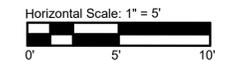
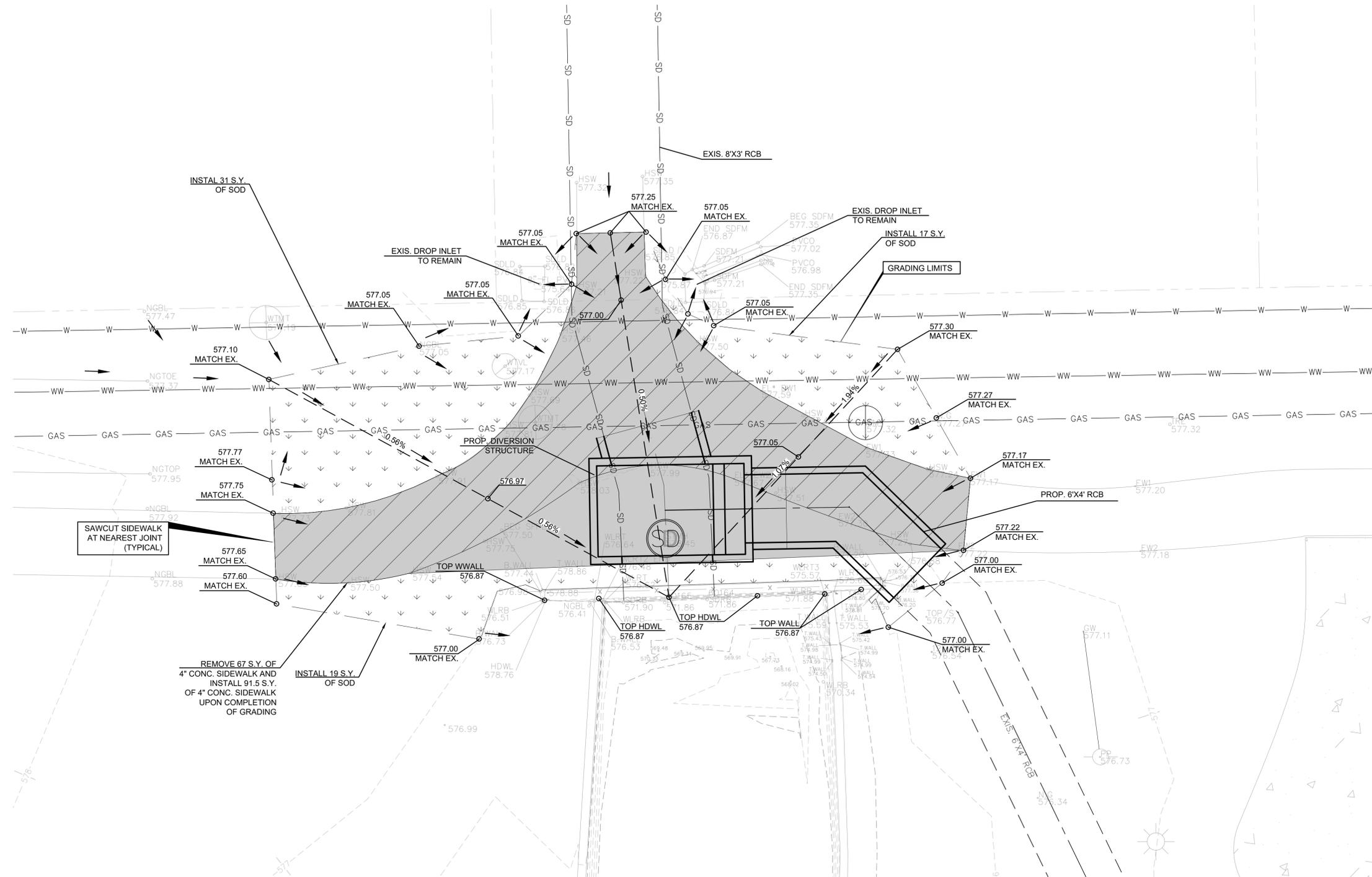


USER: aramirez
 Existing Utilities
 Base SD Alignments_2013
 Row
 Base SD Alignments_2013
 Existing Utilities_2013
 Park topo-3
 Park topo-3
 DVG: H:\proj\308306.04 - UP Phase 1 Storm Drain Replacement\10 CADD & BIM\10.1 AutoCAD\SHEETS\Phase2_Sheets\OUTFALL GRADING PLAN.dwg
 DATE: Nov 03, 2020 3:39pm
 XREFS: Border 22 X 34 Topo Contour
 Base SD Alignments
 Park topo-3
 expotgr



LEGEND

- PROPOSED DIVERSION STRUCTURE
- W — EXISTING WATER LINE
- WW — EXISTING WASTEWATER LINE
- SD — EXISTING STORM DRAIN
- GAS — GAS LINE
- - - - - CONTOUR
- - - - - PROPERTY LINES
- ⊙ EXISTING WATER METER
- ⊗ EXISTING WATER VALVE
- ⊙ EXISTING CLEANOUT
- ⊙ EXISTING SANITARY SEWER MANHOLE
- ⊙ EXISTING STORM DRAIN MANHOLE
- ⊙ UTILITY POLE
- ▭ GRASS
- ▨ SIDEWALK REMOVAL
- 4" CONC. SIDEWALK

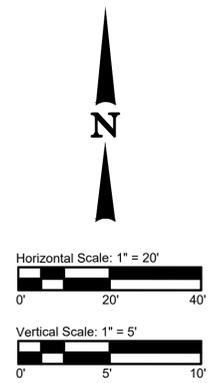
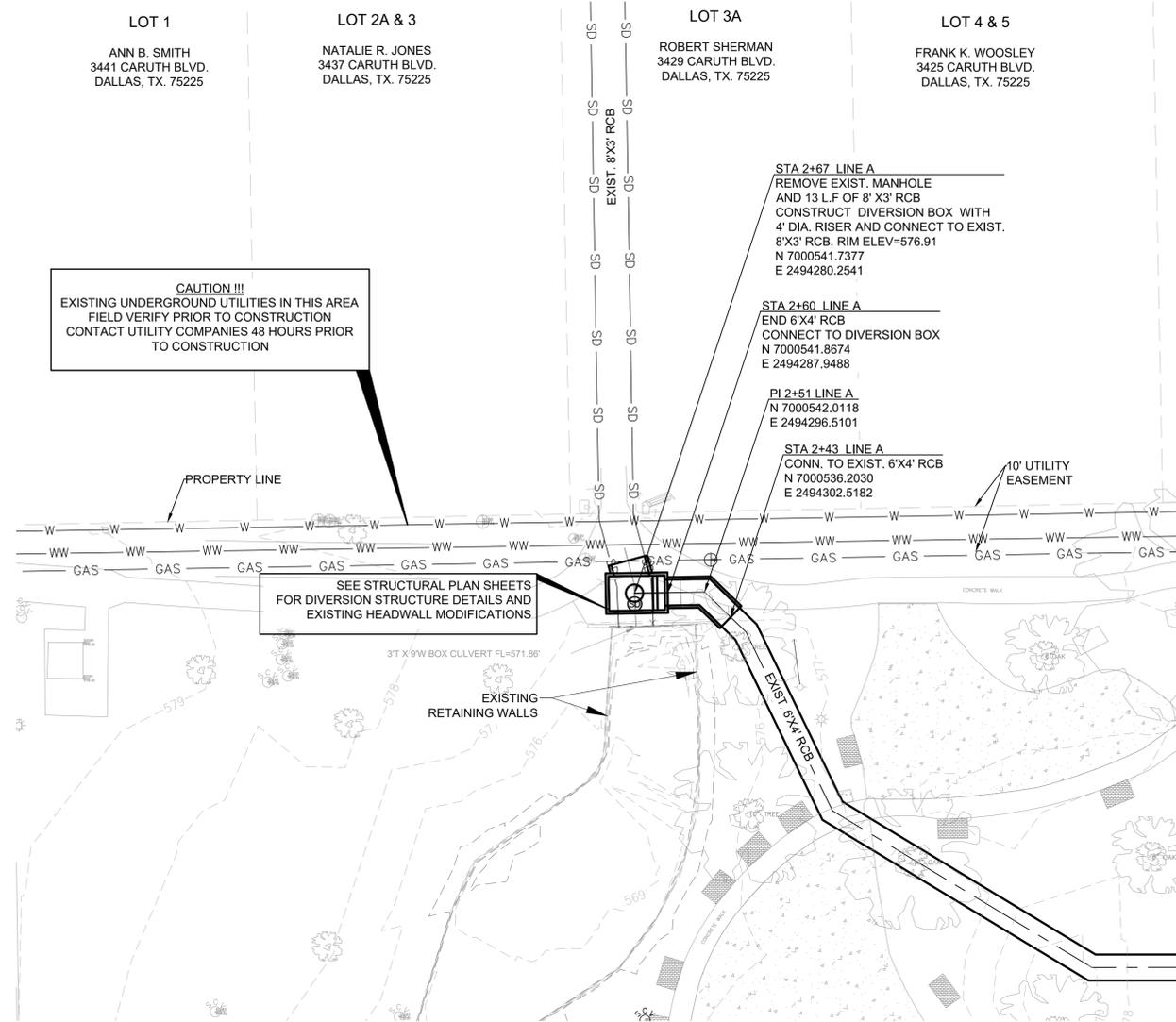
GENERAL NOTES:

1. CONTRACTOR SHALL MAINTAIN MINIMUM 0.50% POSITIVE DRAINAGE TOWARDS POND WITHIN GRADING LIMITS.
2. EXISTING DROP INLETS NOT TO BE DISTURBED.
3. EXISTING WATER VALVE STACKS TO BE ADJUSTED PER PROPOSED GROUND ELEVATIONS.
4. EXISTING GAS MANHOLE TOPS SHALL BE LOWERED TO MATCH PROPOSED GROUND ELEVATION. CONTRACTOR SHALL COORDINATE WITH ATMOS GAS FOR LOWERING MANHOLE TOPS.
5. SEE SHEETS 53-54 FOR DATA ON DIVERSION STRUCTURE, HEADWALL, WINGWALL, AND CONNECTION TO EXISTING 8' x 3' RCB AND TO PROPOSED 6' x 4' RCB.

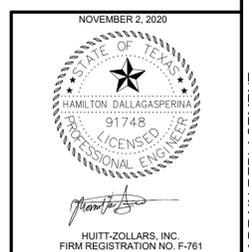
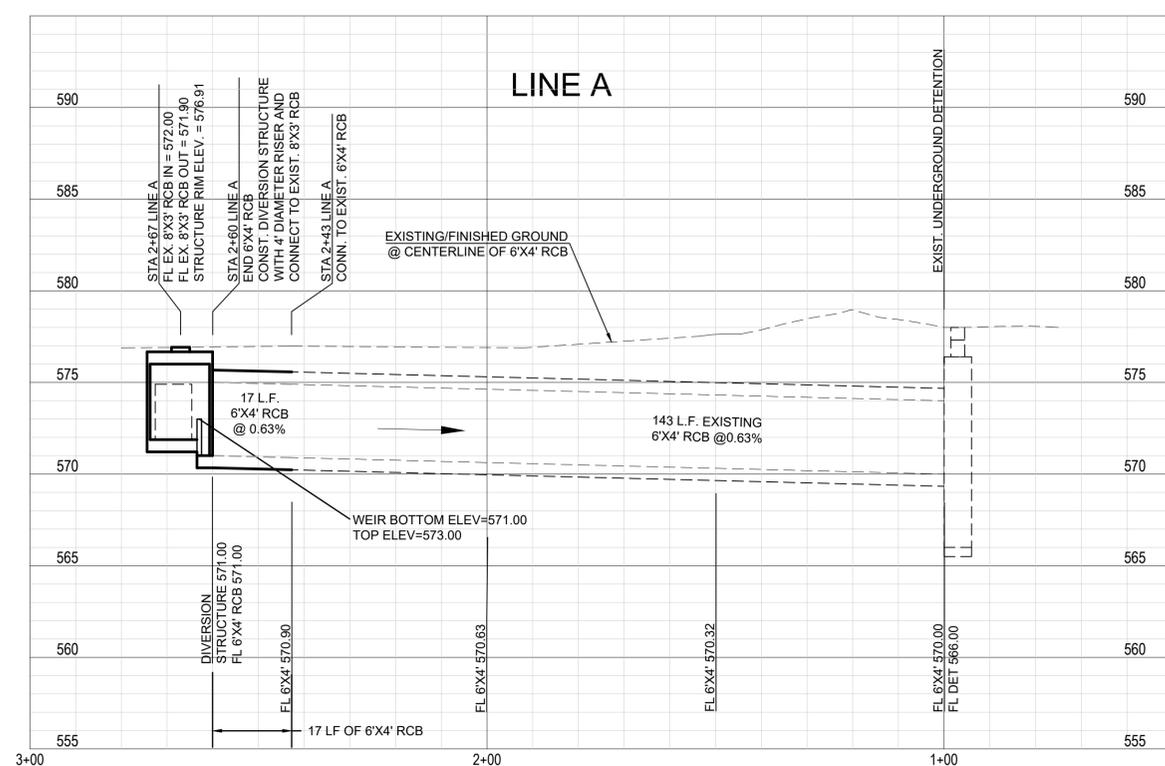


NO.	DATE	REVISIONS	APPROVED
CARUTH PARK			
OUTFALL GRADING PLAN			
CITY OF UNIVERSITY PARK			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
DATE	PROJ. NO.	SHEET	
HD	AR	HD	1"=5'
NOV 2020	R308306.04	50	

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT



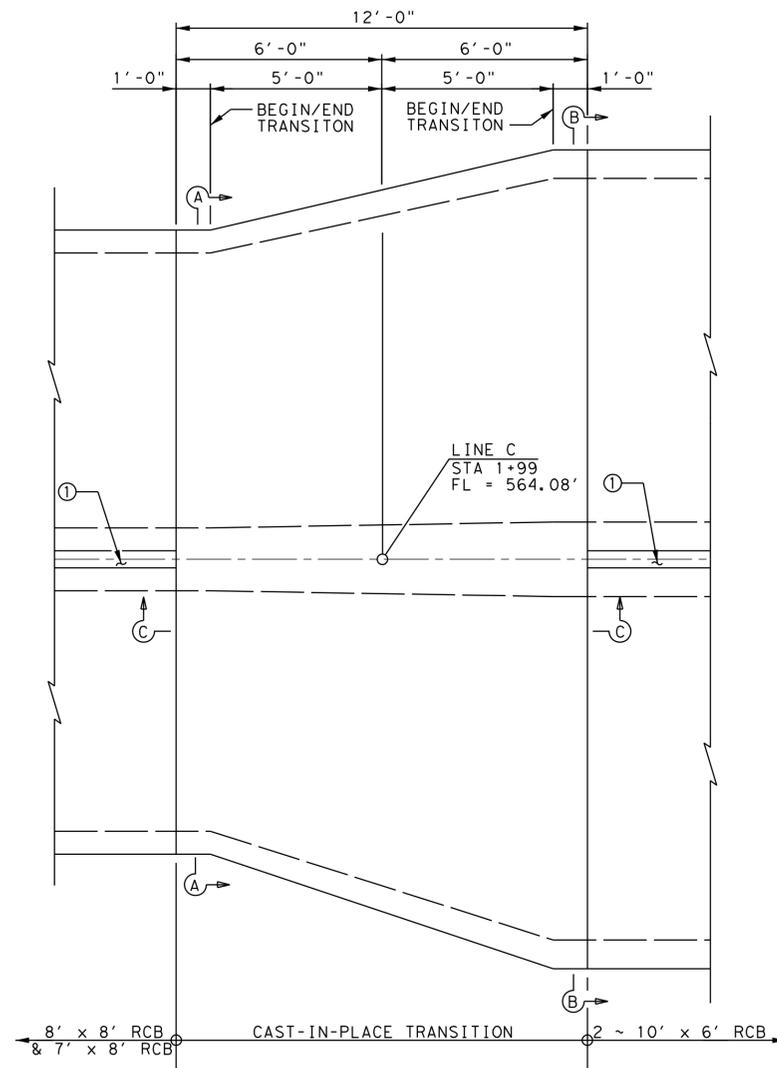
- GENERAL NOTES:**
- SEE STRUCTURAL DETAILS FOR DIVERSION STRUCTURE ON SHEETS 53-54.



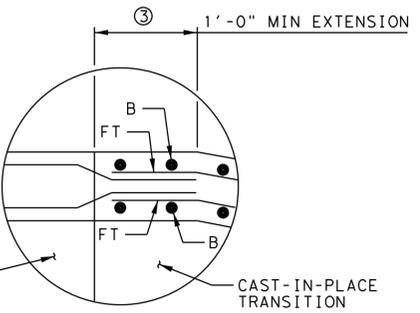
NO.	DATE	REVISIONS	APPROVED			
CARUTH PARK						
DIVERSION STRUCTURE PLAN						
CITY OF UNIVERSITY PARK						
HUITT-ZOLLARS						
<small>Huitt-Zollars, Inc. 1717 McKinney Avenue, Suite 1400 Dallas, Texas 75202 Phone (214) 871-3311 Fax (214) 871-0757</small>						
DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
HD	AR	HD	1"=20'H 1"=5'V	NOV 2020	R308306.04	51

SECTION	BARS B			BARS C				BARS D				BARS M			F			FT			FW			
	SIZE	SPA	LENGTH	SIZE	SPA	" X "	" Y "	SIZE	SPA	" Y "	" Z "	SIZE	SPA	LENGTH	SIZE	NO.	LENGTH	SIZE	NO.	LENGTH	SIZE	NO.	LENGTH	
A-A	#6	6"	17' - 10"	#6	6"	8' - 7"	3' - 3"	#6	6"	3' - 3"	3' - 9"	#4	9"	6' - 4"	#4	44	11' - 8"	#4	32	11' - 11"	#4	24	11' - 10"	
TRANSITION	#6	6"	VARIES	#6	6"	VARIES	3' - 3"	#6	6"	3' - 3"	3' - 9"	#4	9"	VARIES	#4	44	11' - 8"	#4	32	11' - 11"	#4	24	11' - 10"	
B-B	#6	6"	23' - 6"	#6	6"	6' - 7"	3' - 3"	#6	6"	3' - 3"	3' - 9"	#4	9"	4' - 0"										

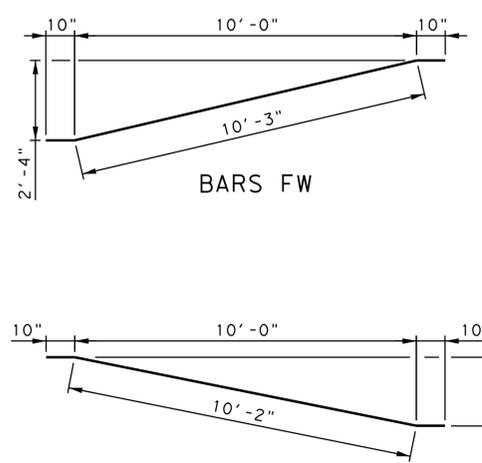
REINFORCING TABLE



PLAN

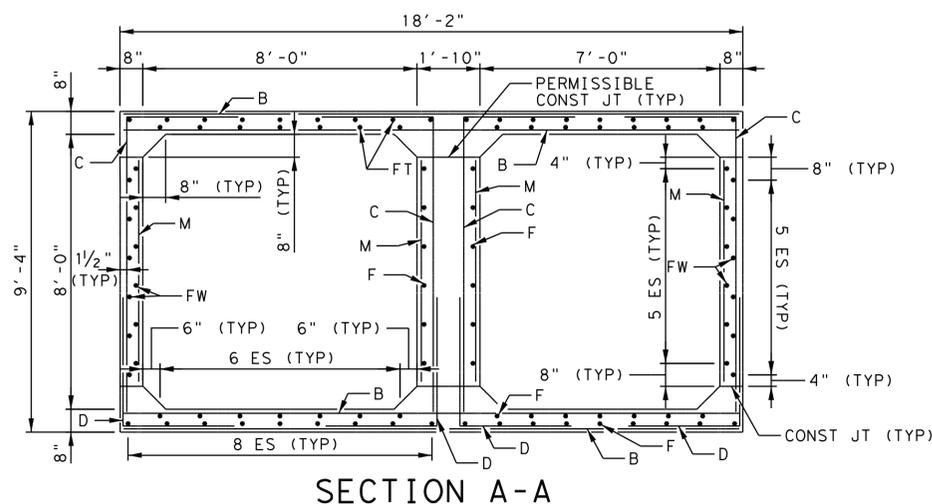


DETAIL 1
SCALE: NTS

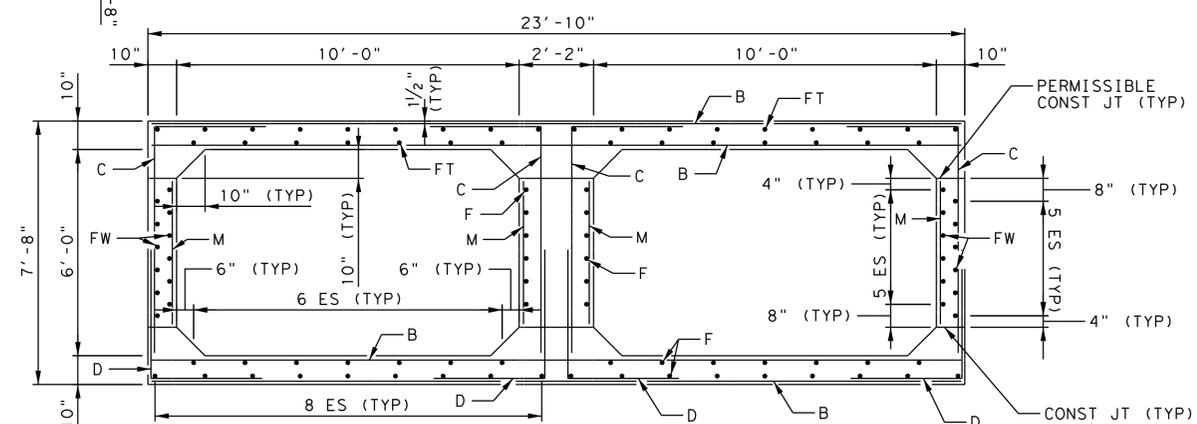


BARS FW

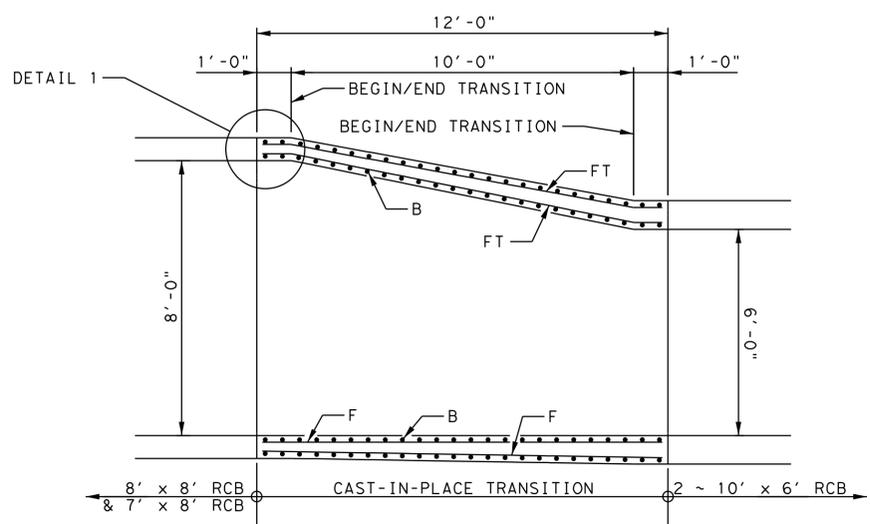
BARS FT



SECTION A-A



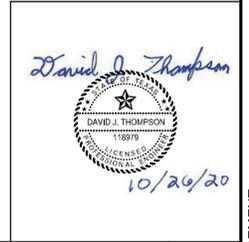
SECTION B-B



SECTION C-C

GENERAL NOTES:
DESIGNED ACCORDING TO AASHTO LRFD DESIGN SPECIFICATIONS.
ALL MATERIALS SHALL MEET THE REQUIREMENTS OF NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS UNLESS NOTED OTHERWISE.
CONCRETE SHALL BE CLASS "C" AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI
ALL REINFORCING SHALL BE GRADE 60
COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.
CHAMFER SHOWN MATCHES TXDOT STANDARD FOR PRECAST BOX CULVERTS. MATCH CHAMFER OF ADJACENT RCB SEGMENT IF VARIES FROM STANDARD
BAR SPLICES ARE NOT PERMISSIBLE UNLESS APPROVED BY THE ENGINEER.

- ① CEMENT STABILIZED BACKFILL BETWEEN PRECAST BOXES. SEE TXDOT STANDARD SCP-MD. DESIGN ASSUMES 6"
- ② DETAIL APPLICABLE TO BOTH ENDS OF TRANSITION.
- ③ EXTEND PRECAST BOX REINFORCING A MINIMUM 1'-0" INTO TRANSITION CONCRETE.

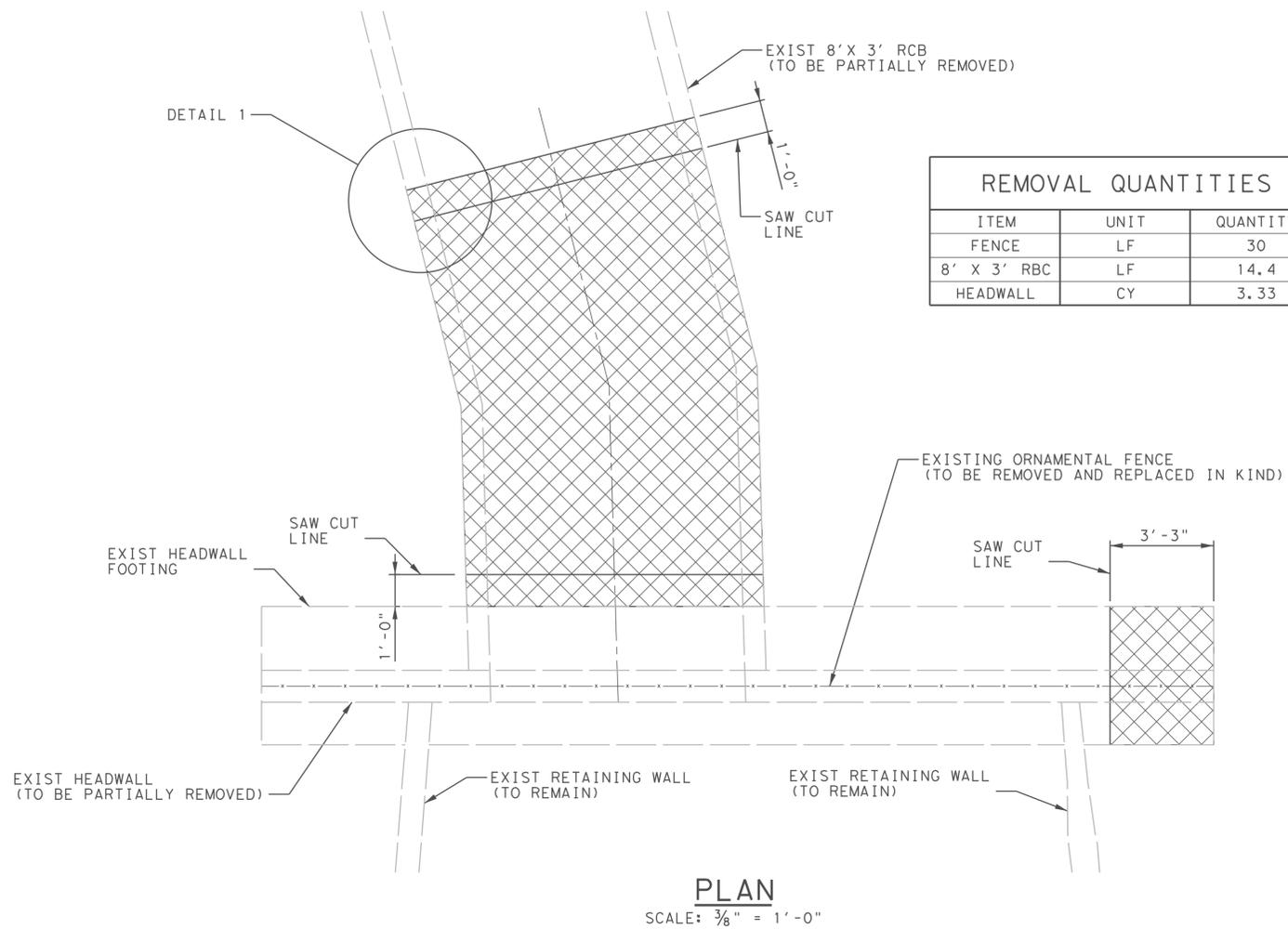


NO.	DATE	REVISIONS	APPROVED
HILLCREST AVE LINE C			
RCB TRANSITION DETAILS			
CITY OF UNIVERSITY PARK			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
DJT	KRA	DJT	3/8" = 1'-0"
DATE	PROJ. NO.	SHEET	
OCT 2020	R308306.04	52	

H:\PDS\308306.04 - UP Phase 1 Storm Drain Replacement\10 CADD & BIM\10.2 Microstation\SHEETS\30830604-DET-01.dgn
10/20/20
9:06:35 AM
kcas.lmak.1.s

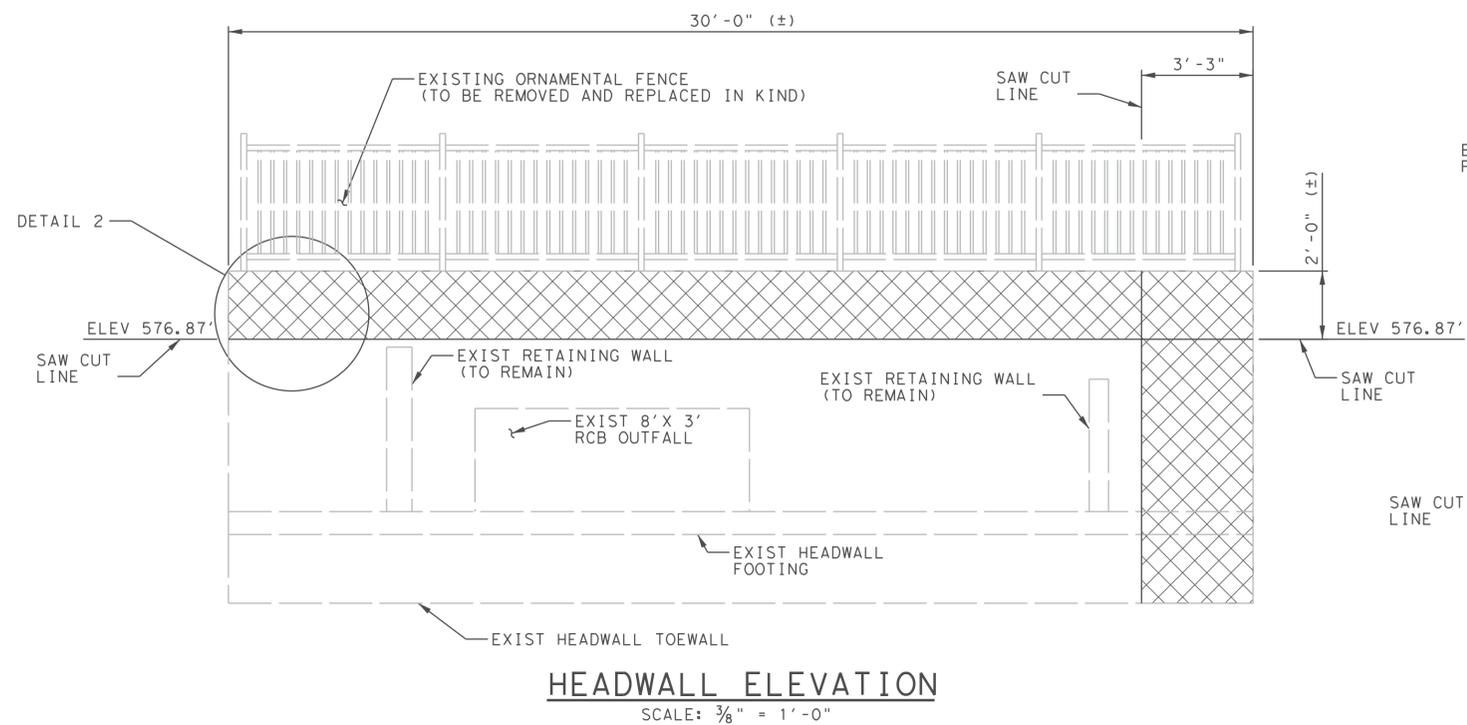
CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

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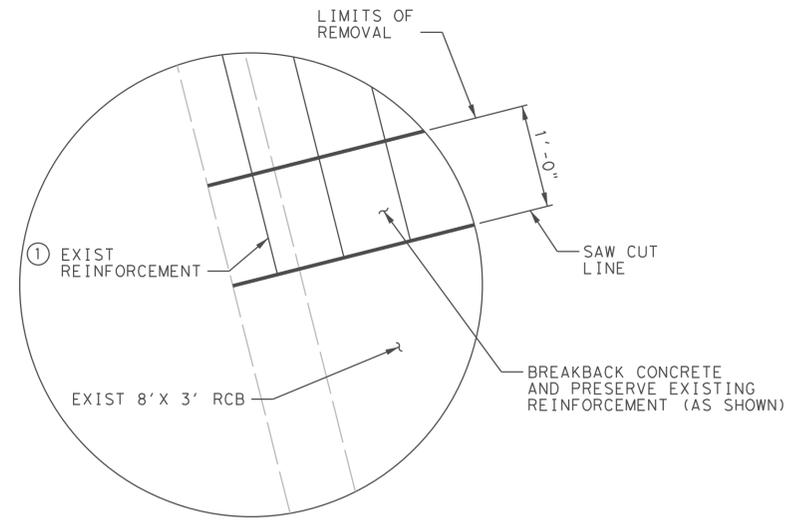


REMOVAL QUANTITIES		
ITEM	UNIT	QUANTITY
FENCE	LF	30
8' X 3' RCB	LF	14.4
HEADWALL	CY	3.33

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

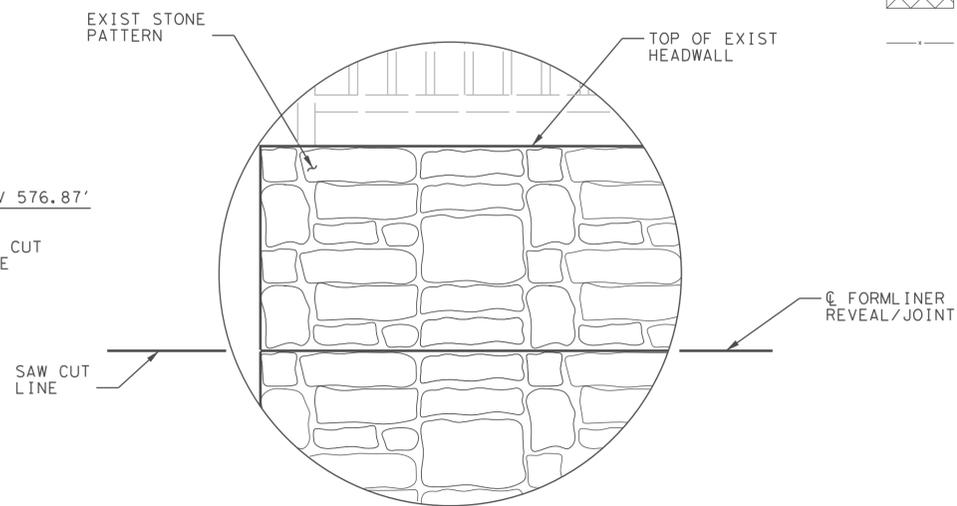


HEADWALL ELEVATION
SCALE: 3/8" = 1'-0"



DETAIL 1 (2)
SCALE: NTS

- ① CLEAN EXIST REINFORCEMENT OF DEBRIS PRIOR TO CASTING DIVERSION STRUCTURE.
- ② DETAIL IS APPLICABLE TO BOTH ENDS OF RCB REMOVAL.



DETAIL 2
SCALE: NTS

GENERAL NOTES:

ALL REMOVALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS ITEM 701.2 AND ADDITIONAL NOTES PROVIDED BELOW.

HEADWALL REMOVAL NOTES:

LOCATE HORIZONTAL SAW CUT LINE OF EXIST HEADWALL AT CENTERLINE OF EXIST FORMLINER REVEAL/JOINT AS SHOWN

AFTER PARTIAL REMOVAL OF CONCRETE HEADWALL, APPLY BONDING PRIMER AND REINFORCEMENT CORROSION PROTECTION TO EXPOSED SURFACES OF REMOVAL.

PRIME AND PAINT EXPOSED REMOVAL SURFACES OF HEADWALL WITH PAINT COLOR THAT MATCHES EXISTING HEADWALL.

CONTRACTOR SHALL TEST PAINT COLOR ON VERTICAL FACE OF HEADWALL BELOW FINISHED GRADE. CONTRACTOR SHALL WAIT FOR APPROVAL FROM CITY ON COLOR MATCH PRIOR TO PAINTING REMAINING EXPOSED SURFACES.

RCB BREAKBACK NOTES:

SAW CUT EXISTING RCB AT LOCATION SHOWN.

BREAKBACK EXISTING RCB CONCRETE USING ONLY HAND TOOLS OR POWER-DRIVEN CHIPPER HAMMERS (15-LB. CLASS MAXIMUM).

AFTER BREAKING BACK CONCRETE, REMOVE ANY DAMAGED OR LOOSE CONCRETE AT LIMITS OF REMOVAL.

USE ABRASIVE BLASTING OR OTHER APPROVED TECHNIQUE TO REMOVE RUST FROM EXPOSED REINFORCEMENT STEEL SURFACES.

NOTIFY ENGINEER IF EXISTING REINFORCEMENT CROSS-SECTION IS REDUCED GREATER THAN 25 PERCENT.

IF EXISTING REINFORCEMENT WILL BE LEFT EXPOSED FOR A DURATION GREATER THAN 10 DAYS, THEN CONTRACTOR SHALL COAT EXISTING STEEL WITH A CORROSION INHIBITOR.

ROUGHEN THE EXISTING RCB SUBSTRATE TO ENSURE GOOD MECHANICAL BOND BETWEEN EXISTING RCB AND DIVERSION STRUCTURE CONCRETE. CONTRACTOR SHALL ATTAIN A MINIMUM SURFACE ROUGHNESS PROFILE OF 1/8 INCH OR CONCRETE SURFACE PROFILE 6 PER INTERNATIONAL CONCRETE REPAIR INSTITUTE.

LEGEND:

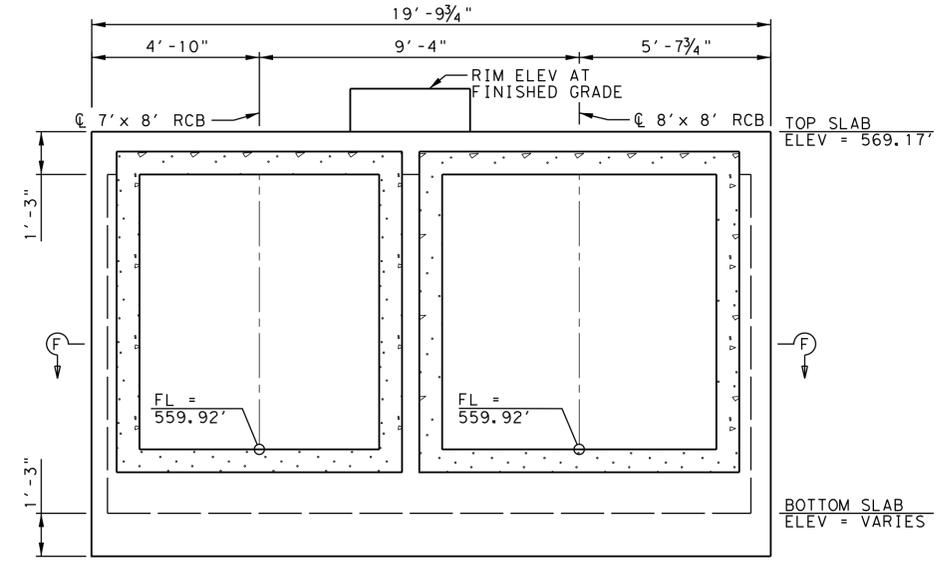
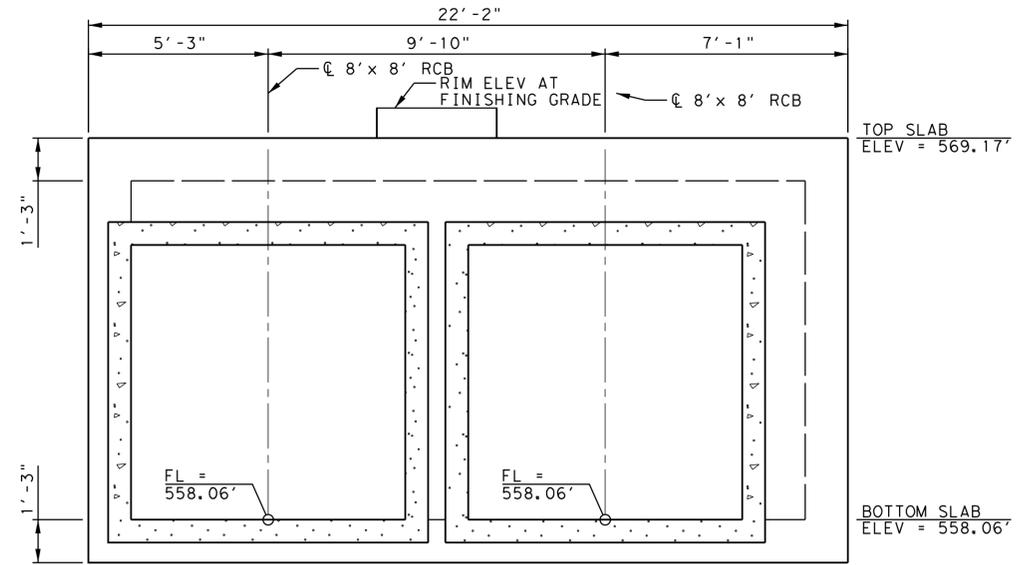
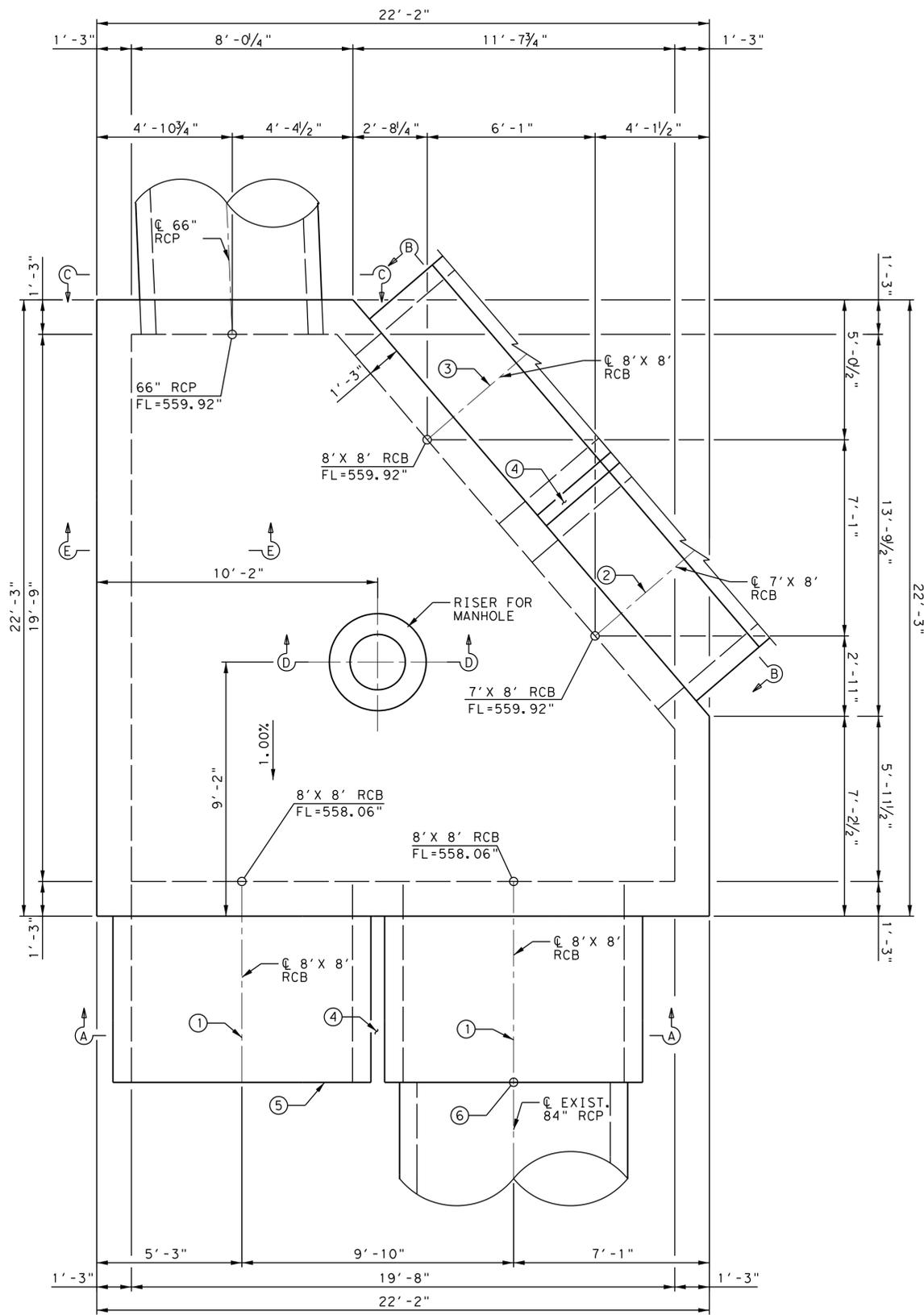
- LIMITS OF REMOVAL
- EXISTING ORNAMENTAL FENCE

10/20/20

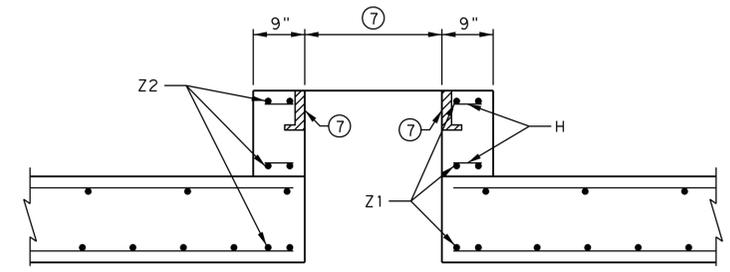
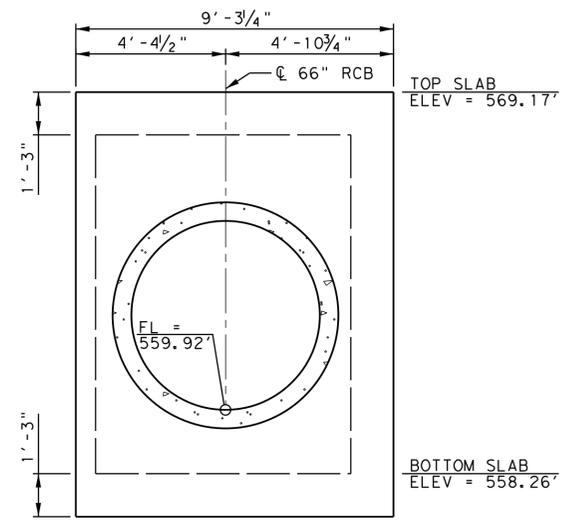
NO.	DATE	REVISIONS	APPROVED
OUTFALL REMOVAL			
CITY OF UNIVERSITY PARK			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
DJT	KRA	DJT	AS NOTED
DATE	PROJ. NO.	SHEET	
OCT 2020	R308306.04	55	

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

H:\projects\308306.04 - UP Phase 1 Storm Drain Replacement\10 CADD & BIM\10.2 Microstation\SHEETS\S830604-DET-05.dgn
 10/20/2020 9:06:33 AM kkaslmak1s



- NOTES:**
- SEE SHEET 2 OF 2 FOR GENERAL NOTES.
- ① CONSTRUCT APPROXIMATELY 6LF OF CAST-IN-PLACE 8' X 8' RCB PER TXDOT STANDARD SCC-8.
 - ② CONSTRUCT APPROXIMATELY 3LF OF CAST-IN-PLACE 7' X 8' RCB PER TXDOT STANDARD SCC-7.
 - ③ CONSTRUCT APPROXIMATELY 3 LF OF CAST-IN-PLACE 8' X 8' RCB PER TXDOT STANDARD SCC-8.
 - ④ CEMENT STABILIZED BACKFILL BETWEEN BOXES. SEE TXDOT STANDARD SCP-MD. DESIGN ASSUMES 6"
 - ⑤ PLUG BOX FOR FUTURE EXPANSION. PAYMENT FOR PLUGGING SHALL BE CONSIDERED SUBSIDIARY TO JUNCTION BOX PAY ITEM.
 - ⑥ MATCH EXISTING FLOW LINE ELEVATIONS.
 - ⑦ CAST MANHOLE RING INTO JUNCTION BOX CONCRETE. SEE UNIVERSITY PARK STANDARD DRAWING S1-4/11.



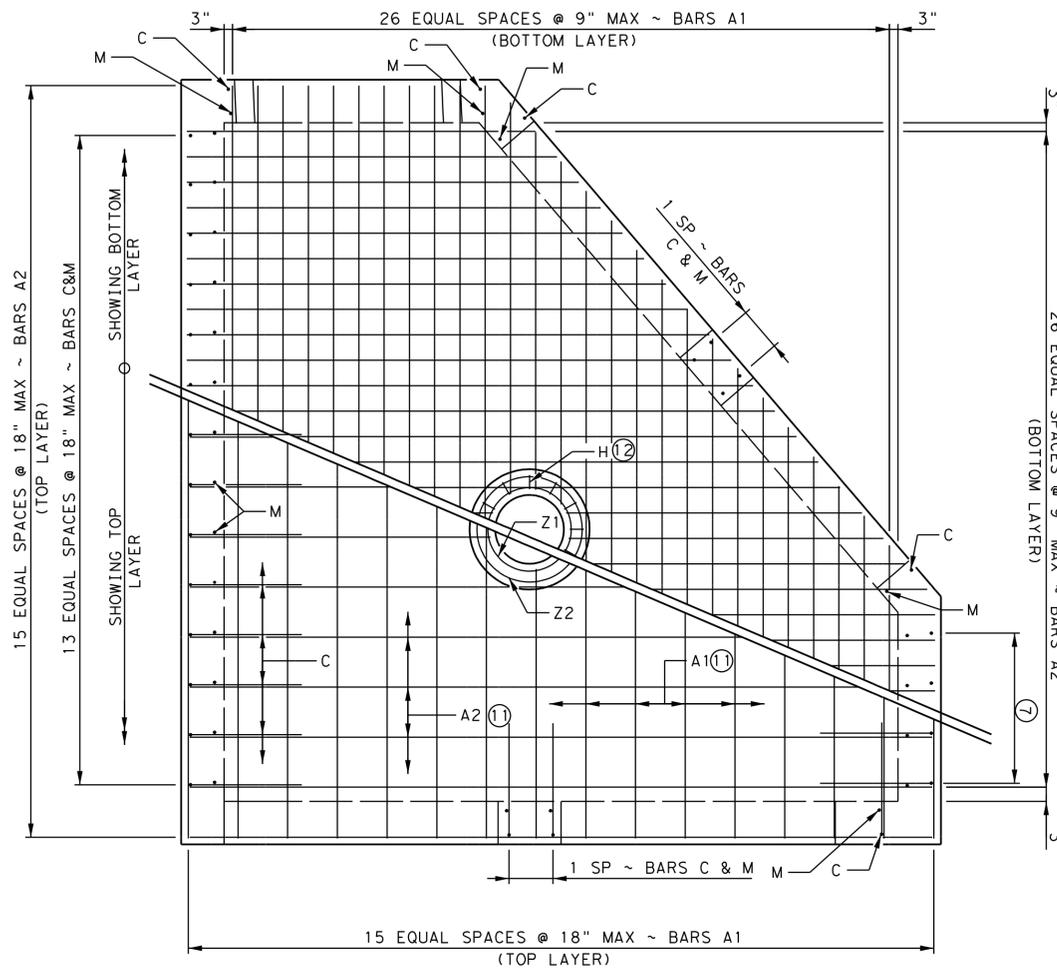
David J. Thompson

 10/20/20

NO.	DATE	REVISIONS	APPROVED			
SOUTHWESTERN BLVD LINE D						
JUNCTION BOX DETAILS						
CITY OF UNIVERSITY PARK						
HUITT-ZOLLARS						
DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
DJT	KRA	DJT	AS NOTED	OCT 2020	R308306.04	56

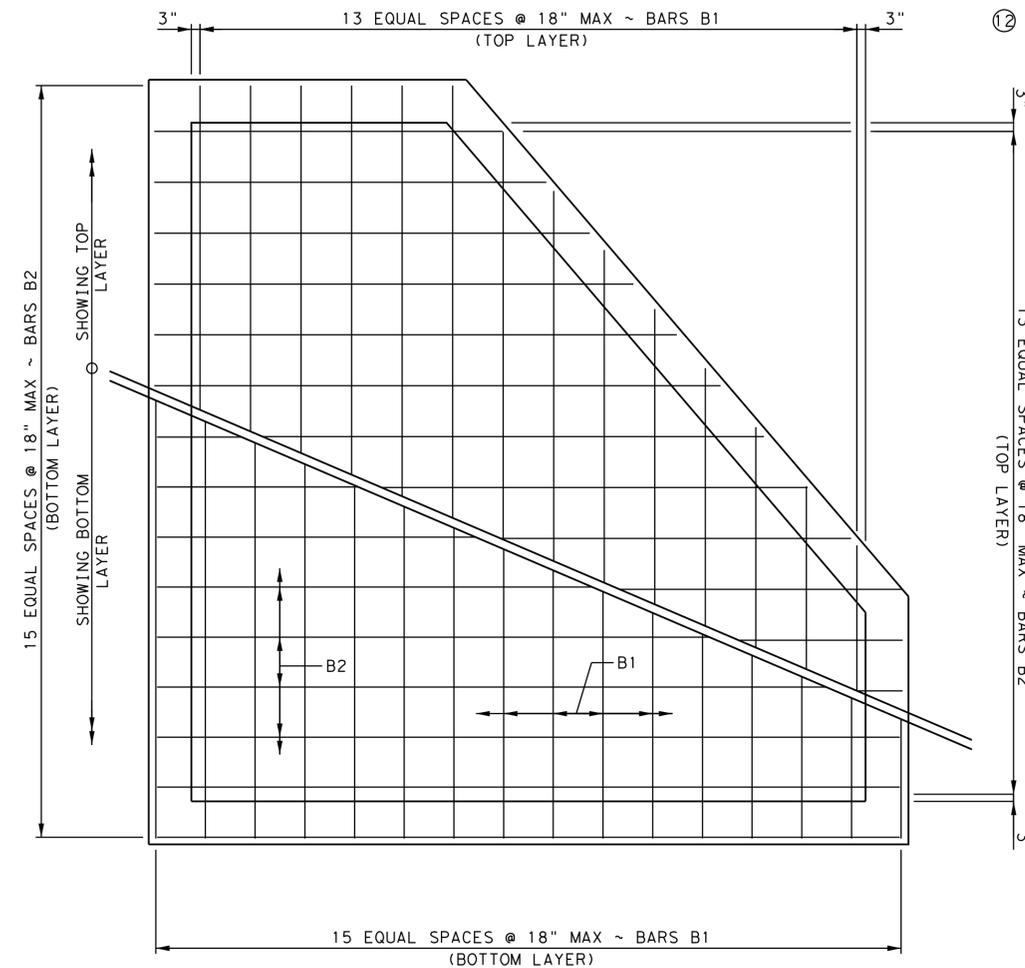
CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

H:\PDS\18308306.04 - UP Phase 1 Storm Drain Replacement\10 CADD & BIM\10.2 Microstation\SHEETS\830604-DET-06.dgn
 10/26/2020 9:06:40 AM kcaslmak1s



PLAN

SCALE: $\frac{3}{8}'' = 1'-0''$



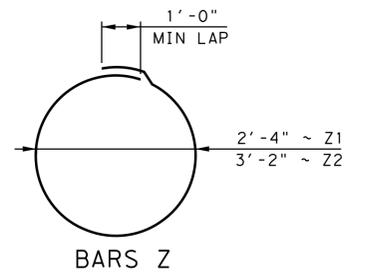
INVERT PLAN

SCALE: $\frac{3}{8}'' = 1'-0''$

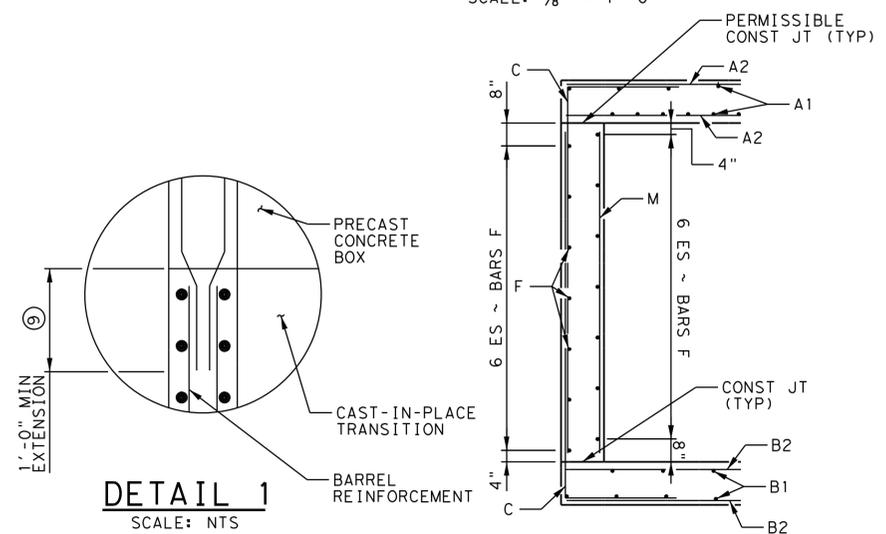
REINFORCING TABLE		
BAR	NO.	SIZE
A1	43	#6
A2	43	#6
B1	30	#6
B2	30	#6
C	54	#6
D	20	#6
F	98	#4
H	24	#4
L	70	#4
M	27	#4
Z1	3	#4
Z2	3	#4

- ⑥ 3 EQUAL SPACES @ 18" MAX BARS C & M
- ⑨ EXTEND PRECAST BOX REINFORCING A MINIMUM 1'-0" INTO JUNCTION BOX.
- ⑩ LAP BARS L WITH BARS F. FIELD BEND AS REQUIRED.
- ⑪ TRIM BARS A1 AND A2 AT RISER AS SHOWN.
- ⑫ SPACE EVENLY AROUND RISER AS SHOWN.

GENERAL NOTES:
 DESIGNED ACCORDING TO AASHTO LRFD DESIGN SPECIFICATIONS
 ALL MATERIALS SHALL MEET THE REQUIREMENTS OF NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS UNLESS NOTED OTHERWISE.
 CONCRETE SHALL BE CLASS "C" AND SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI
 ALL REINFORCING SHALL BE GRADE 60.
 COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
 REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

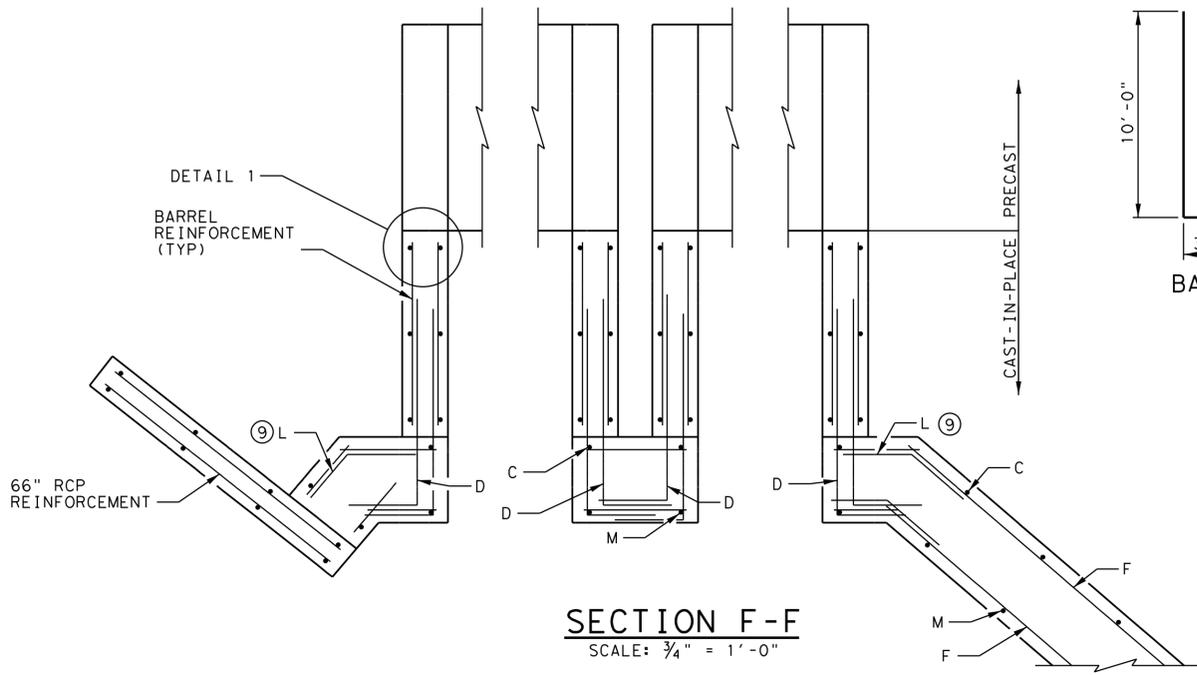


BARS Z



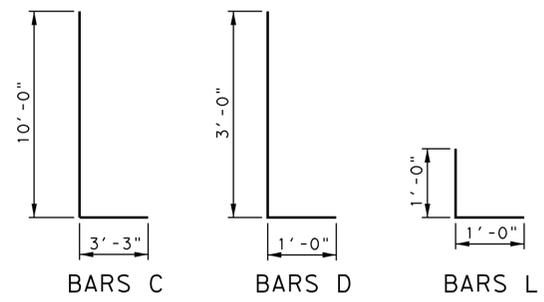
SECTION E-E

SCALE: $\frac{3}{8}'' = 1'-0''$



SECTION F-F

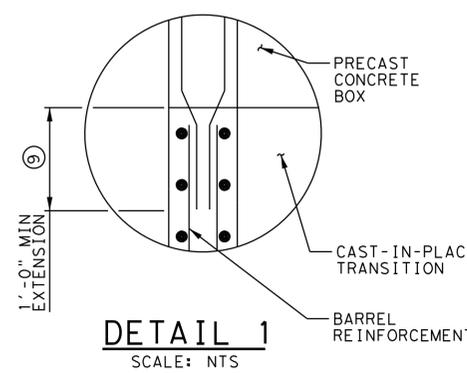
SCALE: $\frac{3}{4}'' = 1'-0''$



BARS C

BARS D

BARS L



DETAIL 1

SCALE: NTS

David J. Thompson

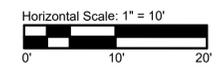
 10/26/20

NO.	DATE	REVISIONS	APPROVED

SOUTHWESTERN BLVD LINE D
 JUNCTION BOX DETAILS
 CITY OF UNIVERSITY PARK
HUITT-ZOLLARS
Huitt-Zollars, Inc. 1717 McKinney Avenue, Suite 1400 Dallas, Texas 75202 Phone (214) 871-3311 Fax (214) 871-0757

DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
DJT	KRA	DJT	AS NOTED	OCT 2020	R308306.04	57

D:\proj\308306\04 - UP Phase 1 Storm Drain Replacement\10 CADD & BIM\10.1 AutoCAD\10.1 SHEETS\Phase2_Sheets\Phase2_Park_topo-3 Base SD Profile Row Existing Utilities Base Paving Plan Aerial Image-2
 USER: aramirez
 DATE: Nov 20, 2020 6:38pm
 XREFS: Border 22 X 34 Contour Lines Topo Paving Profile Park topo-3 Base SD Profile Row Existing Utilities Base Paving Plan Aerial Image-2



LOT 13 A
 TODD E. TYLER
 3500 SOUTHWESTERN BLVD.
 DALLAS, TX. 75225

LOT 1
 WITHHELD PER SEC 25.025
 3432 SOUTHWESTERN BLVD.
 DALLAS, TX. 75225

BLK 15

EXIS. STOP SIGN
 REMOVE AND RESET

EXIS. STOP SIGN
 REMOVE AND RESET

SOUTHWESTERN BLVD.

EXIS. STOP SIGN
 TO REMAIN IN PLACE

EXIS. STOP SIGN
 REMOVE AND RESET

LOT 26BAA
 COLIN F. RAYMOND
 3501 SOUTHWESTERN BLVD.
 DALLAS, TX. 75225

LOT 9
 HOLLIS JONES
 3433 SOUTHWESTERN BLVD.
 DALLAS, TX. 75225

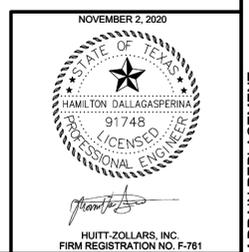
BLK 10

PROJECT LIMITS

PAVEMENT MARKING LEGEND		
①	4" WHITE LINE	
②	DOUBLE 4" YELLOW LINE	
③	24" WHITE STOP BAR	
④	24" CROSSWALK MAKER	
⑤	RECTANGULAR RAPID FLASHING BEACON	BY CITY
⑥	PEDESTRIAN CROSSING SIGN	BY CITY
⑦	PEDESTRIAN CROSSING AHEAD SIGN	
⑧	STOP SIGN	
⑨	DART BUS SIGN	
⑩	SCHOOL SPEED LIMIT SIGN	
⑪	STOP HERE ON RED SIGN	

GENERAL NOTES:

- ALL SIGNING AND STRIPPING SHALL BE IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) 2011.
- ALL EXISTING SIGNS TO BE REMOVED AND RESET, UNLESS NOTED OTHERWISE.
- ALL SIGN RELOCATION AND REMOVAL SHALL BE DONE BY THE CITY TRAFFIC DEPARTMENT.
- CONTRACTOR SHALL REMOVE ANY EXISTING PAVEMENT MARKING IN ACCORDANCE WITH THE CITY AND TxDOT MUTCD STANDARDS WHERE PROPOSED PAVEMENT MARKINGS ARE TO BE INSTALLED.
- NOTIFY THE CITY 2 WEEKS PRIOR TO THE START OF PERMANENT PAVEMENT MARKING WORK.
- SEE SHEET 24 FOR INTERSECTION IMPROVEMENTS.



NO.	DATE	REVISIONS	APPROVED

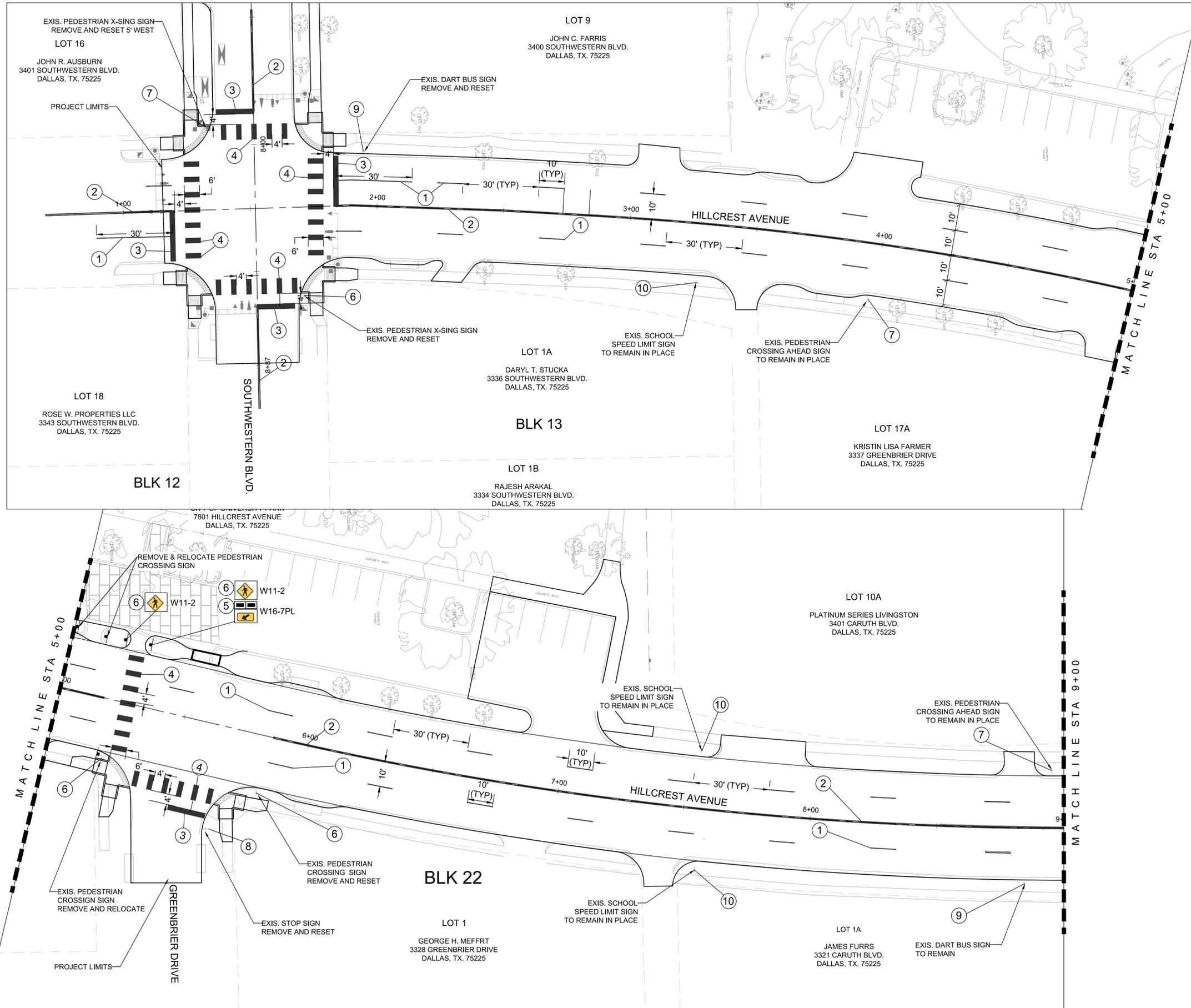
SOUTHWESTERN BLVD						
SIGNING & MARKING PLANS						
CITY OF UNIVERSITY PARK						
HUITT-ZOLLARS						
DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
HD	AR	HD	1"=10'H	NOV 2020	R308306.04	58

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

DWG: H:\proj\308306\04 - UP Phase 1 Storm Drain Replacement\10 CADD & BIM\101 AutoCAD\SHEETS\Phase2_Sheets\20 PAVEMNT MARKING PLANS.dwg
 USER: aramirez
 DATE: Nov 20, 2020 6:39pm
 XREFS: Border 22 X 34 Contour Lines Topo Paving Profile Park topo-3 Base SD Profile Row Existing Utilities Base Paving Plan Aerial Image-2

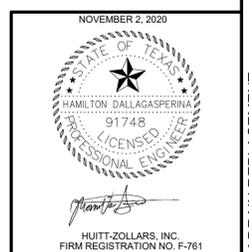


Horizontal Scale: 1" = 20'



PAVEMENT MARKING LEGEND		
①	4" WHITE LINE	
②	DOUBLE 4" YELLOW LINE	
③	24" WHITE STOP BAR	
④	24" CROSSWALK MAKER	
⑤	RECTANGULAR RAPID FLASHING BEACON	BY CITY
⑥	PEDESTRIAN CROSSING SIGN	BY CITY
⑦	PEDESTRIAN CROSSING AHEAD SIGN	
⑧	STOP SIGN	
⑨	DART BUS SIGN	
⑩	SCHOOL SPEED LIMIT SIGN	
⑪	STOP HERE ON RED SIGN	

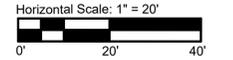
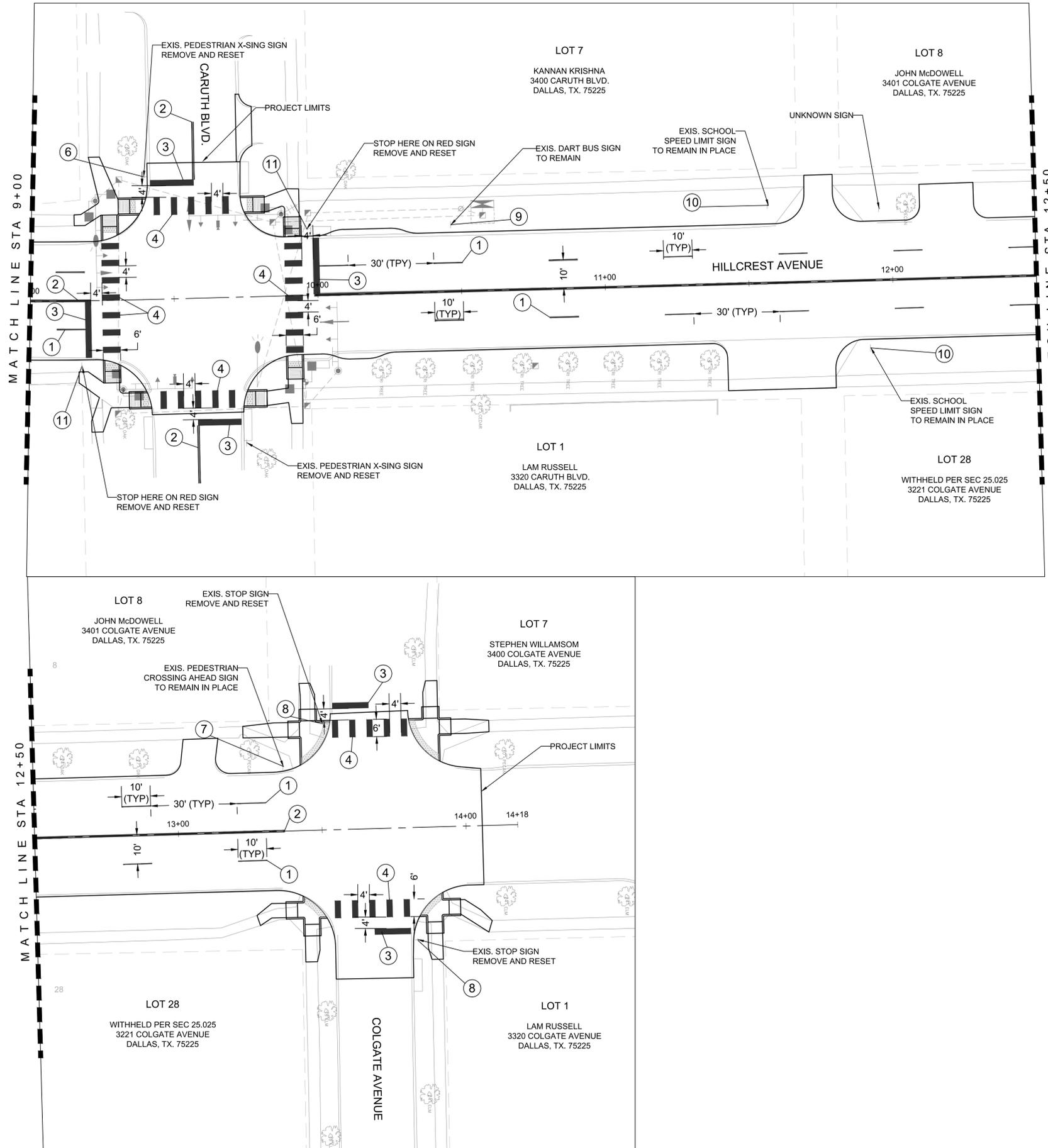
- GENERAL NOTES:**
- ALL SIGNING AND STRIPPING SHALL BE IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) 2011.
 - ALL EXISTING SIGNS TO REMAIN, UNLESS NOTED OTHERWISE.
 - CONTRACTOR SHALL REMOVE ANY EXISTING PAVEMENT MARKING IN ACCORDANCE WITH THE CITY AND TxDOT MUTCD STANDARDS WHERE PROPOSED PAVEMENT MARKING ARE TO BE INSTALLED.
 - NOTIFY THE CITY 2 WEEKS PRIOR TO THE START OF PERMANENT PAVEMENT MARKING WORK.
 - ALL SIGN RELOCATION AND REMOVAL SHALL BE DONE BY THE CITY TRAFFIC DEPARTMENT.
 - SEE SHEET 25 FOR INTERSECTION IMPROVEMENTS.
 - ALL STRIPING TO BE THERMOPLASTIC UNLESS OTHERWISE NOTED.



NO.	DATE	REVISIONS	APPROVED			
HILLCREST AVENUE						
SIGNING & MARKING PLANS						
CITY OF UNIVERSITY PARK						
HUITT-ZOLLARS						
DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
HD	AR	HD	1"=20'H	NOV 2020	R308306.04	59

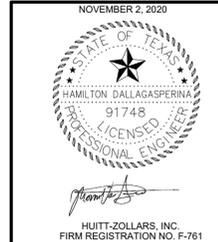
CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

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 DATE: Nov 20, 2020 6:39pm
 USER: aramirez
 Row Existing Utilities Base SD Profile
 Row Existing Utilities Base Pavng Plan Aerial Image-2



PAVEMENT MARKING LEGEND		
①	4" WHITE LINE	
②	DOUBLE 4" YELLOW LINE	
③	24" WHITE STOP BAR	
④	24" CROSSWALK MAKER	
⑤	RECTANGULAR RAPID FLASHING BEACON	BY CITY
⑥	PEDESTRIAN CROSSING SIGN	BY CITY
⑦	PEDESTRIAN CROSSING AHEAD SIGN	
⑧	STOP SIGN	
⑨	DART BUS SIGN	
⑩	SCHOOL SPEED LIMIT SIGN	
⑪	STOP HERE ON RED SIGN	

- GENERAL NOTES:**
- ALL SIGNING AND STRIPPING SHALL BE IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) 2011.
 - ALL EXISTING SIGNS TO REMAIN, UNLESS NOTED OTHERWISE.
 - CONTRACTOR SHALL REMOVE ANY EXISTING PAVEMENT MARKING IN ACCORDANCE WITH THE CITY AND TxDOT MUTCD STANDARDS WHERE PROPOSED PAVEMENT MARKINGS ARE TO BE INSTALLED.
 - NOTIFY THE CITY 2 WEEKS PRIOR TO THE START OF PERMANENT PAVEMENT MARKING WORK.
 - ALL SIGN RELOCATION AND REMOVAL SHALL BE DONE BY THE CITY TRAFFIC DEPARTMENT.
 - SEE SHEET 26 FOR INTERSECTION IMPROVEMENTS.
 - ALL STRIPING TO BE THERMOPLASTIC UNLESS OTHERWISE NOTED



NO.	DATE	REVISIONS	APPROVED

HILLCREST AVENUE

SIGNING & MARKING PLANS

CITY OF UNIVERSITY PARK

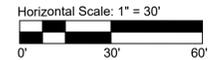
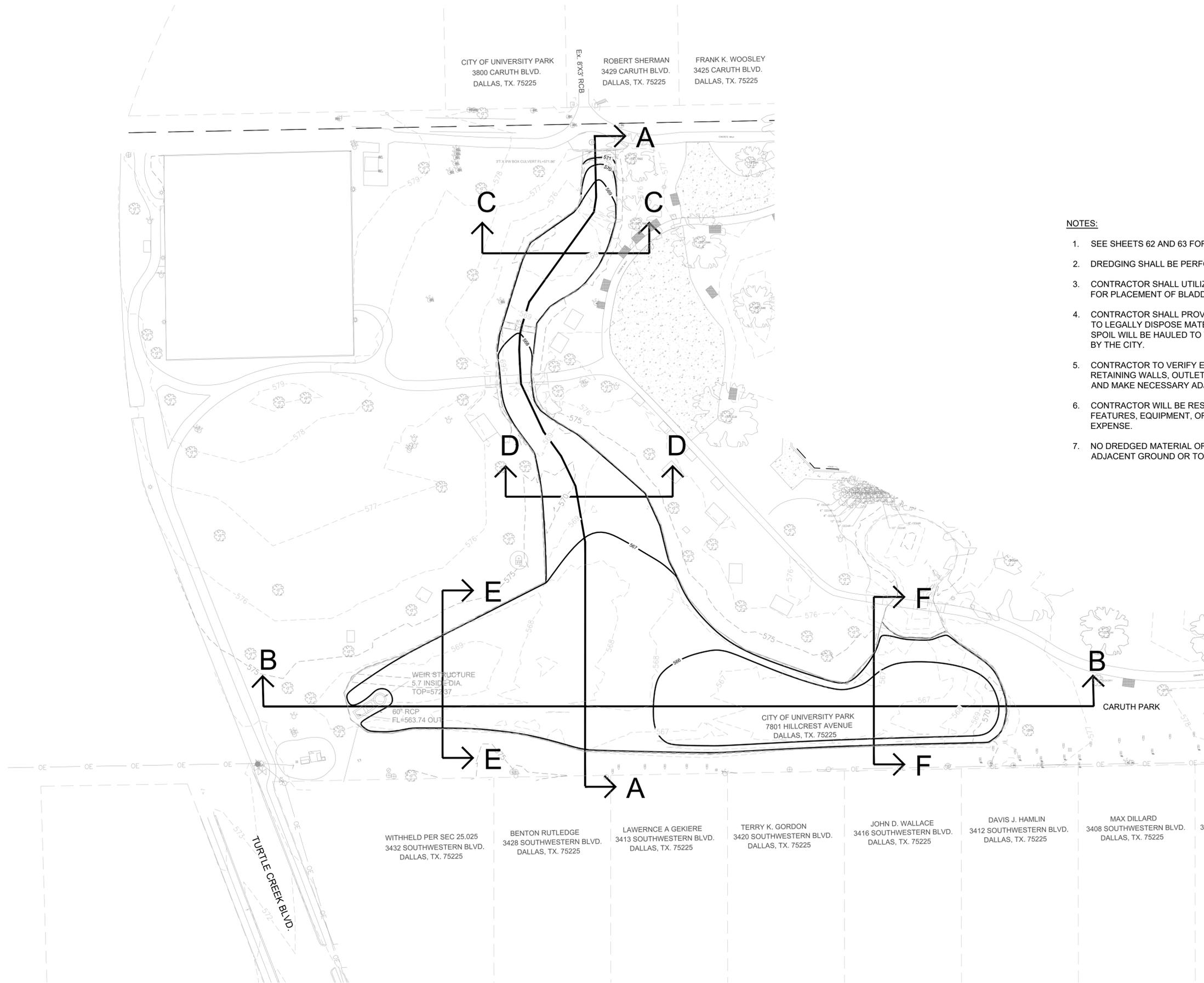
HUITT-ZOLLARS

HUITT-ZOLLARS, INC.
 1717 McKinney Avenue, Suite 1400
 Dallas, Texas 75202
 Phone (214) 871-3311 Fax (214) 871-0757

DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
HD	AR	HD	1"=20'H	NOV 2020	R308306.04	60

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

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 USER: oranirez
 XREFS: Border 22 X 34 Park Grading Existing Utilities Row Park topo-3



NOTES:

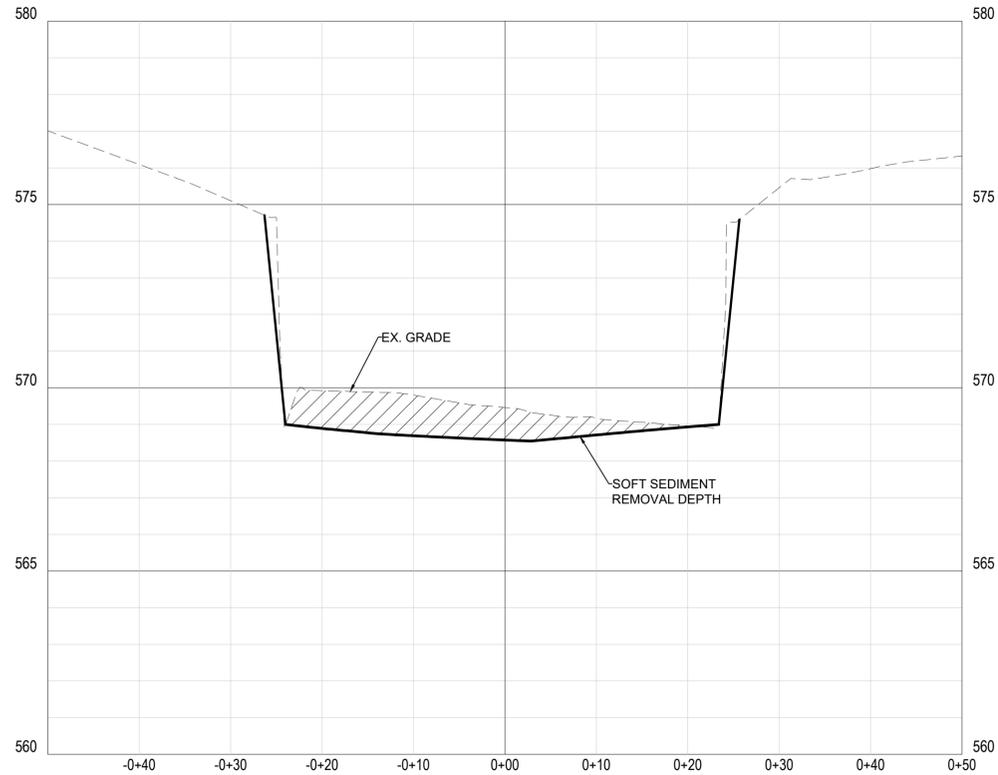
1. SEE SHEETS 62 AND 63 FOR CROSS-SECTIONS.
2. DREDGING SHALL BE PERFORMED BY "WET METHOD".
3. CONTRACTOR SHALL UTILIZE DESIGNATED WORK AREA WEST OF THE EXISTING POND FOR PLACEMENT OF BLADDERS AND RETURN FLOW TREATMENT.
4. CONTRACTOR SHALL PROVIDE SOIL TESTING FOR DREDGED MATERIAL AND OBTAIN PERMIT TO LEGALLY DISPOSE MATERIAL OFF-SITE. CONTRACTOR SHALL IDENTIFY LOCATION WHERE SPOIL WILL BE HAULED TO WITHIN A WEEK OF AWARD. THIS LOCATION MUST BE APPROVED BY THE CITY.
5. CONTRACTOR TO VERIFY EXISTING CONDITIONS - INCLUDING PEDESTRIAN BRIDGES, RETAINING WALLS, OUTLET STRUCTURE, WATER FOUNTAIN, WATER FOUNTAIN CONDUITS - AND MAKE NECESSARY ADJUSTMENTS TO WORK PLAN PRIOR TO BEGINNING CONSTRUCTION.
6. CONTRACTOR WILL BE RESPONSIBLE FOR ANY DISTURBANCE OR DAMAGE TO EXISTING POND FEATURES, EQUIPMENT, OR STRUCTURES, AND SHALL REPAIR DAMAGES AT CONTRACTOR'S EXPENSE.
7. NO DREDGED MATERIAL OR UNTREATED WATER WILL BE ALLOWED TO BE PLACED ON THE ADJACENT GROUND OR TO RETURN TO THE POND.



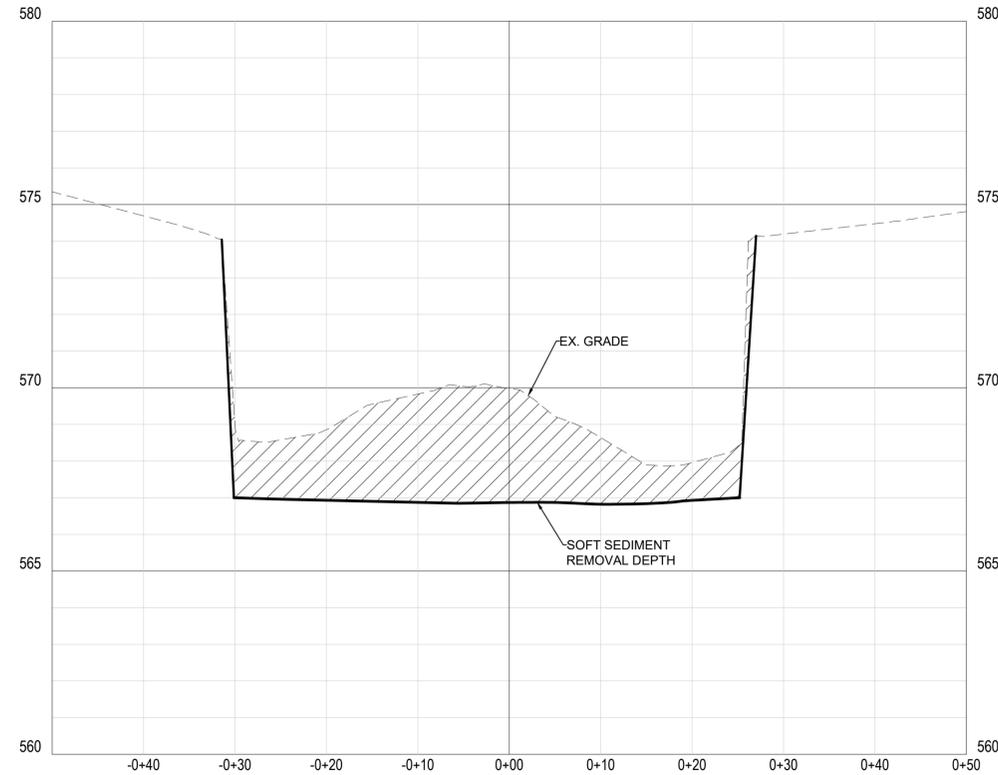
NO.	DATE	REVISIONS	APPROVED
DETENTION POND			
DREDGE PLAN			
CITY OF UNIVERSITY PARK			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
DATE	PROJ. NO.	SHEET	
HD	AR	HD	1"=30'H 1"=5'V
NOV 2020	R308306.04	61	

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

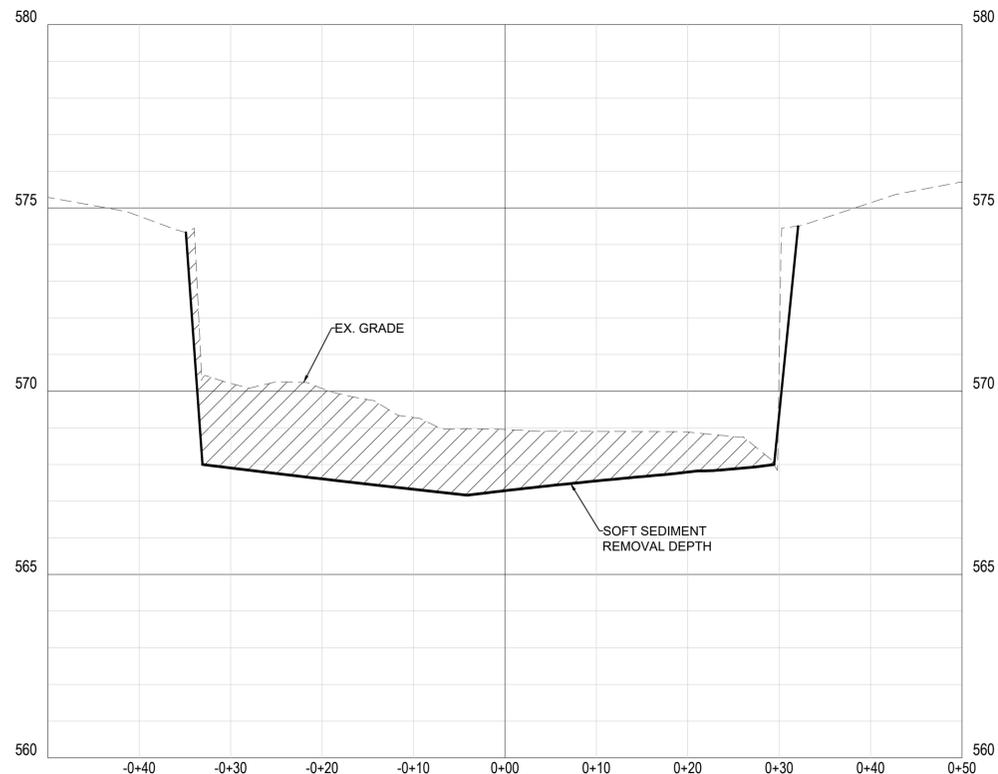
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 DATE: Nov 03, 2020 3:44pm XREFS: Border 22 X 34 Base Cross Section USER: aramirez



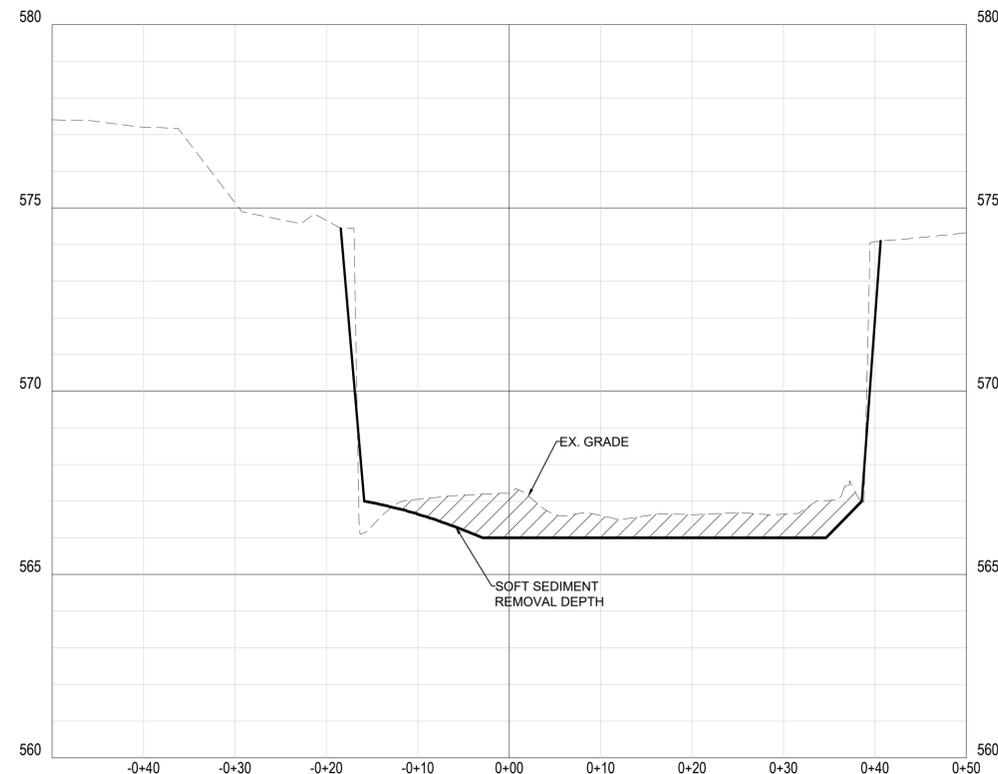
SECTION C-C



SECTION E-E



SECTION D-D



SECTION F-F

LEGEND
 POND DREDGE AREA



HUITT-ZOLLARS, INC.
 FIRM REGISTRATION NO. F-761

NO.	DATE	REVISIONS	APPROVED

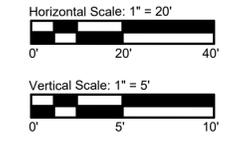
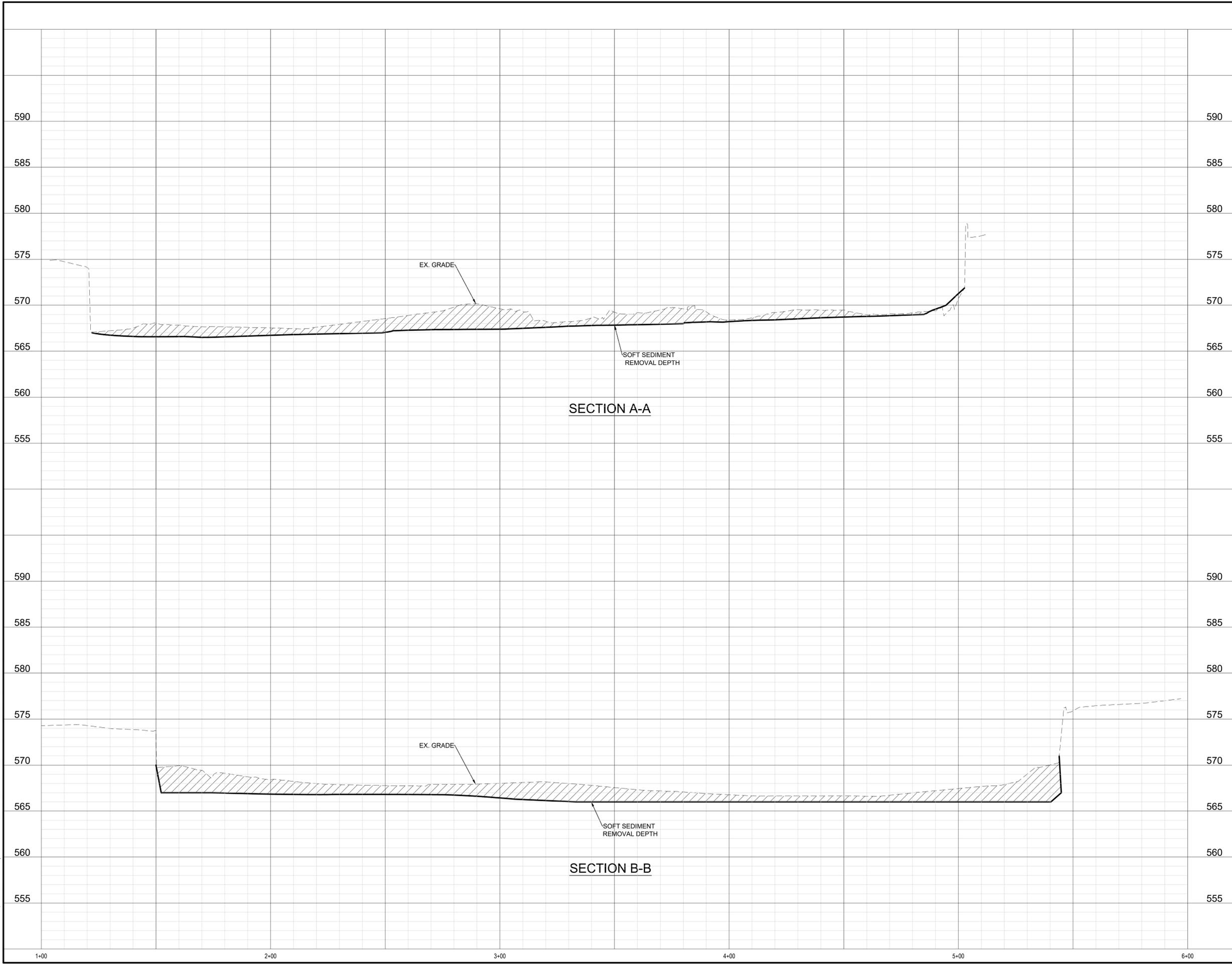
POND CROSS-SECTIONS

CITY OF UNIVERSITY PARK

HUITT-ZOLLARS		<small>Huitt-Zollars, Inc. 1717 McKinney Avenue, Suite 1400 Dallas, Texas 75202 Phone (214) 871-3311 Fax (214) 871-0757</small>				
DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
HD	AR	HD	1"=10'H 1"=5'V	NOV 2020	R308306.04	62

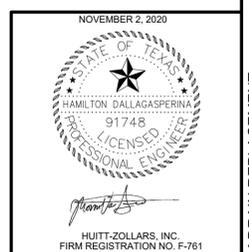
CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

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 USER: oramirez
 DATE: Nov 03, 2020 3:42pm
 XREFS: Border 22 X 34 Base SD Profile



LEGEND

POND DREDGE AREA



NO.	DATE	REVISIONS	APPROVED

POND CROSS-SECTIONS

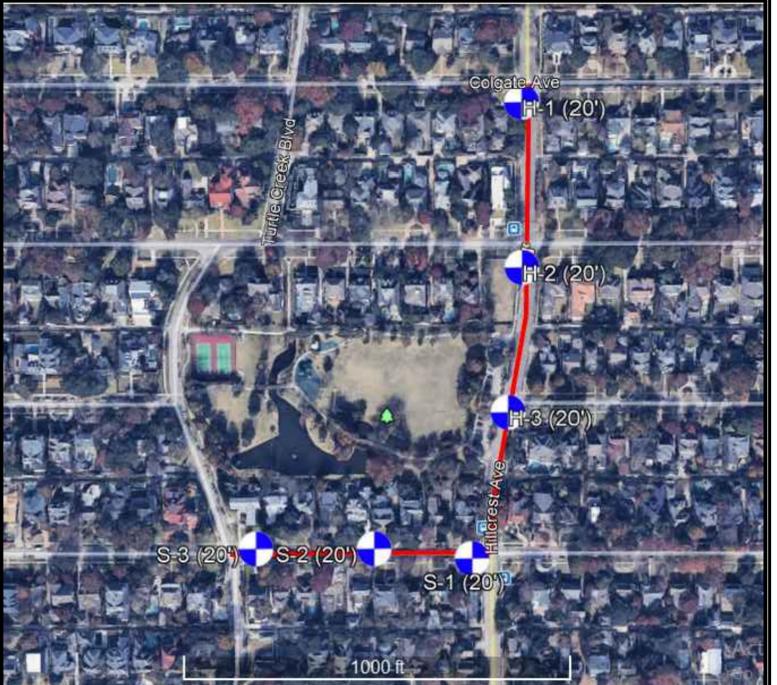
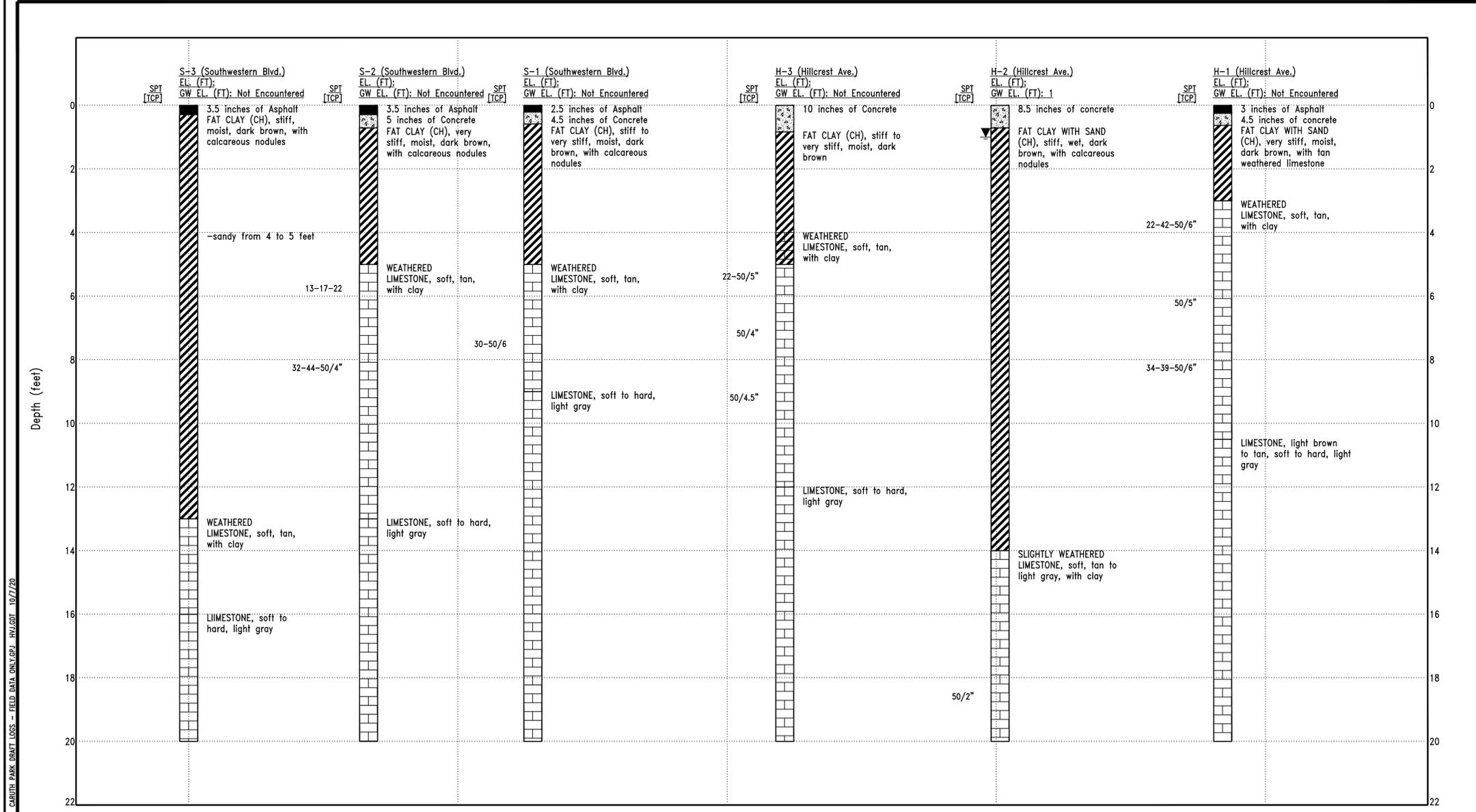
CITY OF UNIVERSITY PARK

HUITT-ZOLLARS

Huitt-Zollars, Inc.
 1717 McKinney Avenue, Suite 1400
 Dallas, Texas 75202
 Phone (214) 871-3311 Fax (214) 871-0757

DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
HD	AR	HD	1"=20'H 1"=5'V	NOV 2020	R308306.04	63

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT



LEGEND

- Asphalt
- Concrete
- USCS High Plasticity Clay
- Limestone

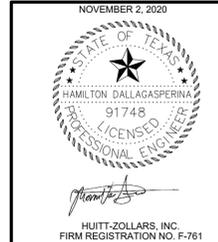
Note:
 - Data concerning subsurface conditions obtained at boring locations only.
 - Distances and depths showing in the profile are approximate

BORING LOG PROFILE
 Caruth Park Underground Detention

PROJECT NUMBER: DC2010176 DRAWING NUMBER: Appendix A

8701 John Carpenter Fwy, Suite 250
 Dallas, Texas 75247
 214-678-0227 Phone
 214-678-0228 Fax

3980 Sandshell Drive
 Fort Worth, Texas 76137
 862-703-2110 Phone
 862-703-2110 Fax



NO.	DATE	REVISIONS	APPROVED

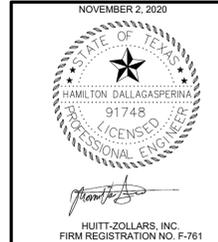
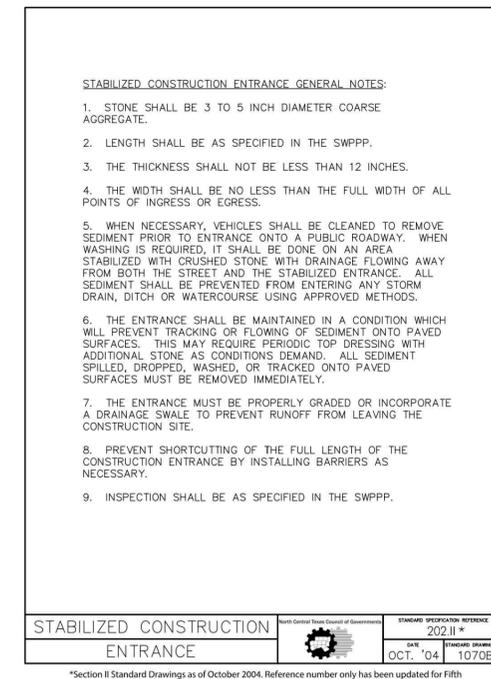
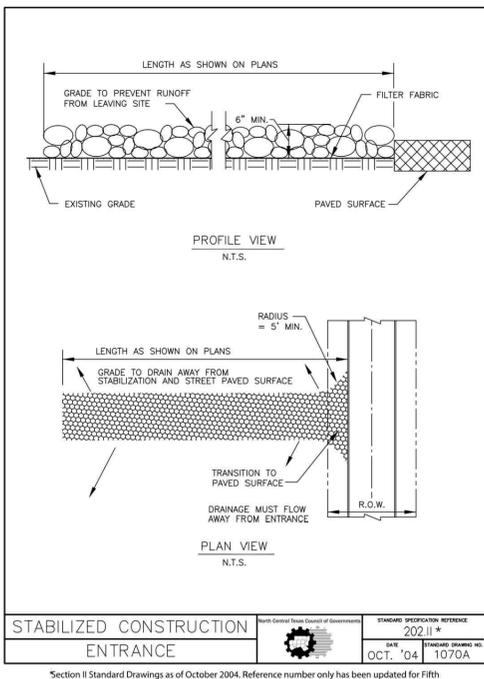
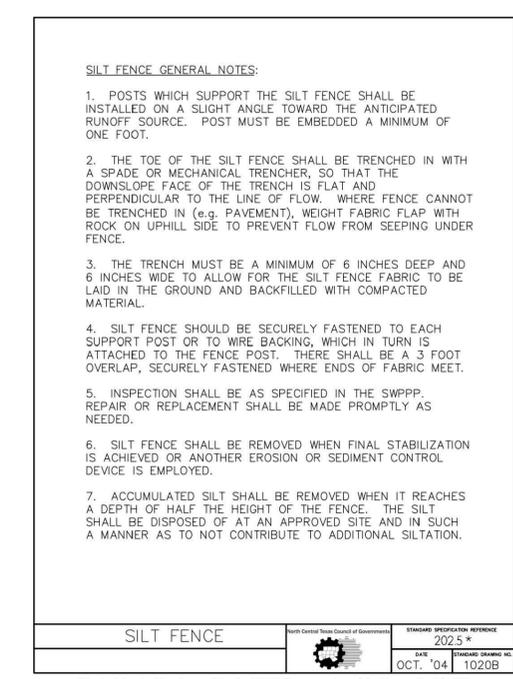
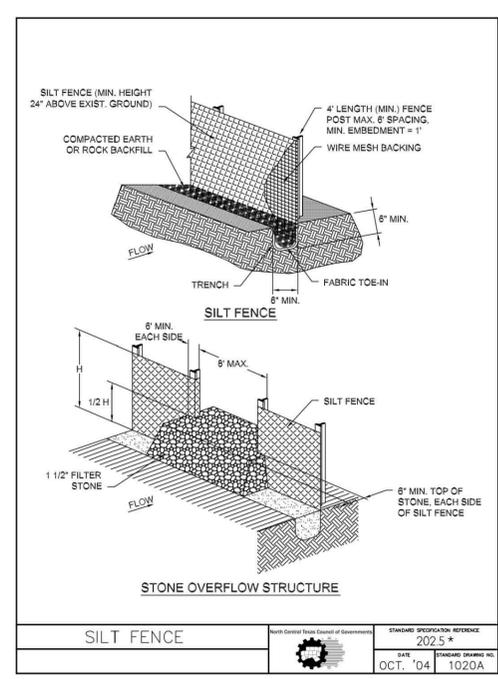
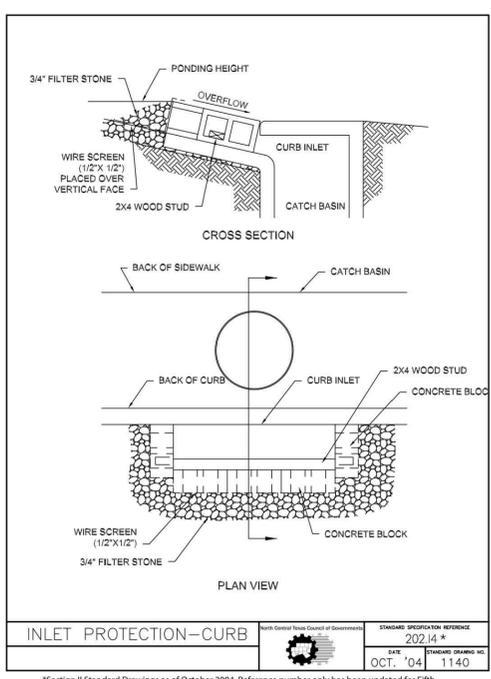
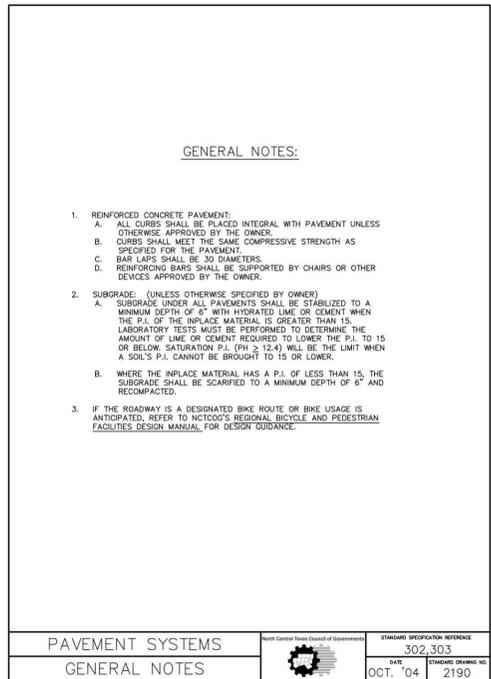
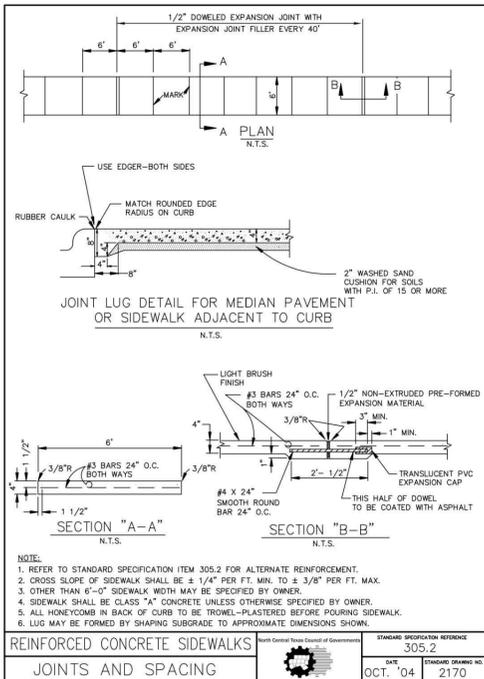
BORING LOG PLAN AND PROFILE

CITY OF UNIVERSITY PARK

HUITT-ZOLLARS

DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
HD	AR	HD		NOV 2020	R308306.04	64

DWG: H:\proj\308306\04 - UP Phase 1 Storm Drain Replacement\10 CADD & BIM\101 AutoCAD\SHEETS\Phase2_Sheets\PAVING DETAIL SHEET.dwg
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 USER: araminez
 XREFS: Border 22 X 34

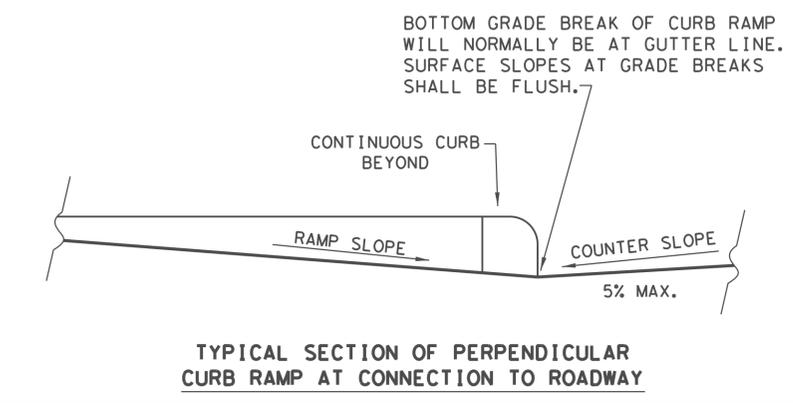
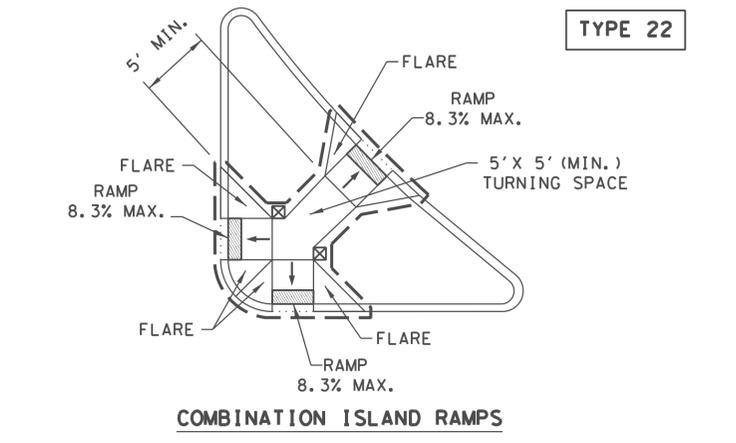
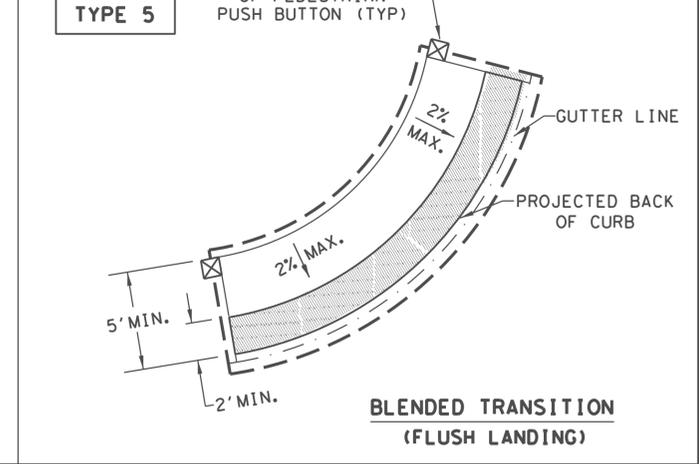
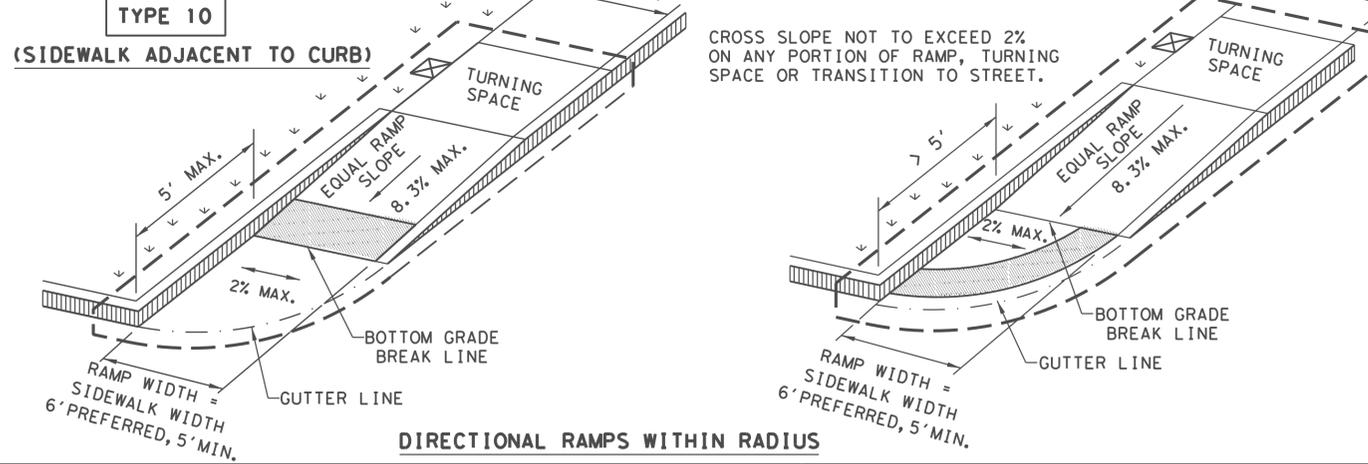
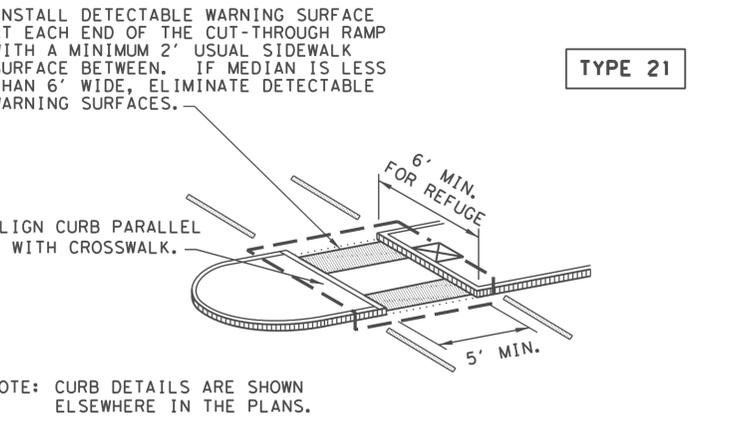
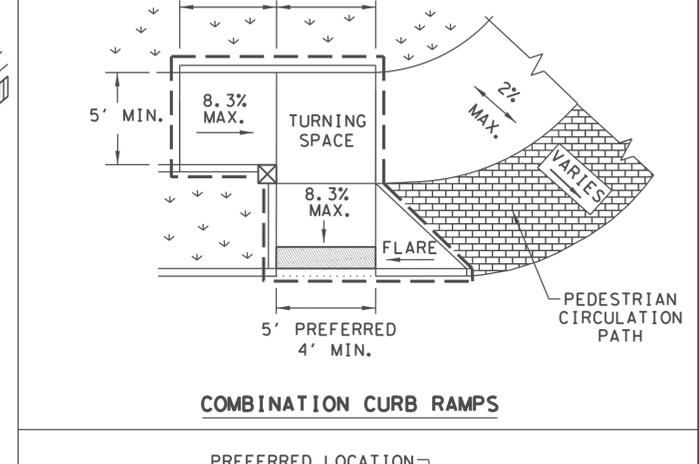
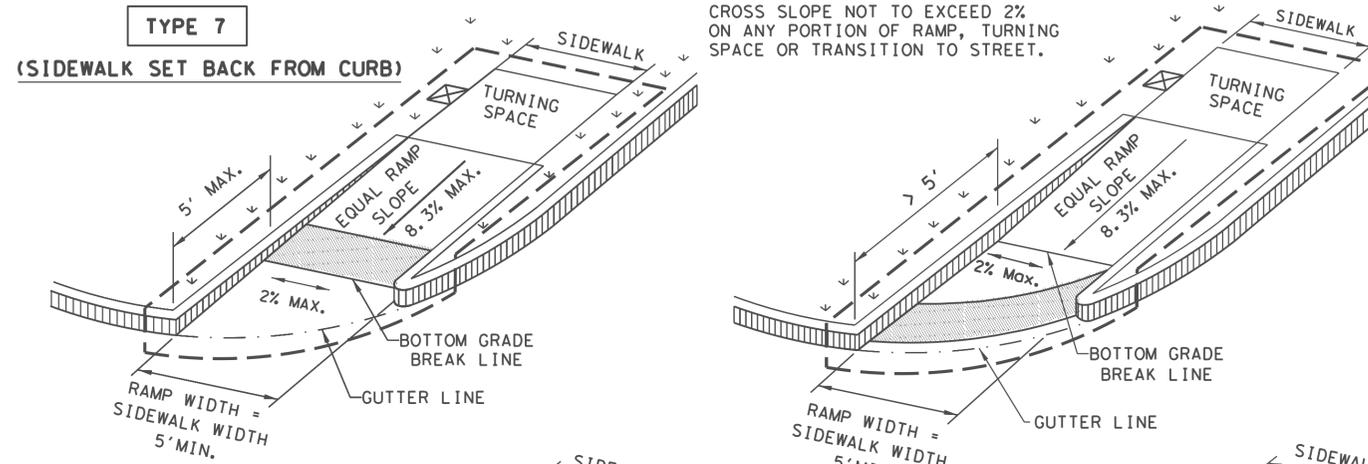
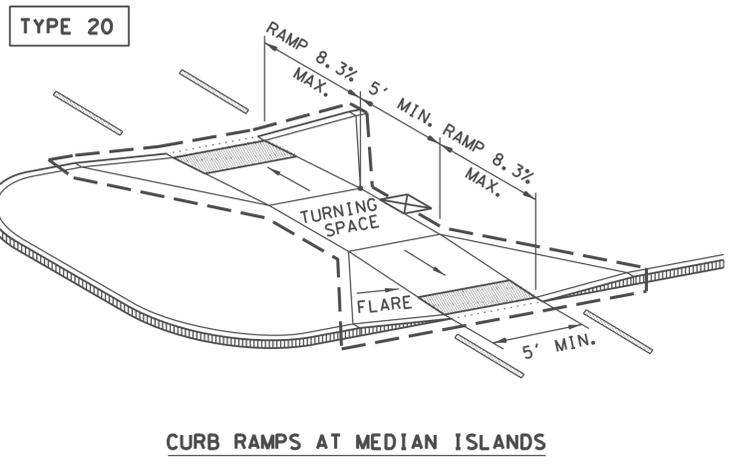
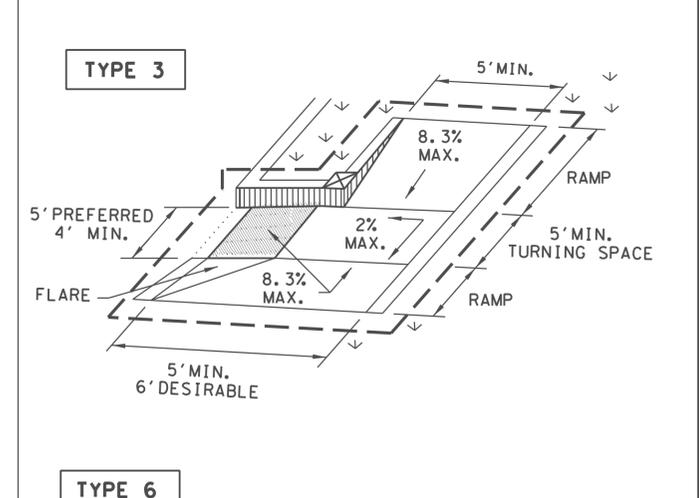
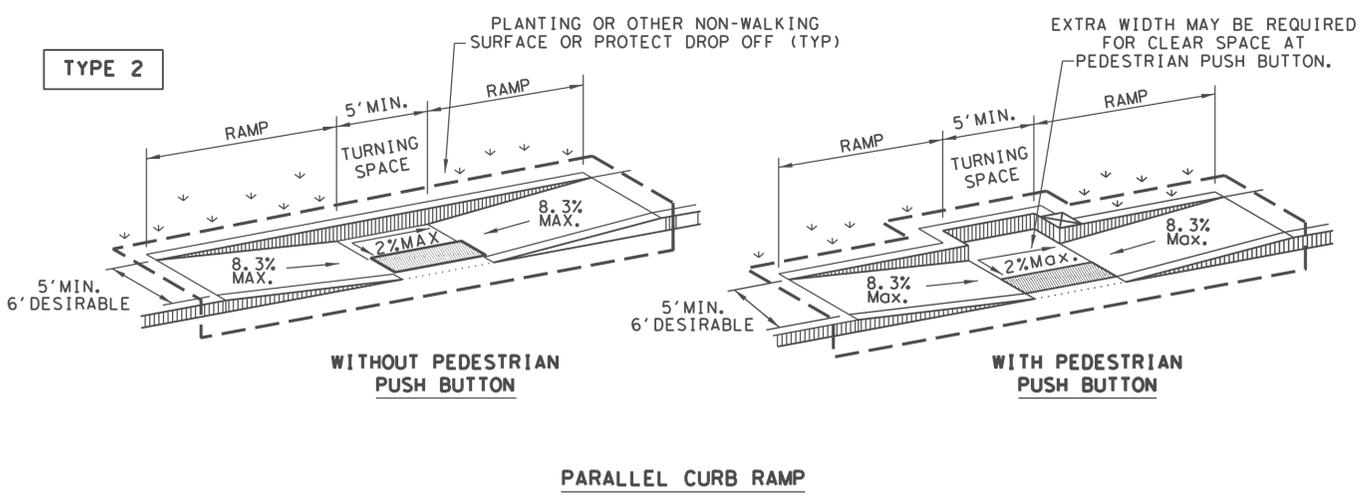
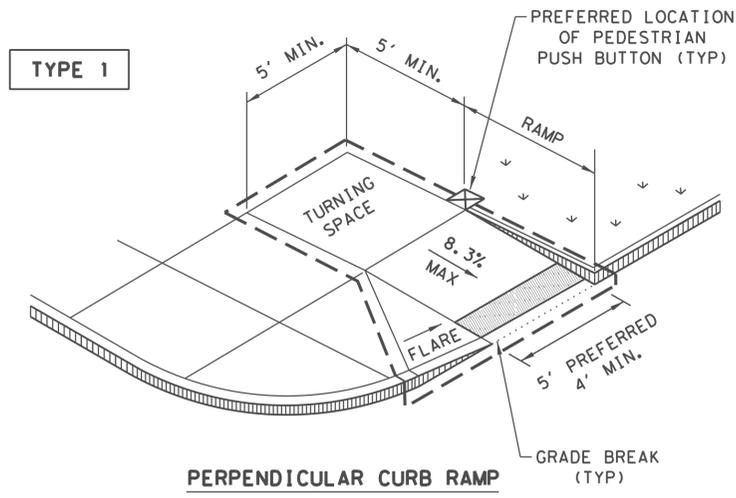


NO.	DATE	REVISIONS	APPROVED
PAVING AND EROSION CONTROL DETAILS			
CITY OF UNIVERSITY PARK			
HUITT-ZOLLARS			
Huitt-Zollars, Inc. 1717 McKinney Avenue, Suite 1400 Dallas, Texas 75202 Phone (214) 871-3311 Fax (214) 871-0757			
DESIGN	DRAWN	APPR.	SCALE
HD	AR	HD	
DATE	PROJ. NO.	SHEET	
NOV 2020	R308306.04	66	

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

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DATE: FILE:



NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

Detectable Warning Surface: [Symbol]

Grade Break: [Symbol]

Ramp Limits of Payment: [Symbol]

Gutter Line: [Symbol]

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISED 08, 2005	REVISIONS			
REVISED 06, 2012				
REVISED 01, 2018				
DIST	COUNTY			SHEET NO.

67

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GENERAL NOTES

CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

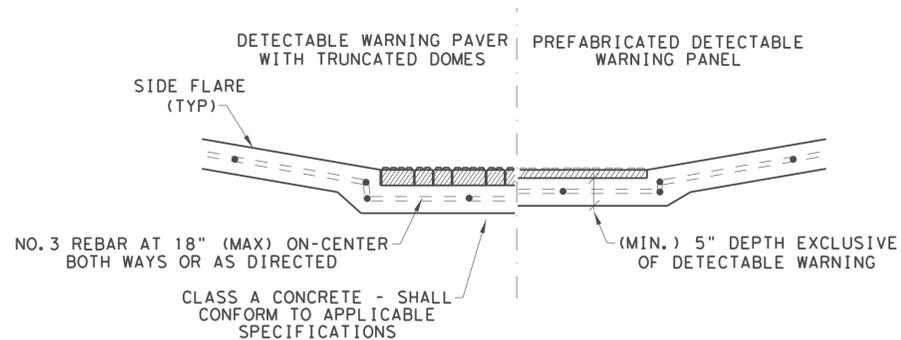
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

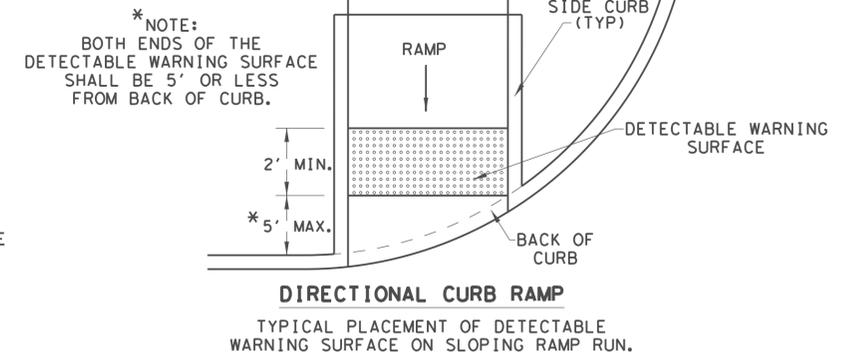
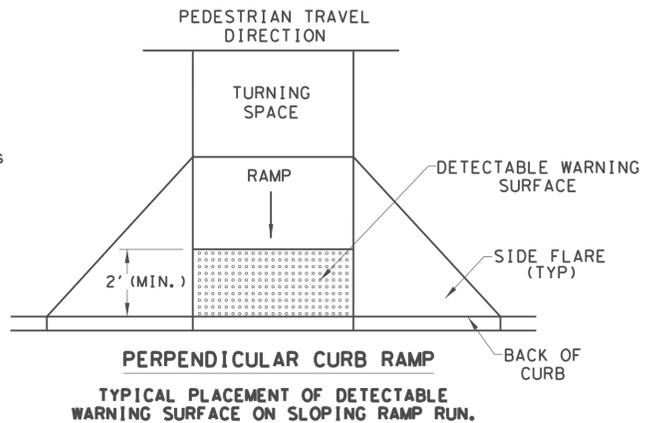
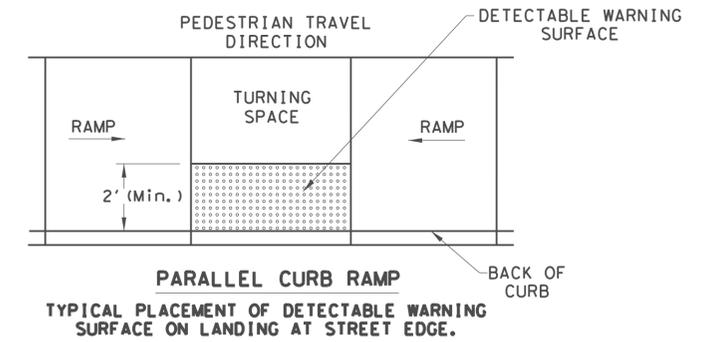
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.



**SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS**

DETECTABLE WARNING SURFACE DETAILS



SHEET 2 OF 4



**PEDESTRIAN FACILITIES
CURB RAMPS**

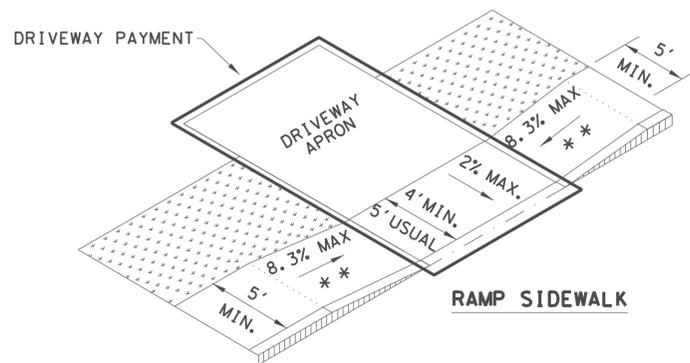
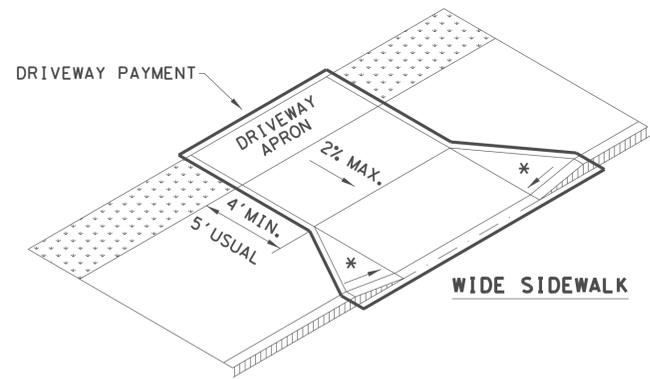
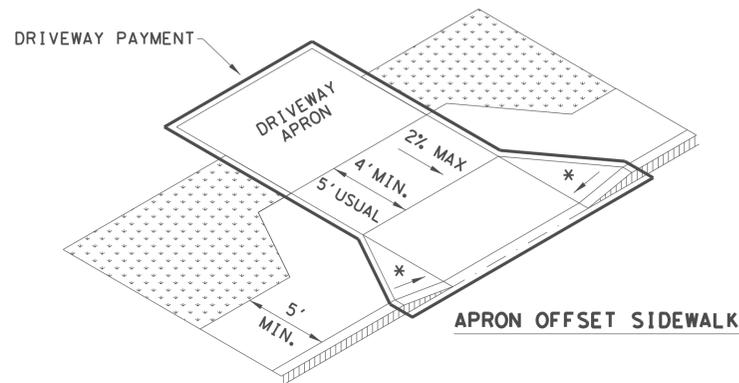
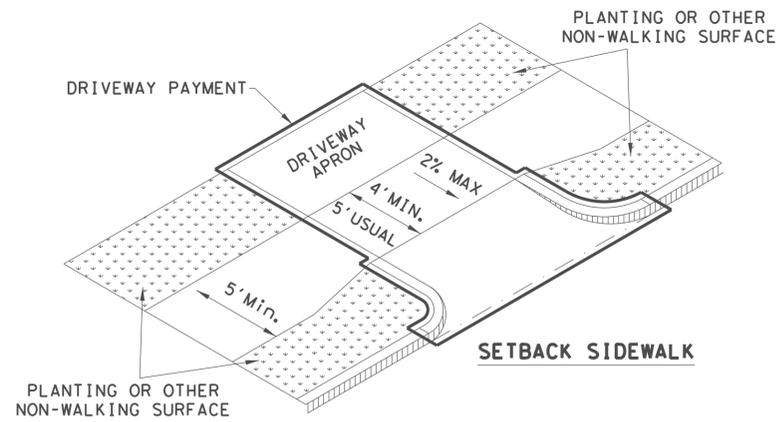
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISED 08, 2005	REVISIONS			
REVISED 06, 2012	DIST	COUNTY	SHEET NO.	
REVISED 01, 2018			68	

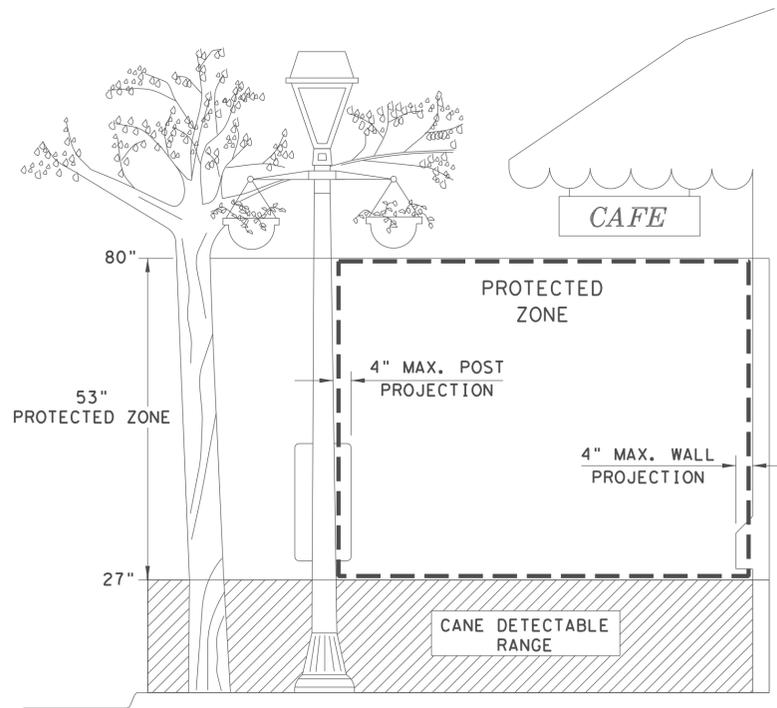
DATE:
FILE:

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SIDEWALK TREATMENT AT DRIVEWAYS

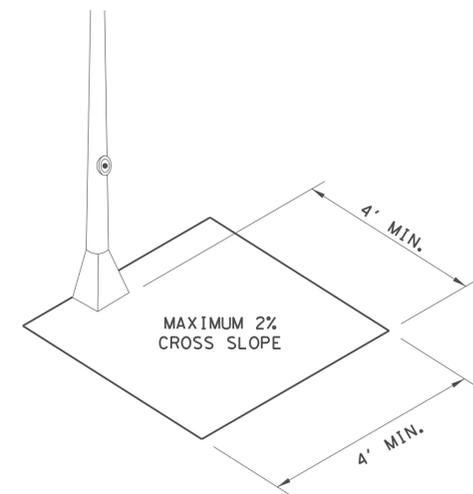


NOTES:
 * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
 ** IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

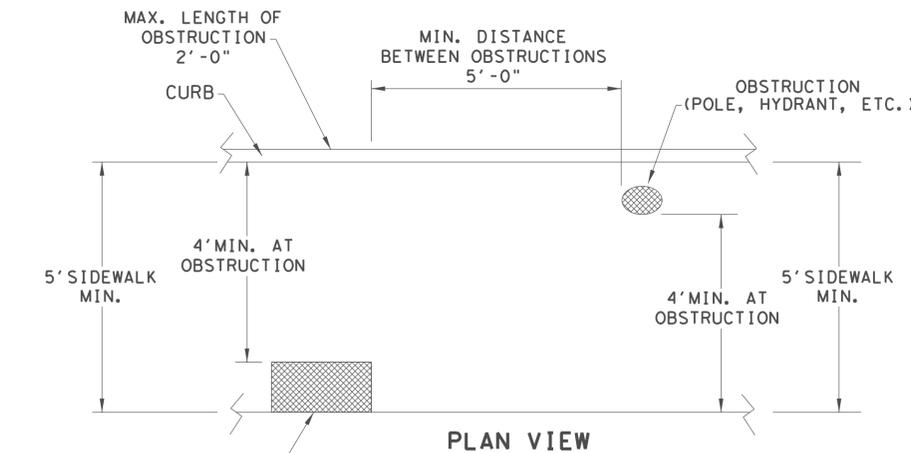


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.

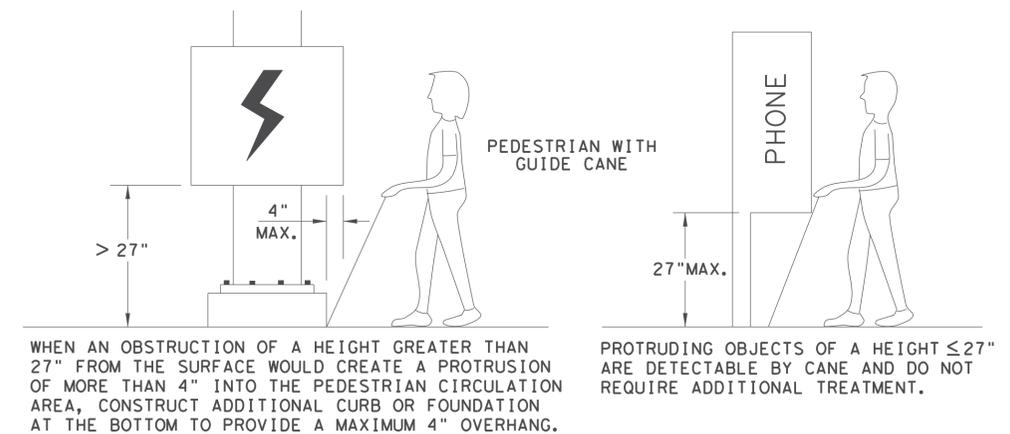


CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



PLACEMENT OF STREET FIXTURES

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

SHEET 3 OF 4

PEDESTRIAN FACILITIES CURB RAMPS

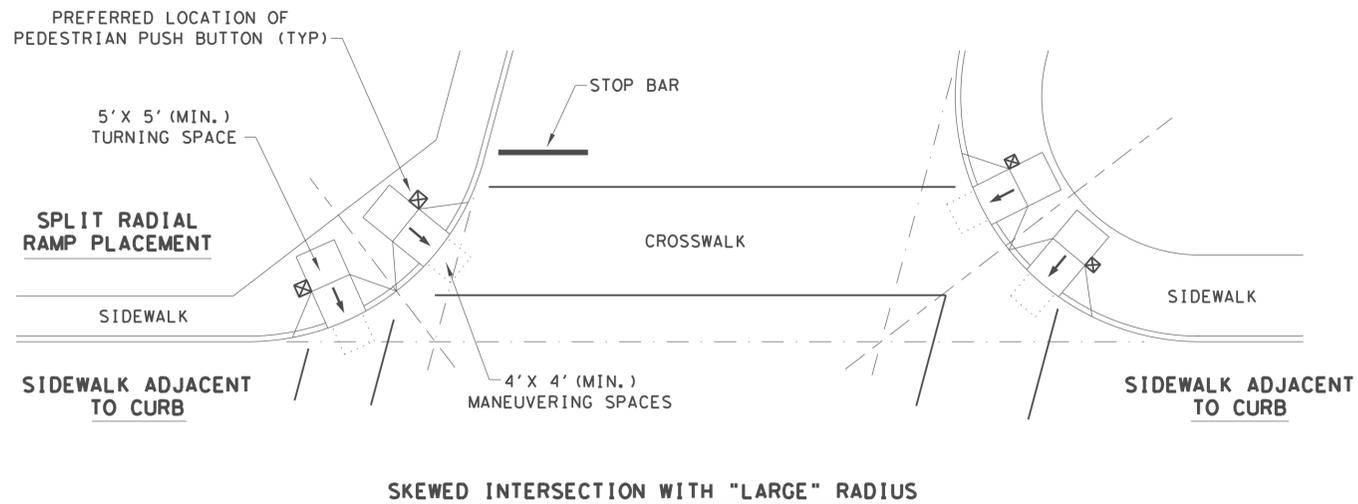
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY	SHEET NO.	
REVISED 08, 2005			69	
REVISED 06, 2012				
REVISED 01, 2018				

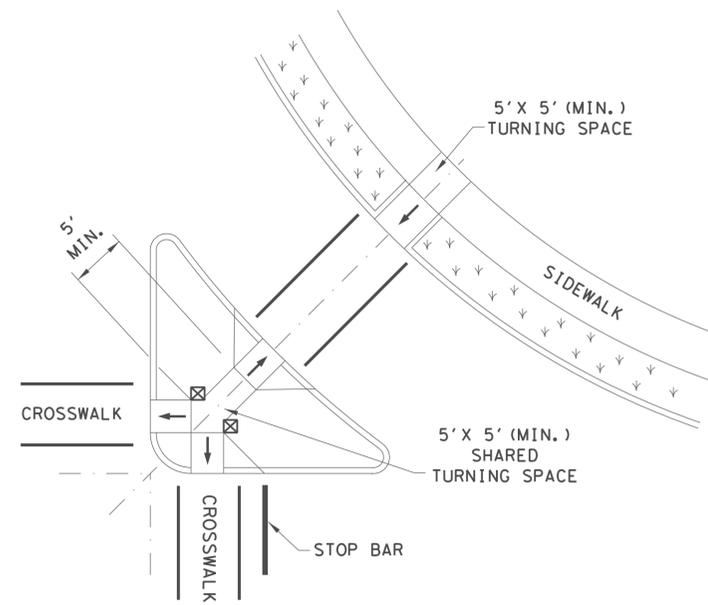
DATE: FILE:

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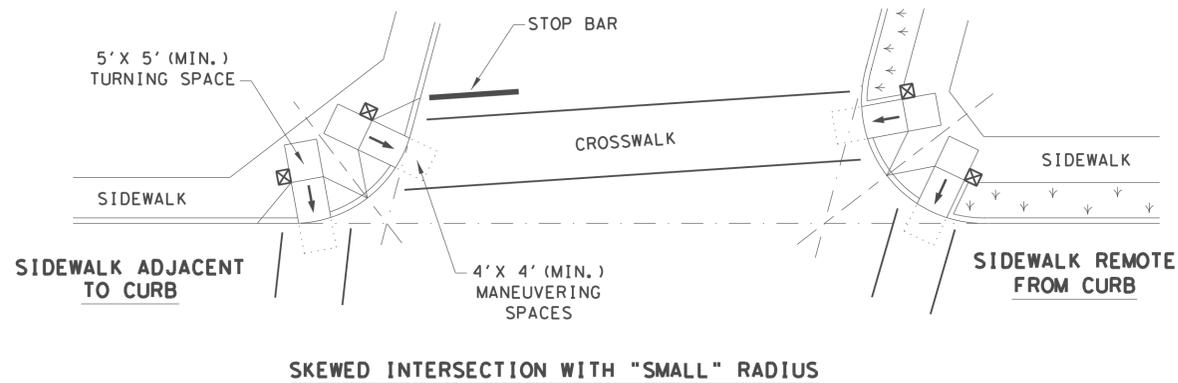
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



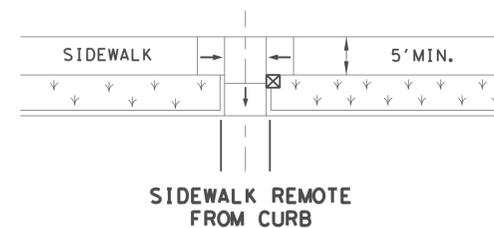
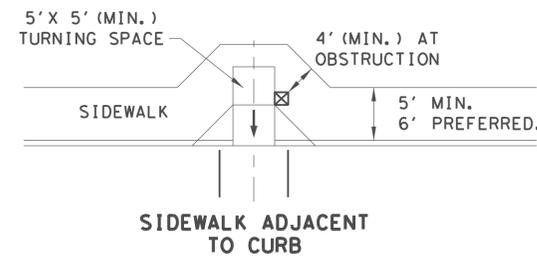
SKewed INTERSECTION WITH "LARGE" RADIUS



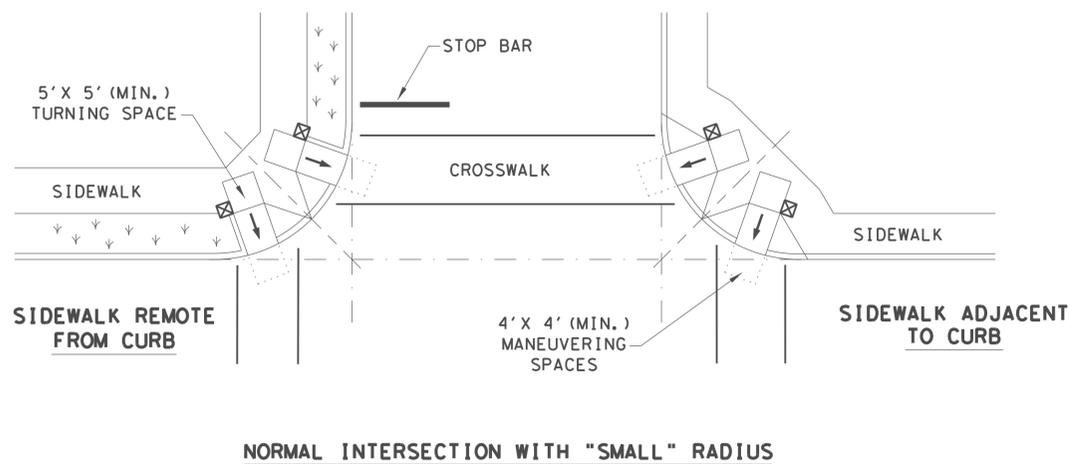
AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. ↙ ↘ ↗ ↖

SHEET 4 OF 4



Design
Division
Standard

PEDESTRIAN FACILITIES
CURB RAMPS

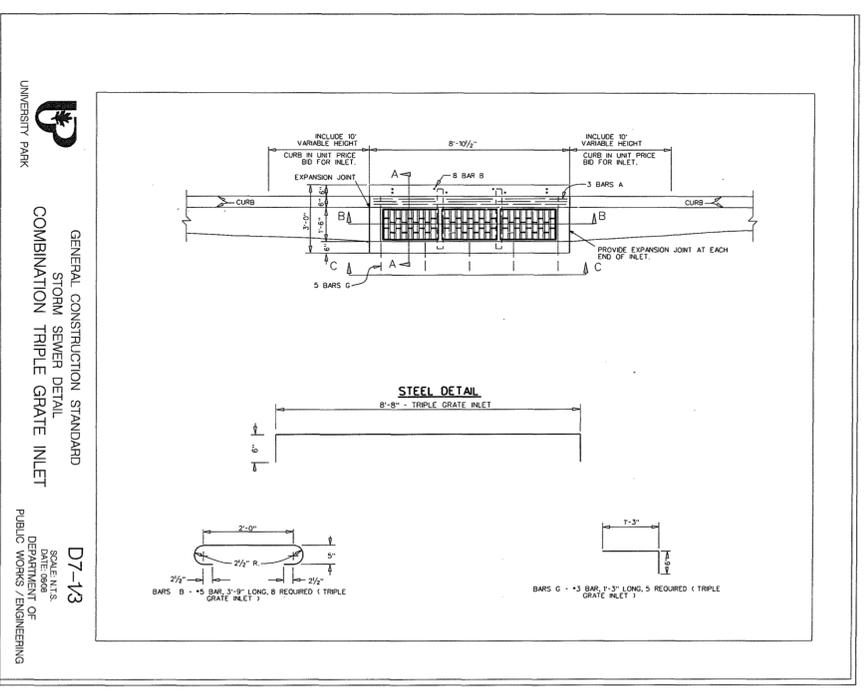
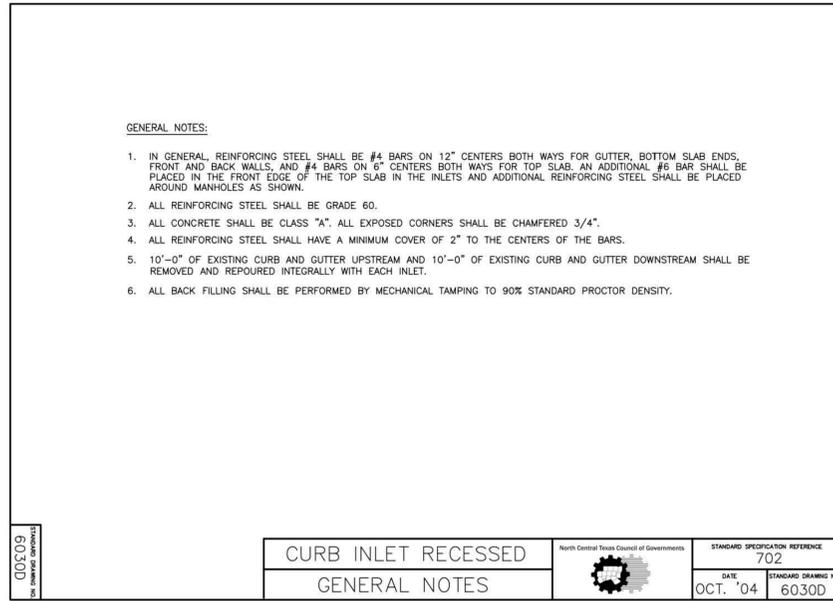
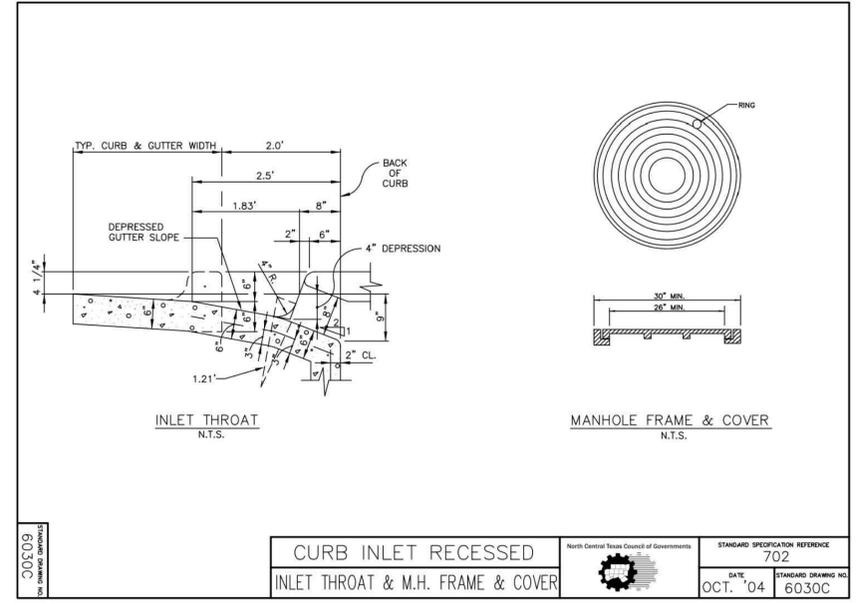
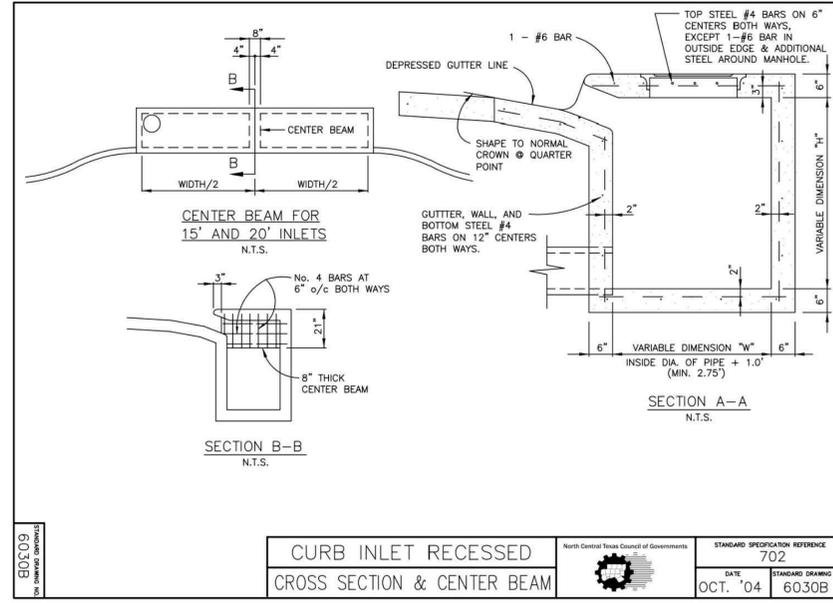
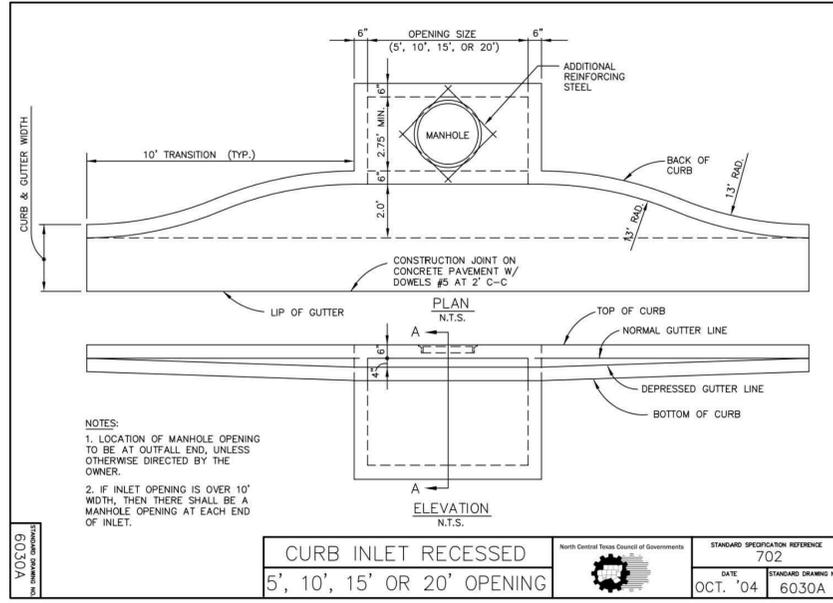
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISED 08, 2005	REVISIONS			
REVISED 06, 2012	DIST	COUNTY	SHEET NO.	
REVISED 01, 2018			70	

DATE:
FILE:

USER: araminez

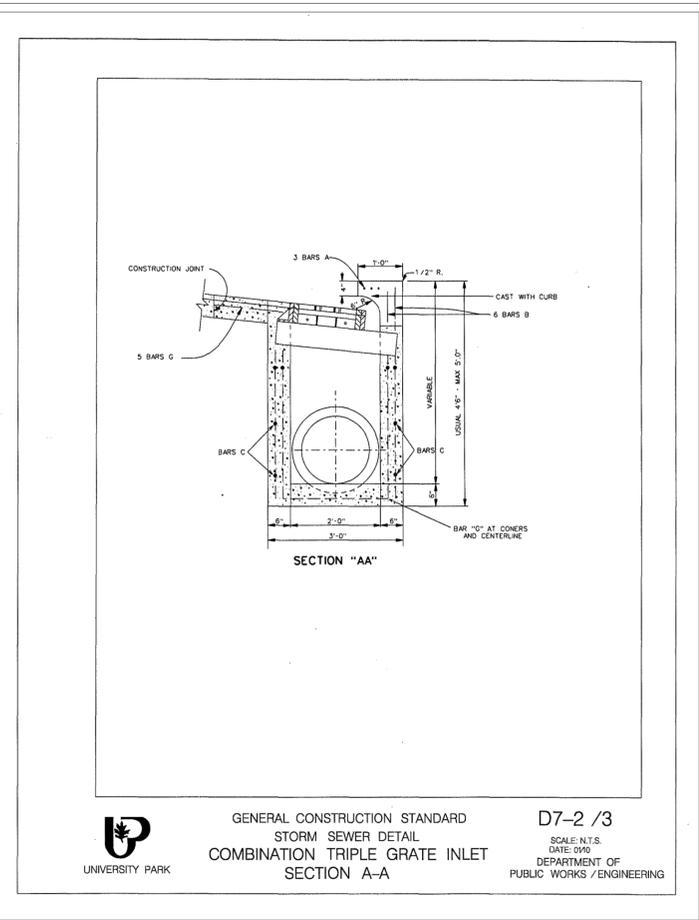
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 DATE: Nov 03, 2020 3:43pm XREFS: Border 22 X 34



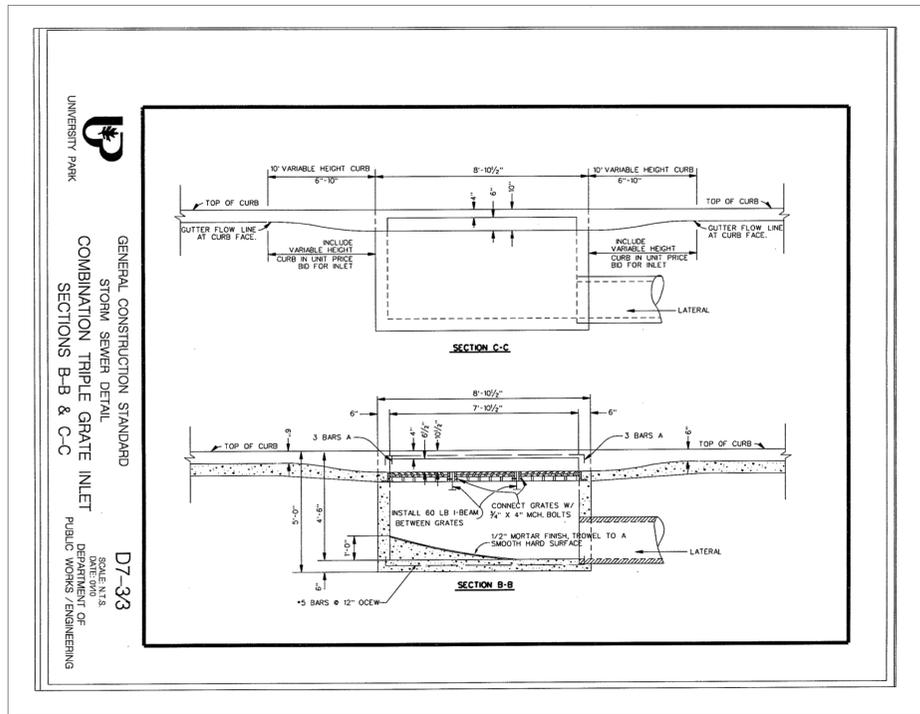
NO.	DATE	REVISIONS	APPROVED
STORMDRAIN DETAILS			
CITY OF UNIVERSITY PARK			
HUITT-ZOLLARS			
DESIGN	DRAWN	APPR.	SCALE
DATE	PROJ. NO.	SHEET	
HD	AR	HD	
NOV 2020	R308306.04	72	

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

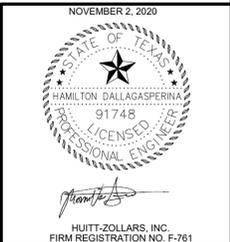
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 DATE: Nov 03, 2020 3:43pm
 USER: aramirez



UNIVERSITY PARK
 GENERAL CONSTRUCTION STANDARD
 STORM SEWER DETAIL
 COMBINATION TRIPLE GRATE INLET
 SECTION A-A
 D7-2 /3
 SCALE: N.T.S.
 DATE: 09/0
 DEPARTMENT OF
 PUBLIC WORKS / ENGINEERING



UNIVERSITY PARK
 GENERAL CONSTRUCTION STANDARD
 STORM SEWER DETAIL
 COMBINATION TRIPLE GRATE INLET
 SECTIONS B-B & C-C
 D7-33
 SCALE: N.T.S.
 DATE: 09/0
 DEPARTMENT OF
 PUBLIC WORKS / ENGINEERING



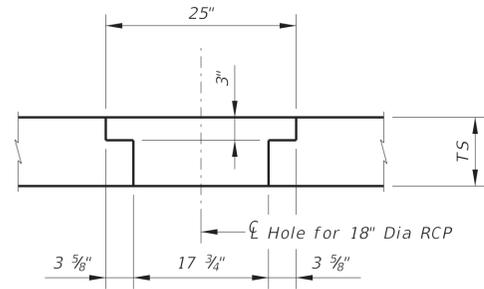
HUITT-ZOLLARS, INC.
 FIRM REGISTRATION NO. F-761

NO.	DATE	REVISIONS	APPROVED

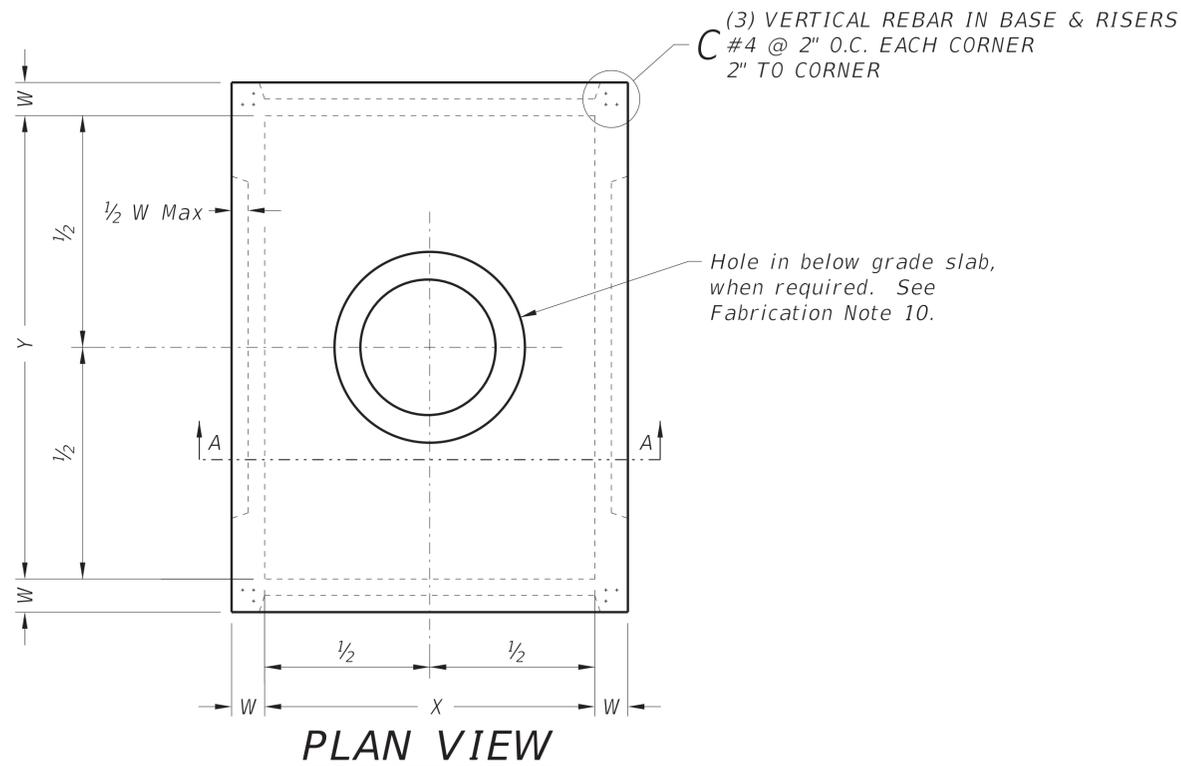
STORMDRAIN DETAILS						
CITY OF UNIVERSITY PARK						
HUITT-ZOLLARS						
DESIGN	DRAWN	APPR.	SCALE	DATE	PROJ. NO.	SHEET
HD	AR	HD		NOV 2020	R308306.04	73

CITY OF UNIVERSITY PARK STORM DRAIN REPLACEMENT

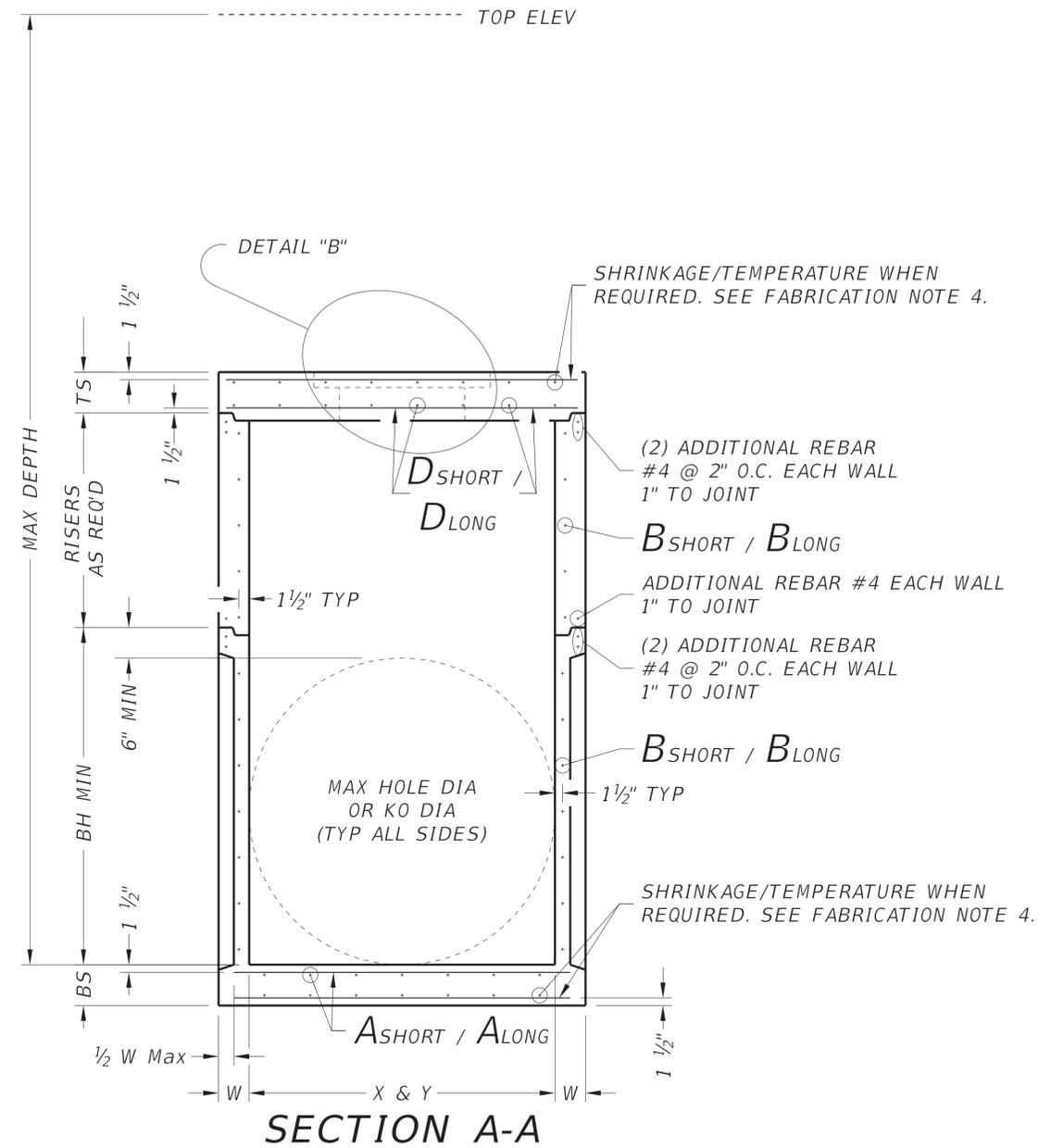
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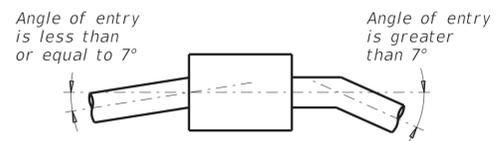
DETAIL "B"



PLAN VIEW



SECTION A-A



PIPE CONNECTION DETAIL

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

FABRICATION NOTES:

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

INSTALLATION NOTES:

1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to junction box.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or 1/2 the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

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

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING



PRECAST JUNCTION BOX

PJB

FILE: prest09-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
DIST	COUNTY			SHEET NO.
				75

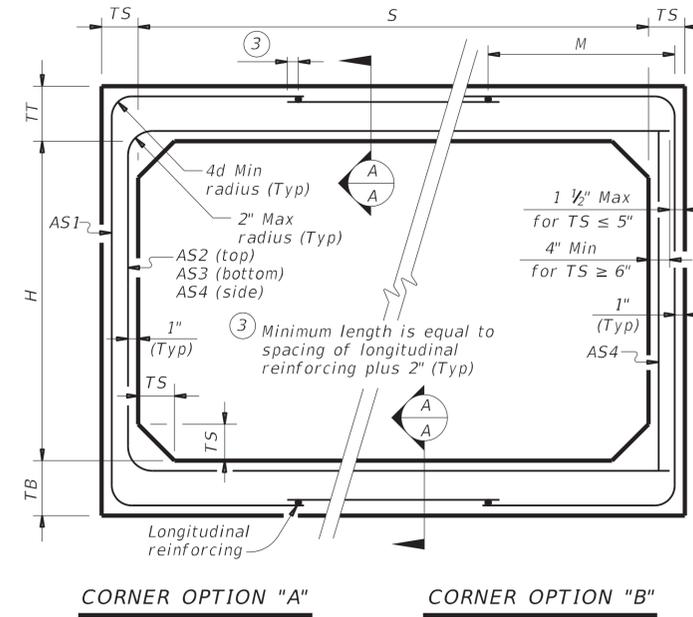
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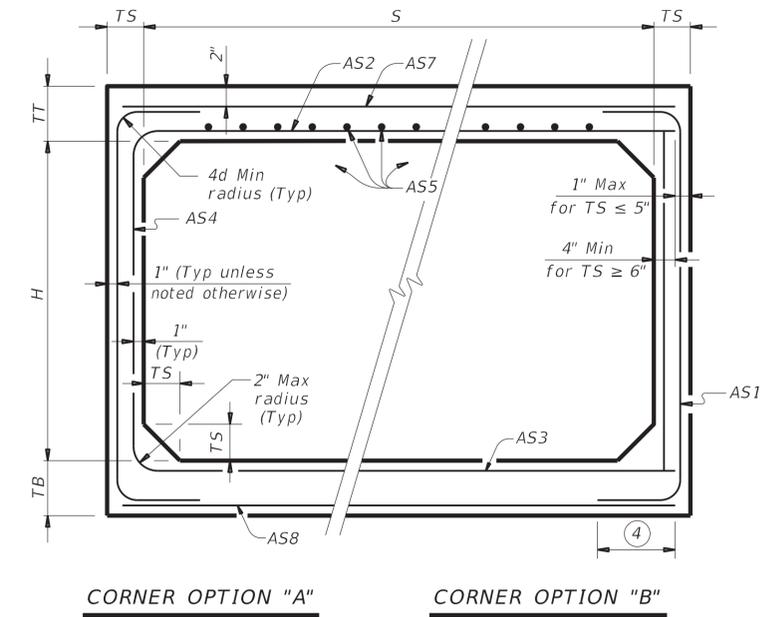
DATE: FILE:

BOX DATA

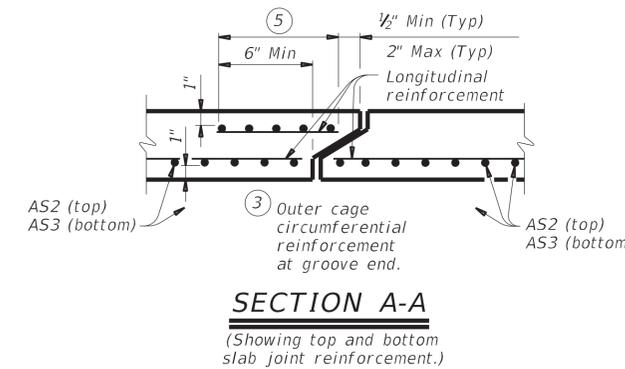
SECTION DIMENSIONS					Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) ^②							① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)			AS1	AS2	AS3	AS4	AS5	AS7	AS8	
6	2	8	7	7	< 2	-	0.23	0.27	0.19	0.17	0.19	0.19	0.17	7.2
6	2	7	7	7	2 < 3	43	0.25	0.21	0.17	0.17	-	-	-	6.8
6	2	7	7	7	3 - 5	43	0.20	0.17	0.17	0.17	-	-	-	6.8
6	2	7	7	7	10	39	0.20	0.17	0.17	0.17	-	-	-	6.8
6	2	7	7	7	15	39	0.26	0.20	0.20	0.17	-	-	-	6.8
6	2	7	7	7	20	39	0.34	0.26	0.26	0.17	-	-	-	6.8
6	2	7	7	7	25	39	0.43	0.32	0.32	0.17	-	-	-	6.8
6	2	7	7	7	30	39	0.52	0.38	0.39	0.17	-	-	-	6.8
6	3	8	7	7	< 2	-	0.20	0.31	0.22	0.17	0.19	0.19	0.17	7.9
6	3	7	7	7	2 < 3	43	0.21	0.24	0.19	0.17	-	-	-	7.5
6	3	7	7	7	3 - 5	39	0.17	0.18	0.17	0.17	-	-	-	7.5
6	3	7	7	7	10	39	0.17	0.18	0.19	0.17	-	-	-	7.5
6	3	7	7	7	15	38	0.22	0.24	0.24	0.17	-	-	-	7.5
6	3	7	7	7	20	38	0.28	0.31	0.31	0.17	-	-	-	7.5
6	3	7	7	7	25	38	0.35	0.38	0.39	0.17	-	-	-	7.5
6	3	7	7	7	30	38	0.42	0.46	0.46	0.17	-	-	-	7.5
6	4	8	7	7	< 2	-	0.19	0.34	0.25	0.17	0.19	0.19	0.17	8.6
6	4	7	7	7	2 < 3	43	0.19	0.27	0.21	0.17	-	-	-	8.2
6	4	7	7	7	3 - 5	39	0.17	0.21	0.19	0.17	-	-	-	8.2
6	4	7	7	7	10	39	0.17	0.20	0.21	0.17	-	-	-	8.2
6	4	7	7	7	15	38	0.18	0.27	0.27	0.17	-	-	-	8.2
6	4	7	7	7	20	38	0.24	0.34	0.35	0.17	-	-	-	8.2
6	4	7	7	7	25	38	0.29	0.43	0.42	0.17	-	-	-	8.2
6	4	7	7	7	30	38	0.35	0.51	0.52	0.17	-	-	-	8.2
6	5	8	7	7	< 2	-	0.19	0.37	0.28	0.17	0.19	0.19	0.17	9.3
6	5	7	7	7	2 < 3	43	0.17	0.30	0.24	0.17	-	-	-	8.9
6	5	7	7	7	3 - 5	43	0.17	0.23	0.21	0.17	-	-	-	8.9
6	5	7	7	7	10	39	0.17	0.22	0.23	0.17	-	-	-	8.9
6	5	7	7	7	15	38	0.17	0.28	0.29	0.17	-	-	-	8.9
6	5	7	7	7	20	38	0.20	0.37	0.38	0.17	-	-	-	8.9
6	5	7	7	7	25	38	0.25	0.45	0.46	0.17	-	-	-	8.9
6	5	7	7	7	30	38	0.30	0.54	0.55	0.17	-	-	-	8.9
6	6	8	7	7	< 2	-	0.19	0.38	0.30	0.17	0.19	0.19	0.17	10
6	6	7	7	7	2 < 3	52	0.17	0.32	0.26	0.17	-	-	-	9.6
6	6	7	7	7	3 - 5	52	0.17	0.24	0.22	0.17	-	-	-	9.6
6	6	7	7	7	10	43	0.17	0.23	0.24	0.17	-	-	-	9.6
6	6	7	7	7	15	39	0.17	0.29	0.31	0.17	-	-	-	9.6
6	6	7	7	7	20	39	0.18	0.38	0.39	0.17	-	-	-	9.6
6	6	7	7	7	25	38	0.23	0.46	0.48	0.17	-	-	-	9.6
6	6	7	7	7	30	38	0.27	0.55	0.57	0.17	-	-	-	9.6



FILL HEIGHT 2 FT AND GREATER



FILL HEIGHT LESS THAN 2 FT



SECTION A-A
(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:
 Provide 0.03 sq. in./ft. minimum longitudinal reinforcing at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
 Provide Class H concrete ($f'c = 5,000$ psi).

GENERAL NOTES:
 Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
 See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
 In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

① For box length = 8'-0"
 ② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

HL93 LOADING

Bridge Division Standard

SINGLE BOX CULVERTS PRECAST 6'-0" SPAN

SCP-6

FILE: scp06sts-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
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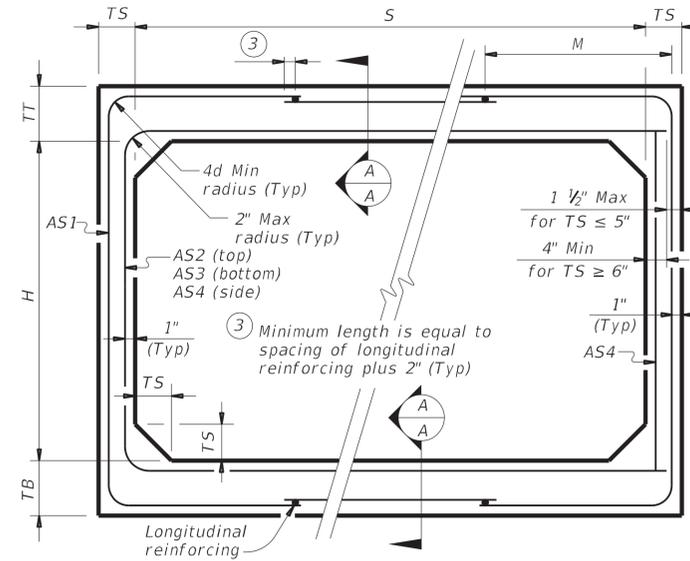
DATE: FILE:

BOX DATA

SECTION DIMENSIONS					Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) ⁽²⁾							Lift Weight (tons) ⁽¹⁾
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)			AS1	AS2	AS3	AS4	AS5	AS7	AS8	
8	3	8	8	8	< 2	-	0.31	0.35	0.25	0.19	0.19	0.19	0.19	10.4
8	3	8	8	8	2 < 3	55	0.35	0.29	0.28	0.19	-	-	-	10.4
8	3	8	8	8	3 - 5	50	0.28	0.23	0.24	0.19	-	-	-	10.4
8	3	8	8	8	10	45	0.29	0.25	0.26	0.19	-	-	-	10.4
8	3	8	8	8	15	45	0.39	0.33	0.34	0.19	-	-	-	10.4
8	3	8	8	8	20	45	0.51	0.43	0.44	0.19	-	-	-	10.4
8	3	8	8	8	25	45	0.63	0.53	0.54	0.19	-	-	-	10.4
8	4	8	8	8	< 2	-	0.27	0.38	0.29	0.19	0.19	0.19	0.19	11.2
8	4	8	8	8	2 < 3	50	0.31	0.34	0.32	0.19	-	-	-	11.2
8	4	8	8	8	3 - 5	50	0.25	0.27	0.27	0.19	-	-	-	11.2
8	4	8	8	8	10	45	0.26	0.28	0.29	0.19	-	-	-	11.2
8	4	8	8	8	15	41	0.34	0.37	0.38	0.19	-	-	-	11.2
8	4	8	8	8	20	41	0.44	0.48	0.49	0.19	-	-	-	11.2
8	5	8	8	8	< 2	-	0.24	0.40	0.32	0.19	0.19	0.19	0.19	12.0
8	5	8	8	8	2 < 3	50	0.28	0.37	0.35	0.19	-	-	-	12.0
8	5	8	8	8	3 - 5	45	0.23	0.29	0.30	0.19	-	-	-	12.0
8	5	8	8	8	10	45	0.23	0.31	0.32	0.19	-	-	-	12.0
8	5	8	8	8	15	41	0.30	0.41	0.42	0.19	-	-	-	12.0
8	5	8	8	8	20	41	0.39	0.52	0.54	0.19	-	-	-	12.0
8	6	8	8	8	< 2	-	0.22	0.42	0.35	0.19	0.19	0.19	0.19	12.8
8	6	8	8	8	2 < 3	50	0.25	0.40	0.38	0.19	-	-	-	12.8
8	6	8	8	8	3 - 5	50	0.21	0.32	0.33	0.19	-	-	-	12.8
8	6	8	8	8	10	45	0.22	0.33	0.34	0.19	-	-	-	12.8
8	6	8	8	8	15	41	0.28	0.43	0.45	0.19	-	-	-	12.8
8	6	8	8	8	20	41	0.36	0.55	0.57	0.19	-	-	-	12.8
8	7	8	8	8	< 2	-	0.20	0.44	0.37	0.19	0.19	0.19	0.19	13.6
8	7	8	8	8	2 < 3	55	0.23	0.43	0.41	0.19	-	-	-	13.6
8	7	8	8	8	3 - 5	55	0.19	0.34	0.35	0.19	-	-	-	13.6
8	7	8	8	8	10	50	0.20	0.34	0.36	0.19	-	-	-	13.6
8	7	8	8	8	15	41	0.26	0.45	0.47	0.19	-	-	-	13.6
8	7	8	8	8	20	41	0.33	0.57	0.60	0.19	-	-	-	13.6
8	8	8	8	8	< 2	-	0.20	0.45	0.40	0.19	0.19	0.19	0.19	14.4
8	8	8	8	8	2 < 3	65	0.21	0.45	0.44	0.19	-	-	-	14.4
8	8	8	8	8	3 - 5	65	0.19	0.36	0.38	0.19	-	-	-	14.4
8	8	8	8	8	10	55	0.19	0.35	0.38	0.19	-	-	-	14.4
8	8	8	8	8	15	45	0.24	0.46	0.49	0.19	-	-	-	14.4
8	8	8	8	8	20	45	0.31	0.59	0.62	0.19	-	-	-	14.4

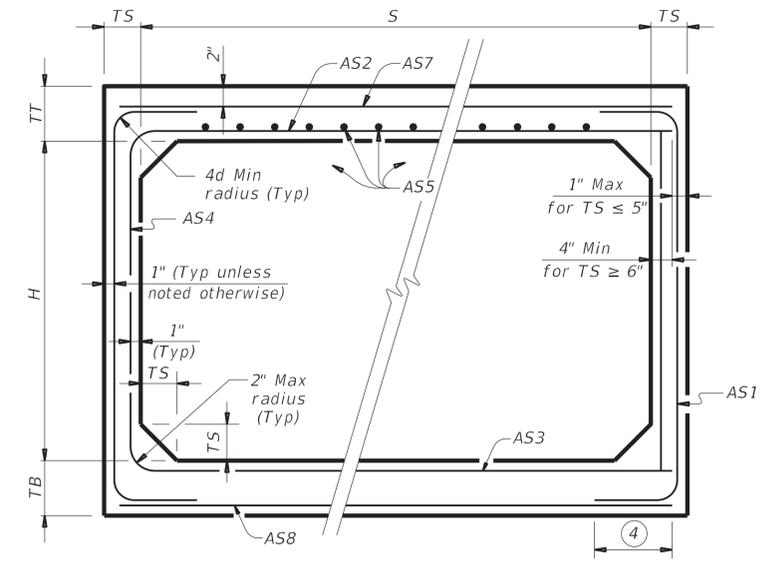
⁽¹⁾ For box length = 8'-0"

⁽²⁾ AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" **CORNER OPTION "B"**

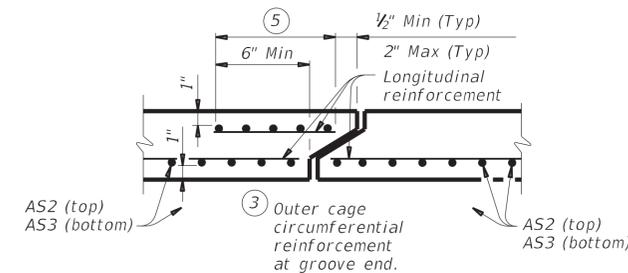
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" **CORNER OPTION "B"**

FILL HEIGHT LESS THAN 2 FT

⁽⁴⁾ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)

MATERIAL NOTES:

Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.
Provide Class H concrete ($f'c = 5,000$ psi).

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.
See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.
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HL93 LOADING



**SINGLE BOX CULVERTS
PRECAST
8'-0" SPAN**

SCP-8

FILE: scp08sts-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
DIST	COUNTY			SHEET NO.
77				

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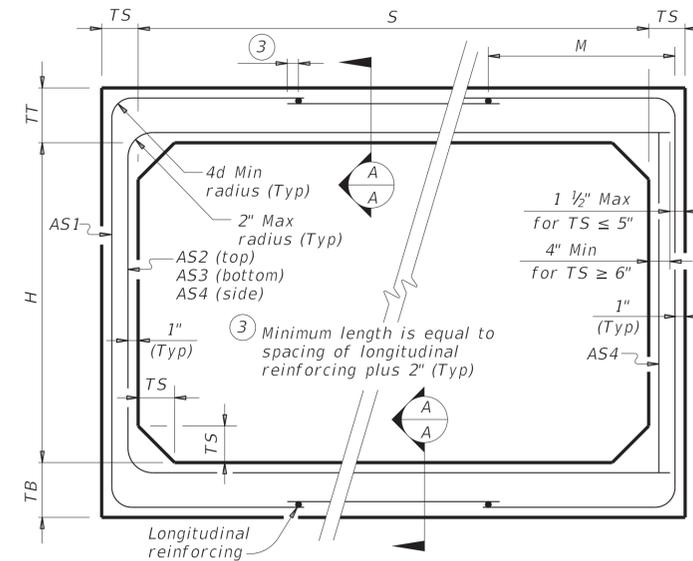
DATE: FILE:

BOX DATA

SECTION DIMENSIONS					Fill Height (ft.)	M (Min) (in.)	REINFORCING (sq. in. / ft.) ^②						① Lift Weight (tons)
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)			AS1	AS2	AS3	AS4	AS5	AS7	
10	4	10	10	10	< 2	-	0.33	0.34	0.27	0.24	0.24	0.24	16.5
10	4	10	10	10	2 < 3	58	0.38	0.35	0.30	0.24	-	-	16.5
10	4	10	10	10	3 - 5	53	0.31	0.28	0.27	0.24	-	-	16.5
10	4	10	10	10	10	52	0.36	0.32	0.33	0.24	-	-	16.5
10	4	10	10	10	15	52	0.47	0.42	0.43	0.24	-	-	16.5
10	4	10	10	10	20	52	0.61	0.54	0.55	0.24	-	-	16.5
10	4	10	10	10	25	52	0.75	0.67	0.68	0.24	-	-	16.5
10	5	10	10	10	< 2	-	0.30	0.36	0.30	0.24	0.24	0.24	17.5
10	5	10	10	10	2 < 3	58	0.35	0.39	0.34	0.24	-	-	17.5
10	5	10	10	10	3 - 5	52	0.28	0.31	0.30	0.24	-	-	17.5
10	5	10	10	10	10	52	0.33	0.35	0.36	0.24	-	-	17.5
10	5	10	10	10	15	47	0.42	0.46	0.47	0.24	-	-	17.5
10	5	10	10	10	20	47	0.55	0.59	0.61	0.24	-	-	17.5
10	5	10	10	10	25	47	0.68	0.73	0.75	0.24	-	-	17.5
10	6	10	10	10	< 2	-	0.28	0.38	0.33	0.24	0.24	0.24	18.5
10	6	10	10	10	2 < 3	58	0.32	0.42	0.37	0.24	-	-	18.5
10	6	10	10	10	3 - 5	53	0.26	0.34	0.33	0.24	-	-	18.5
10	6	10	10	10	10	52	0.30	0.38	0.39	0.24	-	-	18.5
10	6	10	10	10	15	47	0.39	0.49	0.51	0.24	-	-	18.5
10	6	10	10	10	20	47	0.50	0.63	0.65	0.24	-	-	18.5
10	6	10	10	10	25	47	0.61	0.78	0.80	0.24	-	-	18.5
10	7	10	10	10	< 2	-	0.25	0.40	0.36	0.24	0.24	0.24	19.5
10	7	10	10	10	2 < 3	58	0.30	0.45	0.40	0.24	-	-	19.5
10	7	10	10	10	3 - 5	58	0.24	0.36	0.35	0.24	-	-	19.5
10	7	10	10	10	10	52	0.28	0.40	0.42	0.24	-	-	19.5
10	7	10	10	10	15	47	0.36	0.52	0.54	0.24	-	-	19.5
10	7	10	10	10	20	47	0.46	0.67	0.69	0.24	-	-	19.5
10	7	10	10	10	25	47	0.56	0.82	0.85	0.24	-	-	19.5
10	8	10	10	10	< 2	-	0.24	0.41	0.38	0.24	0.24	0.24	20.5
10	8	10	10	10	2 < 3	64	0.27	0.47	0.43	0.24	-	-	20.5
10	8	10	10	10	3 - 5	58	0.24	0.38	0.38	0.24	-	-	20.5
10	8	10	10	10	10	52	0.26	0.42	0.44	0.24	-	-	20.5
10	8	10	10	10	15	47	0.34	0.54	0.57	0.24	-	-	20.5
10	8	10	10	10	20	47	0.43	0.69	0.72	0.24	-	-	20.5
10	9	10	10	10	< 2	-	0.24	0.42	0.41	0.24	0.24	0.24	21.5
10	9	10	10	10	2 < 3	70	0.26	0.50	0.46	0.24	-	-	21.5
10	9	10	10	10	3 - 5	64	0.24	0.40	0.40	0.24	-	-	21.5
10	9	10	10	10	10	58	0.25	0.43	0.46	0.24	-	-	21.5
10	9	10	10	10	15	52	0.32	0.56	0.59	0.24	-	-	21.5
10	9	10	10	10	20	47	0.40	0.71	0.75	0.24	-	-	21.5
10	10	10	10	10	< 2	-	0.24	0.44	0.44	0.24	0.24	0.24	22.5
10	10	10	10	10	2 < 3	79	0.25	0.52	0.48	0.24	-	-	22.5
10	10	10	10	10	3 - 5	70	0.24	0.42	0.43	0.24	-	-	22.5
10	10	10	10	10	10	64	0.24	0.44	0.48	0.24	-	-	22.5
10	10	10	10	10	15	52	0.30	0.57	0.61	0.24	-	-	22.5
10	10	10	10	10	20	52	0.38	0.73	0.77	0.24	-	-	22.5

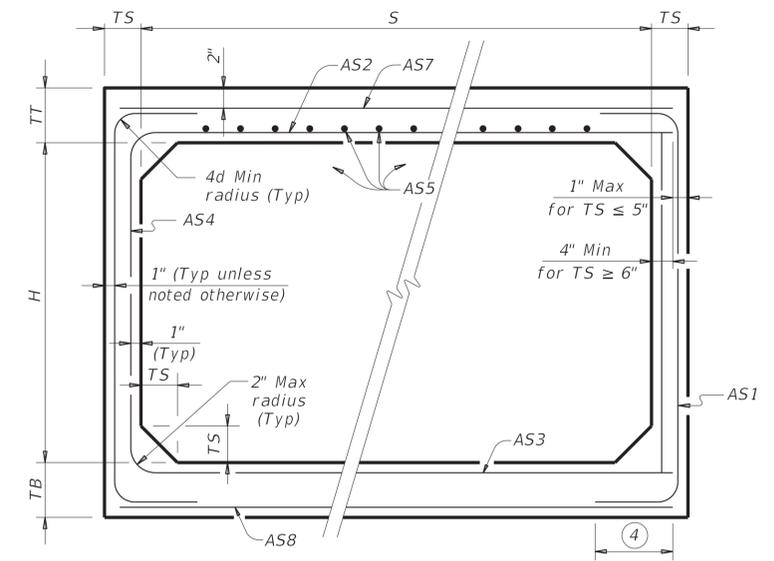
① For box length = 8'-0"

② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.



CORNER OPTION "A" CORNER OPTION "B"

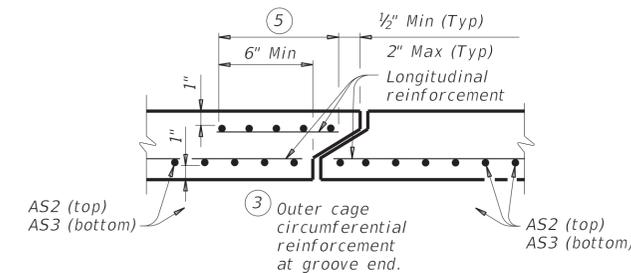
FILL HEIGHT 2 FT AND GREATER



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT LESS THAN 2 FT

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

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HL93 LOADING



**SINGLE BOX CULVERTS
PRECAST
10'-0" SPAN**

SCP-10

FILE: scp10st-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
CONT	SECT	JOB	HIGHWAY	
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DIST	COUNTY			SHEET NO.
				78

