

LEGEND

	4" CLEANOUT
	4" PERFORATED SCH. 40 PVC UNDERDRAIN
	4" SOLID WALL SCH. 40 PVC PIPE
	12" SOLID WALL SCH. 40 PVC COLLECTOR PIPE

Revisions:	Date:

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Drawing Title

**SITE UTILITY PLAN -
COLUMBARIUM**

Approved: Project Director

Project Title

Construct 1,361 Pre-Placed Crypts, 1,152 Niche Columbarium & 932 In-Ground Cremains

Location JACKSONVILLE NATIONAL CEMETERY
4083 Lannie Road Jacksonville, FL 32218

Date MARCH 10, 2016

Checked BCM

Drawn JMS

Project Number 928CM3001

Building Number -

Drawing Number **L-6.1**

Dwg. 33 of 41

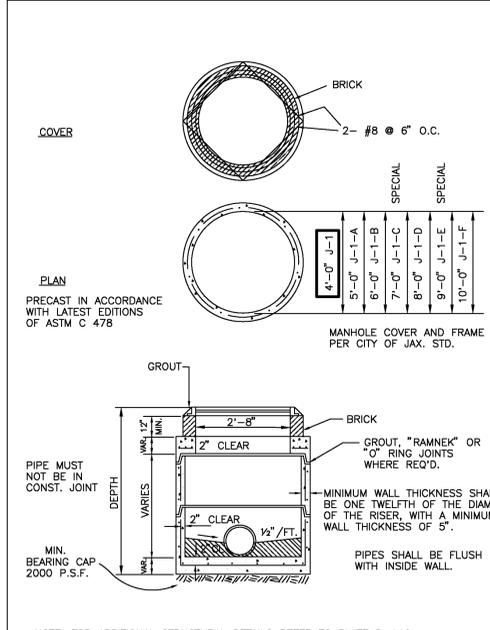
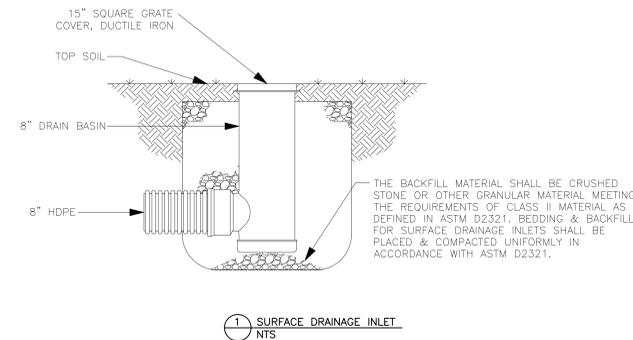
BID SET

**NATIONAL CEMETERY
ADMINISTRATION
OFFICE OF DESIGN
AND CONSTRUCTION**

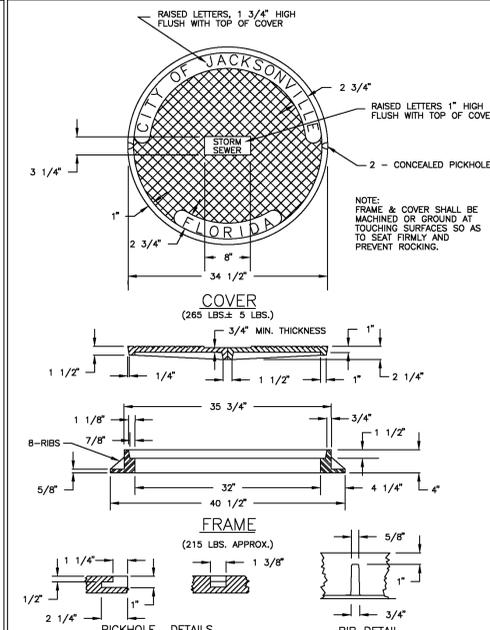
Department of Veterans Affairs

GENERAL NOTES

- PVC SURFACE DRAINAGE INLETS SHALL INCLUDE THE DRAIN BASIN TYPE AS INDICATED ON SHEET L-6.0 AND REFERENCED WITHIN THE CONTRACT SPECIFICATIONS. THE DUCTILE IRON GRATES / COVERS FOR EACH OF THESE FITTINGS ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SURFACE DRAINAGE INLET AND SHALL BE FURNISHED BY THE SAME MANUFACTURER. THE SURFACE DRAINAGE INLETS SHALL BE AS MANUFACTURED BY NYLOPLAST A DIVISION OF ADVANCED DRAINAGE SYSTEMS, INC., OR APPROVED EQUAL.
- THE DRAIN BASINS REQUIRED FOR THIS CONTRACT SHALL BE MANUFACTURED FROM PVC PIPE STOCK, UTILIZING A THERMO-MOLDING PROCESS TO REFORM THE PIPE STOCK TO THE SPECIFIED CONFIGURATION. THE DRAINAGE PIPE CONNECTION STUBS SHALL BE MANUFACTURED FROM PVC PIPE STOCK AND FORMED TO PROVIDE A WATER TIGHT CONNECTION WITH THE SPECIFIED PIPE SYSTEM. THIS JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR JOINTS FOR DRAIN AND SEWER PLASTIC PIPE USING FLEXIBLE ELASTOMERIC SEALS. THE FLEXIBLE ELASTOMERIC SEALS SHALL CONFORM TO ASTM F477. THE PIPE BELL SPIGOT SHALL BE JOINED TO THE MAIN BODY OF THE DRAIN BASIN OR CATCH BASIN. THE RAW MATERIAL USED TO MANUFACTURE THE PIPE STOCK THAT IS USED TO MANUFACTURE THE MAIN BODY AND PIPE STUBS OF THE SURFACE DRAINAGE INLETS SHALL CONFORM TO ASTM D1784 CELL CLASS 12454.
- THE GRATES / COVERS FURNISHED FOR ALL SURFACE DRAINAGE INLETS SHALL BE DUCTILE IRON MADE SPECIFICALLY FOR EACH BASIN SO AS TO PROVIDE A ROUND BOTTOM FLANGE THAT CLOSELY MATCHES THE DIAMETER OF THE SURFACE DRAINAGE INLET. GRATES / COVERS FOR DRAIN BASINS SHALL BE CAPABLE OF SUPPORTING H-10 LOADING FOR PEDESTRIAN TRAFFIC. 12" AND 15" GRATES / COVERS WILL BE HINGED TO THE FRAME USING PINS.
- THE SPECIFIED PVC SURFACE DRAINAGE INLET SHALL BE INSTALLED USING CONVENTIONAL FLEXIBLE PIPE BACKFILL MATERIALS AND PROCEDURES. THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS II MATERIAL AS DEFINED IN ASTM D2321. THE SURFACE DRAINAGE INLETS SHALL BE BEDDED AND BACK-FILLED UNIFORMLY IN ACCORDANCE WITH ASTM D2321. THE DRAIN BASIN BODY WILL BE CUT AT THE TIME OF THE FINAL GRADE SO AS TO MAINTAIN A ONE PIECE, LEAK PROOF STRUCTURE. NO BRICK, STONE OR CONCRETE BLOCK WILL BE USED TO SET THE GRATE / COVER TO THE FINAL GRADE HEIGHT. FOR OTHER INSTALLATION CONSIDERATIONS SUCH AS MIGRATION OF FINES, GROUND WATER, AND SOFT FOUNDATIONS REFER TO ASTM D2321 GUIDELINES.
- SEE 33 46 00 SUBDRAINAGE.



STORM SEWER TYPE J-1 THRU J-1-F MANHOLE	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-101
		DATE DRAWN 4-26-89
		REVISED DATE 5-12-94



STORM SEWER MANHOLE COVER AND FRAME	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-301
		DATE DRAWN 4-26-89
		REVISED DATE 5-12-94

SLAB DESIGNS - ROUND STRUCTURES

SLAB DEPTH	SLAB THICKNESS	REINFORCING (2 WAYS) SCHEDULE
2'-0" - 2'-2"	6"	C
2'-2" - 2'-4"	6"	C
2'-4" - 2'-6"	6"	C
2'-6" - 2'-8"	6"	C
2'-8" - 2'-10"	6"	C
2'-10" - 2'-12"	6"	C
2'-12" - 2'-14"	6"	C
2'-14" - 2'-16"	6"	C
2'-16" - 2'-18"	6"	C
2'-18" - 2'-20"	6"	C
2'-20" - 2'-22"	6"	C
2'-22" - 2'-24"	6"	C
2'-24" - 2'-26"	6"	C
2'-26" - 2'-28"	6"	C
2'-28" - 2'-30"	6"	C
2'-30" - 2'-32"	6"	C
2'-32" - 2'-34"	6"	C
2'-34" - 2'-36"	6"	C
2'-36" - 2'-38"	6"	C
2'-38" - 2'-40"	6"	C
2'-40" - 2'-42"	6"	C
2'-42" - 2'-44"	6"	C
2'-44" - 2'-46"	6"	C
2'-46" - 2'-48"	6"	C
2'-48" - 2'-50"	6"	C
2'-50" - 2'-52"	6"	C
2'-52" - 2'-54"	6"	C
2'-54" - 2'-56"	6"	C
2'-56" - 2'-58"	6"	C
2'-58" - 2'-60"	6"	C

REINFORCING SCHEDULE

SCHEDULE	GRADE 60 STEEL OR 65 KSI (WPL FIBRIC)	MIN. STEEL AREA
A	3/8"	0.30
B	1/2"	0.37
C	5/8"	0.45
D	3/4"	0.53
E	7/8"	0.61
F	1"	0.69
G	1 1/8"	0.77
H	1 1/4"	0.85
I	1 3/8"	0.93
J	1 1/2"	1.01
K	1 5/8"	1.09
L	1 3/4"	1.17
M	1 7/8"	1.25

GENERAL NOTES

- Slab reinforcement is appropriate for top, intermediate, and bottom slabs.
- Slab depth is measured from finished grade to top of slab.
- Wall design depth is measured to the top of the bottom slab for bases and to the top of the intermediate slab for shafts.
- Wall height is the distance between top of lower slab to bottom of upper slab.

SLAB DESIGN ROUND STRUCTURES	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-110
		DATE DRAWN 1-31-79
		REVISED DATE 5-12-94

- For square or rectangular precast drainage structures, either deformed or smooth welded wire fabric may be used provided:
 - The smooth welded wire fabric shall comply with ASTM A-185, and deformed welded wire fabric shall comply with ASTM A-497.
 - Width and length of the unit is four times the spacing of the cross wires.
 - Wire fabric shall be continuous around the box, applied at quarter points, with overlap of not less than the spacing of the cross wires plus two inches.
- Horizontal steel in the walls of rectangular structures shall be lapped a minimum of 24 bar diameter at corners.
- Welding of splice and laps is permitted. The requirements and restrictions placed on welding in ASTM A-239 shall apply.
- Rebar straight and embedment or peripheral reinforcement may be used in lieu of ACI standard hooks for top and bottom slabs except when hooks are specifically called for in plans or standard drawings.
- Concrete which meets the requirements of ASTM C-478 shall be used for structures constructed to these details.
- Reinforcement can be either deformed bar reinforcement or welded wire fabric. Bar reinforcement other than 40 KSI may be used, however only two grades are recognized: Grade 60 and Grade 65. Welded wire fabric, including deformed welded wire fabric, will be recognized on having a design strength of 60 KSI. The area of reinforcement required may be reduced in accordance with the Equivalent Steel Area Table provided. For bars and spacing not given, the steel area required can be determined by the following equation:

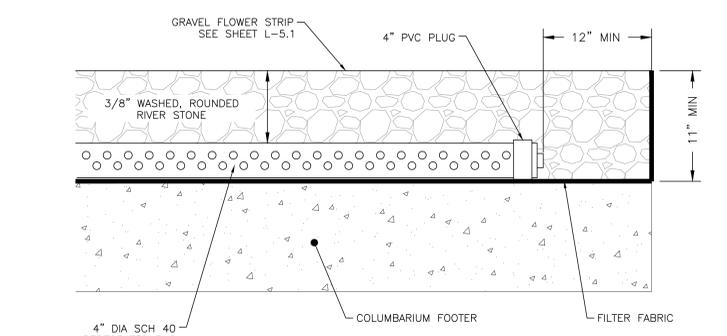
$$\text{Grade 60 Steel Area} = \text{Area} \times 40/60 \times \text{As} \times 60$$

$$\text{Welded Wire Fabric Steel Area} = \text{Area} \times 60/65 \times \text{As} \times 60$$
 In no case will fabric with wires smaller than #3 or spacing greater than 18" be permitted. Bar reinforcement shall show the minimum yield designation grade number #3 or one (#) grade mark line to be acceptable at the higher value. Maximum bar spacing shall not be greater than two (2) times the slab thickness with a maximum spacing of 18".

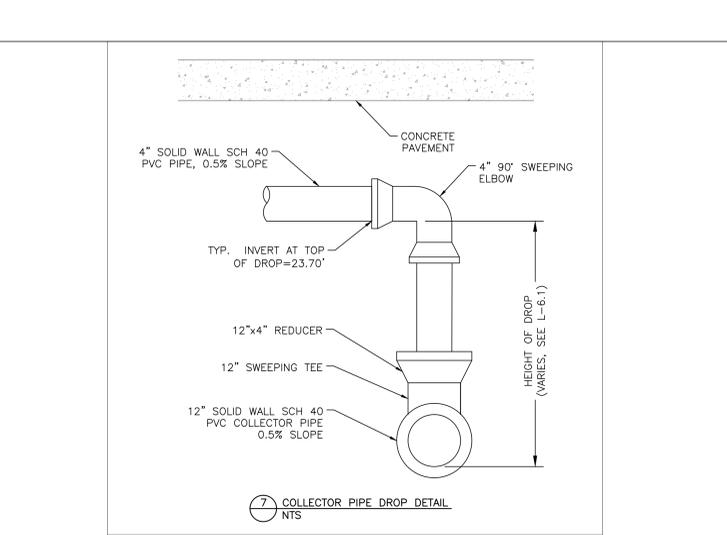
EQUIVALENT STEEL AREA TABLE

GRADE 40 REINFORCING BAR	EQUIVALENT GRADE 60 REINFORCING BAR	EQUIVALENT 65 KSI WELDED WIRE FABRIC
Bar Size & Steel Area	Bar Size & Steel Area	Style Designation
#4 @ 12" C/C	#3 @ 9 1/2" C/C	3"x3"-W3.1W3.1 or 4"x4"-W4.5W4.5 or 6"x6"-W6.5W6.5
#4 @ 9" C/C	#3 @ 13 1/2" C/C	3"x3"-W3.1W3.1 or 4"x4"-W4.5W4.5 or 6"x6"-W6.5W6.5
#6 @ 6" C/C	#3 @ 9 1/2" C/C	4"x4"-W4.5W4.5 or 6"x6"-W6.5W6.5
#7 @ 6" C/C	#3 @ 9 1/2" C/C	6"x6"-W6.5W6.5

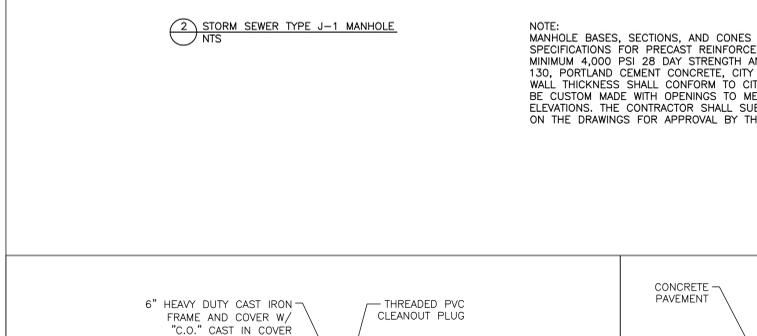
NOTES FOR MANHOLES & INLETS	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-107
		DATE DRAWN 07/12/79
		REVISED DATE 5-12-94



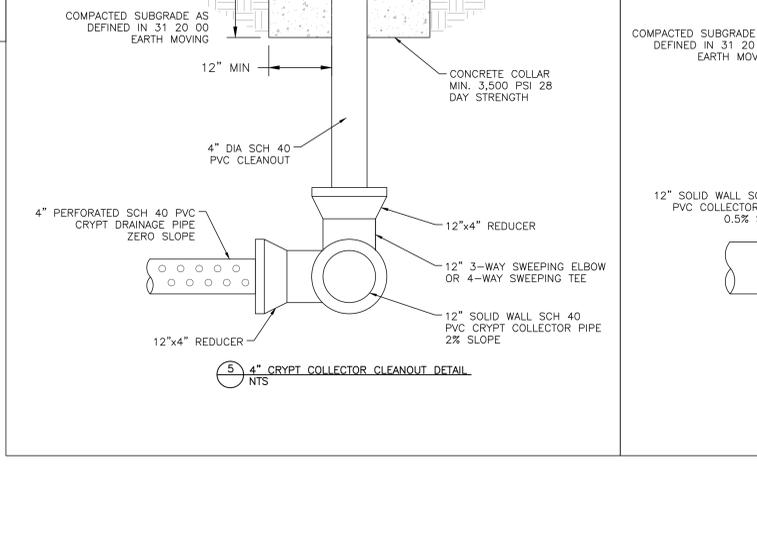
STORM SEWER TYPE J-1 MANHOLE	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-107
		DATE DRAWN 4-26-89
		REVISED DATE 5-12-94



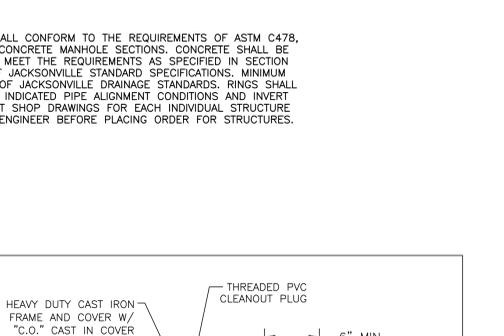
4" CRYPT DRAINAGE CLEANOUT DETAIL	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-107
		DATE DRAWN 4-26-89
		REVISED DATE 5-12-94



GRAVEL TRENCH UNDERDRAIN DETAIL	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-107
		DATE DRAWN 4-26-89
		REVISED DATE 5-12-94



4" CRYPT COLLECTOR CLEANOUT DETAIL	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-107
		DATE DRAWN 4-26-89
		REVISED DATE 5-12-94



COLUMBARIUM CLEANOUT DETAIL	CITY OF JACKSONVILLE STANDARD	N.T.S. PLATE D-107
		DATE DRAWN 4-26-89
		REVISED DATE 5-12-94

Revisions	Date

CONSULTANTS:

KCI TECHNOLOGIES

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Aqua Engineering Inc.

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Drawing Title

SITE UTILITY DETAILS

Approved Project Director

Project Title

Construct 1,361 Pre-Placed Crypts, 1,152 Niche Columbarium & 932 In-Ground Cremains

Project Number

928CM3001

Building Number

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Location

JACKSONVILLE NATIONAL CEMETERY
 4083 Lannie Road Jacksonville, FL 32218

Date

MARCH 10, 2016

Checked

BCM

Drawn

JMS

Drawing Number

L-6.2

Dwg. 34 of 41

BID SET

NATIONAL CEMETERY ADMINISTRATION OFFICE OF DESIGN AND CONSTRUCTION

Department of Veterans Affairs