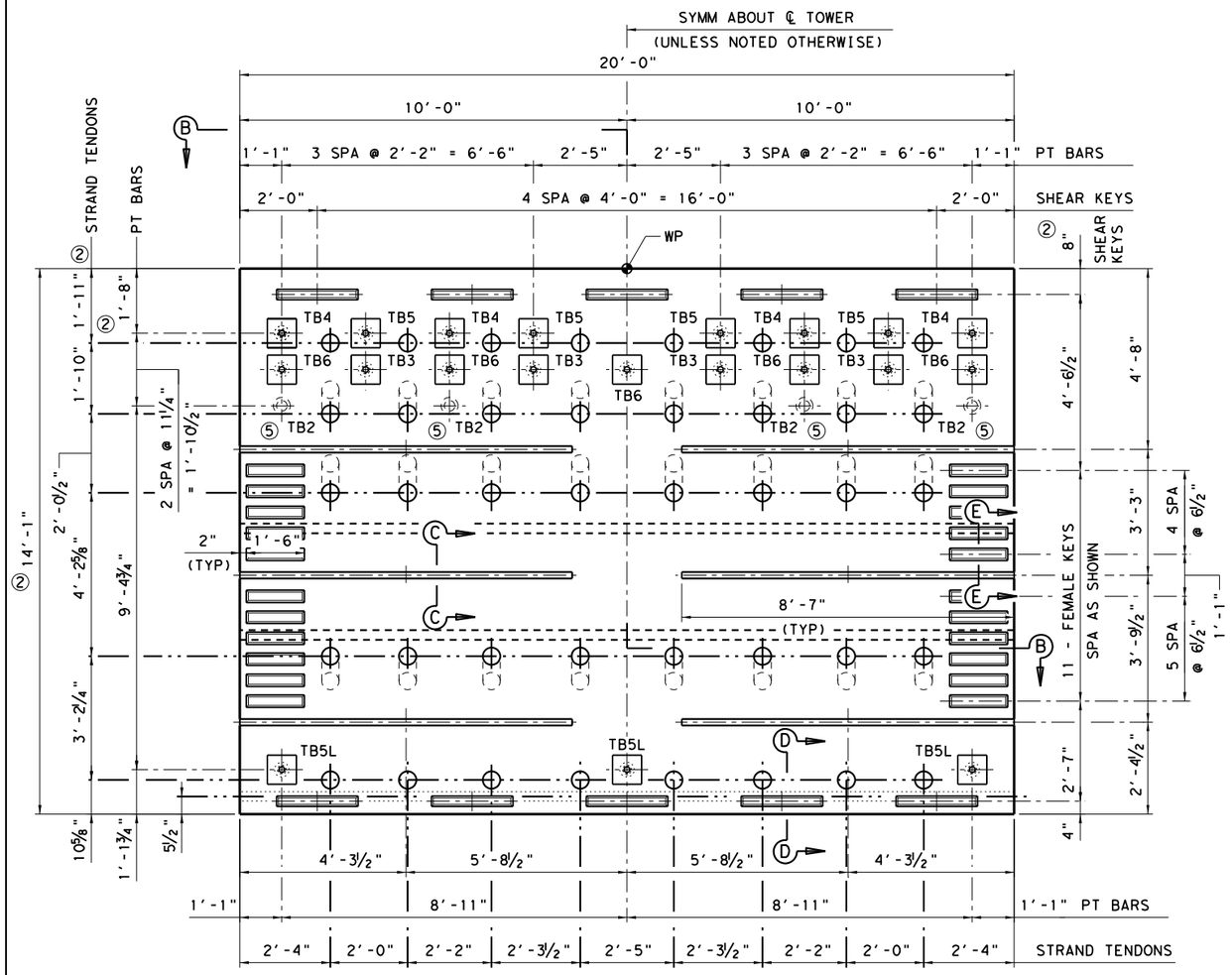
MAIN SPAN
TOWER TABLE DIMENSIONS III
(1NT-NB02)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91A
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:33 PM USER: lcavanaugh

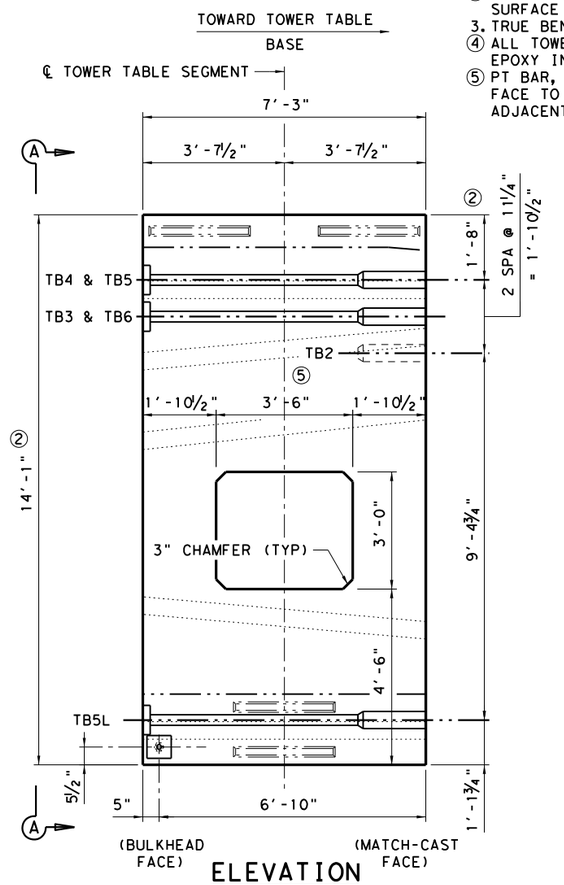
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB2 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.



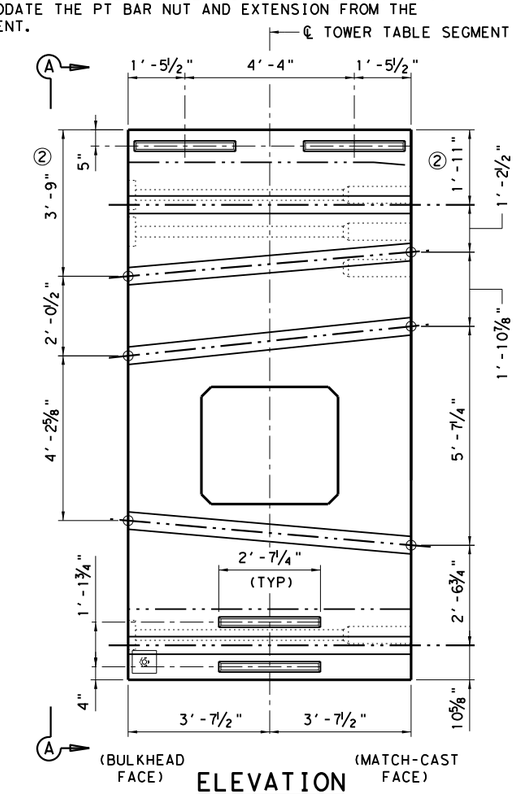
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)



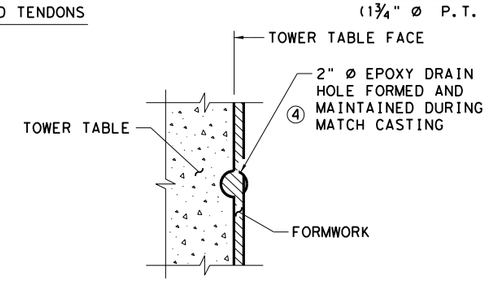
ELEVATION

(1¾" ø P.T. BARS)



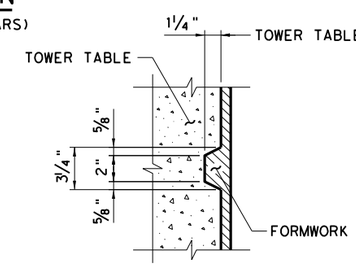
ELEVATION

(STRAND TENDONS)



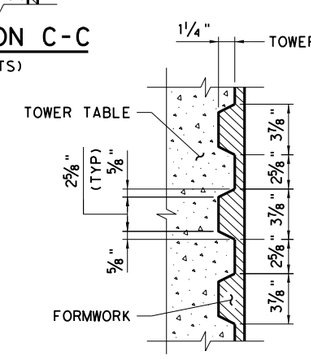
SECTION C-C

(NTS)



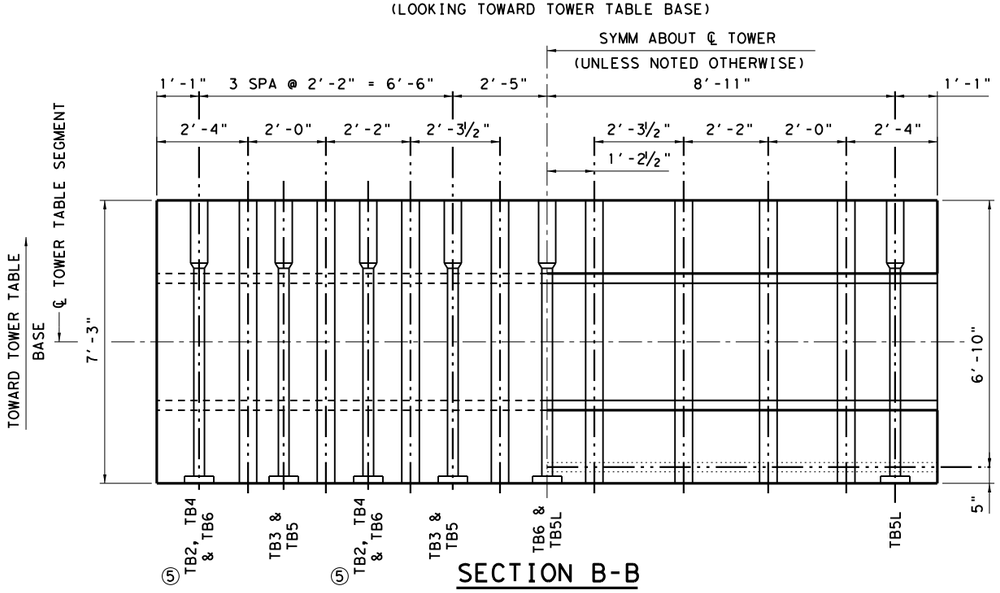
SECTION D-D

(NTS)



SECTION E-E

(NTS)



SECTION B-B

HL-93 LOADING

0 2 4
SCALE IN FEET

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE DIMENSIONS IV
(1NT-NB03)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

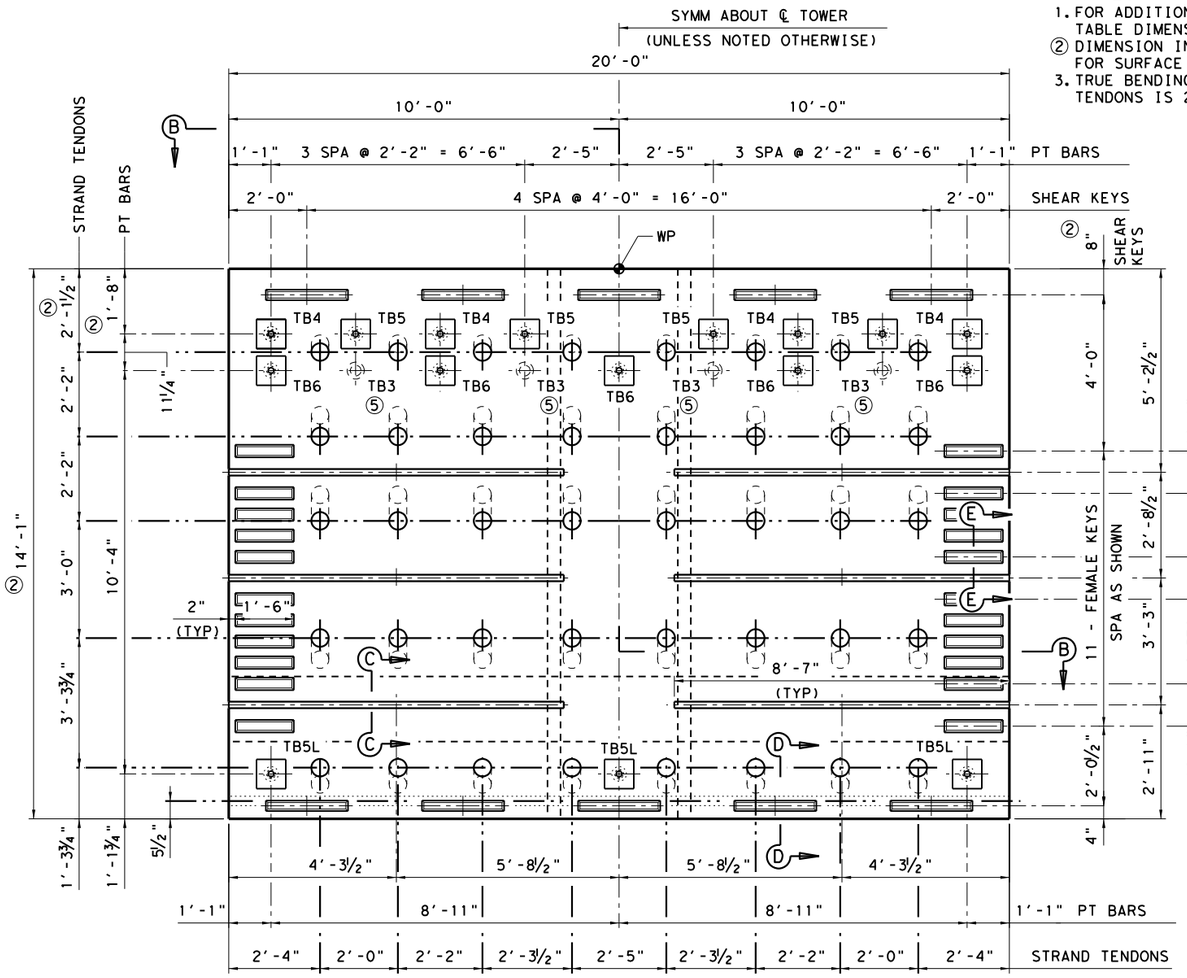
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91B
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:34 PM USER: lcavanaugh

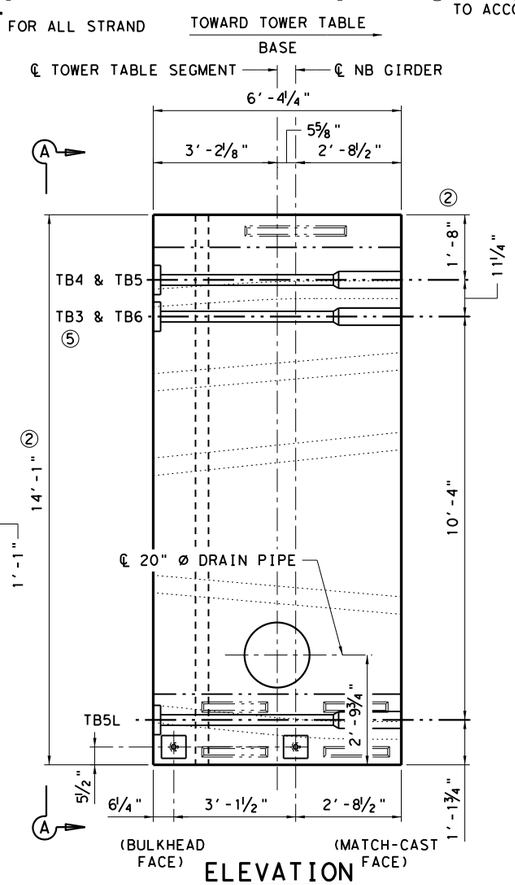
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES 1/2" INTEGRAL WEARING SURFACE PLUS 1/2" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB3 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.



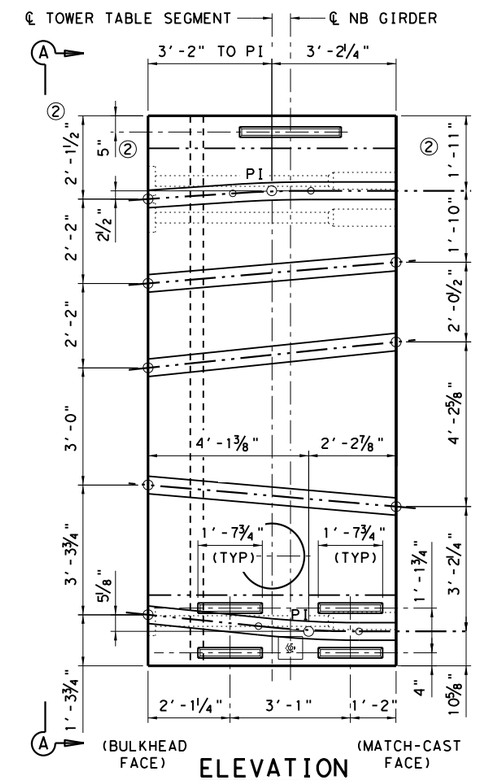
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)



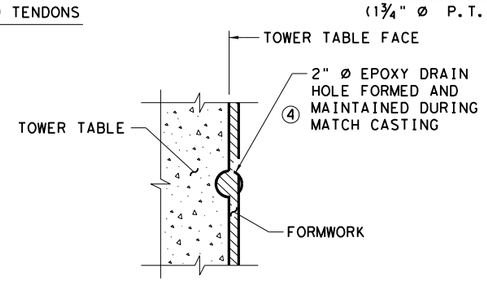
ELEVATION

(1¾" Ø P.T. BARS)



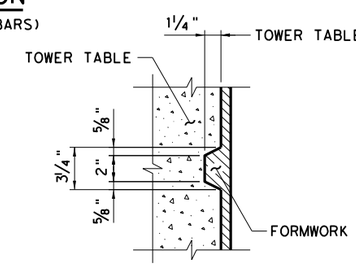
ELEVATION

(STRAND TENDONS)



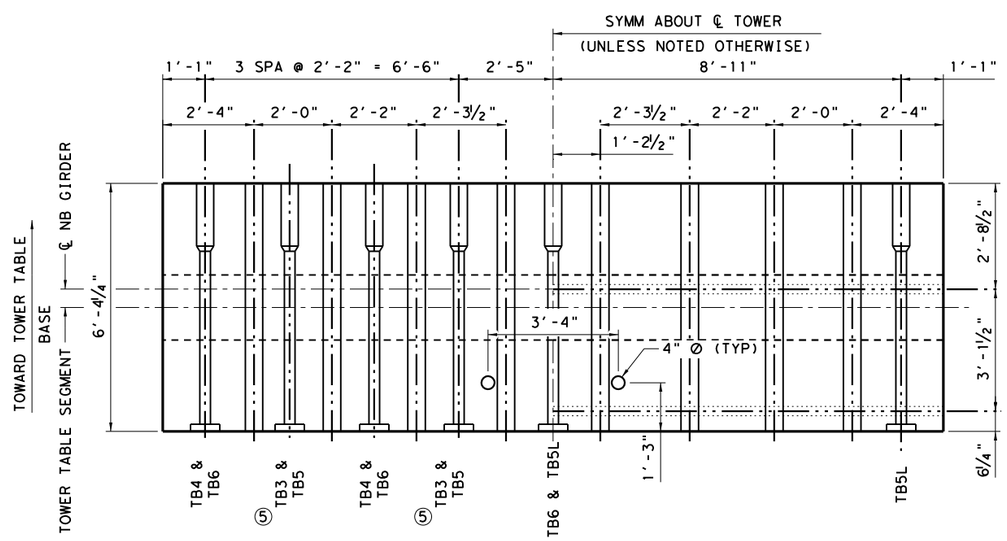
SECTION C-C

(NTS)

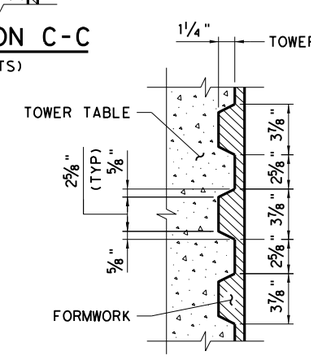


SECTION D-D

(NTS)



SECTION B-B



SECTION E-E

(NTS)

HL-93 LOADING

SCALE IN FEET 0 2 4

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE DIMENSIONS V
(1NT-NB04)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

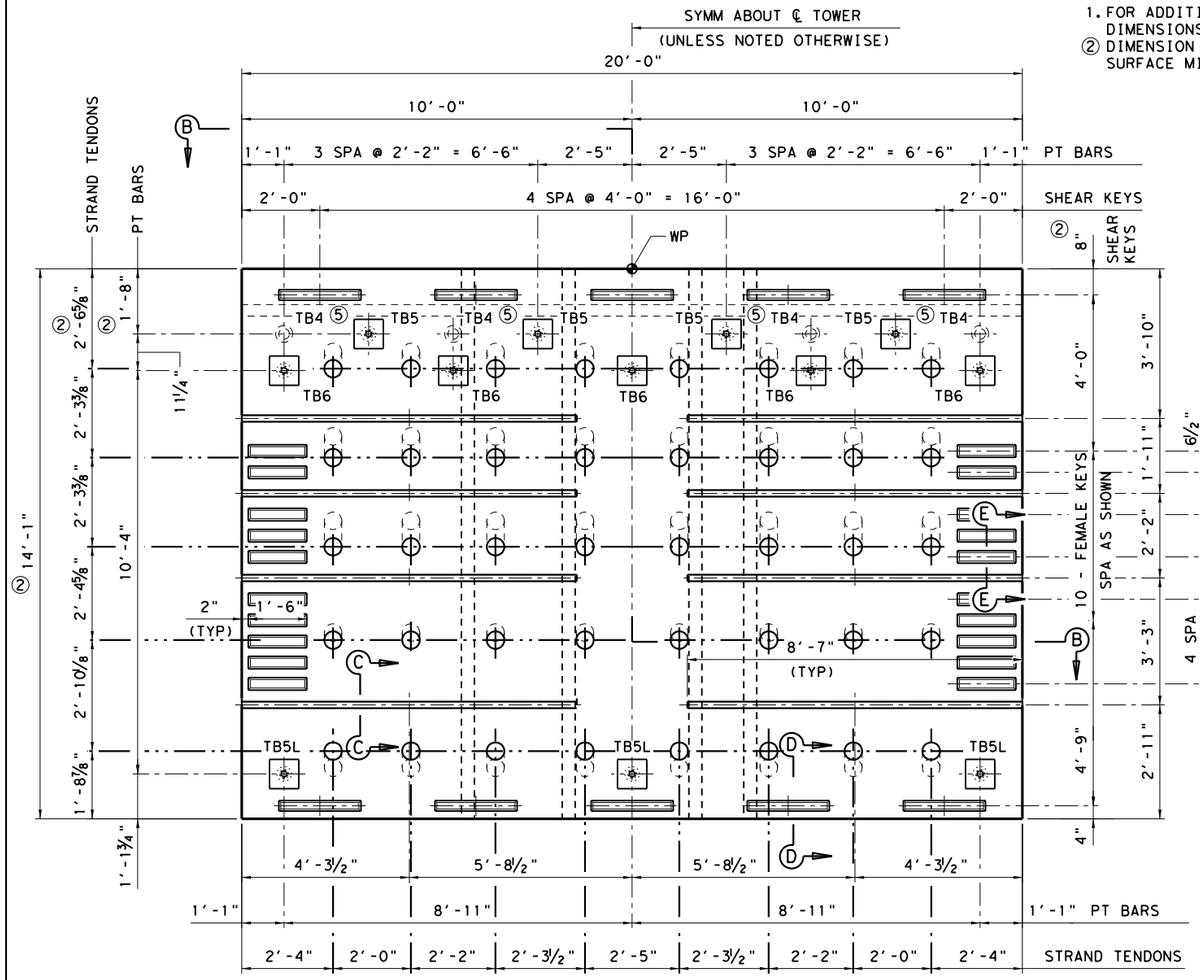
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91C
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:34 PM USER: lcavanaugh

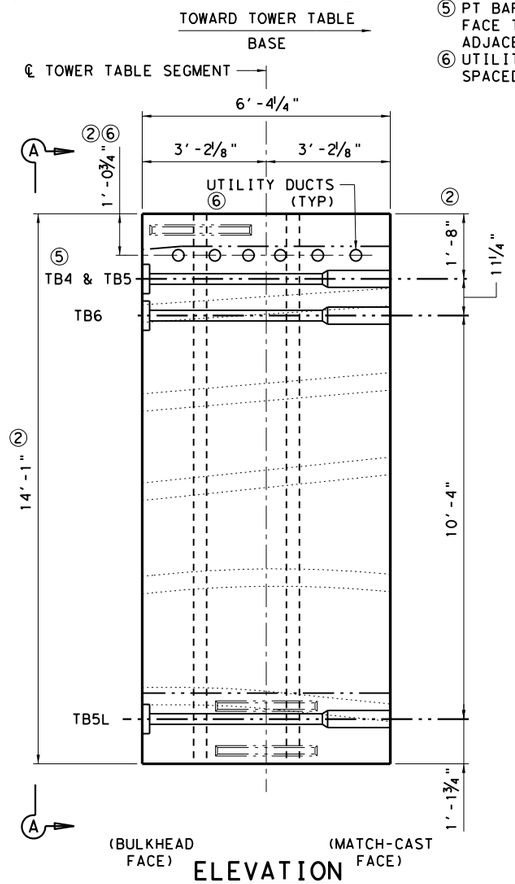
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. ② DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ④ ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. ⑤ PT BAR, TB4 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.
6. ⑥ UTILITY DUCTS SHALL BE 4" SCH 40 STEEL PIPE. HORIZONTALLY SPACED TO CLEAR REINFORCEMENT.



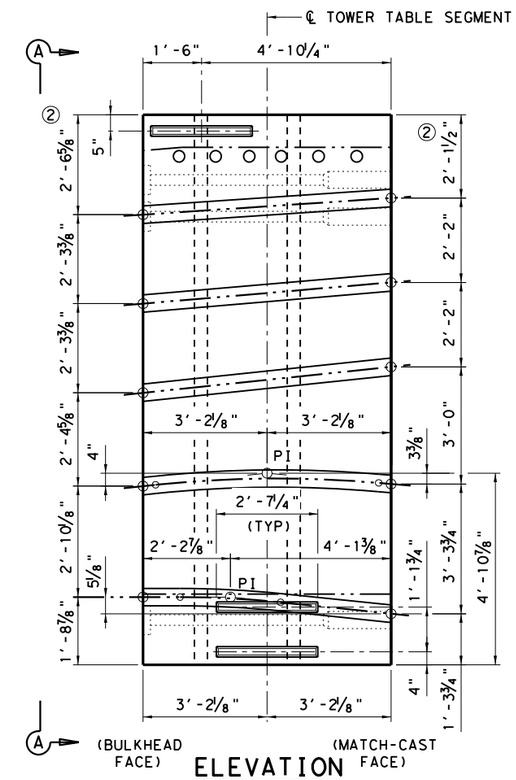
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)



ELEVATION

(1¾" Ø P.T. BARS)

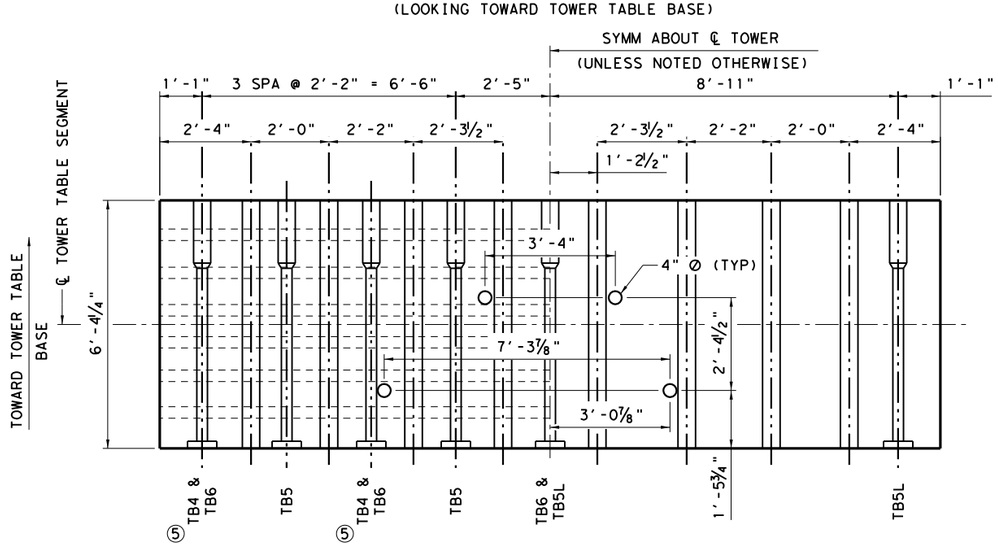


ELEVATION

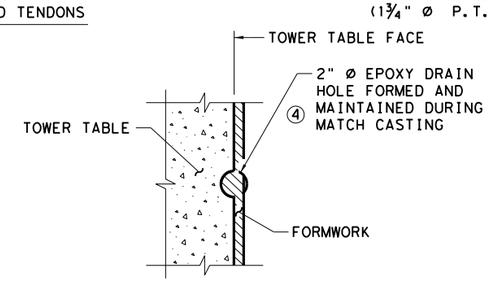
(STRAND TENDONS)

HL-93 LOADING

0 2 4
SCALE IN FEET

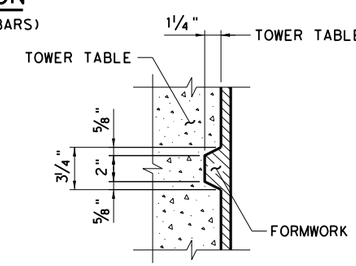


SECTION B-B



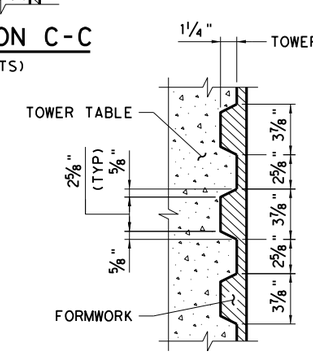
SECTION C-C

(NTS)



SECTION D-D

(NTS)



SECTION E-E

(NTS)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

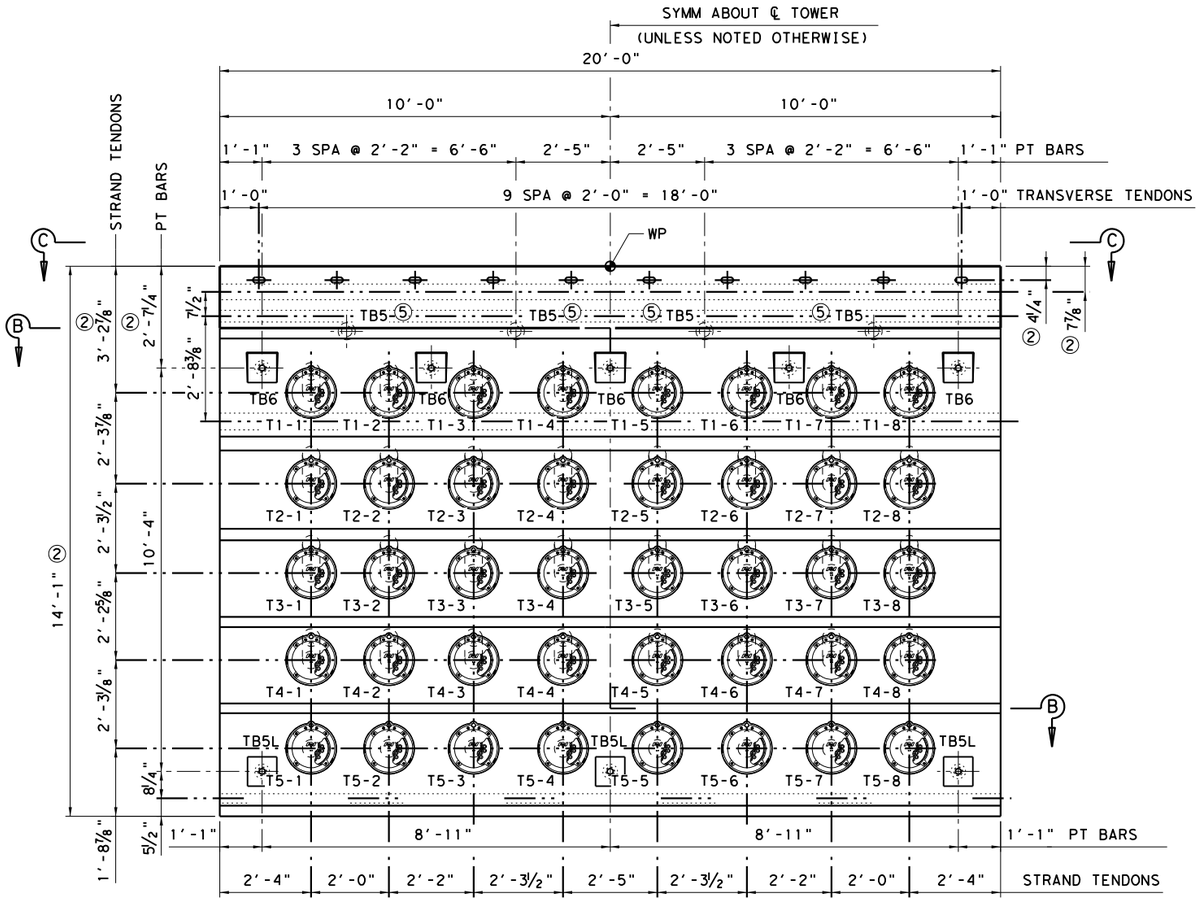
Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE DIMENSIONS VI
(1NT-NB05)

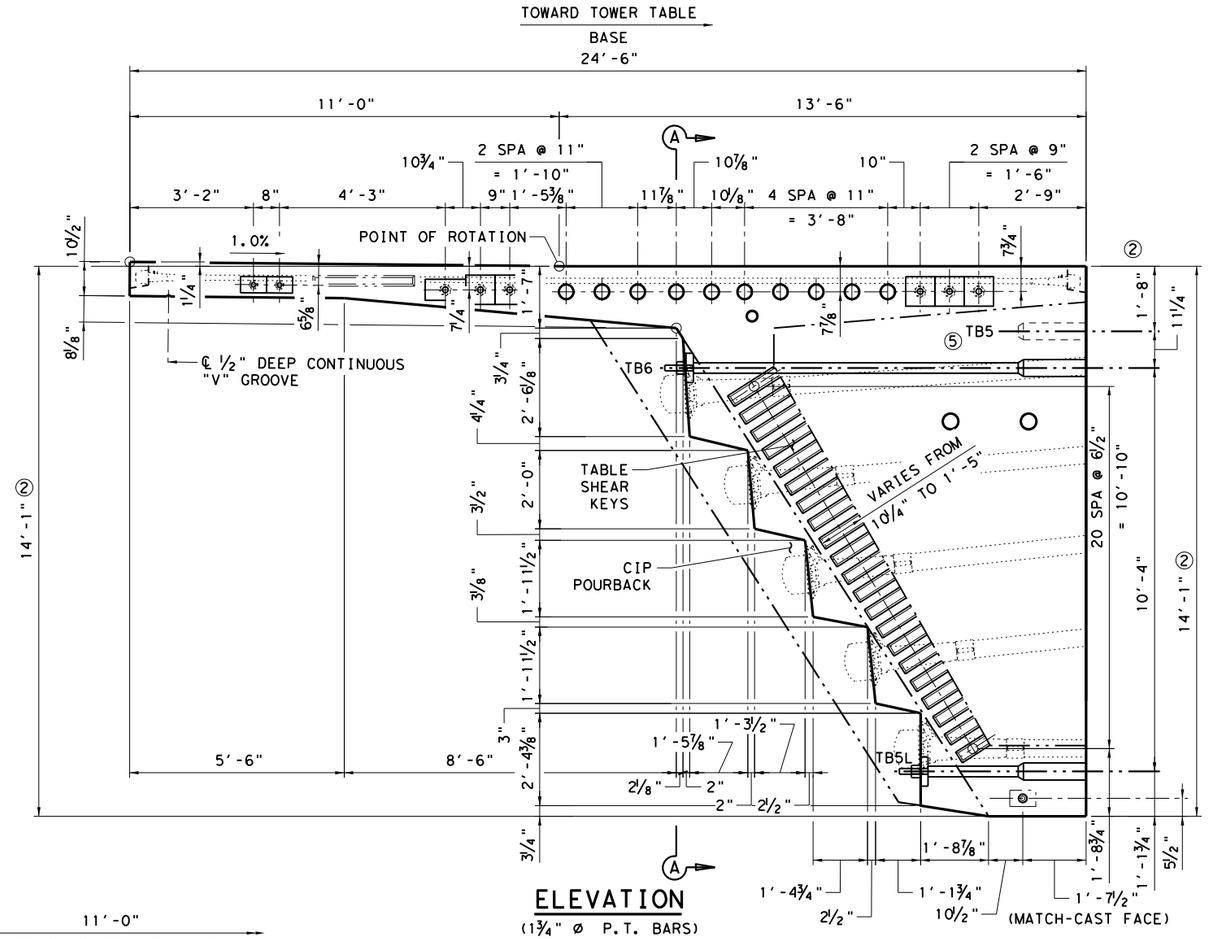
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91D
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:35 PM USER: lcavanaugh



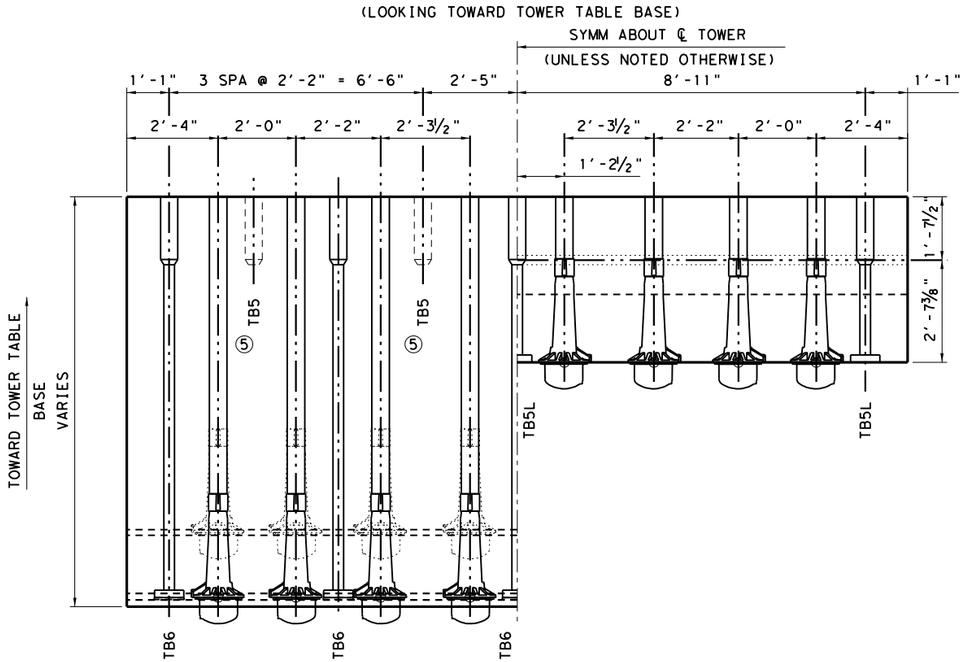
SECTION A-A

(LOOKING TOWARD TOWER TABLE BASE)

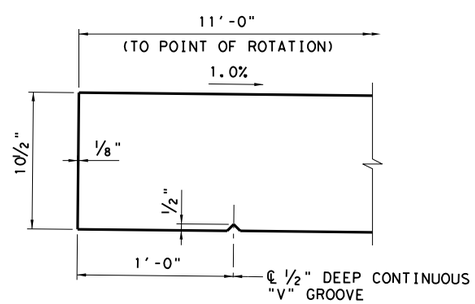


ELEVATION

(1¾" ø P.T. BARS)

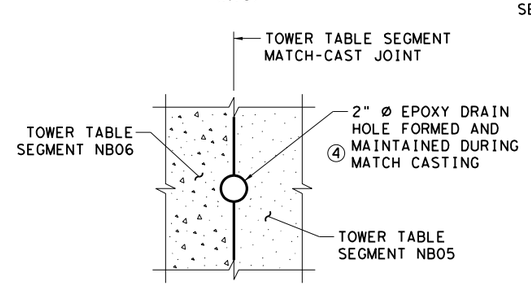


SECTION B-B



"V" GROOVE DETAIL

(NTS)



EPOXY DRAIN HOLE DETAIL

(NTS)

NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB5 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

HL-93 LOADING

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

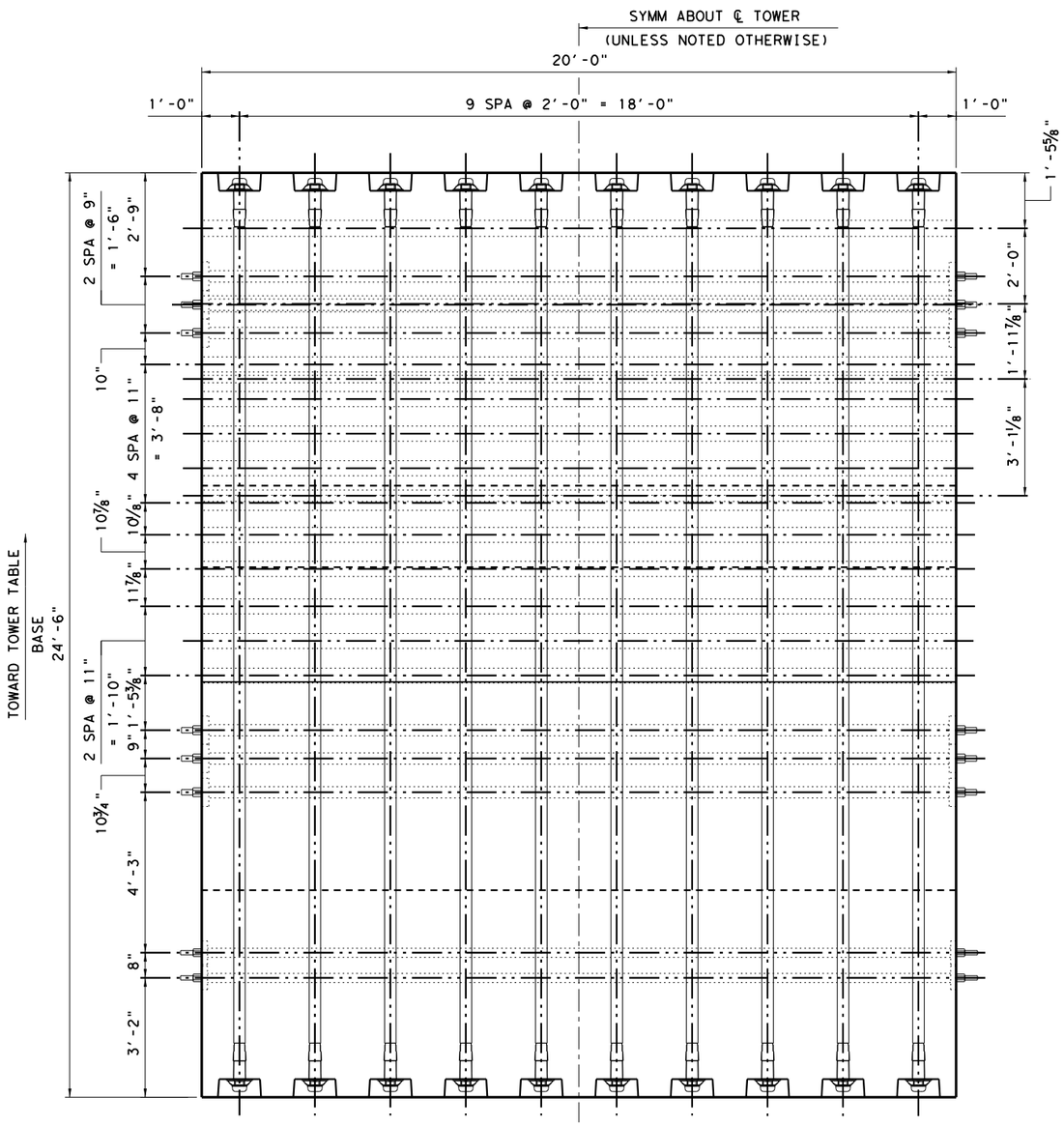
Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

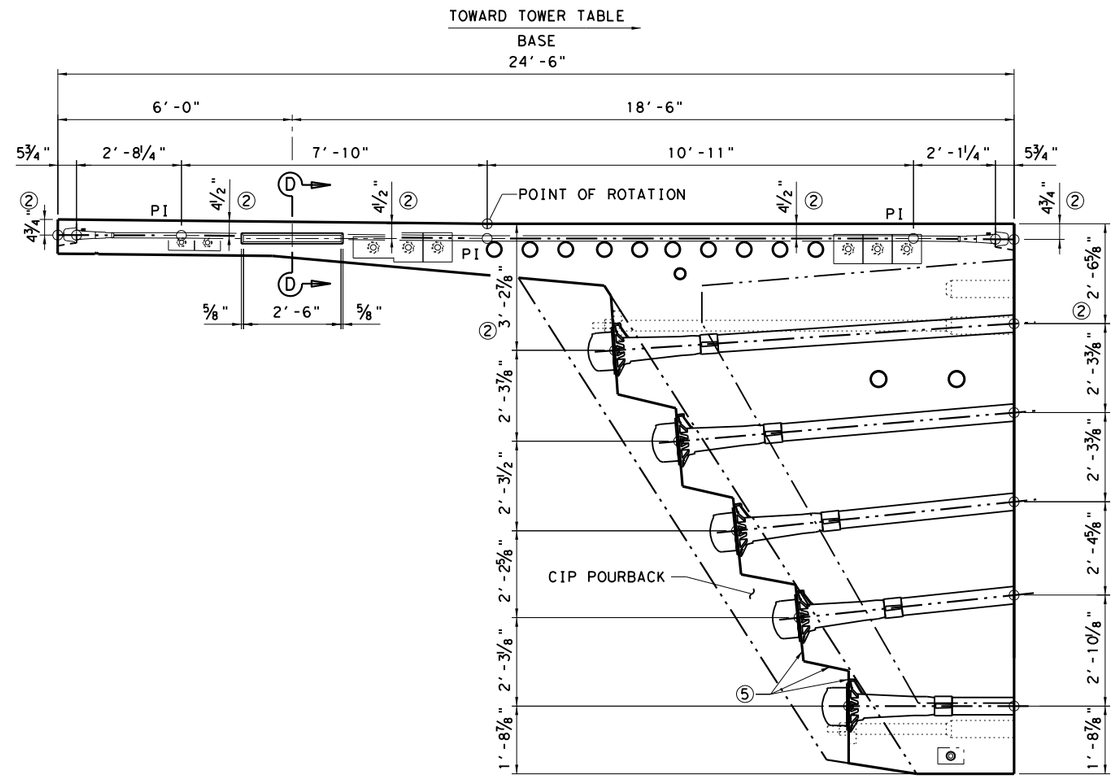
MAIN SPAN
TOWER TABLE DIMENSIONS VII
(1NT-NB06)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91E
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:35 PM USER: lcavanaugh



VIEW C-C



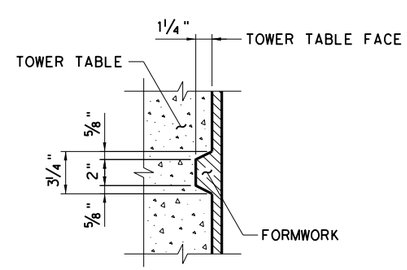
ELEVATION

(STRAND TENDONS)

(MATCH-CAST FACE)

NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. ② DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ④ ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. ⑤ ROUGHEN ALL POURBACK SURFACES TO 1#4" AMPLITUDE.



SECTION D-D

(NTS)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

HL-93 LOADING

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

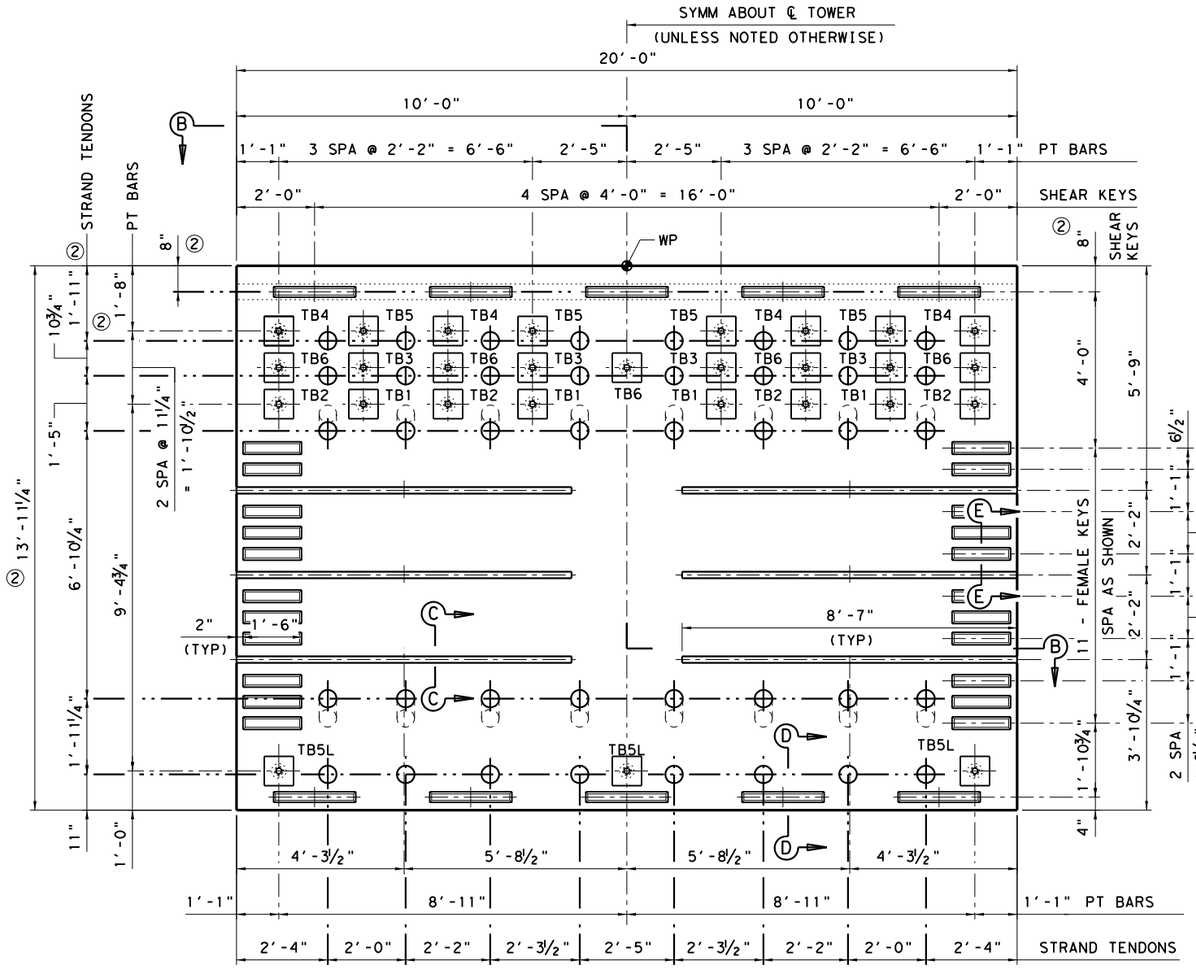
MAIN SPAN
TOWER TABLE DIMENSIONS VIII
(1NT-NB06)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DCB	TEXAS	CRP	NUECES	NHB 91F
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:36 PM USER: lcavanaugh

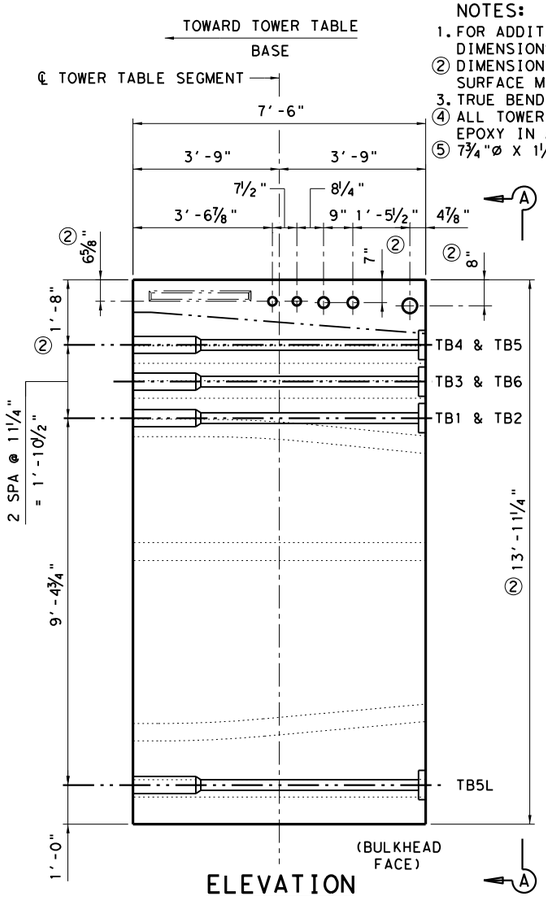
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. 7¾"ø X 1½" DEEP BLOCKOUT AT EACH TENDON.



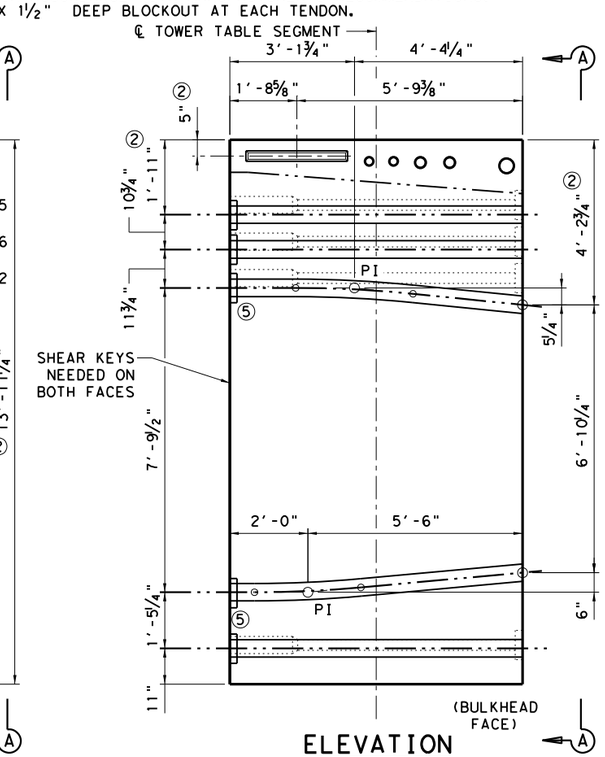
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)



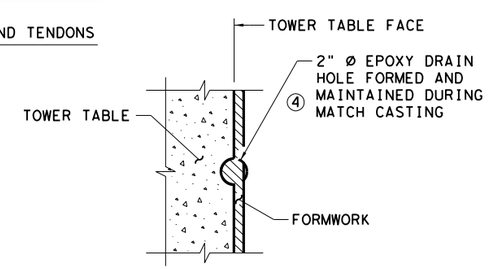
ELEVATION

(1¾" ø P.T. BARS)



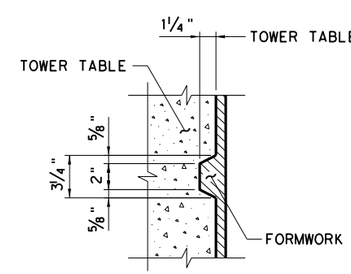
ELEVATION

(STRAND TENDONS)



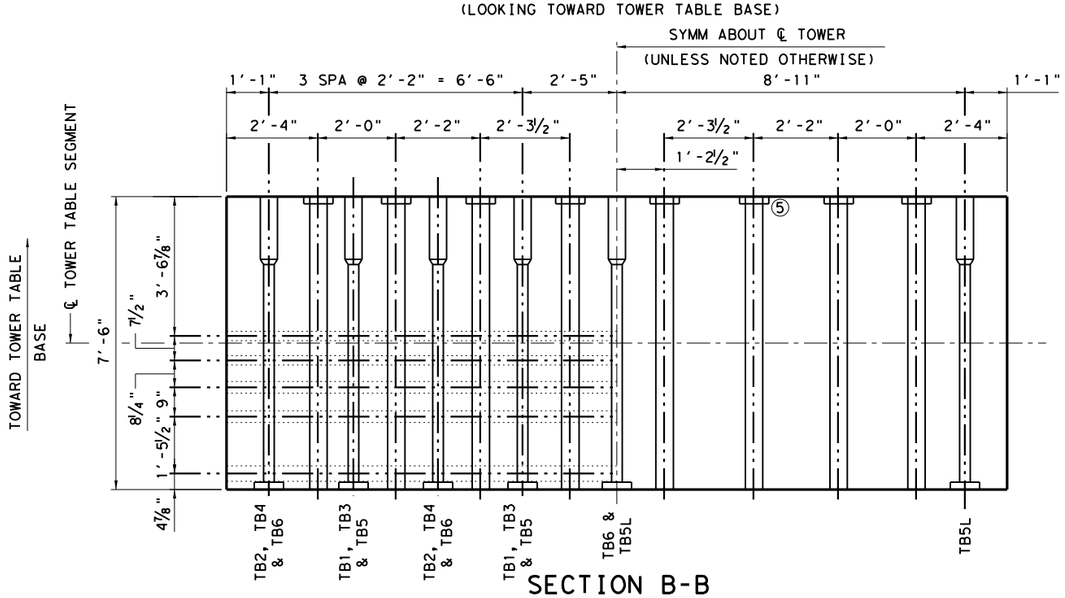
SECTION C-C

(NTS)

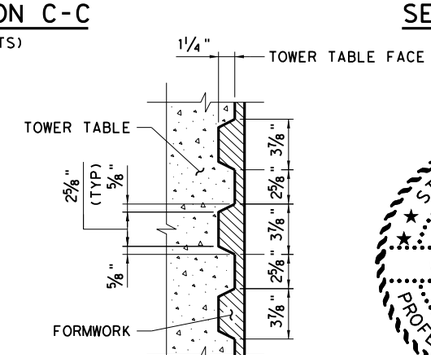


SECTION D-D

(NTS)



SECTION B-B



SECTION E-E

(NTS)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

HL-93 LOADING

0 2 4
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE DIMENSIONS IX
(1NT-SB01)

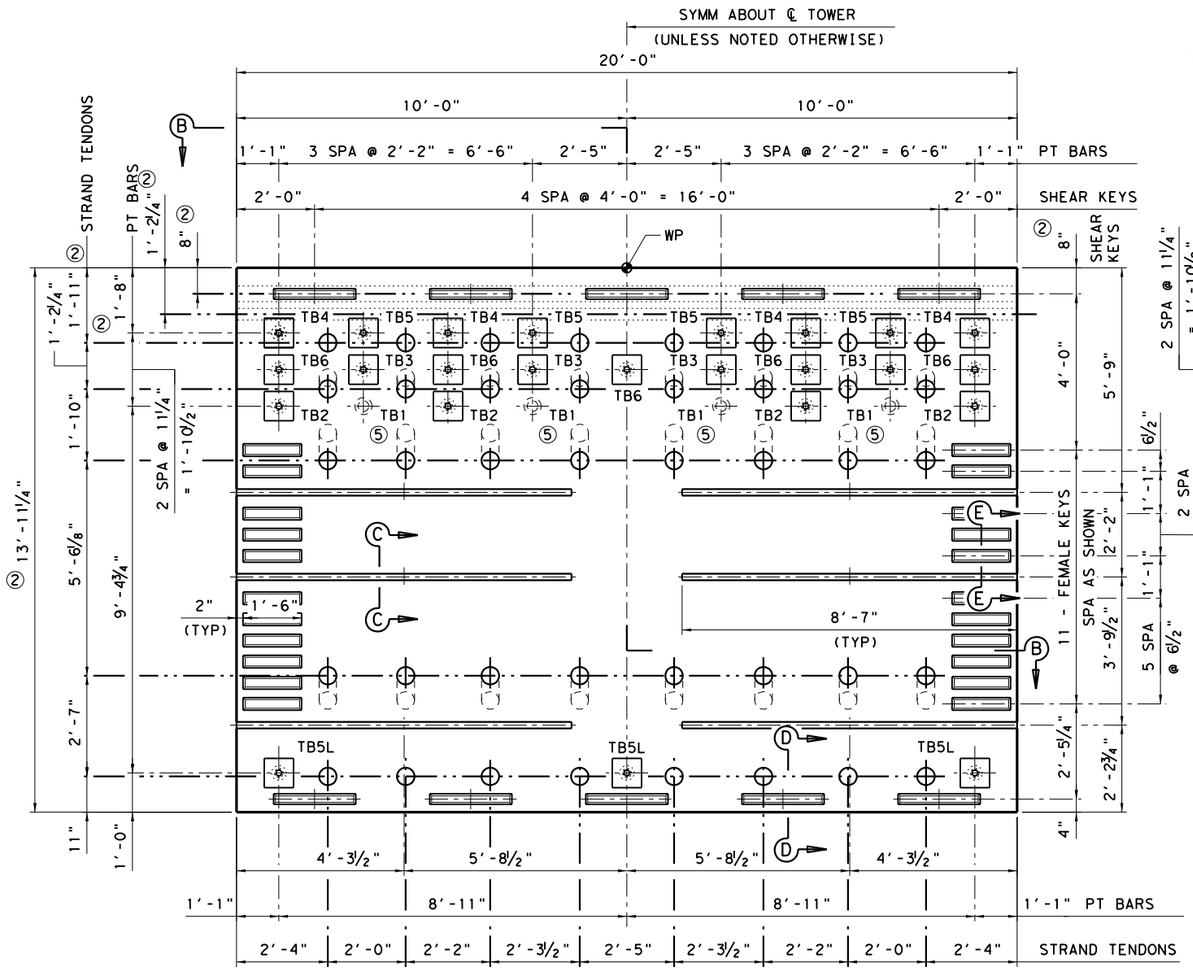
DESIGN JVH	FED. RD. DIV. NO. X	FEDERAL AID PROJECT NO. (See Title Sheet)		HIGHWAY NO. US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91G
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:37 PM USER: lcavanaugh

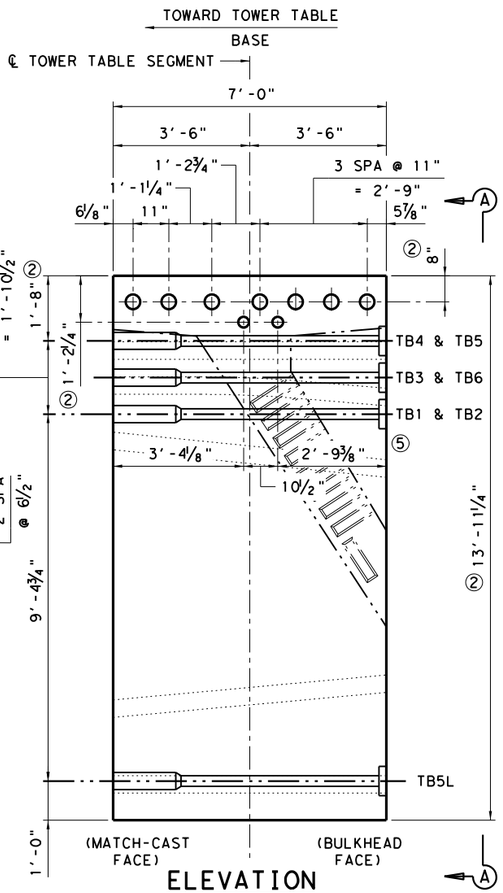
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES 1/2" INTEGRAL WEARING SURFACE PLUS 1/2" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB1 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.



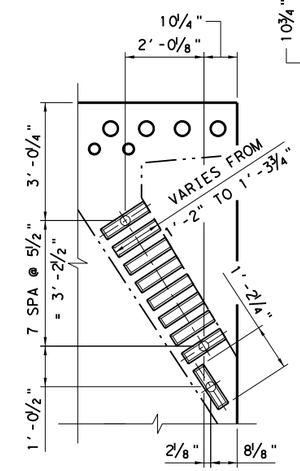
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)

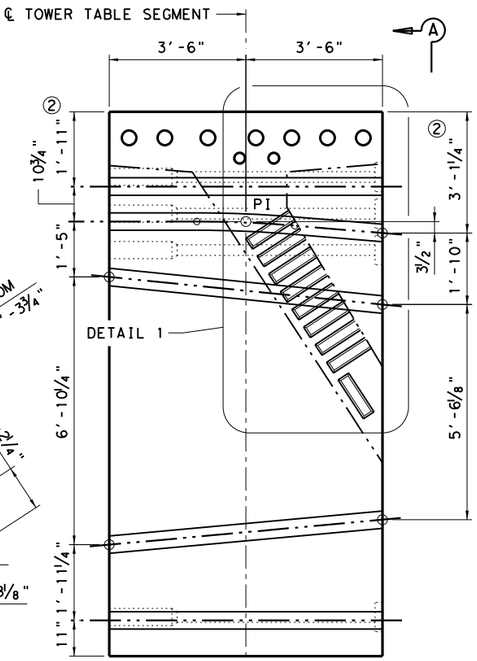


ELEVATION

(1¾" Ø P.T. BARS)

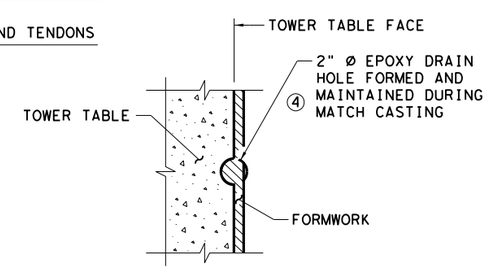


DETAIL 1



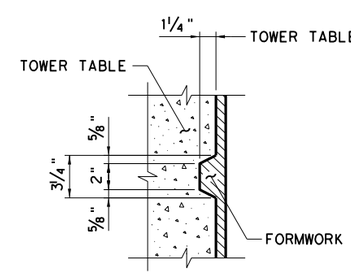
ELEVATION

(STRAND TENDONS)



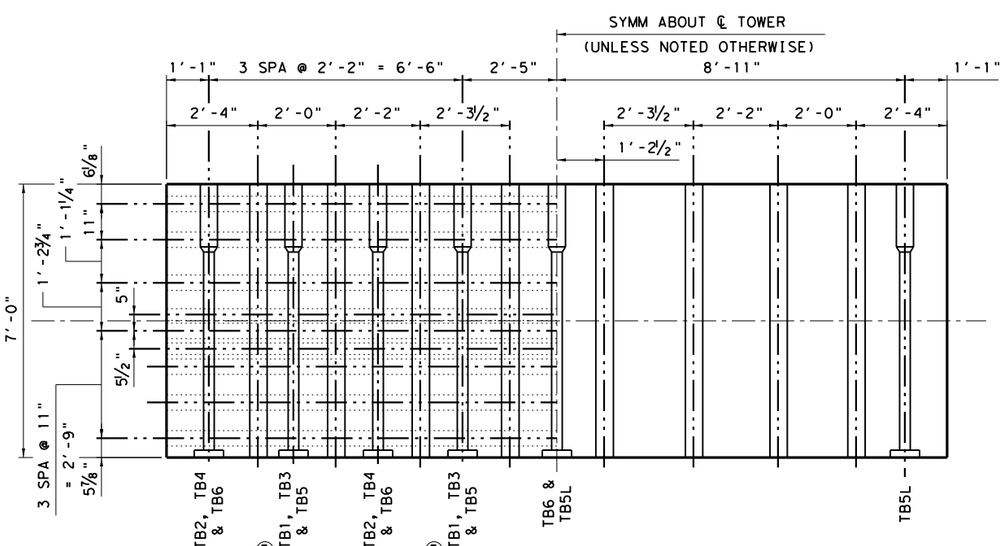
SECTION C-C

(NTS)

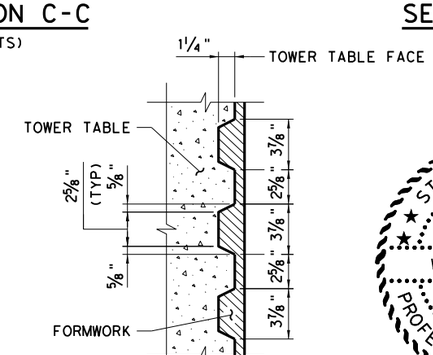


SECTION D-D

(NTS)



SECTION B-B



SECTION E-E

(NTS)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

HL-93 LOADING

0 2 4
SCALE IN FEET

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

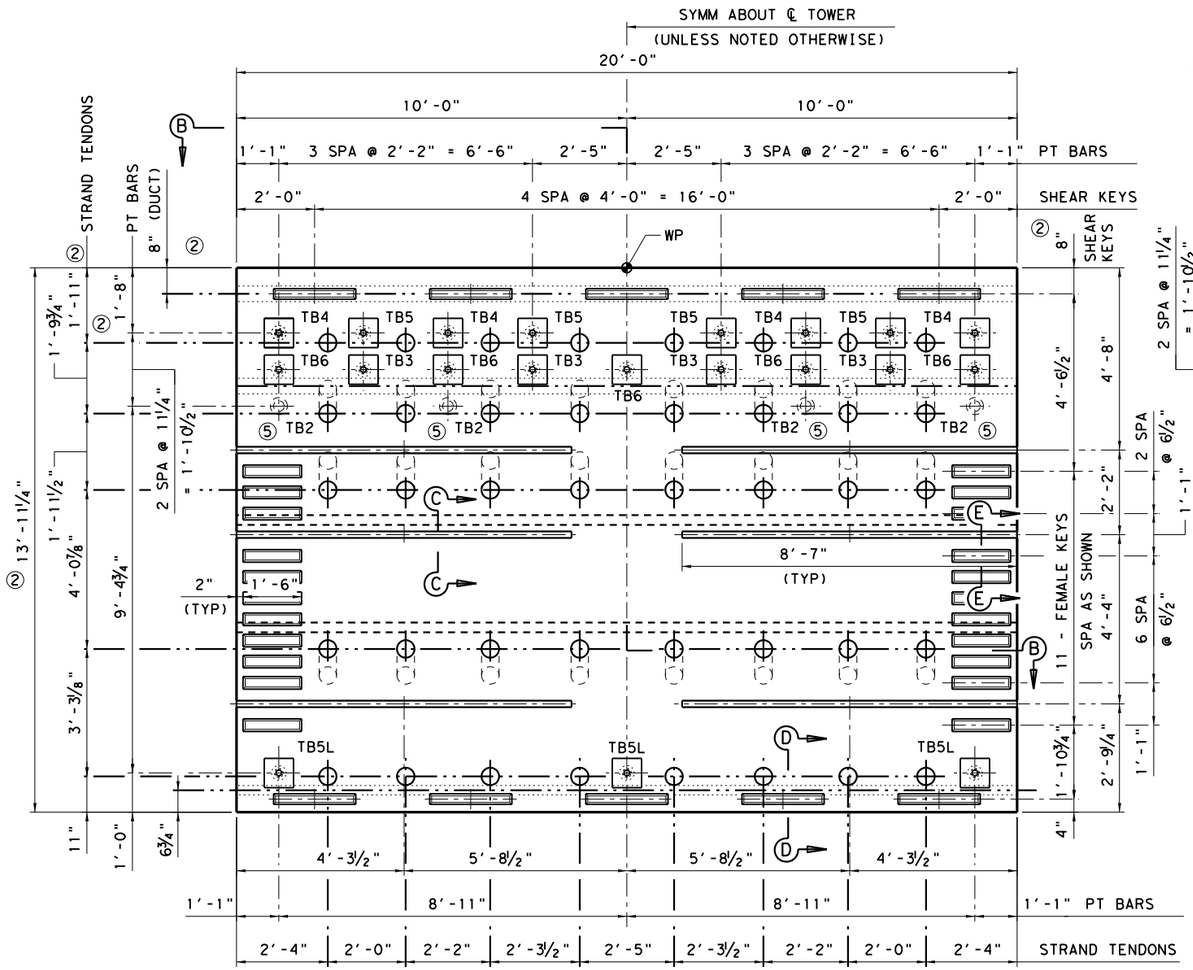
MAIN SPAN
TOWER TABLE DIMENSIONS X
(1NT-SB02)

DESIGN JVH	FED. RD. DIV. NO. X	FEDERAL AID PROJECT NO. (See Title Sheet)		HIGHWAY NO. US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91H
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:37 PM USER: lcavanaugh

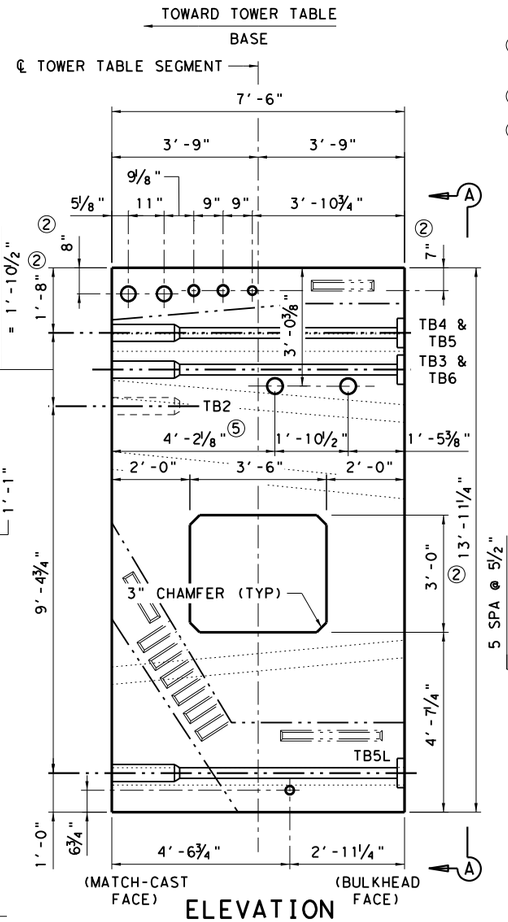
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES 1/2" INTEGRAL WEARING SURFACE PLUS 1/2" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB2 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.



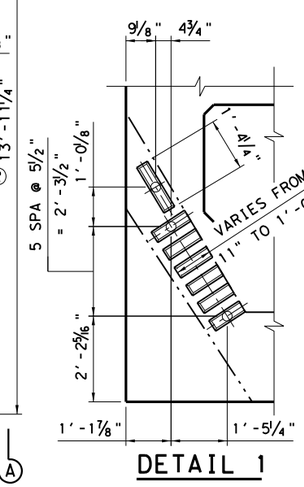
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)

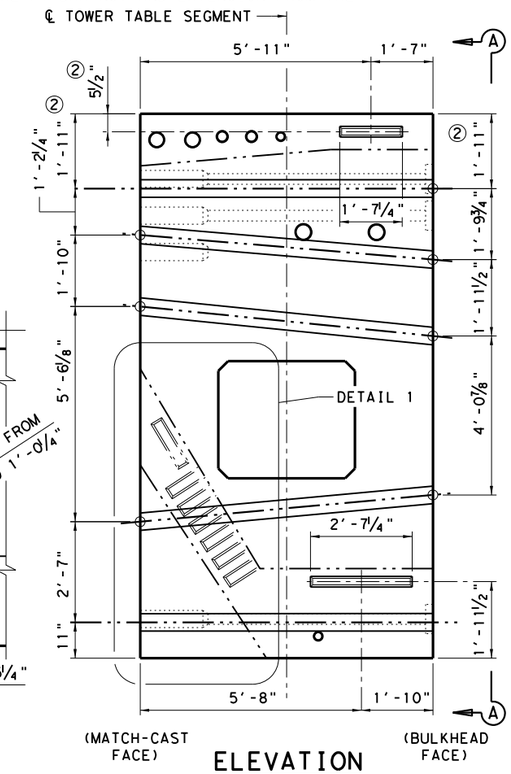


ELEVATION

(1¾" Ø P.T. BARS)



DETAIL 1

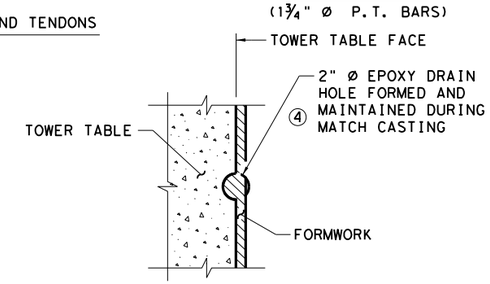


ELEVATION

(STRAND TENDONS)

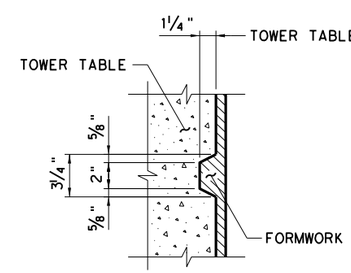
HL-93 LOADING

0 2 4
SCALE IN FEET



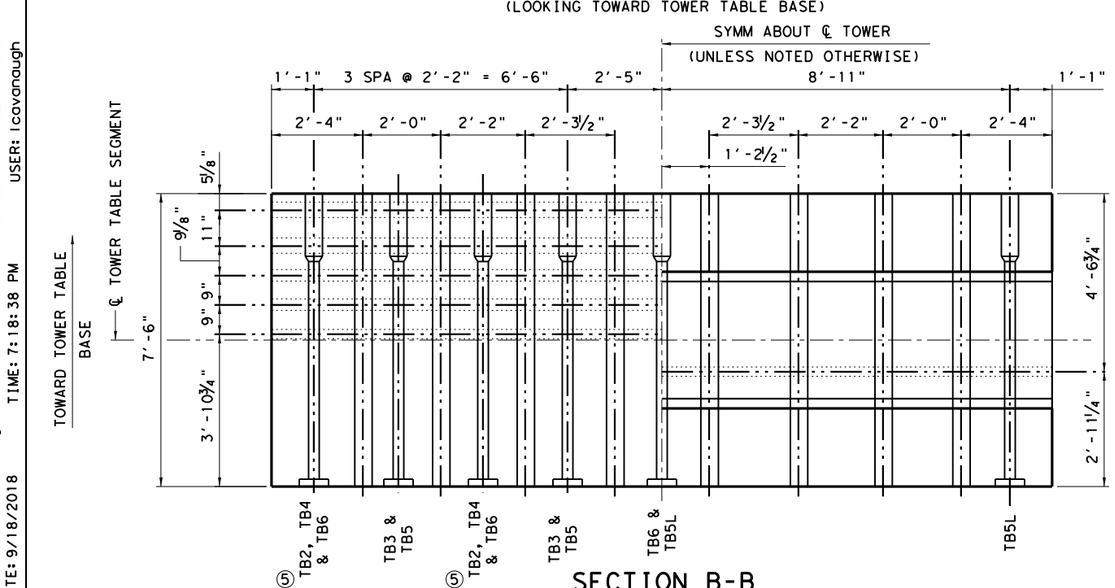
SECTION C-C

(NTS)

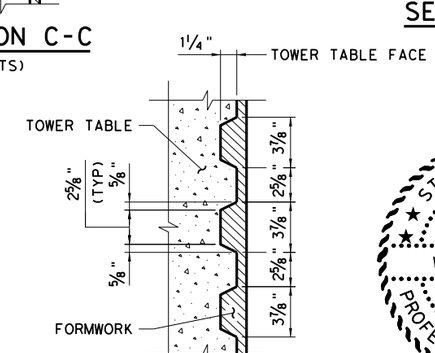


SECTION D-D

(NTS)



SECTION B-B



SECTION E-E

(NTS)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

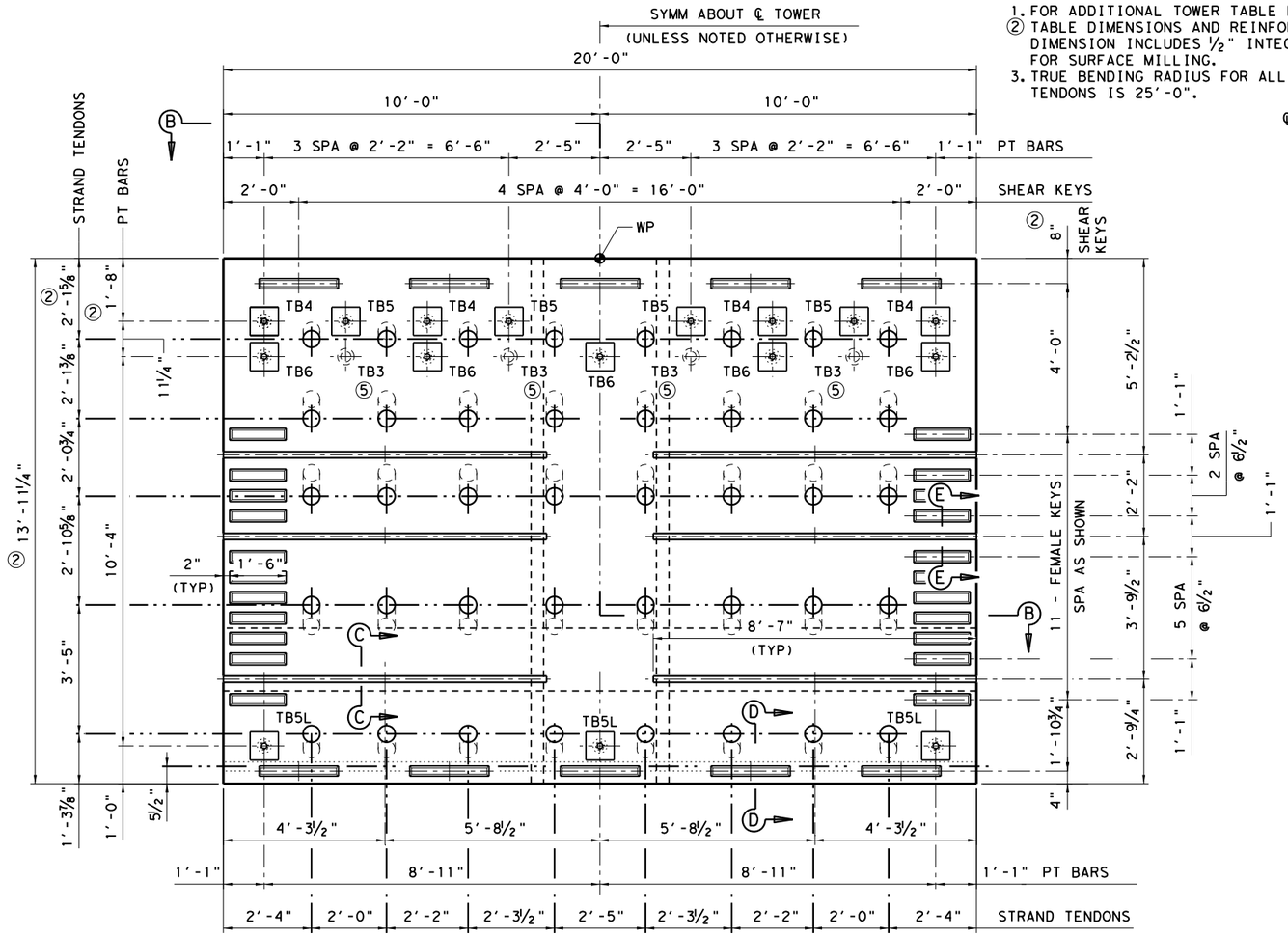
MAIN SPAN
TOWER TABLE DIMENSIONS XI
(1NT-SB03)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91J
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:38 PM USER: lcavanaugh

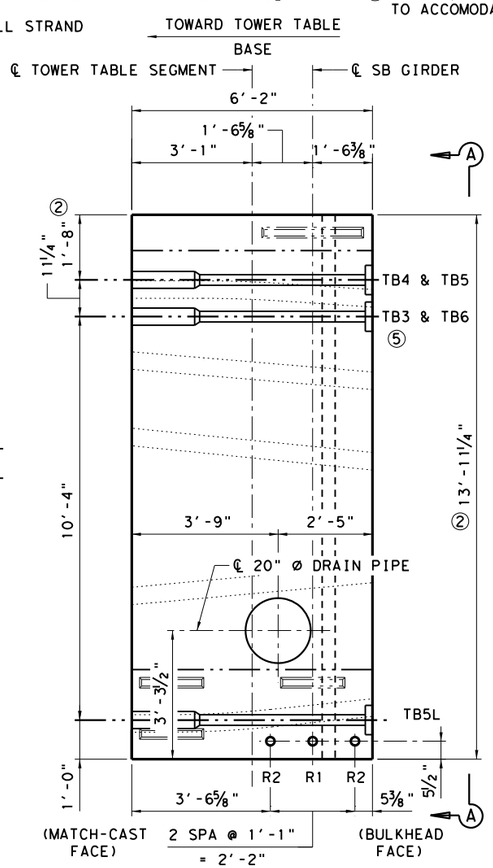
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER
2. TABLE DIMENSIONS AND REINFORCEMENT. DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB3 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.



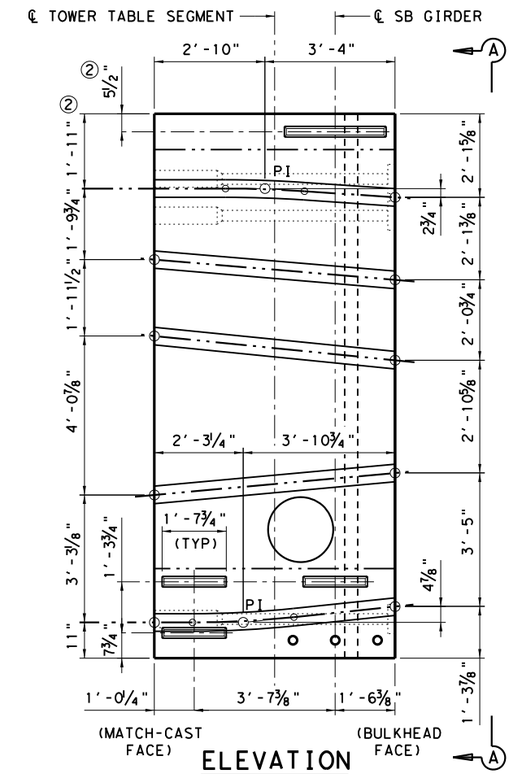
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)



ELEVATION

(1¾" Ø P.T. BARS)



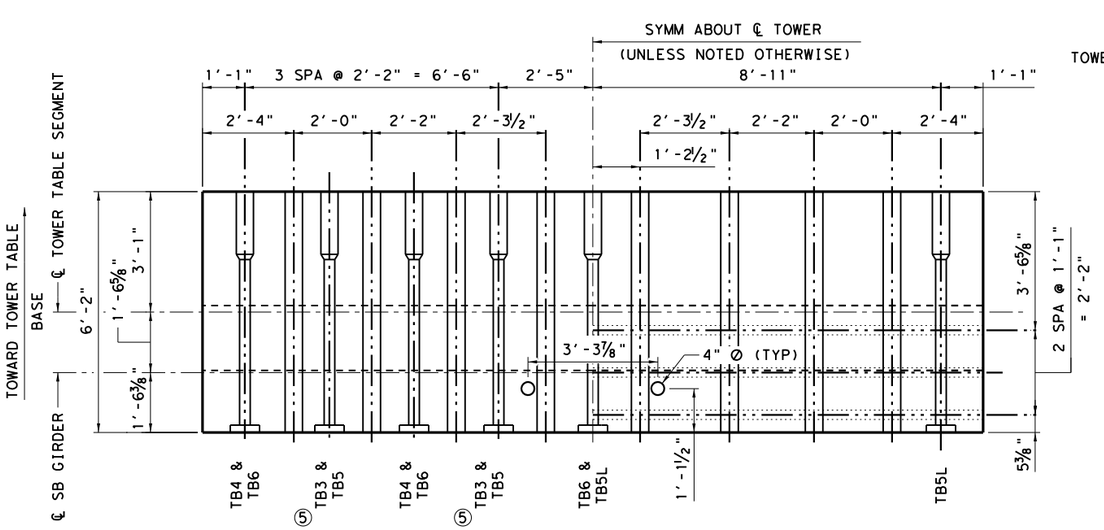
ELEVATION

(STRAND TENDONS)

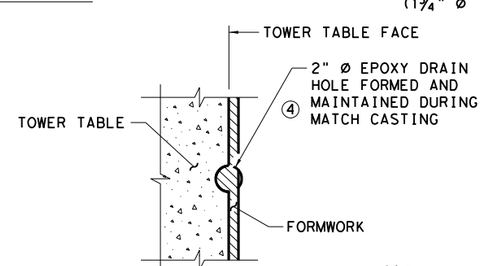
HL-93 LOADING

0 2 4
SCALE IN FEET

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

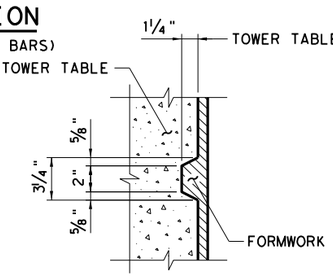


SECTION B-B



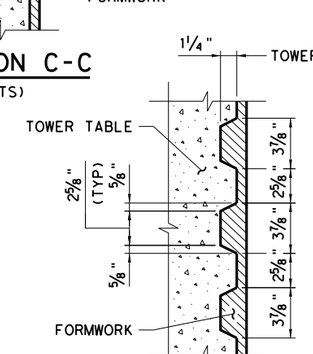
SECTION C-C

(NTS)



SECTION D-D

(NTS)



SECTION E-E

(NTS)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

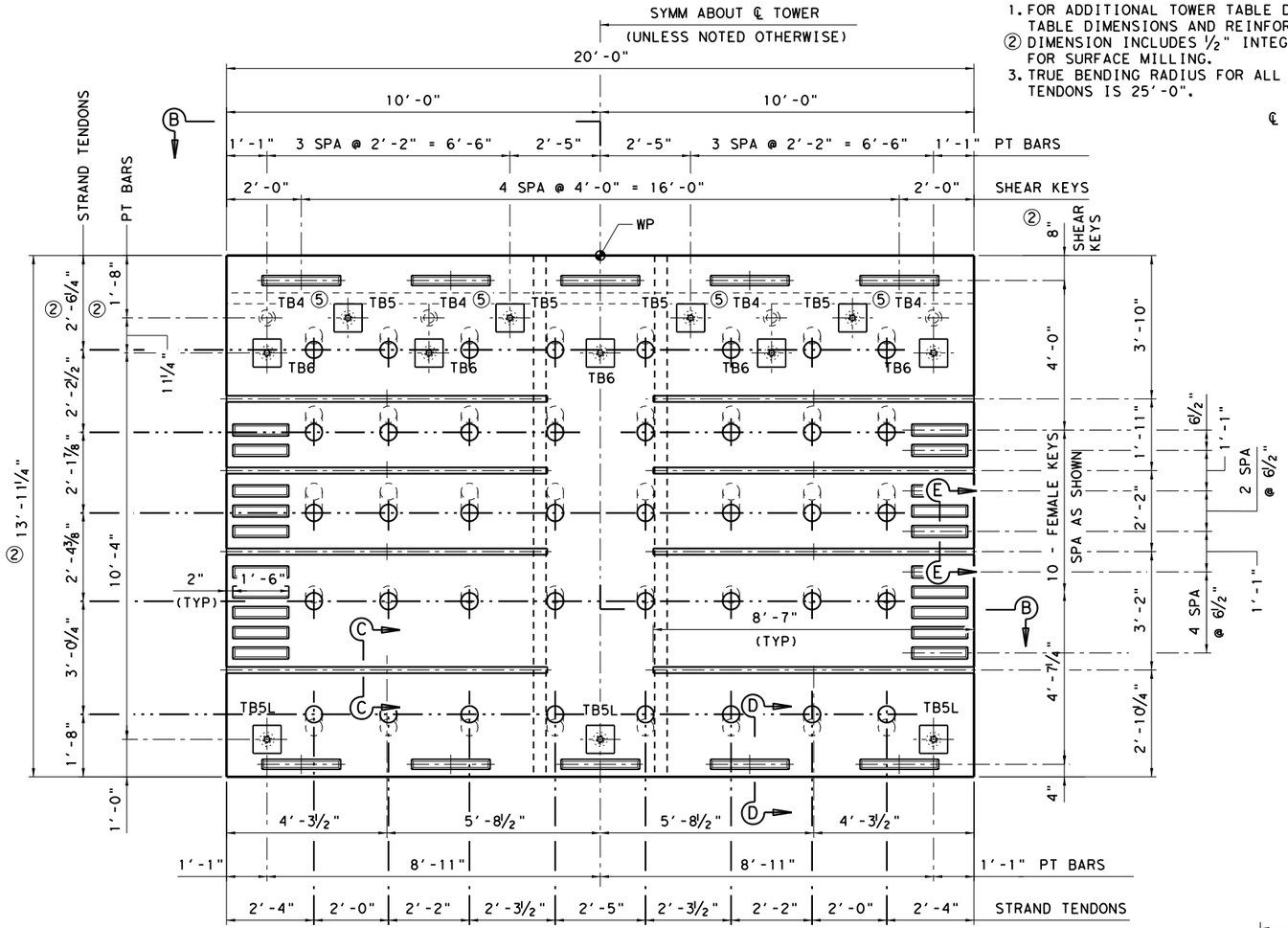
MAIN SPAN
TOWER TABLE DIMENSIONS XII
(1NT-SB04)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91K
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N090*Tower*Table*Dimensions*1.dgn
DATE: 9/18/2018 TIME: 7:18:38 PM USER: lcavanaugh

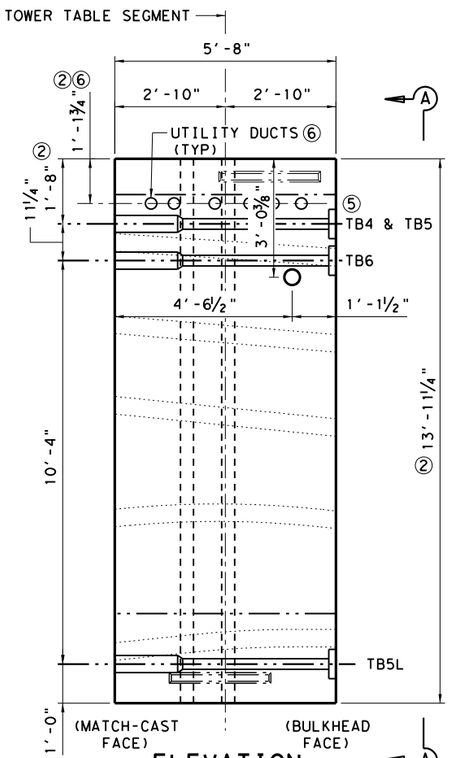
NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES 1/2" INTEGRAL WEARING SURFACE PLUS 1/2" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB4 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.
6. UTILITY DUCTS SHALL BE 4" SCH 40 STEEL PIPE. HORIZONTALLY SPACED TO CLEAR REINFORCEMENT.



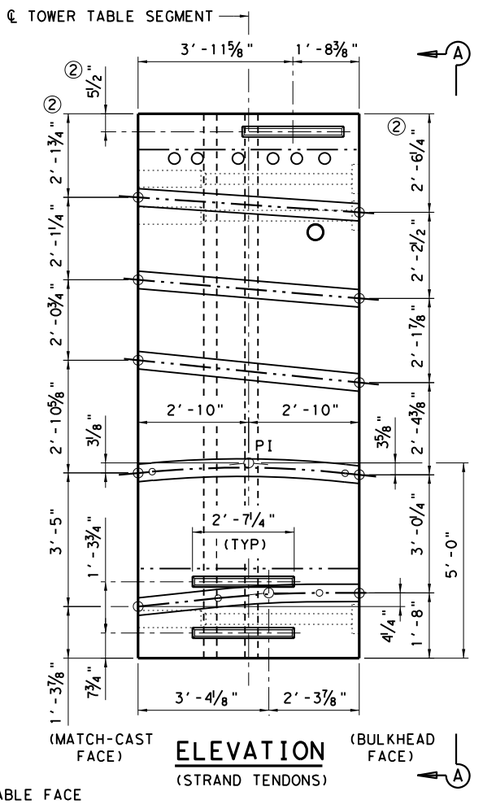
VIEW A-A

(LOOKING TOWARD TOWER TABLE BASE)



ELEVATION

(1¾" Ø P.T. BARS)

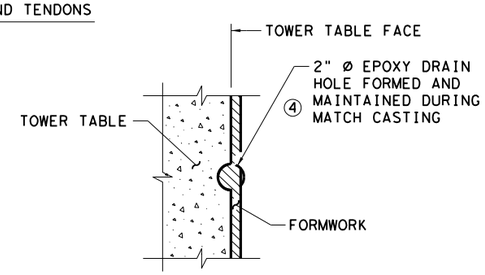


ELEVATION

(STRAND TENDONS)

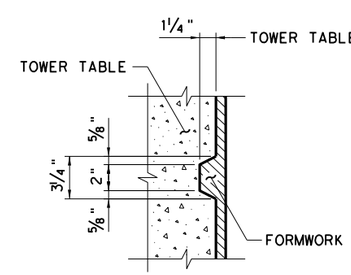
HL-93 LOADING

SCALE IN FEET 0 2 4



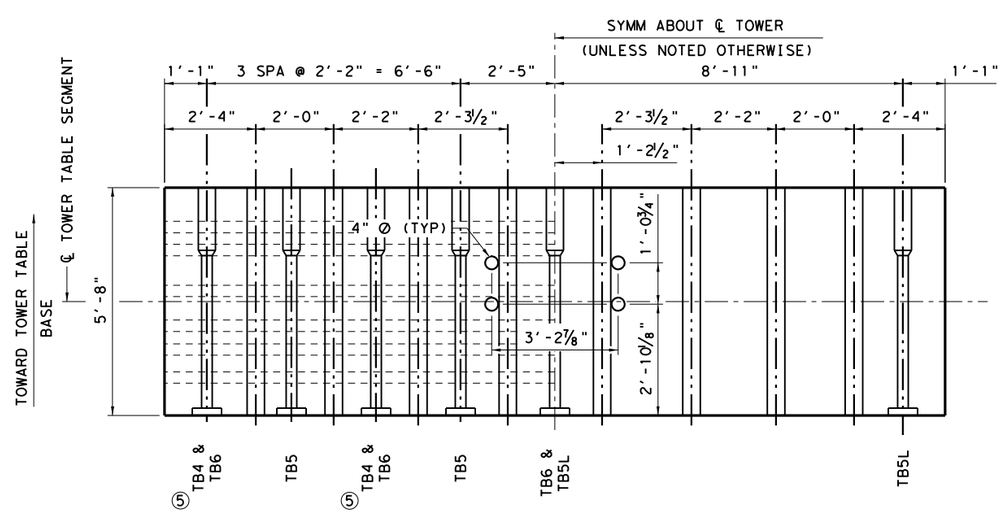
SECTION C-C

(NTS)

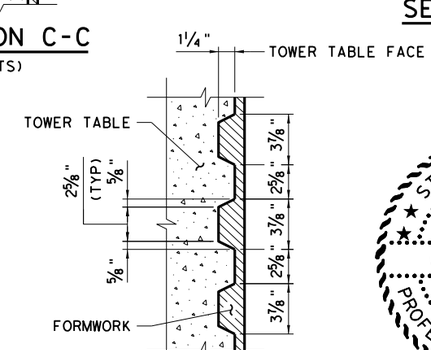


SECTION D-D

(NTS)



SECTION B-B



SECTION E-E

(NTS)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE DIMENSIONS XIII
(1NT-SB05)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91M
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

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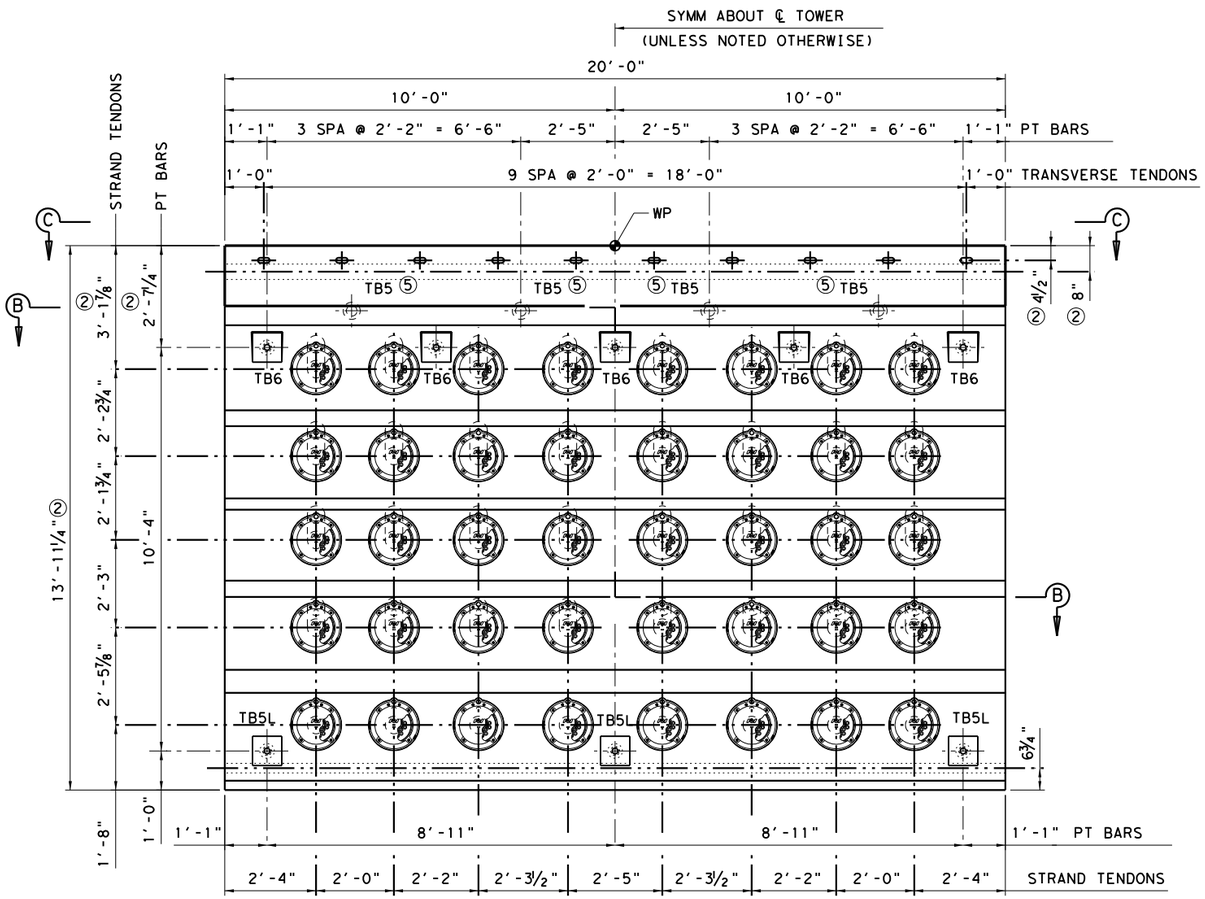
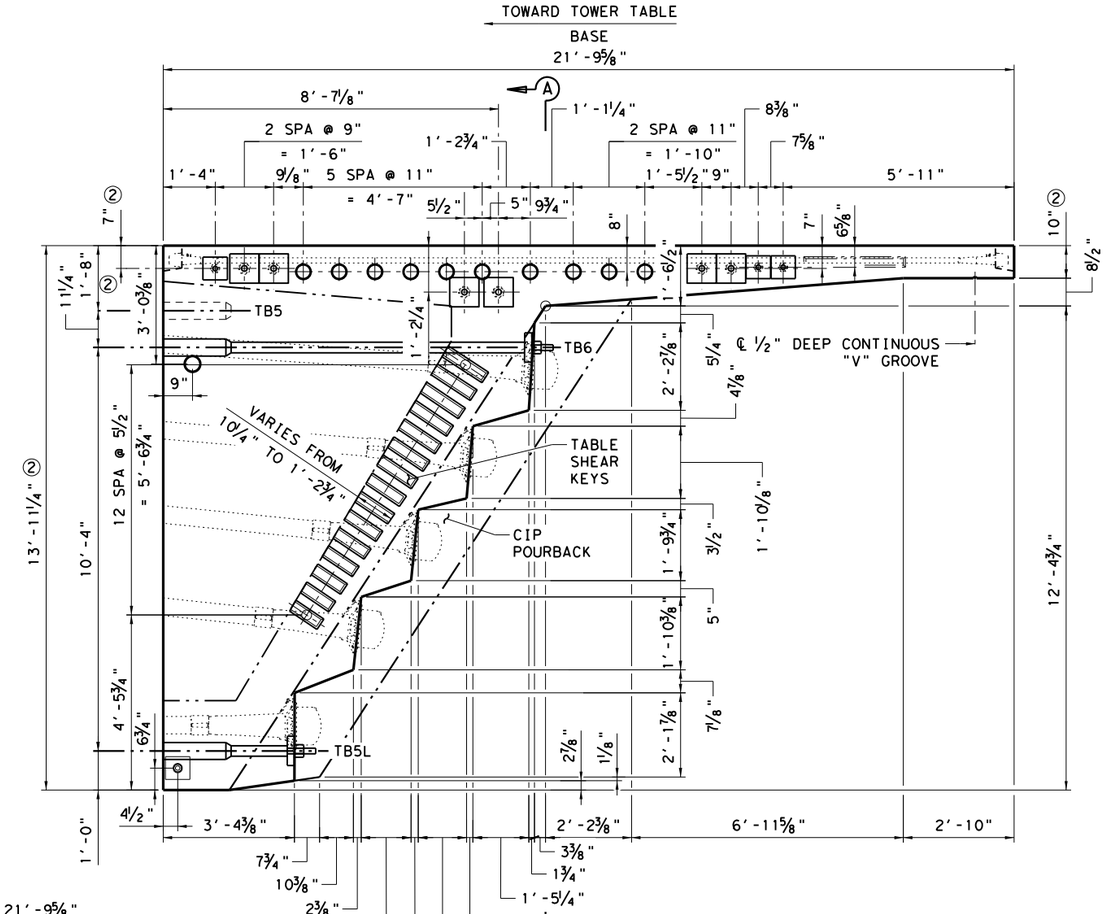
DATE: 9/18/2018 TIME: 7:18:38 PM USER: lcavanaugh

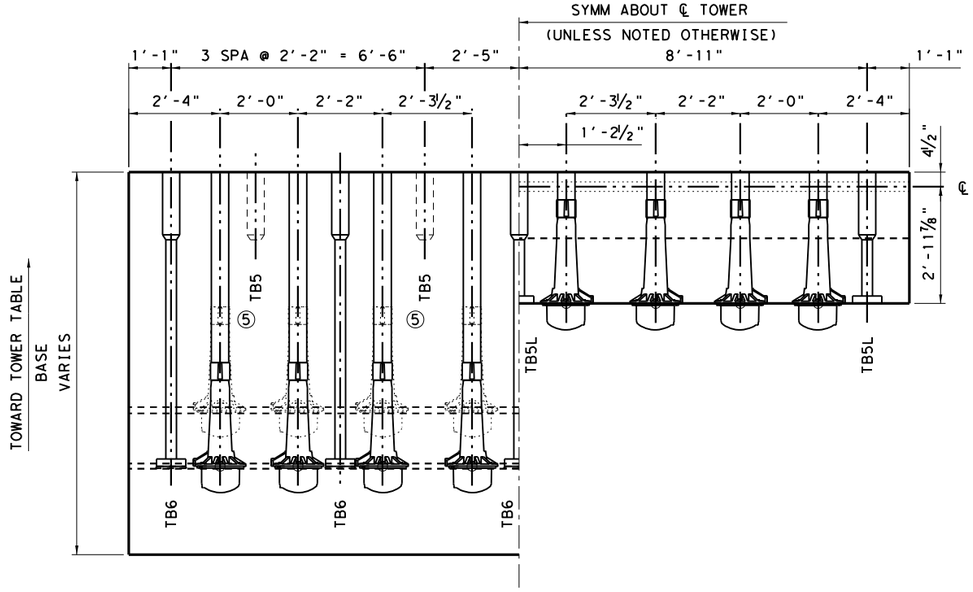


SECTION A-A

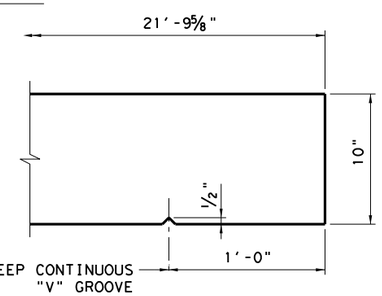
(LOOKING TOWARD TOWER TABLE BASE)



ELEVATION

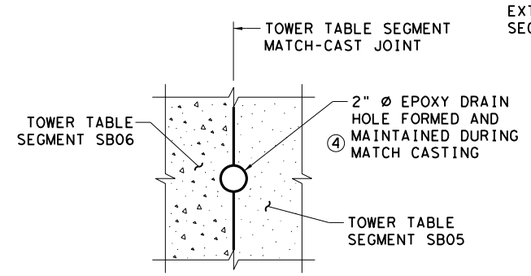


SECTION B-B



"V" GROOVE DETAIL

(NTS)



EPOXY DRAIN HOLE DETAIL

(NTS)

NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
2. DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
4. ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
5. PT BAR, TB5 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

HL-93 LOADING

0 2 4
SCALE IN FEET

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE DIMENSIONS XIV
(1NT-SB06)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 91N
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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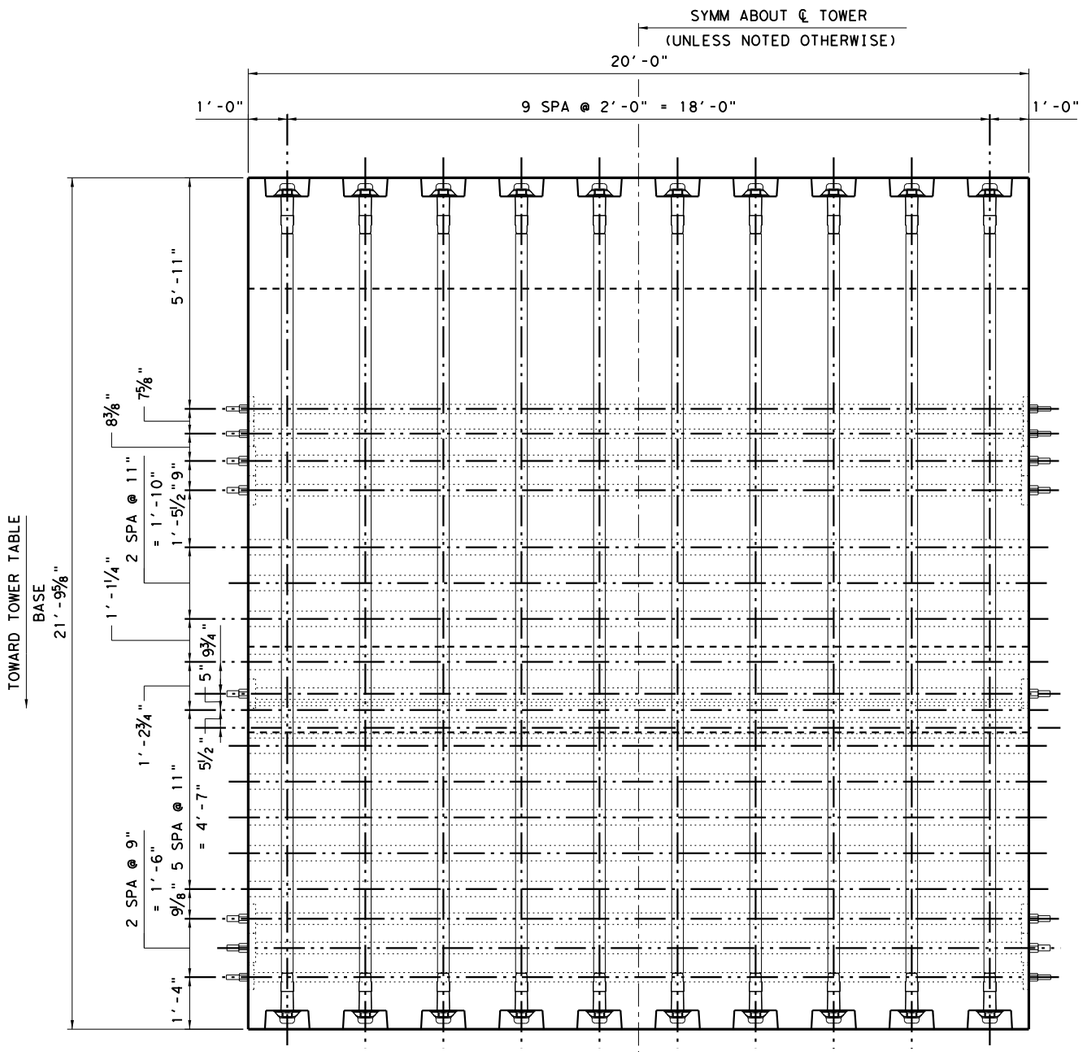
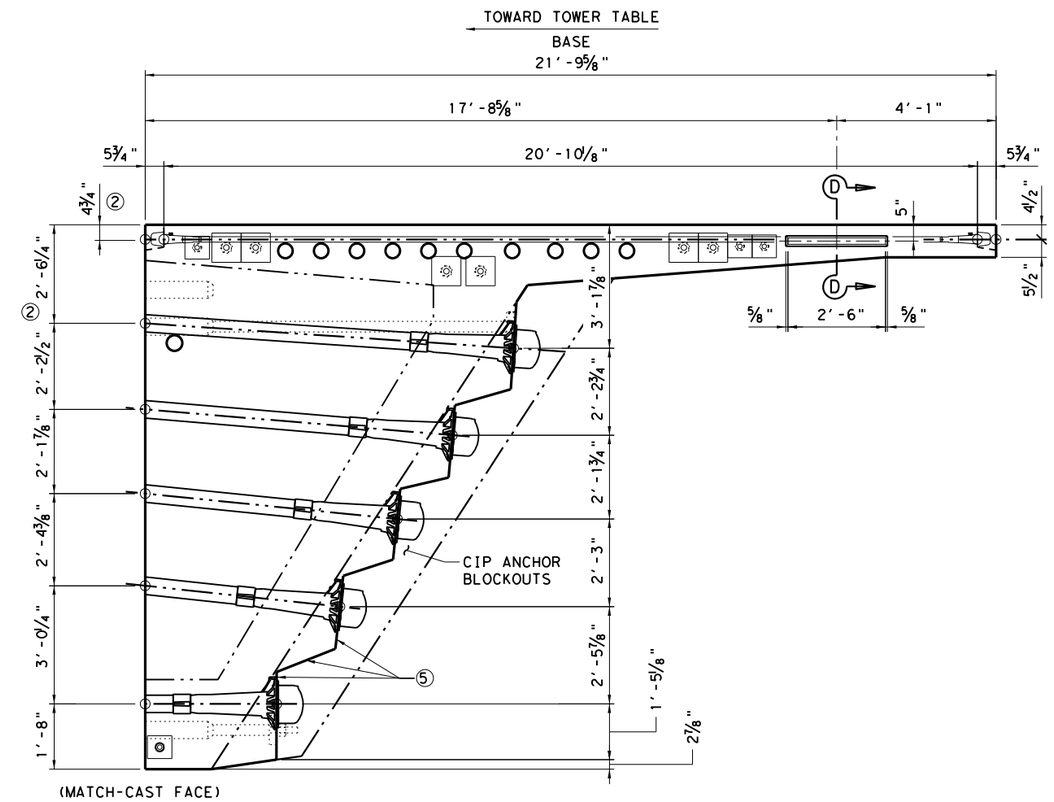


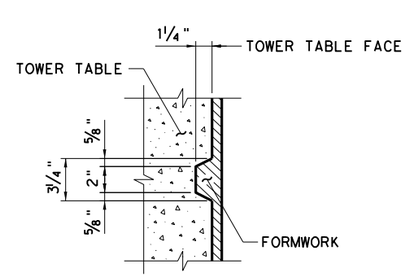
VIEW C-C



ELEVATION
(STRAND TENDONS)

NOTES:

1. FOR ADDITIONAL TOWER TABLE DETAILS, SEE MAIN SPAN TOWER TABLE DIMENSIONS AND REINFORCEMENT.
② DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
3. TRUE BENDING RADIUS FOR ALL STRAND TENDONS IS 25'-0".
④ ALL TOWER TABLE SEGMENTS ARE TO BE EPOXIED WITH "SLOW SET" EPOXY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
⑤ PT BAR, TB5 WILL ONLY HAVE A COUPLER DUCT AT THE MATCH-CAST FACE TO ACCOMODATE THE PT BAR NUT AND EXTENSION FROM THE ADJACENT SEGMENT.



SECTION D-D
(NTS)

HL-93 LOADING

0 2 4
SCALE IN FEET

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE DIMENSIONS XV
(1NT-SB06)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DCB	TEXAS	CRP	NUECES	NHB 91P
CHECK	CONTROL	SECTION	JOB	
JFH / WDP	0101	06	095	

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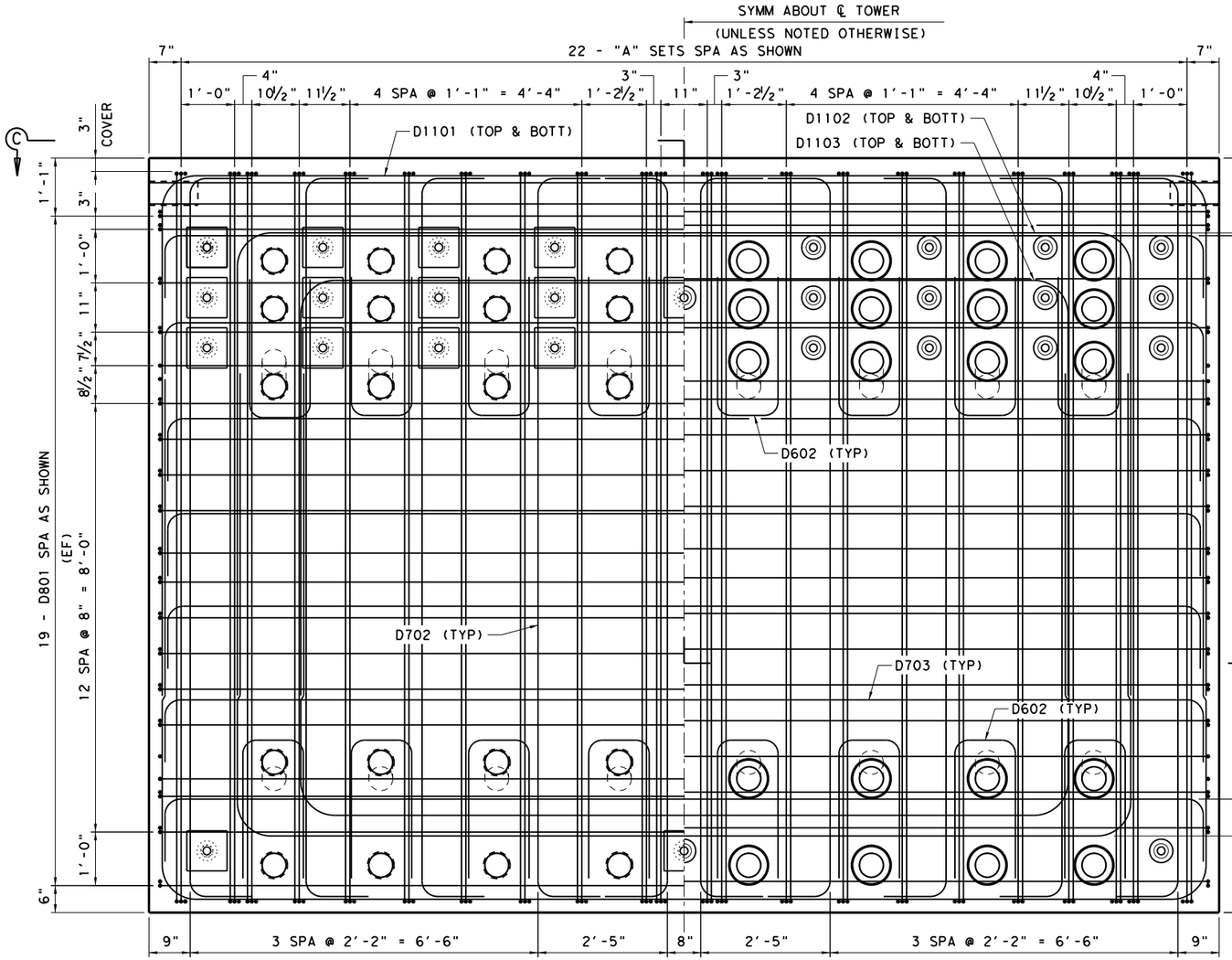
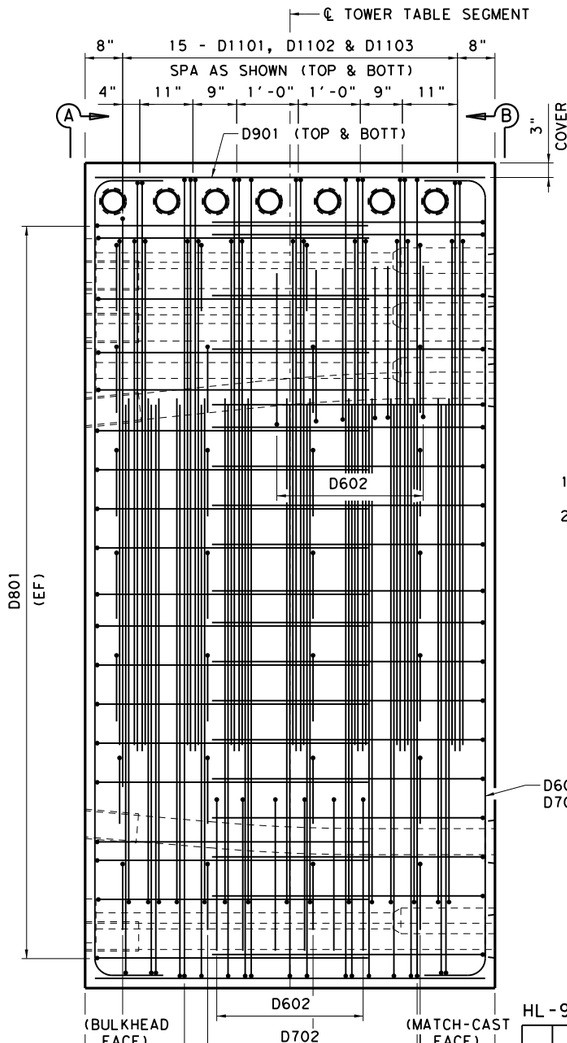


HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)

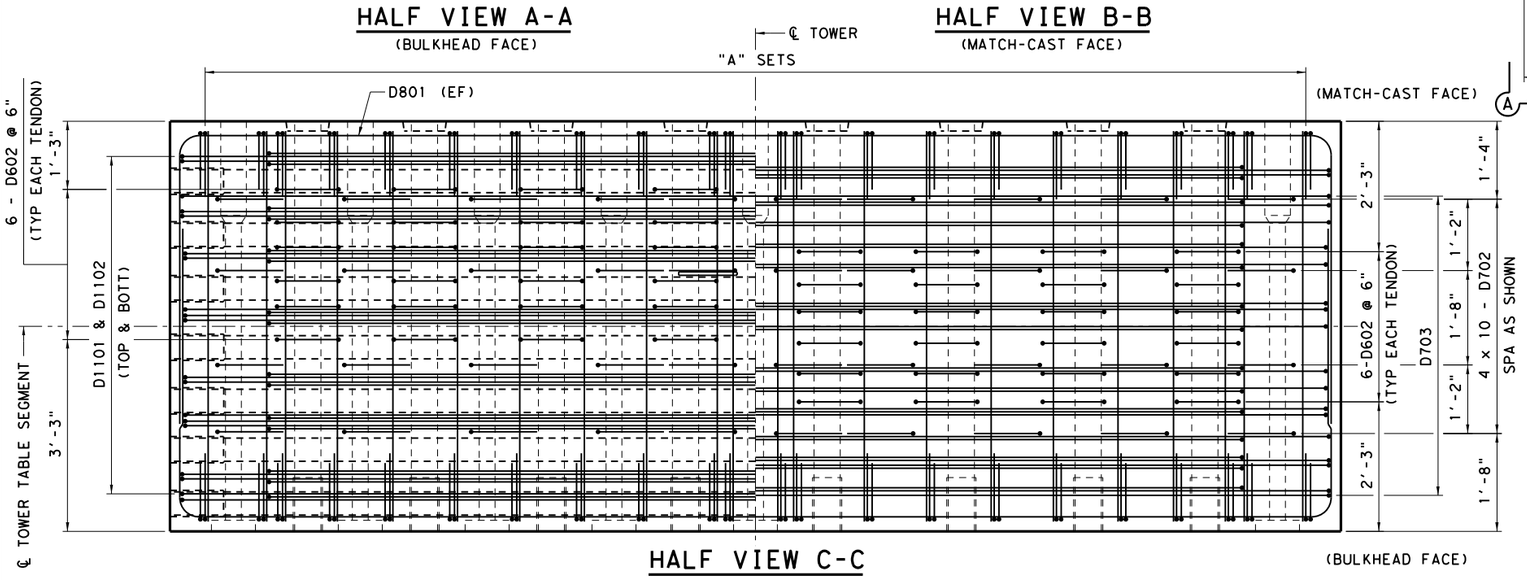


ELEVATION

NOTES:
1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.

HL-93 LOADING

0 1 2
SCALE IN FEET



HALF VIEW C-C

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT I
(1NT-NB01)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 92
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

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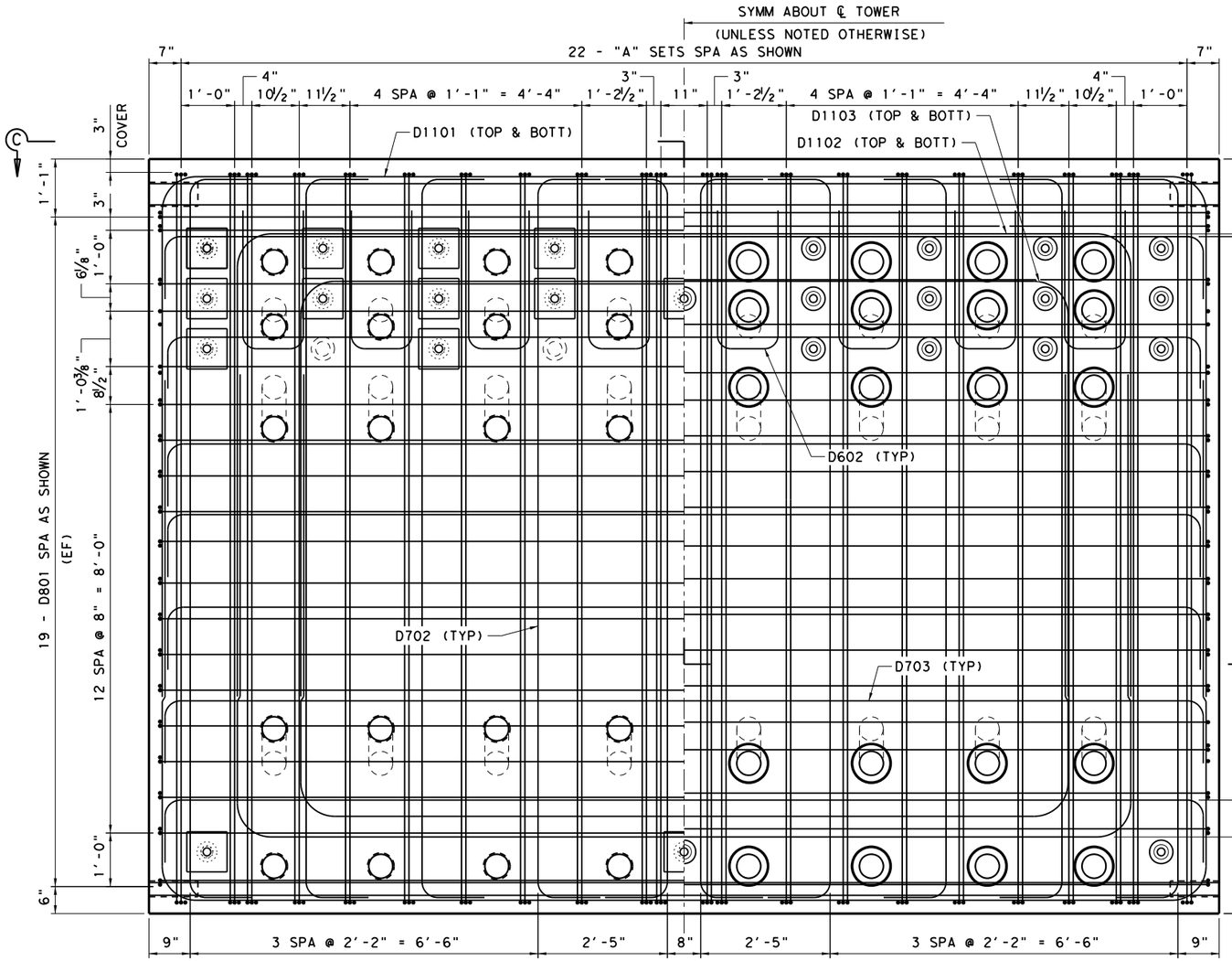
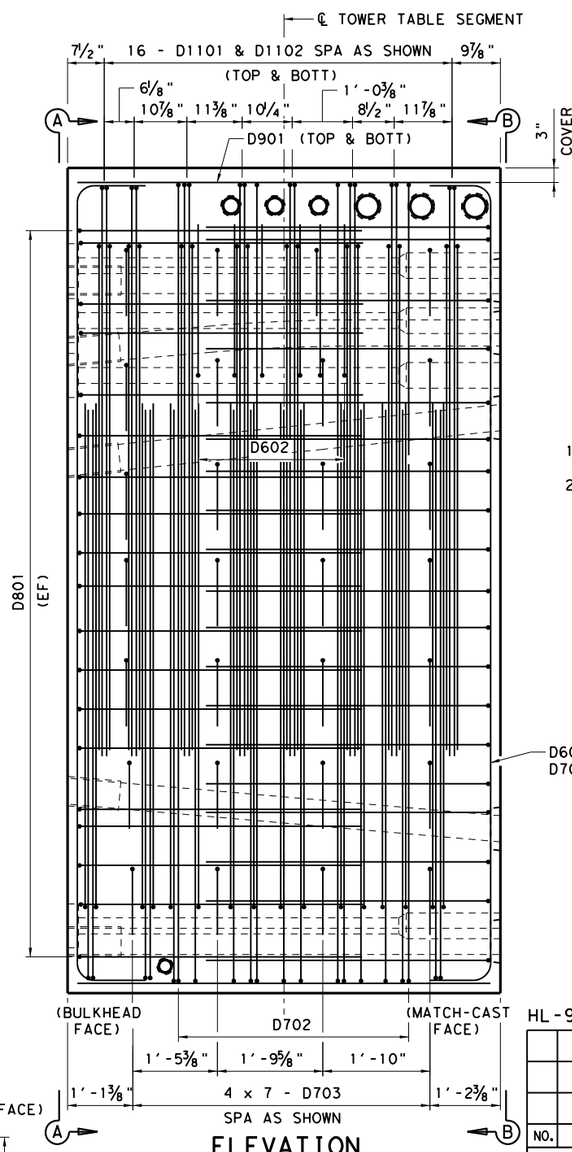


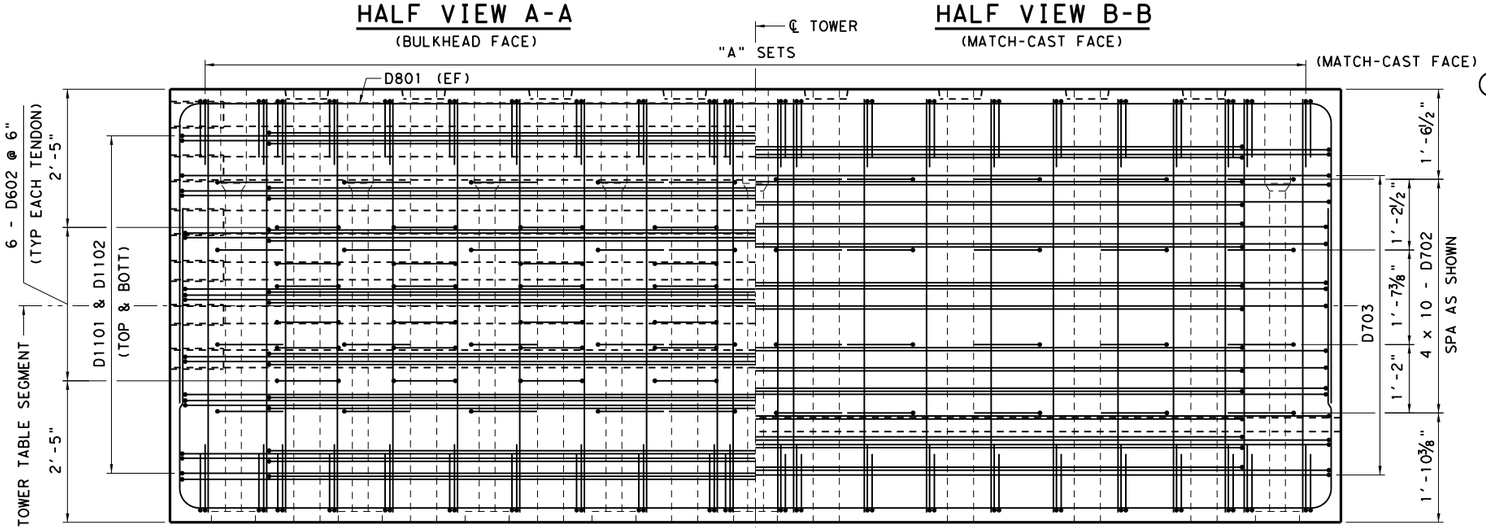
HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)



ELEVATION

NOTES:
1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.



HALF VIEW C-C

HL-93 LOADING

0 1 2
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT II
(1NT-NB02)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS LTC	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 93
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

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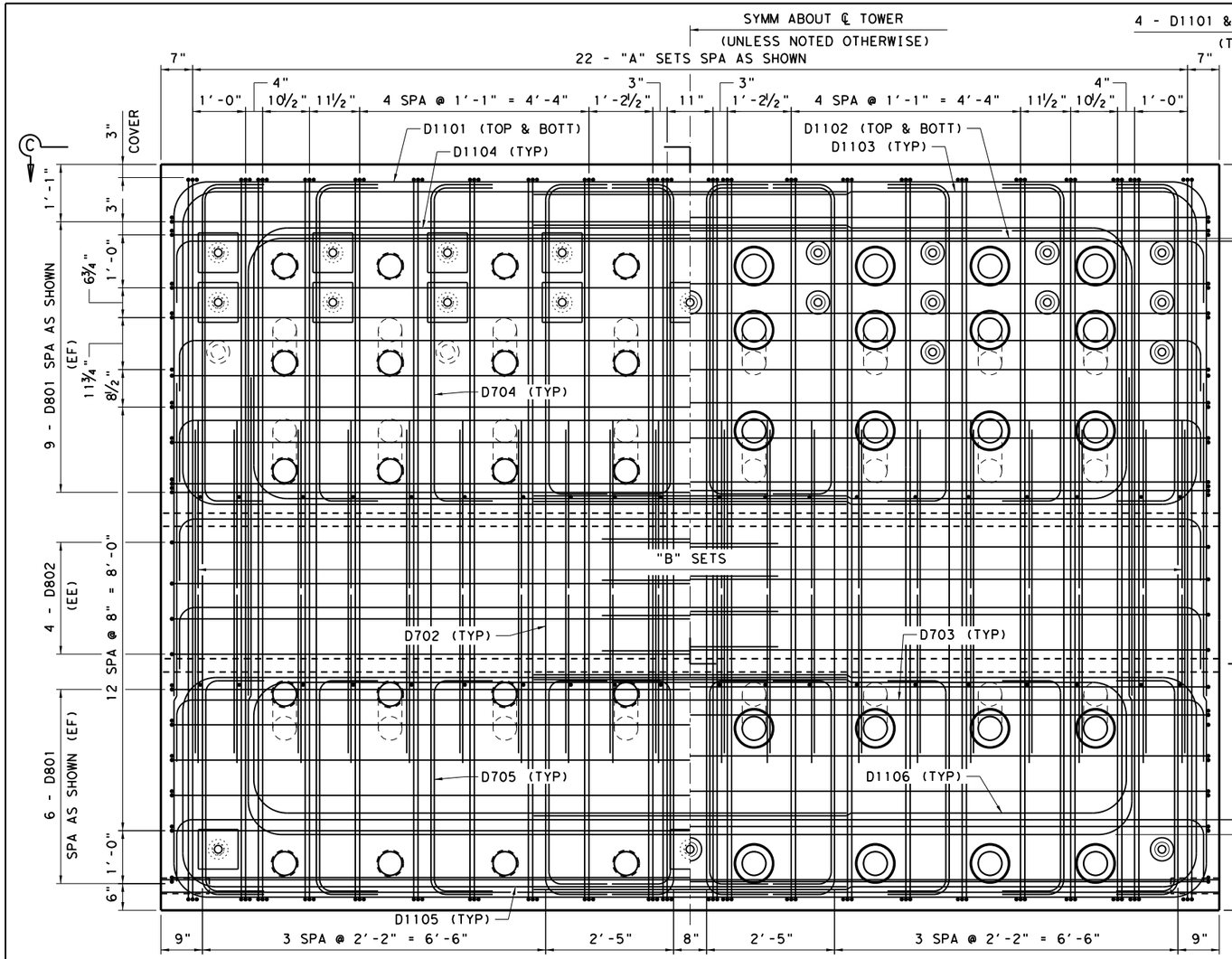
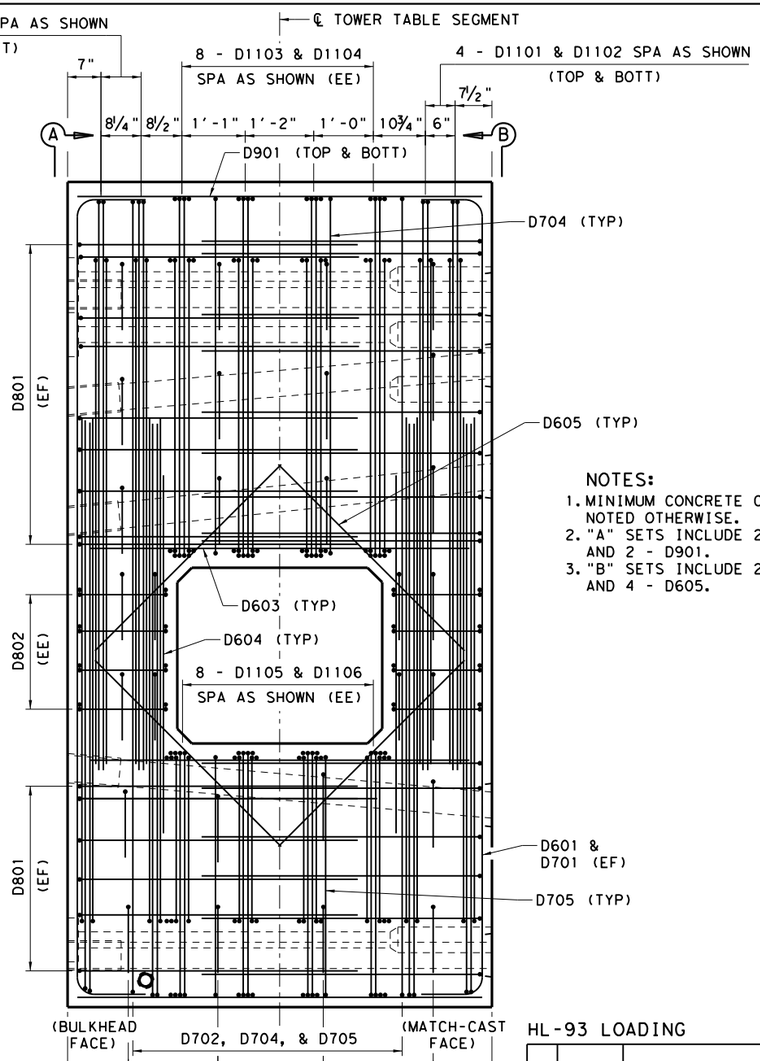


HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)



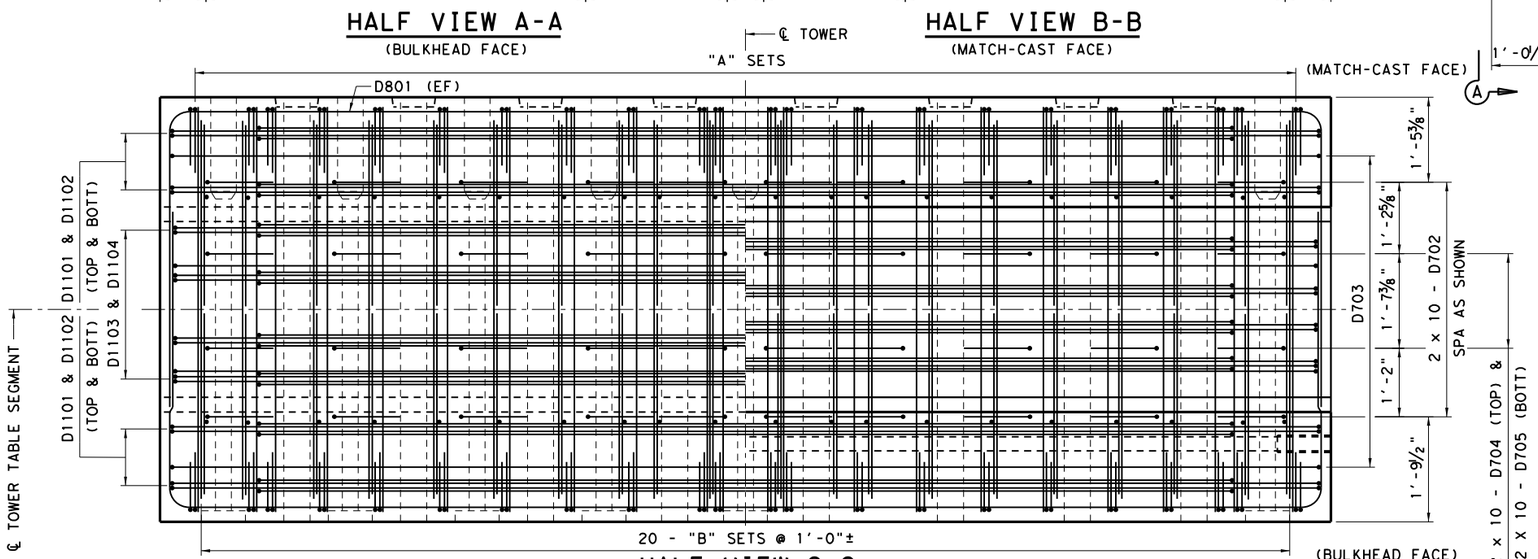
ELEVATION

NOTES:

1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.
3. "B" SETS INCLUDE 2 - D603, 2 - D604 AND 4 - D605.

HL-93 LOADING

0 1 2
SCALE IN FEET



HALF VIEW C-C

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT III
(1NT-NB03)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 94
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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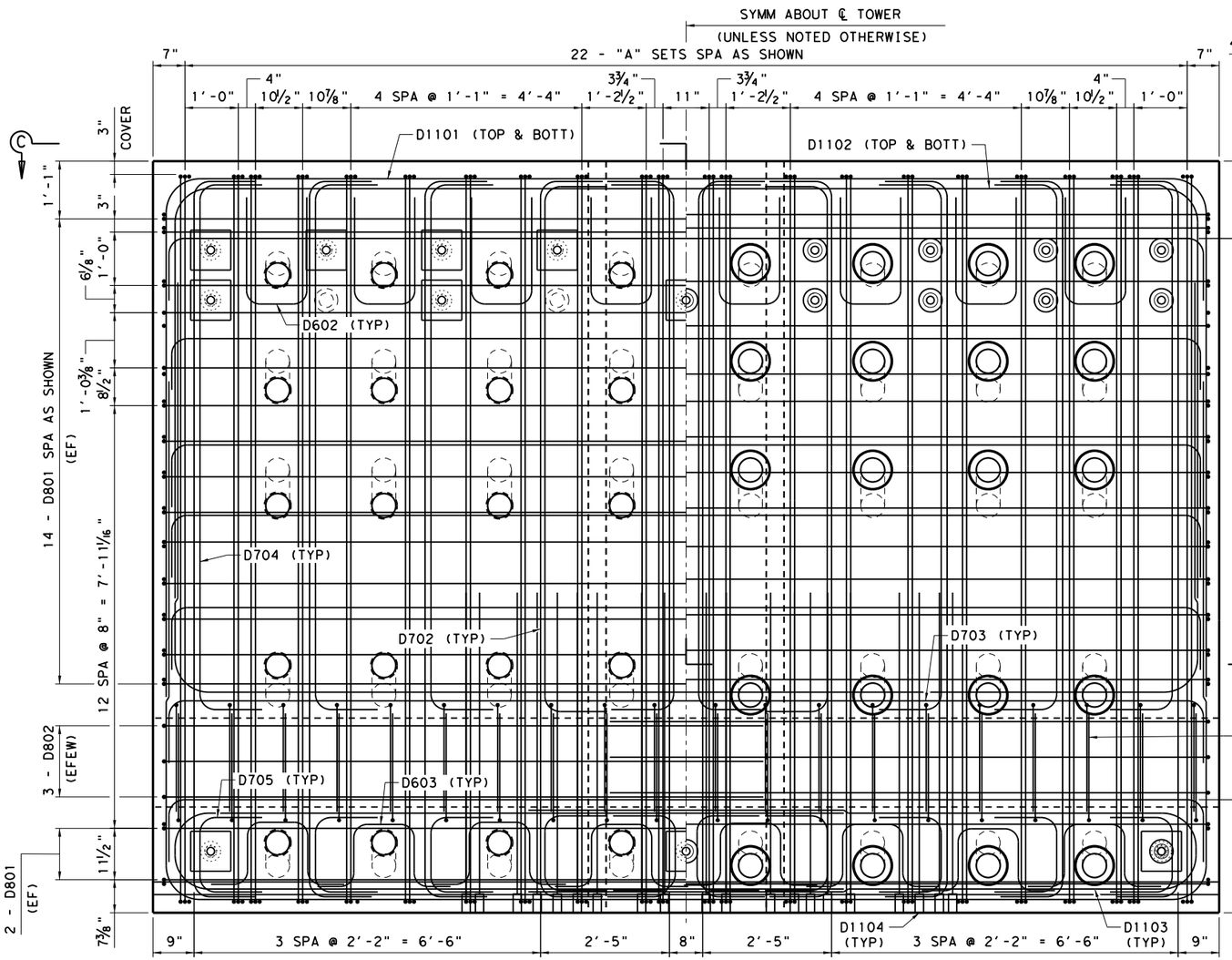
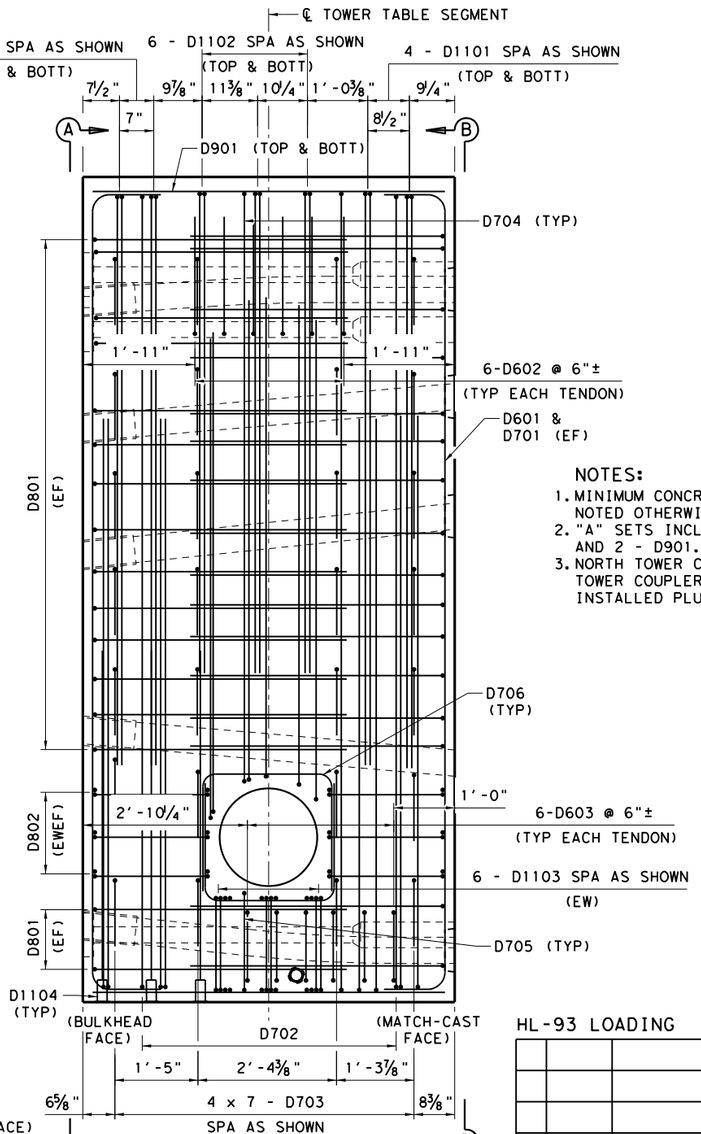
DATE: 9/18/2018 TIME: 7:18:44 PM USER: lcavanaugh



HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)

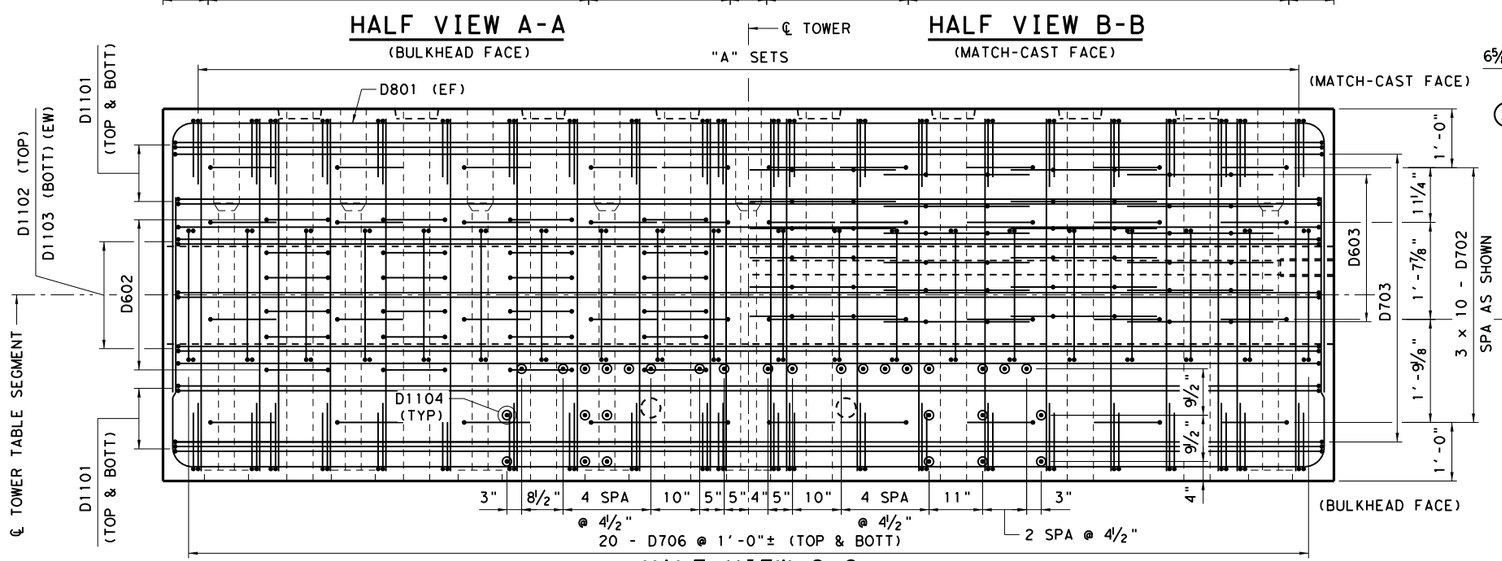


ELEVATION

NOTES:
1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.
3. NORTH TOWER COUPLERS SHOWN, SOUTH TOWER COUPLERS MIRRORED. COUPLERS TO BE INSTALLED PLUMB TO P.G.L.

HL-93 LOADING

SCALE IN FEET 0 1 2



HALF VIEW C-C

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN TOWER TABLE REINFORCEMENT IV (1NT-NB04)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS LTC	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 95
	CONTROL	SECTION	JOB	
CHECK WDP	0101	06	095	

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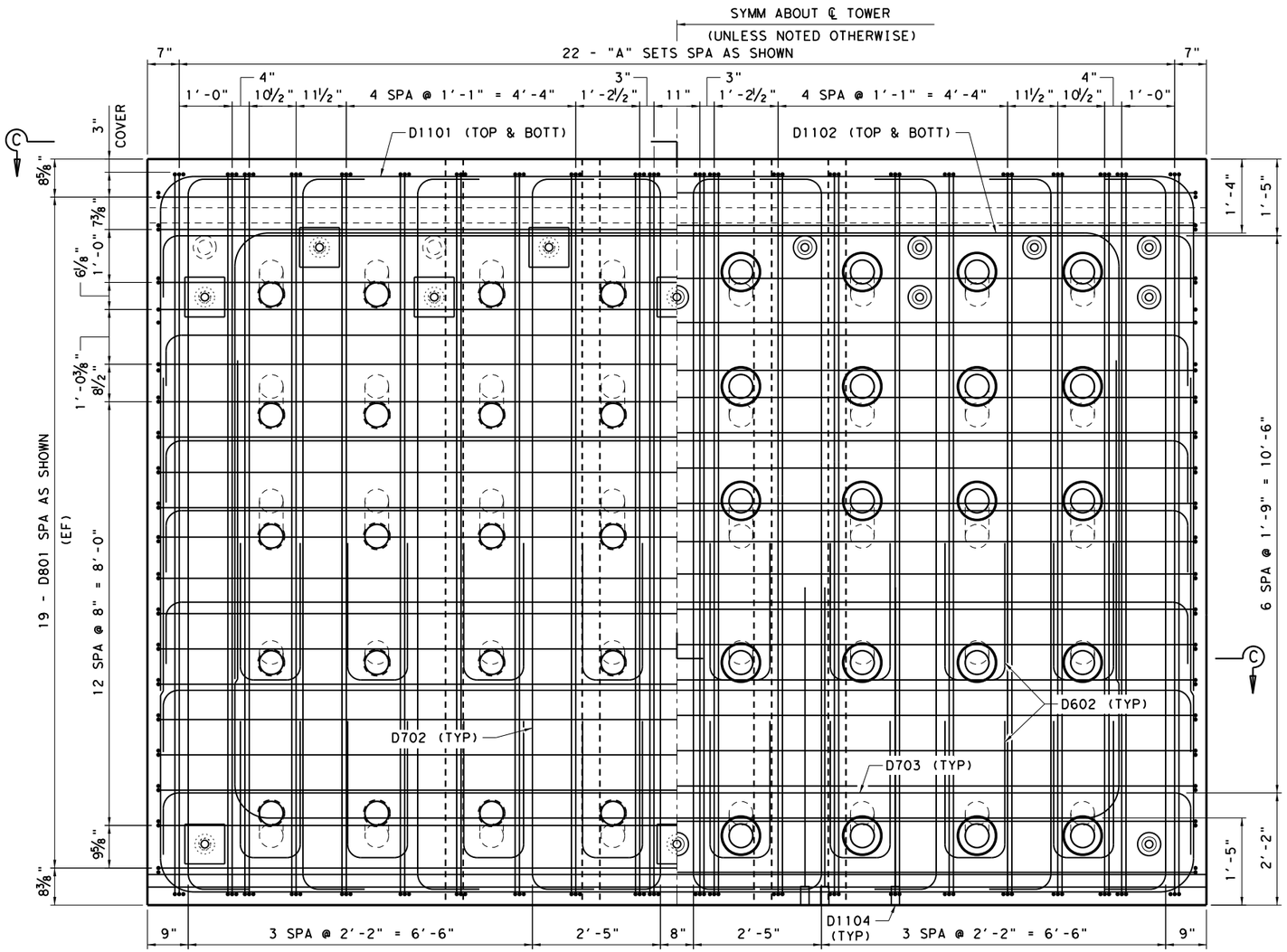
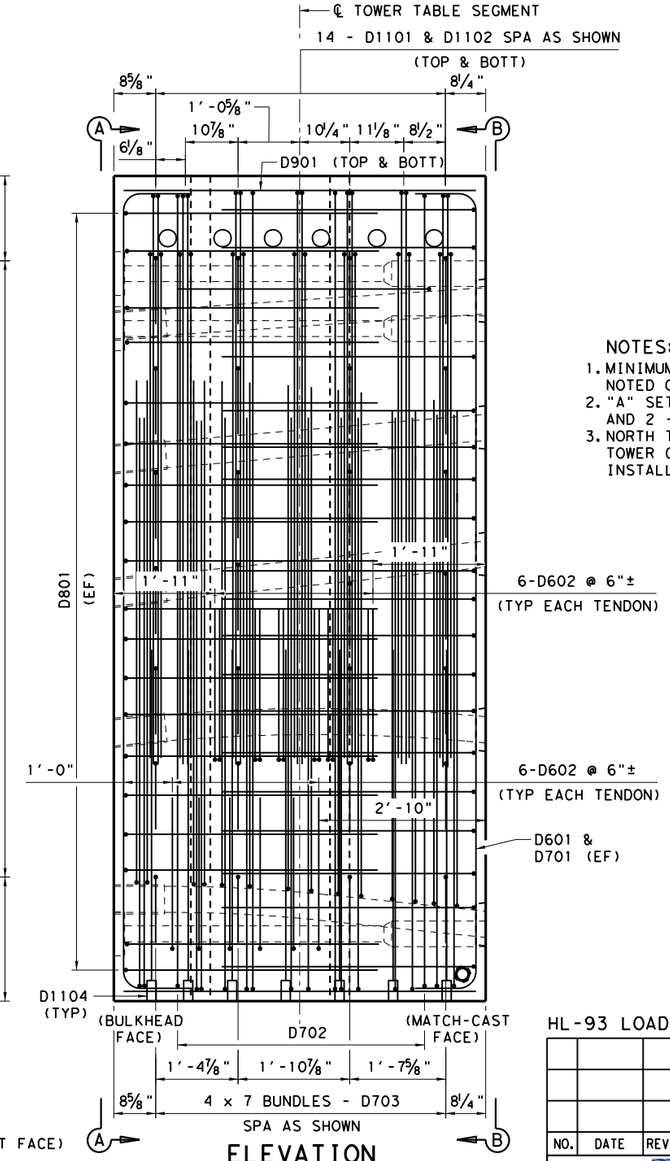


HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)



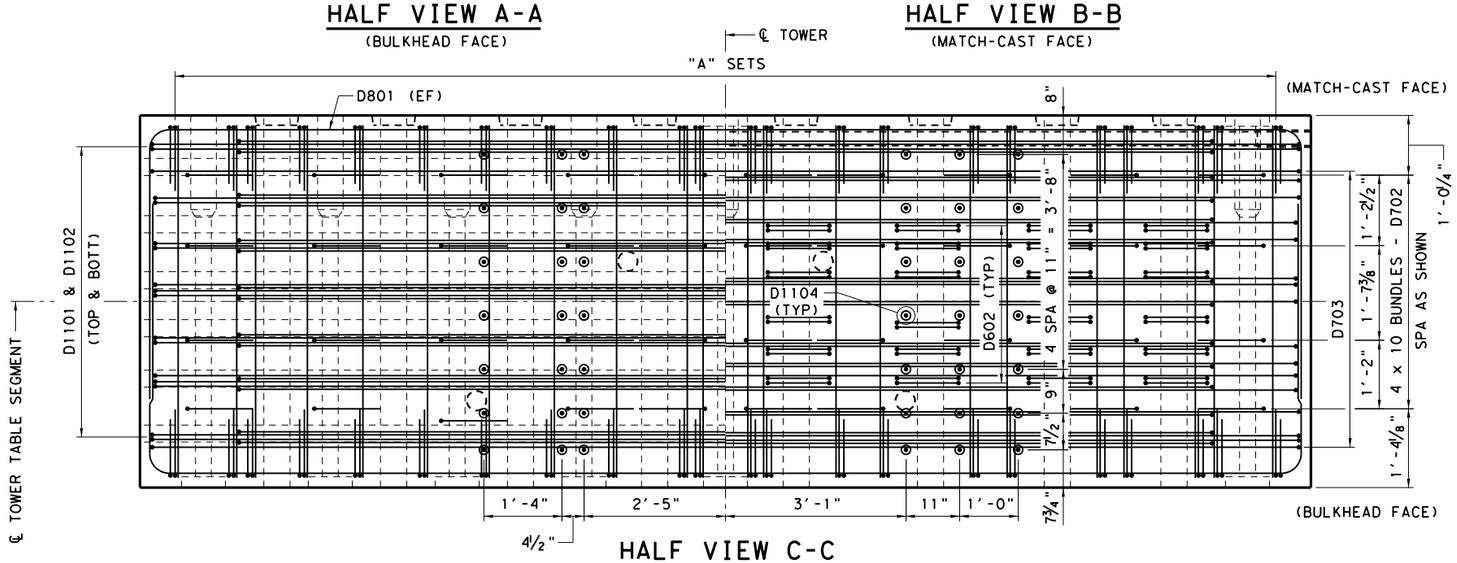
ELEVATION

NOTES:

1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.
3. NORTH TOWER COUPLERS SHOWN, SOUTH TOWER COUPLERS MIRRORED. COUPLERS TO BE INSTALLED PLUMB TO P.G.L.

HL-93 LOADING

0 1 2
SCALE IN FEET



HALF VIEW C-C

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT V
(1NT-NB05)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 96
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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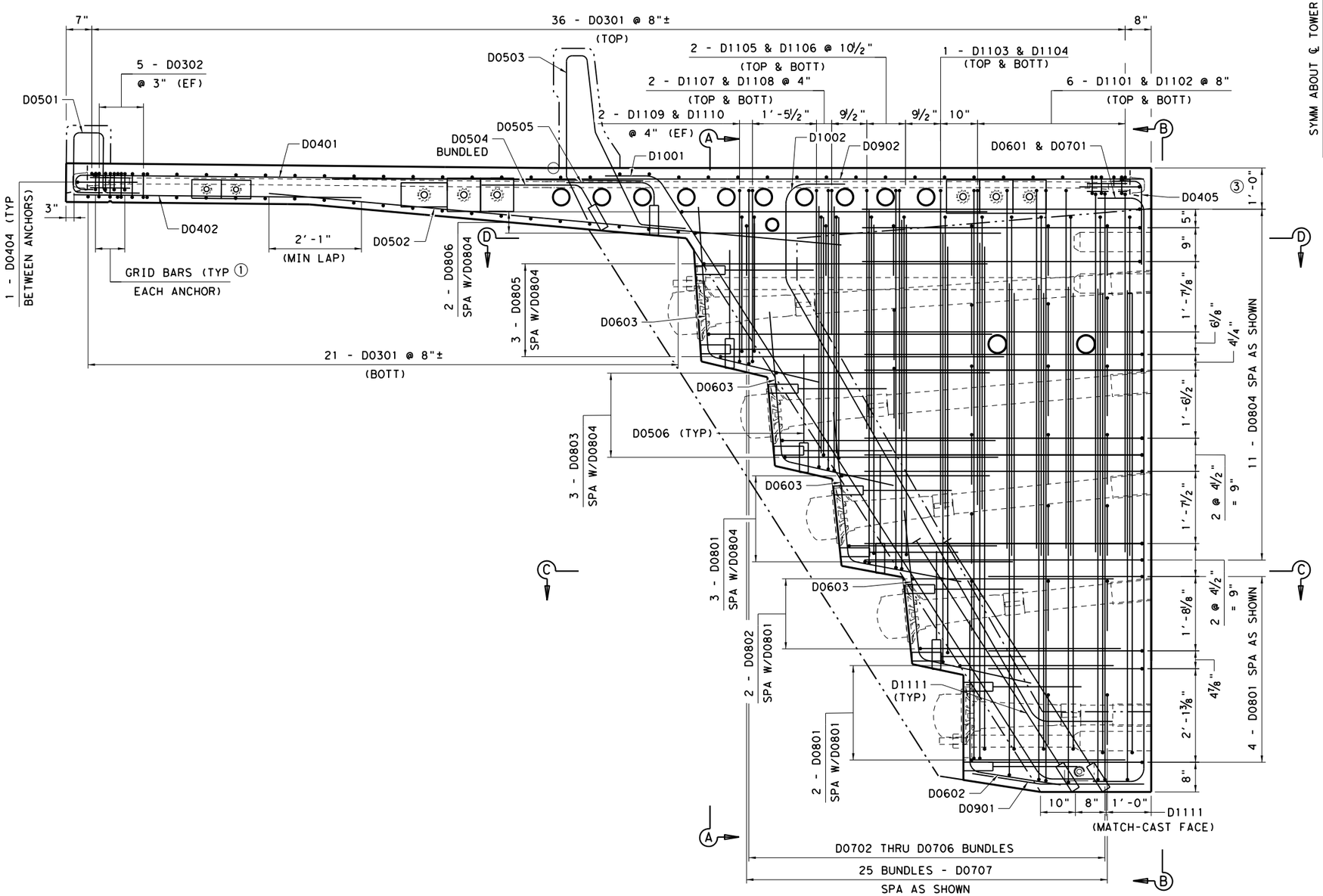
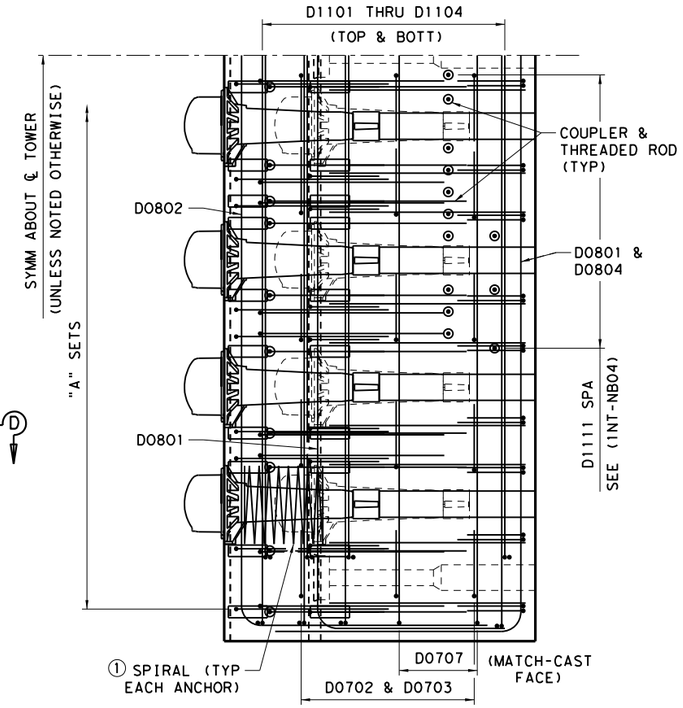


ELEVATION



HALF SECTION C-C

HL-93 LOADING

0 1 2
SCALE IN FEET

NOTES:

① THE TRANSVERSE TENDONS LOCAL ZONE REINFORCEMENT SHALL BE INSTALLED PER POST-TENSIONING SUPPLIER'S SHOP DRAWING.
2. 'A' SETS CONSISTS OF 1-D0601, 1-D0602, 4-D0603, 1-D0701, 1-D0901, 1-D1001, AND 1-D1002.
③ DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
4. CONCRETE COVER FOR TOWER DECK SHALL BE:
TOP OF DECK (AS CAST).....3.0"
BOTTOM OF DECK.....1.25"
WEBS AND BOTTOM SLAB (EXT FACE).....2"
5. EF - DENOTES EACH FACE.
⑥ FIELD ADJUST POURBACK COUPLERS AS REQUIRED.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT VI
(1NT-NB06)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 97
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

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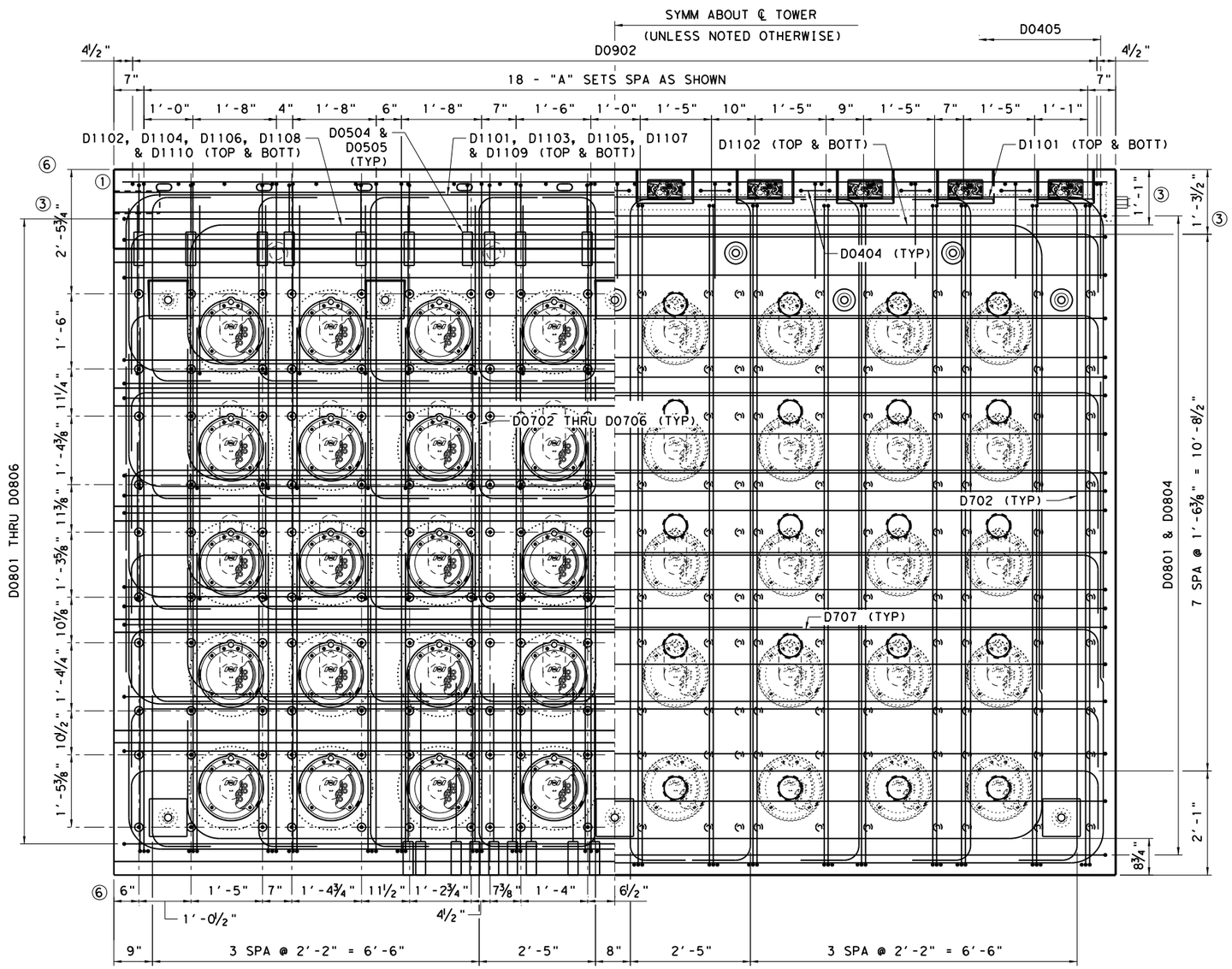

HALF SECTION A-A
(THROUGH WING)

HALF VIEW B-B
(MATCH-CAST FACE)

NOTES:

1. THE TRANSVERSE TENDONS LOCAL ZONE REINFORCEMENT SHALL BE INSTALLED PER POST-TENSIONING SUPPLIER'S SHOP DRAWING.
2. 'A' SETS CONSISTS OF 1-D0601, 1-D0602, 4-D0603, 1-D0701, 1-D0901, 1-D1001, AND 1-D1002.
3. DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
4. CONCRETE COVER FOR TOWER DECK SHALL BE:
   TOP OF DECK (AS CAST).....3.0"
   BOTTOM OF DECK.....1.25"
   WEBS AND BOTTOM SLAB (EXT FACE).....2"
5. EF - DENOTES EACH FACE.
6. FIELD ADJUST POURBACK COUPLERS AS REQUIRED.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

HL-93 LOADING

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT VII
(1NT-NB06)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 97A
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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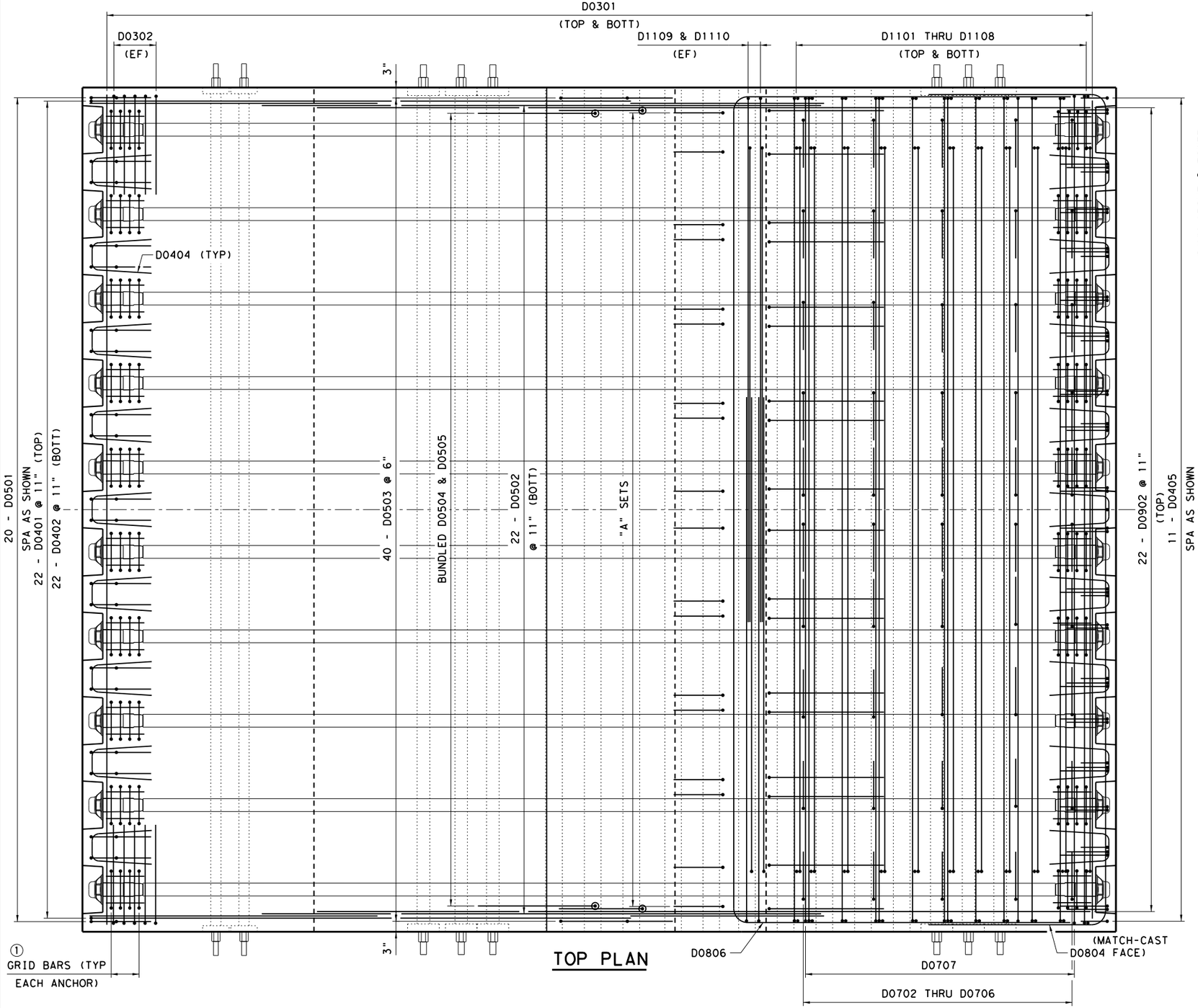
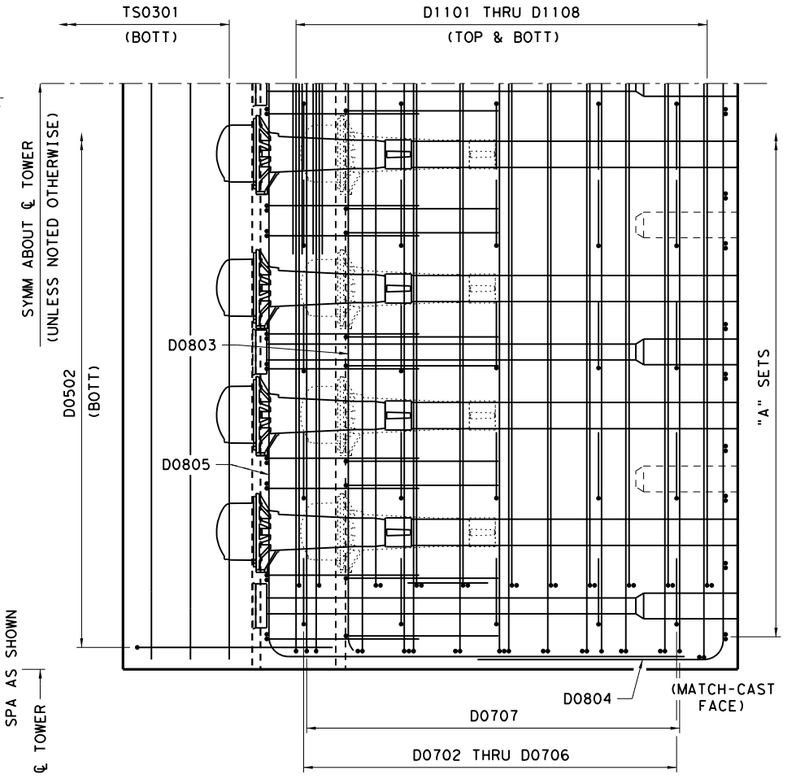


TOP PLAN



HALF SECTION D-D

HL-93 LOADING

0 1 2
SCALE IN FEET

NOTES:

① THE TRANSVERSE TENDONS LOCAL ZONE REINFORCEMENT SHALL BE INSTALLED PER POST-TENSIONING SUPPLIER'S SHOP DRAWING.
2. 'A' SETS CONSISTS OF 1-D0601, 1-D0602, 1-D0603, 1-D0604, 1-D0605, 1-D0701, 1-D0702 AND 1-D0901.
③ DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.
4. CONCRETE COVER FOR TOWER DECK SHALL BE:
TOP OF DECK (AS CAST).....3.0"
BOTTOM OF DECK.....1.25"
WEBS AND BOTTOM SLAB (EXT FACE).....2"
5. EF - DENOTES EACH FACE.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT
VIII
(1NT-NB06)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
DCB	TEXAS	CRP	NUECES	NHB 98
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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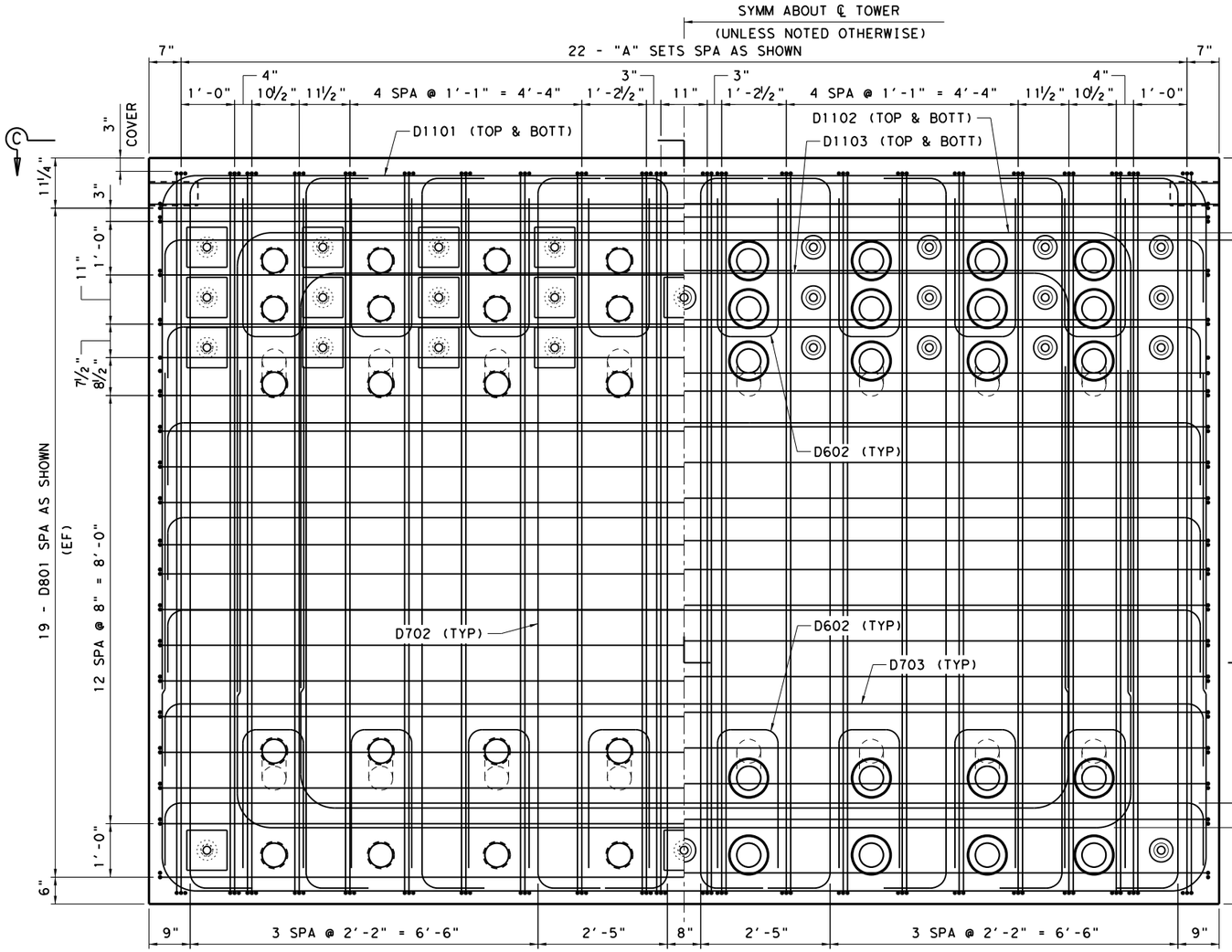
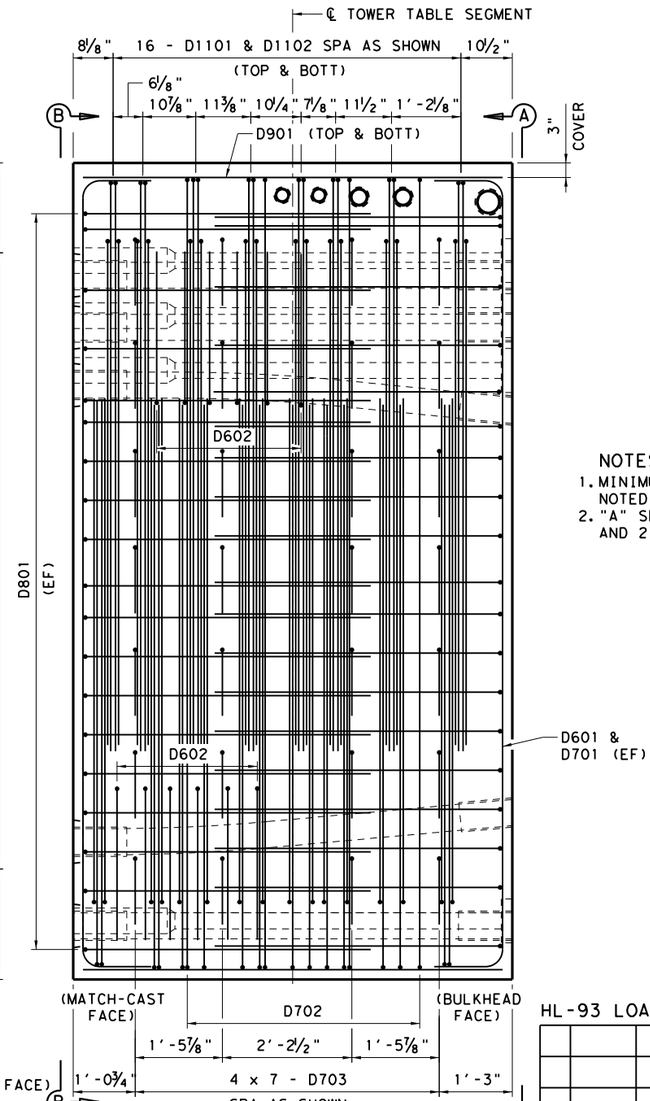
DATE: 9/18/2018 TIME: 7:18:47 PM USER: lcavanaugh



HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)

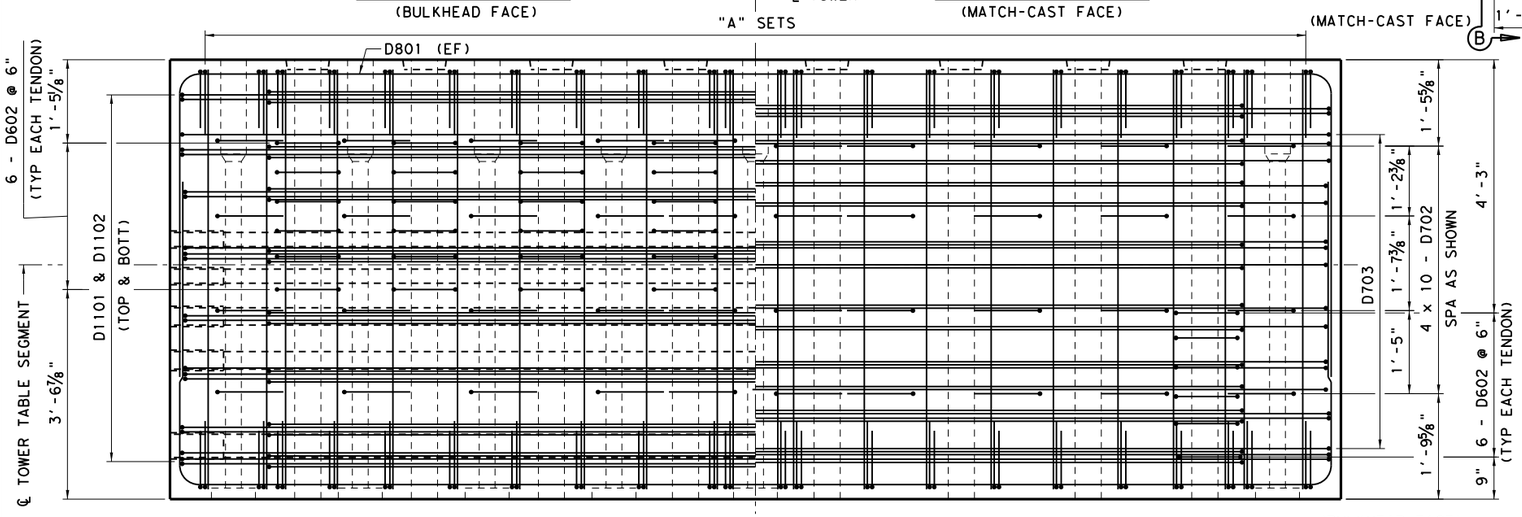


ELEVATION

NOTES:
1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.

HL-93 LOADING

0 1 2
SCALE IN FEET



HALF VIEW C-C

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT IX
(1NT-SB01)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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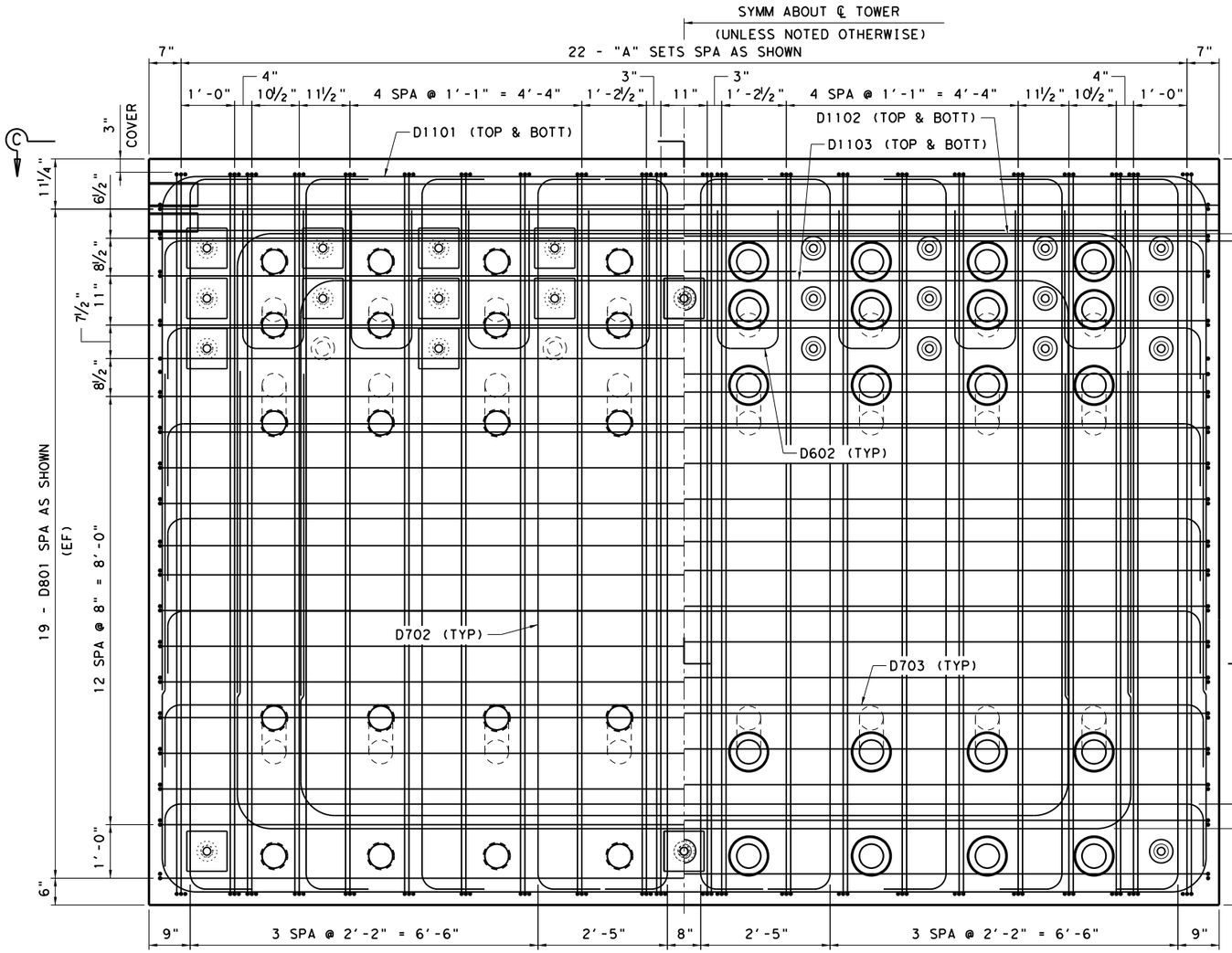
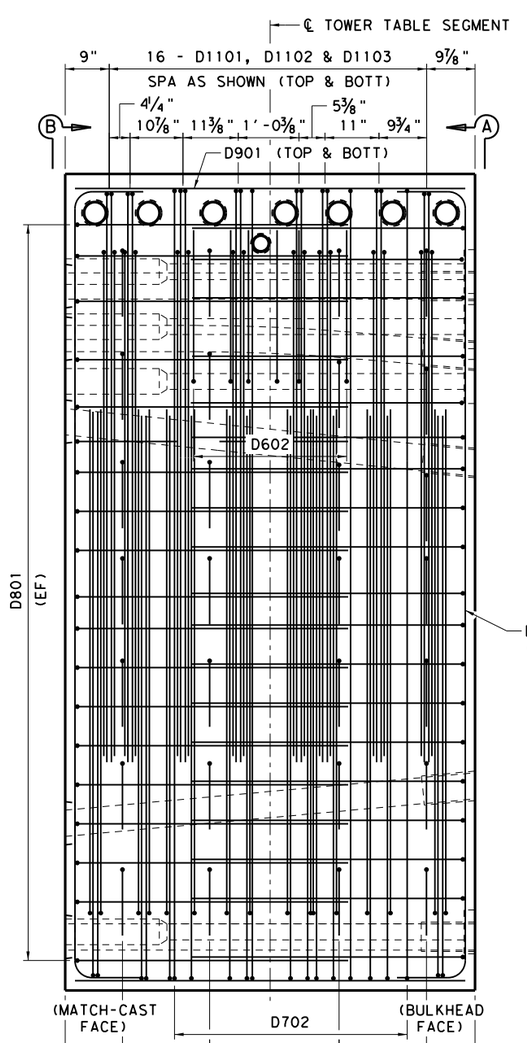
DATE: 9/18/2018 TIME: 7:18:47 PM USER: lcavanaugh



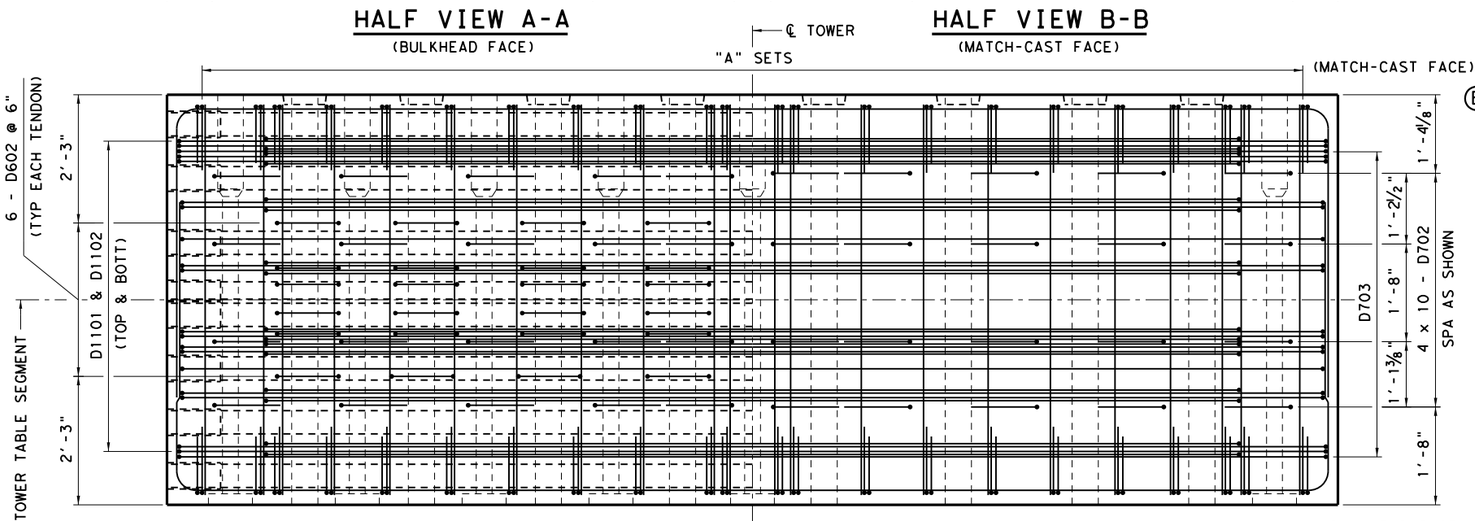
HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)



ELEVATION

NOTES:
1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.



HALF VIEW C-C

HL-93 LOADING

0 1 2
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT X
(1NT-SB02)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99A
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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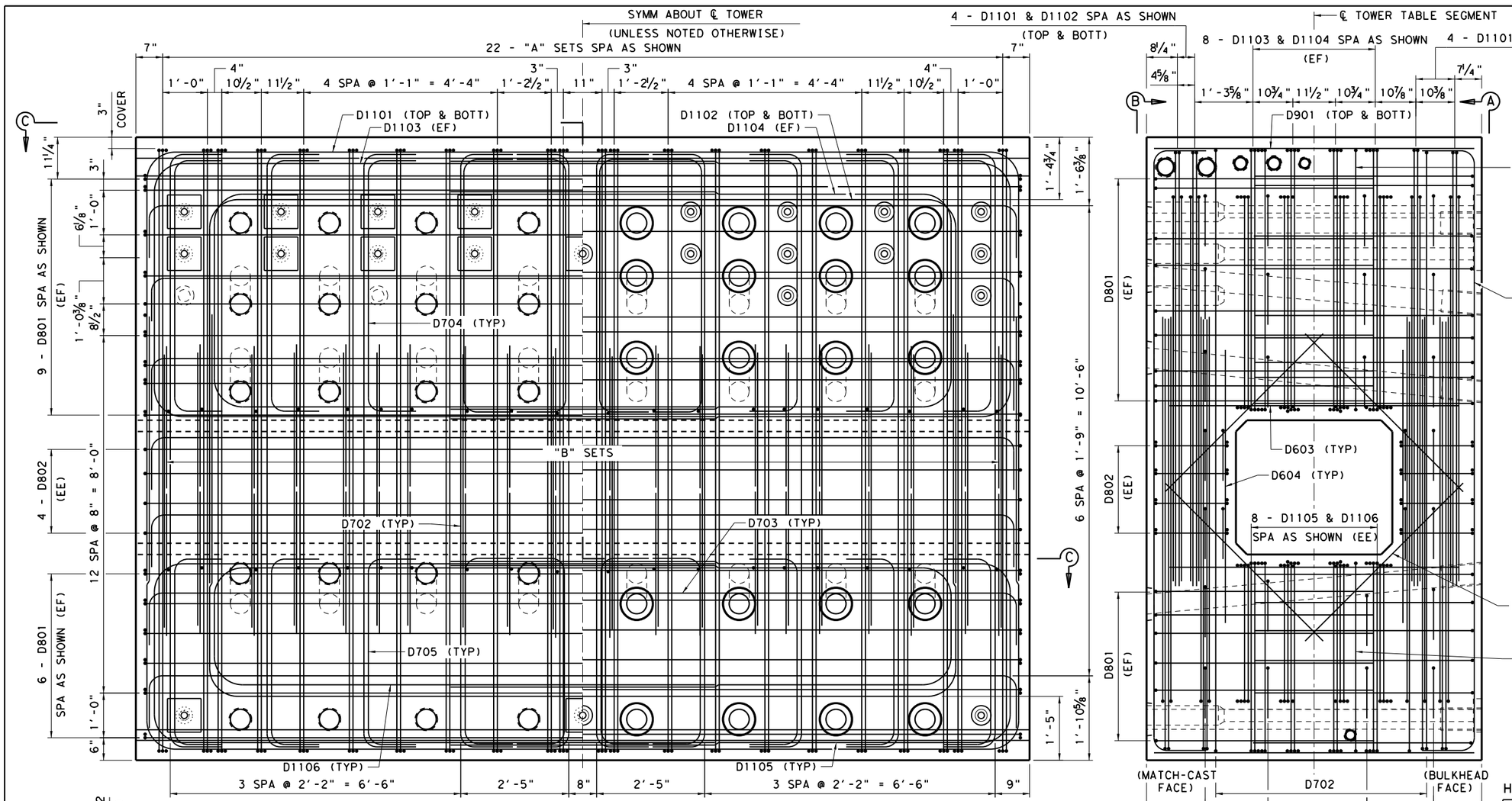
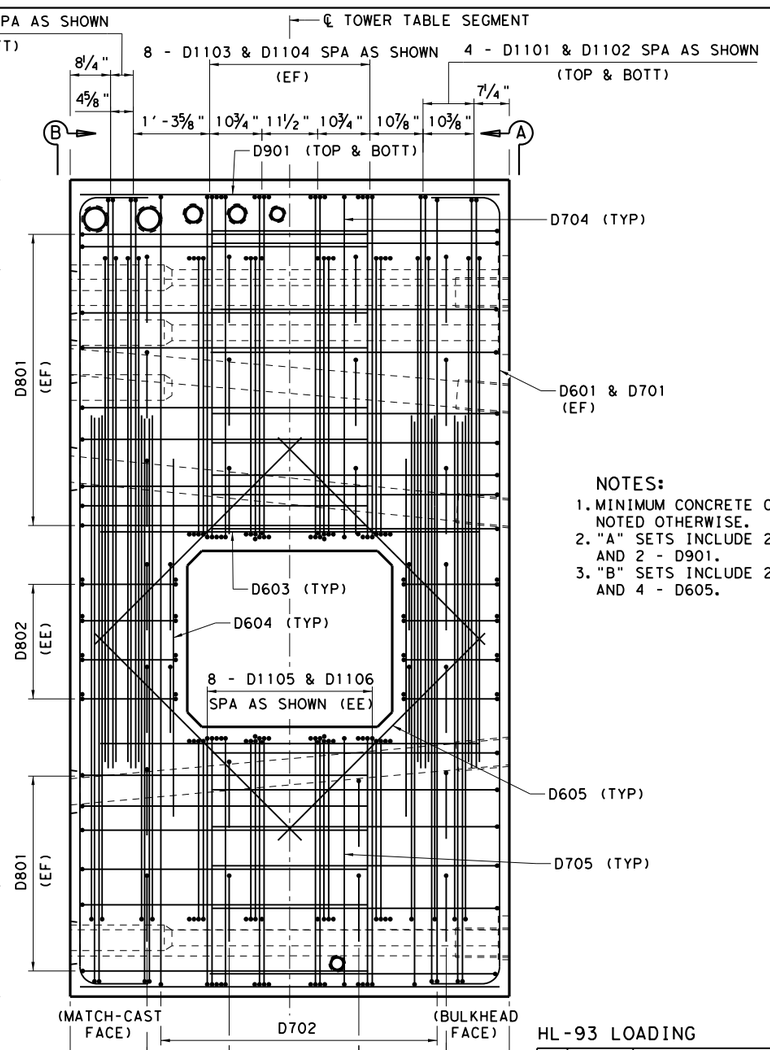


HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)



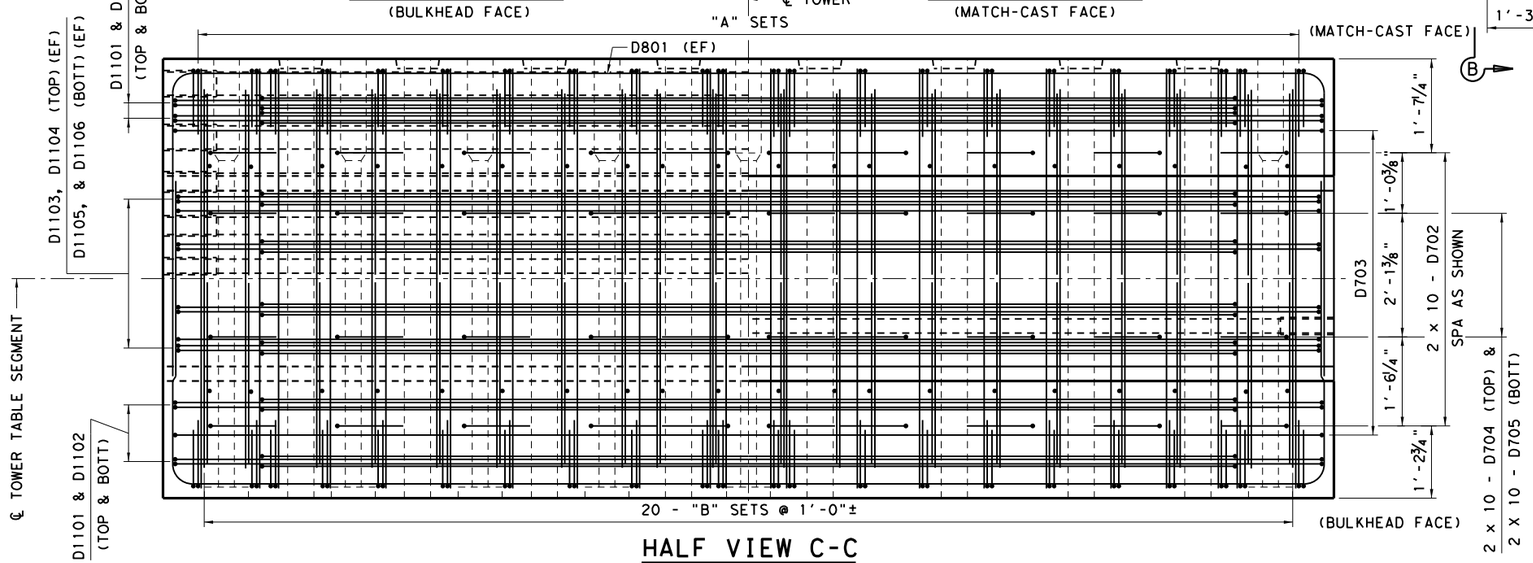
ELEVATION

NOTES:

1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.
3. "B" SETS INCLUDE 2 - D603, 2 - D604 AND 4 - D605.

HL-93 LOADING

0 1 2
SCALE IN FEET



HALF VIEW C-C

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT XI
(1NT-SB03)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS LTC	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 99B
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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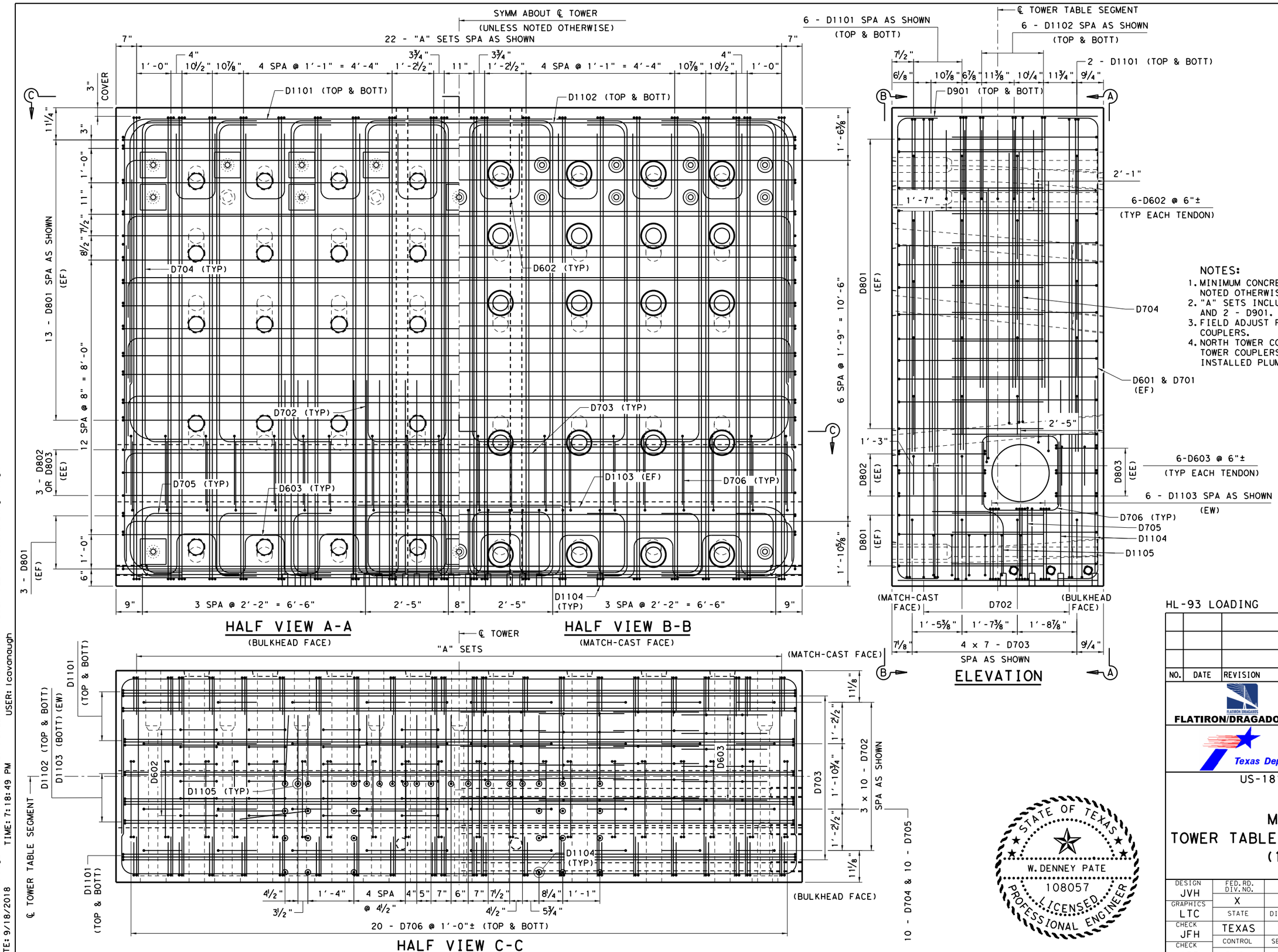
SYMM ABOUT ℄ TOWER
(UNLESS NOTED OTHERWISE)
22 - "A" SETS SPA AS SHOWN
D1101 (TOP & BOTT)
D1102 (TOP & BOTT)
D704 (TYP)
D602 (TYP)
D702 (TYP)
D703 (TYP)
D705 (TYP)
D603 (TYP)
D1103 (EF)
D706 (TYP)
D1104 (TYP)
13 - D801 SPA AS SHOWN (EF)
12 SPA @ 8" = 8'-0"
3 - D802 OR D803 (EE)
3 - D801 (EF)
6 SPA @ 1'-9" = 10'-6"
3 SPA @ 2'-2" = 6'-6"
4 SPA @ 1'-1" = 4'-4"
COVER
HALF VIEW A-A
(BULKHEAD FACE)
HALF VIEW B-B
(MATCH-CAST FACE)
6 - D1101 SPA AS SHOWN (TOP & BOTT)
℄ TOWER TABLE SEGMENT
6 - D1102 SPA AS SHOWN (TOP & BOTT)
2 - D1101 (TOP & BOTT)
D901 (TOP & BOTT)
6-D602 @ 6"± (TYP EACH TENDON)
D704
D601 & D701 (EF)
6-D603 @ 6"± (TYP EACH TENDON)
6 - D1103 SPA AS SHOWN (EW)
D706 (TYP)
D705
D1104
D1105
D801 (EF)
D802 (EE)
D803 (EE)
(MATCH-CAST FACE)
(BULKHEAD FACE)
D702
4 x 7 - D703 SPA AS SHOWN
ELEVATION
℄ TOWER
"A" SETS
(MATCH-CAST FACE)
(BULKHEAD FACE)
D1101 (TOP & BOTT)
D1102 (TOP & BOTT)
D1103 (BOTT) (EW)
D1105 (TYP)
D1104 (TYP)
D602
D603
D703
3 x 10 - D702 SPA AS SHOWN
10 - D704 & 10 - D705
20 - D706 @ 1'-0"± (TOP & BOTT)
HALF VIEW C-C
NOTES:
1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.
3. FIELD ADJUST REINFORCING TO AVOID COUPLERS.
4. NORTH TOWER COUPLERS SHOWN, SOUTH TOWER COUPLERS MIRRORED. COUPLERS TO BE INSTALLED PLUMB TO P.G.L.
HL-93 LOADING
SCALE IN FEET
PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018
NO. DATE REVISION APRV
FLATIRON/DRAGADOS LLC
FIGG TBPE FIRM #F-4883
Texas Department of Transportation ® 2016
US-181 HARBOR BRIDGE
MAIN SPAN
TOWER TABLE REINFORCEMENT XII
(1NT-SB04)
STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED PROFESSIONAL ENGINEER
09/18/18
DESIGN JVH
GRAPHICS LTC
CHECK JFH
CHECK WDP
FED. RD. DIV. NO. X
FEDERAL AID PROJECT NO. (See Title Sheet)
HIGHWAY NO. US-181
STATE TEXAS
DISTRICT CRP
COUNTY NUECES
SHEET NO. NHB 99C
CONTROL 0101
SECTION 06
JOB 095
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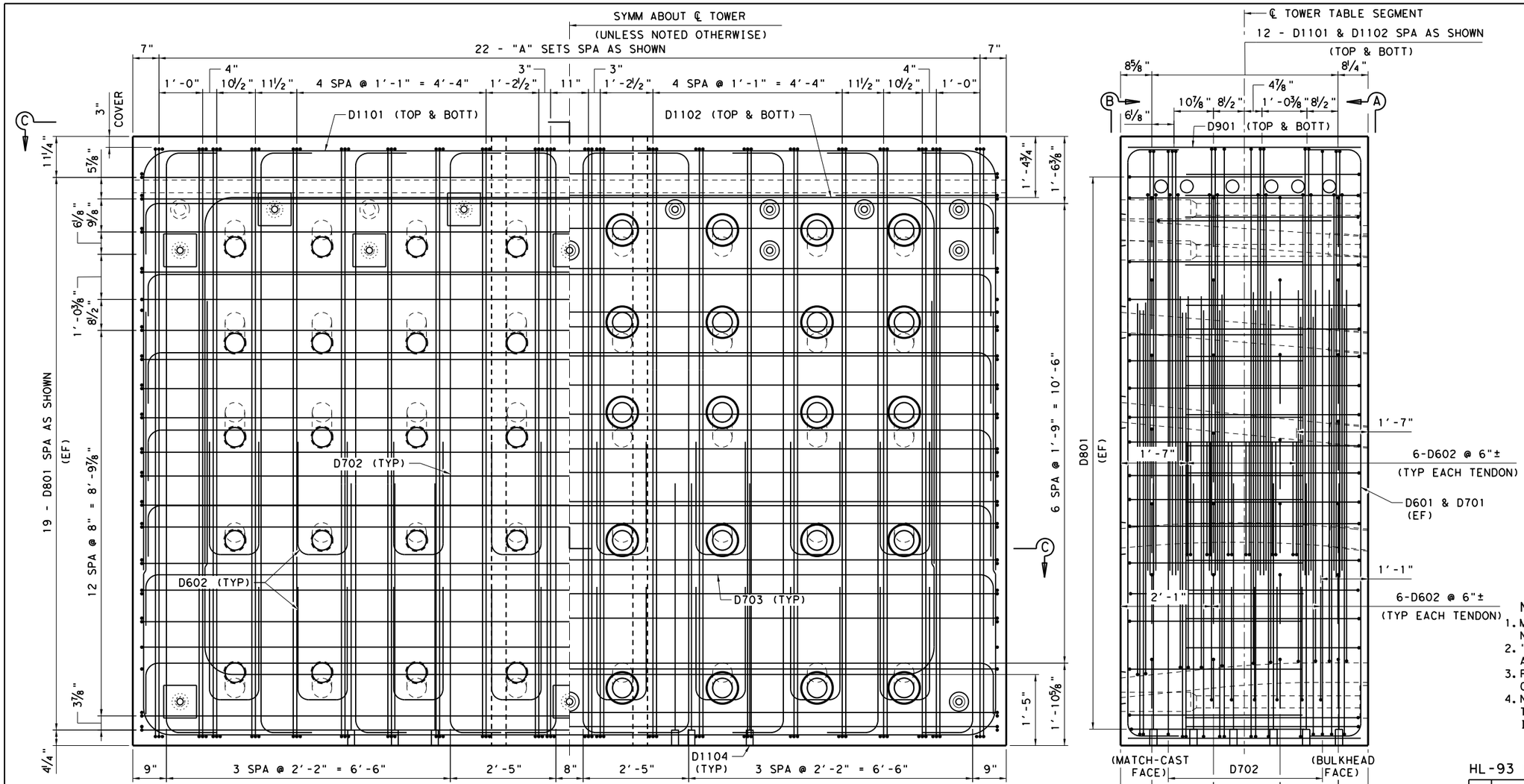
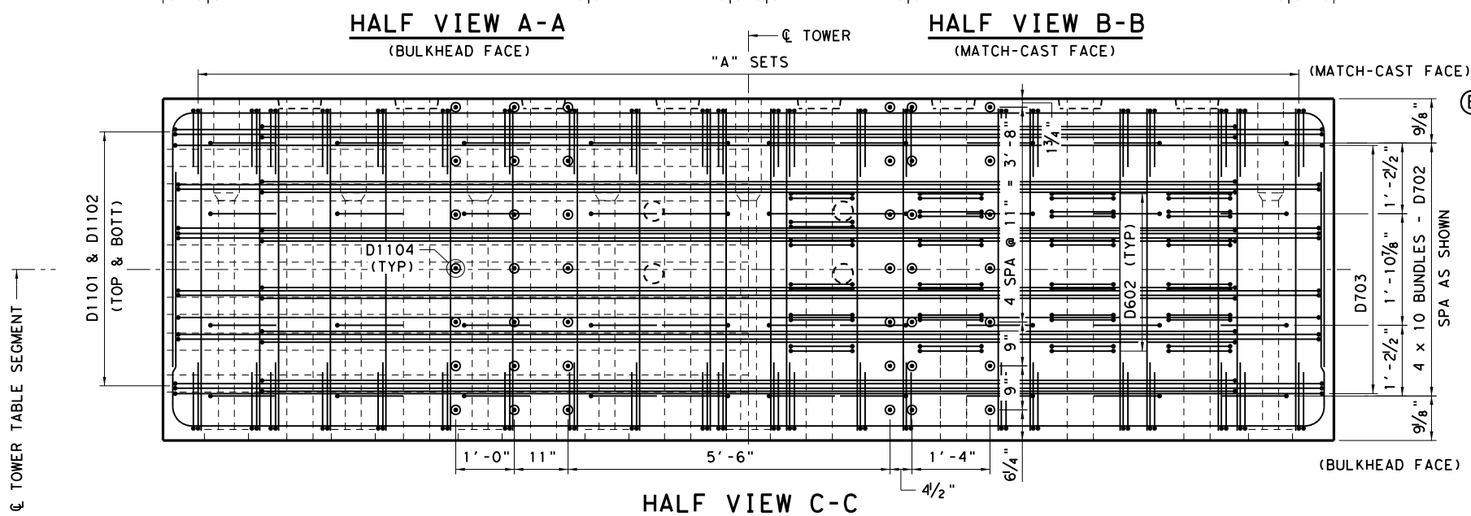


HALF VIEW A-A
(BULKHEAD FACE)

HALF VIEW B-B
(MATCH-CAST FACE)

ELEVATION



HALF VIEW C-C

NOTES:

1. MINIMUM CONCRETE COVER IS 2", UNLESS NOTED OTHERWISE.
2. "A" SETS INCLUDE 2 - D601, 2 - D701 AND 2 - D901.
3. FIELD ADJUST REINFORCING TO AVOID COUPLERS.
4. NORTH TOWER COUPLERS SHOWN, SOUTH TOWER COUPLERS MIRRORED. COUPLERS TO BE INSTALLED PLUMB TO P.G.L.

HL-93 LOADING

0 1 2
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT
XIII
(1NT-SB05)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS LTC	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 99D
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

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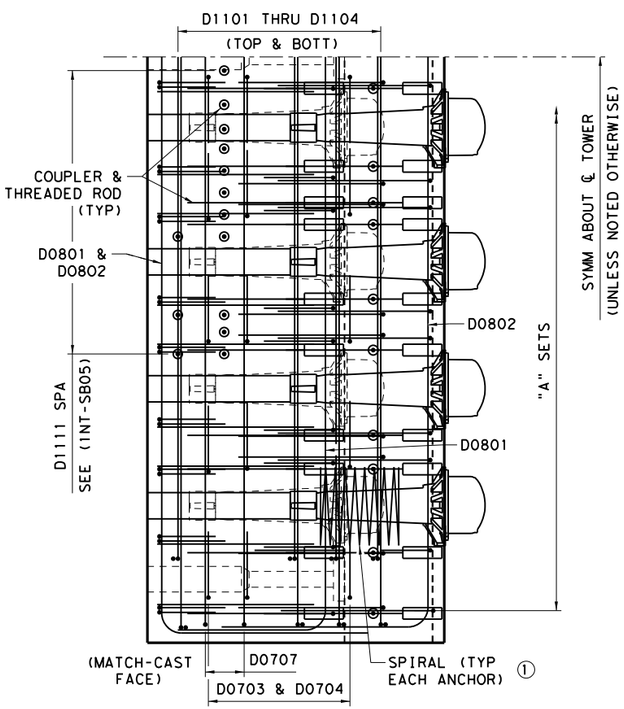
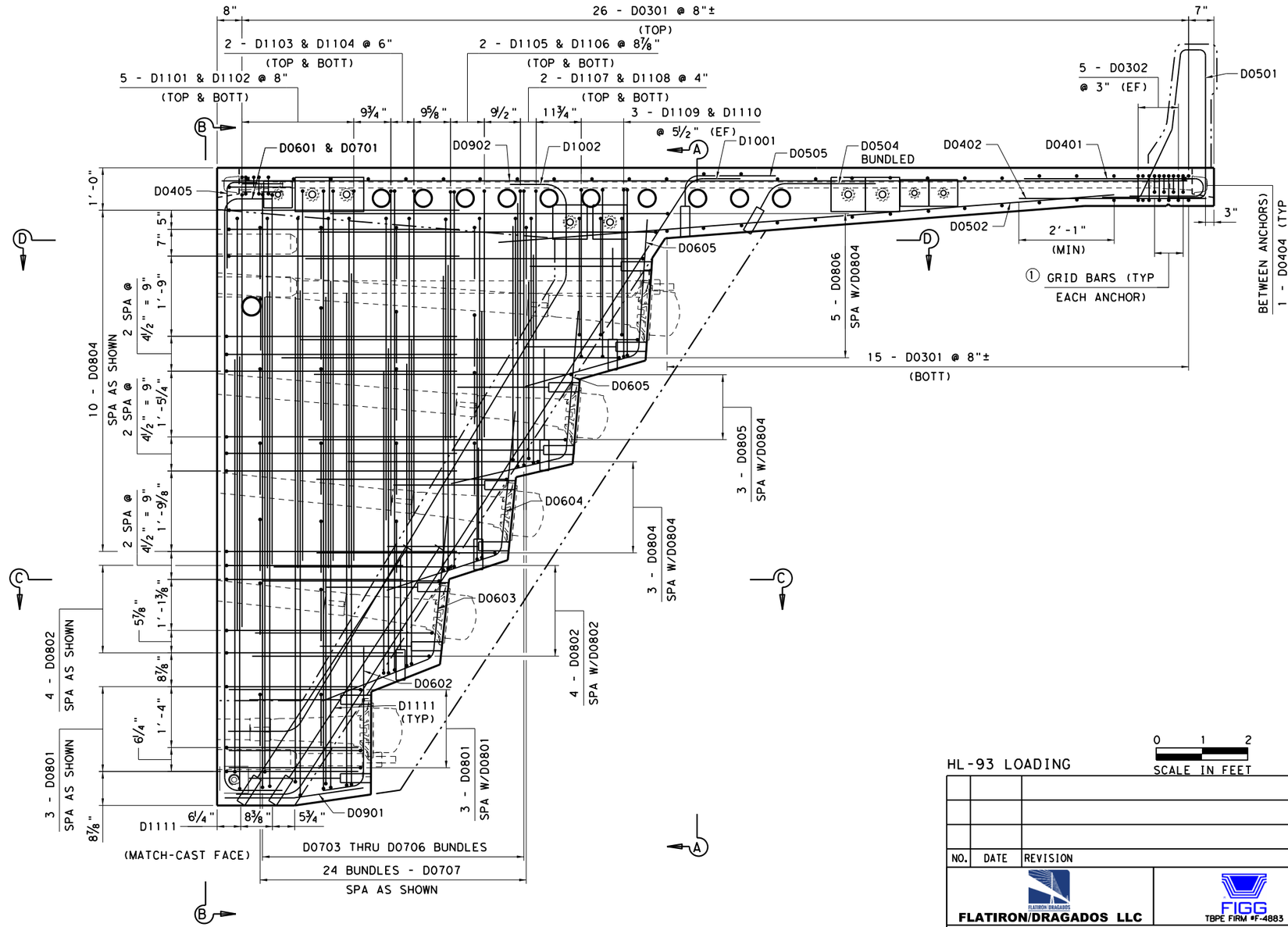


HALF SECTION C-C



ELEVATION

NOTES:

① THE TRANSVERSE TENDONS LOCAL ZONE REINFORCEMENT SHALL BE INSTALLED PER POST-TENSIONING SUPPLIER'S SHOP DRAWING.

2. 'A' SETS CONSISTS OF 1-D0601, 1-D0602, 1-D0603, 1-D0604, 1-D0605, 1-D0701, 1-D0901, 1-D1001, AND 1-D1002.

③ DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.

4. CONCRETE COVER FOR TOWER DECK SHALL BE:
   TOP OF DECK (AS CAST).....3.0"
   BOTTOM OF DECK.....1.25"
   WEBS AND BOTTOM SLAB (EXT FACE).....2"

5. EF - DENOTES EACH FACE.

⑥ FIELD ADJUST POURBACK COUPLERS AS REQUIRED.

HL-93 LOADING

0 1 2
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT XIV
(1NT-SB06)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99E
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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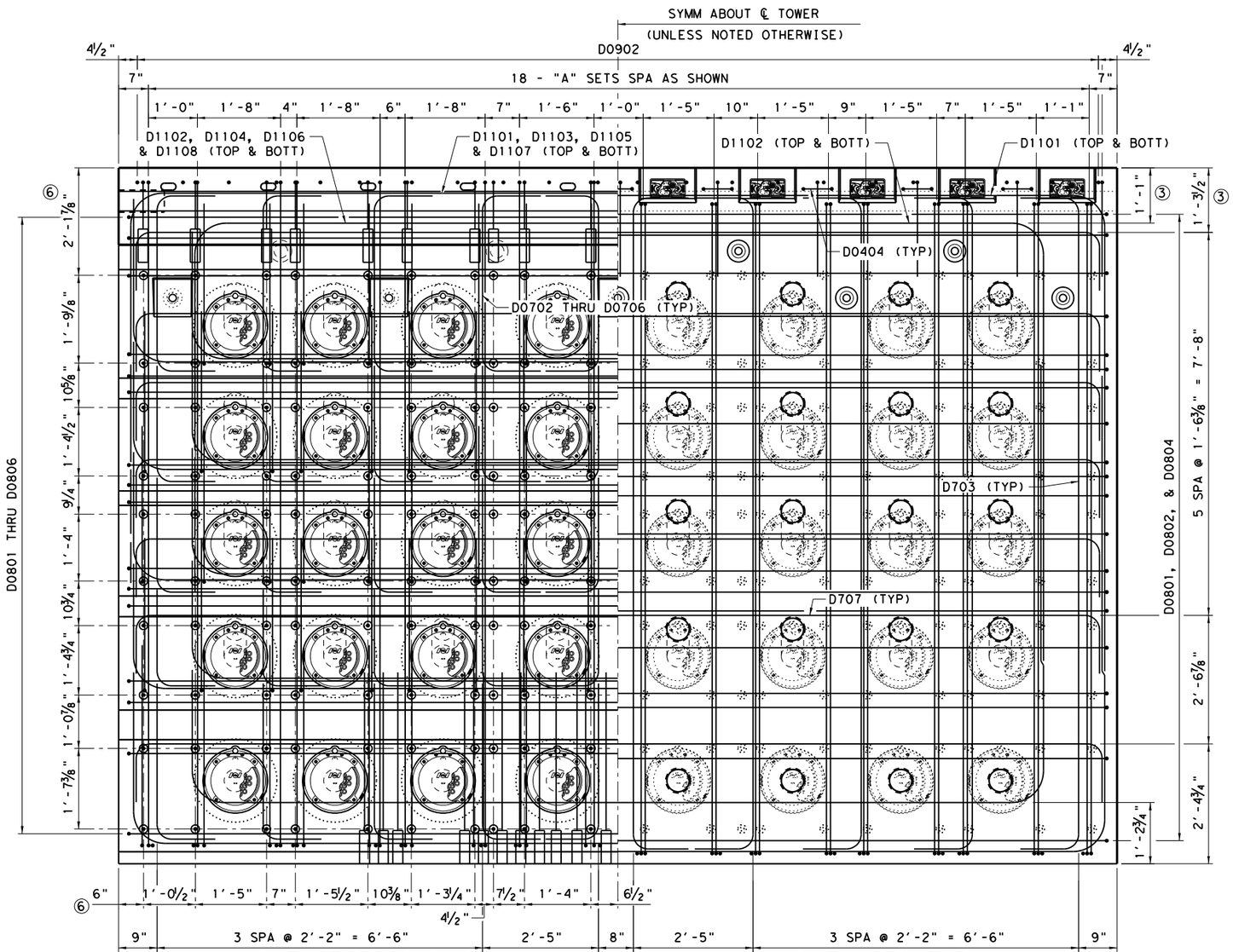

HALF SECTION A-A
(THROUGH WING)

HALF VIEW B-B
(MATCH-CAST FACE)

NOTES:

1. FOR GENERAL NOTES, SEE TOWER TABLE REINFORCEMENT XIV SHEET.

HL-93 LOADING

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT XV
(1NT-SB06)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99F
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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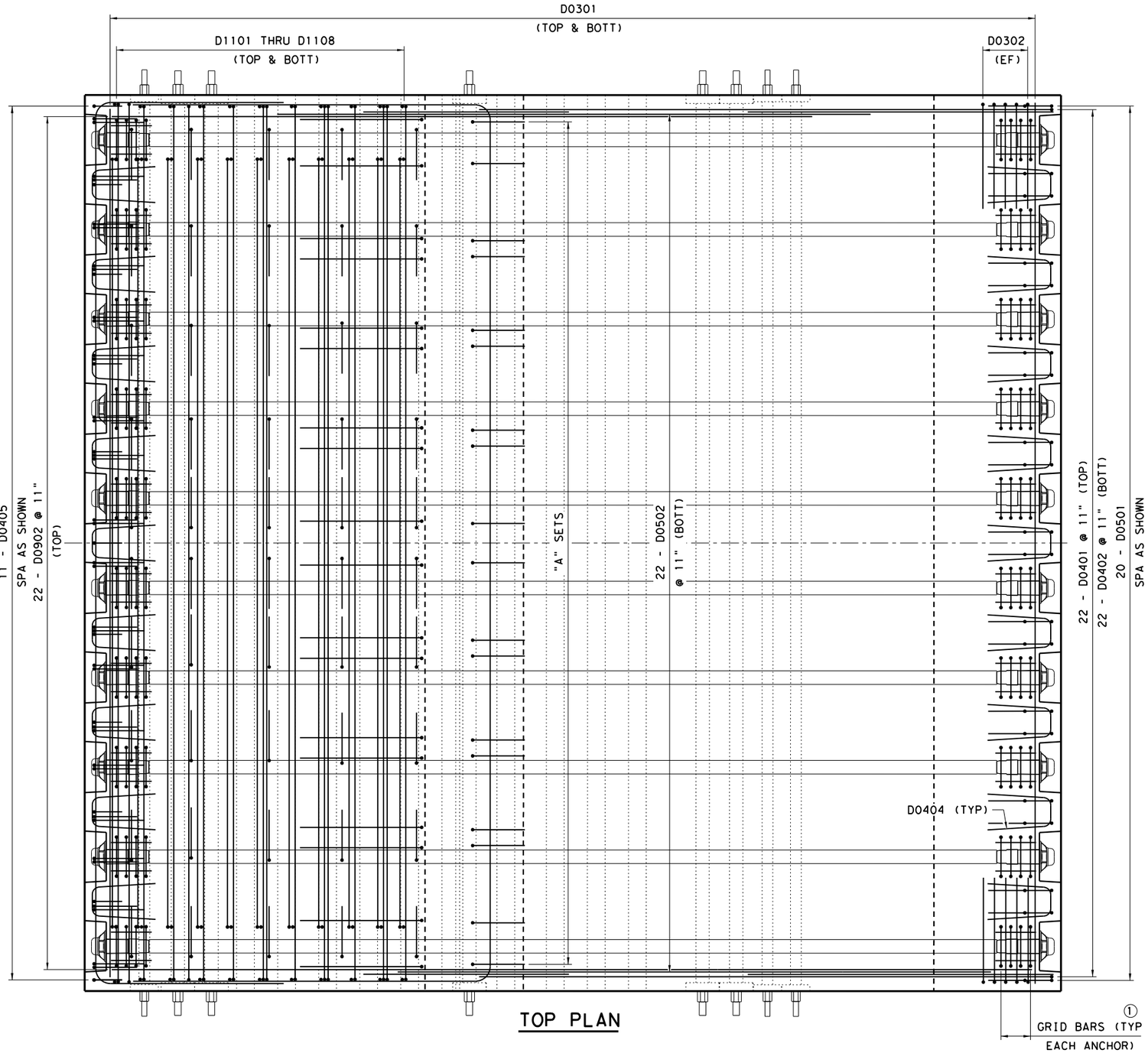
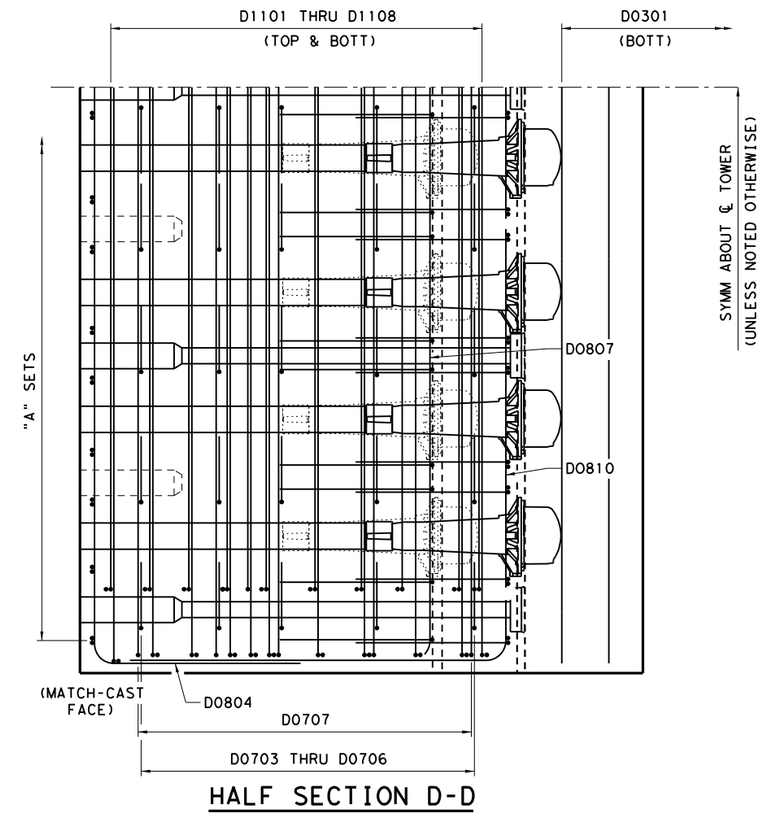


TOP PLAN



HALF SECTION D-D

HL-93 LOADING

0 1 2
SCALE IN FEET

NOTES:

① THE TRANSVERSE TENDONS LOCAL ZONE REINFORCEMENT SHALL BE INSTALLED PER POST-TENSIONING SUPPLIER'S SHOP DRAWING.

2. 'A' SETS CONSISTS OF 1-D0601, 1-D0602, 1-D0603, 1-D0604, 1-D0605, 1-D0701, 1-D0702 AND 1-D0901.

③ DIMENSION INCLUDES ½" INTEGRAL WEARING SURFACE PLUS ½" FOR SURFACE MILLING.

4. CONCRETE COVER FOR TOWER DECK SHALL BE:
   TOP OF DECK (AS CAST).....3.0"
   BOTTOM OF DECK.....1.25"
   WEBS AND BOTTOM SLAB (EXT FACE).....2"

5. EF - DENOTES EACH FACE.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

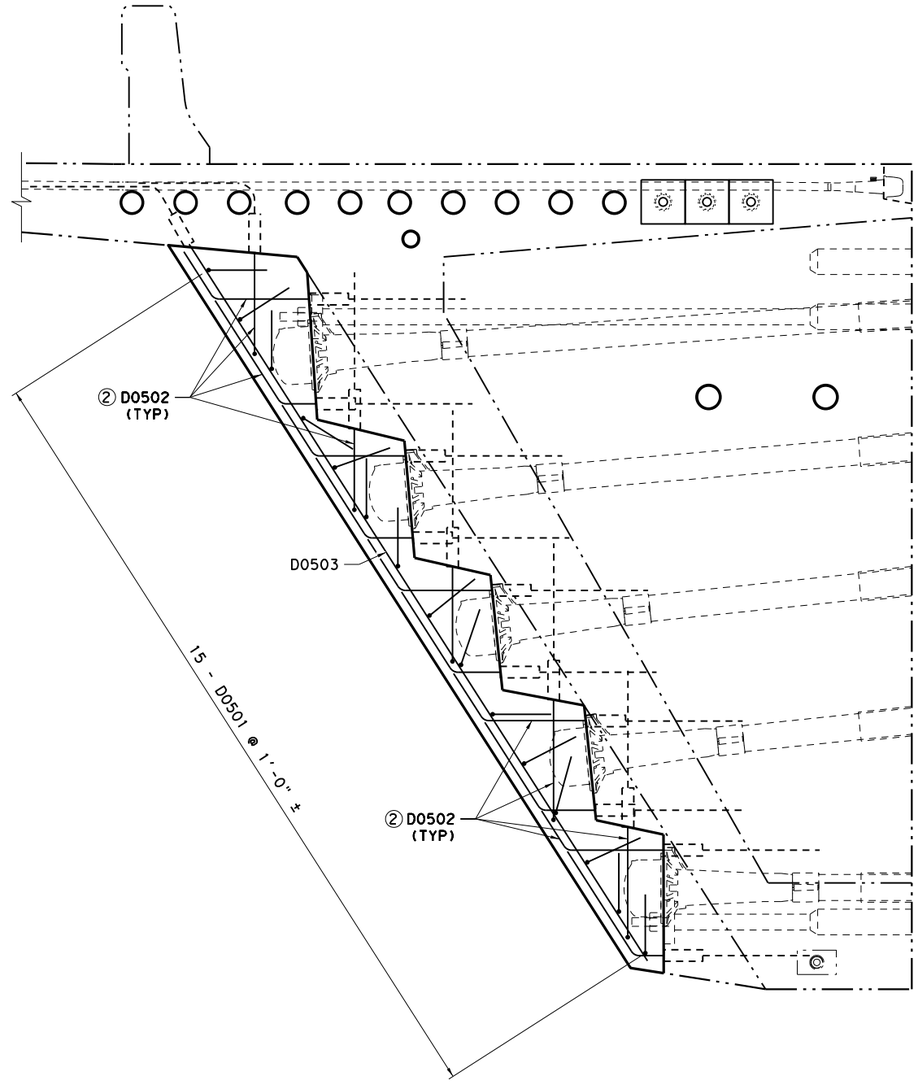
Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT XVI
(1NT-SB06)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS LTC	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 99G
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N093*Tower*Table*Reinforcing*1.dgn
DATE: 9/18/2018 TIME: 7:18:51 PM USER: lcavanaugh



ELEVATION

NOTES:

1. 'A' SET CONSISTS OF 15-D0502 AND 2-D0503. (SPACED WITH COUPLERS IN PREVIOUS SEGMENT.) (20 'A' SETS TOTAL)

② FIELD BEND BARS TO MAINTAIN 2" MINIMUM CONCRETE COVER.

HL-93 LOADING

0 1 2
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

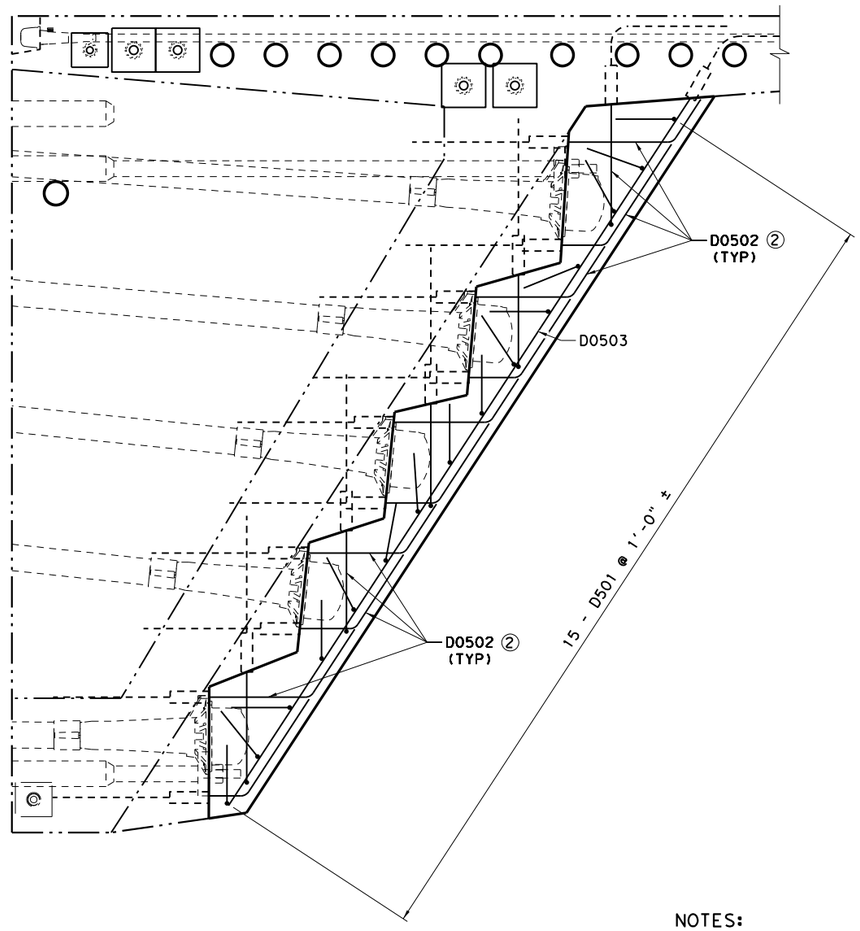
MAIN SPAN
TOWER TABLE REINFORCEMENT
XVII
(1NT-NB06 CIP BLOCKOUT)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99H
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N093*Tower*Table*Reinforcing*1.dgn
DATE: 9/18/2018 TIME: 7:18:51 PM USER: lcavanaugh



ELEVATION

NOTES:

1. 'A' SET CONSISTS OF 15-D0502 AND 2-D0503. (SPACED WITH COUPLERS IN PREVIOUS SEGMENT.) (20 'A' SETS TOTAL)

② FIELD BEND BARS TO MAINTAIN 2" MINIMUM CONCRETE COVER.

HL-93 LOADING

0 1 2
SCALE IN FEET

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT
XVIII
(1NT-SB06 CIP BLOCKOUT)

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99J
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N093*Tower*Table*Reinforcing*1.dgn
DATE: 9/18/2018 TIME: 7:18:52 PM USER: lcavanaugh

BAR LIST (SEGMENT 1NT-NB01)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D601	44	6	6	13'-8"	1'-0"	1'-0"	15'-8"
	D602	96	6	6	1'-2"	2'-7"	2'-7"	6'-4"
	D701	44	7	6	13'-8"	1'-2"	1'-2"	16'-0"
	D702	40	7	6	13'-5½"	1'-2"	1'-2"	15'-9½"
	D703	28	7	6	19'-6"	1'-2"	1'-2"	21'-10"
	D801	38	8	6	19'-8"	4'-8"	4'-8"	29'-0"
②	D901	44	9	1	6'-8"			6'-8"
	D1101	30	11	6	19'-6"	9'-5"	9'-5"	38'-4"
	D1102	30	11	6	16'-10"	8'-4"	8'-4"	33'-6"
	D1103	30	11	6	14'-4"	7'-8"	7'-8"	29'-8"

BAR LIST (SEGMENT 1NT-NB02)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D601	44	6	6	13'-8"	1'-0"	1'-0"	15'-8"
	D602	48	6	6	1'-2"	2'-7"	2'-7"	6'-4"
	D701	44	7	6	13'-8"	1'-2"	1'-2"	16'-0"
	D702	40	7	6	13'-5½"	1'-2"	1'-2"	15'-9½"
	D703	28	7	6	19'-6"	1'-2"	1'-2"	21'-10"
	D801	38	8	6	19'-8"	4'-10½"	4'-10½"	29'-5"
②	D901	44	9	1	7'-0¾"			7'-0¾"
	D1101	32	11	6	19'-6"	9'-5"	9'-5"	38'-4"
	D1102	32	11	6	16'-10"	8'-4"	8'-4"	33'-6"
	D1103	32	11	6	14'-4"	7'-8"	7'-8"	29'-8"

BAR LIST (SEGMENT 1NT-NB03)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D601	44	6	6	13'-8"	1'-0"	1'-0"	15'-8"
	D603	40	6	1	6'-6"			6'-6"
	D604	40	6	1	6'-0"			6'-0"
	D605	80	6	1	4'-6"			4'-6"
	D701	44	7	6	13'-8"	1'-2"	1'-2"	16'-0"
	D702	20	7	6	13'-5½"	1'-2"	1'-2"	15'-9½"
	D703	28	7	6	19'-6"	1'-2"	1'-2"	21'-10"
	D704	20	7	6	6'-0¾"	1'-2"	1'-2"	8'-4¾"
	D705	20	7	6	4'-0¾"	1'-2"	1'-2"	6'-4¾"
	D801	30	8	6	19'-8"	4'-9½"	4'-9½"	29'-3"
	D802	16	8	6	1'-5"	11'-3"	11'-3"	23'-11"
②	D901	44	9	1	6'-11"			6'-11"
	D1101	16	11	6	19'-6"	9'-5"	9'-5"	38'-4"
	D1102	16	11	6	16'-10"	8'-4"	8'-4"	33'-6"
	D1103	16	11	6	6'-0¾"	12'-5"	12'-5"	30'-10¾"
	D1104	16	11	6	4'-11"	11'-0"	11'-0"	26'-11"
	D1105	16	11	6	4'-0¾"	12'-5"	12'-5"	28'-10¾"
	D1106	16	11	6	2'-11"	11'-0"	11'-0"	24'-11"

BAR LIST (SEGMENT 1NT-NB04)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	E	TOTAL LENGTH
	D601	44	6	6	13'-8"	1'-0"	1'-0"		15'-8"
	D602	48	6	6	1'-2"	2'-0"	2'-0"		5'-2"
	D603	48	6	5	1'-6"	1'-0"	1'-2"	1'-0"	6'-2"
	D701	44	7	6	13'-8"	1'-2"	1'-2"		16'-0"
	D702	30	7	6	13'-5½"	1'-2"	1'-2"		15'-9½"
	D703	28	7	6	19'-6"	1'-2"	1'-2"		21'-10"
	D704	10	7	6	9'-11"	1'-2"	1'-2"		12'-3"
	D705	10	7	6	1'-6"	1'-2"	1'-2"		3'-10"
	D706	40	7	6	2'-4"	2'-4"	2'-4"		7'-0"
	D801	32	8	6	19'-8"	4'-4½"	4'-4½"		28'-5"
	D802	12	8	6	1'-11"	11'-3"	11'-3"		24'-5"
②	D901	44	9	1	6'-0"				6'-0"
	D1101	16	11	6	19'-6"	9'-5"	9'-5"		38'-4"
	D1102	12	11	6	19'-6"	8'-0"	8'-0"		35'-6"
	D1103	12	11	6	1'-6"	12'-5"	12'-5"		26'-4"
	D1104	30	11	20	6'-0"				6'-0"

BAR LIST (SEGMENT 1NT-NB05)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D601	44	6	6	13'-8"	1'-0"	1'-0"	15'-8"
	D602	96	6	6	1'-2"	2'-7"	2'-7"	6'-4"
	D701	44	7	6	13'-8"	1'-2"	1'-2"	16'-0"
	D702	80	7	6	13'-5½"	1'-2"	1'-2"	15'-9½"
	D703	56	7	6	19'-6"	1'-2"	1'-2"	21'-10"
	D801	38	8	6	19'-8"	4'-4½"	4'-4½"	28'-5"
②	D901	44	9	1	6'-0"			6'-0"
	D1101	28	11	6	19'-6"	9'-5"	9'-5"	38'-4"
	D1102	28	11	6	16'-10"	8'-4"	8'-4"	33'-6"
	D1104	42	11	20	6'-0"			6'-0"

BAR LIST (NORTHBOUND CLOSURE POUR)

BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
③D1101	2	11	6	19'-6"	9'-5"	9'-5"	38'-4"
③D1102	2	11	6	16'-10"	8'-4"	8'-4"	33'-6"
③D1103	2	11	6	14'-4"	7'-8"	7'-8"	29'-8"

BAR LIST (SEGMENT 1NT-NB06 POURBACK)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D0501	15	5	6	19'-8"	1'-0"	1'-0"	21'-8"
④	D0502	300	5	36	4'-0"			4'-0"
	D0503	20	5	36	14'-5"			14'-5"

NOTES:

1. FOR BAR BENDS, SEE BAR BENDING DETAILS SHEET.
② DENOTES EPOXY COATED REINFORCEMENT.
③ ADDITIONAL NOMINAL REINFORCEMENT MAY BE PROVIDED BY THE CONTRACTOR TO TIE THE D1101, D1102, & D1103 BARS.
④ FIELD BEND BARS TO MAINTAIN 2" MINIMUM CONCRETE COVER.

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FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT XIX

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99K
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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DATE: 9/18/2018 TIME: 7:18:52 PM USER: lcavanaugh

BAR LIST (SEGMENT 1NT-NB06)

	BAR	NO.	SIZE	BEND TYPE	A	B	C	D	E	F	J	K	N	O	P	R	T	TOTAL LENGTH
②	D0301	57	3	1		19'-8"												19'-8"
②	D0302	10	3	6		6¼"	2'-6"	2'-6"										5'-6¼"
②	D0401	22	4	6		5⅜"	12'-0"	8"										13'-1⅜"
②	D0402	22	4	1		6'-10"												6'-10"
②	D0404	18	4	6		7"	1'-4"	1'-4"										3'-3"
②	D0405	11	4	2		1'-10½"	8"											2'-6½"
②	D0501	20	5	16		1'-5"	8"	10"	10"									5'-2"
②	D0502	22	5	1		13'-0"												13'-0"
②	D0503	40	5	24		6⅜"	2'-10½"	1'-9½"	1'-0½"	2'-4½"	10"	2'-6½"	90°	96°	154°	199°	121°	9'-5⅜"
	D0504	40	5	37		1'-3"	2'-0"						123°					3'-3"
	D0505	20	5	26		1'-3"	2'-0"											3'-3"
	D0506	280	5	20		2'-8"												2'-8"
	D0601	18	6	6		13'-2½"	1'-0"	1'-0"										15'-2½"
	D0602	18	6	3		1'-7"	3'-8"						99°					5'-3"
	D0603	72	6	3		2'-6"	3'-4"						108°					5'-10"
	D0701	18	7	6		13'-2½"	1'-2"	1'-2"										15'-6½"
	D0702	40	7	6		13'-3"	1'-2"	1'-2"										15'-7"
	D0703	20	7	6		12'-10"	1'-2"	1'-2"										15'-2"
	D0704	20	7	6		8'-6"	1'-2"	1'-2"										10'-10"
	D0705	20	7	6		6'-3"	1'-2"	1'-2"										8'-7"
	D0706	20	7	6		3'-10"	1'-2"	1'-2"										6'-2"
	D0707	50	7	6		19'-6"	1'-2"	1'-2"										21'-10"
	D0801	9	8	6		19'-6"	3'-6"	3'-6"										26'-6"
	D0802	2	8	6		19'-8"	4'-7"	4'-7"										28'-10"
	D0803	3	8	6		19'-8"	4'-10"	4'-10"										29'-4"
	D0804	11	8	6		19'-8"	6'-4"	6'-4"										32'-4"
	D0805	3	8	6		19'-8"	6'-6"	6'-6"										32'-8"
	D0806	2	8	6		19'-8"	6'-11"	6'-11"										33'-6"
	D0901	18	9	3		2'-4"	1'-7"						171°					3'-11"
②	D0902	22	9	1		16'-6"												16'-6"
	D1001	18	10	8		16'-2"	1'-4"	1'-4"					122°	122°				18'-10"
	D1002	18	10	22		2'-3"	17'-7"	1'-4"	1'-4"				150°	122°				22'-6"
	D1101	12	11	6		19'-6"	9'-4"	9'-4"										38'-2"
	D1102	12	11	6		17'-0"	8'-10"	8'-10"										34'-8"
	D1103	2	11	6		19'-6"	8'-0"	8'-0"										35'-6"
	D1104	2	11	6		17'-0"	7'-8"	7'-8"										32'-4"
	D1105	4	11	6		19'-6"	7'-0"	7'-0"										33'-6"
	D1106	4	11	6		17'-0"	6'-6"	6'-6"										30'-0"
	D1107	4	11	6		19'-6"	5'-10"	5'-10"										31'-2"
	D1108	4	11	6		17'-0"	5'-6"	5'-6"										28'-0"
	D1109	4	11	6		3'-10"	12'-5"	12'-5"										28'-8"
	D1110	4	11	6		3'-2"	11'-2"	11'-2"										25'-6"
	D1111	24	11	20		6'-0"												6'-0"

NOTES:

1. FOR BAR BENDS, SEE BAR BENDING DETAILS SHEET.
② DENOTES EPOXY COATED REINFORCEMENT.
3. LOCAL ZONE REINFORCEMENT AT ANCHORAGE IS THE RESPONSIBILITY OF P.T. SYSTEM SUPPLIER.

STATE OF TEXAS
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108057
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FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT XX

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99L
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

FILE: G:\HarborBridge\CADD\Next Submital Folder\Main*Span\N093*Tower*Table*Reinforcing*1.dgn
DATE: 9/18/2018 TIME: 7:18:52 PM USER: lcavanaugh

BAR LIST (SEGMENT 1NT-SB01)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D601	44	6	6	13'-6¼"	1'-0"	1'-0"	15'-6¼"
	D602	96	6	6	1'-2"	2'-7"	2'-7"	6'-4"
	D701	44	7	6	13'-6¼"	1'-2"	1'-2"	15'-10¼"
	D702	40	7	6	13'-3¾"	1'-2"	1'-2"	15'-7¾"
	D703	28	7	6	19'-6"	1'-2"	1'-2"	21'-10"
	D801	38	8	6	19'-8"	4'-11"	4'-11"	29'-6"
②	D901	44	9	1	7'-2"			7'-2"
	D1101	32	11	6	19'-6"	9'-4"	9'-4"	38'-2"
	D1102	32	11	6	16'-10"	8'-2"	8'-2"	33'-2"
	D1103	32	11	6	14'-4"	7'-5"	7'-5"	29'-2"

BAR LIST (SEGMENT 1NT-SB02)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D601	44	6	6	13'-6¼"	1'-0"	1'-0"	15'-6¼"
	D602	48	6	6	1'-2"	2'-7"	2'-7"	6'-4"
	D701	44	7	6	13'-6¼"	1'-2"	1'-2"	15'-10¼"
	D702	40	7	6	13'-3¾"	1'-2"	1'-2"	15'-7¾"
	D703	28	7	6	19'-6"	1'-2"	1'-2"	21'-10"
	D801	38	8	6	19'-8"	4'-8"	4'-8"	29'-0"
②	D901	44	9	1	6'-8"			6'-8"
	D1101	32	11	6	19'-6"	9'-4"	9'-4"	38'-2"
	D1102	32	11	6	16'-10"	8'-2"	8'-2"	33'-2"
	D1103	32	11	6	14'-4"	7'-5"	7'-5"	29'-2"

BAR LIST (SEGMENT 1NT-SB03)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D601	44	6	6	13'-6¼"	1'-0"	1'-0"	15'-6¼"
	D603	40	6	1	6'-6"			6'-6"
	D604	40	6	1	6'-0"			6'-0"
	D605	80	6	1	4'-6"			4'-6"
	D701	44	7	6	13'-6¼"	1'-2"	1'-2"	15'-10¼"
	D702	20	7	6	13'-3¾"	1'-2"	1'-2"	15'-7¾"
	D703	28	7	6	19'-6"	1'-2"	1'-2"	21'-10"
	D704	20	7	6	5'-9¾"	1'-2"	1'-2"	8'-1¾"
	D705	20	7	6	4'-2"	1'-2"	1'-2"	6'-6"
	D801	30	8	6	19'-8"	4'-11"	4'-11"	29'-6"
	D802	16	8	6	1'-7"	11'-3"	11'-3"	24'-1"
②	D901	44	9	1	7'-2"			7'-2"
	D1101	16	11	6	19'-6"	9'-4"	9'-4"	38'-2"
	D1102	16	11	6	16'-10"	8'-2"	8'-2"	33'-2"
	D1103	16	11	6	5'-9¾"	12'-5"	12'-5"	30'-7¾"
	D1104	16	11	6	4'-7¾"	11'-0"	11'-0"	26'-7¾"
	D1105	16	11	6	4'-1"	12'-5"	12'-5"	28'-11"
	D1106	16	11	6	2'-11"	11'-0"	11'-0"	24'-11"

BAR LIST (SEGMENT 1NT-SB04)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	E	TOTAL LENGTH
	D601	44	6	6	13'-6¼"	1'-0"	1'-0"		15'-6¼"
	D602	48	6	6	1'-2"	2'-0"	2'-0"		5'-2"
	D603	48	6	5	1'-6"	1'-0"	1'-2"	1'-0"	6'-2"
	D701	44	7	6	13'-6¼"	1'-2"	1'-2"		15'-10¼"
	D702	30	7	6	13'-3¾"	1'-2"	1'-2"		15'-7¾"
	D703	28	7	6	19'-6"	1'-2"	1'-2"		21'-10"
	D704	10	7	6	8'-10"	1'-2"	1'-2"		11'-2"
	D705	10	7	6	1'-11"	1'-2"	1'-2"		4'-3"
	D706	40	7	6	2'-4"	2'-4"	2'-4"		7'-0"
	D801	32	8	6	19'-8"	4'-4"	4'-4"		28'-4"
	D802	6	8	6	2'-6"	11'-3"	11'-3"		25'-0"
	D803	6	8	6	1'-2"	11'-3"	11'-3"		23'-8"
②	D901	44	9	1	5'-10"				5'-10"
	D1101	16	11	6	19'-6"	9'-4"	9'-4"		38'-2"
	D1102	12	11	6	19'-6"	7'-8"	7'-8"		34'-10"
	D1103	12	11	6	2'-0"	12'-5"	12'-5"		26'-10"
	D1104	12	11	20	6'-0"				6'-0"
	D1105	24	11	26	2'-2"	2'-0"			4'-2"

BAR LIST (SEGMENT 1NT-SB05)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D601	44	6	6	13'-6¼"	1'-0"	1'-0"	15'-6¼"
	D602	96	6	6	1'-2"	2'-7"	2'-7"	6'-4"
	D701	44	7	6	13'-6¼"	1'-2"	1'-2"	15'-10¼"
	D702	80	7	6	13'-3¾"	1'-2"	1'-2"	15'-7¾"
	D703	56	7	6	19'-6"	1'-2"	1'-2"	21'-10"
	D801	38	8	6	19'-8"	4'-0"	4'-0"	27'-8"
②	D901	44	9	1	5'-4"			5'-4"
	D1101	24	11	6	19'-6"	9'-4"	9'-4"	38'-2"
	D1102	24	11	6	16'-10"	8'-4"	8'-4"	33'-6"
	D1104	42	11	20	6'-0"			6'-0"

BAR LIST (SOUTHBOUND CLOSURE POUR)

BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
③D1101	2	11	6	19'-6"	9'-4"	9'-4"	38'-2"
③D1102	2	11	6	16'-10"	8'-2"	8'-2"	33'-2"
③D1103	2	11	6	14'-4"	7'-5"	7'-5"	29'-2"

BAR LIST (SEGMENT 1NT-SB06 POURBACK)

	BAR	NO.	SIZE	BEND TYPE	B	C	D	TOTAL LENGTH
	D0501	15	5	6	19'-8"	1'-0"	1'-0"	21'-8"
④	D0502	300	5	36	4'-0"			4'-0"
	D0503	20	5	36	14'-5"			14'-5"

NOTES:

1. FOR BAR BENDS, SEE BAR BENDING DETAILS SHEET.
② DENOTES EPOXY COATED REINFORCEMENT.
③ ADDITIONAL NOMINAL REINFORCEMENT MAY BE PROVIDED BY THE CONTRACTOR TO TIE THE D1101, D1102, & D1103 BARS.
④ FIELD BEND BARS TO MAINTAIN 2" MINIMUM CONCRETE COVER.

HL-93 LOADING

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT XXI

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99M
CHECK	CONTROL	SECTION	JOB	
JFH	0101	06	095	
CHECK				
WDP				

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DATE: 9/18/2018 TIME: 7:18:53 PM USER: lcavanaugh

BAR LIST (SEGMENT 1NT-SB06)

	BAR	NO.	SIZE	BEND TYPE	A	B	C	D	E	F	H	J	K	N	O	P	R	T	TOTAL LENGTH
②	D0301	41	3	1		19'-8"													19'-8"
②	D0302	10	3	6		5¾"	2'-6"	2'-6"											5'-5¾"
②	D0401	22	4	6		5"	4'-0"	1'-8"											6'-1"
②	D0402	22	4	1		4'-1"													4'-1"
②	D0404	18	4	6		7"	1'-4"	1'-4"											3'-3"
②	D0405	11	4	2		1'-10½"	0'-8"												2'-6½"
②	D0501	20	5	24		6⅜"	3'-3¼"	1'-9"	1'-8¼"	10"	10"	10"	2'-2⅝"	90°	96°	90°	199°	116°	8'-10⅞"
②	D0502	22	5	1		13'-6"													13'-6"
②	D0504	40	5	37		1'-2"	2'-0"												3'-2"
②	D0505	20	5	26		1'-2"	2'-0"												3'-2"
	D0601	18	6	6		13'-0¾"	1'-0"	1'-0"											15'-0¾"
	D0602	18	6	3		1'-6"	3'-2"							98°					4'-8"
	D0603	18	6	3		2'-4"	3'-1"							118°					5'-5"
	D0604	18	6	3		2'-5"	3'-0"							114°					5'-5"
	D0605	36	6	3		2'-6"	3'-1"							109°					5'-7"
	D0701	18	7	6		13'-0¾"	1'-2"	1'-2"											15'-4¾"
	D0702	40	7	6		13'-0"	1'-2"	1'-2"											15'-4"
	D0703	20	7	6		10'-7½"	1'-2"	1'-2"											12'-11½"
	D0704	20	7	6		8'-4"	1'-2"	1'-2"											10'-8"
	D0705	20	7	6		6'-1¼"	1'-2"	1'-2"											8'-5¼"
	D0706	20	7	6		3'-8"	1'-2"	1'-2"											6'-0"
	D0707	48	7	6		19'-6"	1'-2"	1'-2"											21'-10"
	D0801	6	8	6		19'-8"	2'-10⅝"	2'-10⅝"											25'-5¼"
	D0802	8	8	6		19'-8"	3'-10½"	3'-10½"											27'-5"
	D0804	13	8	6		19'-8"	4'-10"	4'-10"											29'-4"
	D0805	3	8	6		19'-8"	5'-6½"	5'-6½"											30'-9"
	D0806	5	8	6		19'-8"	7'-7¾"	7'-7¾"											34'-11½"
	D0901	18	9	3		1'-6⅛"	1'-6⅜"							172°					3'-0½"
②	D0902	22	9	1		20'-6"													20'-6"
	D1001	18	10	8		15'-11¼"	1'-4"	1'-4"						123°	123°				18'-7¼"
	D1002	18	10	22		2'-3"	11'-7"	1'-4"	1'-4"					149°	121°				16'-6"
	D1101	10	11	6		19'-6"	9'-4"	9'-4"											38'-2"
	D1102	10	11	6		17'-0"	8'-6"	8'-6"											34'-0"
	D1103	4	11	6		19'-6"	8'-0"	8'-0"											35'-6"
	D1104	4	11	6		17'-0"	7'-8"	7'-8"											32'-4"
	D1105	4	11	6		19'-6"	6'-10¼"	6'-10¼"											33'-2½"
	D1106	4	11	6		17'-0"	6'-6"	6'-6"											30'-0"
	D1107	4	11	6		19'-6"	5'-8¾"	5'-8¾"											30'-11½"
	D1108	4	11	6		17'-0"	5'-4"	5'-4"											27'-8"
	D1109	6	11	6		3'-7⅝"	12'-5"	12'-5"											28'-5⅝"
	D1110	6	11	6		2'-7½"	11'-5"	11'-5"											25'-5½"
	D1111	24	11	20		6'-0"													6'-0"

NOTES:
1. FOR BAR BENDS, SEE BAR BENDING DETAILS SHEET.
② DENOTES EPOXY COATED REINFORCEMENT.
3. LOCAL ZONE REINFORCEMENT AT ANCHORAGE IS THE RESPONSIBILITY OF P.T. SYSTEM SUPPLIER.

HL-93 LOADING

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FLATIRON/DRAGADOS LLC

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Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE REINFORCEMENT
XXII

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LTC	TEXAS	CRP	NUECES	NHB 99N
CHECK JFH	CONTROL	SECTION	JOB	
CHECK WDP	0101	06	095	

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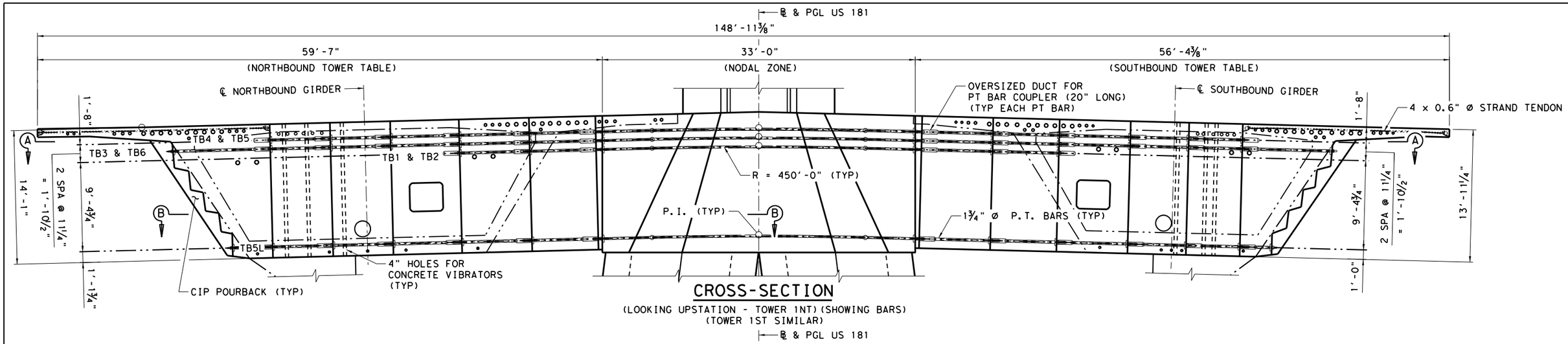
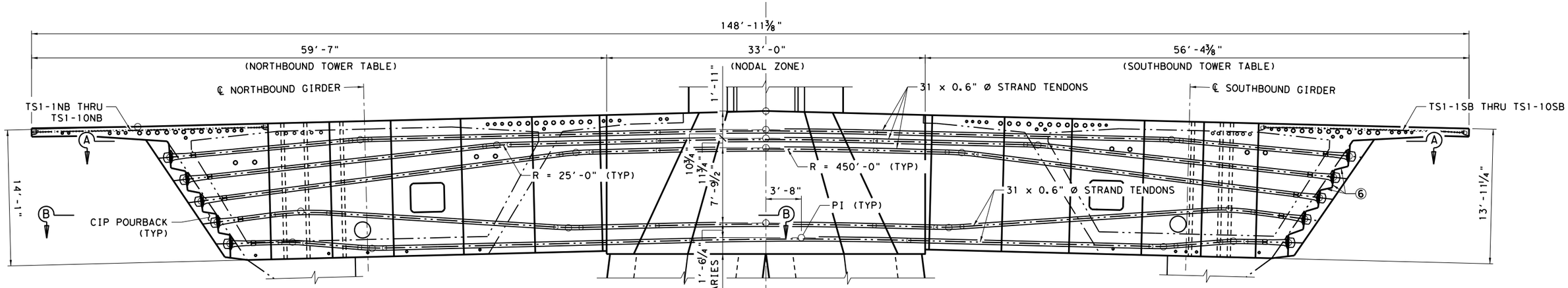


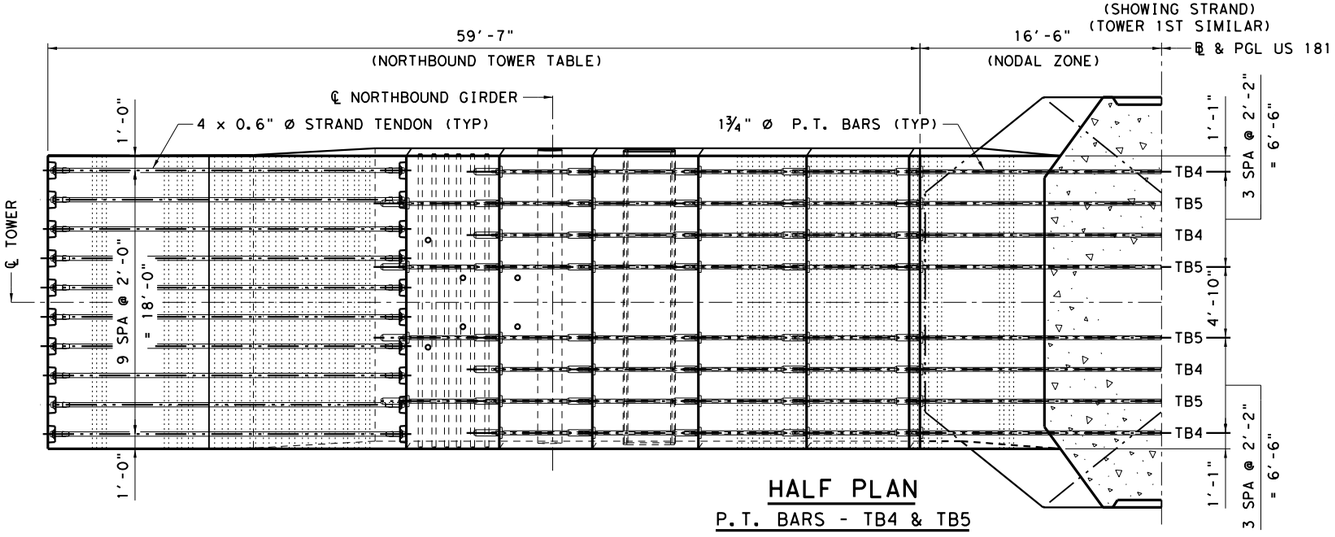
CROSS-SECTION

(LOOKING UPSTATION - TOWER 1NT)(SHOWING BARS)
(TOWER 1ST SIMILAR)



CROSS-SECTION

(LOOKING UPSTATION - TOWER 1NT)
(SHOWING STRAND)
(TOWER 1ST SIMILAR)



HALF PLAN

P.T. BARS - TB4 & TB5

NOTES:

1. FOR LOWER TOWER DETAILS, SEE MAIN SPAN LOWER TOWER DETAILS AND REINFORCEMENT SHEETS.
2. FOR TOWER STRUT DETAILS, SEE MAIN SPAN TOWER STRUT DIMENSIONS AND REINFORCEMENT SHEETS.
3. FOR NODAL ZONE DETAILS, SEE MAIN SPAN NODAL ZONE DIMENSIONS AND REINFORCEMENT SHEETS.
4. HORIZONTAL PT BARS IN THE NODAL ZONE TO BE INSTALLED WITH THE PT BAR DUCT PRIOR TO CASTING CONCRETE. EXTRA CARE SHALL BE GIVEN TO PROPERLY SEAL DUCT JOINTS.
5. CONTRACTOR'S MEANS AND METHODS SHALL ADDRESS PT BAR LOCATIONS, FIT UP AND COUPLING UTILIZING TEMPLATES OR OTHER MEANS.

⑥ ROUGHEN ALL POURBACK SURFACES TO ¼" AMPLITUDE (SB & NB BOX) SEE TOWER TABLE SEGMENT DIMENSION SHEETS FOR TENDON GEOMETRY.

HL-93 LOADING

0 4 8
SCALE IN FEET

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

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Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN TOWER TABLE POST-TENSIONING DETAILS I

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 266
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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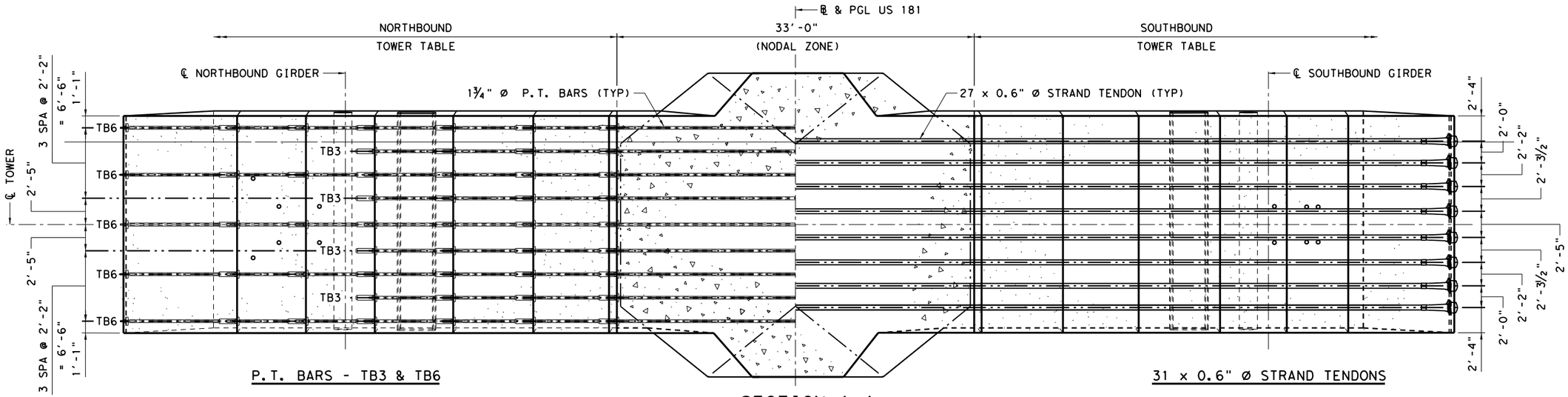
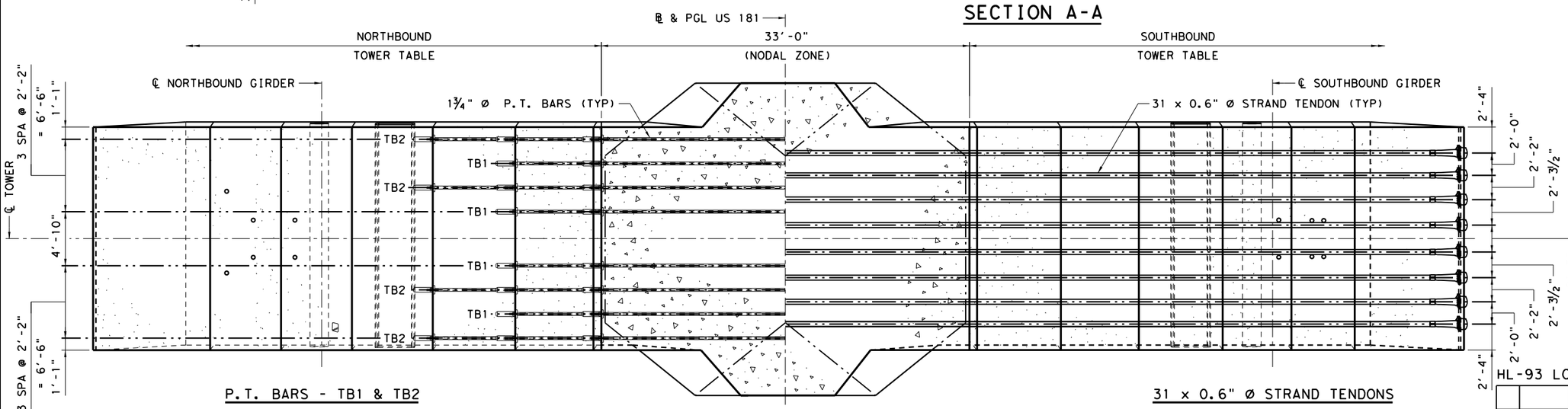


SECTION A-A



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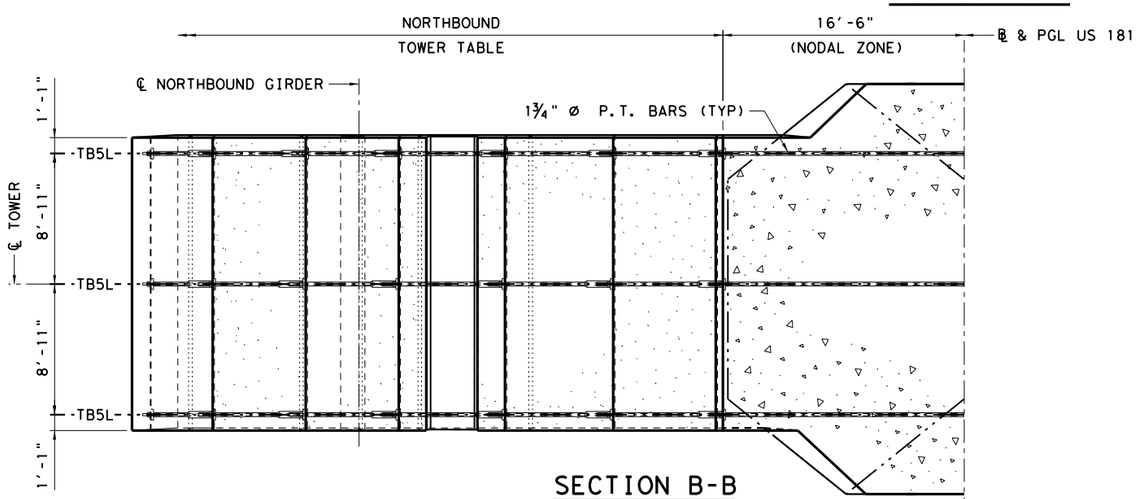

SECTION B-B

P.T. BARS - TB5L

NOTES:

1. FOR LOWER TOWER DETAILS, SEE MAIN SPAN LOWER TOWER DETAILS AND REINFORCEMENT SHEETS.
2. FOR TOWER STRUT DETAILS, SEE MAIN SPAN TOWER STRUT DIMENSIONS AND REINFORCEMENT SHEETS.
3. FOR NODAL ZONE DETAILS, SEE MAIN SPAN NODAL ZONE DIMENSIONS AND REINFORCEMENT SHEETS.
4. ANCHOR POURBACK NOT SHOWN.

HL-93 LOADING

0 4 8
SCALE IN FEET

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG
TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE POST-TENSIONING
DETAILS II

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS DCB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 267
	CONTROL	SECTION	JOB	
CHECK WDP	0101	06	095	

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DATE: 9/18/2018 TIME: 7:18:56 PM USER: lcavanaugh

NORTH TOWER STRESSING TABLE

TENDON (1-8)	SIZE	AVG LENGTH (FT)	NUMBER OF TENDONS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)	LIVE END FORCE (KIPS)	DEAD END FORCE (KIPS)	ELONGATION (IN)	STRESSING END
T1-1 THRU T1-8	31 X 0.6	122.35	8	978.8	1386	1239	1272	10.21	NB BOX
T2-1 THRU T2-8	31 X 0.6	119.23	8	953.84	1414	1262	1263	10.10	NB BOX
T3-1 THRU T3-8	31 X 0.6	116.47	8	931.76	1418	1256	1229	9.72	NB BOX
T4-1 THRU T4-8	31 X 0.6	112.89	8	903.12	1453	1135	1147	9.12	NB BOX
T5-1 THRU T5-8	31 X 0.6	109.72	8	877.76	1453	1163	1221	9.13	NB BOX

SOUTH TOWER STRESSING TABLE

TENDON (1-8)	SIZE	AVG LENGTH (FT)	NUMBER OF TENDONS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)	LIVE END FORCE (KIPS)	DEAD END FORCE (KIPS)	ELONGATION (IN)	STRESSING END
T1-1 THRU T1-8	31 X 0.6	122.35	8	978.8	1386	1239	1272	10.21	NB BOX
T2-1 THRU T2-8	31 X 0.6	119.23	8	953.84	1414	1262	1263	10.10	NB BOX
T3-1 THRU T3-8	31 X 0.6	116.47	8	931.76	1418	1256	1229	9.72	NB BOX
T4-1 THRU T4-8	31 X 0.6	112.89	8	903.12	1453	1135	1147	9.12	NB BOX
T5-1 THRU T5-8	31 X 0.6	109.72	8	877.76	1453	1163	1221	9.13	NB BOX

NORTH TOWER TOP SLAB STRESSING TABLE

TENDON (1-8)	SIZE	AVG LENGTH (FT)	NUMBER OF TENDONS	STRESSING FORCE (KIPS)	ELONGATION (IN)
TS1-1NB THRU TS1-10NB	4 X 0.6	23.54	10	187.5	2.14
TS1-1SB THRU TS1-10SB	4 X 0.6	20.84	10	187.5	1.90

SOUTH TOWER TOP SLAB STRESSING TABLE

TENDON (1-8)	SIZE	AVG LENGTH (FT)	NUMBER OF TENDONS	STRESSING FORCE (KIPS)	ELONGATION (IN)
TS1-1NB THRU TS1-10NB	4 X 0.6	23.54	10	187.5	2.14
TS1-1SB THRU TS1-10SB	4 X 0.6	20.84	10	187.5	1.90

PT BAR - STRUT STEM AND PRECAST STRUT SEGMENT (ONE SHOWN - FOUR REQUIRED)

SEGMENT	BAR DESIGNATION	BAR DIA. (IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
STRUT STEM	TS1	1¾"	11.3	8	90.5	280
	TS2	1¾"	11.8	4	47.0	280
	TS3	1¾"	12.2	4	48.8	280
	TS4	1¾"	12.6	4	50.5	280
	TS5	1¾"	13.1	8	104.5	280
PRECAST STRUT	TS1	1¾"	18.5	8	148.0	280
	TS2	1¾"	18.5	4	74.0	280
	TS3	1¾"	18.5	4	74.0	280
	TS4	1¾"	18.5	4	74.0	280
	TS5	1¾"	18.5	8	148.0	280

TOWER TABLE TENDON STRESSING SCHEDULE ③④

TENDONS STRESSED FROM NB BOX

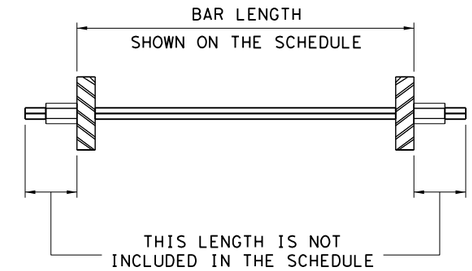
PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	PHASE 9	PHASE 10
T3-3	T3-4	T4-3	T4-4	T2-3	T2-4	T1-3	T5-3	T1-4	T5-4
T3-6	T3-5	T4-6	T4-5	T2-6	T2-5	T1-6	T5-6	T1-5	T5-5
T3-2	T3-1	T4-2	T4-1	T2-2	T2-1	T1-2	T5-2	T1-1	T5-1
T3-7	T3-8	T4-7	T4-8	T2-7	T2-8	T1-7	T5-7	T1-8	T5-8

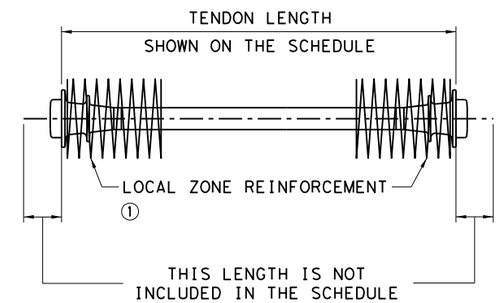
PT BAR STRESSING TABLE (NORTH AND SOUTH TOWERS)

PT BAR	EDGE OF NODAL ZONE	NB01 SB01	NB02 SB02	NB03 SB03	NB04 SB04	NB05 SB05	NB06 SB06
TB1	•	•					
TB2	•		•				
TB3	•			•			
TB4	•				•		
TB5	•					•	
TB5L	•	•	•	•	•	•	•
TB6	•	•	•	•	•	•	•

PT BAR - NODAL ZONE PRECAST ELEMENT

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
NPT1-10	1⅜"	7.75	10	77.5	165.9





NOTES:

① THE TENDON LOCAL ZONE REINFORCEMENT SHALL BE INSTALLED AS PER PT SUPPLIER'S DRAWINGS.
2. STRESSING FORCE SHOWN FOR POST-TENSIONING BARS IS JACKING FORCE AFTER SEATING LOSSES. FORCE IN POST-TENSIONING BAR TO BE VERIFIED BY LIFT OFF. STRESSING FORCE SHOWN FOR STRAND TENDONS IS JACKING FORCE PRIOR TO SEATING LOSSES.
③ TENDONS SHALL BE STRESSED SYMMETRICALLY ABOUT CENTERLINE OF TABLE.
④ TENDONS SHALL BE STRESSED SIMULTANEOUSLY IN PAIRS.
5. THE STRUT STEM SHALL BE STRESSED BEFORE THE PRECAST STRUT PT BARS ARE COUPLED.
6. THE MINIMUM REQUIRED CONCRETE STRENGTH FOR STRESSING ANY PT BAR IN THE TABLE/STRUT SHALL BE 6500 PSI.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER

09/18/18

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NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE
STRESSING SCHEDULE I

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS LTC	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 267A
CHECK	CONTROL	SECTION	JOB	
WDP	0101	06	095	

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PT BAR (NORTH TOWER TABLE BASE)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	33.0	4	132.0	280
TB2	1¾"	33.0	4	132.0	280
TB3	1¾"	33.0	4	132.0	280
TB4	1¾"	33.0	4	132.0	280
TB5	1¾"	33.0	4	132.0	280
TB5L	1¾"	33.0	3	99.0	280
TB6	1¾"	33.0	5	165.0	280

PT BAR (1NT-NB01)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	7.7	4	30.9	280
TB2	1¾"	7.7	4	30.9	IBNS
TB3	1¾"	7.7	4	30.8	IBNS
TB4	1¾"	7.7	4	30.8	IBNS
TB5	1¾"	7.7	4	30.8	IBNS
TB5L	1¾"	7.7	3	23.1	280
TB6	1¾"	7.4	5	37.2	280

PT BAR (1NT-NB02)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	7.4	4	29.6	280
TB3	1¾"	7.4	4	29.6	IBNS
TB4	1¾"	7.4	4	29.6	IBNS
TB5	1¾"	7.4	4	29.6	IBNS
TB5L	1¾"	7.4	3	22.2	280
TB6	1¾"	7.4	5	37.0	280

PT BAR (1NT-NB03)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	0.0	0	0.0	0
TB3	1¾"	7.3	4	29.0	280
TB4	1¾"	7.3	4	29.0	IBNS
TB5	1¾"	7.3	4	29.0	IBNS
TB5L	1¾"	7.3	3	21.8	280
TB6	1¾"	7.3	5	36.3	280

PT BAR (1NT-NB04)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	0.0	0	0.0	0
TB3	1¾"	0.0	0	0.0	0
TB4	1¾"	6.4	4	25.4	280
TB5	1¾"	6.4	4	25.4	IBNS
TB5L	1¾"	6.4	3	19.1	280
TB6	1¾"	6.4	5	31.8	280

PT BAR (1NT-NB05)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	0.0	0	0.0	0
TB3	1¾"	0.0	0	0.0	0
TB4	1¾"	0.0	0	0.0	0
TB5	1¾"	6.4	4	25.4	280
TB5L	1¾"	6.4	3	19.1	280
TB6	1¾"	6.4	5	31.8	280

PT BAR (1NT-NB06)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	0.0	0	0.0	0
TB3	1¾"	0.0	0	0.0	0
TB4	1¾"	0.0	0	0.0	0
TB5	1¾"	0.0	0	0.0	0
TB5L	1¾"	4.3	3	12.9	280
TB6	1¾"	8.2	5	41.1	280

PT BAR (1NT-SB01)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	8.2	4	32.7	280
TB2	1¾"	8.2	4	32.7	IBNS
TB3	1¾"	8.2	4	32.8	IBNS
TB4	1¾"	8.2	4	32.8	IBNS
TB5	1¾"	8.2	4	32.8	IBNS
TB5L	1¾"	7.9	3	23.8	280
TB6	1¾"	8.2	5	40.9	280

PT BAR (1NT-SB02)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	7.0	4	28.0	280
TB3	1¾"	7.0	4	28.0	IBNS
TB4	1¾"	7.0	4	28.0	IBNS
TB5	1¾"	7.0	4	28.0	IBNS
TB5L	1¾"	7.0	3	21.0	280
TB6	1¾"	7.0	5	35.0	280

PT BAR (1NT-SB03)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	0.0	0	0.0	0
TB3	1¾"	7.5	4	30.0	280
TB4	1¾"	7.5	4	30.0	IBNS
TB5	1¾"	7.5	4	30.0	IBNS
TB5L	1¾"	7.5	3	22.5	280
TB6	1¾"	7.5	5	37.5	280

PT BAR (1NT-SB04)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	0.0	0	0.0	0
TB3	1¾"	0.0	0	0.0	0
TB4	1¾"	6.2	4	24.7	280
TB5	1¾"	6.2	4	24.7	IBNS
TB5L	1¾"	6.2	3	18.5	280
TB6	1¾"	6.2	5	30.8	280

PT BAR (1NT-SB05)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	0.0	0	0.0	0
TB3	1¾"	0.0	0	0.0	0
TB4	1¾"	0.0	0	0.0	0
TB5	1¾"	5.7	4	22.7	280
TB5L	1¾"	5.7	3	17.0	280
TB6	1¾"	5.7	5	28.4	280

PT BAR (1NT-SB06)

PT BAR	SIZE ø(IN)	LENGTH (FT)	NUMBER OF BARS	TOTAL LENGTH (FT)	STRESSING FORCE (KIPS)
TB1	1¾"	0.0	0	0.0	0
TB2	1¾"	0.0	0	0.0	0
TB3	1¾"	0.0	0	0.0	0
TB4	1¾"	0.0	0	0.0	0
TB5	1¾"	0.0	0	0.0	0
TB5L	1¾"	3.4	3	10.2	280
TB6	1¾"	9.5	5	47.5	280

NOTES:

1. PT BARS FOR TOWER TABLE. ONE TABLE SHOWN, TWO REQUIRED.
2. BARS INSTALLED BUT NOT STRESSED SHALL BE CENTERED IN DUCTS ACROSS JOINTS.
3. BAR COUPLERS SHALL BE CENTERED IN DUCTS. EDGE OF INSTALLED COUPLER SHALL NOT BE GREATER THAN 2" FROM EDGE OF NUT OR 4½" FROM EDGE OF JOINT.
4. TB5L AND TB6 TO BE STRESSED FIRST FOR EPOXY SQUEEZE. EPOXY TO FULLY CURE, THEN REMAINING PT BARS FOR THAT SEGMENT MAY BE STRESSED.

IBNS DENOTES INSTALLED BUT NOT STRESSED.

STATE OF TEXAS
W. DENNEY PATE
108057
LICENSED
PROFESSIONAL ENGINEER
09/18/18

HL-93 LOADING

NO.	DATE	REVISION	APRV

FLATIRON/DRAGADOS LLC

FIGG TBPE FIRM #F-4883

Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

MAIN SPAN
TOWER TABLE
STRESSING SCHEDULE II

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JVH	X	(See Title Sheet)		US-181
GRAPHICS LTC	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JFH	TEXAS	CRP	NUECES	NHB 267B
CHECK WDP	CONTROL 0101	SECTION 06	JOB 095	

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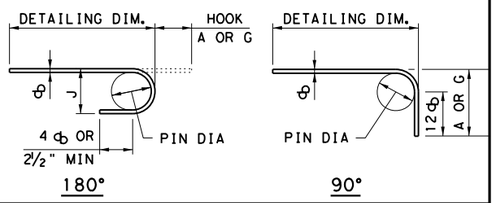
DATE: 9/18/2018 TIME: 7:18:57 PM USER: lcavanaugh

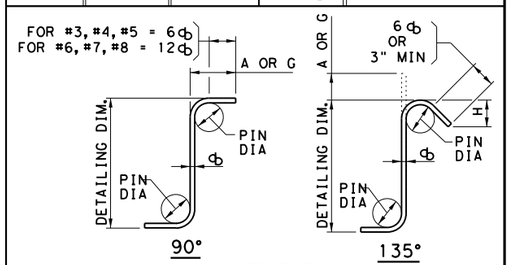
STANDARD HOOK DETAILS

ALL GRADES
ϕ = BAR DIAMETER



STANDARD HOOK DIMENSIONS

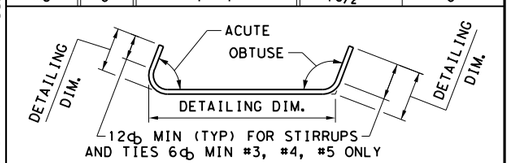
BAR SIZE	PIN DIA	180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#3	2¼"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3¾"	7"	5"	10"
#6	4½"	8"	6"	1'-0"
#7	5¼"	10"	7"	1'-2"
#8	6"	11"	8"	1'-4"
#9	9½"	1'-3"	11¾"	1'-7"
#10	10¾"	1'-5"	1'-1¾"	1'-10"
#11	12"	1'-7"	1'-2¾"	2'-0"
#14	18¼"	2'-3"	1'-9¾"	2'-7"
#18	24"	3'-0"	2'-4½"	3'-5"



STIRRUPS
(TIES SIMILAR)

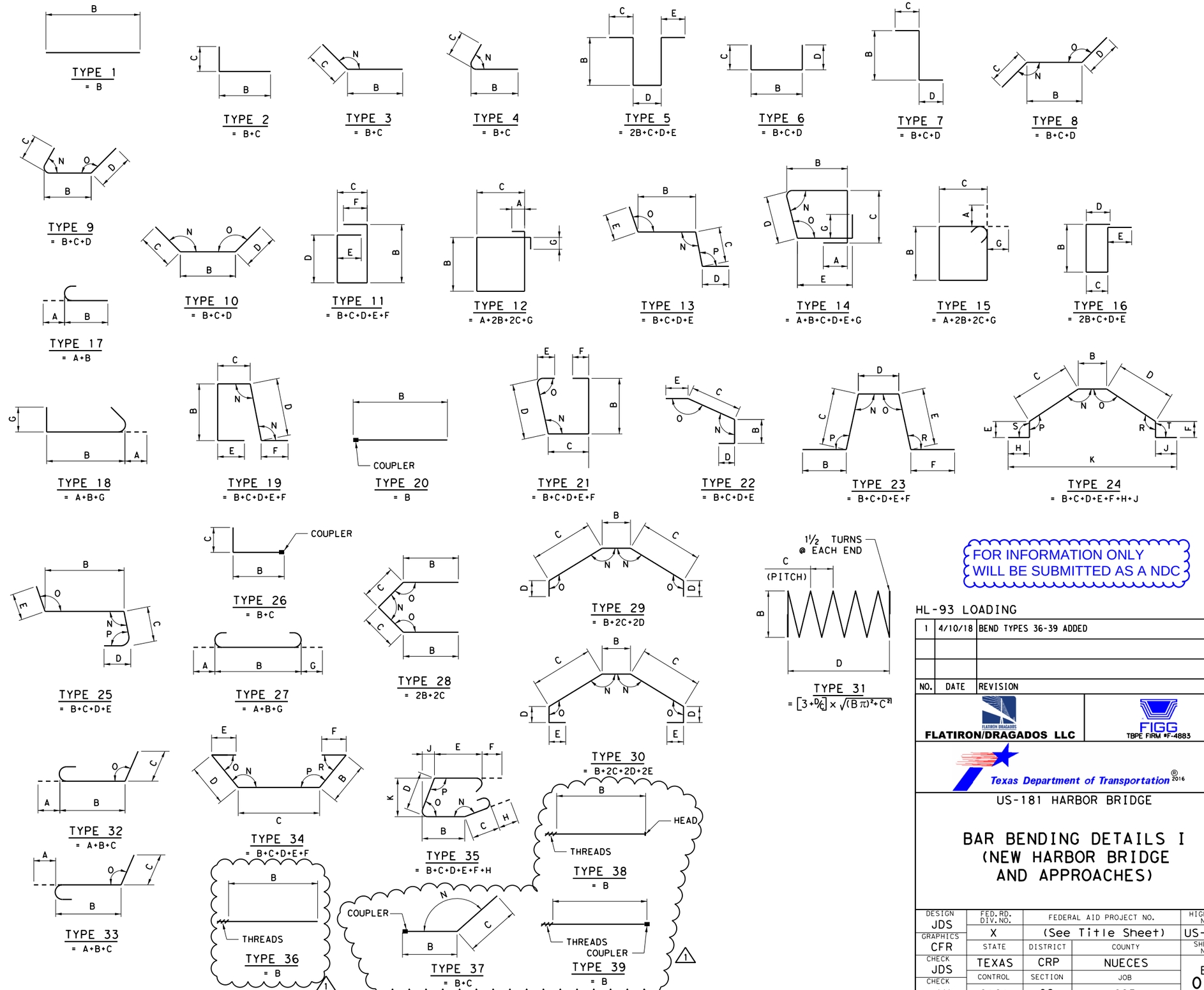
STIRRUP & TIE HOOK DIMENSIONS

BAR SIZE	PIN DIA	90° HOOKS	135° HOOKS	
		HOOK A OR G	HOOK A OR G	APPROX. H
#3	1½"	4"	4"	2½"
#4	2"	4½"	4½"	3"
#5	2½"	6"	5½"	3¾"
#6	4½"	1'-0"	8"	4½"
#7	5¼"	1'-2"	9"	5¼"
#8	6"	1'-4"	10½"	6"



BAR BENDING AND NON-STANDARD HOOK DETAIL

NOTES:
1. ALL DIMENSIONS ARE IN INCHES, UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE OUT-TO-OUT.
3. ALL HOOK STYLES ARE FOR ILLUSTRATION ONLY.



FOR INFORMATION ONLY
WILL BE SUBMITTED AS A NDC

PRELIMINARY NOT FOR CONSTRUCTION, SEPTEMBER 2018

HL-93 LOADING

NO.	DATE	REVISION	APRV
1	4/10/18	BEND TYPES 36-39 ADDED	WDP

FLATIRON/DRAGADOS LLC
FIGG TBPE FIRM #F-4883
Texas Department of Transportation ® 2016

US-181 HARBOR BRIDGE

BAR BENDING DETAILS I
(NEW HARBOR BRIDGE
AND APPROACHES)

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
JDS	X	(See Title Sheet)		US-181
GRAPHICS CFR	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK JDS	TEXAS	CRP	NUECES	BG 015
CHECK JMW	CONTROL 0101	SECTION 06	JOB 095	

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DATE: 9/18/2018 TIME: 7:18:58 PM USER: lcavanaugh