DocuSign Envelope ID: 697BD2C9-C5FC-4A21-B1D8-89A5640C220C

BILL OF MATERIAL

WING 1

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	6	#4	STR	14'-1"	56
H2	2	#4	STR	10'-9"	14
H3	2	#4	STR	7'-2"	10
H4	2	#4	STR	3'-7"	5
H5	14	#4	1	3'-3"	30
H6	2	#4	STR	15'-3"	20
N1	2	#6	2	11'-8"	35
N2	1	#6	2	11'-4"	17
N3	2	#6	2	10'-6"	32
N4	3	#5	2	9'-3"	29
N5	3	#5	2	8'-0"	25
N6	3	#4	2	6'-9"	14
N7	3	#4	2	5'-6"	11
S1	3	#6	STR	6'-0"	27
T1	3	#5	STR	16'-0"	50
V1	2	#4	STR	9'-8"	13
V2	1	#4	STR	9'-4"	6
V3	2	#4	STR	8'-6"	11
V4	3	#4	STR	7'-3"	15
V5	3	#4	STR	6'-0"	12
V6	3	#4	STR	4'-9"	10
V7	3	#4	STR	3'-6"	7
Z1	2	#5	3	6'-8"	14
Z2	3	#5	3	6'-0"	19
Z3	3	#4	3	5'-4"	11
Z4	3	#4	3	4'-8"	9
Z5	3	#4	3	4'-0"	8
Z6	3	#4	3	3'-4"	7

REINFORCING STEEL 517 LBS

CLASS A CONCRETE 7.35 CY

WING 2

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H7	6	#4	STR	26'-7"	107
H8	2	#4	STR	20'-6"	27
H9	2	#4	STR	14'-0"	19
H10	2	#4	STR	7'-7"	10
H11	14	#4	1	3'-3"	30
H12	2	#4	STR	27'-3"	36
N8	2	#6	2	11'-9"	35
N9	1	#6	2	11'-6"	17
N10	2	#6	2	11'-1"	33
N11	4	#5	2	10'-2"	42
N12	4	#5	2	9'-2"	38
N13	4	#5	2	8'-3"	34
N14	4	#4	2	7'-4"	20
N15	4	#4	2	6'-5"	17
N16	4	#4	2	5'-6"	15
S1	3	#6	STR	6'-0"	27
T2	3	#5	STR	28'-6"	89
V8	2	#4	STR	9'-9"	13
V9	1	#4	STR	9'-6"	6
V10	2	#4	STR	9'-1"	12
V11	4	#4	STR	8'-2"	22
V12	4	#4	STR	7'-3"	19
V13	4	#4	STR	6'-3"	17
V14	4	#4	STR	5'-4"	14
V15	4	#4	STR	4'-5"	12
V16	4	#4	STR	3'-6"	9
Z7	4	#5	3	6'-5"	27
Z8	5	#5	3	5'-10"	30
Z9	5	#4	3	5'-2"	17
Z10	5	#4	3	4'-7"	15
Z11	5	#4	3	3'-11"	13
Z12	5	#4	3	3'-4"	11

REINFORCING STEEL 833 LBS

CLASS A CONCRETE 12.84 CY

WING 3

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H13	6	#4	STR	20'-7"	82
H14	2	#4	STR	15'-10"	21
H15	2	#4	STR	10'-8"	14
H16	2	#4	STR	5'-7"	7
H17	14	#4	1	3'-3"	30
H18	2	#4	STR	21'-5"	29
N17	2	#6	2	11'-8"	35
N18	1	#6	2	11'-4"	17
N19	2	#6	2	10'-9"	32
N20	3	#5	2	9'-11"	31
N21	3	#5	2	9'-0"	28
N22	3	#5	2	8'-2"	26
N23	3	#4	2	7'-3"	15
N24	3	#4	2	6'-5"	13
N25	3	#4	2	5'-6"	11
S1	3	#6	STR	6'-0"	27
T3	3	#5	STR	22'-6"	70
V17	2	#4	STR	9'-8"	13
V18	1	#4	STR	9'-4"	6
V19	2	#4	STR	8'-9"	12
V20	3	#4	STR	7'-11"	16
V21	3	#4	STR	7'-0"	14
V22	3	#4	STR	6'-2"	12
V23	3	#4	STR	5'-3"	11
V24	3	#4	STR	4'-5"	9
V25	3	#4	STR	3'-6"	7
Z13	3	#5	3	6'-6"	20
Z14	4	#5	3	5'-10"	24
Z15	4	#4	3	5'-3"	14
Z16	4	#4	3	4'-7"	12
Z17	4	#4	3	3'-11"	10
Z18	4	#4	3	3'-4"	9

REINFORCING STEEL 677 LBS

CLASS A CONCRETE 10.21 CY

WING 4

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H19	6	#4	STR	23'-1"	93
H20	2	#4	STR	17'-10"	24
H21	2	#4	STR	12'-2"	16
H22	2	#4	STR	6'-6"	9
H23	14	#4	1	3'-3"	30
H24	2	#4	STR	23'-10"	32
N26	2	#6	2	11'-9"	35
N27	1	#6	2	11'-7"	17
N28	3	#6	2	10'-10"	49
N29	4	#5	2	9'-9"	41
N30	4	#5	2	8'-8"	36
N31	4	#4	2	7'-8"	20
N32	4	#4	2	6'-7"	18
N33	4	#4	2	5'-6"	15
S1	3	#6	STR	6'-0"	27
T4	3	#5	STR	25'-0"	78
V26	2	#4	STR	9'-9"	13
V27	1	#4	STR	9'-7"	6
V28	3	#4	STR	8'-10"	18
V29	4	#4	STR	7'-9"	21
V30	4	#4	STR	6'-8"	18
V31	4	#4	STR	5'-8"	15
V32	4	#4	STR	4'-7"	12
V33	4	#4	STR	3'-6"	9
Z19	6	#5	3	6'-2"	39
Z20	5	#5	3	5'-6"	29
Z21	5	#4	3	4'-9"	16
Z22	5	#4	3	4'-0"	13
Z23	5	#4	3	3'-4"	11

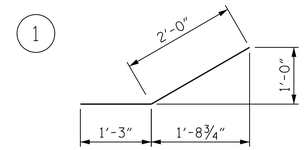
REINFORCING STEEL 760 LBS

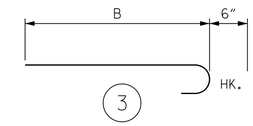
CLASS A CONCRETE 11.32 CY

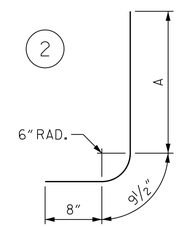
REINFORCING STEEL FOR 4 WINGS 2787 LBS

CLASS A CONCRETE
- 4 WINGS 41.72 CY
- 2 HEADWALLS 2.80 CY
- 2 END CURTAIN WALLS 3.28 CY
- TOTAL 47.80 CY

BAR TYPES







DIMENSION A

BAR	LENGTH	BAR	LENGTH
N1	10'-2½"	N18	9'-10½"
N2	9'-10½"	N19	9'-3½"
N3	9'-0½"	N20	8'-5½"
N4	7'-9½"	N21	7'-6½"
N5	6'-6½"	N22	6'-8½"
N6	5'-3½"	N23	5'-9½"
N7	4'-0½"	N24	4'-11½"
N8	10'-3½"	N25	4'-0½"
N9	10'-0½"	N26	10'-3½"
N10	9'-7½"	N27	10'-1½"
N11	8'-8½"	N28	9'-4½"
N12	7'-8½"	N29	8'-3½"
N13	6'-9½"	N30	7'-2½"
N14	5'-10½"	N31	6'-2½"
N15	4'-11½"	N32	5'-1½"
N16	4'-0½"	N33	4'-0½"
N17	10'-2½"		

DIMENSION B

BAR	LENGTH	BAR	LENGTH
Z1	6'-2"	Z13	6'-0"
Z2	5'-6"	Z14	5'-4"
Z3	4'-10"	Z15	4'-9"
Z4	4'-2"	Z16	4'-1"
Z5	3'-6"	Z17	3'-5"
Z6	2'-10"	Z18	2'-10"
Z7	5'-11"	Z19	5'-8"
Z8	5'-4"	Z20	5'-0"
Z9	4'-8"	Z21	4'-3"
Z10	4'-1"	Z22	3'-6"
Z11	3'-5"	Z23	2'-10"
Z12	2'-10"		

ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT NO. W-5107

JOHNSTON COUNTY

STATION: 24+31.50 -Y1-

SHEET 7 OF 9

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

WINGS FOR CONCRETE BOX CULVERT

H = 9'-0" SLOPE = 3:1

NORTH CAROLINA PROFESSIONAL SEAL 027799 ENGINEER PAUL A. de PAOLI

11/20/2014

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO. C-14
1			3			TOTAL SHEETS 36
2			4			

DRAWN BY : J.S. ISRAELNAIM DATE : 05/14
CHECKED BY : P.A. de PAOLI DATE : 06/14
DESIGN ENGINEER OF RECORD : P.A. de PAOLI DATE : 06/14

11/20/2014
10:13:31 AM
User:blanning
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