

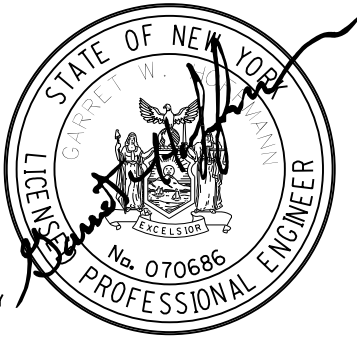
PROJECT LOCATION

PROJECT LOCATION:

SITE IS ACCESSIBLE AT THE WEST END OF WEST
HIGHLAND ST. OFF OF US 62 (SOUTH PARK AVE.)

WORK DESCRIPTION

- CONSTRUCTION OF NEW CONCRETE WINGWALLS
- STREAM SCOUR PROTECTION IMPROVEMENTS

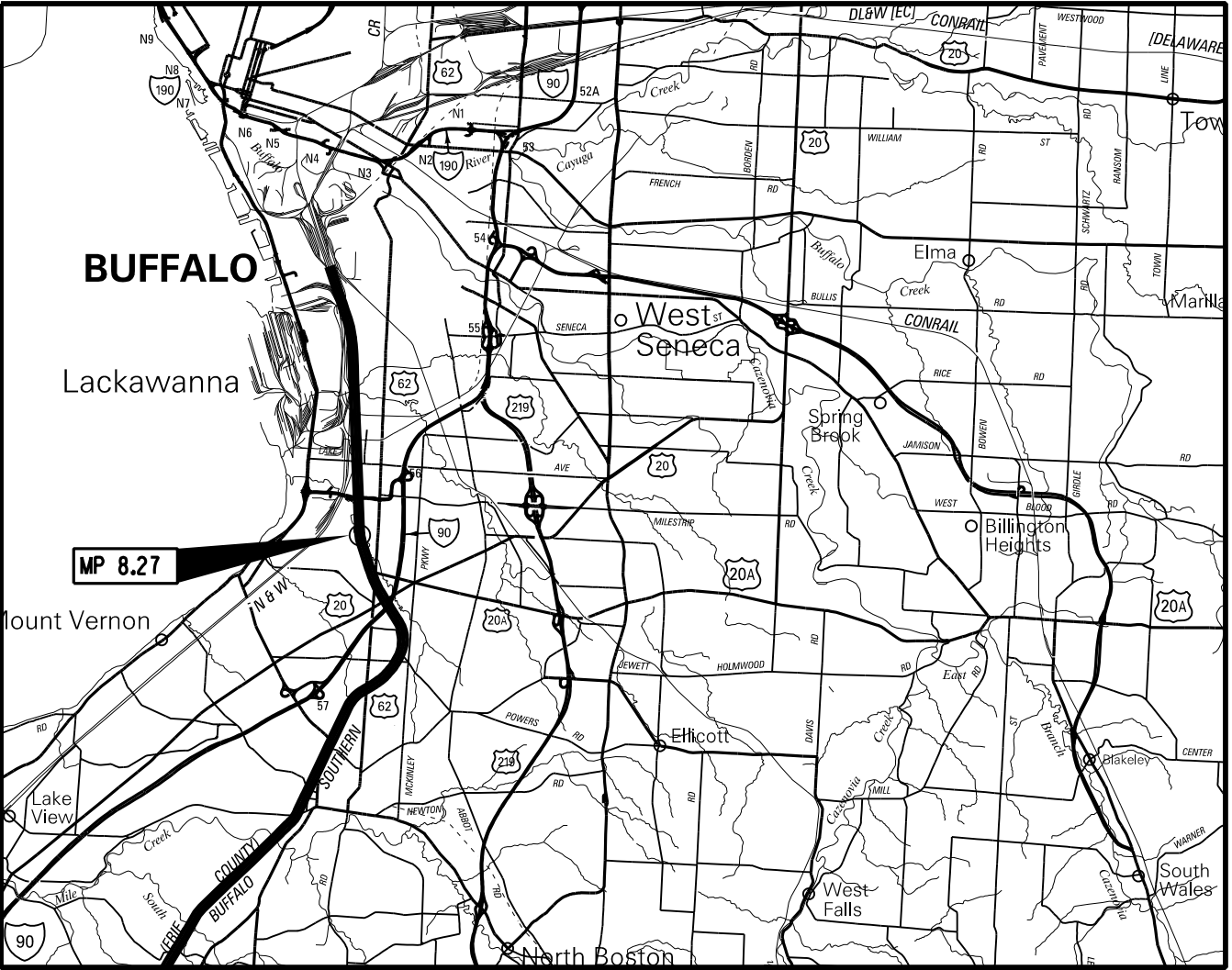


PREPARED BY

GARRET HOFFMANN, P.E.
CHA, INC.
N.Y.S. P.E. NO. 070686

8/21/17

DATE



PROJECT LOCATION
NTS



INDEX OF DRAWINGS

DWG.	DESCRIPTION	SHT. NO.
T-1	COVER SHEET	1
S-1	GENERAL NOTES & ESTIMATE OF QUANTITIES	2
S-2	GENERAL PLAN AND STONE FILL DETAILS	3
S-3	DETAILS FOR NW, SW, AND SE WINGWALLS	4
S-4	DETAILS FOR NE WINGWALL	5
S-5	BAR LIST	6

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

FILE NAME : \\ap-proj\proj\BNY\30885\CADD\MSIN\32857_01_BR_8.27.T-1.dgn
DATE/TIME : 8/21/2017
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**BUFFALO SOUTHERN
RAILROAD**

AUGUST 2017

CHA PROJECT NO.: 32857

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FILE NAME = \\AP-projests\BNY\30085\CADD\...MSTN\32857_02.BR 8.27.5-1.dgn
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GENERAL NOTES:

- CONSTRUCTION AND MATERIAL SPECIFICATIONS: STANDARD SPECIFICATIONS, CONSTRUCTION AND MATERIALS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, OFFICE OF ENGINEERING, DATED MAY 1, 2017 WITH ALL CURRENT ADDENDA AND MODIFICATIONS.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT, DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO THE COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON LIMITED FIELD MEASUREMENTS, FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUNTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS AS ORDERED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTE THAT ADDITIONAL WORK MAY BE REQUIRED AS THE CONTRACT PROGRESSES WHICH IS NOT SHOWN OR NOTED ON THE PLANS. THIS WORK SHALL BE PERFORMED BY THE CONTRACTOR AS ORDERED BY THE ENGINEER AND PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR THE APPROPRIATE ITEMS, OR BASED ON AGREED PRICE SEE SPECIFICATIONS IN CONTRACT PROPOSAL.
- THE CONSTRUCTION OF THE PROJECT SHALL PROCEED IN A CONTINUOUS, SYSTEMATIC AND EXPEDITIOUS MANNER FROM BEGINNING TO COMPLETION. THE CONTRACTOR WILL BE REQUIRED TO PLACE SUFFICIENT EQUIPMENT, LABOR & ETC. ON THE PROJECT SO THAT THE WORK MAY PROGRESS IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SCHEDULE.
- THE CONTRACTOR SHALL VISIT THE SITE BEFORE BIDDING TO FAMILIARIZE HIMSELF WITH THE PRESENT CONDITIONS AND TO JUDGE FOR HIMSELF, THE EXTENT AND NATURE OF THE WORK TO BE DONE UNDER THIS CONTRACT. NO EXTRA COMPENSATION WILL BE ALLOWED BECAUSE OF HIS FAILURE TO INCLUDE IN HIS BID, ALL ITEMS AND MATERIALS WHICH HE IS REQUIRED TO FURNISH IN ACCORDANCE WITH THE CONTRACT PLANS.
- DIMENSIONS OF THE EXISTING STRUCTURES SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. MANY DIMENSIONS HAVE BEEN TAKEN FROM THE ORIGINAL CONSTRUCTION DRAWINGS OR FIELD MEASUREMENTS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL TAKE ALL SUCH FIELD MEASUREMENTS AS ARE NECESSARY TO ASSURE PROPER CONSTRUCTION OF THE FINISH WORK.
- THERE SHALL BE NO CLAIM MADE BY THE CONTRACTOR AGAINST THE COUNTY OR RAILROAD FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO ANY DIFFERENCE BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN BY THE DETAILS AND DIMENSIONS ON THE CONTRACT PLANS OR THE RECORD DRAWINGS. RECORD PLANS FOR THE EXISTING STRUCTURE (IF ANY) WILL BE AVAILABLE TO THE CONTRACTOR THROUGH THE RAILROAD.
- THE CONTRACTOR IS ADVISED THAT ADDITIONAL "NOTES" WILL BE FOUND ON SUBSEQUENT SHEETS OF THE CONTRACT PLANS AND SUCH "NOTES", WHILE PERTAINING TO THE SPECIFIC DRAWINGS THEY ARE PLACED ON, ALSO SUPPLEMENT THE GENERAL NOTES LISTED HERE IN.
- THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGES TO THE EXISTING STRUCTURE OR ADJACENT PROPERTIES OR FACILITIES, CAUSED BY HIS OPERATIONS, WHICH ARE NOT INCLUDED AS PART OF THE INTENDED WORK. ANY DAMAGE TO THE EXISTING STRUCTURE OR ADJACENT PROPERTIES, SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT COST TO THE RAILROAD AND TO THE SATISFACTION OF THE ENGINEER.
- IF, DURING THE REMOVAL OPERATIONS, ANY COMPONENTS OF THE BRIDGE THAT ARE NOT SCHEDULED TO BE REMOVED ARE DAMAGED BY THE CONTRACTOR'S PERSONNEL OR EQUIPMENT, SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, AT NO COST TO THE COUNTY OR RAILROAD.
- THE CONTRACTOR IS REQUIRED TO PROTECT HIS WORKERS AT ALL TIMES IN CONFORMANCE WITH ALL APPLICABLE OSHA REGULATIONS AND FRA BRIDGE WORKER SAFETY RULES.
- THE CONTRACTOR IS ADVISED THAT THERE IS NO ELECTRIC POWER DISTRIBUTION SYSTEM AVAILABLE AT THE BRIDGE FOR HIS USE.
- CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL NYSDEC & USACOE PERMIT REQUIREMENTS AND OBTAIN ANY NECESSARY LAND ACCESS AGREEMENTS IF REQUIRED.

MATERIAL SPECIFICATIONS:

- ALL REINFORCEMENT SHALL BE ASTM A615 (gr=60 ksi). ALL REINFORCEMENT MAY BE UNCOATED, BLACK BAR.
- ALL REINFORCING DOWELS THAT ARE DRILLED & GROUTED INTO CONCRETE SHALL BE GROUTED USING A CHEMICALLY CURING RESIN OR EPOXY (EG; HILTI, WILLIAMS, RAWL, ETC.) TO BE APPROVED BY ENGINEER.
- THE *9 ANCHOR DOWELS FOR THE ABUTMENT FOOTING SHALL BE GROUTED INTO STREAMBED USING A CHEMICALLY CURING RESIN OR EPOXY.
- THE *9 ANCHOR DOWELS FOR PINNING THE LARGE BOULDERS TO THE STREAMBED NEED NOT BE GROUTED, BUT RATHER SHOULD BE DRIVEN INTO 1¼"Ø HOLES DRILLED INTO THE SHALE.

CAST-IN-PLACE CONCRETE NOTES:

- CONCRETE FOR THE ABUTMENT FOOTING, WINGWALL STEM & BENCHWALL EXTENSION SHALL BE CLASS A CONCRETE OR CLASS HP CONCRETE MAY BE SUBSTITUTED.
- CLASS A OR CLASS HP CONCRETE WILL REQUIRE INTERNAL VIBRATION DURING PLACEMENT.
- ALL C.I.P. CLASS A CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI.
- THE CONTRACTOR'S CONCRETE SUPPLIER SHALL BE CERTIFIED BY APPLICABLE STATE DOT.
- THE CONCRETE PRODUCER SHALL SUBMIT A WRITTEN BATCH MIX FOR THE TYPE OF CONCRETE BEING USED AND ALSO SUBMIT A BATCHING SEQUENCE TO THE ENGINEER FOR APPROVAL, PRIOR TO COMMENCING WORK.
- BATCHING AT THE PLANT SHALL BE CONDUCTED UNDER THE SUPERVISION OF AN ACI CERTIFIED CONCRETE INSPECTOR. BATCH TICKETS SHALL BE SUBMITTED TO THE ENGINEER FOR FILING.
- FOR EACH DAY'S BATCH OF CONCRETE A MINIMUM OF 8 TEST CYLINDERS WILL BE PREPARED IN THE FIELD (ON-SITE) BY INSPECTOR'S 3RD PARTY TESTING AGENCY. A MINIMUM OF 1 SET OF 8 CYLINDERS MUST BE PREPARED ON EACH DAY CONCRETE IS PLACED. TWO CYLINDERS SHALL BE TESTED AT 7, 14 & 28 DAYS WITH THE REMAINING 2 CYLINDERS TESTED AT 56 DAYS SHOULD THE 28 DAY BREAKS NOT YET SATISFACTORY RESULTS. THE RESULTS OF ALL COMPRESSION TESTS WILL BE SHARED WITH THE CONTRACTOR AND/OR REDI-MIX PLANT IF REQUESTED.
- CURING, STRIPPING OF FORMS & COLD WEATHER CONCRETING SHALL COMPLY WITH SECTION 555 OF THE STANDARD SPECIFICATIONS.

- A PRECAST CONCRETE WALL SYSTEM MAY BE SUBSTITUTED IN LIEU OF CAST-IN-PLACE CONCRETE WALLS, WITH THE PRE-APPROVAL OF THE ENGINEER AS LONG AS THE WALL GEOMETRY REMAINS ESSENTIALLY SIMILAR AND AS LONG AS THE ENGINEER VERIFIES THAT THE PRECAST WALL SYSTEM IS STABLE.

PROTECTION OF RAILROAD & COORDINATION NOTES:

- WHERE APPLICABLE, OPERATIONS SHALL CLOSELY BE COORDINATED WITH THE RAILROAD SO AS NOT TO INTERFERE WITH THE CONTINUED OPERATIONS OF THE TRACK. A RAILROAD FLAGMAN (SUPPLIED BY BUFFALO SOUTHERN RR) SHALL BE PRESENT FOR ANY AND ALL WORK ON TOP OF THE BRIDGE.
- THE RAILROAD WILL PROVIDE A FLAGMAN FOR THE PROJECT WHENEVER THE CONTRACTOR IS ON THE TRACK.
- THE CONTRACTOR IS REQUIRED TO FULLY COOPERATE WITH THE BUFFALO SOUTHERN FLAGMEN AND IMMEDIATELY REMOVE EQUIPMENT AND PERSONNEL WORKING NEAR THE TRACK IF DIRECTED AS SUCH BY THE FLAGMAN.
- THE CONTRACTOR SHALL SUBMIT A PROPOSED SCHEDULE OF ALL OPERATIONS THAT SHALL INCLUDE THE ANTICIPATED DURATION OF EACH OPERATION.
- TRACK TIME IS NOT ANTICIPATED TO BE REQUIRED FOR THIS PROJECT OTHER THAN INCIDENTAL TRACK TIME NEEDED DURING CONCRETE & STONE DELIVERY & PLACEMENTS.

SITE ACCESS:

- THE CONTRACTOR SHALL NOTE THE DIFFICULT ACCESS TO THE SITE. PRIOR TO BIDDING, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE BEST ACCESS METHOD TO TRANSPORT & DELIVER MATERIAL & EQUIPMENT TO THE SITE. WHETHER BY MEANS OF THE RAILROAD TRACK BED OR BY OTHER ACCESS ARRANGEMENTS ON PRIVATE LAND. IF MATERIAL OR EQUIPMENT IS TO BE TRANSPORTED ALONG RAILROAD PROPERTY, THE CONTRACTOR MUST COORDINATE TRACK TIME WITH THE RAILROAD.
CONTACT PERSON: BERT FEASLEY PHONE: 992-4979
- IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ACCESS AGREEMENTS OR PERMITS FROM ANY PRIVATE OR PUBLIC LANDOWNER NECESSARY FOR SITE ACCESS, PRIOR TO TRANSPORTING EQUIPMENT OR MATERIALS ON THAT PROPERTY, AND MAKE ANY RESTORATIONS NECESSARY TO THE DISTURBED PROPERTY.
- THE CONTRACTOR IS ADVISED TO COORDINATE THE TIMING OF DELIVERY OF EQUIPMENT AND MATERIALS WITH THE BUFFALO SOUTHERN REPRESENTATIVE.

SUMMARY OF QUANTITIES			
NYS DOT ITEM NUMBER	DESCRIPTION	QUANTITY	UNIT
203.21	SELECT STRUCTURAL FILL [OR OTHER APPROVED BACKFILL MATERIAL]	90	CY
206.01	STRUCTURE EXCAVATION	30	CY
553.030001	TEMPORARY WATERWAY DIVERSION STRUCTURE	1	LS
555.0104	FOOTING CONCRETE, CLASS A	93	CY
555.0105	CONCRETE FOR STRUCTURES, CLASS A	77	CY
666.0201	UNCOATED BAR REINFORCEMENT FOR STRUCTURES	13,016	LBS
EC 586.0201*	DRILLING & GROUTING ANCHOR BOLTS OR REINFORCING BARS - [#5 L-Bars or Dowels into Existing Concrete Wingwalls]	88	EACH
EC 586.0202*	DRILLING & GROUTING ANCHOR BOLTS OR REINFORCING BARS - [#8 Dowels into Existing Concrete Benchwalls]	20	EACH
EC 586.0203*	DRILLING & GROUTING ANCHOR BOLTS OR REINFORCING BARS - [#9 Dowels for Footings into Shale - Grouting Required]	60	EACH
EC 586.0203*	DRILLING & GROUTING ANCHOR BOLTS OR REINFORCING BARS - [#9 Dowels for Pinning Heavy Stone to Shale - No Grouting Required]	45	EACH
620.04	MEDIUM STONE FILL	10	CY
620.05	HEAVY STONE FILL	80	CY
620.06	DRY RIP-RAP	60	CY
697.01	FIELD CHANGE PAYMENT	10,000	D-C
699.01	MOBILIZATION (May Not exceed 4% of Subtotal)	NEC	LS

* NOTE ONLY THE DRILLING & GROUTING OF BARS IS PAID UNDER ITEM EC586.020X.
THE COST OF THE REINFCORCING BARS IS PAID SEPARATELY UNDER ITEM 556.0201.

Date									
By									
App'd									
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Designated: GH Drawn: JS Checked: GH

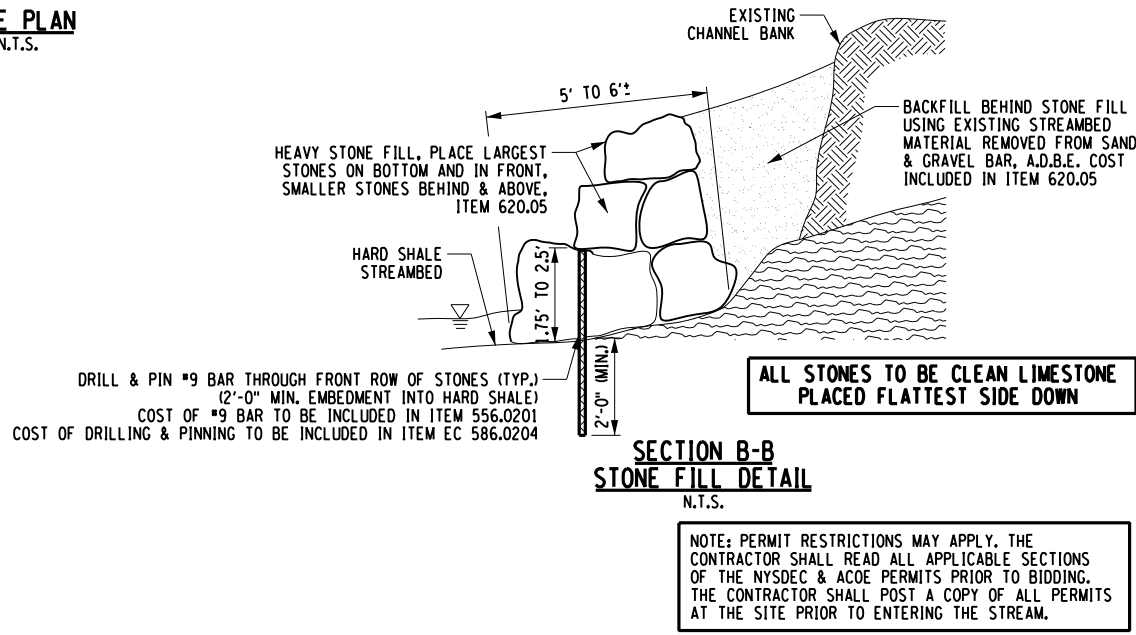
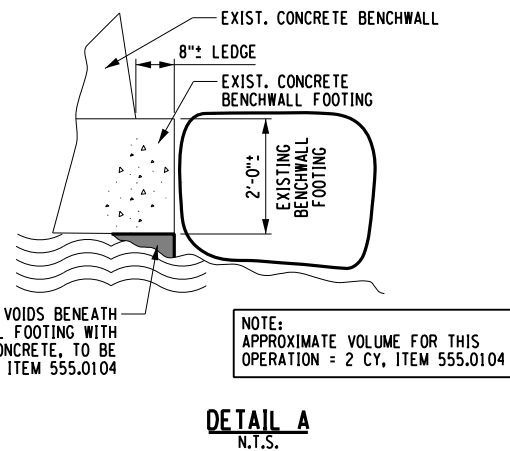
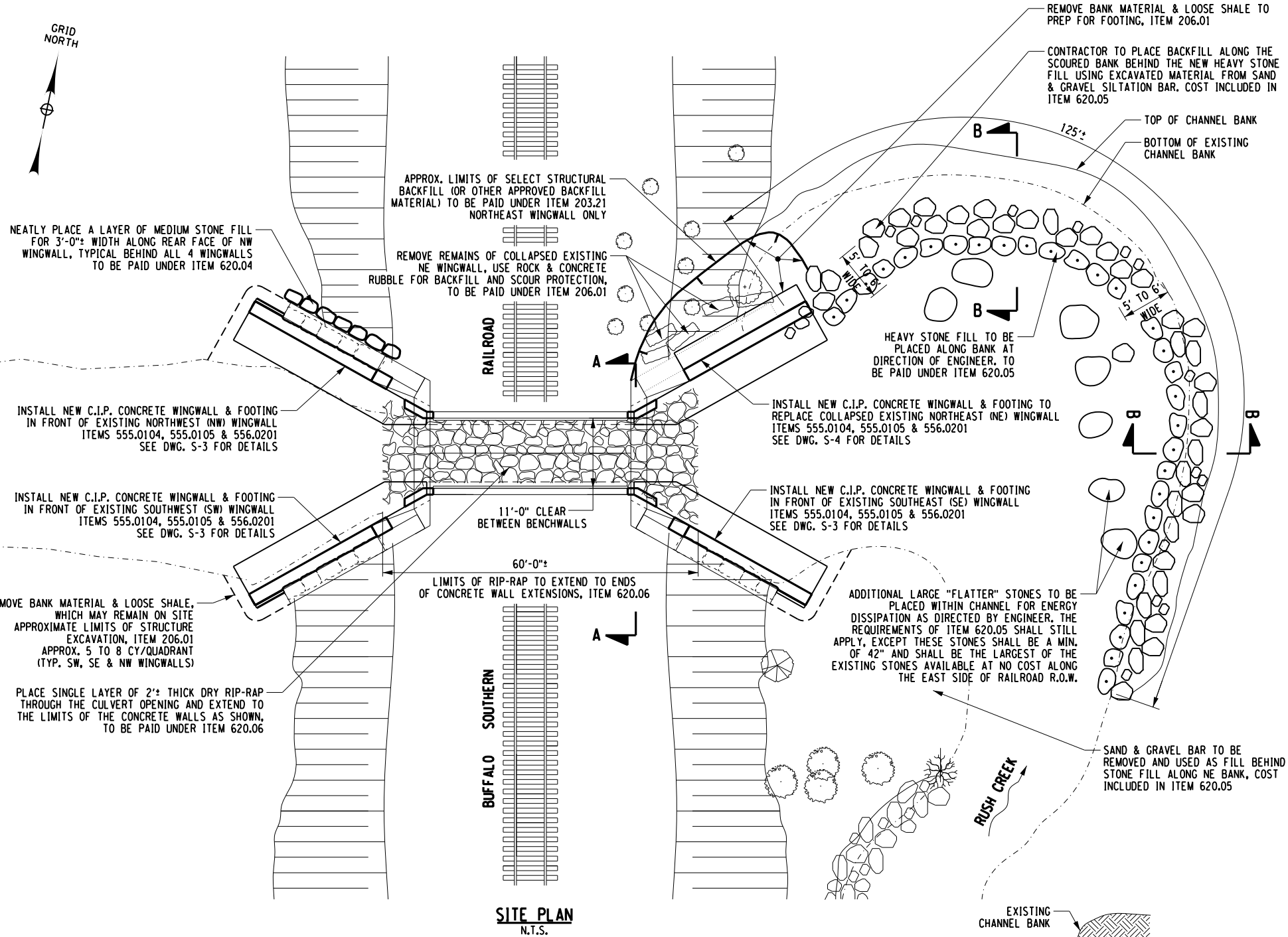
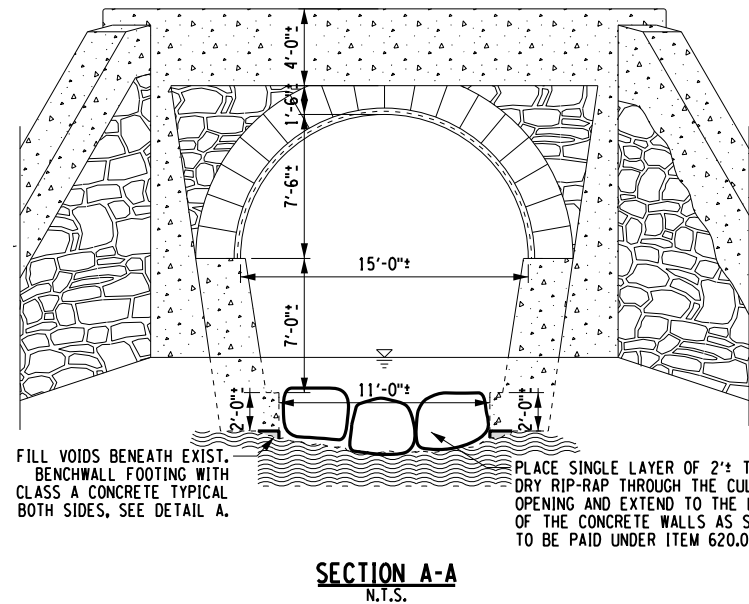
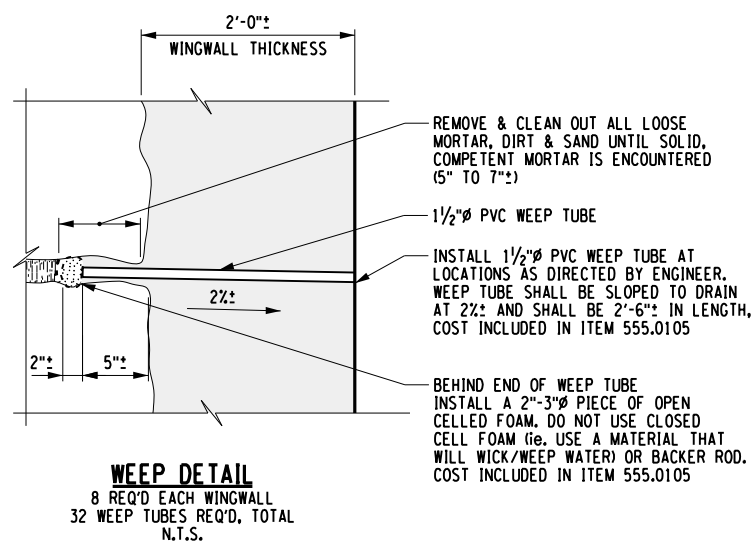
BUFFALO SOUTHERN RAILROAD (BR 8.27)
OVER RUSH CREEK
HAMBURG, NY

P.I.N. 5936.74.301

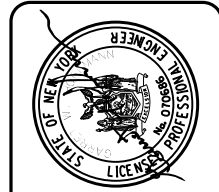
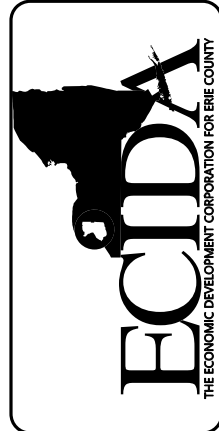
GENERAL NOTES AND
ESTIMATE OF QUANTITIES

Issue Date: Aug. 2017 Project No.: 32857 Scale: AS NOTED

FILE NAME = V:\p\projects\BNY\30885\CADD\MSIN\32857_03.BR 8.27.5-2.dgn
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BUFFALO SOUTHERN RAILROAD (BR 8.27)
OVER RUSH CREEK
HAMBURG, NY

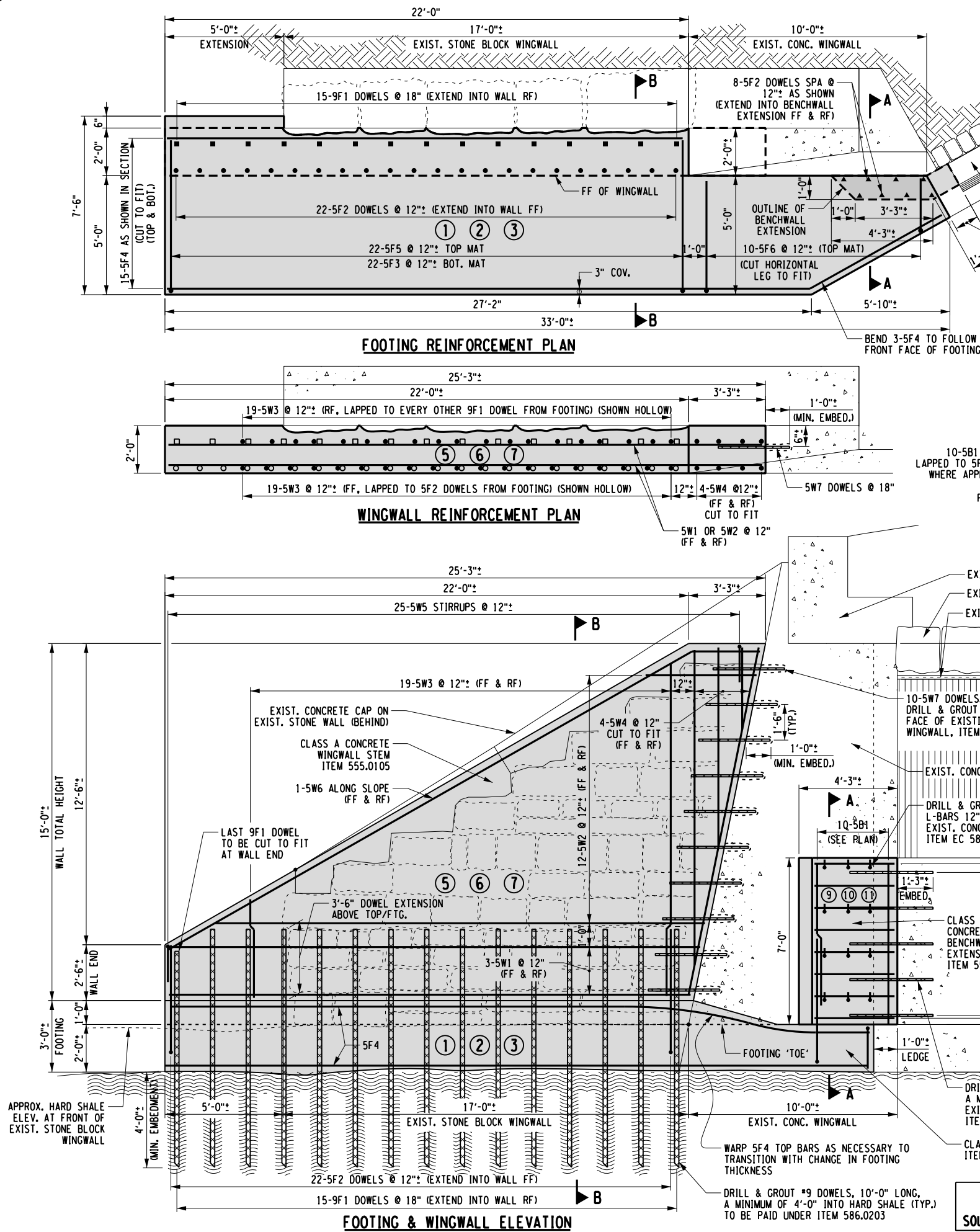
P.I.N. 5936.74.301

**GENERAL PLAN AND
STONE FILL DETAILS**

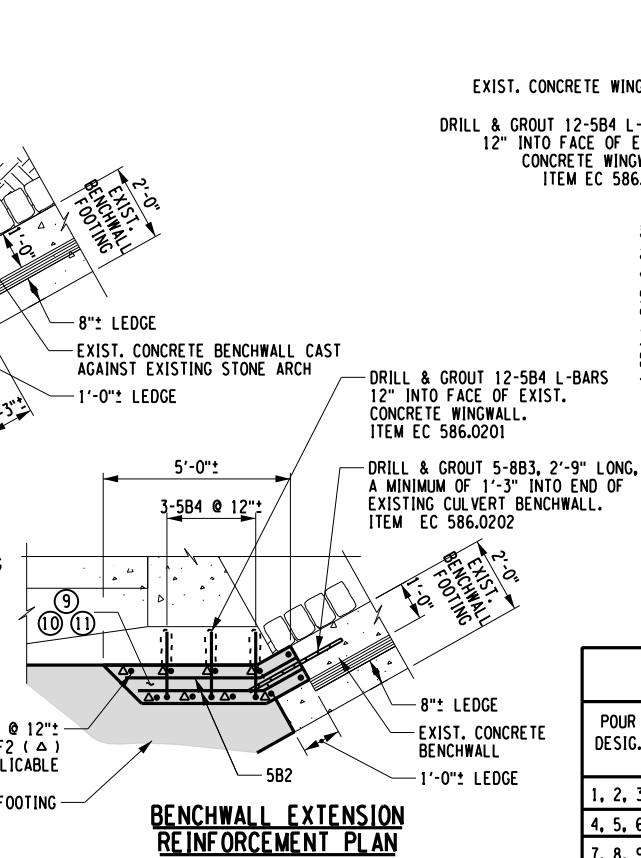
Issue Date: Aug. 2017
Project No.: 32857
Scale: N.T.S.

S-2
SHEET 3 OF 6

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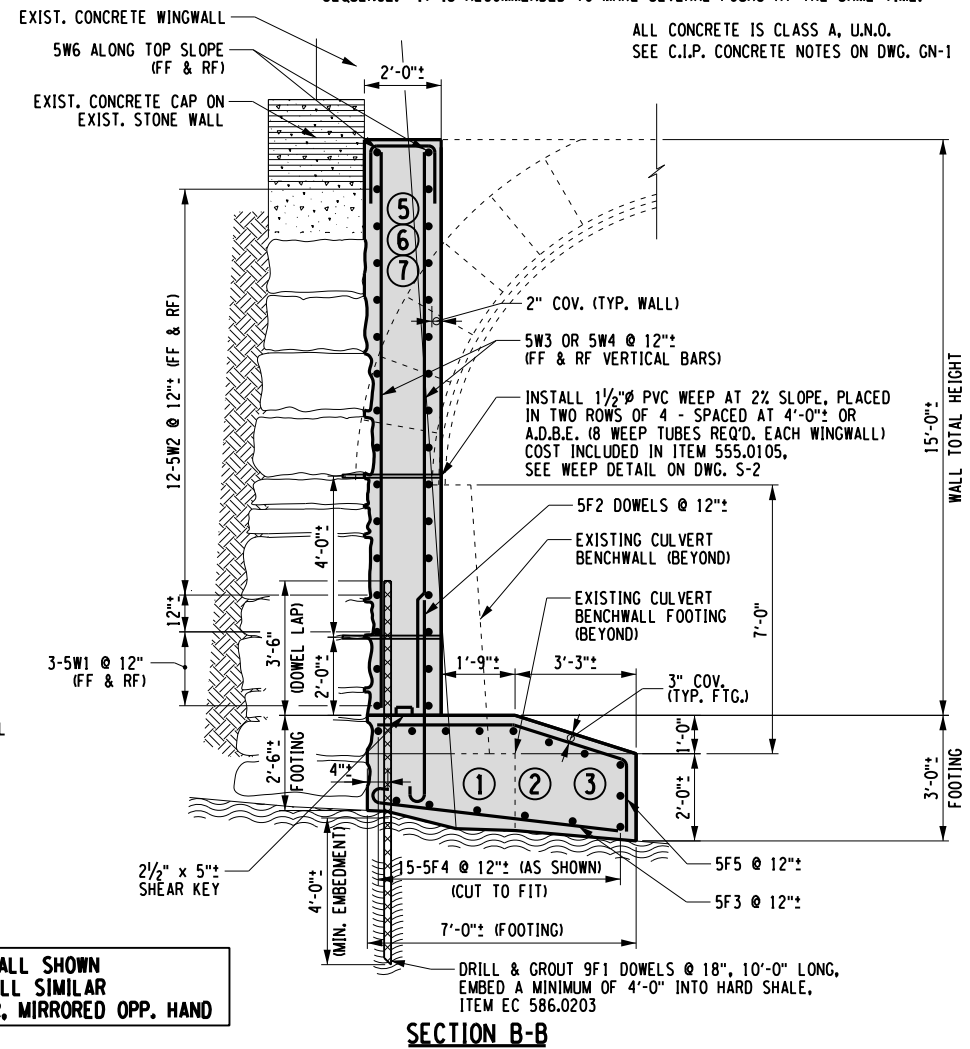
NORTHWEST WINGWALL SHOWN
SOUTHEAST WINGWALL SIMILAR
SOUTHWEST WINGWALL SIMILAR, MIRRORED OPP. HAND



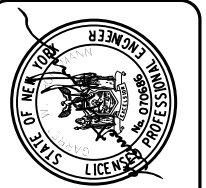
CONCRETE PLACEMENT TABLE					
POUR DESIG.	DESCRIPTION	VOLUME (CY)		VOLUME (CY)	
		ITEM 555.0104	ITEM 555.0105	ITEM 555.0104	ITEM 555.0105
1, 2, 3	FOOTING (NW, SE & SW)	22	66	-	-
4, 5, 6	WINGWALL STEM	-	-	18	54
7, 8, 9	BENCHWALL EXTENSION	-	-	1.7	5
TOTAL THIS SHEET (THREE WINGWALLS)		66 CY		59 CY	

(X) POUR DESIGNATION NUMBERS ARE FOR REFERENCE ONLY AND ARE NOT AN INTENDED SEQUENCE. IT IS RECOMMENDED TO MAKE SEVERAL POURS AT THE SAME TIME.

ALL CONCRETE IS CLASS A, U.N.O.
SEE C.I.P. CONCRETE NOTES ON DWG. GN-1



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BUFFALO SOUTHERN RAILROAD (BR 8.27)
OVER RUSH CREEK
HAMBURG, NY

**REINF. DETAILS FOR
NW, SE & SW WINGWALLS**

Scale: N.T.S.
Project No.: 32857
Issue Date: Aug. 2017

FILE NAME = V:\Projects\BNY\30805\CADD\MSIN\32857_06.BR 8.27.BL-1.dgn
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REINFORCING STEEL BAR SCHEDULE																
LOCATION		MARK	QTY	SIZE	TYPE	LENGTH	WEIGHT	A	B	C	D	G	H	J	K	REMARKS
NOTE A	POURS 1, 2, 3 - SE, SW, NW FOOTINGS [QUANTITIES FOR 1 LOC. SHOWN, ALL 3 LOCATIONS SIMILAR]															
	FOOTING DOWELS - LONG (VERTICAL ONLY; DRILL INTO SHALE) [FOR ITEM EC 586.0203]	9F1	15	9	STR	10' - 0"	510									DRILL & GROUT INTO SHALE. MINIMUM EMBEDMENT = 4'-0" SOME 9F1 DOWELS MAY NEED TO BE TRIMMED IN FIELD.
	FOOTING DOWELS - SHORT	5F2	30	5	1	5' - 10"	183	7"	5'-3"			0"		5"		HOOK 1 END ONLY (H1E)
	TRANSVERSE BARS (BOT. MAT)	5F3	22	5	1	7' - 1"	163	7"	6'-6"			0"		5"		HOOK 1 END ONLY (H1E)
	LONGITUDINAL BARS (TOP MAT & FTG. TOE FACE) - FULL LENGTH	5F4	15	5	STR	33' - 0"	516									WARP OR BEND AS NECESSARY IN THE FIELD TO TRANSITION CHANGE IN FOOTING THICKNESS. TRIM TO FIT IN FIELD.
	TRANSVERSE BARS (TOP MAT) - AT WINGWALL	5F5	22	5	14A	8' - 6"	195		1'-10"	3'-1"	3'-7"		H1=1'-9" H2=1'-1"		K1 = 0'-7" K2 = 3'-4"	72 DEGREE & 18 DEGREE BENDS
	TRANSVERSE BARS (TOP MAT) - AT BENCHWALL	5F6	10	5	27	6' - 6"	68		1'-10"	4'-8"						HORIZONTAL LEG TO BE TRIMMED TO FIT IN FIELD.
			SUB-TOTAL [1 LOCATION]:					1,634 Lbs.								
			SUB-TOTAL POURS 1, 2, 3:					4,903 Lbs.								
	POUR 4 - NE FOOTING															
FOOTING DOWELS - LONG (VERTICAL ONLY; DRILL INTO SHALE) [FOR ITEM EC 586.0203]	9F1	15	9	STR	10' - 0"	510										DRILL & GROUT INTO SHALE. MINIMUM EMBEDMENT = 4'-0" SOME 9F1 DOWELS MAY NEED TO BE TRIMMED IN FIELD.
FOOTING DOWELS - SHORT	5F2	30	5	1	5' - 10"	183	7"	5'-3"			0"		5"			HOOK 1 END ONLY (H1E)
TRANSVERSE BARS (BOT. MAT)	5F3-A	22	5	1	10' - 8"	245	7"	9'-6"			7"		5"			
LONGITUDINAL BARS (TOP MAT & BOT. MAT)	5F4	11	5	STR	33' - 0"	379										WARP OR BEND AS NECESSARY IN THE FIELD TO TRANSITION CHANGE IN FOOTING THICKNESS. TRIM TO FIT IN FIELD.
TRANSVERSE BARS (TOP MAT) - AT WINGWALL	5F5	22	5	14A	8' - 6"	195		1'-10"	3'-1"	3'-7"		H1=1'-9" H2=1'-1"		K1 = 0'-7" K2 = 3'-4"		72 DEGREE & 18 DEGREE BENDS
TRANSVERSE BARS (TOP MAT) - AT BENCHWALL	5F6	10	5	27	6' - 6"	68		1'-10"	4'-8"							HORIZONTAL LEG TRIM TO FIT IN FIELD.
TRANSVERSE BARS (TOP MAT) - AT WINGWALL	5F7	22	5	1	7' - 1"	163	7"	6'-6"			0"		5"			
LONGITUDINAL BARS (TOP MAT & BOT. MAT)	5F8	12	5	STR	21' - 6"	269										
		SUB-TOTAL POUR 4:					2,010 Lbs.									
POURS 5, 6, 7 & 8 - SE, SW, NW & NE WINGWALLS [QUANTITIES FOR 1 LOC. SHOWN, ALL 4 LOCATIONS SIMILAR]																
NOTE B	HORIZONTAL WALL BARS (FF & RF)	5W1	6	5	STR	21' - 8"	136									2 SETS OF 3.
	HORIZONTAL WALL BARS (FF & RF) - LENGTH VARIES	5W2	24	5	STR	VARIES 4'-2" TO 20'-8"	311									2 SETS OF 12. VARY LENGTH FROM 4'-2" TO 20'-8" IN (11) - 18" INCREMENTS
	VERTICAL WALL BARS (FF & RF) - LENGTH VARIES	5W3	38	5	STR	VARIES 4'-4" TO 14'-10"	380									2 SETS OF 19. VARY LENGTH FROM 4'-4" TO 14'-10" IN (18) - 7" INCREMENTS
	VERTICAL WALL BARS (FF & RF)	5W4	8	5	STR	14' - 10"	124									2 SETS OF 4. ALL 4 BARS TO BE CUT TO FIT IN FIELD AS NEEDED.
	STIRRUPS ALONG TOP OF WALL	5W5	25	5	17	4' - 8"	122		1'-6"	1'-8"	1'-6"					
	TOP SLOPE BAR (FF & RF)	5W6	2	5	28	28' - 0"	58		25'-0"	3'-0"			1'-6"	2'-7"		
	DOWELS - DRILL & GROUT INTO END FACE OF EXIST. WINGWALL [FOR ITEM EC 586.0201]	5W7	10	5	STR	3' - 0"	31									DRILL & GROUT DOWELS INTO END FACE OF EXIST CONC WINGWALL. MINIMUM EMBEDMENT = 1'-0"
		SUB-TOTAL [1 LOCATION]:					1,161 Lbs.									
		SUB-TOTAL POURS 5, 6, 7 & 8:					4,646 Lbs.									
POURS 9, 10, 11 & 12 - SE, SW, NW & NE BENCHWALL EXTENSIONS [QUANTITIES FOR 1 LOC. SHOWN, ALL 4 LOCATIONS SIMILAR]																
NOTE B	VERTICAL BENCHWALL BARS	5B1	10	5	STR	6' - 10"	71									2 SETS OF 8.
	HORIZONTAL - BENT BARS (FF & RF)	5B2	16	5	28	4' - 6"	75		3'-4"	1'-2"			7"		1'-0"	
	DOWELS - DRILL & GROUT INTO END FACE OF EXIST. BENCHWALL [FOR ITEM EC 586.0202]	8B3	5	8	STR	2' - 9"	37									DRILL & GROUT DOWELS INTO END OF EXIST. BENCHWALL. MINIMUM EMBEDMENT = 1'-3"
	L-BAR DOWELS - DRILL & GROUT INTO FACE OF EXIST. WINGWALL [FOR ITEM EC 586.0201]	5B4	12	5	27	3' - 0"	38		2'-6"	6"						DRILL & GROUT INTO FACE OF EXIST. WINGWALL. MINIMUM EMBEDMENT = 1'-0"
		SUB-TOTAL [1 LOCATION]:					221 Lbs.									
		SUB-TOTAL POURS 9, 10, 11 & 12:					883 Lbs.									
DRILLING & PINNING DOWELS THRU HEAVY STONE ALONG NE BANK																
# 9 DOWELS FOR PINNING STONES [ITEM EC 586.0204]		9D1	45	9	STR	3' - 9"	574									SHOP CUT 1 END AT A 45 DEG CHISEL POINT
					TOTAL WEIGHT		13,015 Lbs.		ITEM 556.0201 - ALL REINFORCEMENT TO BE PLAIN BLACK BAR							

NOTES:

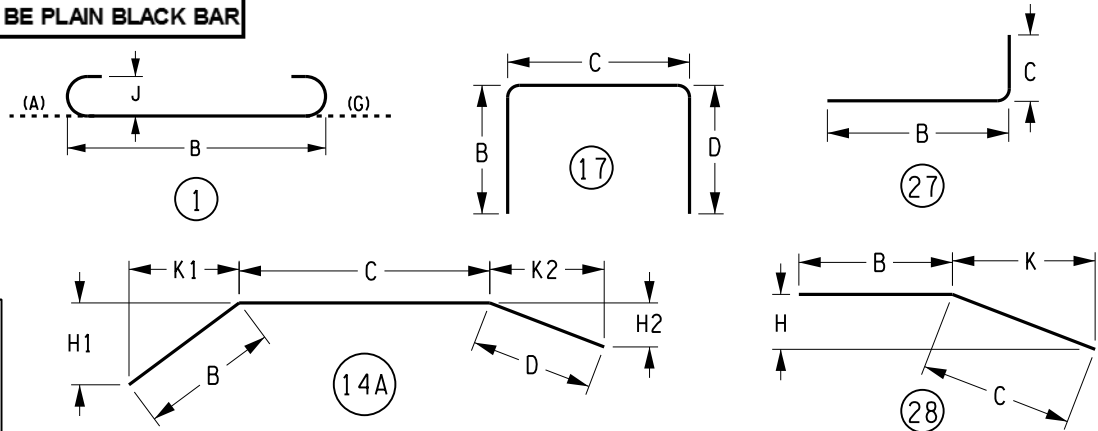
- A. PROVIDE 3 COMPLETE BUT SEPARATE SETS OF ALL THE BARS LISTED, FOR EACH OF THE 3 WINGWALL FOOTINGS (SE, SW & NW).
- B. PROVIDE 4 COMPLETE BUT SEPARATE SETS OF ALL THE BARS LISTED, FOR EACH OF THE 4 WINGWALLS.
- C. CONTRACTOR MAY ELECT TO PROVIDE FEWER NUMBER OF LONGER BARS & CUT THESE BARS TO FIT IN THE FIELD, BUT NO ADDITIONAL PAYMENT WILL BE MADE FOR CUT BARS.

BAR LIST IS FOR INFORMATION ONLY AND IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE BAR LIST AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

BAR MARK DESIGNATIONS

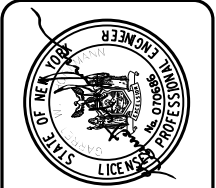
F = FOOTING
W = WINGWALL STEM POUR
B = BENCHWALL POUR

FF = FRONT FACE
RF = REAR FACE



BAR BENDING DIAGRAMS

No.																
Submitted / Revision																
App'd																
By																
Date																



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Designed: GH Drawn: JS Checked: GH

BUFFALO SOUTHERN RAILROAD (BR 8.27) OVER RUSH CREEK HAMBURG, NY	P.I.N. 5936.74.301
BAR LIST	
Issue Date: Aug. 2017	Project No.: 32857
Scale: N.T.S.	