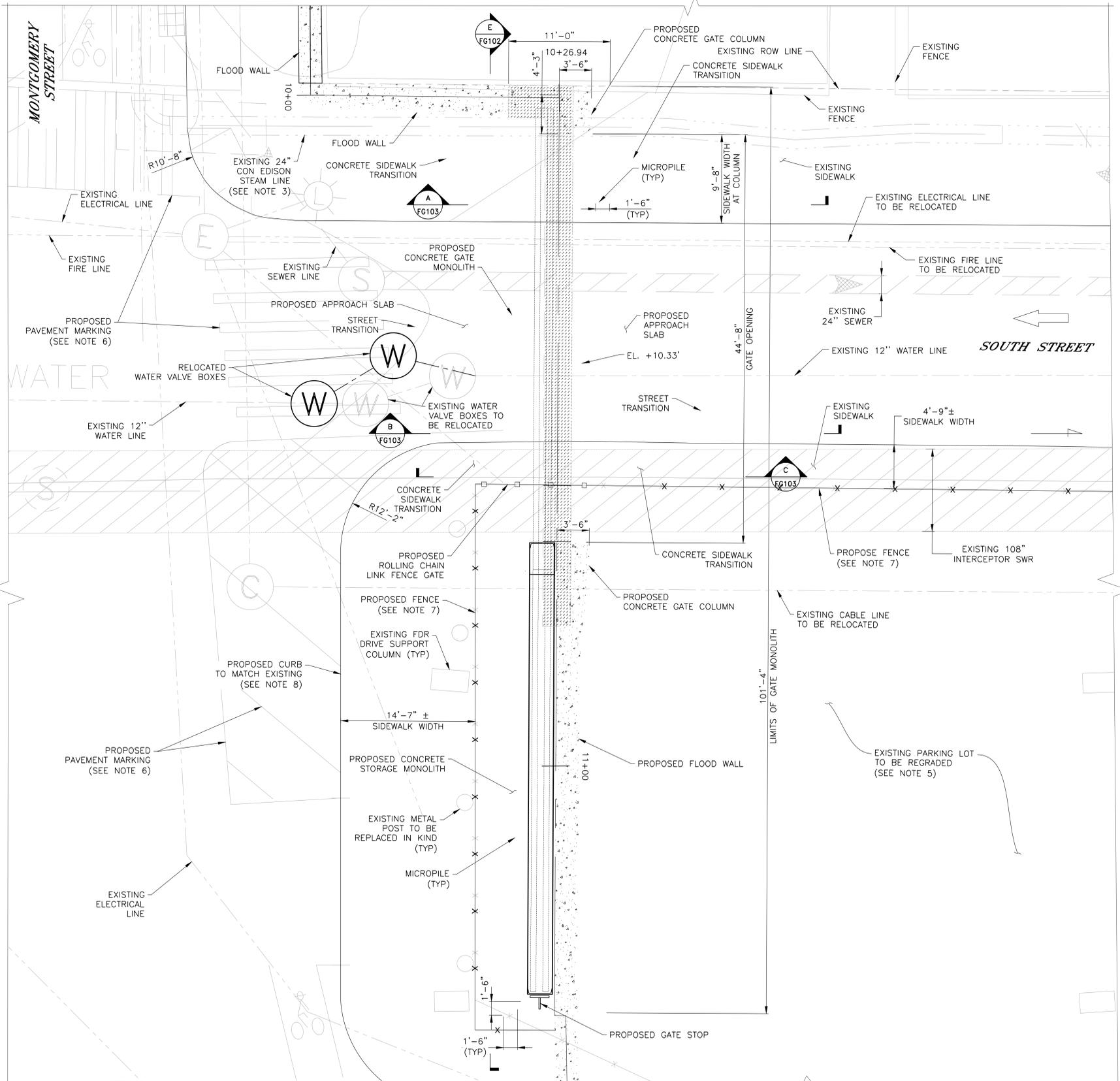
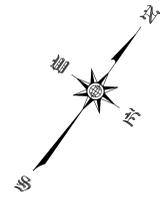


**Appendix C1g**  
**Preferred Alternative - Closure Structures**

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CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**LEGEND:**

PROPOSED JET GROUTING ZONE

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. ALL ELEVATION ARE IN FEET RELATIVE TO NAVD88.
3. GATE SHOWN IN STORED POSITION.
4. LOCATION OF CON EDISON STEAM LINE PER CON EDISON PLATE 16 NO. 567.
5. SEE DRAWING FG132 FOR PARKING LOT REGRADING.
6. SEE DRAWING XXXXX FOR STRIPING PLAN.
7. SEE DRAWING XXXXX FOR FENCING PLAN.
8. SEE DRAWING XXXXX FOR CURB DETAILS.
9. SEE DRAWING XXXXX FOR WATER VALVE BOX RECONSTRUCTION.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019



**MONTGOMERY STREET ROLLER GATE PARTIAL PLAN**

SCALE: 1" = 5'

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE FOUNDATION  
MONTGOMERY ST ROLLER GATE  
GENERAL PLAN

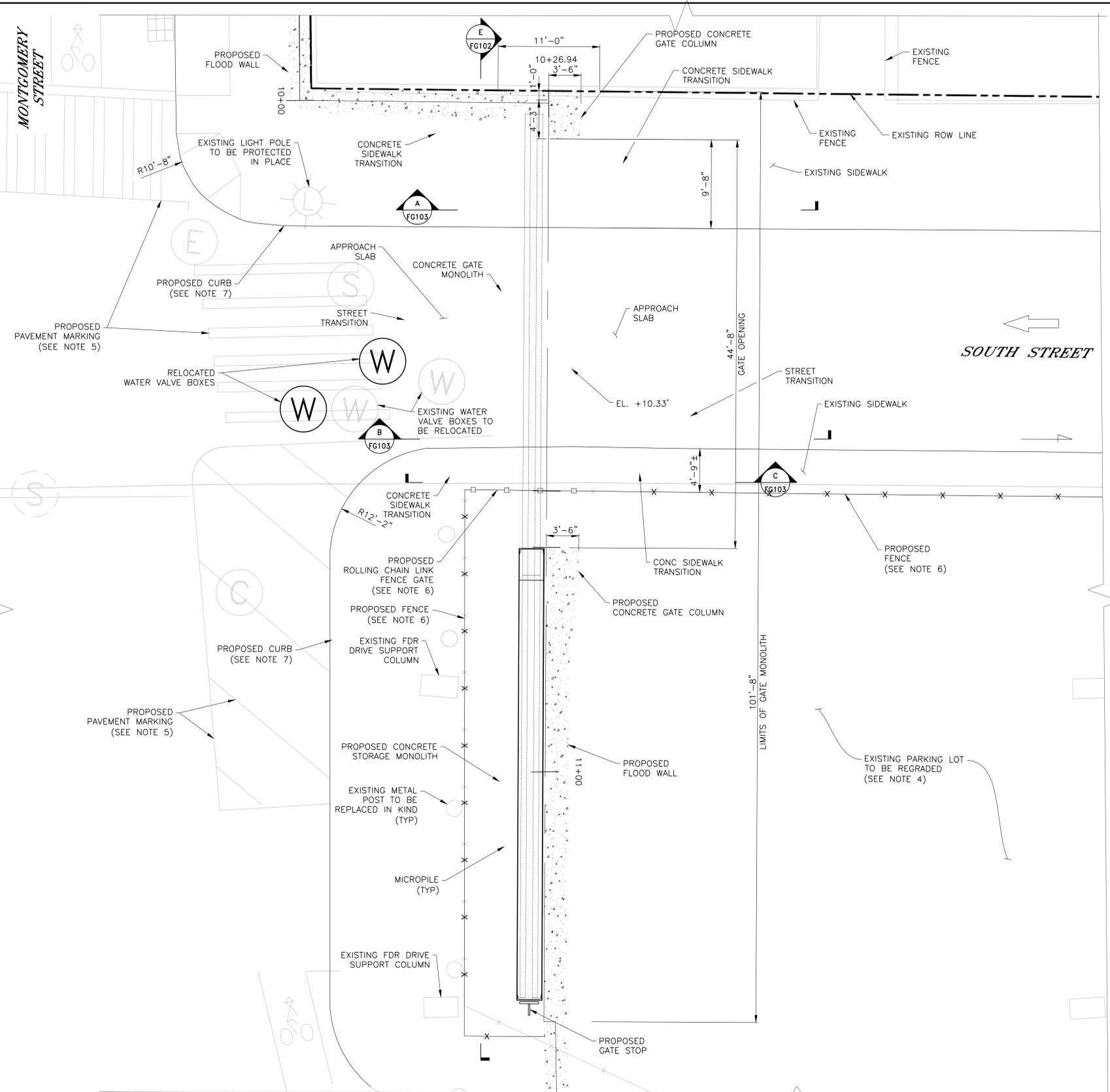
CH2M DRAWN BY \_\_\_\_\_  
SANDRESM1-FG100-00.DWG  
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NO.	DATE	DESCRIPTIONS	BY	APPR'D

**INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY**  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19    SHEET 162 OF 811    FG100

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. ALL ELEVATION ARE IN FEET RELATIVE TO NAVD88.
3. GATE SHOWN IN STORED POSITION.
4. SEE DRAWING FG132 FOR PARKING LOT REGRADING.
5. SEE DRAWING XXXXX FOR STRIPING PLAN.
6. SEE DRAWING XXXXX FOR FENCING PLAN.
7. SEE DRAWING XXXXX FOR CURB DETAILS.

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019



**MONTGOMERY STREET ROLLER GATE PARTIAL PLAN**

SCALE: 1" = 5'

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



The AKRF-KSE JV

FINAL DESIGN PREPARED BY:



CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE

DATE

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
MONTGOMERY ST ROLLER GATE  
GATE MONOLITH LAYOUT PLAN

CH2M  
DRAWN BY

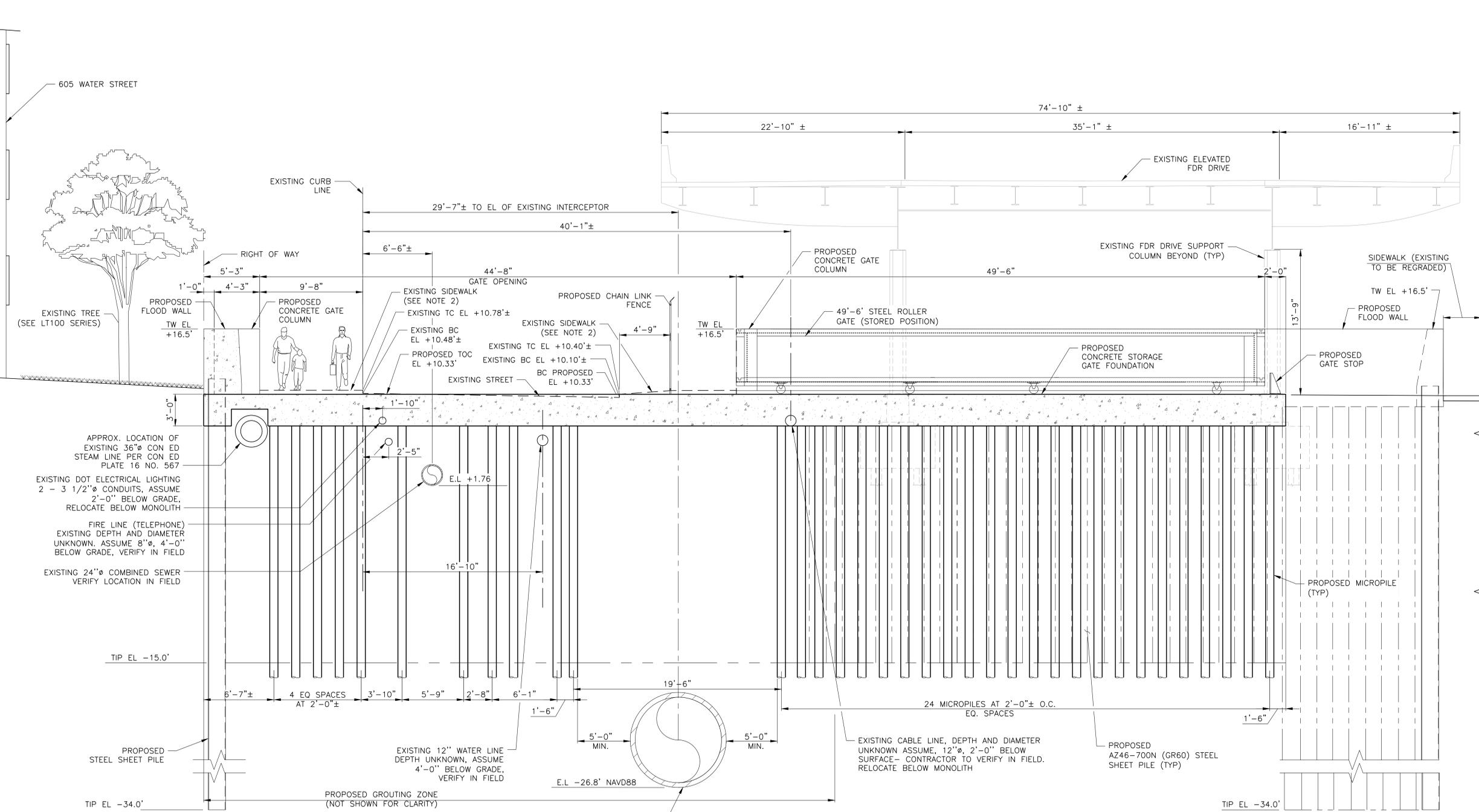
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CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 163 OF 811 FG101

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



APPROX. LOCATION OF EXISTING 36" Ø CON ED STEAM LINE PER CON ED PLATE 16 NO. 567

EXISTING DOT ELECTRICAL LIGHTING 2 - 3 1/2" Ø CONDUITS, ASSUME 2'-0" BELOW GRADE, RELOCATE BELOW MONOLITH

FIRE LINE (TELEPHONE) EXISTING DEPTH AND DIAMETER UNKNOWN. ASSUME 8" Ø, 4'-0" BELOW GRADE, VERIFY IN FIELD

EXISTING 24" Ø COMBINED SEWER VERIFY LOCATION IN FIELD

EXISTING 108" Ø INTERCEPTOR APPROXIMATE LOCATION SHOWN. CONTRACTOR TO VERIFY LOCATION WITH DEP PRIOR TO INSTALLING PILES.

- NOTES:**
1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
  2. SEE DRAWING XXXXX FOR SIDEWALK RECONSTRUCTION.

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019

**ELEVATION LOOKING EAST AT SOUTH STREET W/ GATE OPEN**  
 SCALE 1/4" = 1'-0"

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
 The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
 CH2M HILL NEW YORK, INC.  
 NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_

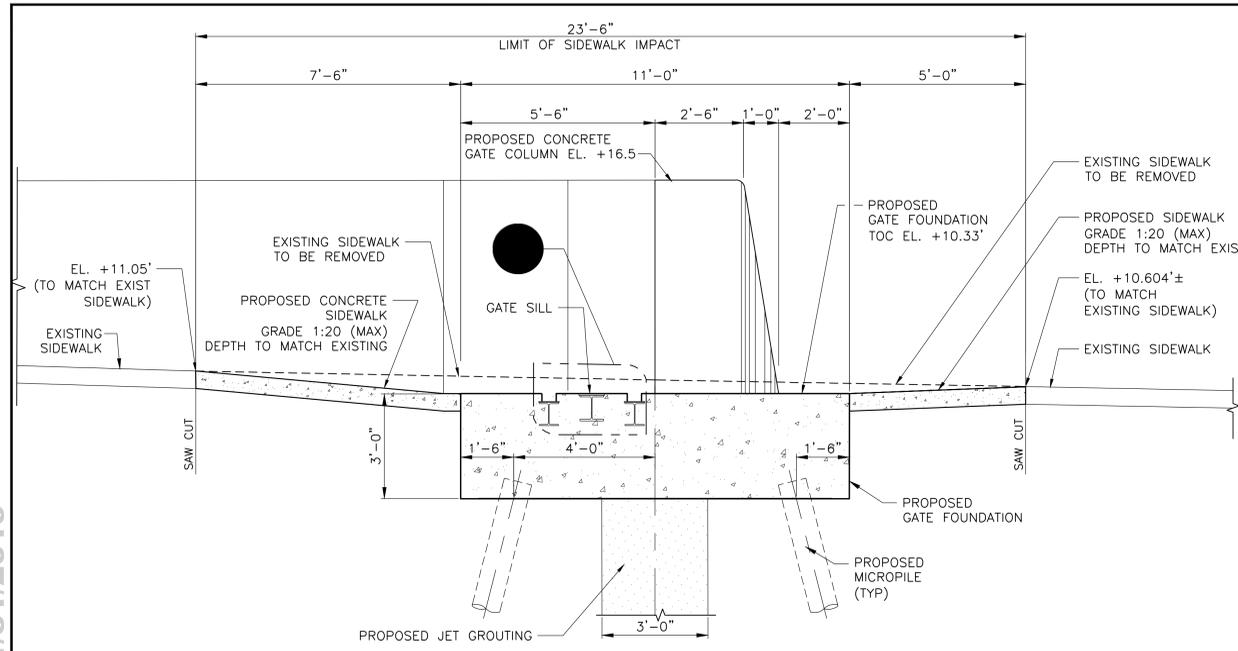
CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

CLOSURE STRUCTURES  
 MONTGOMERY ST ROLLER GATE  
 ELEVATION

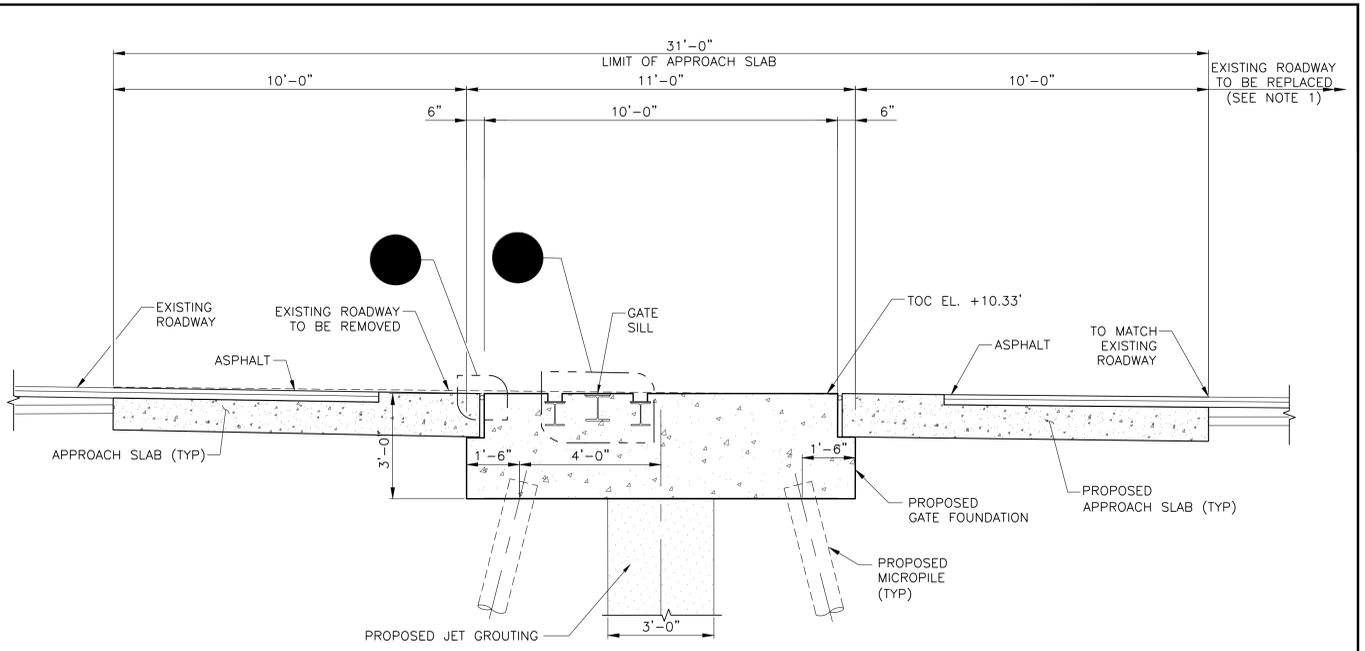
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 SANDRESM1-FG102-00.DWG  
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NO.		DATE	DESCRIPTIONS	BY	APPR'D
REVISIONS					
INSTALLATION OF EAST SIDE COASTAL RESILIENCY BOROUGH OF MANHATTAN					
CAPITAL PROJECT NO. SANDRESM1 1/31/19			SHEET 164 OF 811	FG102	

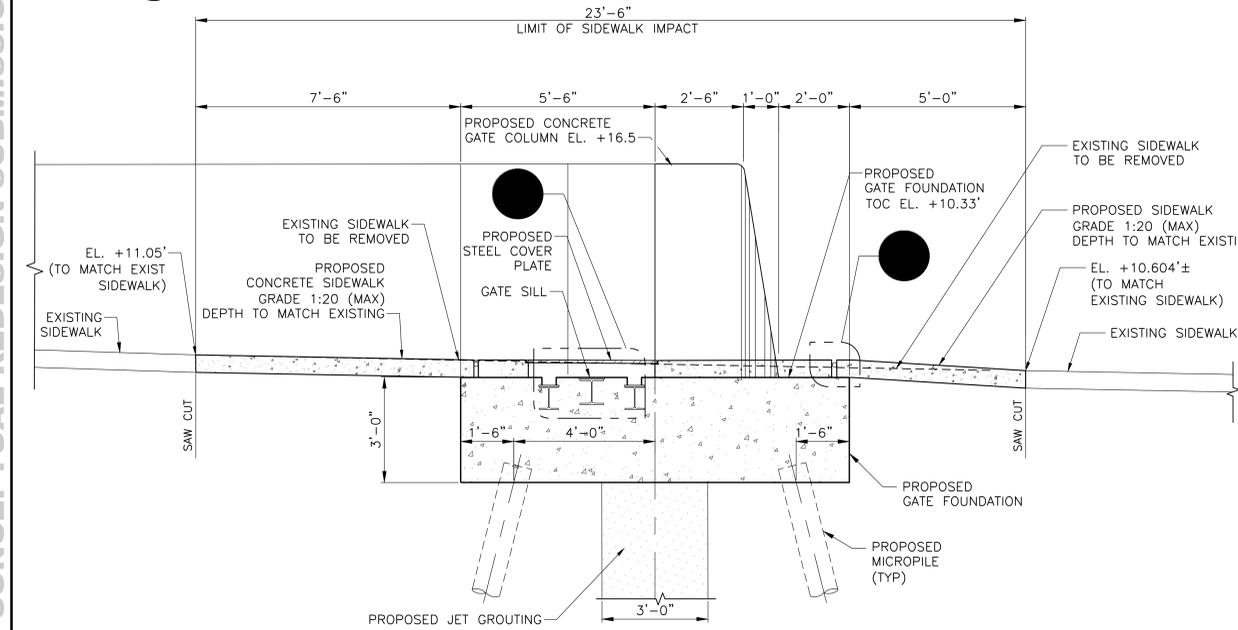
CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



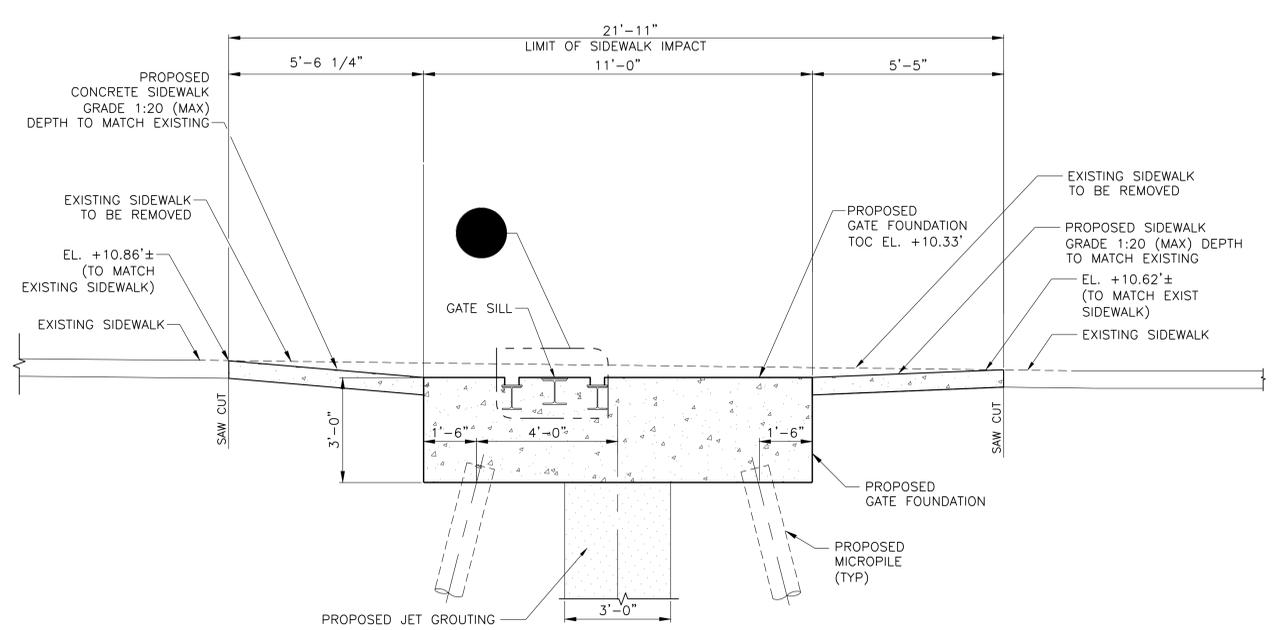
**A** SECTION THROUGH SIDEWALK AT NORTH END OF SOUTH STREET  
 FG100 SCALE 1/2" = 1'-0"



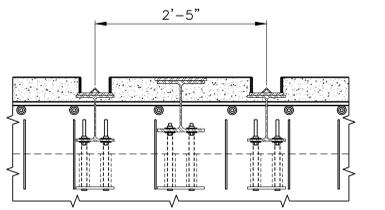
**B** SECTION THROUGH STREET AT END OF SOUTH STREET  
 FG100 SCALE 1/2" = 1'-0"



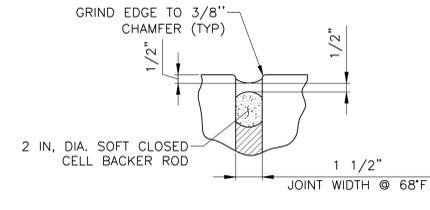
**A** ALTERNATIVE SECTION THROUGH SIDEWALK AT NORTH END OF SOUTH STREET  
 FG100 SCALE 1/2" = 1'-0"



**C** SECTION THROUGH SIDEWALK AT SOUTH END OF SOUTH STREET  
 FG100 SCALE 1/2" = 1'-0"



**1** SECTION PLATE DETAIL  
 SCALE 1" = 1'-0"



**2** JOINT SEALING DETAIL  
 SCALE 3" = 1'-0"

**CONCEPTUAL**  
 SUBMITTED DATE: 1/31/2019

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE DWG FG130, FG132, FG133 AND FG134 FOR REGRADING PLAN AND PROFILE.

NO.	DATE	DESCRIPTIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
 The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
  
 CH2M HILL NEW YORK, INC.  
 NAME OF CONSULTANT

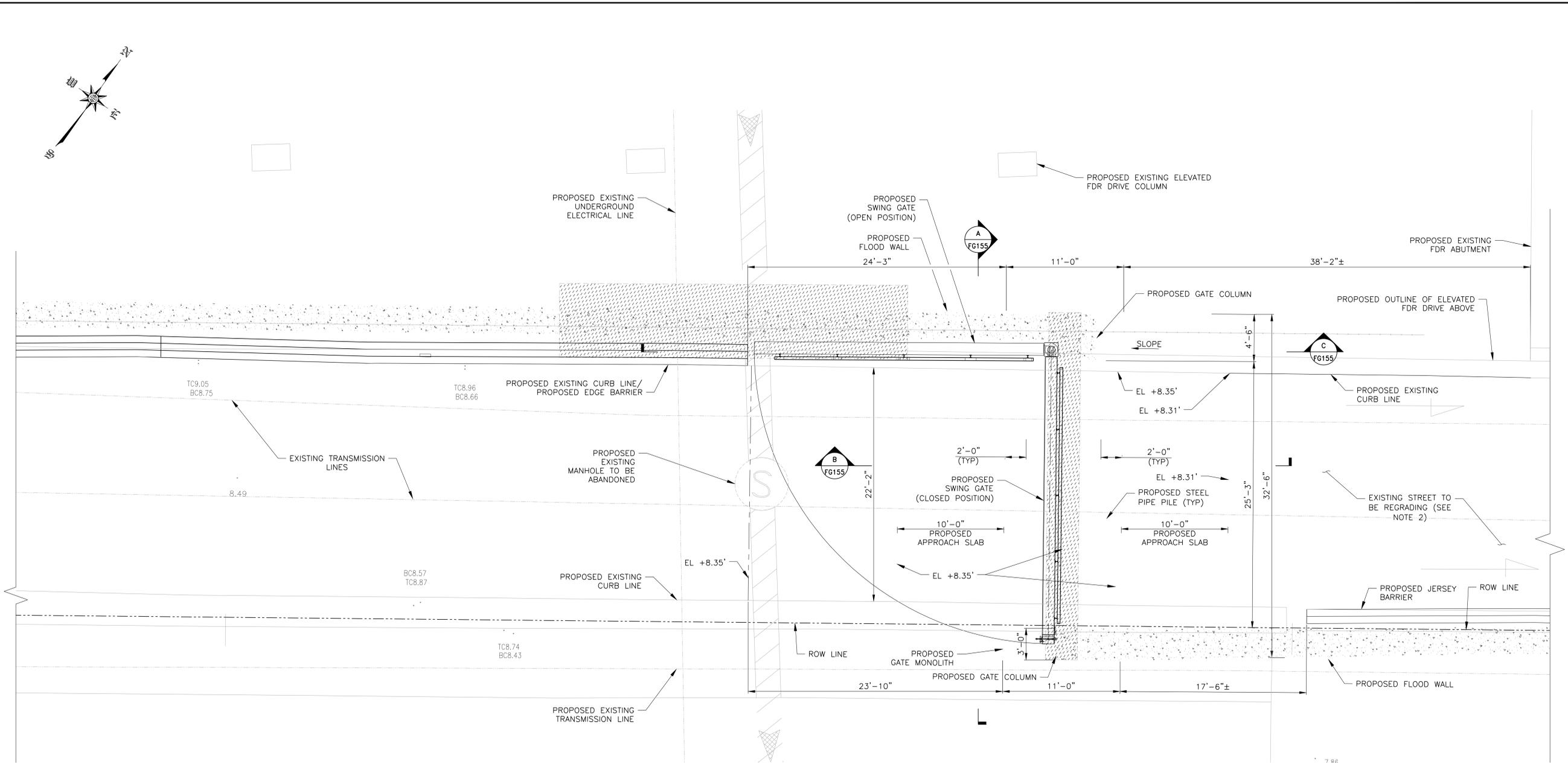
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 DATE \_\_\_\_\_

CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

CLOSURE STRUCTURES  
 MONTGOMERY ST ROLLER GATE  
 SECTIONS AND DETAILS  
 CH2M DRAWN BY \_\_\_\_\_  
 SANDRESM1-FG103-00.DWG  
 CADD FILE

INSTALLATION OF  
 EAST SIDE COASTAL RESILIENCY  
 BOROUGH OF MANHATTAN  
 CAPITAL PROJECT NO. SANDRESM1 1/31/19  
 SHEET 165 OF 811  
 FG103

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**PIER 42 SWING GATE  
PARTIAL PLAN**  
SCALE: 1/8" = 1'-0"

**NOTE:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE DRAWING FG170, FG171 AND FG172 FOR STREET REGRADING.

**LEGEND:**

PROPOSED JET GROUTING ZONE

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
PIER 42 SWING GATE  
GENERAL PLAN

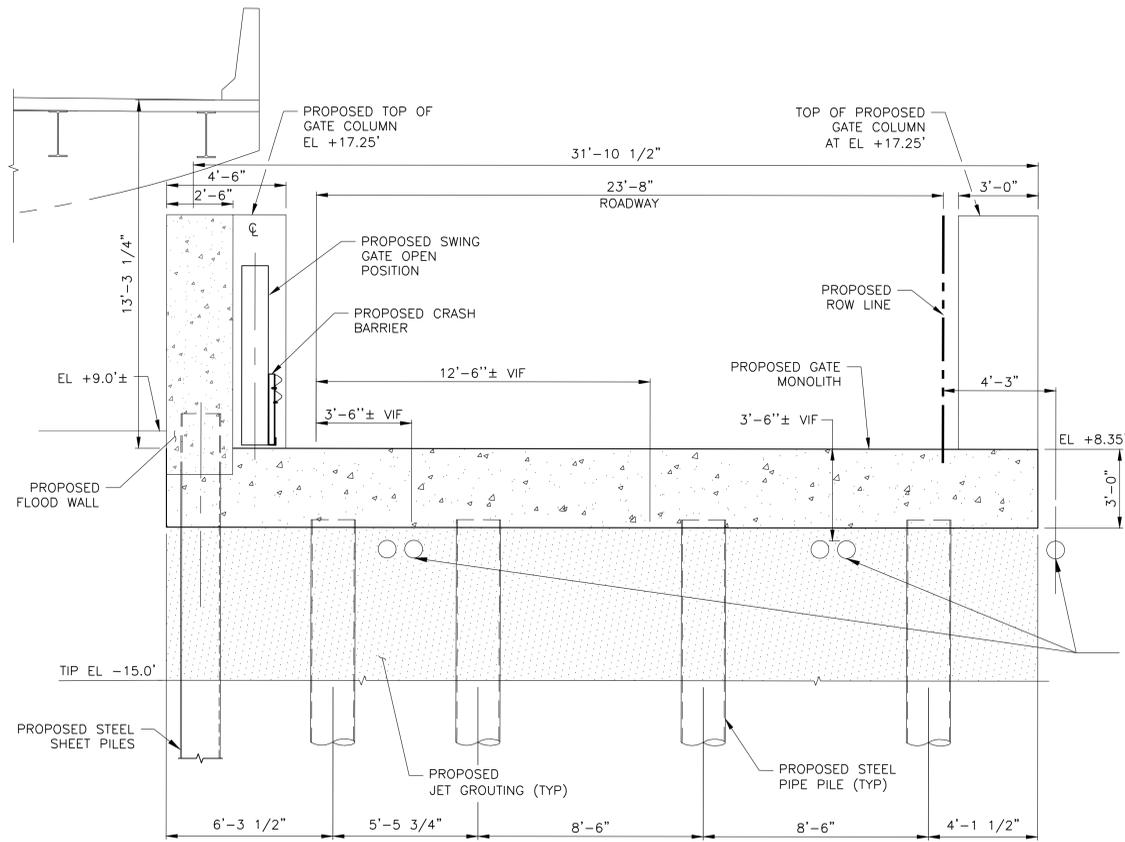
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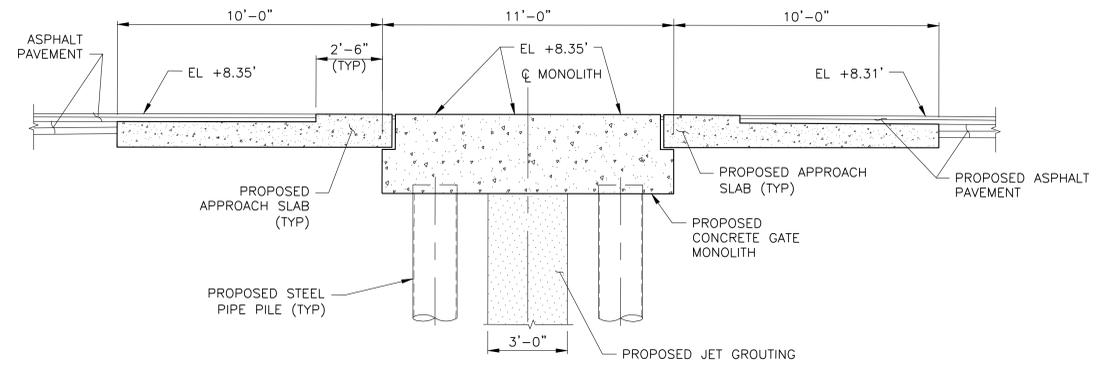
INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

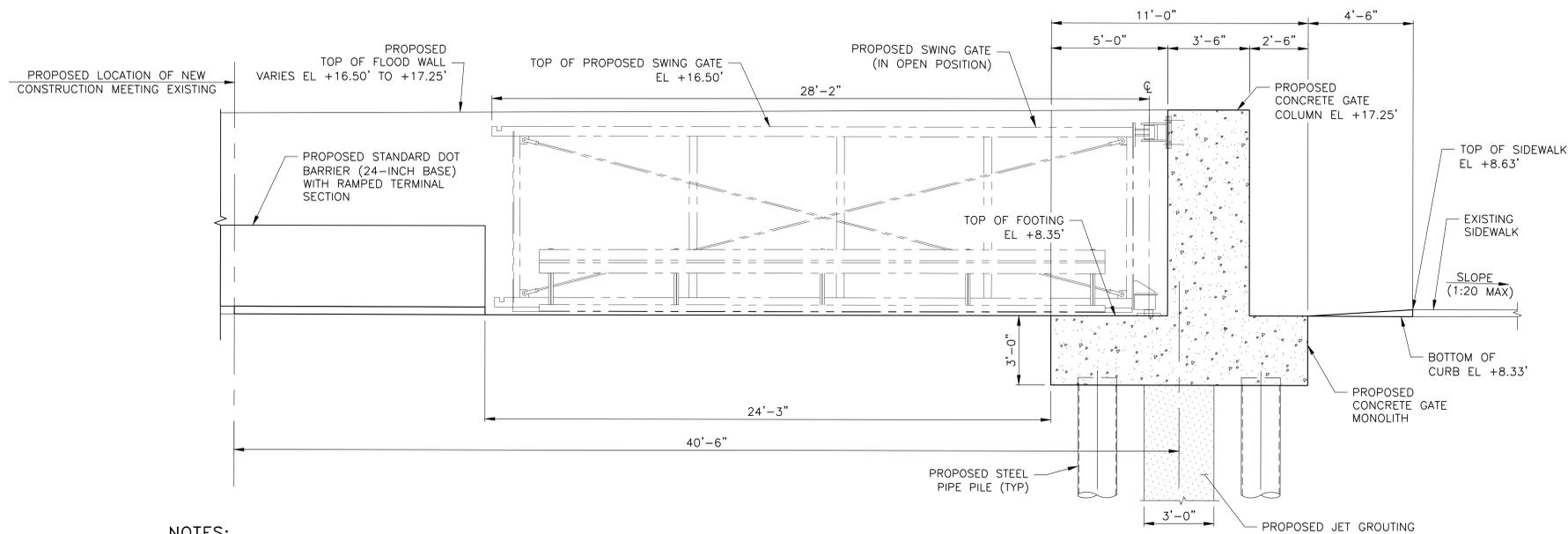
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 177 OF 811 FG150



**A SECTION** LOOKING NORTH TOWARD RAMP  
SCALE 3/8"=1'-0"



**B SECTION**  
SCALE 3/8"=1'-0"



**C SECTION**  
SCALE 3/8"=1'-0"

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. ALL TC AND BC ELEVATIONS ARE EXISTING SPOT ELEVATIONS RELATIVE TO NAVD88.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
PIER 42 SWING GATE  
SECTIONS

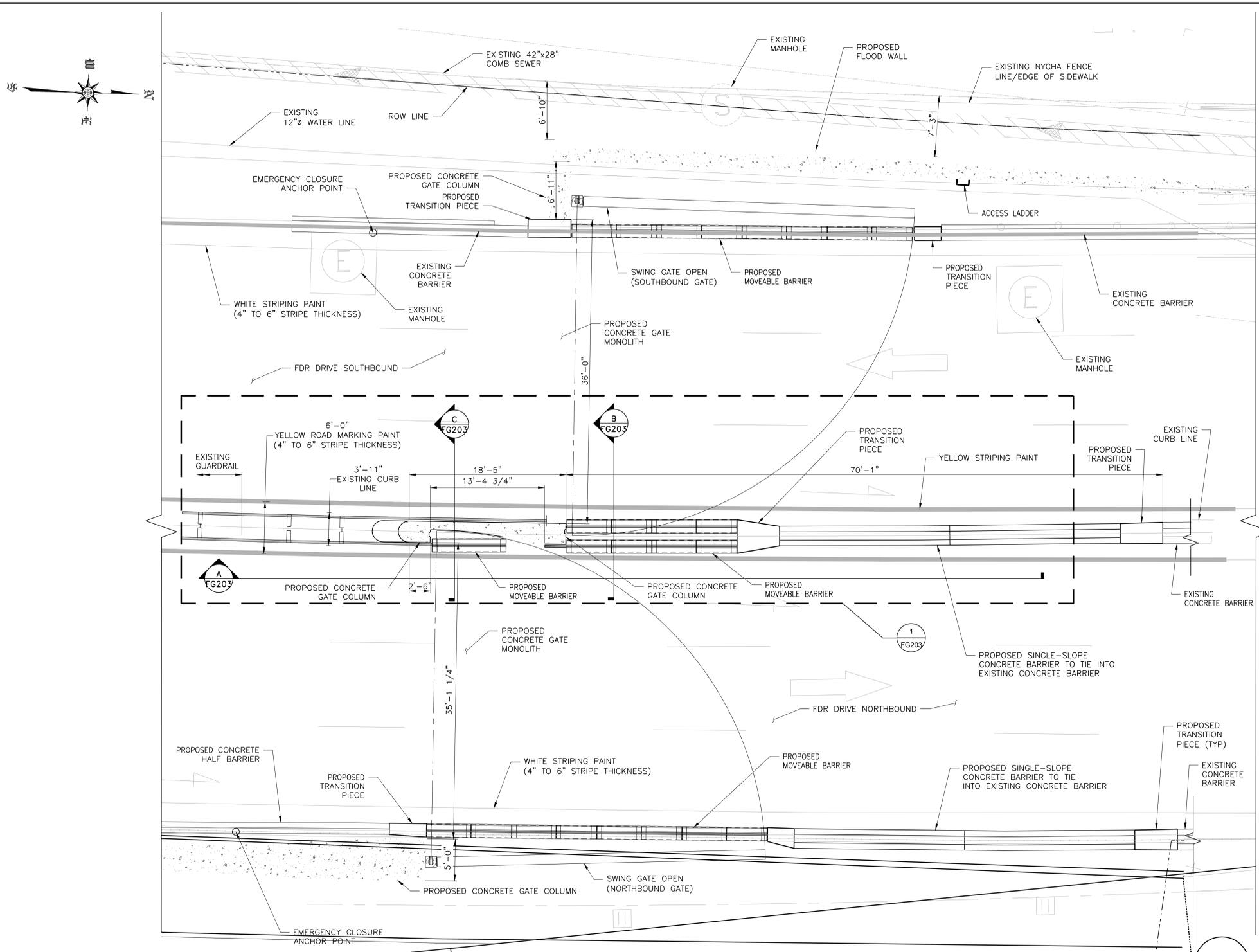
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CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 179 OF 811 FG155

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTES:**

1. ALL EXISTING ITEMS CALLED OUT ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. FOUNDATION ELEMENTS NOT SHOWN FOR CLARITY.
3. SEE DRAWINGS XXX FOR ROAD STRIPING PLAN.
4. SEE DRAWINGS FG270, FG274 AND FG275 FOR STREET REGRADING.
5. SEE DRAWINGS XXX FOR ROADWAY, CURB AND SIDEWALK LAYOUT.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

**FDR DRIVE CROSSING  
SWING GATE PLAN – OPEN POSITION**  
SCALE: 3/16" = 1'-0"

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

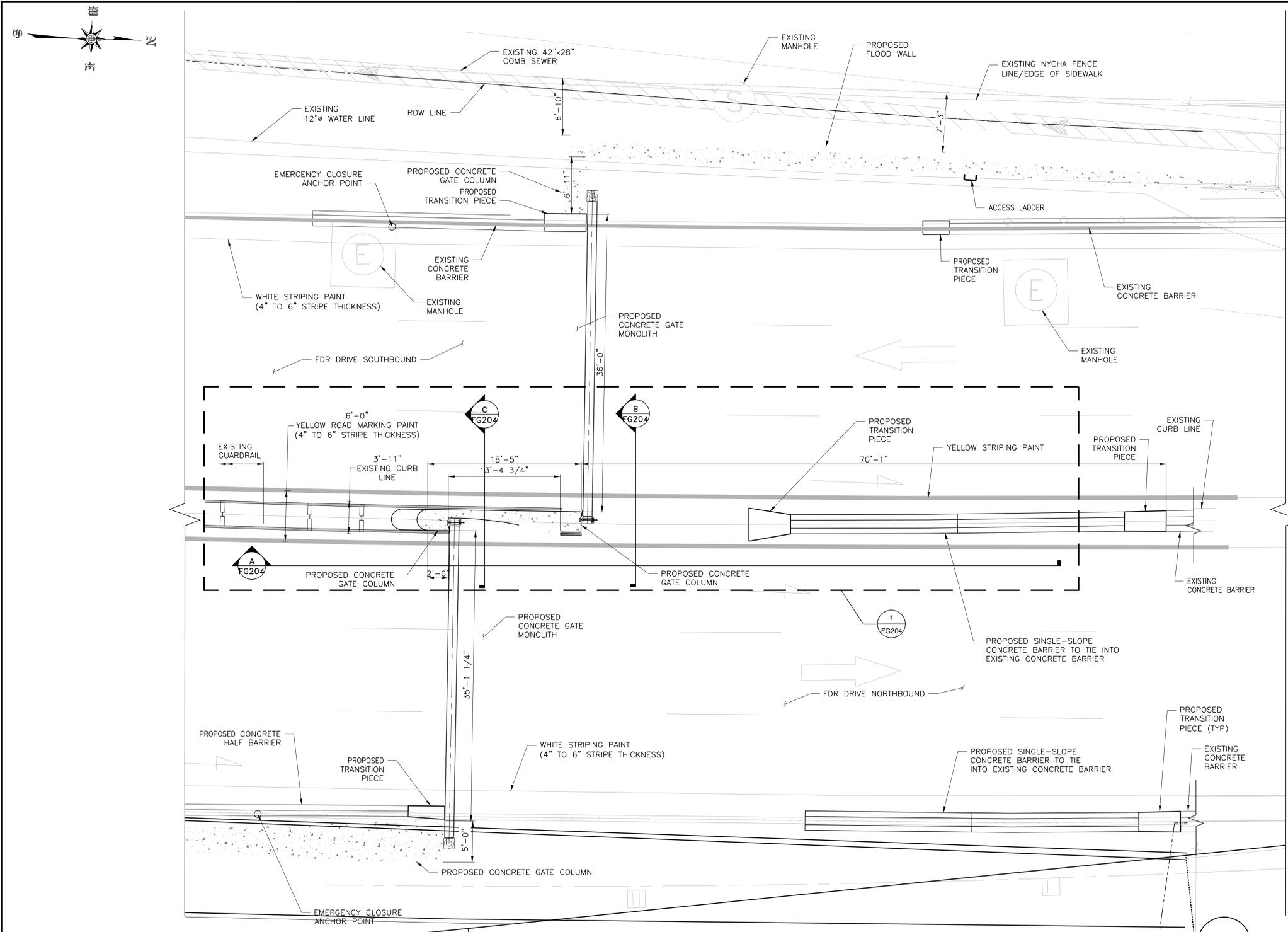
CLOSURE STRUCTURES  
FDR DRIVE SWING GATES PLAN  
SHEET 1 OF 2

CH2M DRAWN BY \_\_\_\_\_ SANDRESM1-FG201-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 190 OF 811 FG201

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**FDR DRIVE CROSSING  
SWING GATE PLAN – CLOSED POSITION**  
SCALE: 3/16" = 1'-0"

**NOTES:**

1. ALL EXISTING ITEMS CALLED OUT ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. FOUNDATION ELEMENTS NOT SHOWN FOR CLARITY.
3. SEE DRAWINGS XXX FOR ROAD STRIPING PLAN.
4. SEE DRAWINGS FG270, FG274 AND FG275 FOR STREET REGRADING.
5. SEE DRAWINGS XXX FOR ROADWAY, CURB AND SIDEWALK LAYOUT.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

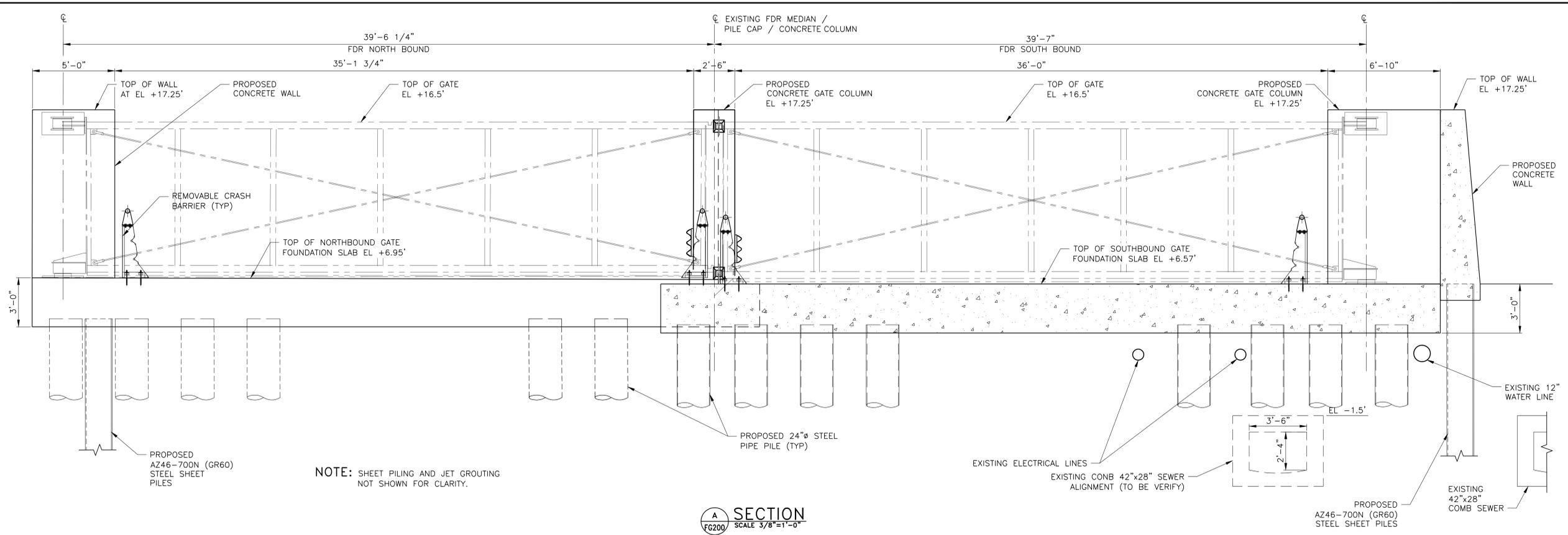
CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
FDR DRIVE SWING GATES PLAN  
SHEET 2 OF 2  
CH2M DRAWN BY \_\_\_\_\_ SANDRESM1-FG202-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

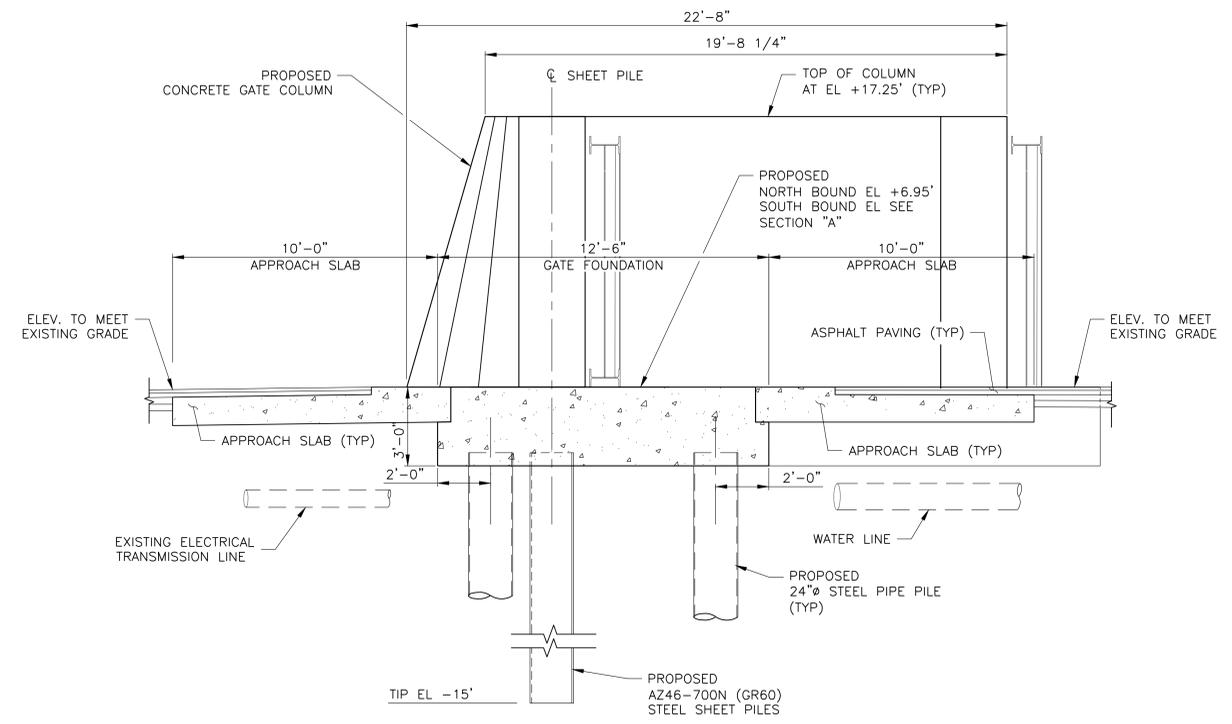
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 191 OF 811 FG202

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



NOTE: SHEET PILING AND JET GROUTING NOT SHOWN FOR CLARITY.

**A** SECTION  
SCALE 3/8"=1'-0"



**B** SECTION  
SCALE 3/8"=1'-0"

- NOTES:**
1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
  2. SEE DRAWING FG207 FOR PILE AND MONOLITH LAYOUT.
  3. UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS AND SHALL BE VERIFIED IN THE FIELD. THE INSTALLATION OF PILE FOUNDATION SHALL BE COORDINATED WITH FIELD VERIFIED LOCATION OF UTILITIES.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

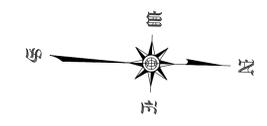
CLOSURE FOUNDATION  
FDR DRIVE SWING GATES  
SECTIONS AND DETAILS

CH2M DRAWN BY \_\_\_\_\_ SANDRESM1-FG206-00.DWG  
CADD FILE

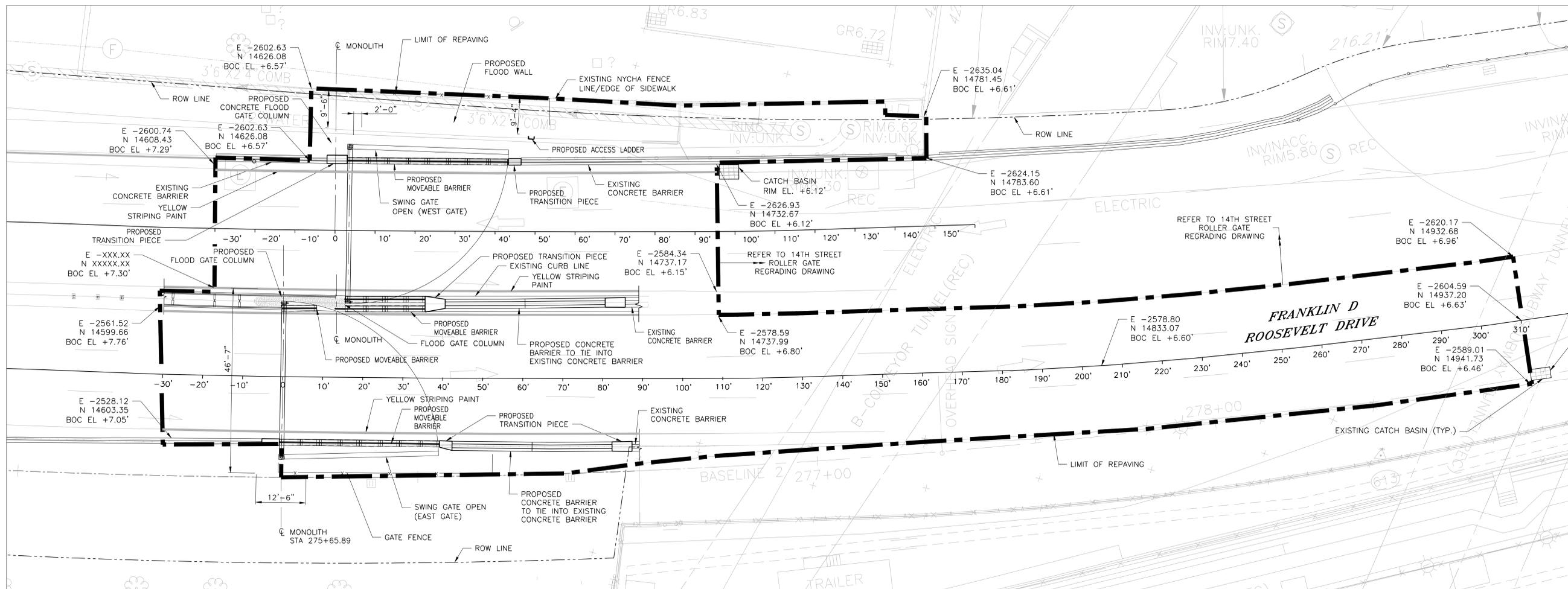
NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

**INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY**  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 194 OF 811 FG206



CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**FDR DRIVE VEHICULAR CROSSING  
SWING GATES – REGRADING PLAN**  
SCALE: 3/32" = 1'-0"

- NOTES:**
1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
FDR DRIVE SWING GATES  
OVERALL REGRADING PLAN

CH2M DRAWN BY \_\_\_\_\_ SANDRESM1-FG270-00.DWG  
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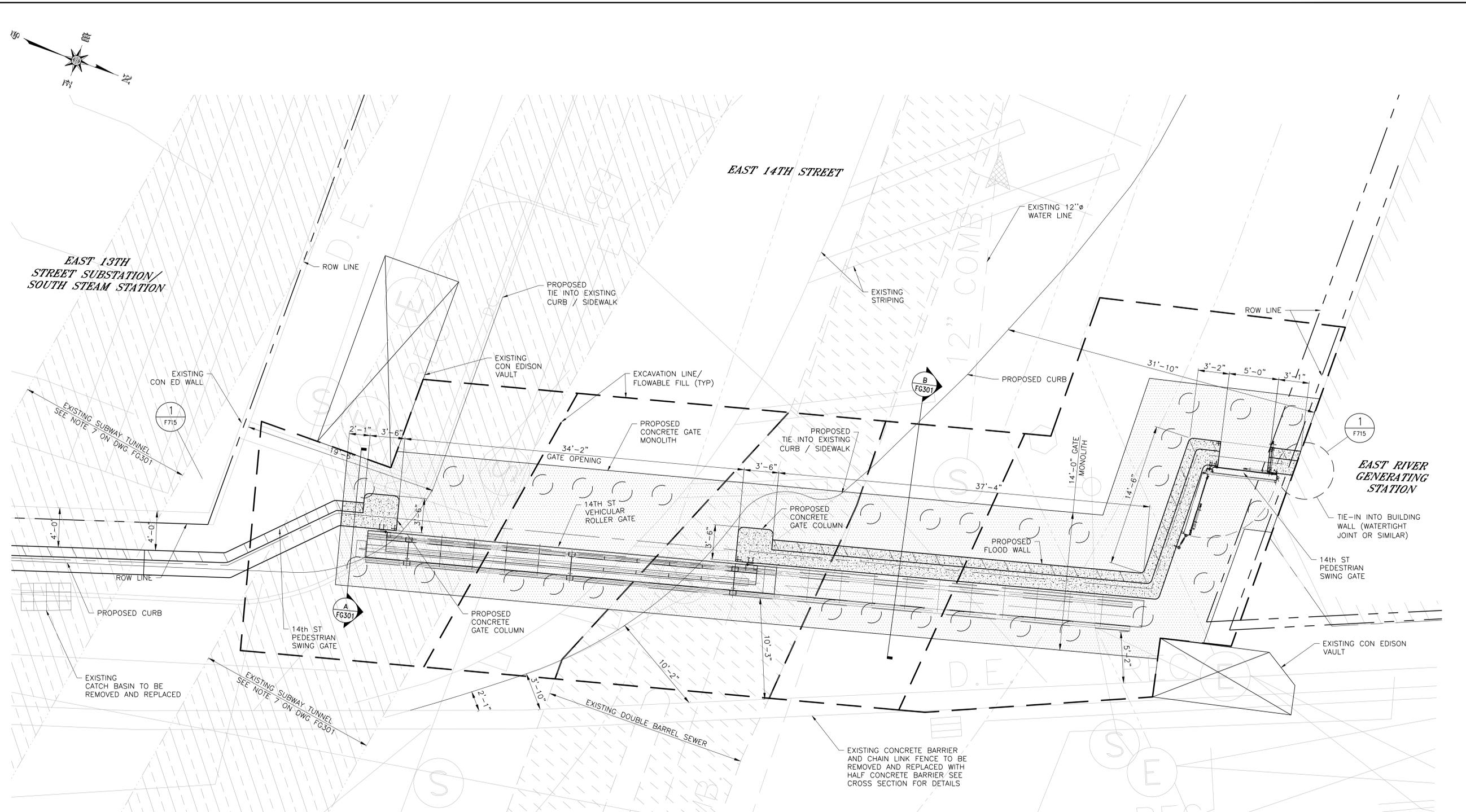
NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 208 OF 811 FG270





CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**14TH STREET CROSSING – PLAN**  
SCALE: 1/4" = 1'-0"

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE DRAWINGS FG320, FG322 AND FG323 FOR STREET REGRADING.
3. SEE DRAWING F302 FOR PILE AND MONOLITH LAYOUT.
4. SEE DRAWING XXXXX FOR ROAD STRIPING PLAN.
5. SEE DRAWING XXXXX FOR ROADWAY, CURB AND SIDEWALK LAYOUT.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SUI00 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY: 	FINAL DESIGN PREPARED BY: 	SIGNATURE _____ DATE _____
CH2M HILL NEW YORK, INC. NAME OF CONSULTANT		

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

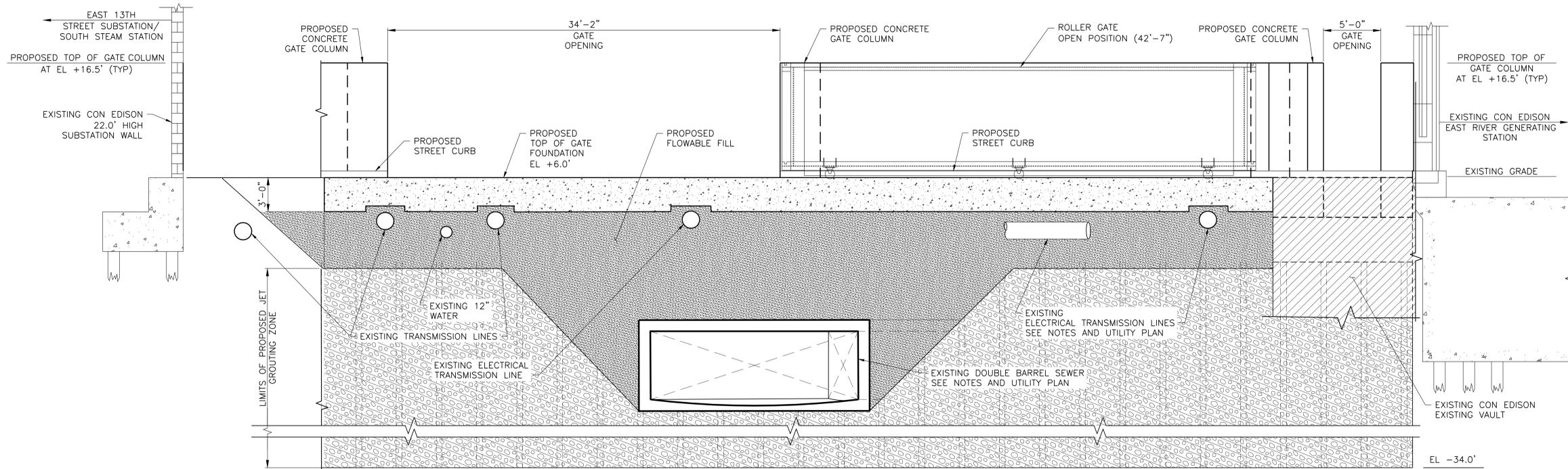
**CLOSURE STRUCTURES  
14TH STREET CROSSING  
GENERAL PLAN**

CH2M DRAWN BY \_\_\_\_\_ SANDRESM1-FG300-00.DWG  
CADD FILE

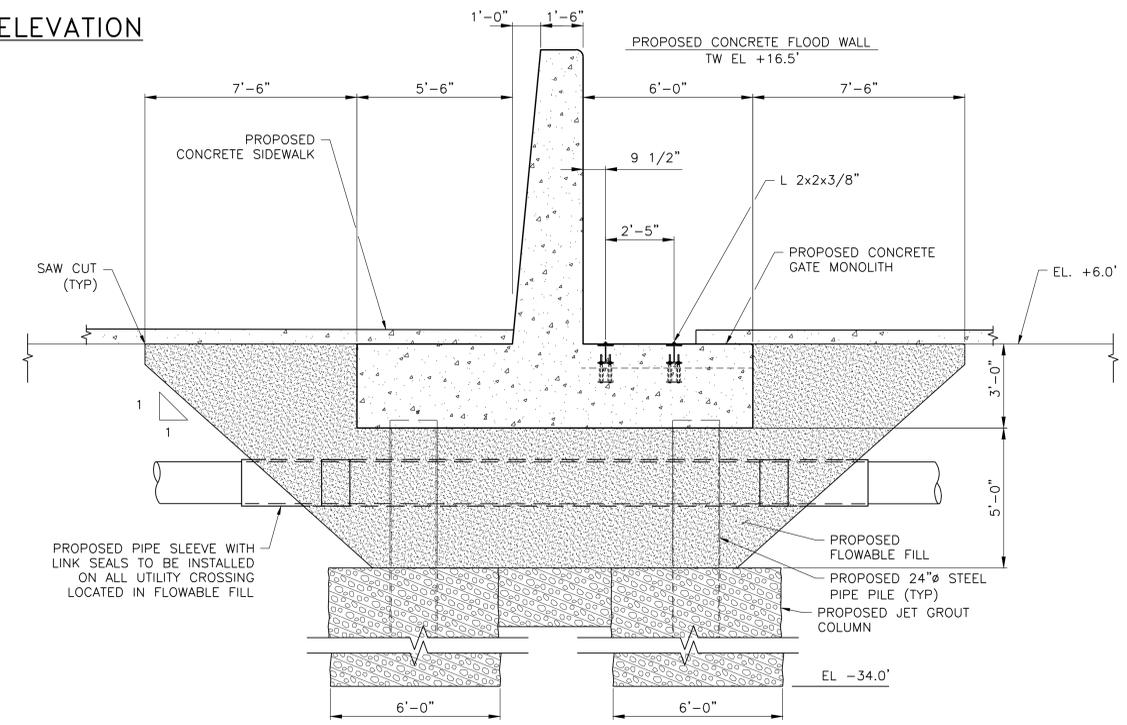
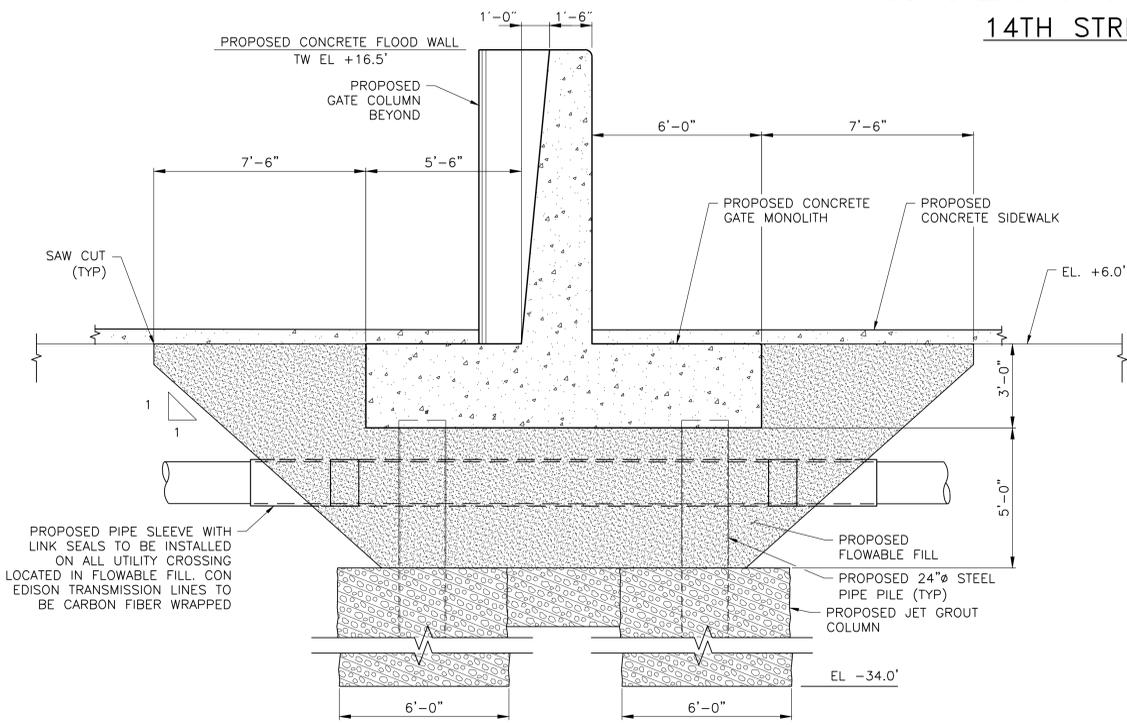
**INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY**  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 211 OF 811 FG300

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



NOTE: PIPE PILES NOT SHOWN FOR CLARITY.  
**14TH STREET CROSSING - ELEVATION**  
 SCALE: 1" = 50'



**LEGEND:**

PROPOSED FLOWABLE FILL

PROPOSED JET GROUT

**NOTES:**

- ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
- JET GROUTING SHALL BE PERFORMED WITH THE TRIPLE FLUID SYSTEM.
- THE MINIMUM UNCONFINED COMPRESSIVE DESIGN STRENGTH OF THE JET GROUT SHALL BE 500 PSI AT 3 DAYS AND 750 PSI AT 28 DAYS.
- THE DESIGN PERMEABILITY OF THE JET GROUT SHALL BE LESS THAN  $1.0 \times 10^{-6}$  CM/SEC.
- USE VERTICAL AND ANGLED SLEEVE PIPES AS REQUIRED TO PERFORM JET GROUTING AROUND AND BELOW THE UTILITY LINES.

- PRIOR TO PERFORMING JET GROUTING AND DRIVING SHEET PILES AT/NEAR EACH UTILITY LINE CROSSING LOCATION, PRE-TRENCH EXCAVATION TO LOCATE/EXPOSE THE UTILITY LINE (THEN BACKFILLING) AS REQUIRED.
- FOR EXISTING UTILITY LINES LOCATED WITHIN THE LIMITS OF PROPOSED SOIL IMPROVEMENTS, SEE UTILITY CROSSING TYPE A, B, C AND D.
- 14TH STREET CANARSIE L- TUNNEL.
- ALL SPOT ELEVATIONS ARE EXISTING ELEVATIONS IN NAVD88.

- EXCAVATABLE FILL SHALL HAVE A COMPRESSIVE STRENGTH OF 100PSI.
- UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE NOT EXACT LOCATIONS. CONTRACTOR SHALL EXCAVATE A 4 FT DEEP 10 FT WIDE TRENCH TO IDENTIFY UTILITY TYPE, DEPTH AND DIMENSIONS PRIOR TO BEGINNING SOIL IMPROVEMENT WORK. SUBMIT DETAILS OF ALL SITE OBSERVED UTILITIES TO DDC DESIGN RESIDENT ENGINEER AND ENGINEER OF RECORD BEFORE BEGINNING WORK.

- ALL ITEM CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
- SEE DRAWINGS XXX FOR ROADWAY, CURB AND SIDEWALK LAYOUT.
- SEE FG302 FOR PILE AND MONOLITH LAYOUT.

**CONCEPTUAL**  
 SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET S0100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
 AKRF KSE  
 The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
 ch2m  
 CH2M HILL NEW YORK, INC.  
 NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_

CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

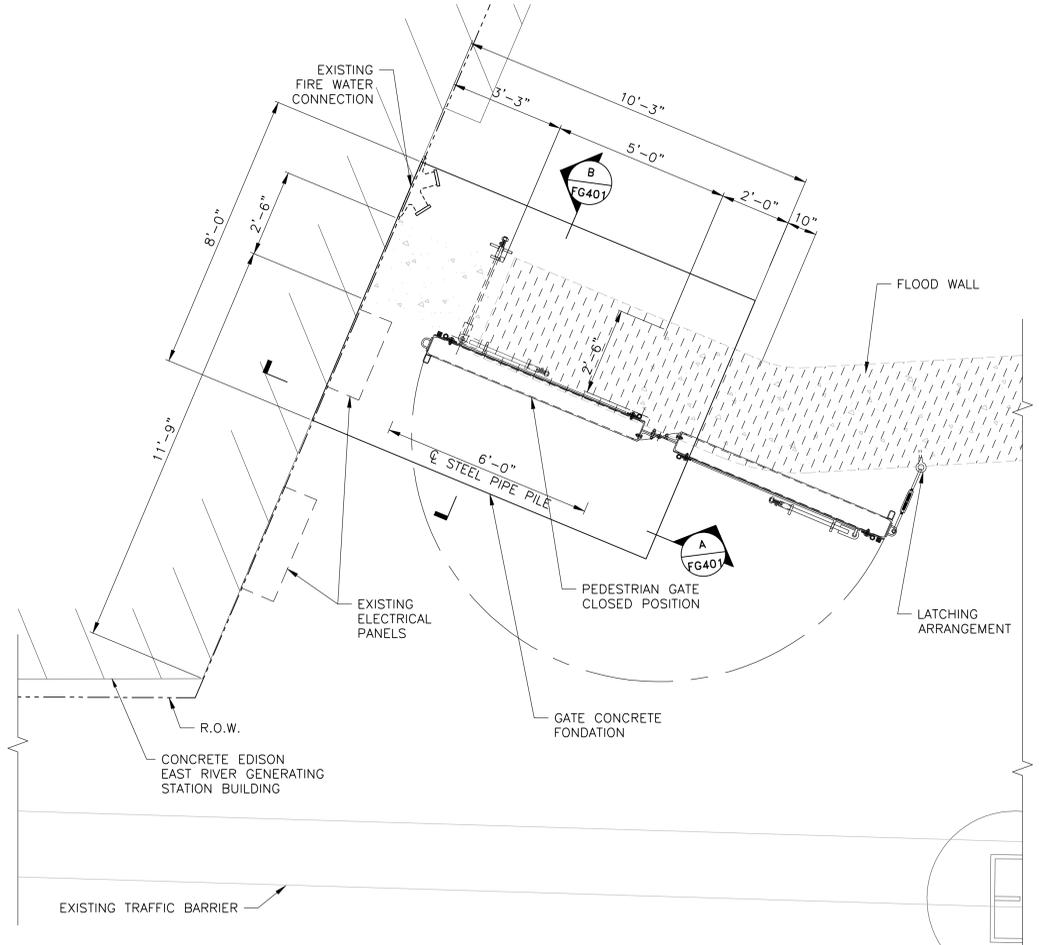
CLOSURE STRUCTURES  
 14TH STREET CROSSING  
 ELEVATION AND SECTIONS

CH2M DRAWN BY \_\_\_\_\_  
 SANDRESM1-FG301-00.DWG  
 CADD FILE

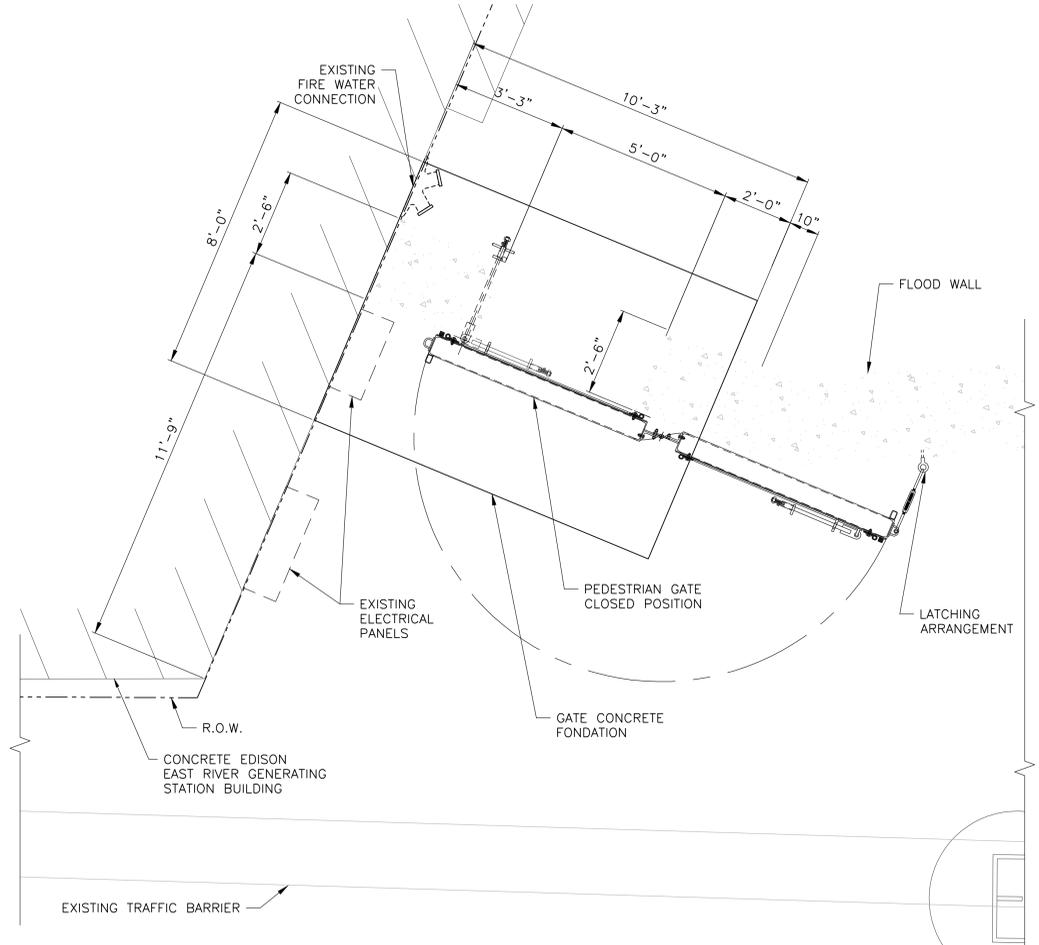
NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 212 OF 811 FG301

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**15TH STREET PEDESTRIAN SWING GATE  
FOUNDATION PLAN**  
SCALE: 1/4" = 1'-0"



**15TH STREET PEDESTRIAN SWING GATE  
PLAN**  
SCALE: 1/4" = 1'-0"

**LEGEND:**

JET GROUTING ZONE

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

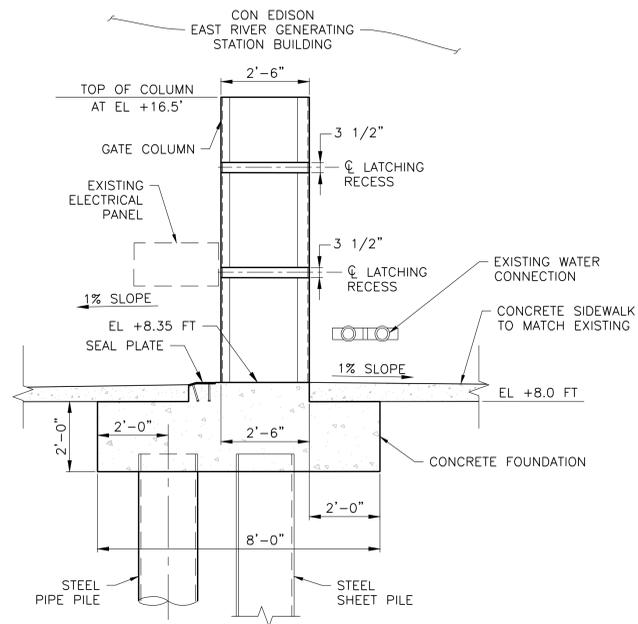
CLOSURE STRUCTURES  
15TH STREET PEDESTRIAN SWING GATE  
PLANS

CH2M DRAWN BY \_\_\_\_\_  
SANDRESM1-FG400-00.DWG  
CADD FILE

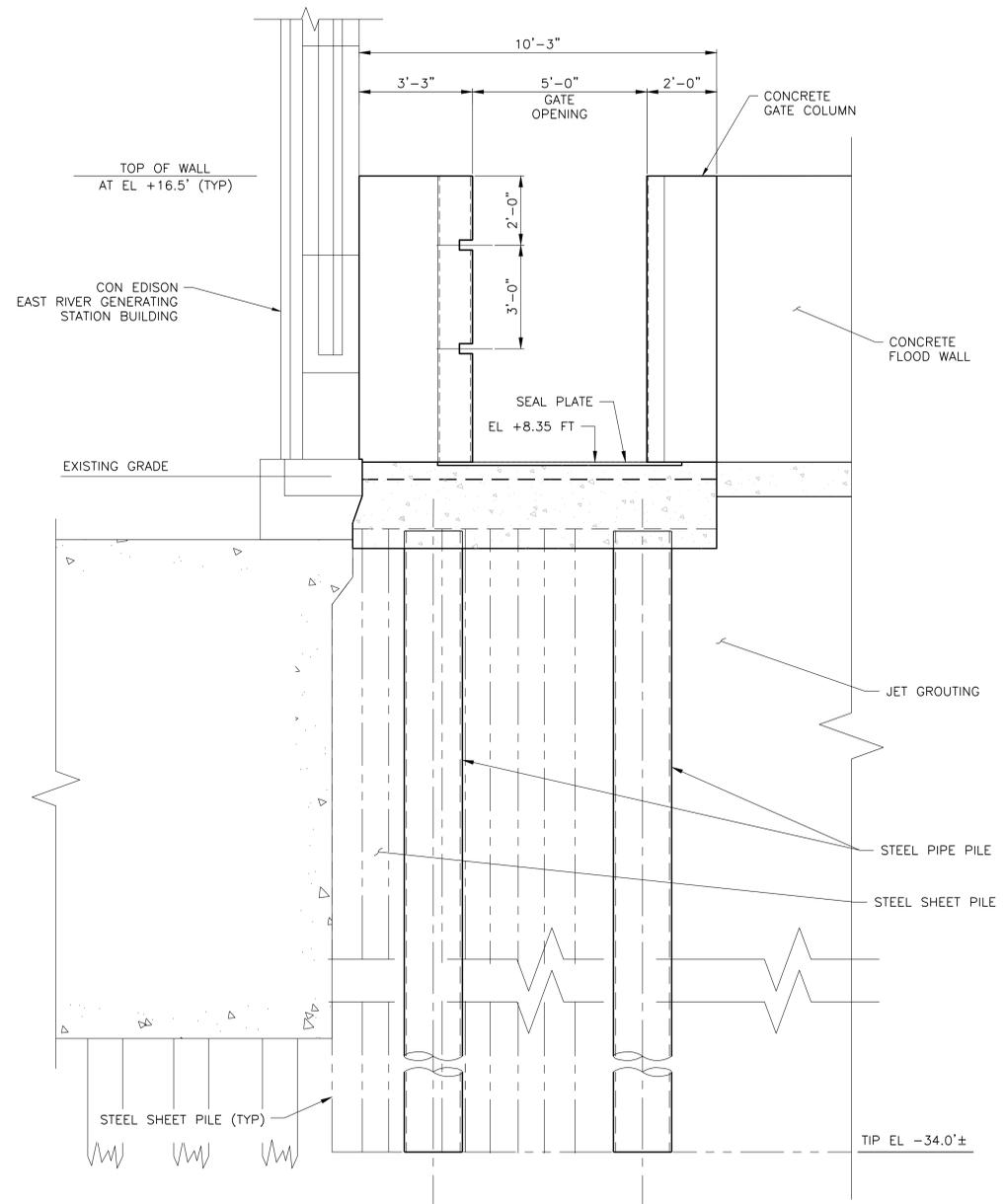
NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 221 OF 811 FG400



**B** SECTION  
FG400 SCALE 1/2"=1'-0"



**A** SECTION  
FG400 SCALE 1/2"=1'-0"

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



SIGNATURE  
DATE

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

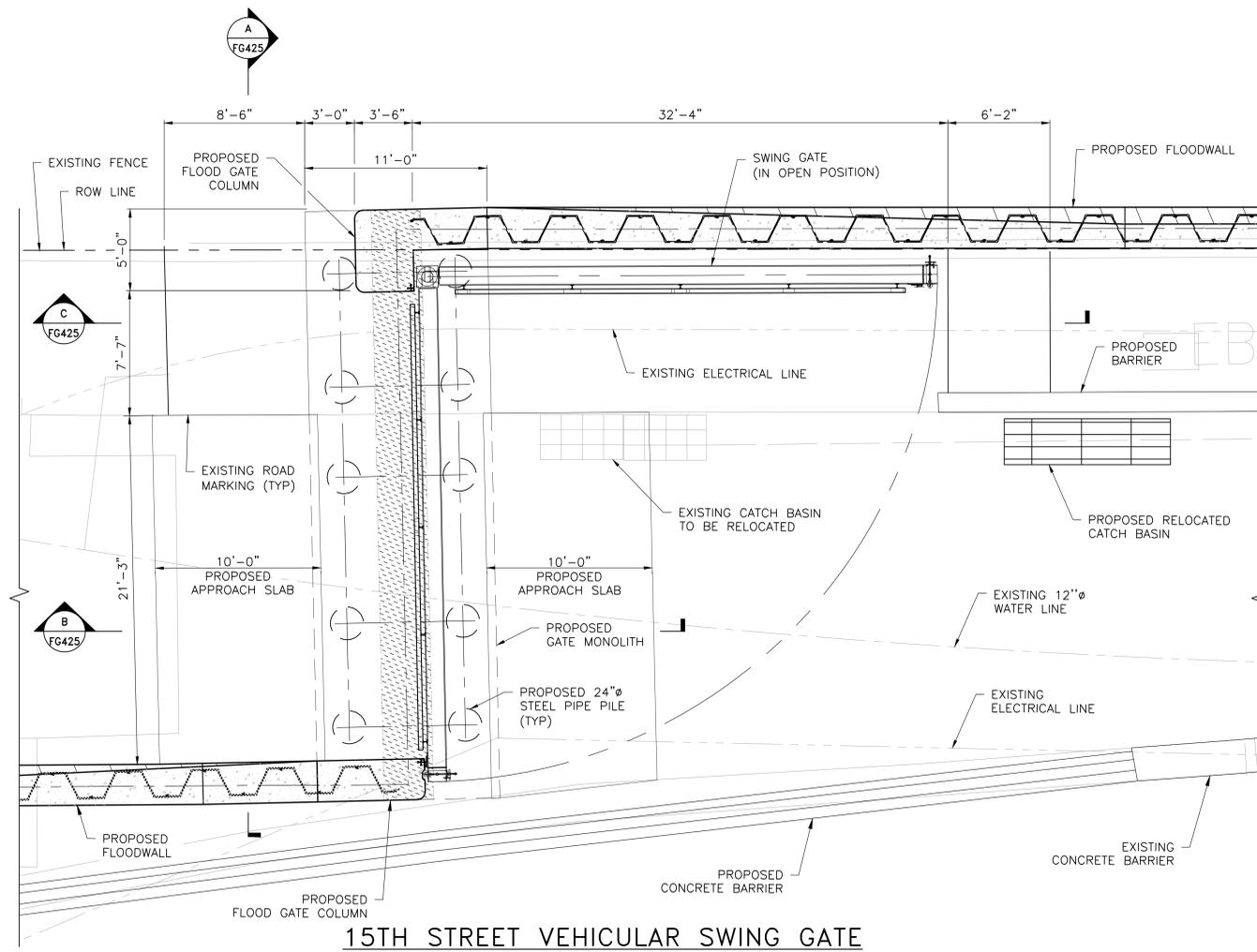
CLOSURE STRUCTURES  
15TH STREET PEDESTRIAN SWING GATE  
SECTIONS

CH2M DRAWN BY: SANDRESM1-FG401-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 222 OF 811 FG401

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**15TH STREET VEHICULAR SWING GATE  
PLAN**

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

**LEGEND:**

PROPOSED JET GROUTING ZONE

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE DRAWINGS FG440, FG442, FG443, FG444, FG445, FG446, FG447, FG448 AND FG449 FOR STREET REGRADING.
3. SEE DRAWING FG426 FOR PILE AND MONOLITH LAYOUT.
4. SEE DRAWING XXXXX FOR ROAD STRIPING PLAN.
5. SEE DRAWINGS XXXXX FOR ROADWAY, CURB AND SIDEWALK LAYOUT.

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



The AKRF-KSE JV

FINAL DESIGN PREPARED BY:



CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE

DATE

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
15TH STREET VEHICULAR SWING GATE  
GENERAL PLAN

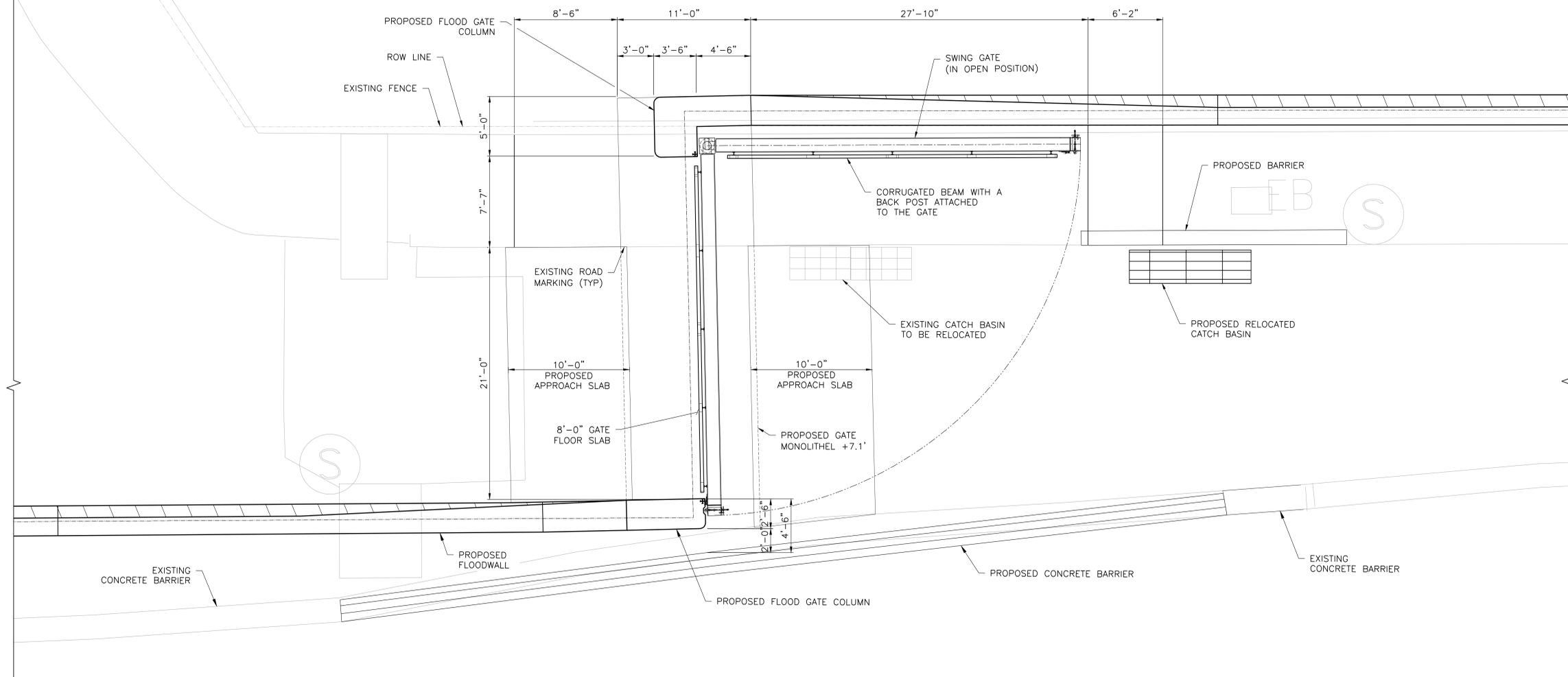
CH2M  
DRAWN BY

SANDRESM1-FG420-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 223 OF 811 FG420

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**15TH STREET VEHICULAR SWING GATE  
PARTIAL PLAN**

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

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE DRAWING FG440, FG442, FG443, FG444, FG445, FG446, FG447, FG448 AND FG449 FOR STREET REGRADING.
3. SEE DRAWING FG426 FOR PILE AND MONOLITH LAYOUT.
4. SEE DRAWING X FOR ROAD STRIPING PLAN.
5. SEE DRAWINGS X FOR ROADWAY, CURB AND SIDEWALK LAYOUT.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



The AKRF-KSE JV

FINAL DESIGN PREPARED BY:



CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

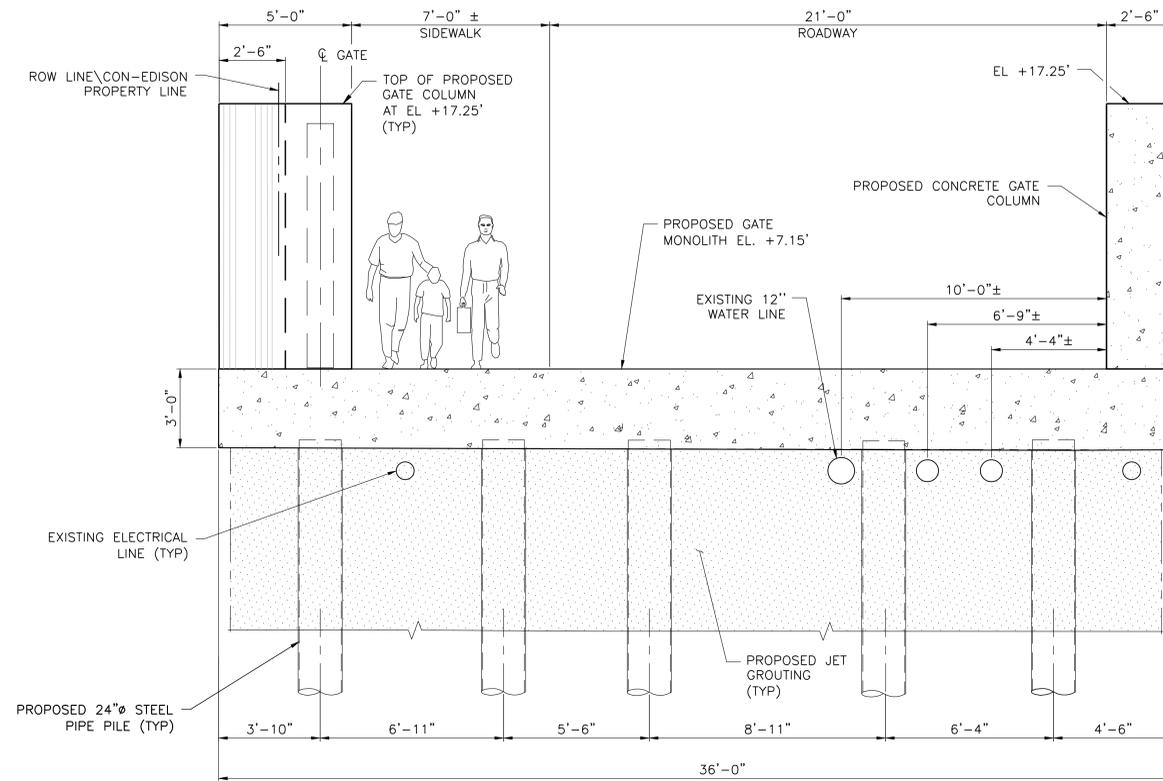
CLOSURE STRUCTURES  
15TH STREET VEHICULAR SWING GATE  
PARTIAL PLAN

CH2M  
DRAWN BY \_\_\_\_\_

SANDRESM1-FG421-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

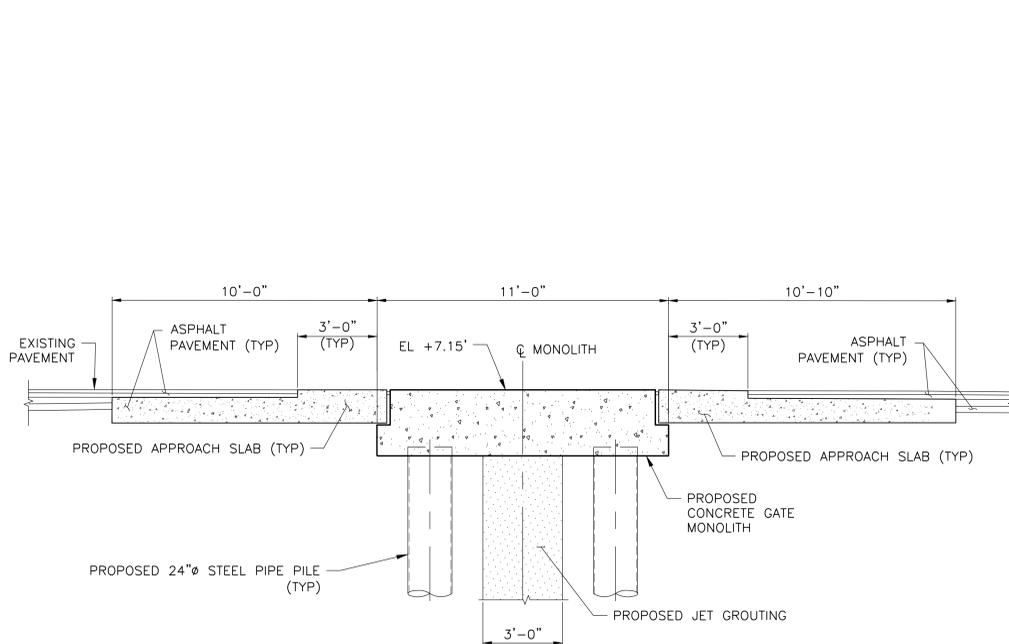
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 224 OF 811 FG421



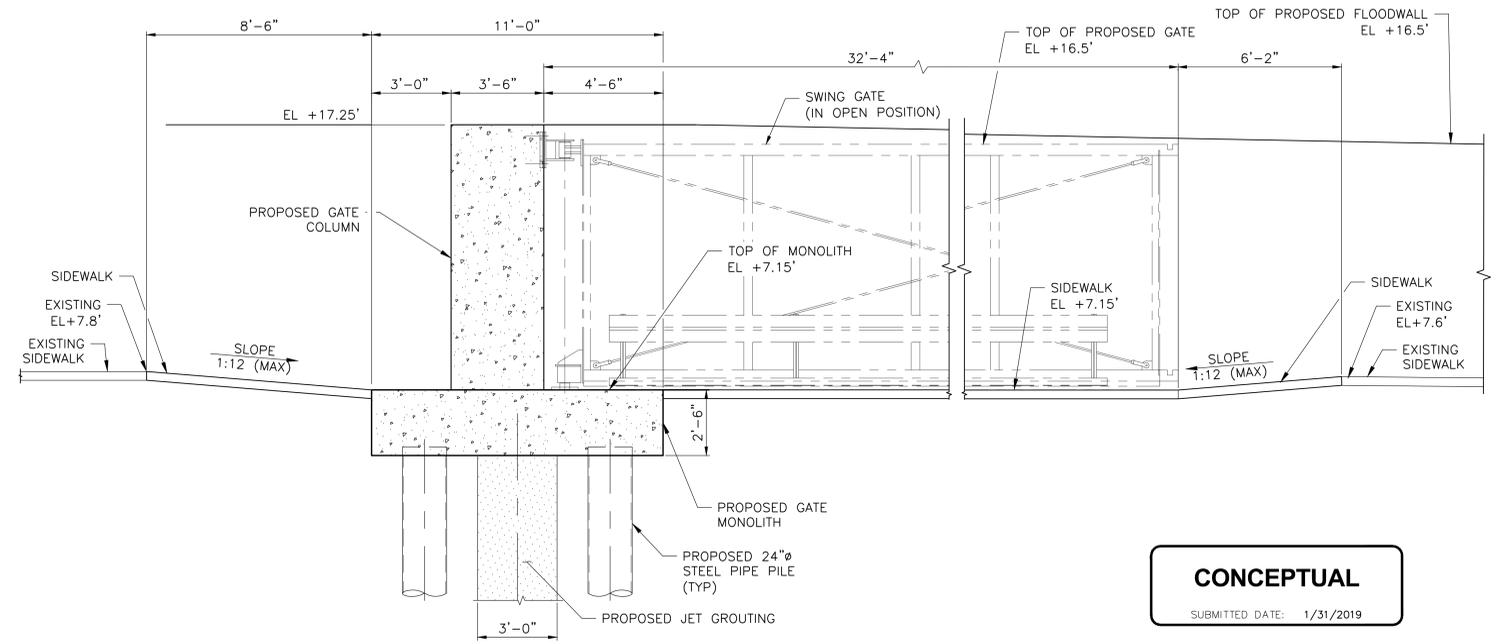
**SECTION A**  
SCALE 3/8" = 1'-0"

**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE DRAWINGS FG440, FG442, FG443, FG444, FG445, FG446, FG447, FG448, FG449 FOR STREET REGRADING.
3. SEE DRAWING FG426 FOR PILE AND MONOLITH LAYOUT.
4. SEE DRAWING XXXXX FOR ROAD STRIPING PLAN.



**SECTION B**  
SCALE 3/8" = 1'-0"



**SECTION C**  
SCALE 3/8" = 1'-0"

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

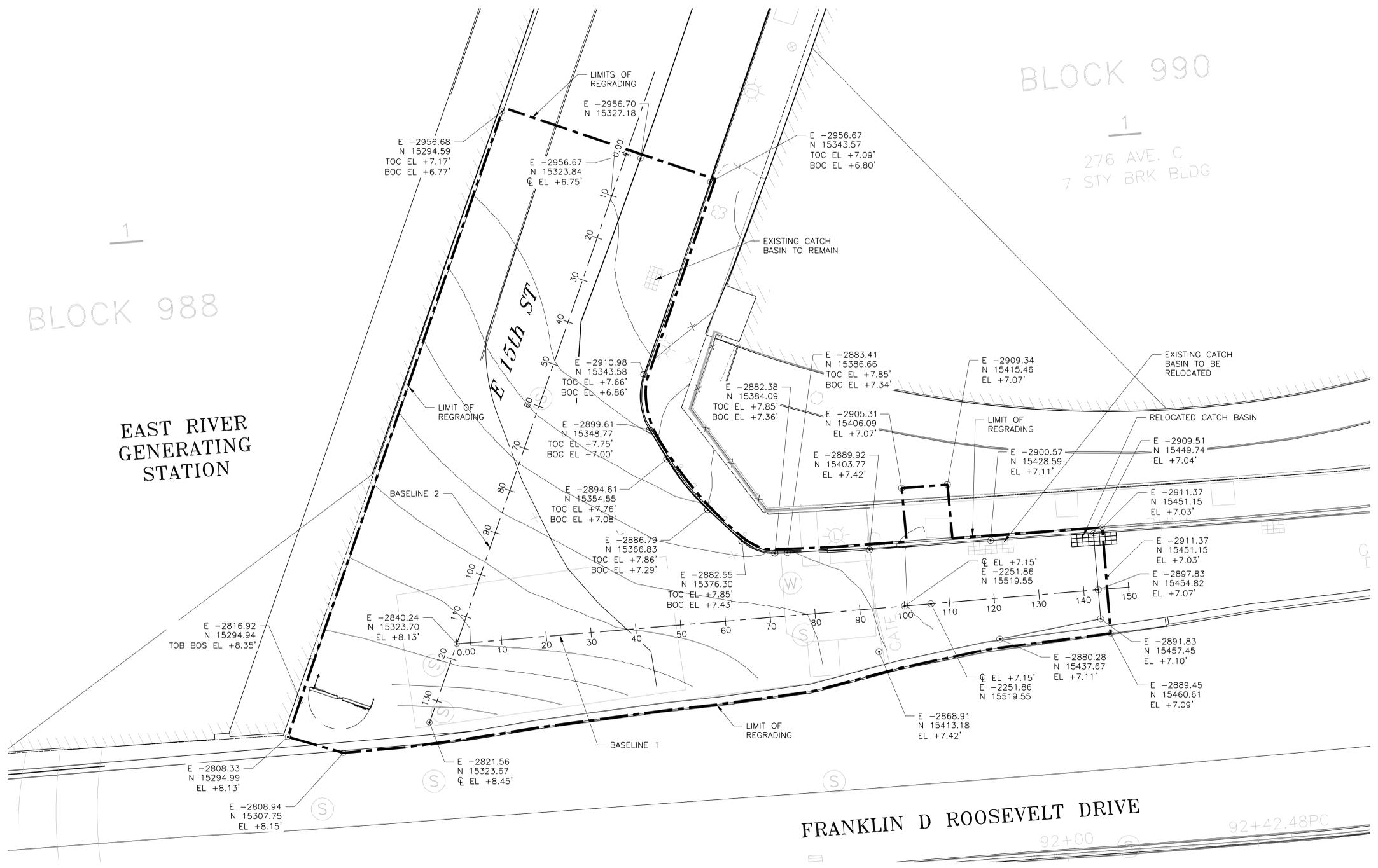
CLOSURE STRUCTURES  
15TH STREET VEHICULAR SWING GATE  
SECTIONS

CH2M DRAWN BY \_\_\_\_\_ SANDRESM1-FG456-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

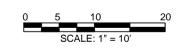
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 225 OF 811 FG425

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**15TH STREET GATES  
REGRADING OVERALL PLAN**  
SCALE: 1" = 10'

- LEGEND**
- TOC TOP OF CURB
  - BOC BOTTOM OF CURB
  - TOS TOP OF SIDEWALK
  - BOS BACK OF SIDEWALK
  - CL ROAD CENTERLINE/CROWN



**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY: **AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY: **ch2m**  
CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
15TH STREET GATES  
REGRADING OVERALL PLAN

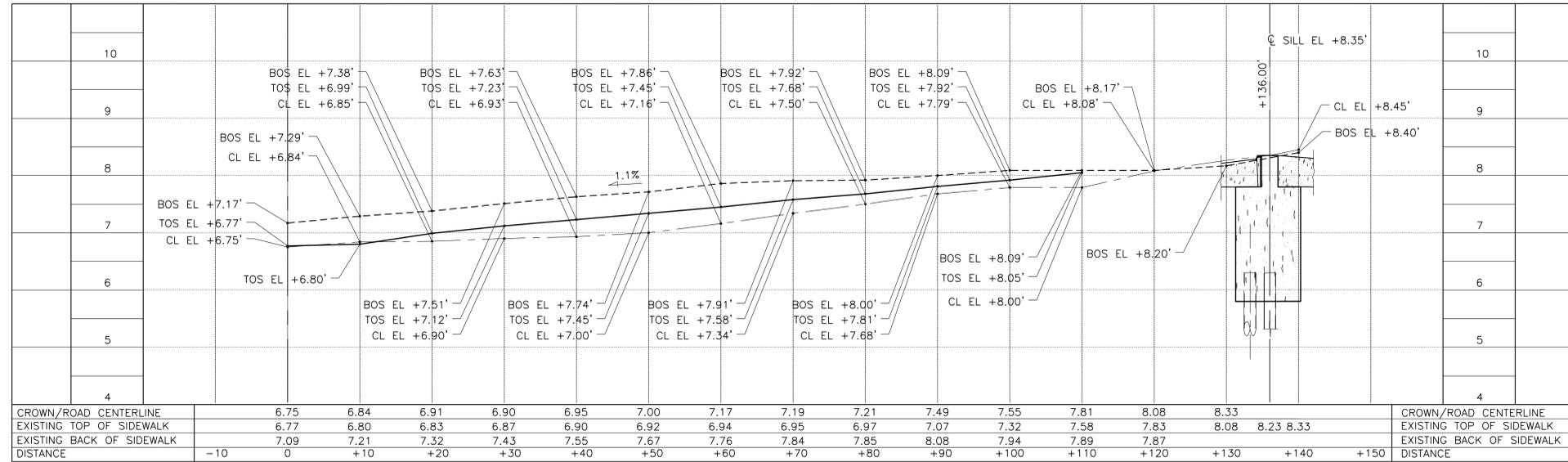
CH2M DRAWN BY \_\_\_\_\_  
SANDRESM1-FG440-00.SHEET  
CADD FILE

NO.	DATE	DESCRIPTIONS	BY	APPR'D

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

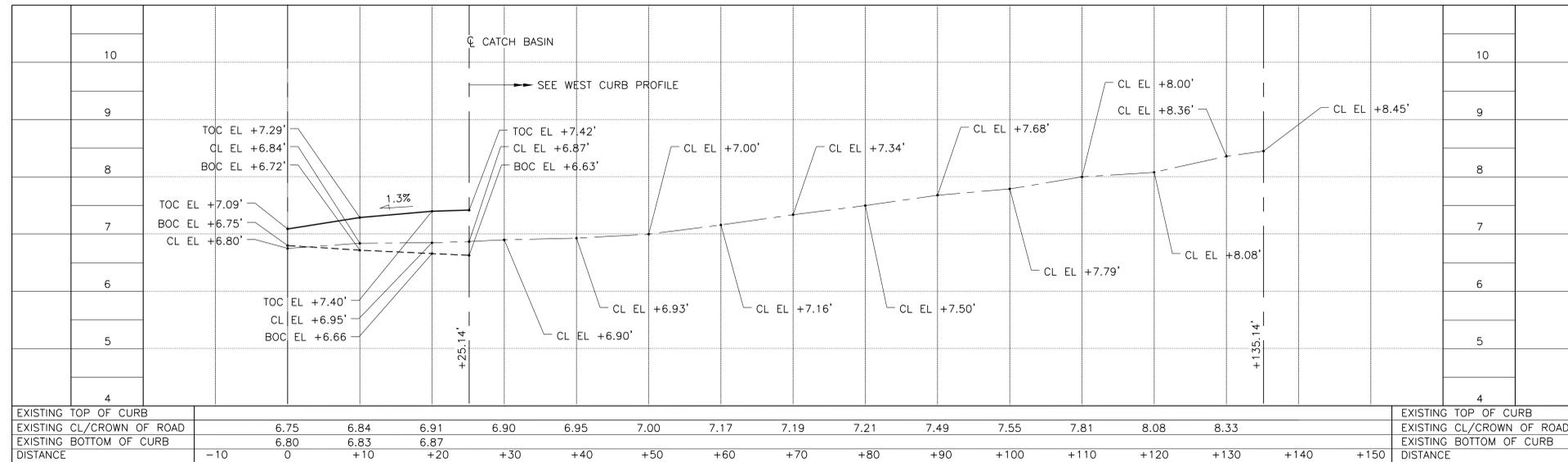
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 232 OF 811 FG440

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



PROFILE ALONG 15TH STREET- SOUTH SIDE (BASELINE 2)

HORIZ. SCALE 1/8" = 1'-0". VERT. SCALE 1" = 1'-0"



PROFILE ALONG 15TH STREET- NORTH SIDE (BASELINE 2)

HORIZ. SCALE 1/8" = 1'-0". VERT. SCALE 1" = 1'-0"

LEGEND

- TOP OF CURB (TOC)
- TOP OF SIDEWALK (TOS)
- CROWN/ CL OF ROAD (CL)
- BOTTOM OF CURB (BOC)
- BACK OF SIDEWALK (BOS)
- CL CENTERLINE

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



The AKRF-KSE JV

FINAL DESIGN PREPARED BY:



CH2M HILL NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE

DATE

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
15TH STREET GATES REGRADING PROFILES  
SHEET 1 OF 2

CH2M  
DRAWN BY

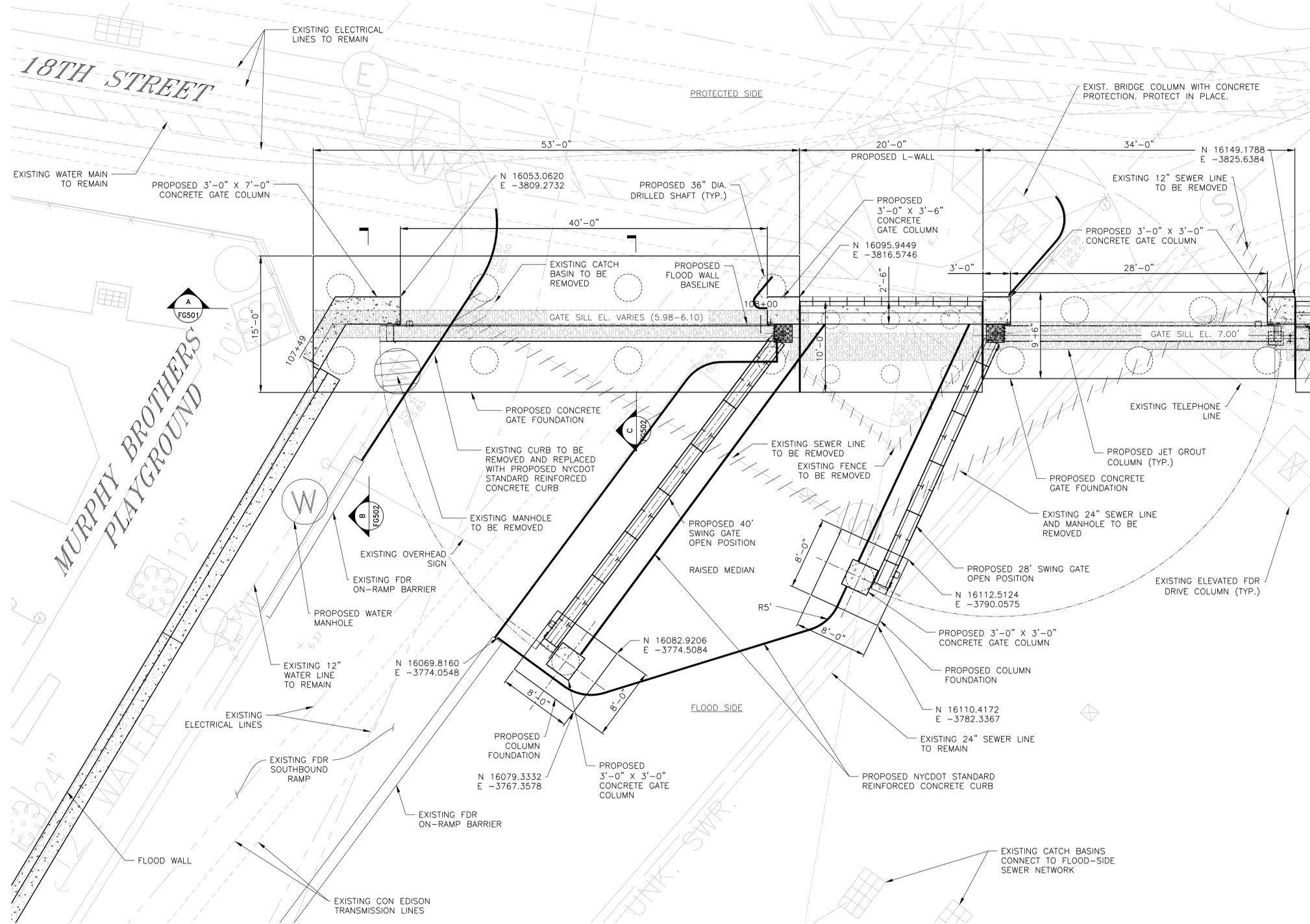
SANDRESM1-FG442-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

NO.	DATE	DESCRIPTIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 233 OF 811 FG442

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE SHEET SRXXX FOR STREET RESTORATION AND CURB GEOMETRY.
3. SEE SHEET PMP313 FOR PAVEMENT MARKINGS.
4. SEE SHEETS FG505 & FG506 FOR CONCRETE GATE FOUNDATION STRUCTURAL DETAILS.
5. SEE SHEET FG510 FOR PILE LAYOUT AND SCHEDULE.
6. SEE SHEETS FG507 TO FG509 FOR STRUCTURAL GATE DETAILS.

**EAST 18TH STREET FDR ON RAMP & OCME GATE PLAN**

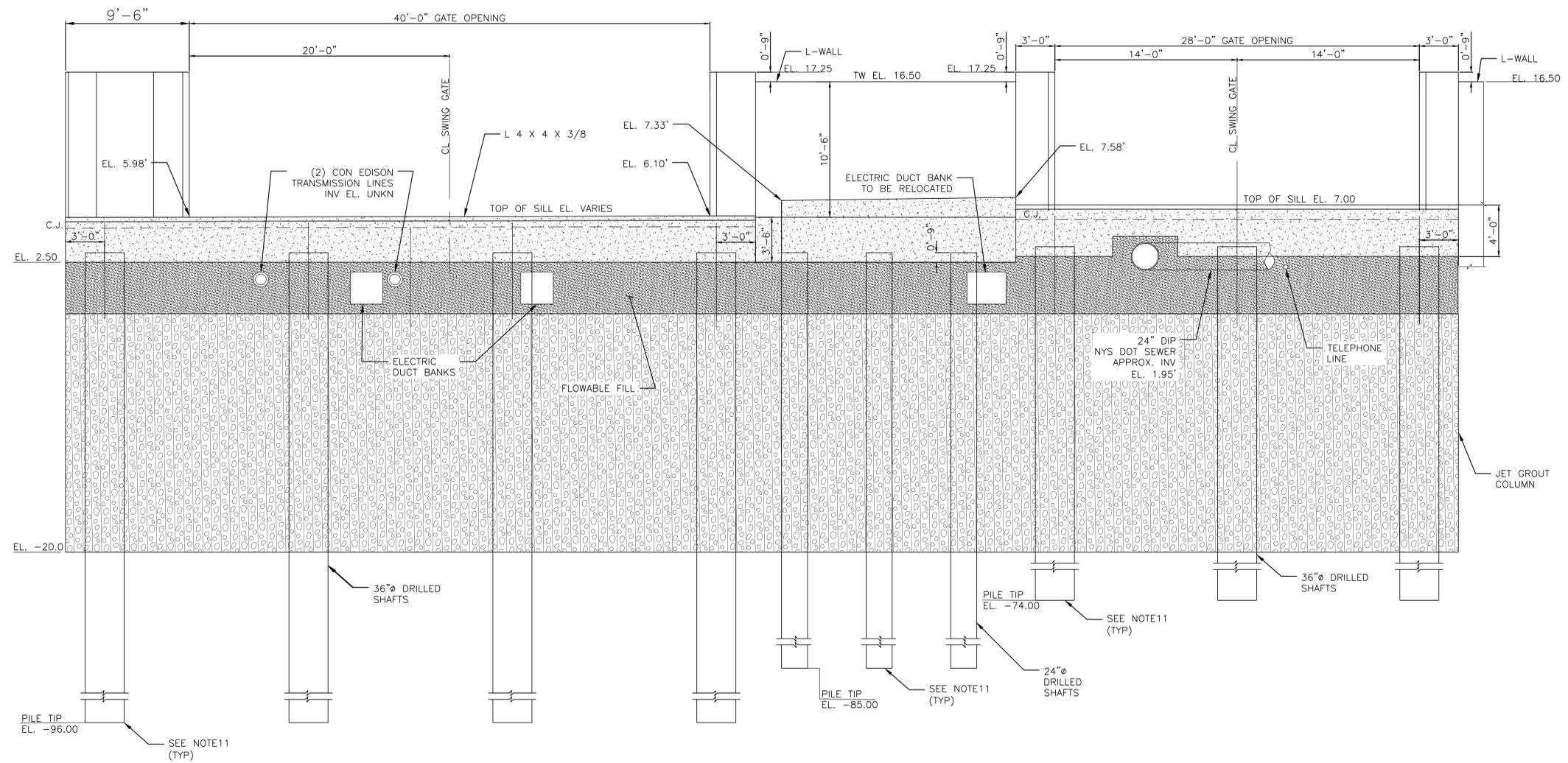
**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019



NO.	DATE	DESCRIPTIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY: 	FINAL DESIGN PREPARED BY: 	CITY OF NEW YORK DEPARTMENT OF DESIGN + CONSTRUCTION DIVISION OF INFRASTRUCTURE BUREAU OF DESIGN	CLOSURE STRUCTURES EAST 18TH STREET FDR ON RAMP & OCME GATE PLAN	INSTALLATION OF EAST SIDE COASTAL RESILIENCY BOROUGH OF MANHATTAN
SIGNATURE _____ DATE _____	SANDRESM1-FG500-00 CADD FILE	CAPITAL PROJECT NO. SANDRESM1 1/31/19	SHEET 232 OF 790	FG500

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



EAST 18TH STREET FDR ON RAMP AND OCME GATE PROTECTED SIDE ELEVATION

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

**LEGEND:**

-  FLOWABLE FILL
-  JET GROUT

**NOTES:**

1. JET GROUTING SHALL BE PERFORMED WITH THE TRIPLE FLUID SYSTEM.
2. THE MINIMUM UNCONFINED COMPRESSIVE DESIGN STRENGTH OF THE SOILCRETE SHALL BE 500 PSI AT 3 DAYS AND 750 PSI AT 28 DAYS.
3. THE DESIGN PERMEABILITY OF THE SOILCRETE SHALL BE LESS THAN  $1.0 \times 10^{-6}$  CM/SEC.
4. USE VERTICAL AND ANGLED SLEEVE PIPES AS REQUIRED TO PERFORM JET GROUTING AROUND AND BELOW THE UTILITY LINES.
5. PRIOR TO PERFORMING JET GROUTING AND DRIVING SHEET PILES AT/NEAR EACH UTILITY LINE CROSSING LOCATION, PRE-TRENCH EXCAVATION TO LOCATE/EXPOSE THE UTILITY LINE (THEN BACKFILLING) AS REQUIRED.
6. FOR EXISTING UTILITY LINES LOCATED WITHIN THE LIMITS OF PROPOSED SOIL IMPROVEMENTS, SEE UTILITY CROSSING TYPE A, B, C AND D.
7. 14TH STREET CANARSIE L- TUNNEL.
8. ALL SPOT ELEVATIONS ARE EXISTING ELEVATIONS IN NAVD88.
9. EXCAVATABLE FILL SHALL HAVE A COMPRESSIVE STRENGTH OF 100PSI.
10. UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE NOT EXACT LOCATIONS. CONTRACTOR SHALL EXCAVATE A 4 FT DEEP 10 FT WIDE TRENCH TO IDENTIFY UTILITY TYPE, DEPTH AND DIMENSIONS PRIOR TO BEGINNING SOIL IMPROVEMENT WORK. SUBMIT DETAILS OF ALL SITE OBSERVED UTILITIES TO THE CLIENT BEFORE BEGINNING WORK.
11. ALL PILES TIP ELEVATION SHOULD BE AT RESPECTIVE LEVEL OR TILL TO THE BED ROCK LEVEL.

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



SIGNATURE  
DATE

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
MURPHY BROTHERS AND OCME SWING GATE  
ELEVATION

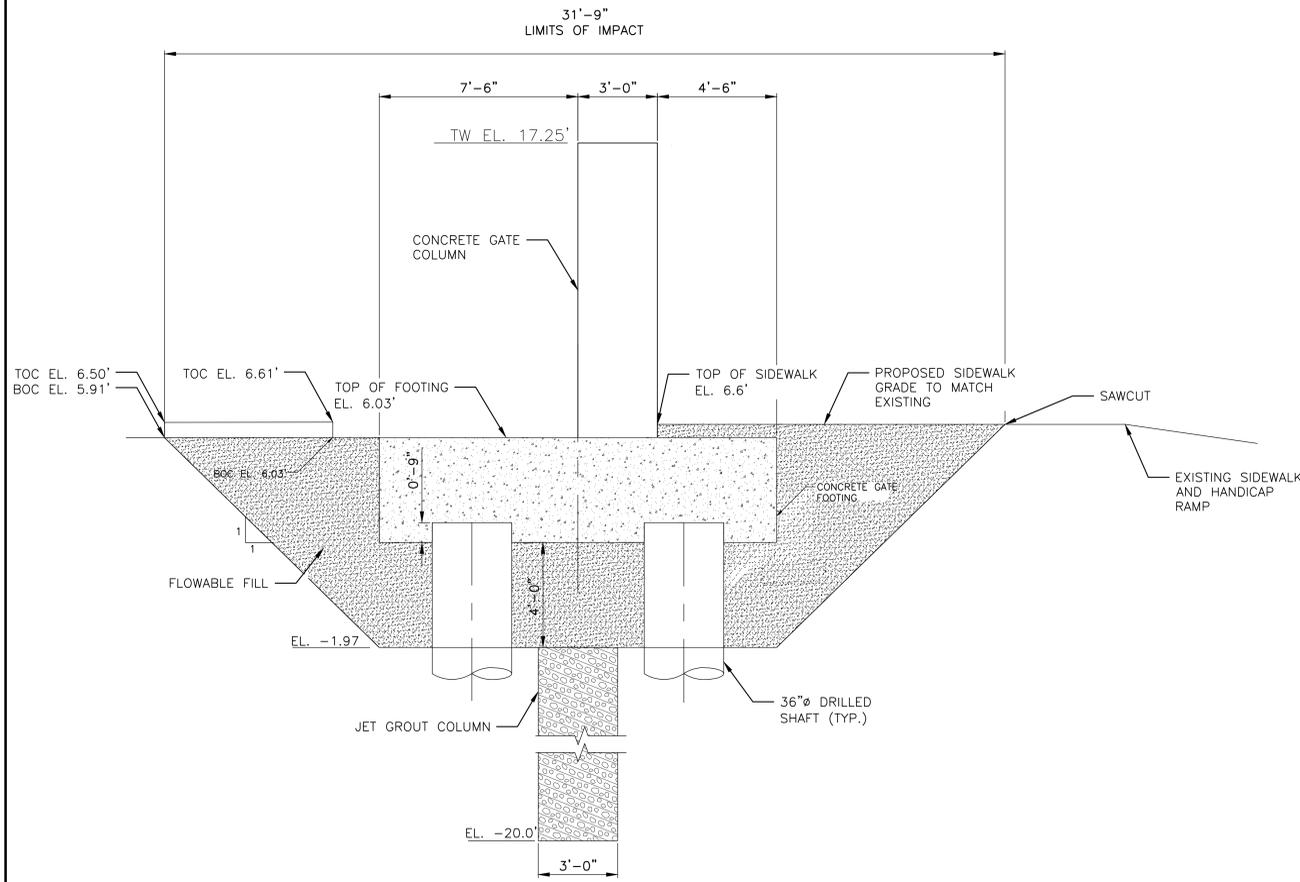
ARCADIS DRAWN BY SANDRESM1-FG501-00 CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D	REVAPP

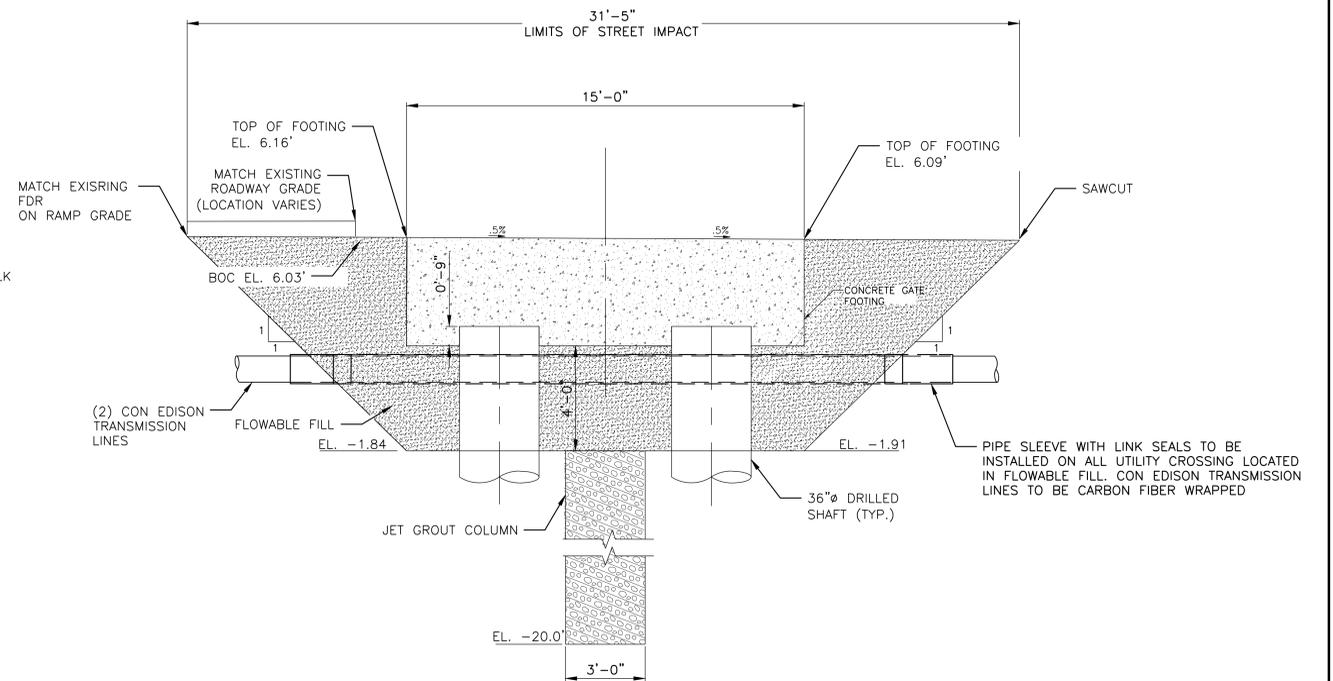
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 254 OF 811 FG501

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



SECTION THROUGH SIDEWALK AT SOUTH END OF FDR ON RAMP

B  
FG500 SCALE 1/2" = 1'-0"



SECTION THROUGH GATE FOOTING AT FDR ON RAMP

C  
FG500 SCALE 1/2" = 1'-0"

**NOTES:**

- SEE DWG FG503 AND FG504 FOR REGRADING PLAN AND PROFILE.

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



SIGNATURE

DATE

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
EAST 18TH STREET FDR ON RAMP & OCME  
GATE SECTIONS

ARCADIS  
DRAWN BY

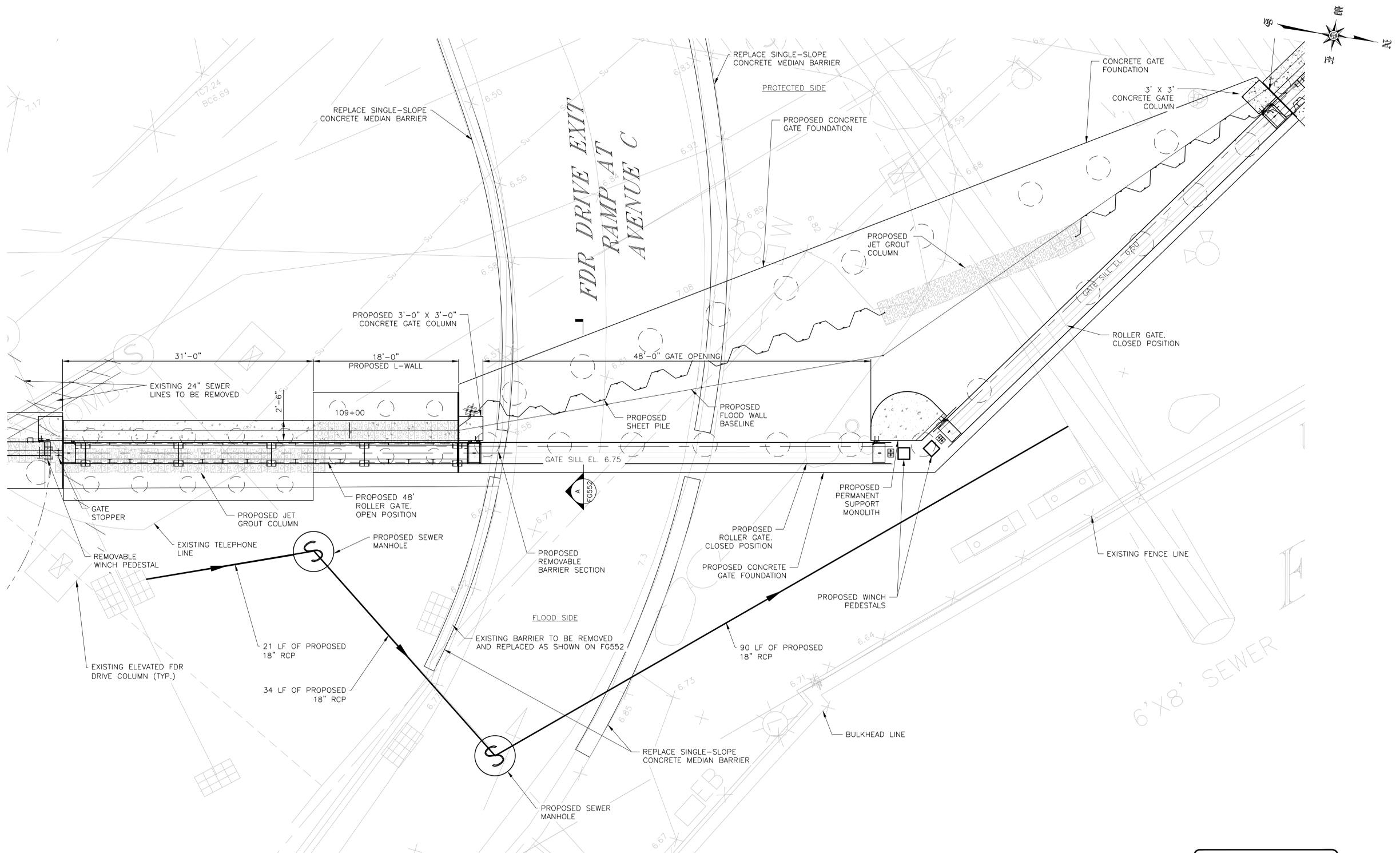
SANDRESM1-FG502-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 255 OF 811 FG502

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE SHEET SRXXX FOR STREET RESTORATION AND CURB GEOMETRY.
3. SEE SHEET PMP313 FOR PAVEMENT MARKINGS.
4. SEE SHEETS FG606 TO FG608 FOR CONCRETE GATE FOUNDATION STRUCTURAL DETAILS.
5. SEE SHEET FG613 FOR PILE LAYOUT AND SCHEDULE.
6. SEE SHEETS FG609 & FG610 FOR STRUCTURAL GATE DETAILS.

**EAST 18TH STREET FDR EXIT GATE PLAN**

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



The AKRF-KSE JV

FINAL DESIGN PREPARED BY:



ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

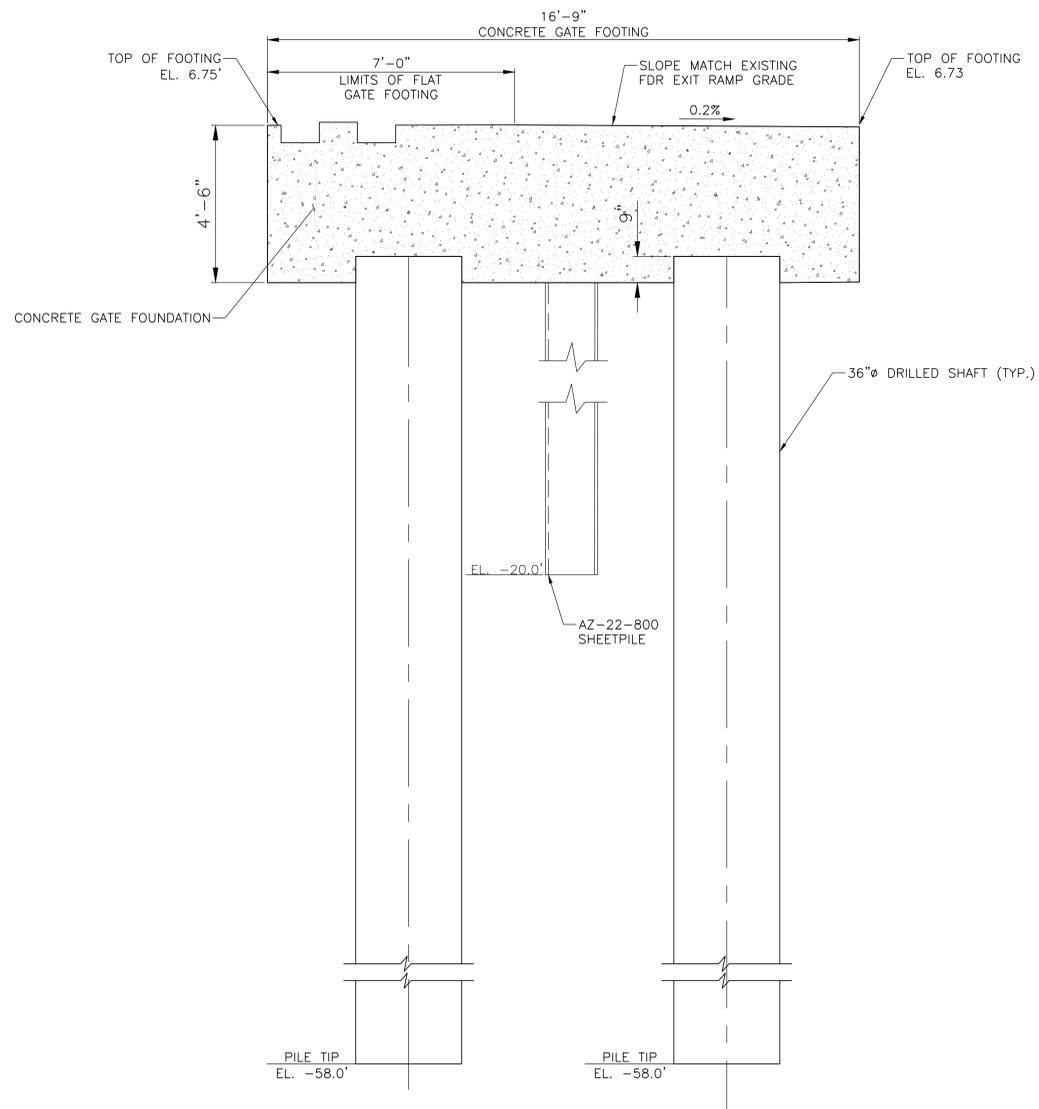
CLOSURE STRUCTURES  
EAST 18TH STREET FDR EXIT GATE  
PLAN

ARCADIS  
DRAWN BY \_\_\_\_\_  
SANDRESM1-FG550-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19    SHEET 269 OF 811    FG550

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**SECTION THROUGH FDR EXIT GATE**  
 SCALE 1/2" = 1'-0"

**CONCEPTUAL**  
 SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D.

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
 INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
 The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
 ARCADIS OF NEW YORK, INC.  
 NAME OF CONSULTANT  
 SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_

CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

CLOSURE STRUCTURES  
 FDR EXIT GATE  
 SECTION  
 ARCADIS  
 DRAWN BY \_\_\_\_\_  
 SANDRESM1-FG551-00.DWG  
 CADD FILE

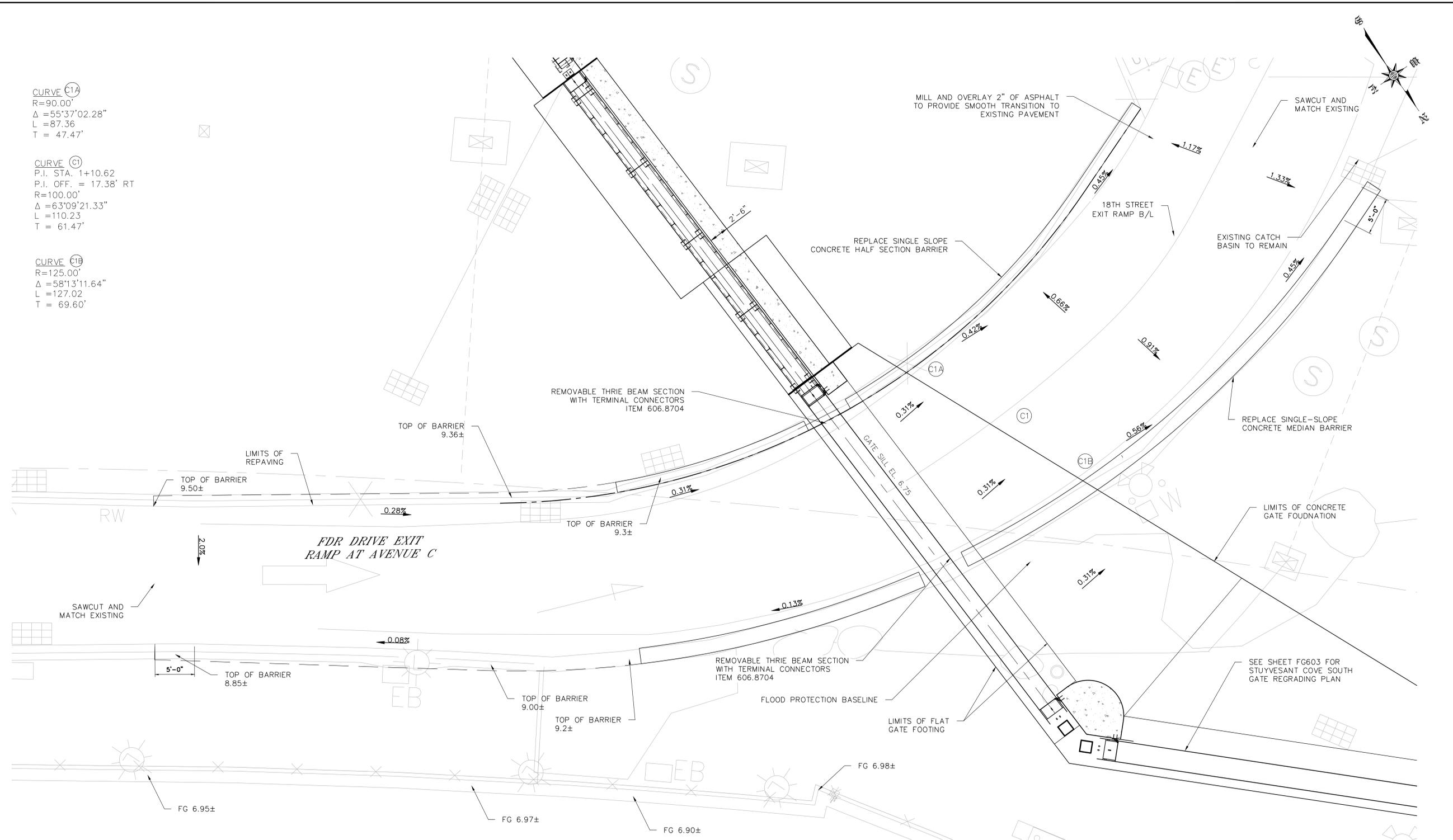
INSTALLATION OF  
 EAST SIDE COASTAL RESILIENCY  
 BOROUGH OF MANHATTAN  
 CAPITAL PROJECT NO. SANDRESM1 1/31/19  
 SHEET 270 OF 811  
 FG551

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019

**CURVE C1A**  
 R=90.00'  
 $\Delta = 55^{\circ}37'02.28''$   
 L = 87.36'  
 T = 47.47'

**CURVE C1**  
 P.I. STA. = 1+10.62  
 P.I. OFF. = 17.38' RT  
 R=100.00'  
 $\Delta = 63^{\circ}09'21.33''$   
 L = 110.23'  
 T = 61.47'

**CURVE C1B**  
 R=125.00'  
 $\Delta = 58^{\circ}13'11.64''$   
 L = 127.02'  
 T = 69.60'



**EAST 18TH STREET FDR EXIT GATE  
 REGRADING OVERALL PLAN**

**CONCEPTUAL**  
 SUBMITTED DATE: 1/31/2019



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
 INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
 The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
 ARCADIS OF NEW YORK, INC.  
 NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_

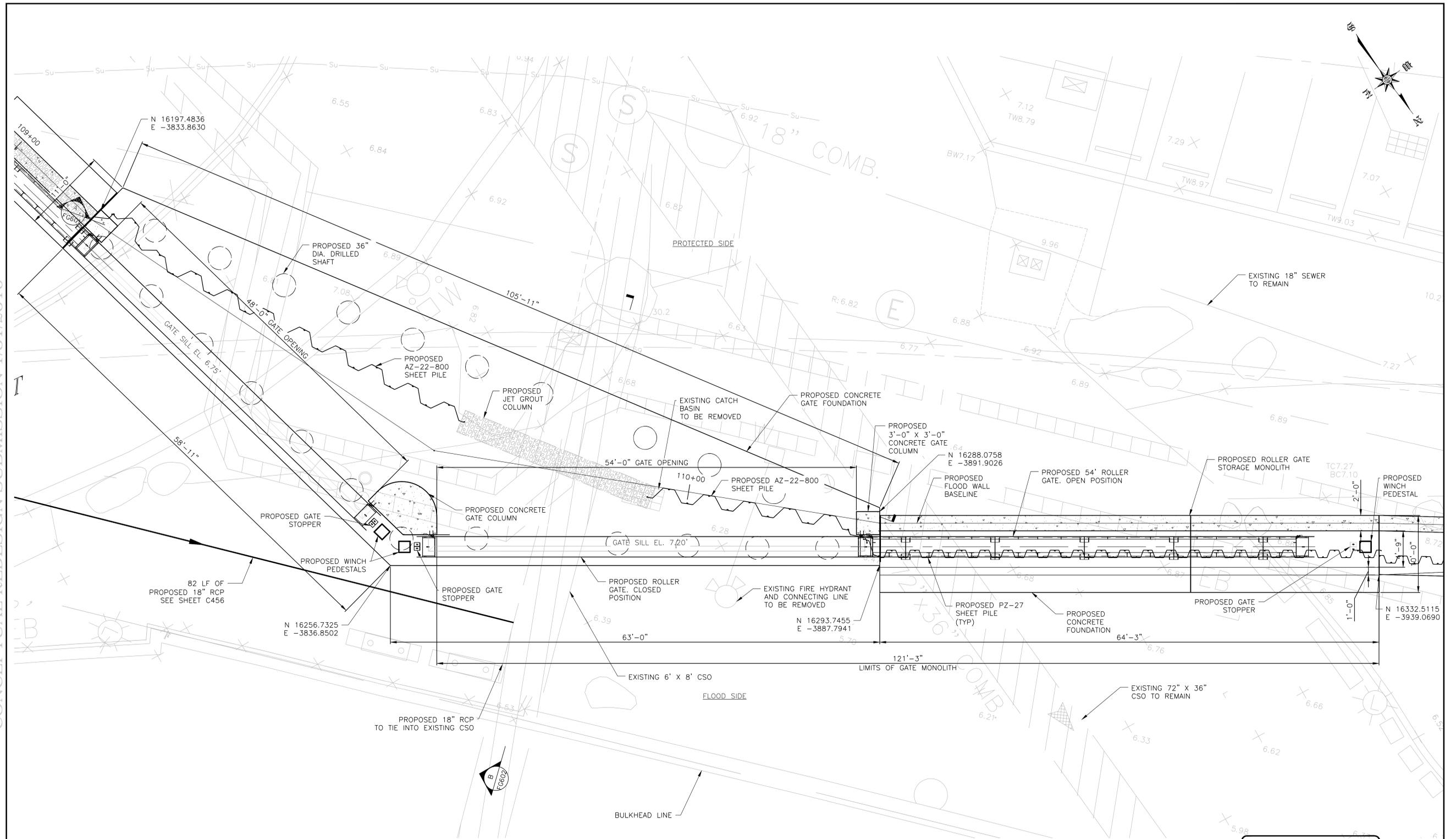
CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

CLOSURE STRUCTURES  
 EAST 18TH STREET FDR EXIT GATE  
 REGRADING OVERALL PLAN  
 ARCADIS DRAWN BY \_\_\_\_\_  
 SANDRESM1-FG552-00.DWG  
 CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

INSTALLATION OF  
 EAST SIDE COASTAL RESILIENCY  
 BOROUGH OF MANHATTAN  
 CAPITAL PROJECT NO. SANDRESM1 1/31/19  
 SHEET 271 OF 811  
 FG552

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE SHEET SRXXX FOR STREET RESTORATION AND CURB GEOMETRY.
3. SEE SHEET PMP313 FOR PAVEMENT MARKINGS.
4. SEE SHEETS FG606 TO FG608 FOR CONCRETE GATE FOUNDATION STRUCTURAL DETAILS.
5. SEE SHEET FG613 FOR PILE LAYOUT AND SCHEDULE.
6. SEE SHEETS FG609 THROUGH FG612 FOR STRUCTURAL GATE DETAILS.

STUYVESANT COVE SOUTH GATE PLAN

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT  
SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

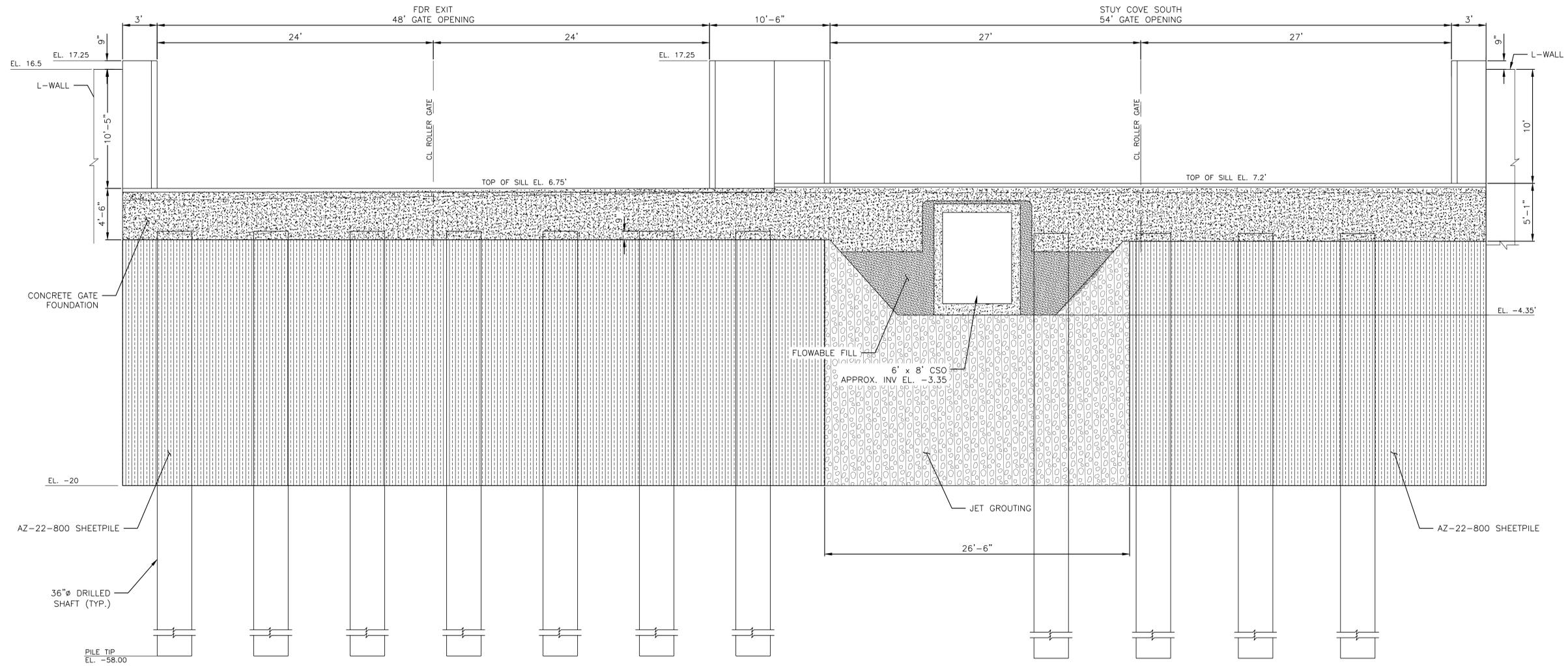
CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURE  
STUYVESANT COVE SOUTH GATE  
PLAN  
ARCADIS  
DRAWN BY \_\_\_\_\_  
SANDRESM1-FG600-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19    SHEET 272 OF 811    FG600

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



A
FG600
**FDR EXIT & STUY COVE SOUTH ROLLER GATE PROTECTED SIDE ELEVATION**  
 SCALE 1/4" = 1'-0"

**LEGEND:**

- FLOWABLE FILL
- JET GROUT

**NOTES:**

1. JET GROUTING SHALL BE PERFORMED WITH THE TRIPLE FLUID SYSTEM.
2. THE MINIMUM UNCONFINED COMPRESSIVE DESIGN STRENGTH OF THE SOILCRETE SHALL BE 500 PSI AT 3 DAYS AND 750 PSI AT 28 DAYS.
3. THE DESIGN PERMEABILITY OF THE SOILCRETE SHALL BE LESS THAN  $1.0 \times 10^{-9}$  CM/SEC.
4. USE VERTICAL AND ANGLED SLEEVE PIPES AS REQUIRED TO PERFORM JET GROUTING AROUND AND BELOW THE UTILITY LINES.
5. PRIOR TO PERFORMING JET GROUTING AND DRIVING SHEET PILES AT/NEAR EACH UTILITY LINE CROSSING LOCATION, PRE-TRENCH EXCAVATION TO LOCATE/EXPOSE THE UTILITY LINE (THEN BACKFILLING) AS REQUIRED.
6. FOR EXISTING UTILITY LINES LOCATED WITHIN THE LIMITS OF PROPOSED SOIL IMPROVEMENTS, SEE UTILITY CROSSING TYPE A, B, C AND D.
7. 14TH STREET CANARSIE L- TUNNEL.
8. ALL SPOT ELEVATIONS ARE EXISTING ELEVATIONS IN NAVD88.
9. EXCAVATABLE FILL SHALL HAVE A COMPRESSIVE STRENGTH OF 100PSI.
10. UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE NOT EXACT LOCATIONS. CONTRACTOR SHALL EXCAVATE A 4 FT DEEP 10 FT WIDE TRENCH TO IDENTIFY UTILITY TYPE, DEPTH AND DIMENSIONS PRIOR TO BEGINNING SOIL IMPROVEMENT WORK. SUBMIT DETAILS OF ALL SITE OBSERVED UTILITIES TO THE CLIENT BEFORE BEGINNING WORK.
11. ALL PILES TIP ELEVATION SHOULD BE AT RESPECTIVE LEVEL OR TILL TO THE BED ROCK LEVEL.

**CONCEPTUAL**  
 SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

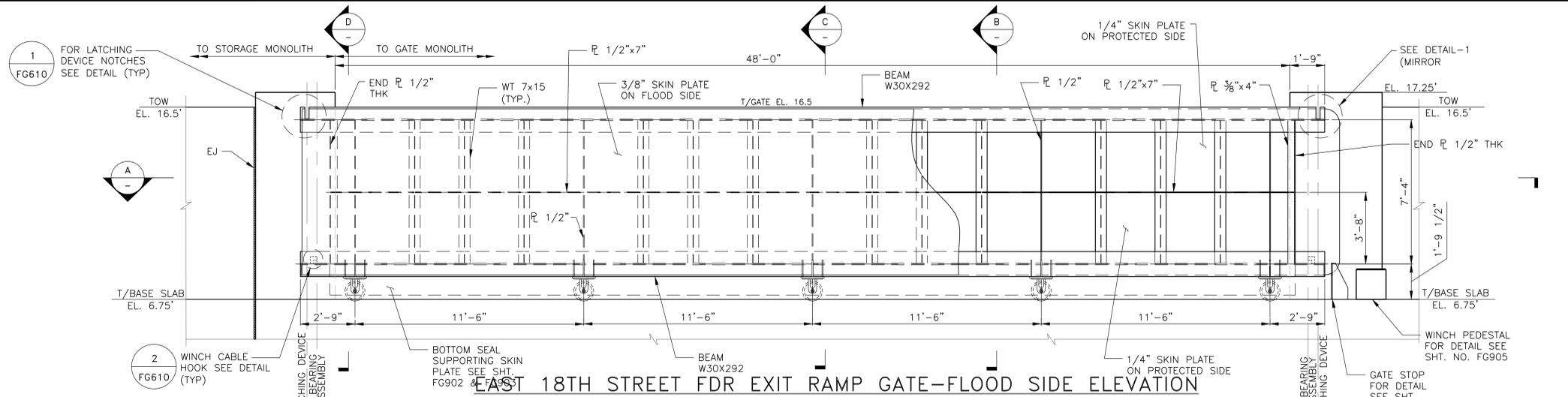
**CLOSURE STRUCTURES**  
**FDR EXIT & STUY COVE SOUTH ROLLER GATE**  
**ELEVATION**

ARCADIS DRAWN BY \_\_\_\_\_  
 SANDRESM1-FG601-00.DWG  
 CADD FILE

**INSTALLATION OF**  
**EAST SIDE COASTAL RESILIENCY**  
 BOROUGH OF MANHATTAN

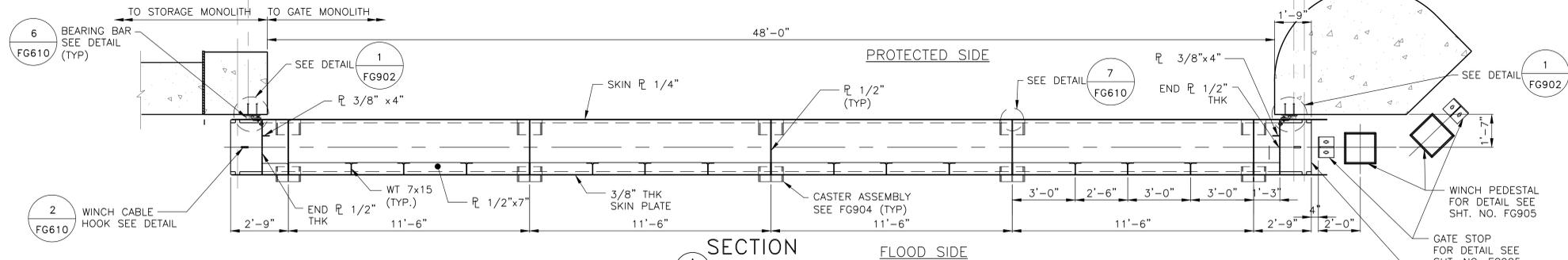
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 273 OF 811 FG601

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



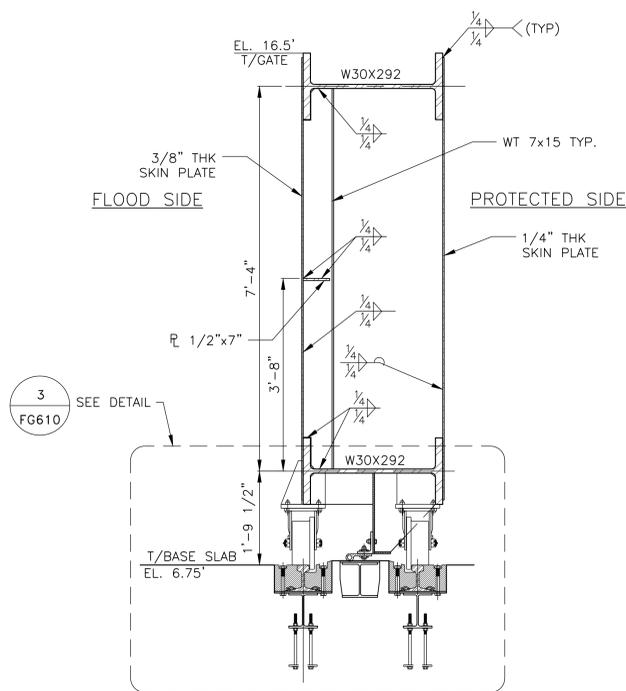
**EAST 18TH STREET FDR EXIT RAMP GATE—FLOOD SIDE ELEVATION**

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



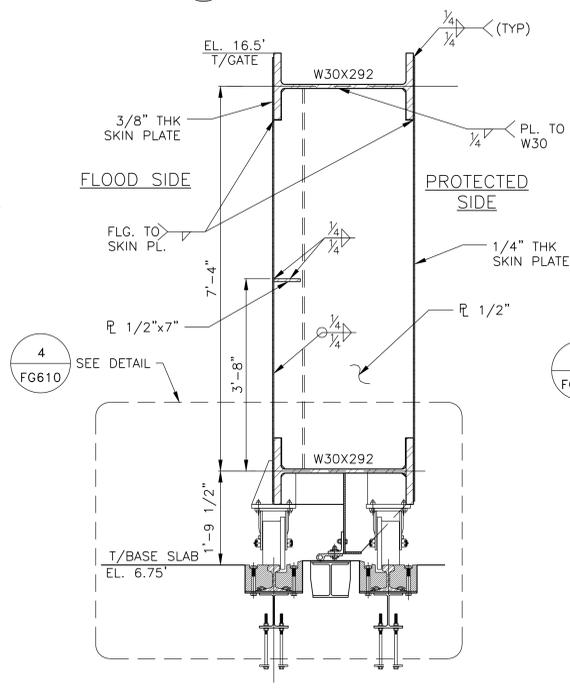
**SECTION A-A FLOOD SIDE**

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



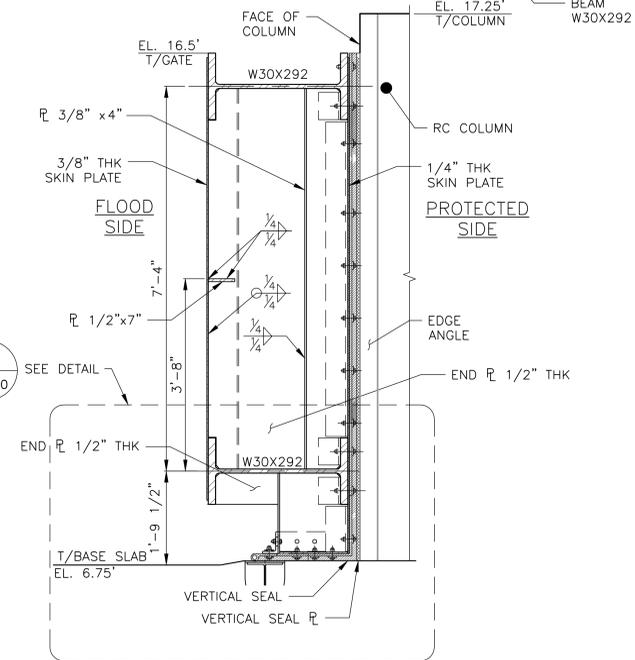
**SECTION B-B**

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



**SECTION C-C**

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



**SECTION D-D**

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

- NOTE:**
1. ALL ITEMS NOT IDENTIFIED WITH A PAY ITEM NUMBER SHALL BE COVERED UNDER THE GATE LUMP SUM PAY ITEM ESCR 50.N.3
  2. SEE DWG. FG606, FG607 & FG608 FOR FOUNDATION DETAILS.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

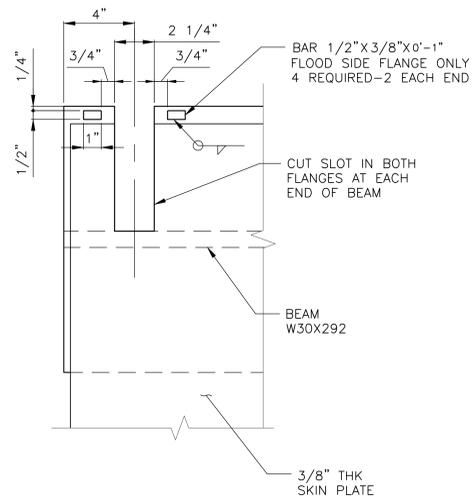
CLOSURE STRUCTURES  
EAST 18th STREET FDR EXIT GATE  
PLAN & ELEVATION SHEET 1 OF 2

ARCADIS DRAWN BY \_\_\_\_\_ SANDRESM1-FG609-00.DWG  
CADD FILE

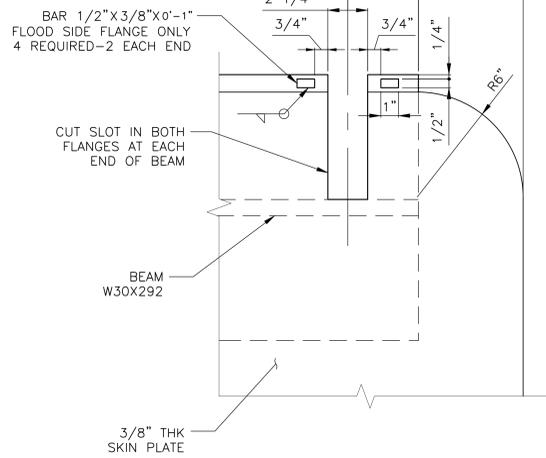
INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 279 OF 811 FG609

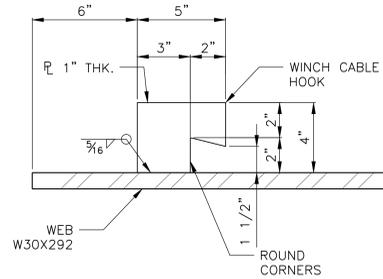
CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



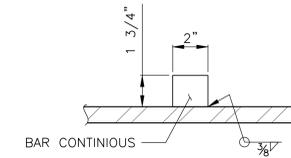
**1**  
DETAIL  
FG609 SCALE:-- 3" = 1'-0"



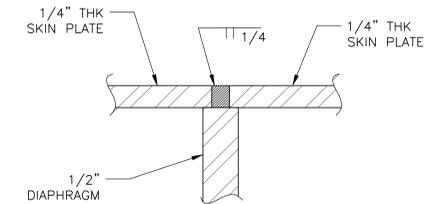
**1**  
DETAIL (MIRROR)  
FG609 SCALE:-- 3" = 1'-0"



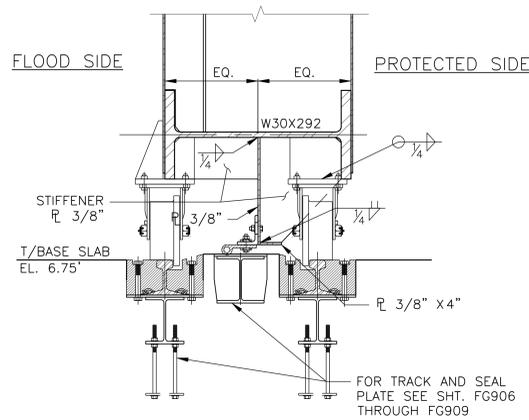
**2**  
DETAIL WINCH CABLE HOOK  
FG609 SCALE:-- 3" = 1'-0"



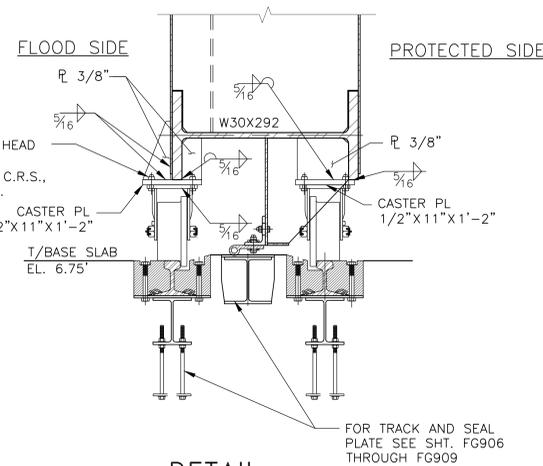
**6**  
BEARING BAR DETAIL  
FG609 SCALE:-- 3" = 1'-0"



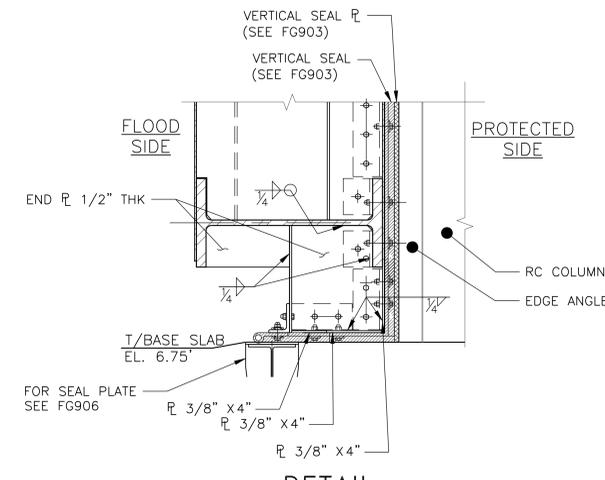
**7**  
DETAIL  
FG609 SCALE:-- 1" = 1'-0"



**3**  
DETAIL  
FG609 SCALE:-- 1" = 1'-0"



**4**  
DETAIL  
FG609 SCALE:-- 1" = 1'-0"



**5**  
DETAIL  
FG609 SCALE:-- 1" = 1'-0"

NOTE: PARTICULAR ATTENTION SHALL BE GIVEN TO FIELD ADJUSTMENT OF BOTTOM SEAL TO OBTAIN PROPER SEAL WITH SEAL PLATE

**NOTES:**  
1. FOR TYPICAL LATCHING DETAILS SEE DWG. FG900 & FG901.  
2. FOR TYPICAL ROLLER GATE SEAL DETAILS SEE DWG. FG902 & FG903.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY: **AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY: **ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

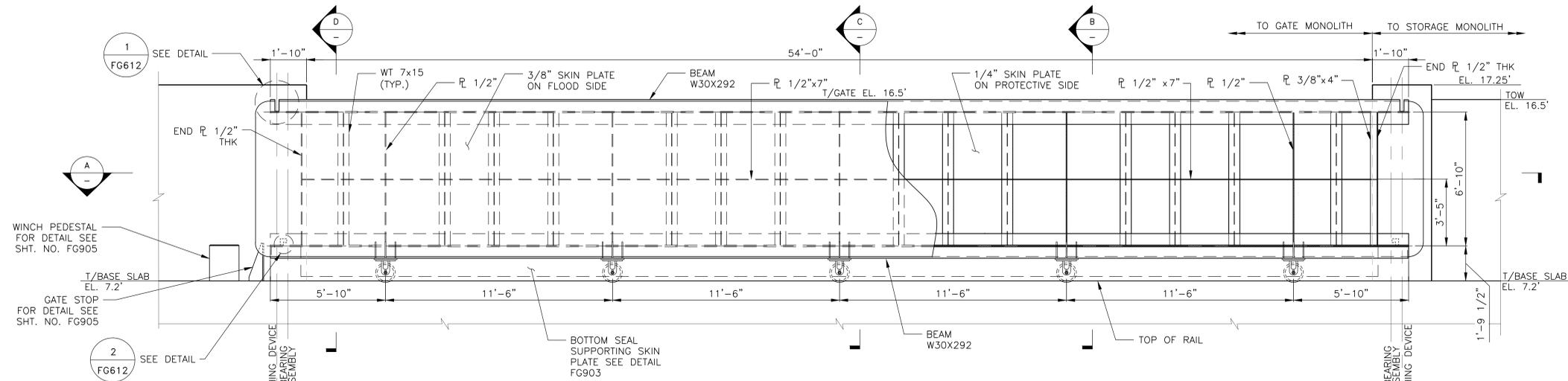
CLOSURE STRUCTURES  
EAST 18th STREET FDR EXIT GATE  
PLAN & ELEVATION SHEET 2 OF 2

ARCADIS DRAWN BY \_\_\_\_\_  
SANDRESM1-FG610-00.DWG  
CADD FILE

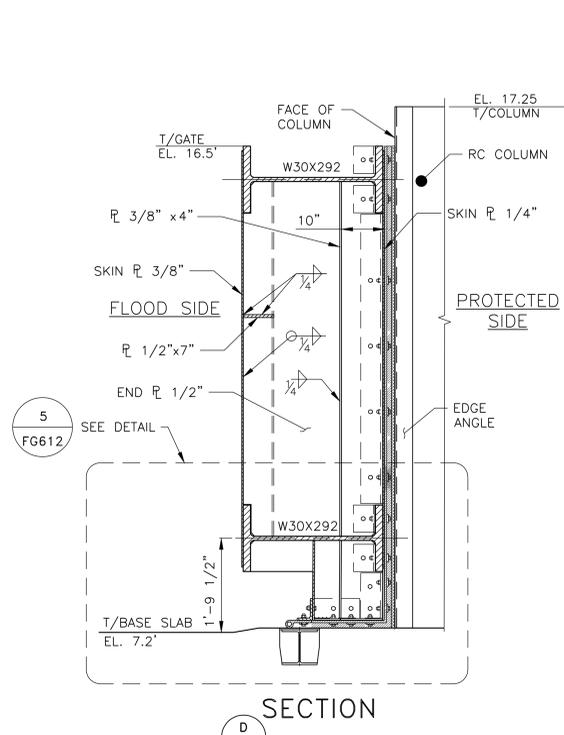
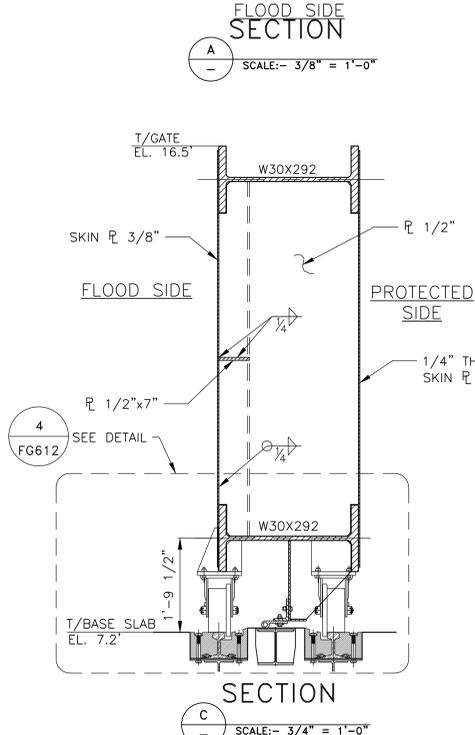
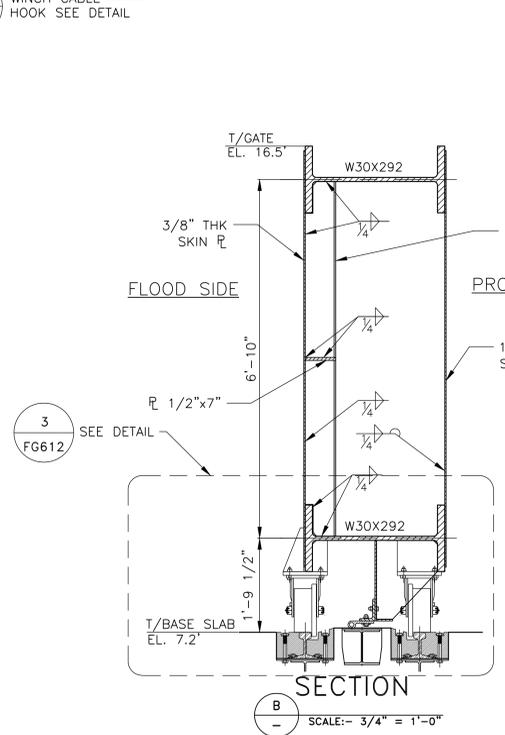
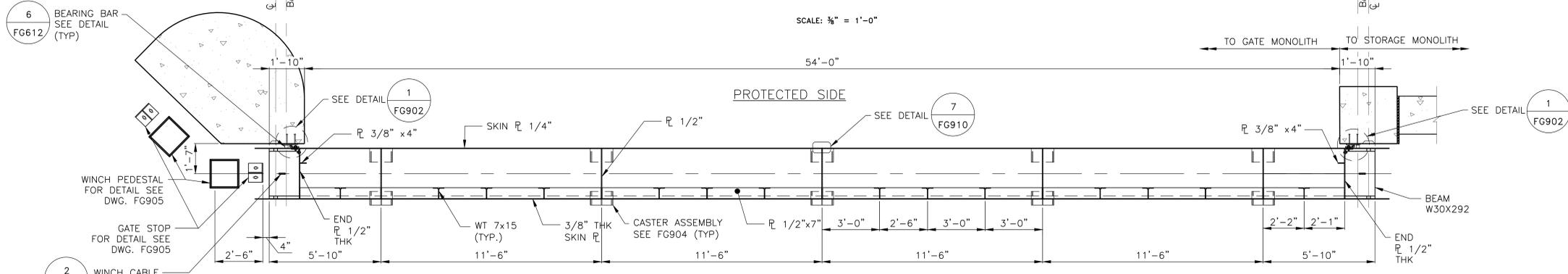
INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 280 OF 811 FG610

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



STUYVESANT COVE SOUTH ROLLER GATE - FLOOD SIDE ELEVATION



**NOTE:**  
 1. ALL ITEMS NOT IDENTIFIED WITH A PAY ITEM NUMBER SHALL BE COVERED UNDER THE GATE LUMP SUM PAY ITEM ESCR 50.N.4  
 2. SEE DWG. FG606 TO FG608 FOR FOUNDATION DETAILS.

**CONCEPTUAL**  
 SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY: **AKRF KSE**  
 The AKRF-KSE JV

FINAL DESIGN PREPARED BY: **ARCADIS**  
 ARCADIS OF NEW YORK, INC.  
 NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_

CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

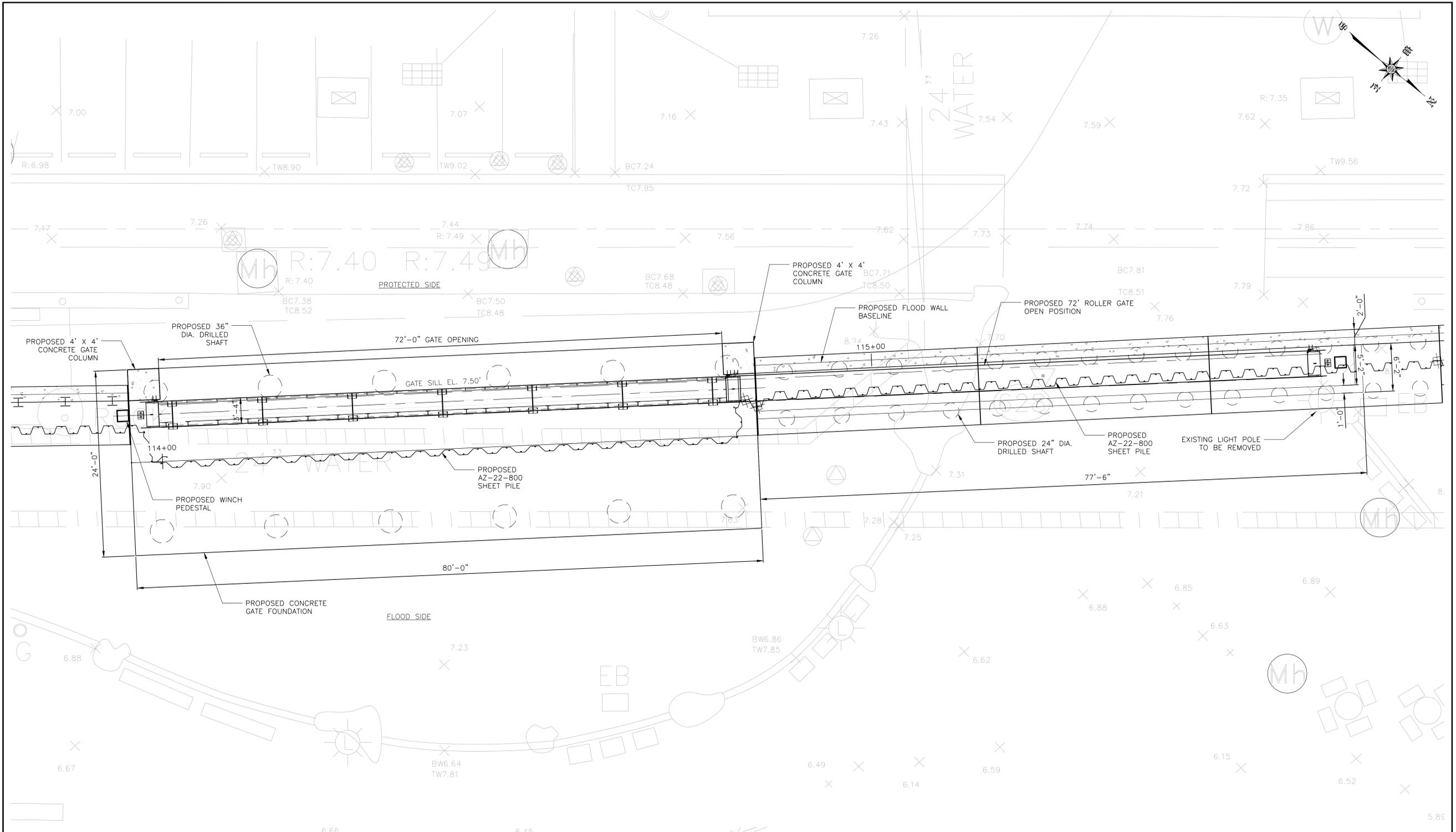
CLOSURE STRUCTURES  
 STUYVESANT COVE SOUTH GATE  
 PLAN & ELEVATION SHEET 1 OF 2

ARCADIS DRAWN BY \_\_\_\_\_  
 SANDRESM1-FG611-00.DWG  
 CADD FILE

INSTALLATION OF  
 EAST SIDE COASTAL RESILIENCY  
 BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 281 OF 811 FG611

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE SHEET SRXXX FOR STREET RESTORATION AND CURB GEOMETRY.
3. SEE SHEET PMP313 FOR PAVEMENT MARKINGS.
4. SEE SHEETS FG654 & FG655 FOR CONCRETE GATE FOUNDATION STRUCTURAL DETAILS.
5. SEE SHEET FG658 FOR PILE LAYOUT AND SCHEDULE.
6. SEE SHEETS FG656 & FG657 FOR STRUCTURAL GATE DETAILS.

**EAST 20TH STREET GATE PLAN**



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
EAST 20TH STREET GATE  
PLAN

ARCADIS DRAWN BY \_\_\_\_\_  
SANDRESM1-FG650-00  
CADD FILE

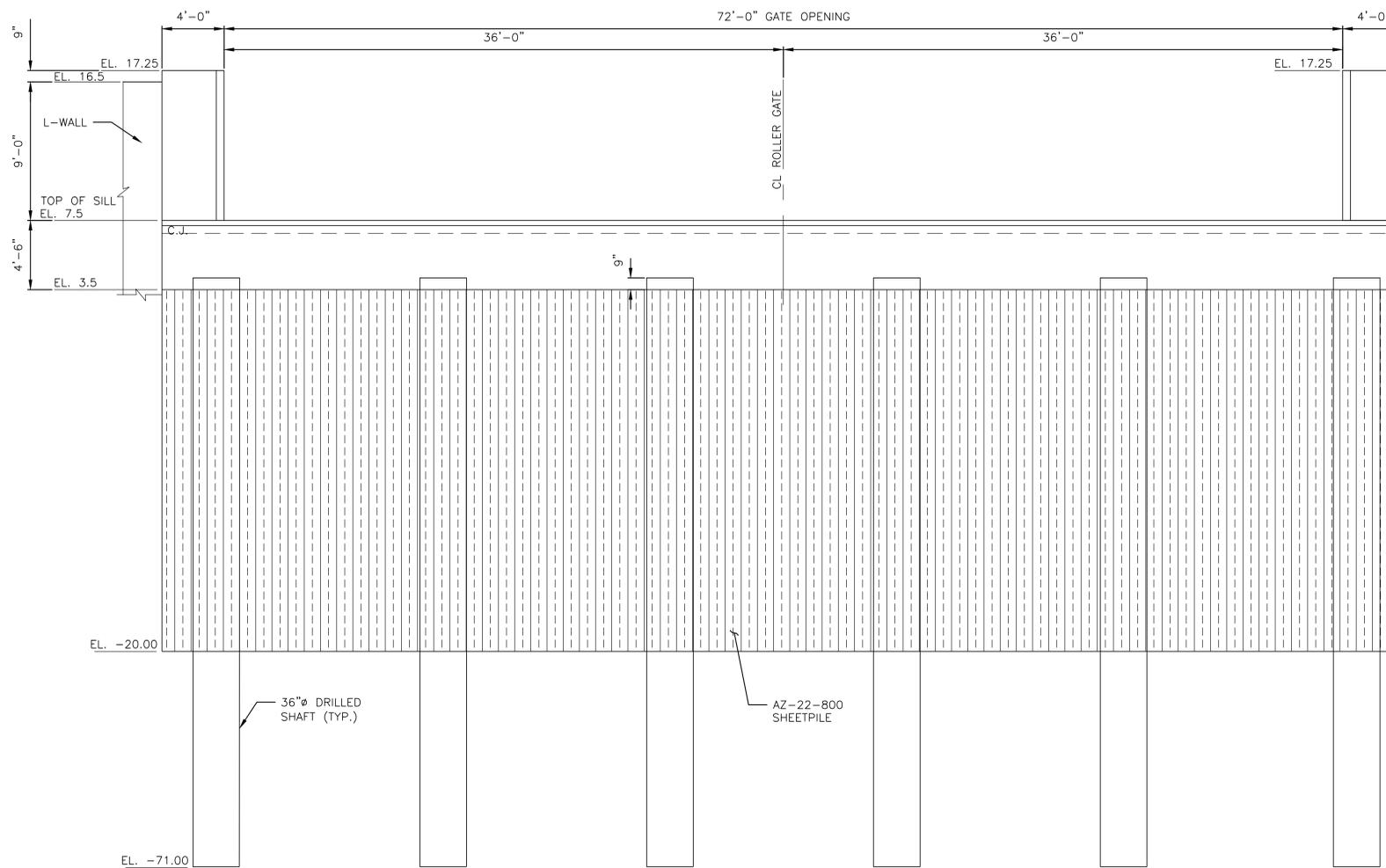
NO.		DATE		DESCRIPTIONS		BY		APPR'D	

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 284 OF 811 FG650

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**SECTION THROUGH EAST 20TH STREET GATE**  
 SCALE 1/4" = 1'-0"

**CONCEPTUAL**  
 SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
 INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



ARCADIS OF NEW YORK, INC.  
 NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

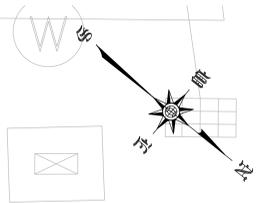
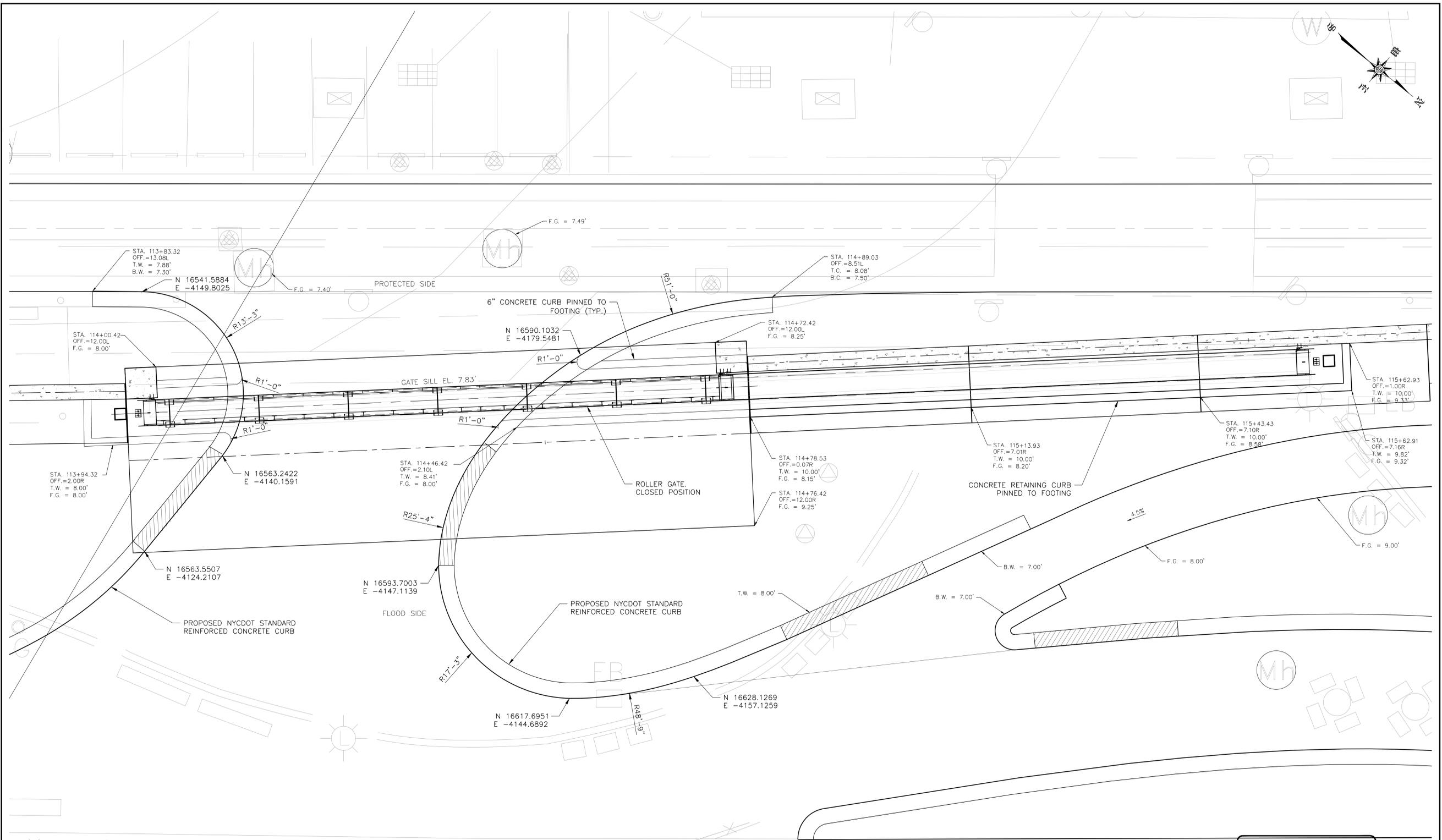
CLOSURE STRUCTURES  
 EAST 20TH STREET GATE  
 ELEVATION

ARCADIS SANDRESM1-FG907-00  
 DRAWN BY: [Name] DATE: [Date]

INSTALLATION OF  
 EAST SIDE COASTAL RESILIENCY  
 BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 285 OF 811 FG651

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



EAST 20TH STREET GATE REGRADING OVERALL PLAN

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
EAST 20TH STREET GATE  
REGRADING OVERALL PLAN  
ARCADIS DRAWN BY \_\_\_\_\_ SANDRESM1-FG652-00  
CADD FILE

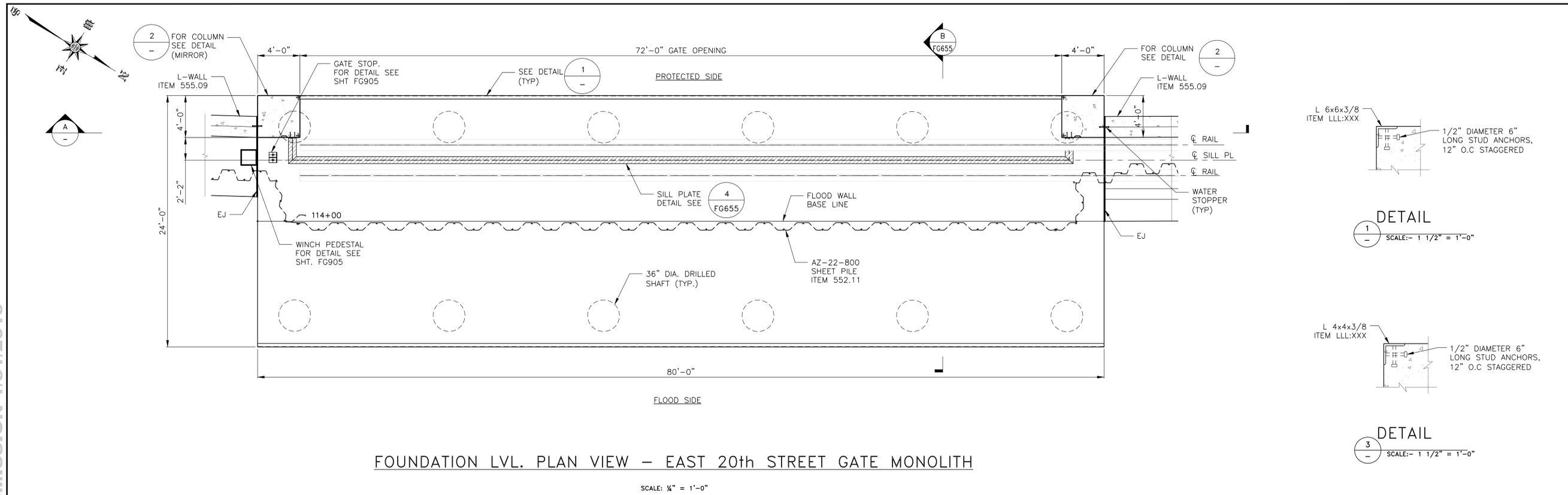
NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 286 OF 811 FG652

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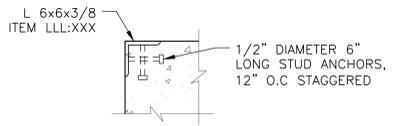
CONSULTANT DESIGN

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



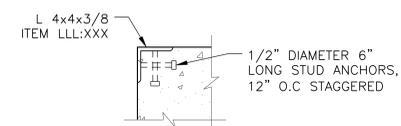
FOUNDATION LVL. PLAN VIEW - EAST 20th STREET GATE MONOLITH

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



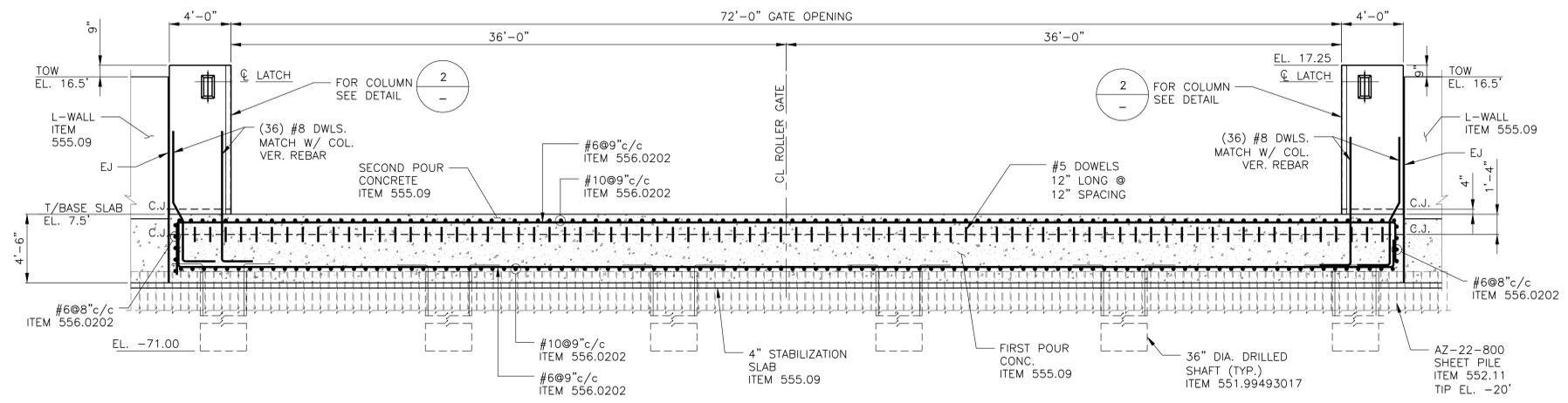
DETAIL 1

SCALE: 1 1/2" = 1'-0"



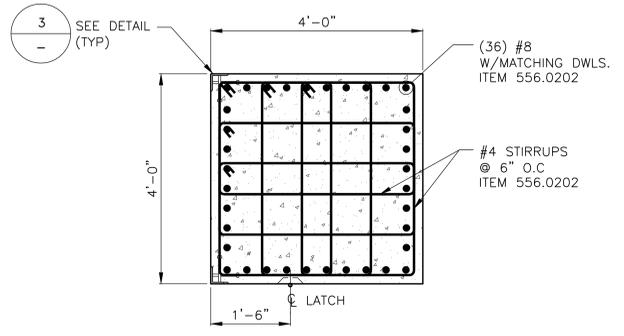
DETAIL 2

SCALE: 1 1/2" = 1'-0"



SECTION A

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



DETAIL 3

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

NOTES:

1. FOR CONCRETE MONOLITH PILE LAYOUT AND SCHEDULE SEE DWG. FG658.
2. FOR GATE DETAILS SEE DWG. FG656 & FG657.
3. FOR EXISTING UTILITIES, SHEET PILE/JET GROUT DETAILS SEE DWG. FG650 TO FG651.
4. FOR TYPICAL DRILLED SHAFT PILE DETAILS SEE DWG. FS411.
5. FOR LATCHING HOOK DETAILS SEE DWG. FG900 AND FG901.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY: 	FINAL DESIGN PREPARED BY: 	SIGNATURE _____ DATE _____
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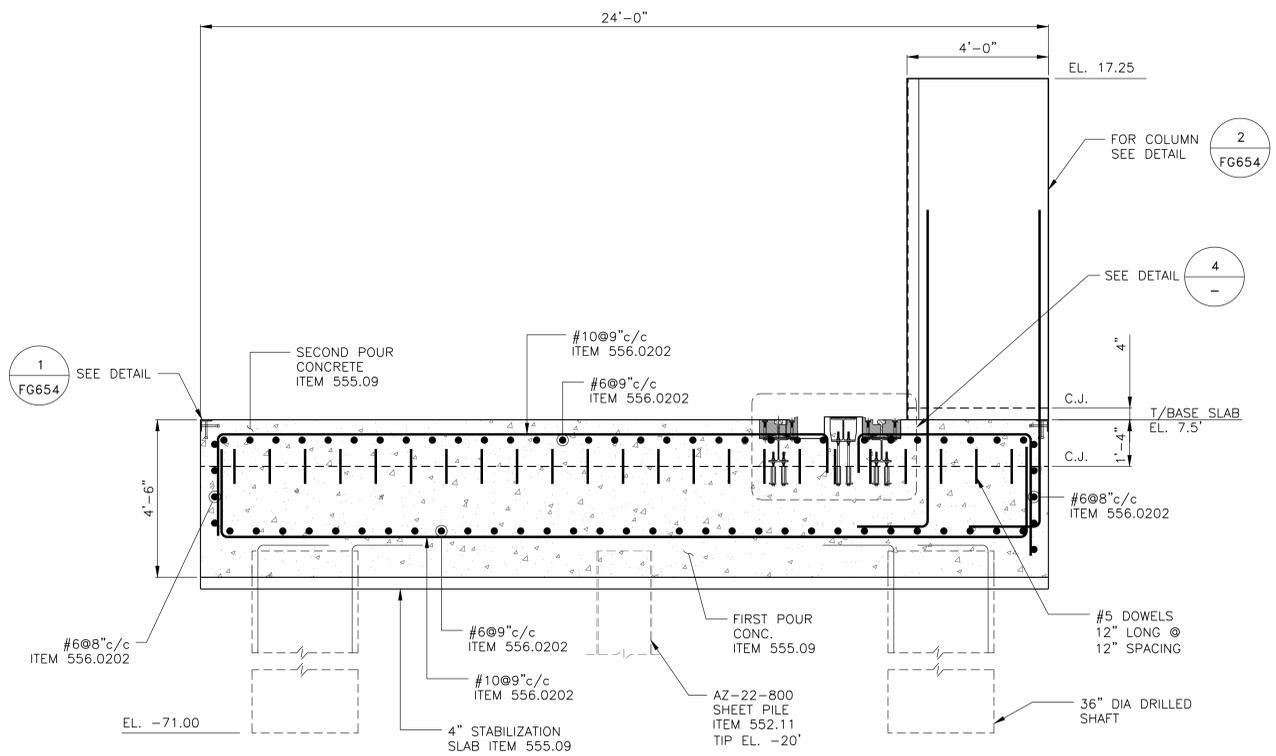
CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
EAST 20th STREET GATE  
CONCRETE MONOLITH SHEET 1 OF 2  
ARCADIS SANDRESM1-FG654-00.DWG  
DRAWN BY \_\_\_\_\_ CADD FILE

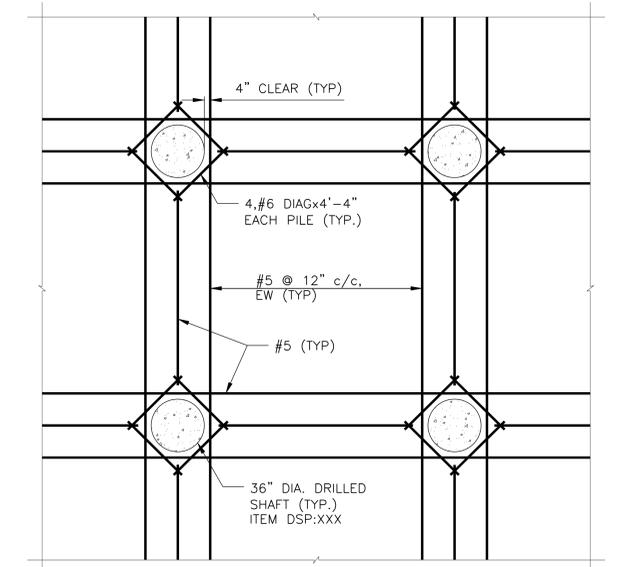
INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

SHEET 287 OF 811 FG654  
CAPITAL PROJECT NO. SANDRESM1 1/31/19

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019

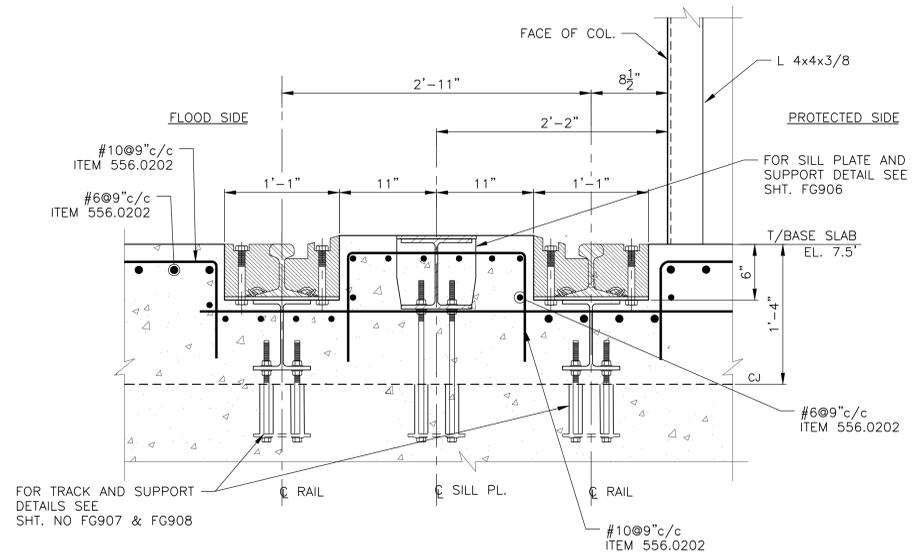


**SECTION B**  
SCALE: 1/2" = 1'-0"

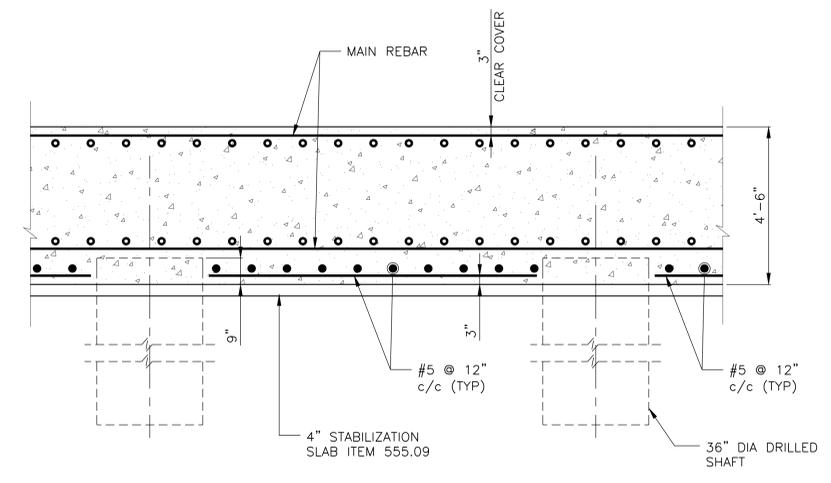


**TYPICAL SHRINKAGE REINFORCEMENT DETAIL**

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



**DETAIL 4**  
SCALE: 1 1/2" = 1'-0"



**SECTION C**  
SCALE: 1/2" = 1'-0"

**NOTES:**

1. FOR CONCRETE MONOLITH PILE LAYOUT AND SCHEDULE SEE DWG. FG658.
2. FOR GATE DETAILS SEE DWG. FG656 & FG657.
3. FOR EXISTING UTILITIES, SHEET PILE/JET GROUT DETAILS SEE DWG. FG650 TO FG653.
4. FOR TYPICAL DRILLED SHAFT PILE DETAILS SEE DWG. FS411.
5. FOR LATCHING HOOK DETAILS SEE DWG. FG900 AND FG901.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

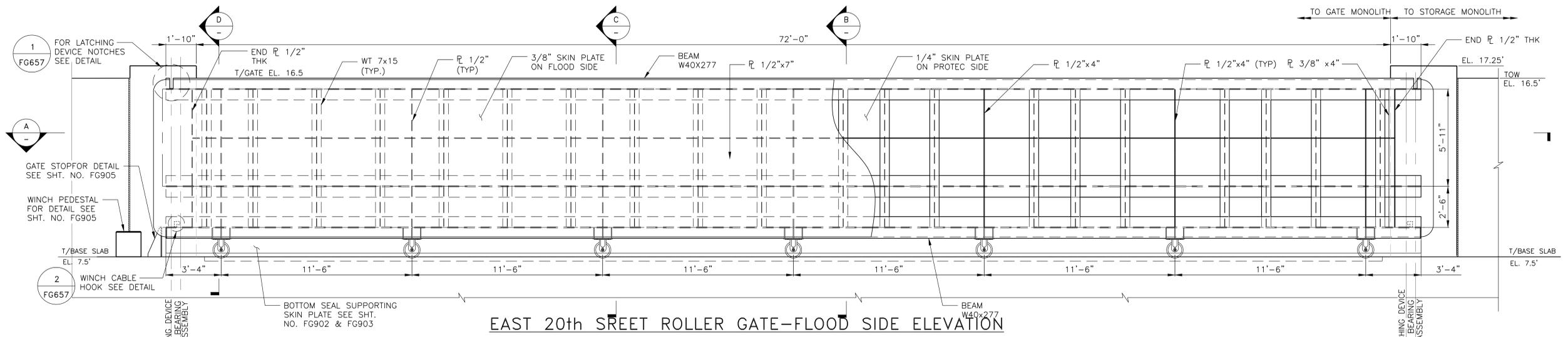
SIGNATURE  
DATE

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
EAST 20TH STREET GATE  
CONCRETE MONOLITH SHEET 2 OF 2  
ARCADIS SANDRESM1-FG655-00.DWG  
DRAWN BY CADD FILE

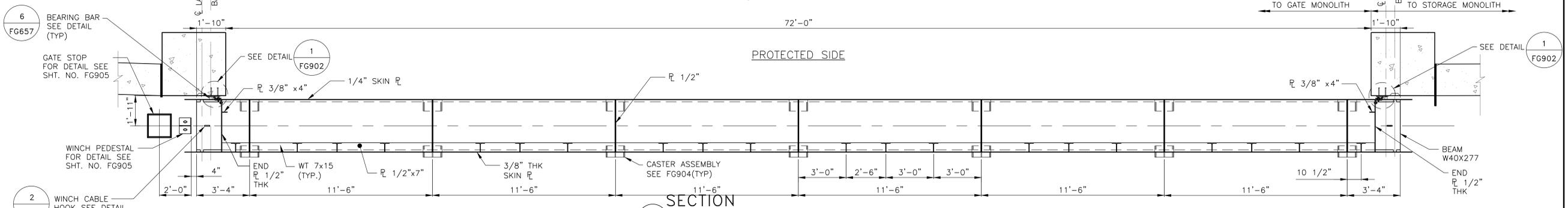
INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN  
CAPITAL PROJECT NO. SANDRESM1 1/31/19  
SHEET 288 OF 811  
FG655

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



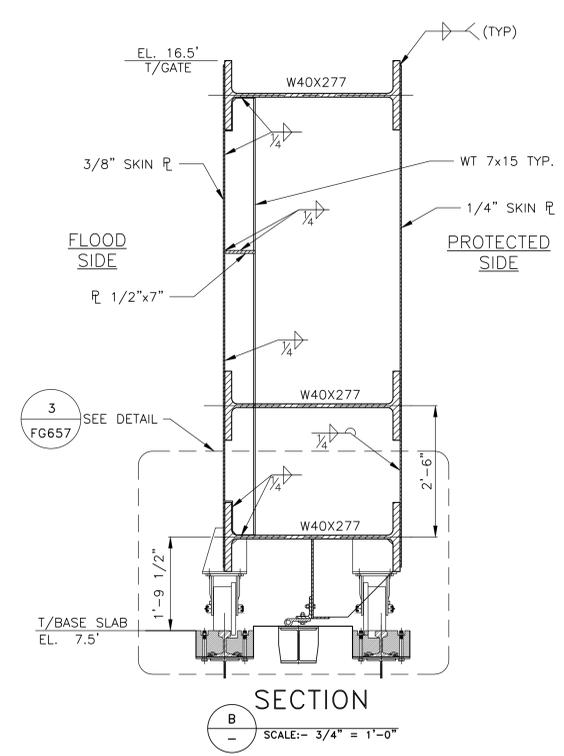
EAST 20th STREET ROLLER GATE - FLOOD SIDE ELEVATION

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



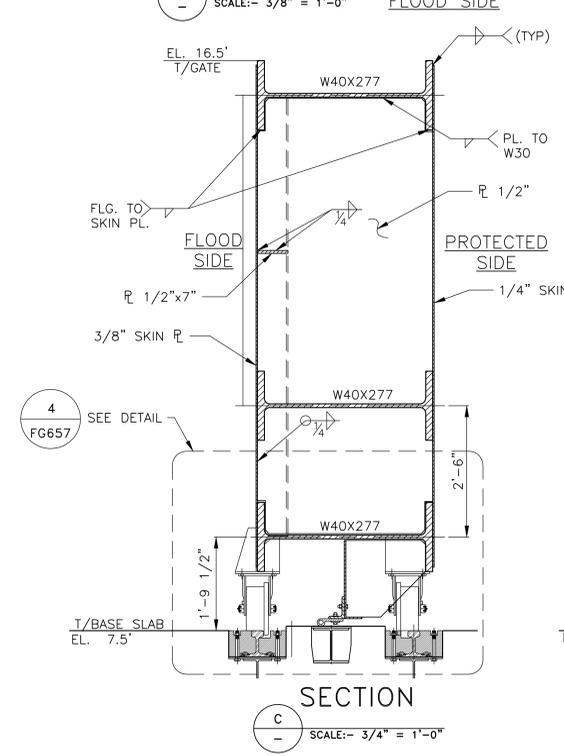
SECTION A - PROTECTED SIDE

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



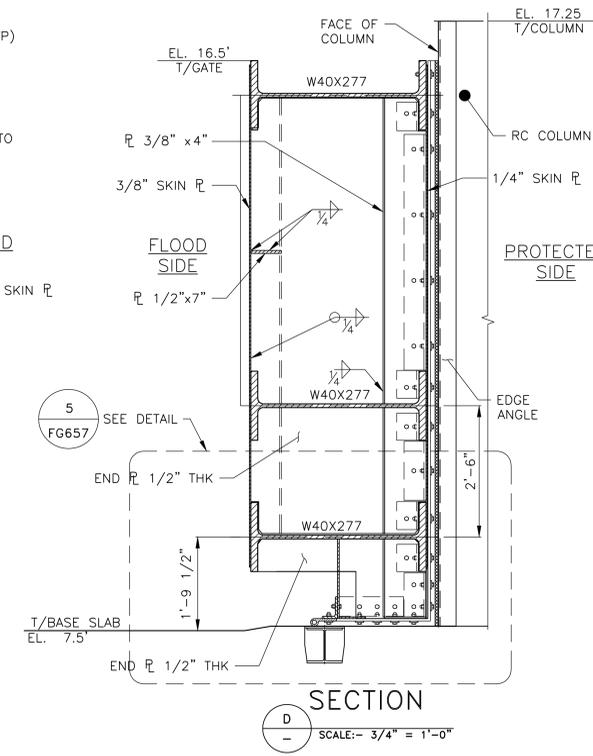
SECTION B - FLOOD SIDE

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



SECTION C - FLOOD SIDE

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



SECTION D - FLOOD SIDE

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

- NOTE:**
1. ALL ITEMS NOT IDENTIFIED WITH A PAY ITEM NUMBER SHALL BE COVERED UNDER THE GATE LUMP SUM PAY ITEM ESCR 50.N.5
  2. SEE DWG. FG652 FOR 72' AT EAST 20TH STREET FOUNDATION DETAILS.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

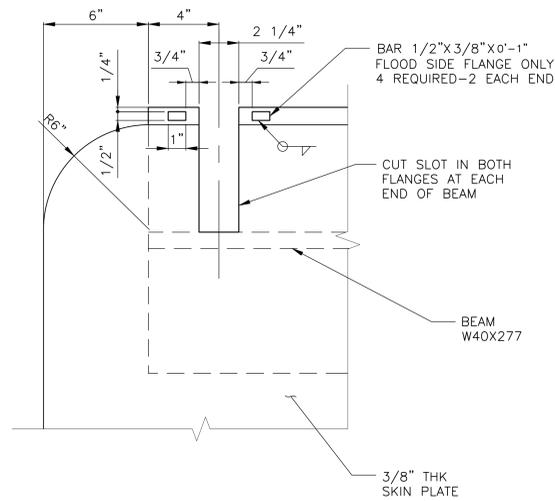
CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
EAST 20TH STREET GATE PLAN & ELEVATION  
SHEET 1 OF 2  
ARCADIS DRAWN BY \_\_\_\_\_  
SANDRESM1-FG656-00.DWG  
CADD FILE

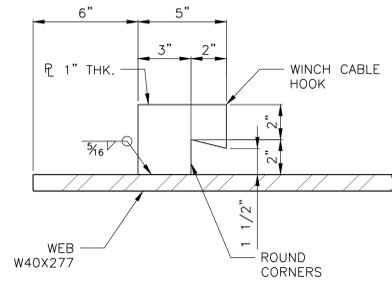
NO.	DATE	DESCRIPTIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1/1/31/19 SHEET 289 OF 811 FG656

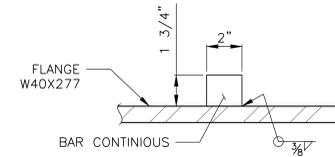
CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



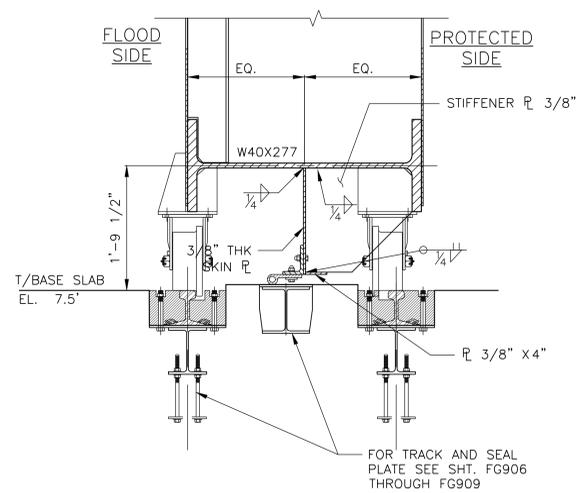
**1**  
DETAIL  
FG656 SCALE: - 3" = 1'-0"



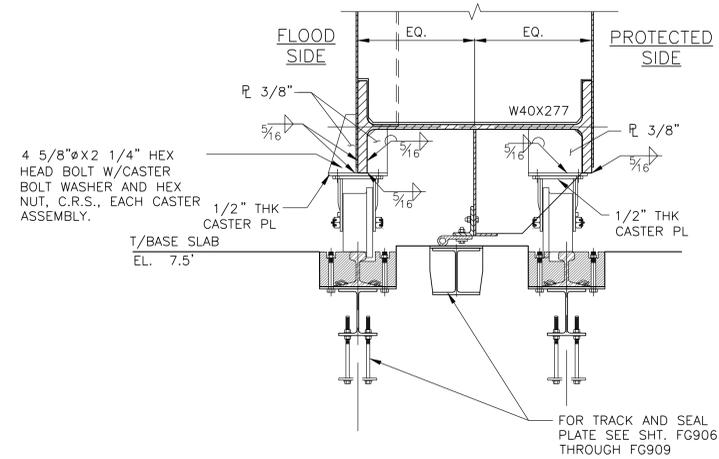
**2**  
WINCH CABLE HOOK  
FG656 SCALE: - 3" = 1'-0"



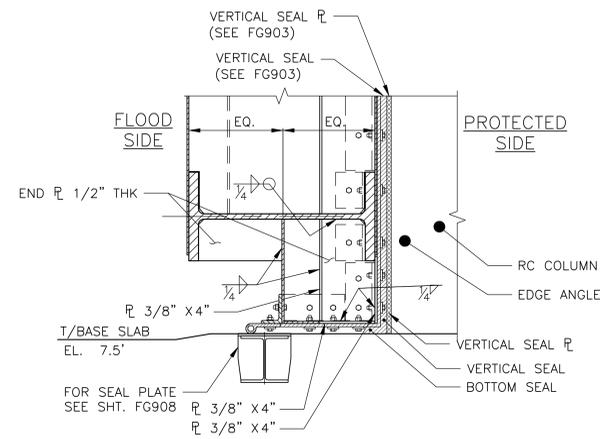
**6**  
BEARING BAR DETAIL  
FG656 SCALE: - 3" = 1'-0"



**3**  
DETAIL  
FG656 SCALE: - 1" = 1'-0"



**4**  
DETAIL  
FG656 SCALE: - 1" = 1'-0"



**5**  
DETAIL  
FG656 SCALE: - 1" = 1'-0"

**NOTES**

1. FOR TYPICAL LATCHING DETAILS SEE DWG. FG900.
2. FOR TYPICAL ROLLER GATE SEAL DETAILS SEE DWG. FG902 & FG903.
3. PARTICULAR ATTENTION SHALL BE GIVEN TO FIELD ADJUSTMENT OF BOTTOM SEAL TO OBTAIN PROPER SEAL WITH SEAL PLATE

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D
REVISIONS				

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

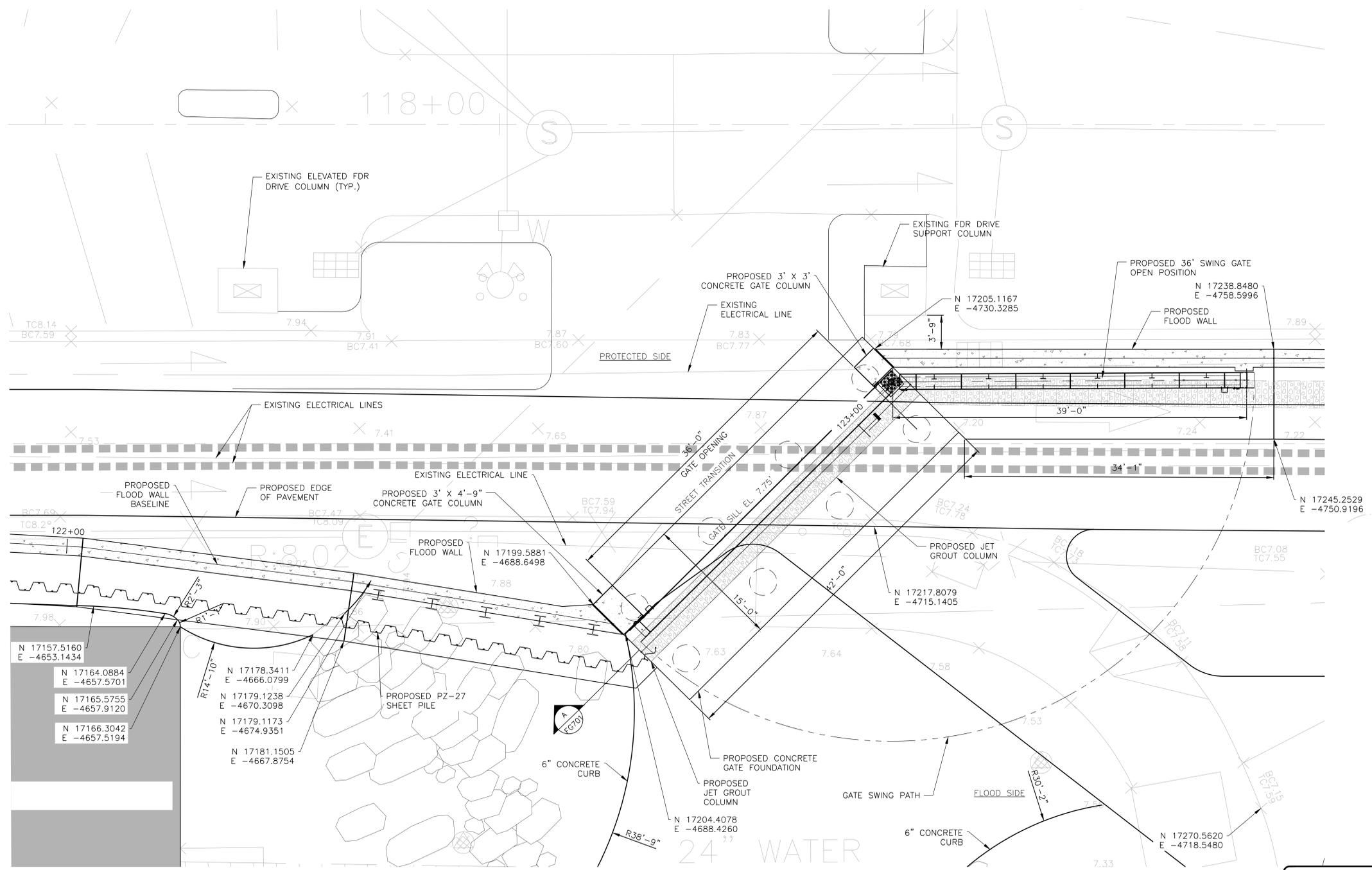
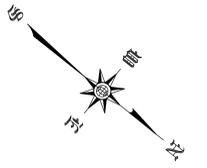
CLOSURE STRUCTURES  
EAST 20TH STREET GATE PLAN & ELEVATION  
SHEET 2 OF 2

ARCADIS DRAWN BY \_\_\_\_\_  
SANDRESM1-FG657-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 290 OF 811 FG657

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE SHEET SRXXX FOR STREET RESTORATION AND CURB GEOMETRY.
3. SEE SHEET PMP313 FOR PAVEMENT MARKINGS.
4. SEE SHEETS FG703 & FG704 FOR CONCRETE GATE FOUNDATION STRUCTURAL DETAILS.
5. SEE SHEET FG707 FOR PILE LAYOUT AND SCHEDULE.
6. SEE SHEETS FG705 & FG706 FOR STRUCTURAL GATE DETAILS.

**STUYVESANT COVE NORTH GATE  
PLAN**

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

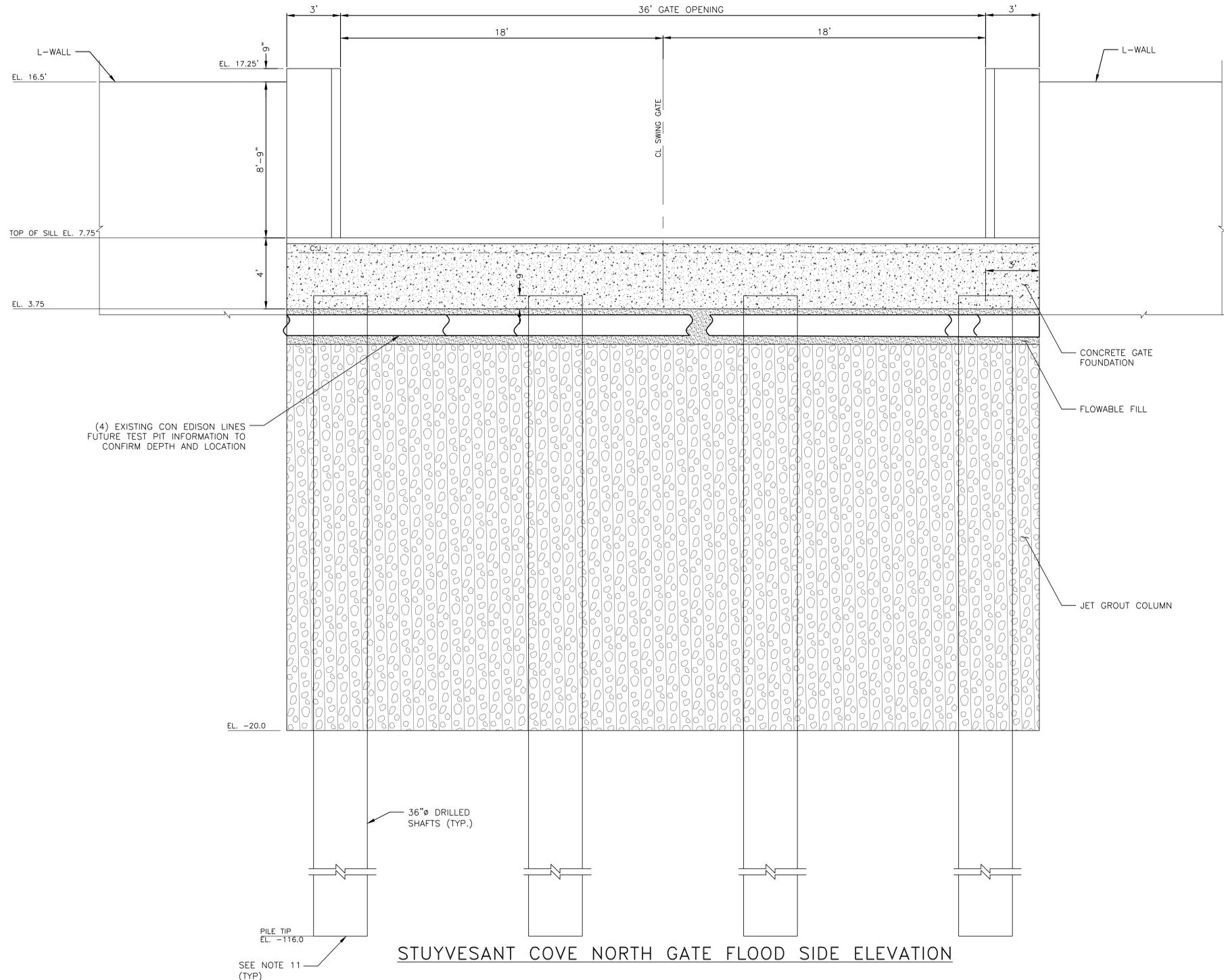
CLOSURE STRUCTURES  
STUYVESANT COVE NORTH GATE  
PLAN

ARCADIS  
DRAWN BY \_\_\_\_\_ SANDRESM1-FG700-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

**INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY**  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 292 OF 811 FG700



STUYVESANT COVE NORTH GATE FLOOD SIDE ELEVATION

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

**LEGEND:**

- FLOWABLE FILL
- JET GROUT

**NOTES:**

1. JET GROUTING SHALL BE PERFORMED WITH THE TRIPLE FLUID SYSTEM.
2. THE MINIMUM UNCONFINED COMPRESSIVE DESIGN STRENGTH OF THE SOILCRETE SHALL BE 500 PSI AT 3 DAYS AND 750 PSI AT 28 DAYS.
3. THE DESIGN PERMEABILITY OF THE SOILCRETE SHALL BE LESS THAN  $1.0 \times 10^{-9}$  CM/SEC.
4. USE VERTICAL AND ANGLED SLEEVE PIPES AS REQUIRED TO PERFORM JET GROUTING AROUND AND BELOW THE UTILITY LINES.
5. PRIOR TO PERFORMING JET GROUTING AND DRIVING SHEET PILES AT/NEAR EACH UTILITY LINE CROSSING LOCATION, PRE-TRENCH EXCAVATION TO LOCATE/EXPOSE THE UTILITY LINE (THEN BACKFILLING) AS REQUIRED.
6. FOR EXISTING UTILITY LINES LOCATED WITHIN THE LIMITS OF PROPOSED SOIL IMPROVEMENTS, SEE UTILITY CROSSING TYPE A, B, C AND D.
7. 14TH STREET CANARSIE L- TUNNEL.
8. ALL SPOT ELEVATIONS ARE EXISTING ELEVATIONS IN NAVD88.
9. EXCAVATABLE FILL SHALL HAVE A COMPRESSIVE STRENGTH OF 100PSI.
10. UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE NOT EXACT LOCATIONS. CONTRACTOR SHALL EXCAVATE A 4 FT DEEP 10 FT WIDE TRENCH TO IDENTIFY UTILITY TYPE, DEPTH AND DIMENSIONS PRIOR TO BEGINNING SOIL IMPROVEMENT WORK. SUBMIT DETAILS OF ALL SITE OBSERVED UTILITIES TO THE CLIENT BEFORE BEGINNING WORK.
11. ALL PILES TIP SHOULD BE RESPECTIVE LEVEL OR TILL TO THE BED ROCK LEVEL.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

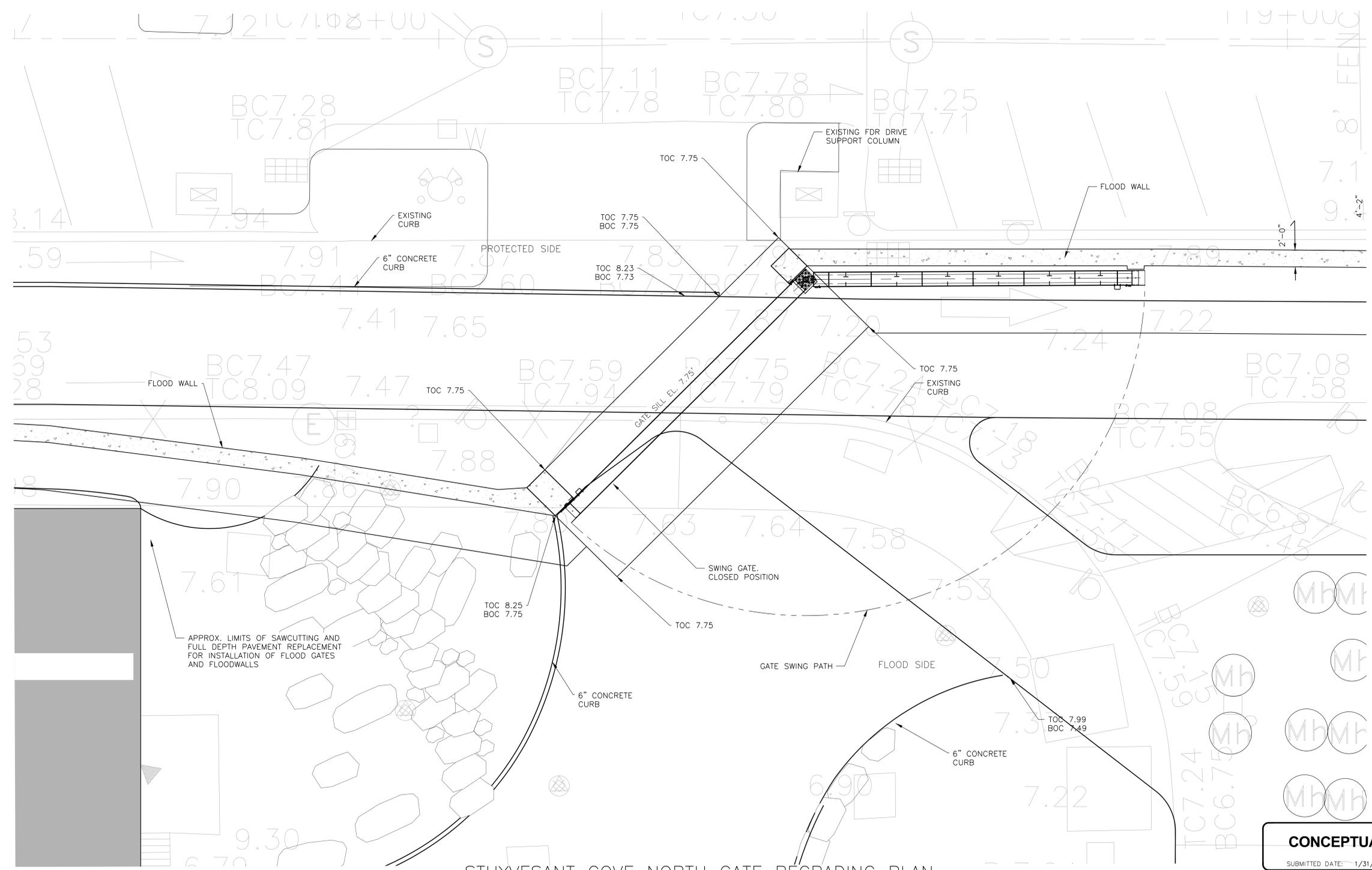
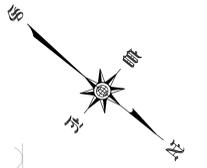
FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT  
SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
STUYVESANT COVE NORTH GATE  
SECTION  
ARCADIS SANDRESM1-FG701-00.DWG  
DRAWN BY \_\_\_\_\_ CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN  
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 293 OF 811 FG701

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



STUYVESANT COVE NORTH GATE REGRADING PLAN

SCALE: 1" = 5'

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT  
SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

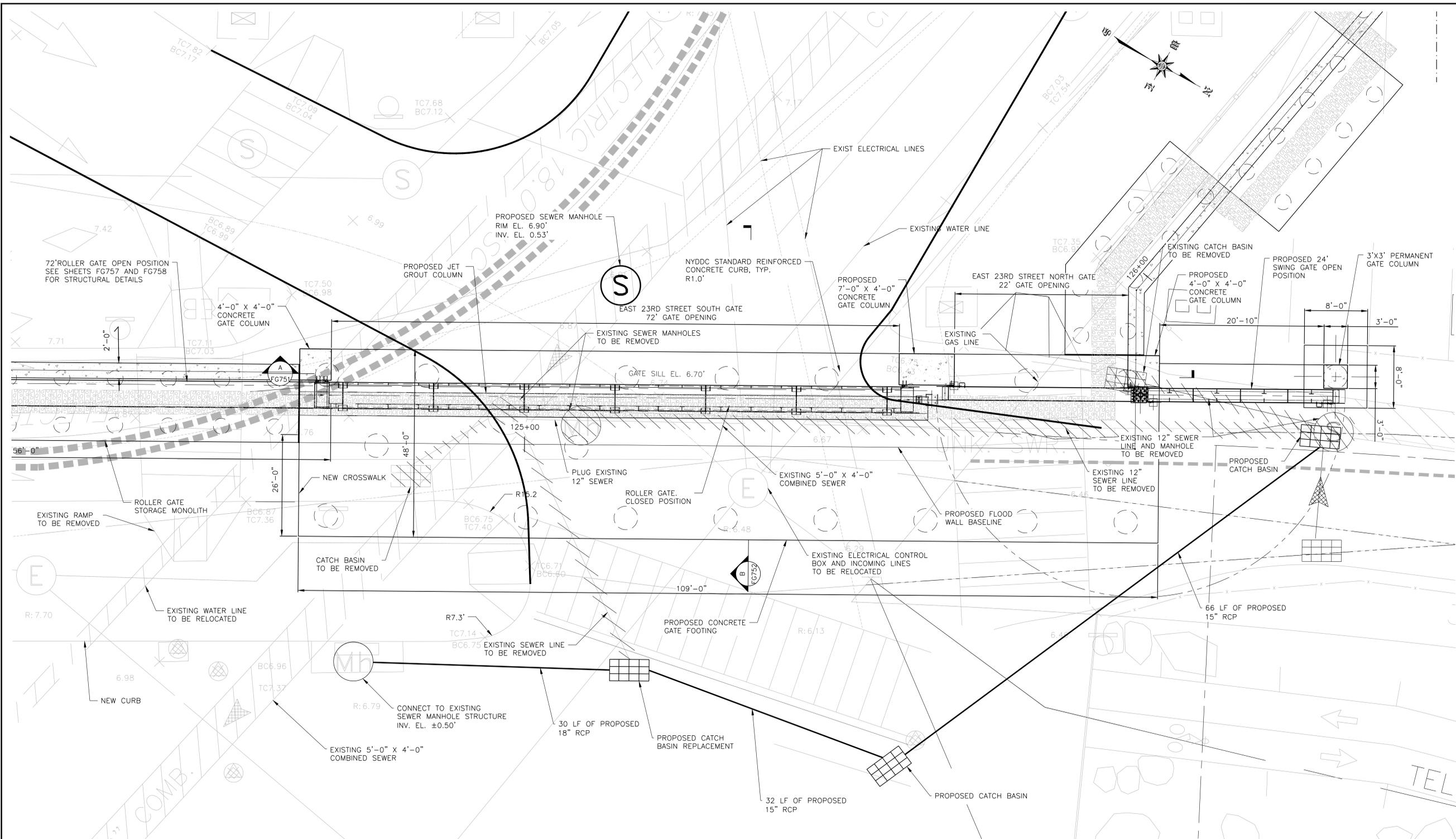
CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
STUYVESANT COVE NORTH GATE  
REGRADING OVERALL PLAN  
ARCADIS DRAWN BY \_\_\_\_\_  
SANDRESM1-FG702-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS	BY	APPR'D

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN  
CAPITAL PROJECT NO. SANDRESM1 1/31/19  
SHEET 294 OF 811  
FG702

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE SHEET SRXXX FOR STREET RESTORATION AND CURB GEOMETRY.
3. SEE SHEET PMP313 FOR PAVEMENT MARKINGS.
4. SEE SHEETS FG755 & FG756 FOR CONCRETE GATE FOUNDATION STRUCTURAL DETAILS.
5. SEE SHEET FG759 FOR PILE LAYOUT AND SCHEDULE.
6. SEE SHEETS FG757 & FG758 FOR STRUCTURAL GATE DETAILS.

**EAST 23RD STREET SOUTH AND NORTH GATE PLAN**

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019



NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

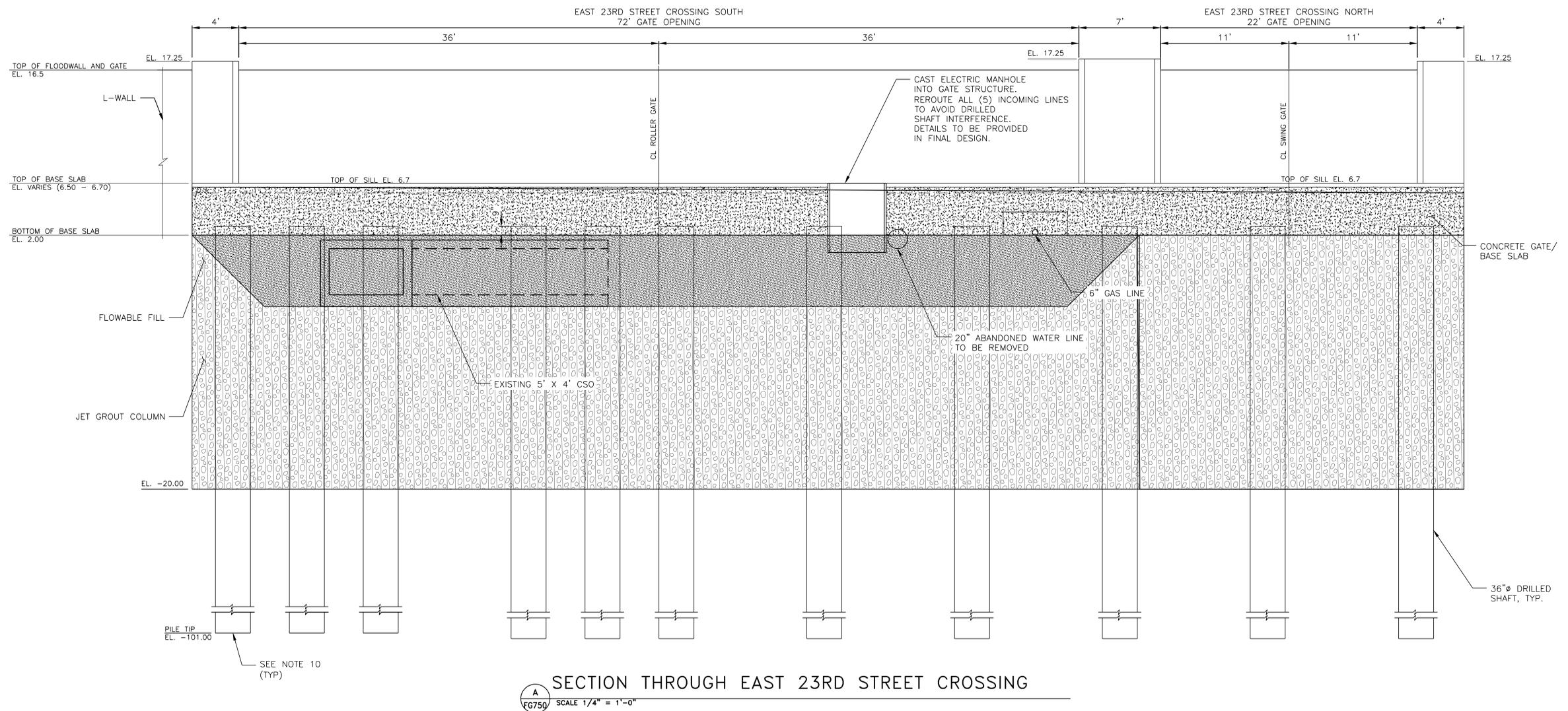
CLOSURE STRUCTURES  
EAST 23RD STREET SOUTH AND NORTH  
GATE PLAN

ARCADIS DRAWN BY \_\_\_\_\_ SANDRESM1-FG750-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 300 OF 811 FG750

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



SECTION THROUGH EAST 23RD STREET CROSSING  
 SCALE 1/4" = 1'-0"

**LEGEND:**

- FLOWABLE FILL
- JET GROUT

**NOTES:**

1. JET GROUTING SHALL BE PERFORMED WITH THE TRIPLE FLUID SYSTEM.
2. THE MINIMUM UNCONFINED COMPRESSIVE DESIGN STRENGTH OF THE SOILCRETE SHALL BE 500 PSI AT 3 DAYS AND 750 PSI AT 28 DAYS.
3. THE DESIGN PERMEABILITY OF THE SOILCRETE SHALL BE LESS THAN  $1.0 \times 10^{-6}$  CM/SEC.
4. USE VERTICAL AND ANGLED SLEEVE PIPES AS REQUIRED TO PERFORM JET GROUTING AROUND AND BELOW THE UTILITY LINES.
5. PRIOR TO PERFORMING JET GROUTING AND DRIVING SHEET PILES AT/NEAR EACH UTILITY LINE CROSSING LOCATION, PRE-TRENCH EXCAVATION TO LOCATE/EXPOSE THE UTILITY LINE (THEN BACKFILLING) AS REQUIRED.
6. FOR EXISTING UTILITY LINES LOCATED WITHIN THE LIMITS OF PROPOSED SOIL IMPROVEMENTS, SEE UTILITY CROSSING TYPE A, B, C AND D.
7. ALL SPOT ELEVATIONS ARE EXISTING ELEVATIONS IN NAVD88.
8. EXCAVATABLE FILL SHALL HAVE A COMPRESSIVE STRENGTH OF 100PSI.
9. UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE NOT EXACT LOCATIONS. CONTRACTOR SHALL EXCAVATE A 4 FT DEEP 10 FT WIDE TRENCH TO IDENTIFY UTILITY TYPE, DEPTH AND DIMENSIONS PRIOR TO BEGINNING SOIL IMPROVEMENT WORK. SUBMIT DETAILS OF ALL SITE OBSERVED UTILITIES TO THE CLIENT BEFORE BEGINNING WORK.
10. ALL PILES TIP SHOULD BE RESPECTIVE LEVEL OR TILL TO THE BED ROCK LEVEL.

**CONCEPTUAL**  
 SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
 INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
  
 The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
  
 ARCADIS OF NEW YORK, INC.  
 NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_

CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

CLOSURE STRUCTURES  
 EAST 23RD STREET CROSSING  
 ELEVATION

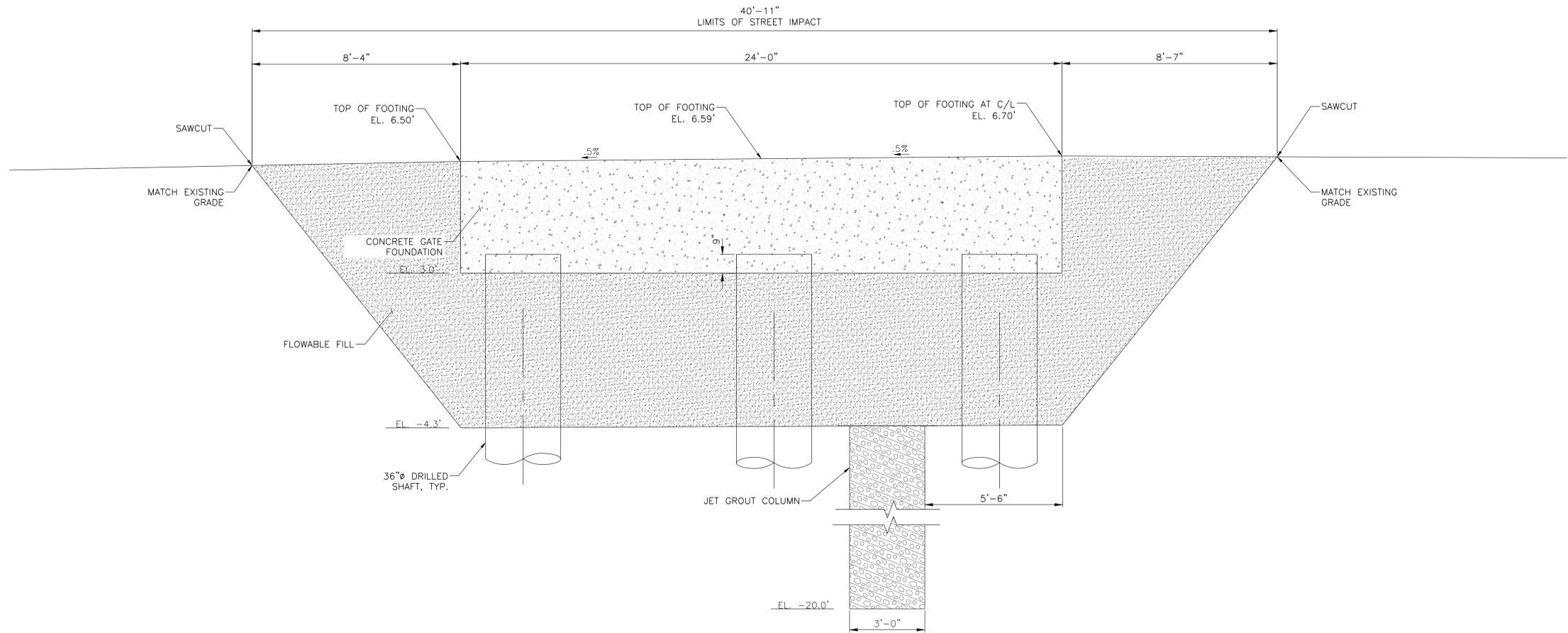
ARCADIS DRAWN BY \_\_\_\_\_ SANDRESM1-FG751-00.DWG  
 CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

INSTALLATION OF  
 EAST SIDE COASTAL RESILIENCY  
 BOROUGH OF MANHATTAN

SHEET 301 OF 811 FG751  
 CAPITAL PROJECT NO. SANDRESM1 1/31/19

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**SECTION THROUGH EAST 23RD STREET CROSSING**  
 SCALE 1/2" = 1'-0"

**FOR REVIEW ONLY**  
 SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
 INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
 The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
 ARCADIS OF NEW YORK, INC.  
 NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_

CITY OF NEW YORK  
 DEPARTMENT OF DESIGN + CONSTRUCTION  
 DIVISION OF INFRASTRUCTURE  
 BUREAU OF DESIGN

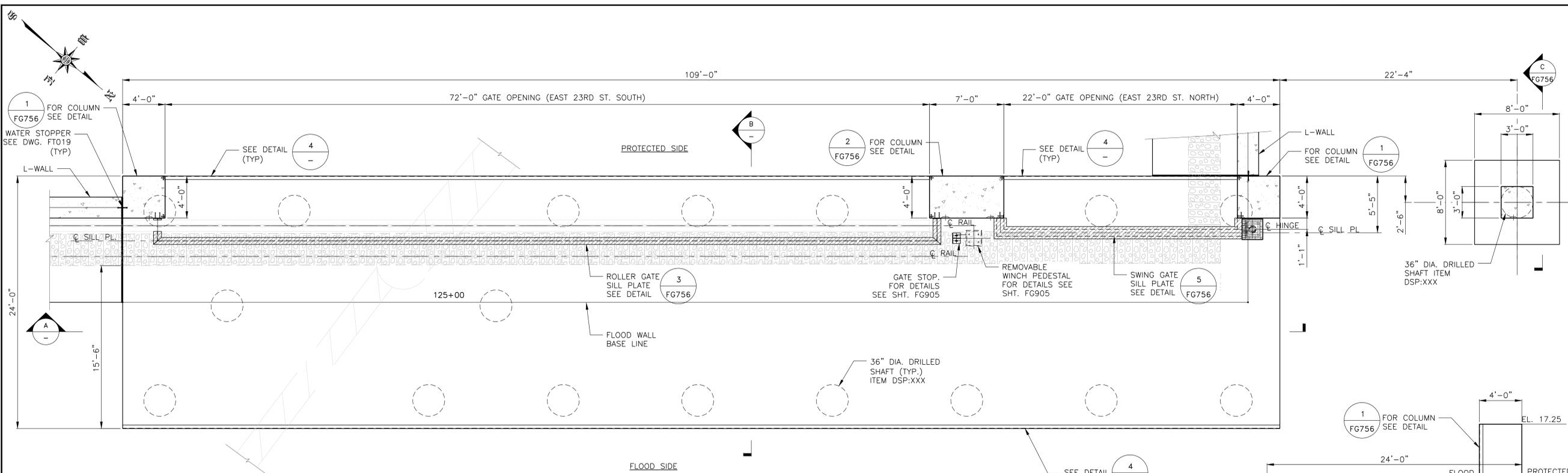
CLOSURE STRUCTURES  
 EAST 23RD STREET CROSSING  
 SECTIONS

ARCADIS  
 DRAWN BY \_\_\_\_\_  
 SANDRESM1-FG752-00.DWG  
 CADD FILE

INSTALLATION OF  
 EAST SIDE COASTAL RESILIENCY  
 BOROUGH OF MANHATTAN

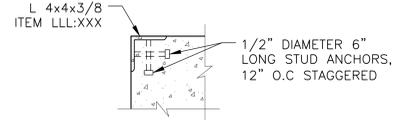
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 302 OF 811 FG752

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019

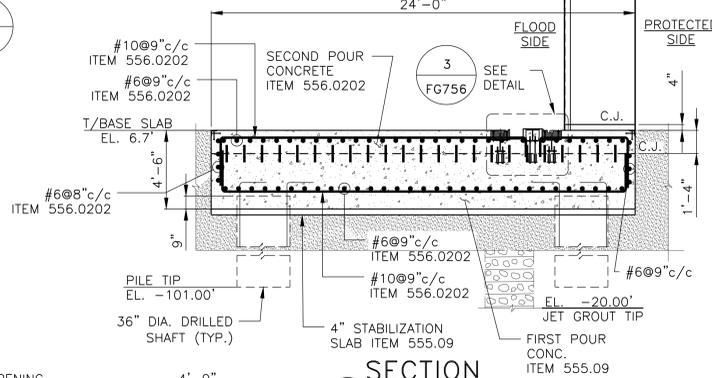


FOUNDATION LVL. PLAN VIEW - EAST 23RD STREET SOUTH GATE MONOLITH

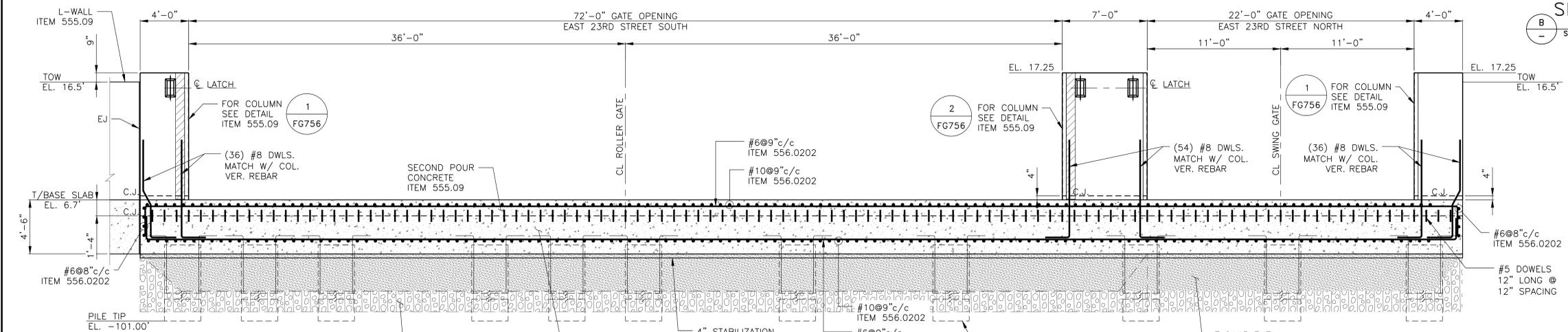
SCALE: 1/4" = 1'-0"



DETAIL 4  
SCALE: 1 1/2" = 1'-0"



SECTION B  
SCALE: 1/4" = 1'-0"



SECTION A  
SCALE: 1/4" = 1'-0"

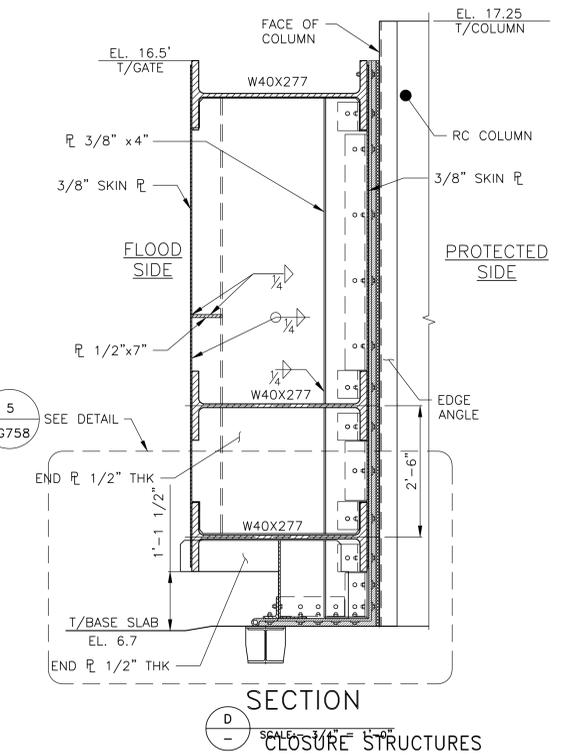
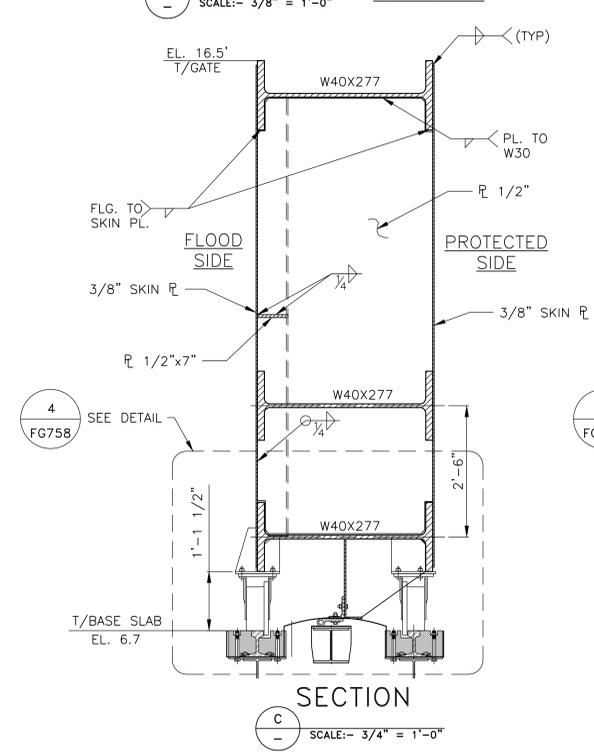
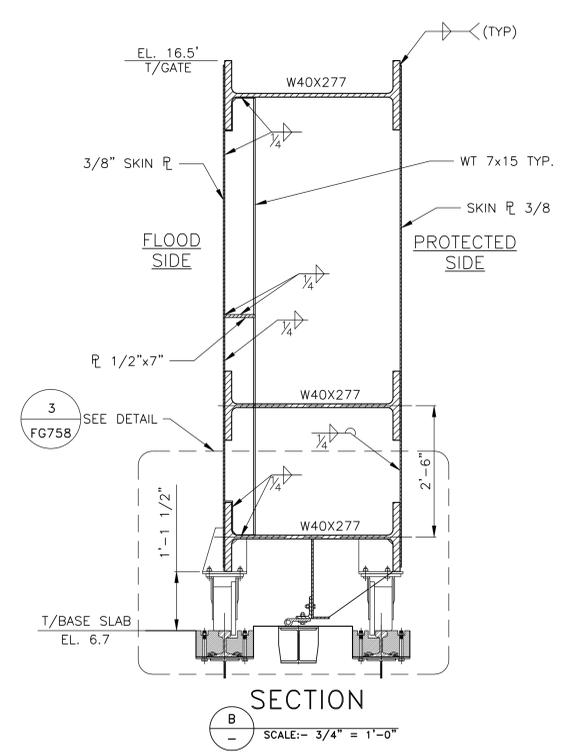
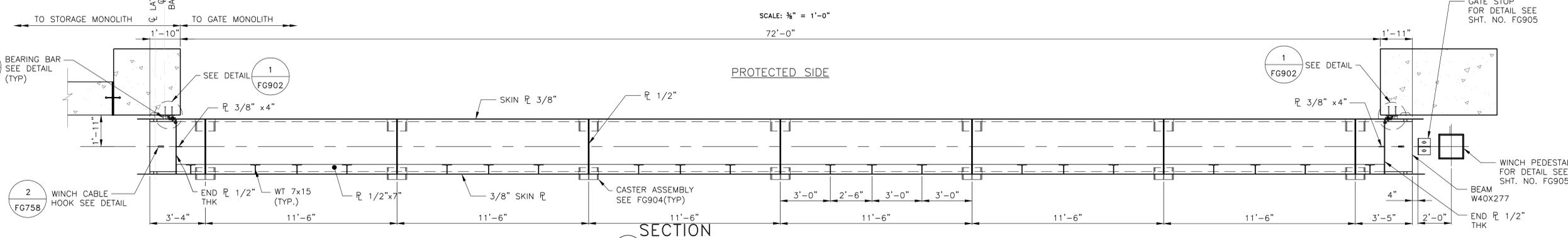
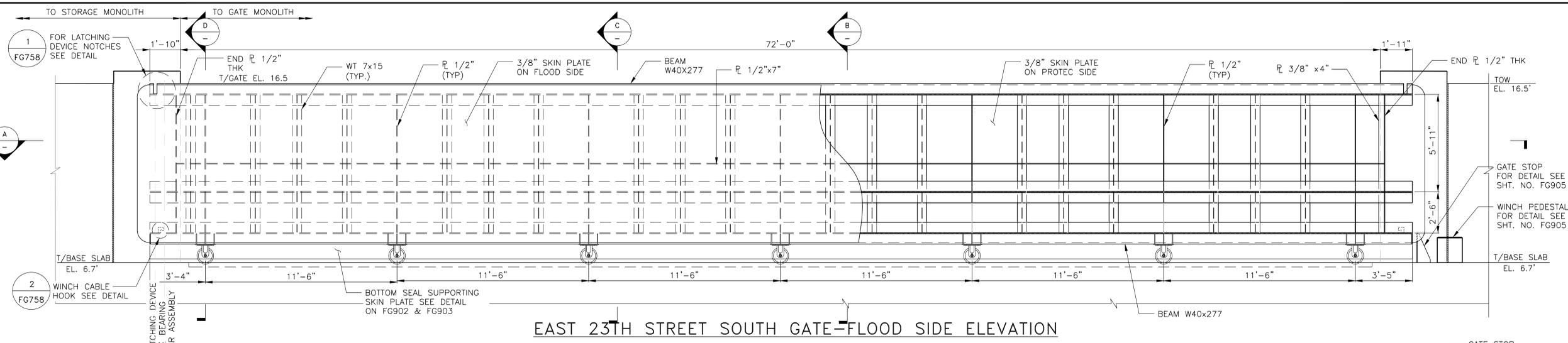
- NOTES:**
1. FOR CONCRETE MONOLITH PILE LAYOUT AND SCHEDULE SEE DWG. FG761.
  2. FOR ROLLER GATE DETAILS SEE DWG. FG757 & FG758.
  3. FOR SWING GATE DETAILS SEE DWG. FG759 & FG760.
  4. FOR EXISTING UTILITIES, SHEET PILE/JET GROUT DETAILS SEE DWG. FG750 TO FG753.
  5. FOR TYPICAL DRILLED SHAFT PILE DETAILS SEE DWG. FS411.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

FINAL DESIGN SUBMITTED BY: <b>AKRF KSE</b> The AKRF-KSE JV	FINAL DESIGN PREPARED BY: <b>ARCADIS</b> ARCADIS OF NEW YORK, INC. NAME OF CONSULTANT	CITY OF NEW YORK DEPARTMENT OF DESIGN + CONSTRUCTION DIVISION OF INFRASTRUCTURE BUREAU OF DESIGN	CLOSURE STRUCTURES EAST 23RD STREET SOUTH & NORTH GATE CONCRETE MONOLITH SHEET 1 OF 2 ARCADIS DRAWN BY SANDRESM1-FG755-00.DWG CADD FILE	INSTALLATION OF EAST SIDE COASTAL RESILIENCY BOROUGH OF MANHATTAN CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 305 OF 811 FG755
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CONSULTANT DESIGN

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTE:**

1. ALL ITEMS NOT IDENTIFIED WITH A PAY ITEM NUMBER SHALL BE COVERED UNDER THE GATE LUMP SUM PAY ITEM ESCR 50.Q.1
2. SEE DWG. FG755 & AND FG756 FOR 72' AT EAST 23RD STREET SOUTH FOUNDATION DETAILS.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

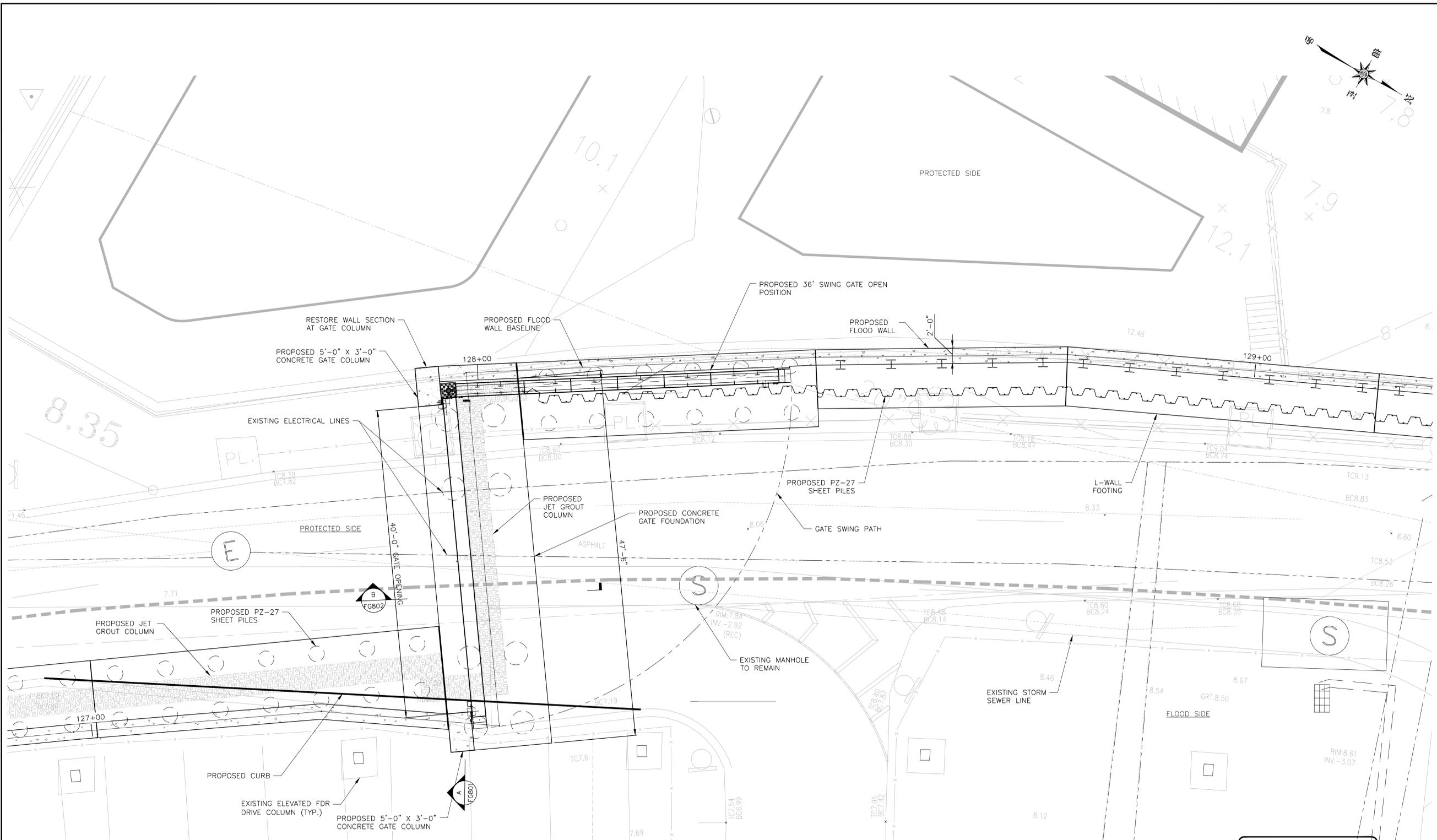
CLOSURE STRUCTURES  
EAST 23RD STREET SOUTH GATE PLAN &  
ELEVATION SHEET 1 OF 2

ARCADIS DRAWN BY \_\_\_\_\_  
SANDRESM1-FG757-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 307 OF 811 FG757

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



- NOTES:**
1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
  2. SEE SHEET SRXXX FOR STREET RESTORATION AND CURB GEOMETRY.
  3. SEE SHEET PMP313 FOR PAVEMENT MARKINGS.
  4. SEE SHEETS FG805 & FG806 FOR CONCRETE GATE FOUNDATION STRUCTURAL DETAILS.
  5. SEE SHEET FG810 FOR PILE LAYOUT AND SCHEDULE.
  6. SEE SHEETS FG807 TO FG809 FOR STRUCTURAL GATE DETAILS.

WEST SERVICE ROAD SWING GATE PLAN

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

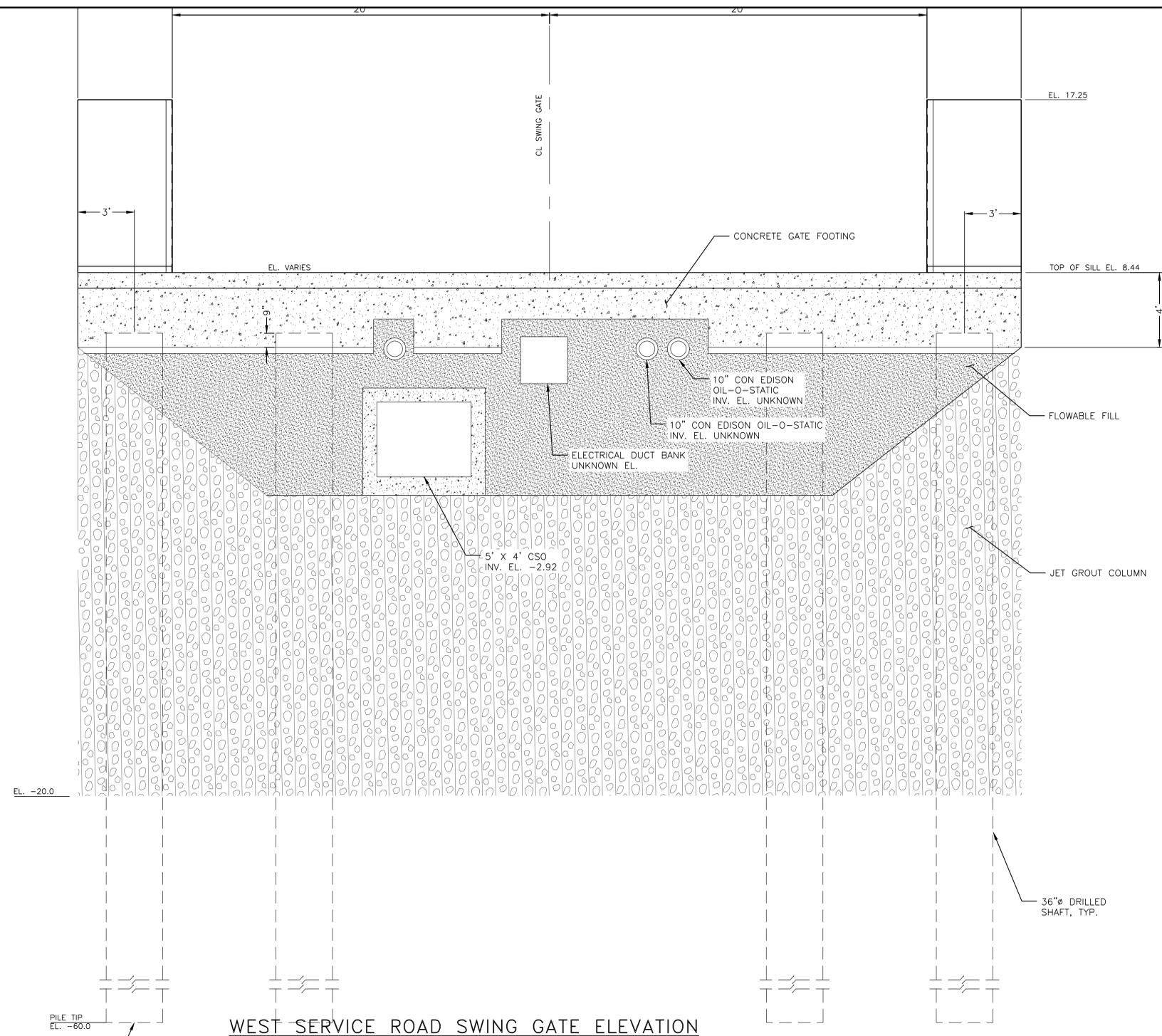
CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
WEST SERVICE ROAD CROSSING  
PLAN  
ARCADIS  
DRAWN BY \_\_\_\_\_  
SANDRESM1-FG800-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 312 OF 811 FG800

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



WEST SERVICE ROAD SWING GATE ELEVATION

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

LEGEND:

-  FLOWABLE FILL
-  JET GROUT

NOTES:

1. JET GROUTING SHALL BE PERFORMED WITH THE TRIPLE FLUID SYSTEM.
2. THE MINIMUM UNCONFINED COMPRESSIVE DESIGN STRENGTH OF THE SOILCRETE SHALL BE 500 PSI AT 3 DAYS AND 750 PSI AT 28 DAYS.
3. THE DESIGN PERMEABILITY OF THE SOILCRETE SHALL BE LESS THAN  $1.0 \times 10^{-10}$  CM/SEC.
4. USE VERTICAL AND ANGLED SLEEVE PIPES AS REQUIRED TO PERFORM JET GROUTING AROUND AND BELOW THE UTILITY LINES.
5. PRIOR TO PERFORMING JET GROUTING AND DRIVING SHEET PILES AT/NEAR EACH UTILITY LINE CROSSING LOCATION, PRE-TRENCH EXCAVATION TO LOCATE/EXPOSE THE UTILITY LINE (THEN BACKFILLING) AS REQUIRED.
6. FOR EXISTING UTILITY LINES LOCATED WITHIN THE LIMITS OF PROPOSED SOIL IMPROVEMENTS, SEE UTILITY CROSSING TYPE A, B, C AND D.
7. 14TH STREET CANARSIE L- TUNNEL.
8. ALL SPOT ELEVATIONS ARE EXISTING ELEVATIONS IN NAVD88.
9. EXCAVATABLE FILL SHALL HAVE A COMPRESSIVE STRENGTH OF 100PSI.
10. UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE NOT EXACT LOCATIONS. CONTRACTOR SHALL EXCAVATE A 4 FT DEEP 10 FT WIDE TRENCH TO IDENTIFY UTILITY TYPE, DEPTH AND DIMENSIONS PRIOR TO BEGINNING SOIL IMPROVEMENT WORK. SUBMIT DETAILS OF ALL SITE OBSERVED UTILITIES TO THE CLIENT BEFORE BEGINNING WORK.
11. ALL PILES TIP SHOULD BE RESPECTIVE LEVELS OR TILL TO THE BED ROCK LEVEL.

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



The AKRF-KSE JV

FINAL DESIGN PREPARED BY:



ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE

DATE

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
WEST SERVICE ROAD CROSSING  
ELEVATION

ARCADIS  
DRAWN BY

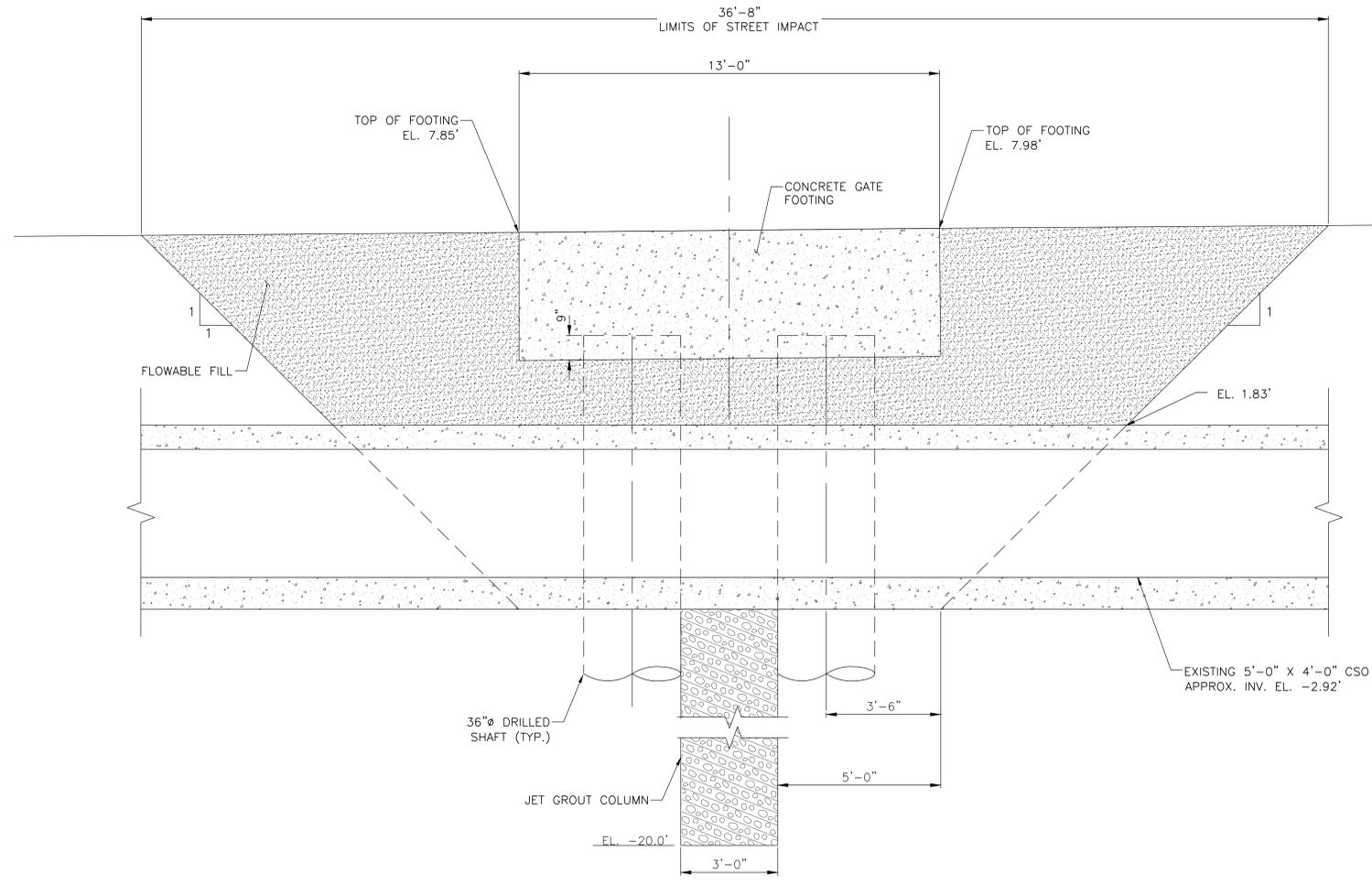
SANDRESM1-FG801-00.DWG  
CADD FILE

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

INSTALLATION OF EAST SIDE COASTAL RESILIENCY BOROUGH OF MANHATTAN	
CAPITAL PROJECT NO. SANDRESM1 1/31/19	SHEET 313 OF 811
	FG801

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**B**  
SECTION THROUGH GATE FOOTING AT CSO CROSSING  
FG800 SCALE 1/2" = 1'-0"

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

**NOTE:**  
1. SEE DWG FG130, FG132, FG133 AND FG134 FOR REGRADING PLAN AND PROFILE.

NO.	DATE	DESCRIPTIONS	BY	APPR'D
REVISIONS				

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY: 	FINAL DESIGN PREPARED BY: 
SIGNATURE _____ DATE _____	NAME OF CONSULTANT: ARCADIS OF NEW YORK, INC.

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
WEST SERVICE ROAD  
SECTIONS

ARCADIS DRAWN BY \_\_\_\_\_  
SANDRESM1-FG802-00.DWG  
CADD FILE

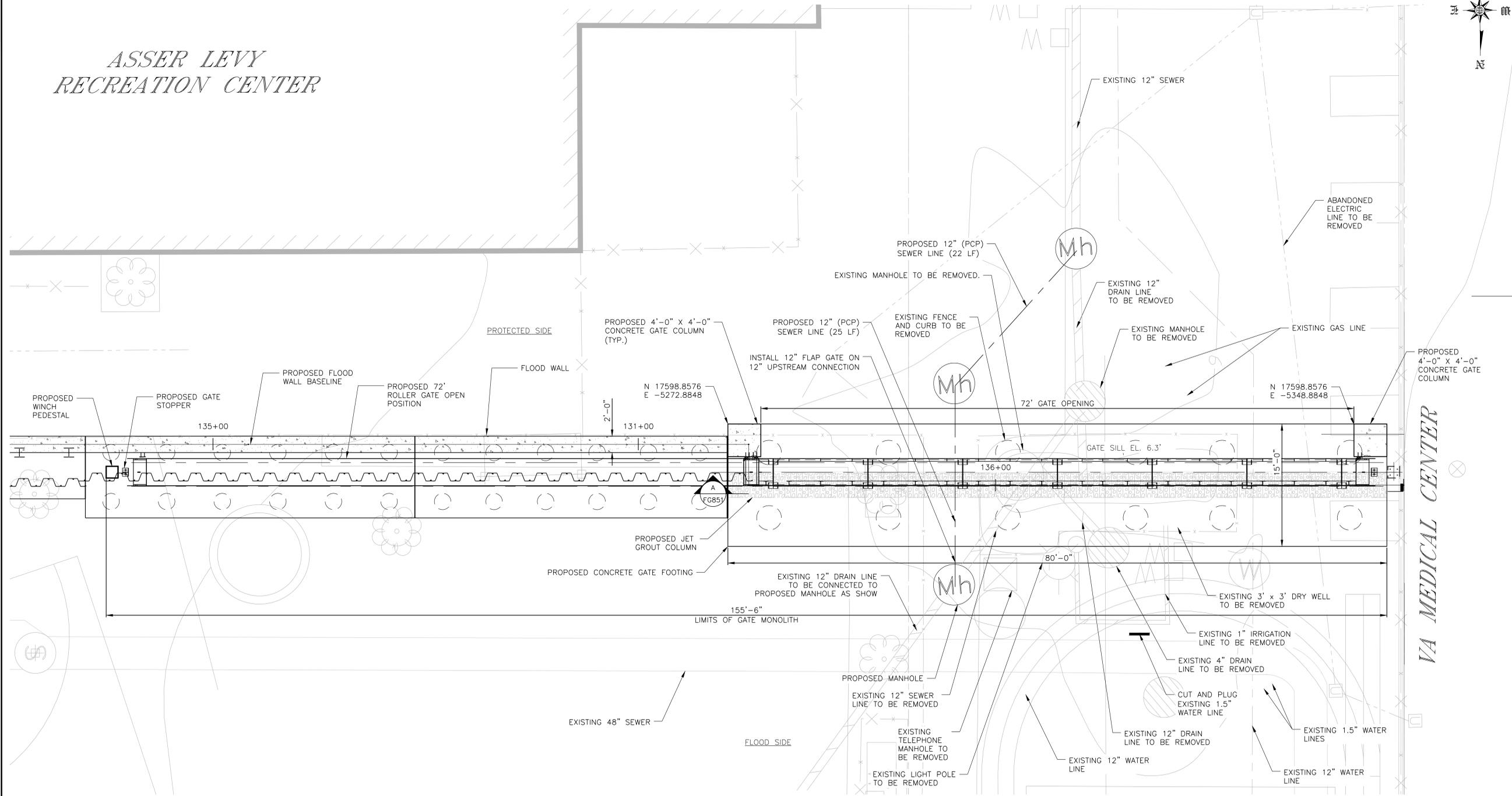
INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 314 OF 811 FG802

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



# ASSER LEVY RECREATION CENTER



**NOTES:**

1. ALL ITEMS CALLED OUT AS EXISTING ARE TO REMAIN UNLESS NOTED OTHERWISE.
2. SEE SHEET SRXXX FOR STREET RESTORATION AND CURB GEOMETRY.
3. SEE SHEET PMP313 FOR PAVEMENT MARKINGS.
4. SEE SHEETS FG853 & FG854 FOR CONCRETE GATE FOUNDATION STRUCTURAL DETAILS.
5. SEE SHEET FG857 FOR PILE LAYOUT AND SCHEDULE.
6. SEE SHEETS FG855 TO FG856 FOR STRUCTURAL GATE DETAILS.

## ASSER LEVY ROLLER GATE GATE STRUCTURAL PLAN

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

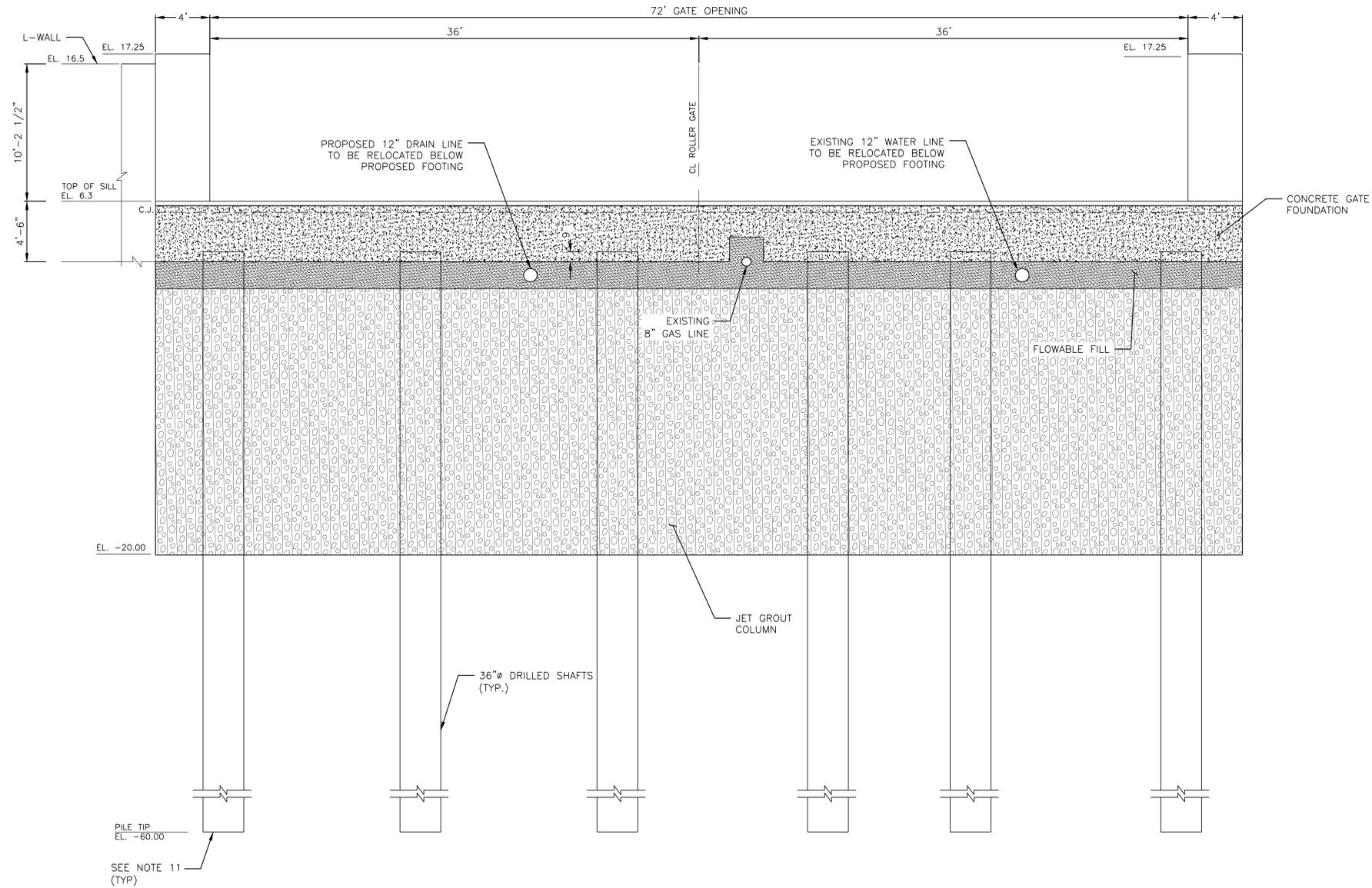
CLOSURE STRUCTURES  
ASSER LEVY ROLLER GATE  
PLAN

ARCADIS  
DRAWN BY \_\_\_\_\_  
SANDRESM1-FG850-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19    SHEET 323 OF 811    FG850

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



SECTION THROUGH ASSER LEVY ROLLER GATE

A  
FG850 SCALE 1/4" = 1'-0"

**LEGEND:**

- FLOWABLE FILL
- JET GROUT

**NOTES:**

1. JET GROUTING SHALL BE PERFORMED WITH THE TRIPLE FLUID SYSTEM.
2. THE MINIMUM UNCONFINED COMPRESSIVE DESIGN STRENGTH OF THE SOILCRETE SHALL BE 500 PSI AT 3 DAYS AND 750 PSI AT 28 DAYS.
3. THE DESIGN PERMEABILITY OF THE SOILCRETE SHALL BE LESS THAN  $1.0 \times 10^{-10}$  CM/SEC.
4. USE VERTICAL AND ANGLED SLEEVE PIPES AS REQUIRED TO PERFORM JET GROUTING AROUND AND BELOW THE UTILITY LINES.
5. PRIOR TO PERFORMING JET GROUTING AND DRIVING SHEET PILES AT NEAR EACH UTILITY LINE CROSSING LOCATION, PRE-TRENCH EXCAVATION TO LOCATE/EXPOSE THE UTILITY LINE (THEN BACKFILLING) AS REQUIRED.
6. FOR EXISTING UTILITY LINES LOCATED WITHIN THE LIMITS OF PROPOSED SOIL IMPROVEMENTS, SEE UTILITY CROSSING TYPE A, B, C AND D.
7. ALL SPOT ELEVATIONS ARE EXISTING ELEVATIONS IN NAVD88.
8. EXCAVATABLE FILL SHALL HAVE A COMPRESSIVE STRENGTH OF 100PSI.
9. UTILITIES ARE SHOWN FOR INFORMATION PURPOSES ONLY AND ARE NOT EXACT LOCATIONS. CONTRACTOR SHALL EXCAVATE A 4 FT DEEP 10 FT WIDE TRENCH TO IDENTIFY UTILITY TYPE, DEPTH AND DIMENSIONS PRIOR TO BEGINNING SOIL IMPROVEMENT WORK. SUBMIT DETAILS OF ALL SITE OBSERVED UTILITIES TO THE CLIENT BEFORE BEGINNING WORK.
10. VA MEDICAL CENTER FLOODWALL NOT SHOWN.
11. ALL PILES TIP SHOULD BE RESPECTIVE LEVEL OR TILL TO THE BED ROCK LEVEL.

**CONCEPTUAL**

SUBMITTED DATE: 1/31/2019

TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:



FINAL DESIGN PREPARED BY:



ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
ASSER LEVY ROLLER GATE  
ELEVATION

ARCADIS  
DRAWN BY \_\_\_\_\_

SANDRESM1-FG851-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN

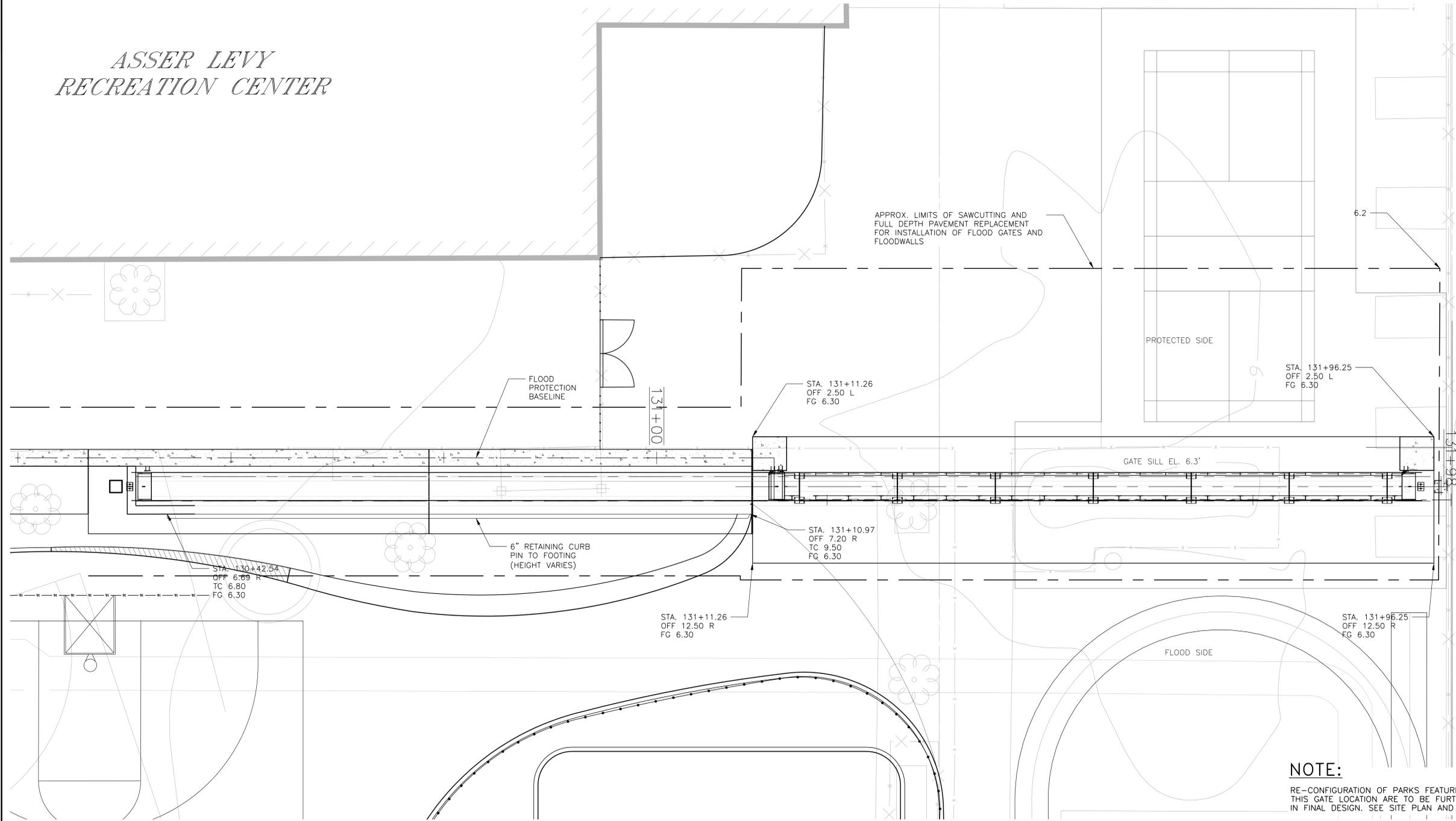
NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 324 OF 811 FG851



ASSER LEVY  
RECREATION CENTER

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



**NOTE:**  
RE-CONFIGURATION OF PARKS FEATURES AT THIS GATE LOCATION ARE TO BE FURTHER DEVELOPED IN FINAL DESIGN. SEE SITE PLAN AND GRADING SHEET LG313

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

ASSER LEVY ROLLER GATE REGRADING PLAN



TOPOGRAPHIC SURVEY PREPARED BY: FOR SURVEYOR  
INFORMATION SEE SURVEY SET SU100 DRAWINGS SERIES

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

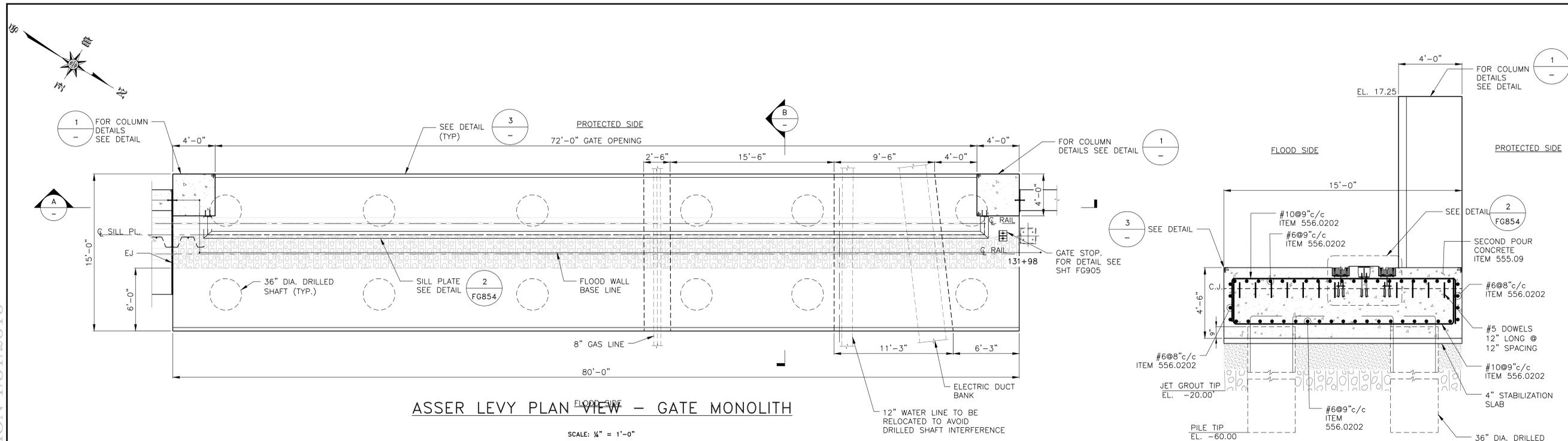
CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
ASSER LEVY ROLLER GATE  
REGRADING OVERALL PLAN  
ARCADIS  
DRAWN BY \_\_\_\_\_  
SANDRESM1-FG852-00.DWG  
CADD FILE

NO.	DATE	DESCRIPTIONS REVISIONS	BY	APPR'D

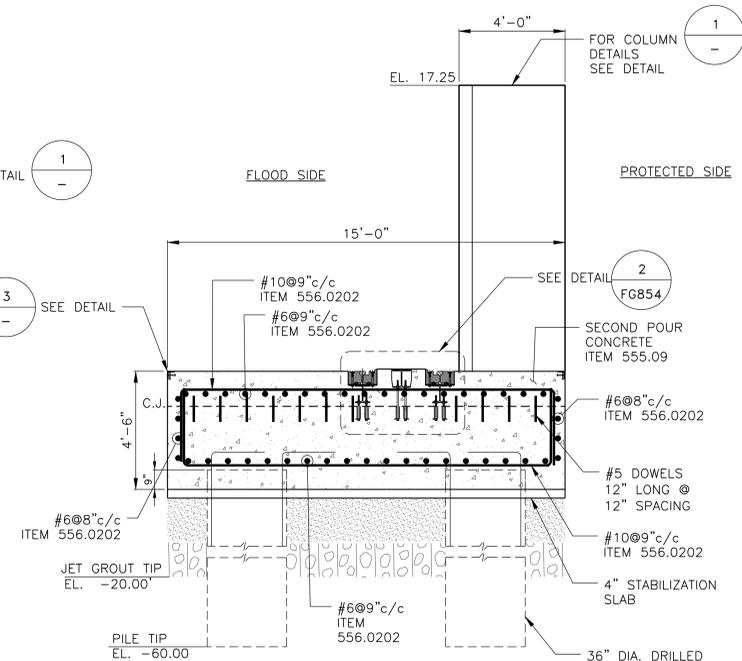
CAPITAL PROJECT NO. SANDRESM1 1/31/19 SHEET 325 OF 811 FG852

CONCEPTUAL REDESIGN SUBMISSION 1/31/2019



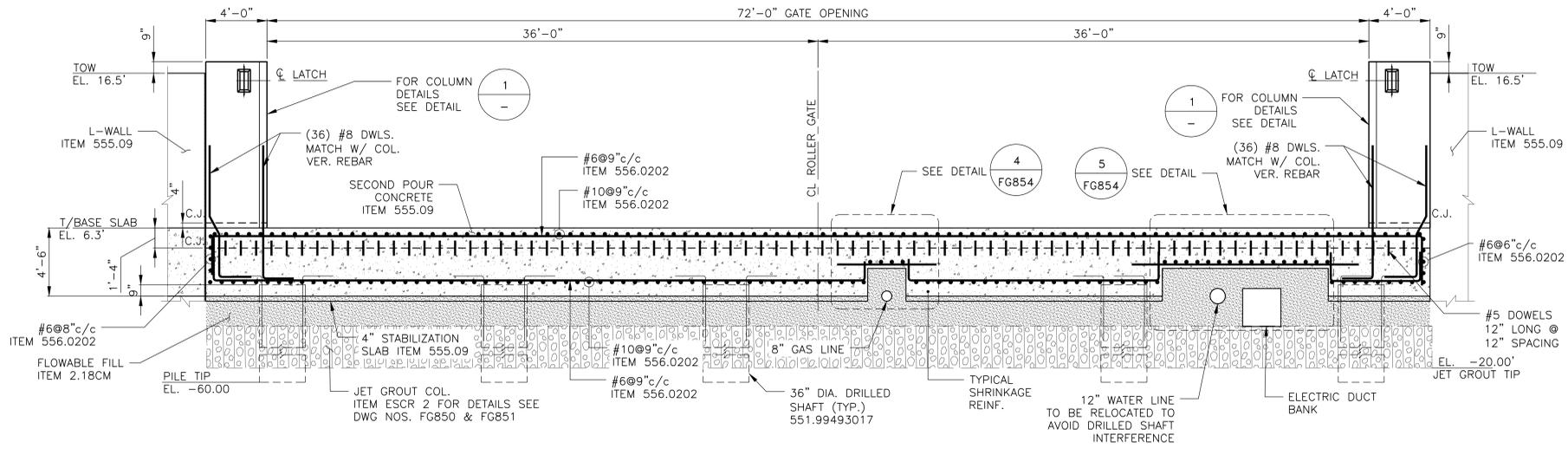
ASSER LEVY PLAN VIEW - GATE MONOLITH

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



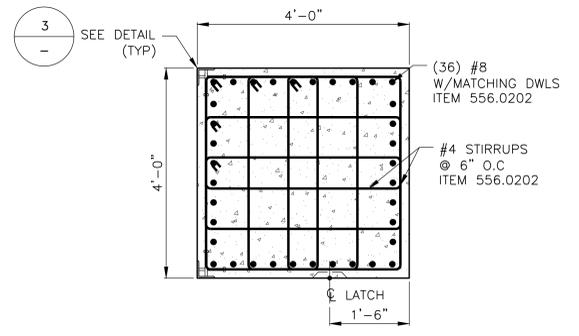
SECTION B-B

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



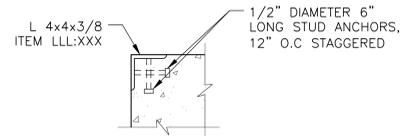
SECTION A-A

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



DETAIL 1-1

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



DETAIL 3-3

SCALE: 1/2" = 1'-0"

NOTES:

1. FOR CONCRETE MONOLITH PILE LAYOUT AND SCHEDULE SEE DWG. FG857.
2. FOR GATE DETAILS SEE DWG. FG855 & FG856.
3. FOR EXISTING UTILITIES, SHEET PILE/JET GROUT DETAILS SEE DWG. FG850 TO FG852.
4. FOR TYPICAL DRILLED SHAFT PILE DETAILS SEE DWG. FS411.
5. FOR LATCHING HOOK DETAILS SEE DWG. FG900 AND FG901.

**CONCEPTUAL**  
SUBMITTED DATE: 1/31/2019

NO.	DATE	DESCRIPTIONS	BY	APPR'D

FINAL DESIGN SUBMITTED BY:  
**AKRF KSE**  
The AKRF-KSE JV

FINAL DESIGN PREPARED BY:  
**ARCADIS**  
ARCADIS OF NEW YORK, INC.  
NAME OF CONSULTANT

SIGNATURE \_\_\_\_\_  
DATE \_\_\_\_\_

CITY OF NEW YORK  
DEPARTMENT OF DESIGN + CONSTRUCTION  
DIVISION OF INFRASTRUCTURE  
BUREAU OF DESIGN

CLOSURE STRUCTURES  
ASSER LEVY GATE PLAYGROUND GATE  
CONCRETE MONOLITH  
ARCADIS DRAWN BY \_\_\_\_\_  
SANDRESM1-FG853-00.DWG  
CADD FILE

INSTALLATION OF  
EAST SIDE COASTAL RESILIENCY  
BOROUGH OF MANHATTAN  
CAPITAL PROJECT NO. SANDRESM1 1/31/19  
SHEET 326 OF 811  
FG853