FILE FOLDER

DESCRIPTION ON TAB:

Manholes

☒ **Outside/inside of actual folder did not contain hand written information**

☐ **Outside/inside of actual folder did contain hand written information**
***Scanned as next image**

Confidential Records Management, Inc.
New Bern, NC
1-888-622-4425
9/08

CONTRACTOR'S SUBMITTAL TRANSMITTAL
LANTDIV NORFOLK 4-4355/3 (Rev. 11-80)

CONTRACT NO	TRANSMITTAL NO	DATE
N62470-85-B-6386	1	10/31/85

FROM CONTRACTOR
Bryant Electric Repair Co., Inc.

TO
Dibble & Associates

PROJECT TITLE AND LOCATION
NALCOMIS Repairables Management Modules
Marine Corps Air Station
New River Jacksonville, North Carolina

CONTRACTOR USE ONLY

List only one specification division per form.

List only one of the following categories on each transmittal form, and indicate which is being submitted

☐ Contractor Approved ☒ OICC Approval ☐ Deviation/Substitution For OICC Approval

REVIEWER USE ONLY

**ACTION CODES
A-Approved
D-Disapproved
AN-Approved as noted
RA-Receipt acknowledged.
C-Comments
R-Resubmit

ITEM NO.	PROJ. SPEC. SECT. & PARA. and/or PROJ. DWG. NO. *	ITEM IDENTIFICATION (Type, size, model no., Mfg. name, dwg. or brochure number)	NO. OF COPIES	ACTION CODES **	REVIEWER'S INITIALS CODE AND DATE
1	16301 2.1.9	Precast Manhole - Stay Right Tank	6	A	HRH 11/11/85
2	16301 2.1.10	Manhole Ring & Cover - Dewey Brothers	6	A	HRH 11/11/85
3	16301 1.3.1	Sealing Material for Precast Manhole	6	A	HRH 11/11/85

CONTRACTOR'S COMMENTS

Sheets 1 & 2 - General Arrangement
Sheets 1-9 of 9 - Engineers Calculations

COPY OF TRANSMITTAL AND SUBMITTALS TO ROICC
1 copy of each

CONTRACTOR REPRESENTATIVE (Signature)
H E Hunter

DATE RECEIVED BY REVIEWER
11/4/85

FROM (Reviewer)
Henry R. Hatchell

TO
OICC

☑ Submittals are returned with action indicated. Approval of an item does not include approval of any deviation from the contract requirements unless the contractor calls attention to and supports the deviation.

☐ Submittals are forwarded to LANTDIV with A-E recommendations indicated in REVIEWER USE ONLY Section and in comments below on **ONE COPY** of the transmittal form.

REVIEWER'S COMMENTS

RECEIVED
NOV 04 1985
Dibble & Assoc., P.A.
ENGINEERS
Washington, N.C.

COPIES TO
ROICC (2)
LANTDIV (1)
A-E (1)

DATE
11/11/85

SIGNATURE
Henry R. Hatchell

☆ U.S. GPO:1984-537-003/11170 Region 3-11

0ICC

Stay-Right Tank COMPANY, INC.

P.O. BOX 33097 / RALEIGH, NORTH CAROLINA 27606 / PHONE (919) 876-8600

10/29/85

Bryant Electric Repair Co., Inc.
P.O. Box 1658
Gastonia, N.C. 28503

RE: Manholes for NRMM

Dear Mr. Hunter,

We forward our data in regards to the above referenced job for your approval. The following items are for your consideration:

1. We supply (22) twenty-two 6' x 12' x 6' deep (ID) precast concrete telephone manholes as per our attached shop drawings and calculations.

We feel that these units meet with the spirit of your requirements. Thanks for this opportunity to assist you.

Sincerely,

Stay-Right Tank Co., Inc.

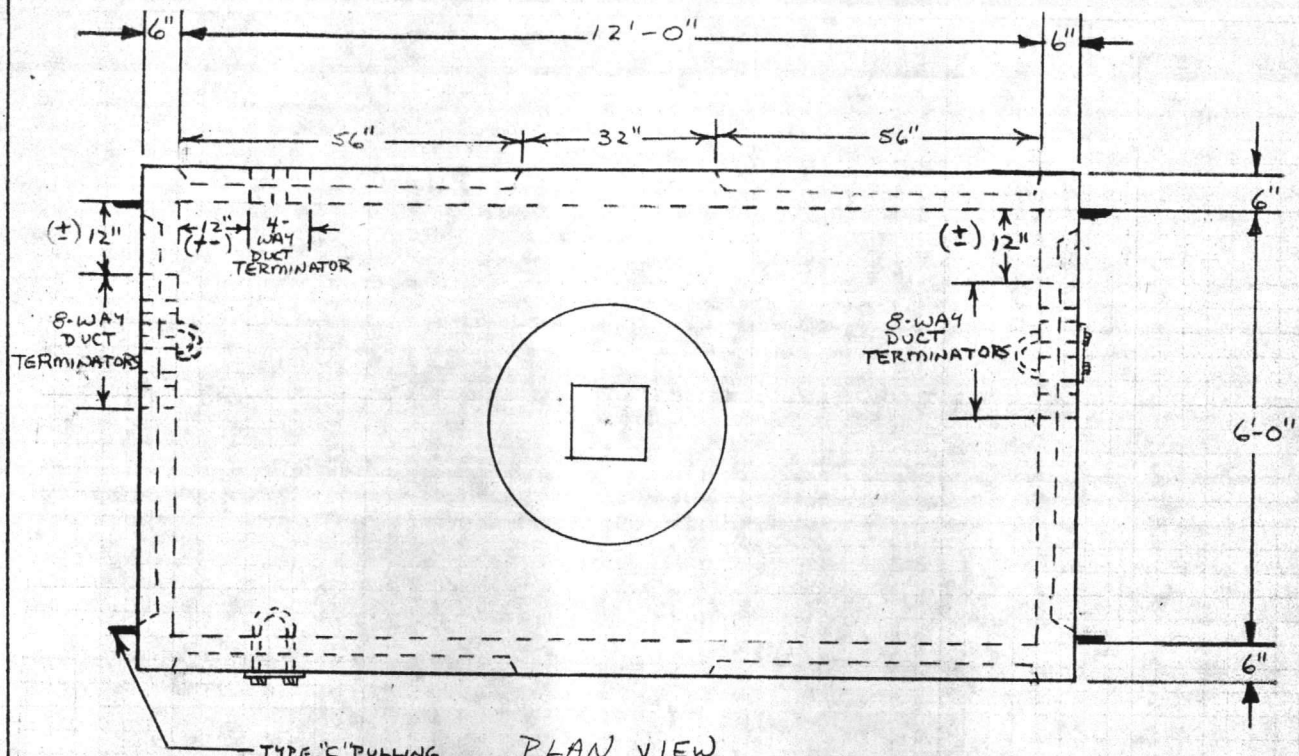
Mike Franklin

Mike Franklin
Vice President

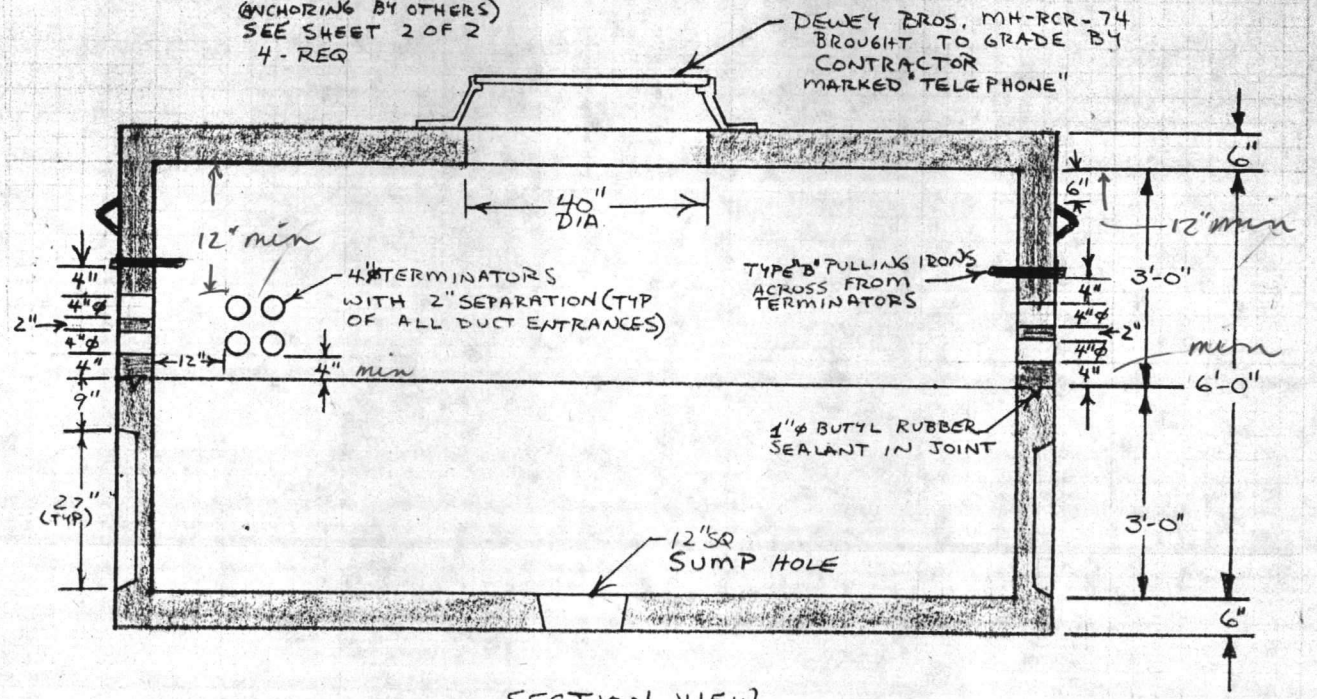
BY JLL DATE 10/29/85 SUBJECT 6'x12'x6' MANHOLE SHEET NO. 1 OF 2

CHKD. BY DATE for NALCOMIS REPAIRABLE MANAGEMT. MODULE JOB NO.

for BRYANT ELECTRIC REPAIR CO., INC. 22 REQ



PLAN VIEW



SECTION VIEW

NOTE:
KNOCKOUT PANELS REMOVED WHERE DUCT ENTRANCES ARE LOCATED.

CONCRETE:
4000 PSI @ 28 days

REINFORCING:
H-20 BRIDGE LOADING

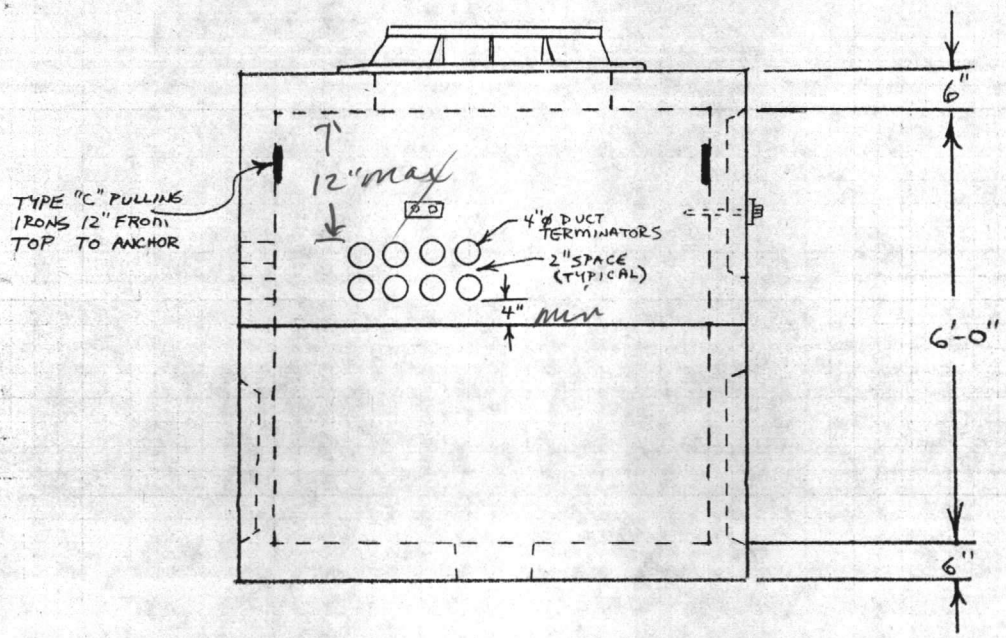
Stay-Right Tank

Pre-Cast Concrete Products

P.O. BOX 33097 / RALEIGH, N.C. 27606

Office - 876-8600

BY ..... DATE .....
CHKD. BY ..... DATE .....
SUBJECT for NALCOMIS REPAIRABLE MANAGEMT. MODULE for BRYANT ELECTRIC REPAIR CO., INC
SHEET NO. ... OF ...
JOB NO. .....



END VIEW

☑ APPROVED

☐ APPROVED AS NOTED

☐ REVISE AND RESUBMIT

APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH TERMS OR DESIGNS OF THE CONTRACT DOCUMENTS, NOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS, UNLESS SUCH LACK OF COMPLIANCE OR ERRORS FIRST HAVE BEEN CALLED IN WRITING TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR

Henry P. Haskell
ENGINEER

12/12/85
DATE

DIBBLE AND ASSOC, WASHINGTON, N. C.

Stay-Right Tank

Pre-Cast Concrete Products

P.O. BOX 33097 / RALEIGH, N.C. 27606

Office - 876-8600

GEORGE K. COFFIN AND ASSOCIATES

CONSULTING ENGINEERS

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 1 OF 9

CONCRETE VAULT DESIGN

FOR
STAY-RIGHT TANK COMPANY, INC.
RALEIGH, NORTH CAROLINA

LOADS

1. LIVE LOAD: HS20-44(MS18), 16,000#
2. LIVE LOAD IMPACT FACTOR: 1.3
3. SOIL COVER: 1'-0" MINIMUM, 2'-0" MAXIMUM
4. SOIL DENSITY: 120 PCF DRY, 70 PCF SUBMERGED
5. COEFFICIENT OF ACTIVE SOIL PRESSURE: 0.5
6. WATER TABLE: AT TOP OF VAULT
7. SURCHARGE ON SIDE WALLS: 2'-0" OF SOIL

MATERIALS

1. CONCRETE: 4,000 PSI MINIMUM 28-DAY COMPRESSIVE STRENGTH, 0.48 MAXIMUM WATER/CEMENT RATIO BY WEIGHT
2. REINFORCING: ASTM A616, GRADE 60

DESIGN STANDARDS

1. ACI BUILDING CODE FOR REINFORCED CONCRETE
2. AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES, 1977

ULTIMATE LOAD FACTORS

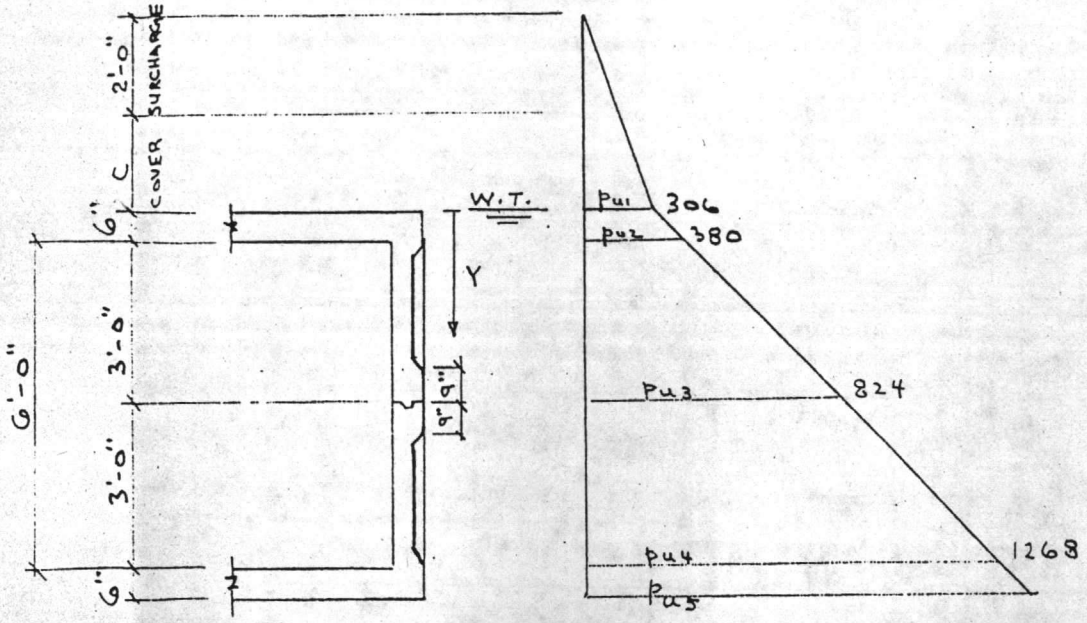
1. LIVE LOAD: 1.7
2. ACTIVE SOIL PRESSSURE: 1.7
3. DEAD LOAD: 1.4
4. FLUID PRESSURE: 1.4

REFERENCES

1. PCA, "RECTANGULAR CONCRETE TANKS", 1969

3510 UNIVERSITY DR. DURHAM, NORTH CAROLINA 27707 919-493-8426

SIDE WALL PRESSURES (ULTIMATE)



C = SOIL COVER = 1'-0"

$p_{u1} = 1.7\,(2' + C)(.50 \times 120) = 102\,(C+2)$

$p_u = p_{u1} + 1.7(Y)(.50 \times 70) + 1.4(Y)63$

$p_u = 148\,Y + 102C + 204$ PSF ULTIMATE

$p_u = 148Y + 306$

EDGE BEAM @ JOINT

@ SHORT WALLS SPAN = 6.5'

@ LONG WALLS SPAN = 12.5'/2 = 6.25' (SUPPORTED BY VERT. POST @ CENTER SPAN)

$W_u = 3.0' \times p_{u3} = 2472\ \#/FT$

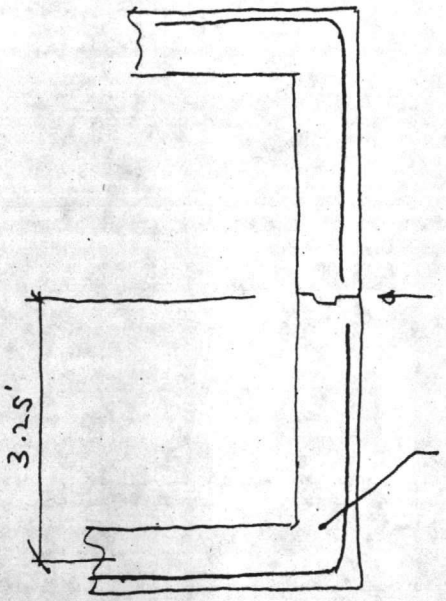
$M_u \leq 2472\,(6.5)^2/8 = 13.06$

$B = 18"$, $d = 4.5"$ SAY $\rightarrow A_s = 0.80 \rightarrow$ 3#5 OR 4#4

$V_u = 2472 \times 6.5/2 = 8034 \rightarrow v_u = \frac{8034}{.85 \times 18 \times 4.5} = 116 < 2\sqrt{f_c'}$ OK

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY DATE 10/28/85 SHEET NO. 3 OF 9

CENTER POST ON LONG SIDES



$B = 32''$, $d = 4.5''$

$P_u = 3.0' \times p_{u3} \times 12'/2 = 14832^{\#}$

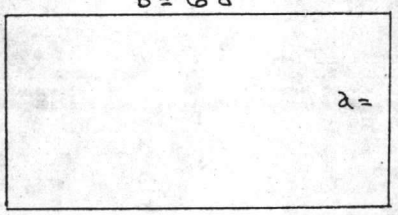
ASSUME ALL LOAD INTO BOTTOM POST

$V_u = 14832^{\#} \rightarrow v_c = \frac{14832}{.85 \times 32 \times 4.5} = 121 < 2\sqrt{f'_c}$ OK

$M_u = 14832 \times 3.25' = 48.2^{K\text{-FT}}$

$A_s = 2.89 \rightarrow 7\#6$ OR $10\#5$

K.O. PANELS



$b/a = 2.52$

Moment Coeff. From Ref. 1 Table IV

$M_{u\,max} = .112\ w_u a^2$

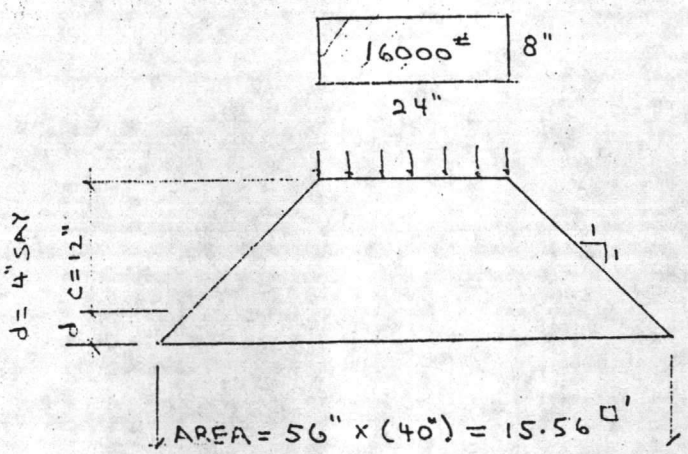
BOTTOM K.O. PANELS: $M_u = \frac{1}{2}(824 + 1268)(.112)(27/12)^2 =$
$= 593\ \#\text{-FT/FT}$
$d = 1.5''$ $B = 12''$
$A_s = 0.09 \rightarrow$ WWF 4x4-W2.9xW2.9

TOP K.O. PANELS: $M_u = \frac{1}{2}(380 + 824)(.112)(27/12)^2 = 341$
$d = 1.5''$ $B = 12''$
$A_s = 0.05 \rightarrow$ WWF 6x6-W2.9xW2.9

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 4 OF 9

TOP SLAB W/ 1'-0" OF COVER

ASSUME WHEEL LOAD DISTRIBUTION THUS:



ULT. LIVE LOAD PRESSURE = 1.7 X (1.3 IMPACT) X 16000 / 15.56 □' = 2272 PSF

ULT. DEAD LOAD PRESSURE = 1.4 X 120 X 1' = 168 PSF

2440 PSF

USING PCA TWO-WAY SLAB COEFFICIENTS (HINGED EDGES)

A = 6.5' B = 12.5' B/A = 1.92 → COEFF. = 0.100 SHORT DIR, 0.038 LONG DIR

SHORT DIR. $M_u = 0.100(2.44)6.5^2 = 10.31$ K-FT/FT d = 4.25" → As = 0.61 → #5@6"

LONG DIR. $M_u = 0.038(2.44)6.5^2 = 3.92$ d = 3.75" → As = 0.24 → #4@10"

TOP SLAB W/ MAXIMUM SOIL COVER

ASSUME WHEEL LOAD DISTRIBUTION SAME AS ABOVE W/ C = 2' → AREA =

ULT. LIVE LOAD PRESSURE = 1.7 X (1.3 IMPACT) X 16000 / 28 □' = 1263 PSF

ULT. DEAD LOAD PRESSURE = 1.4 X 120 X = 168 PSF

1431 PSF

NOTE DESIGN PRESSURE W/ MAXIMUM COVER LESS THAN W/ MINIMUM 1'-0" COVER

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 5 OF 9

BOTTOM SLAB

ULT LIVE LOAD : $2 \times 1.7 \times 16000 / 13' \times 7' =$ 598 psf (2 - WHEELS)

$1.4 \times 120 \times 2' =$ 336 (2' SOIL COVER)

$1.4 \times 150 [(13' \times 7' \times 7') - (12' \times 6' \times 6')] / 7' \times 13' =$ 473 (VAULT)

1407 psf

USE PCI TWO-WAY SLAB COEFFICIENTS (HINGED EDGES)

A = 6.5', B = 12.5, B/A = 1.92 SAY 2.00

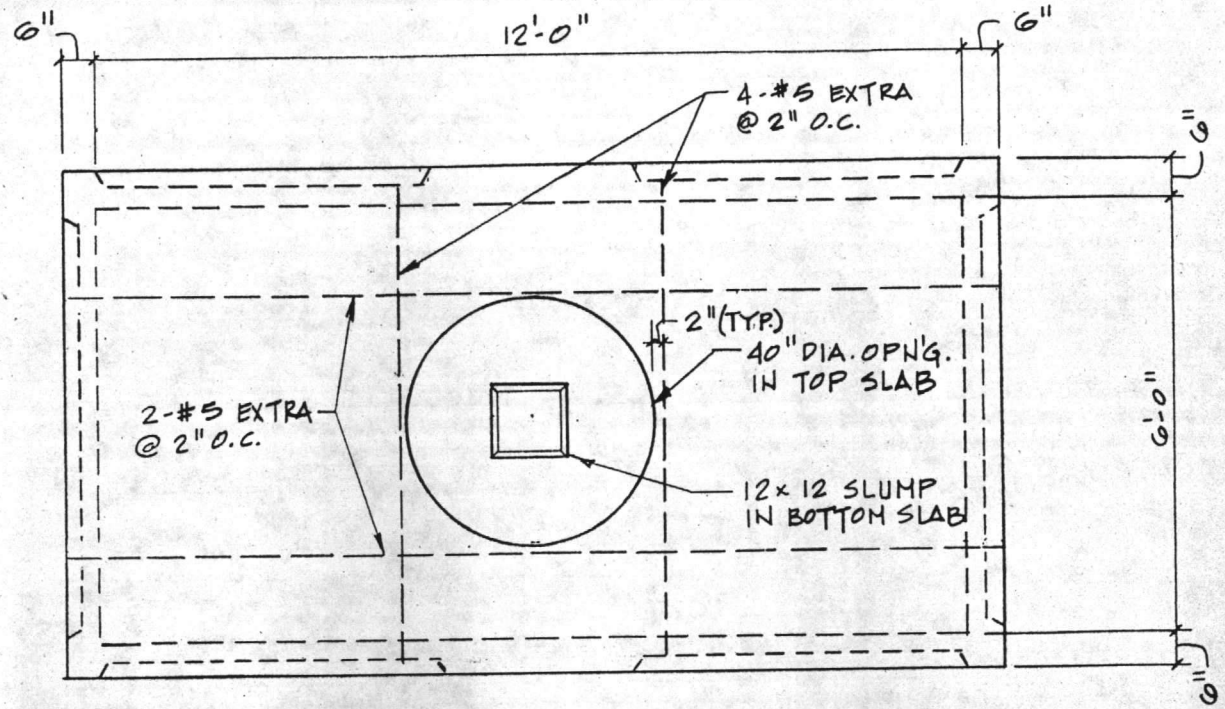
COEFF. = 0.100 SHORT DIR., 0.038 LONG DIR.

SHORT DIR $Mu = 0.100(1407)(6.5)^2 =$ 5.94 K-FT/FT, d = 4.25", As = 0.33 → #5@10"

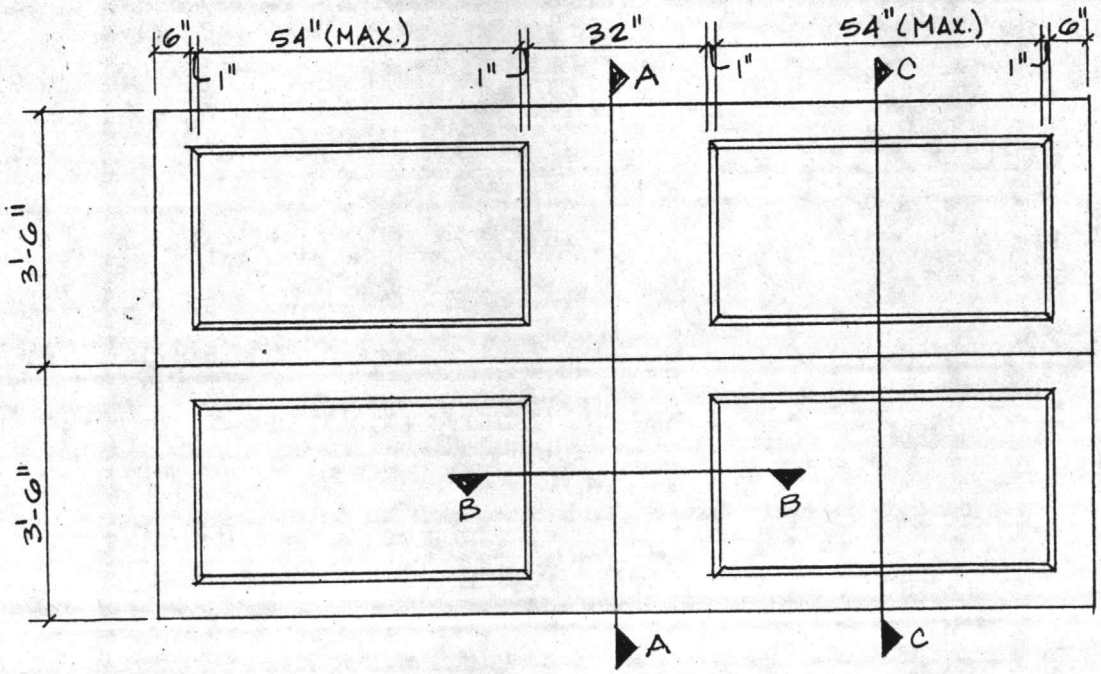
LONG DIR $Mu = 0.038(1407)(6.5)^2 =$ 2.36 K-FT/FT, d = 3.75", As = 0.14 → #4@16"

As MIN = $0.003 \times 6 \times 12 = 0.22$ → #4@10"

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 6 OF 9



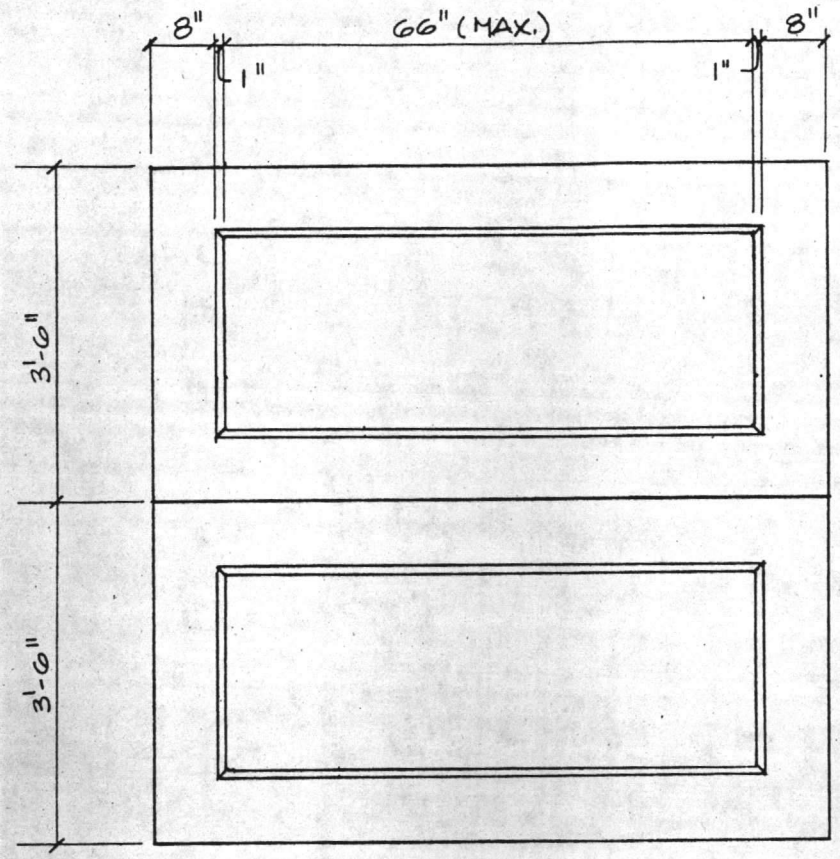
TOP PLAN NO SCALE



ELEVATION - LONG SIDE NO SCALE

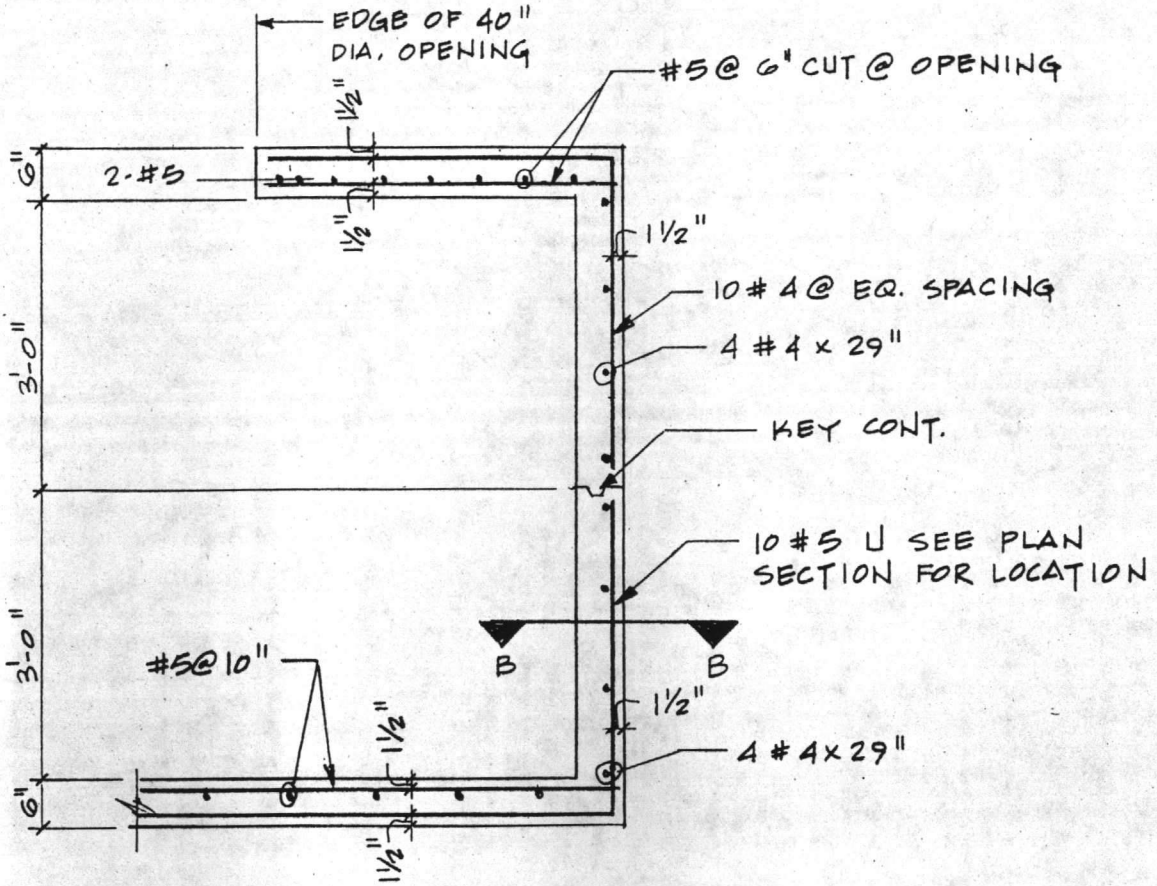
NOTE: KNOCK-OUT PANELS ARE OPTIONAL & MAY BE REMOVED.

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 7 OF 9

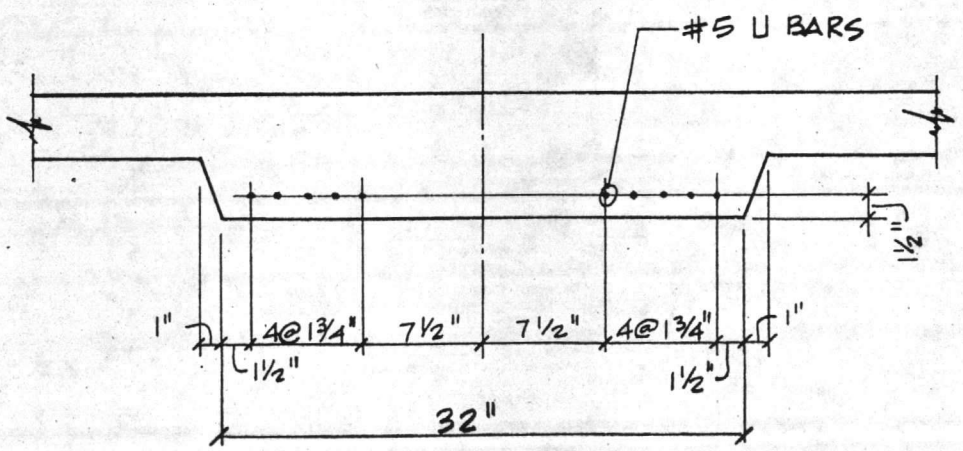


ELEVATION - SHORT SIDE NO SCALE

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 8 OF 9

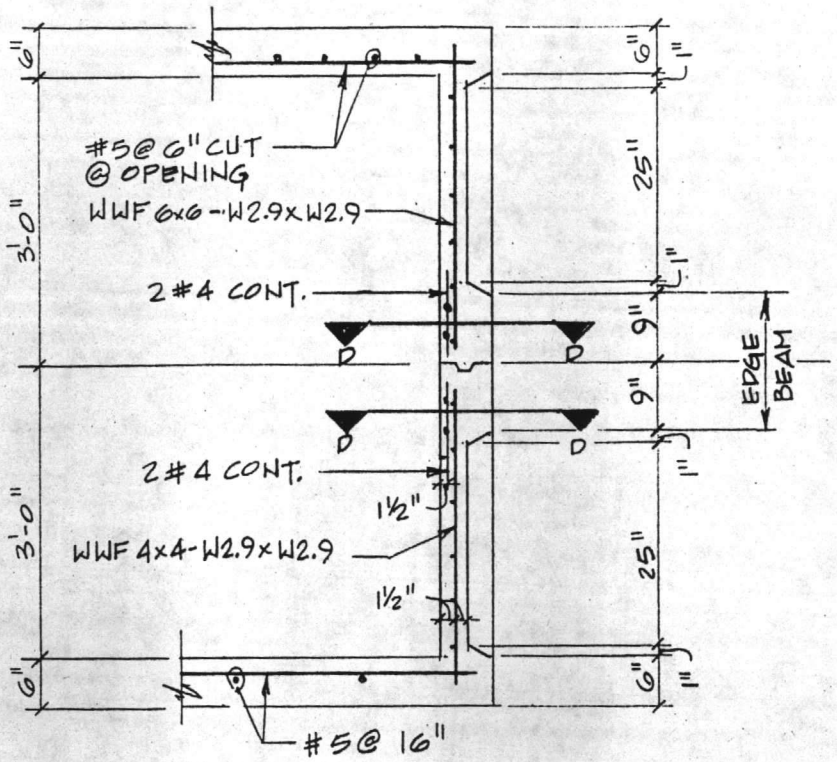


A-A SECTION THRU CENTER POST - LONG SIDE NO SCALE

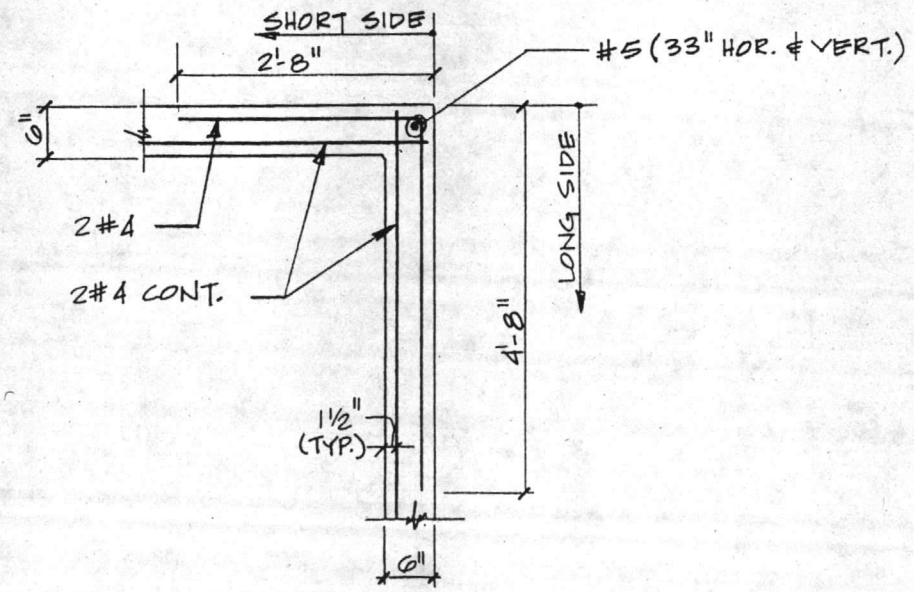


B-B PLAN - CENTER POST ON LONG SIDE BOTTOM PART OF VAULT NO SCALE

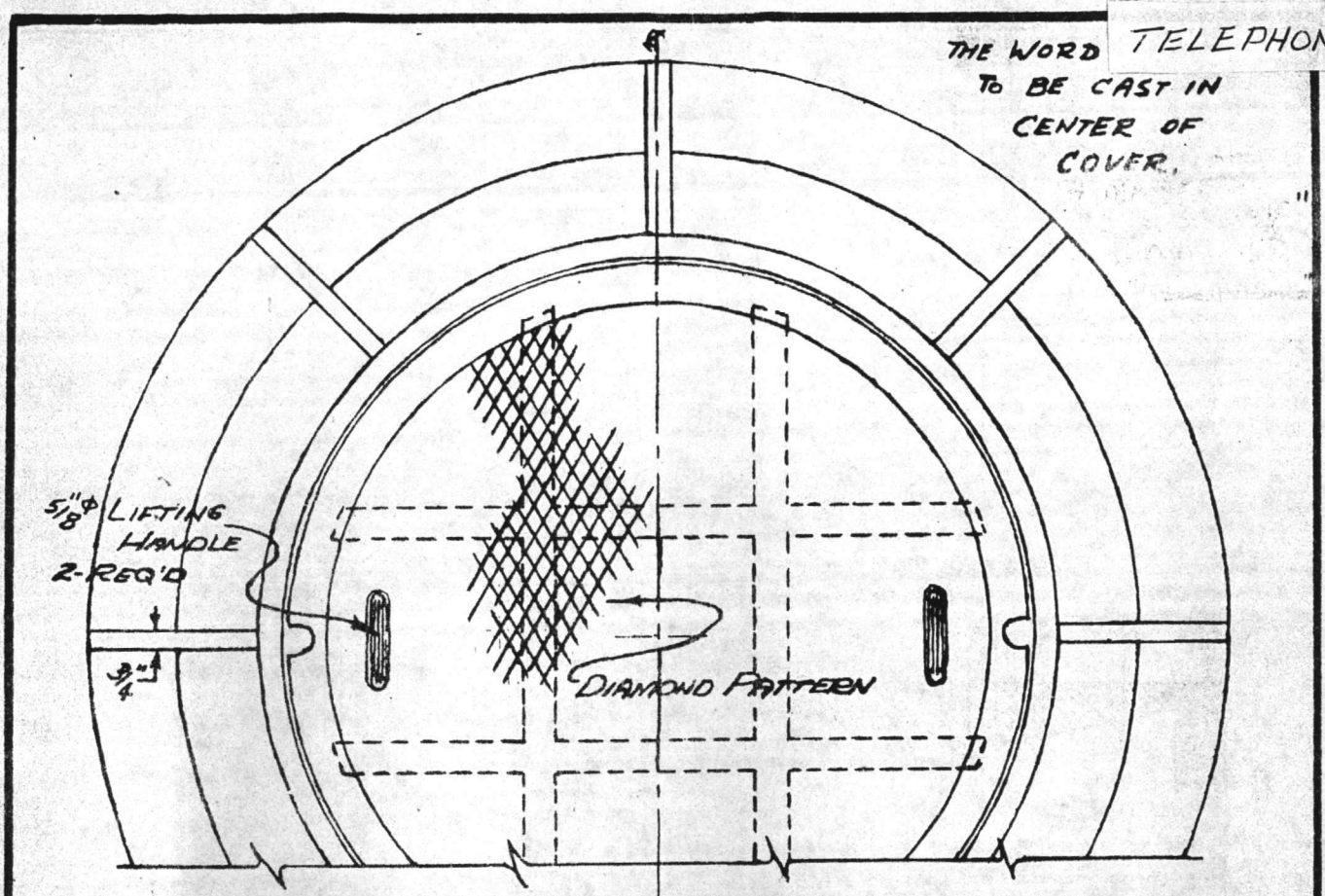
JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 9 OF 9

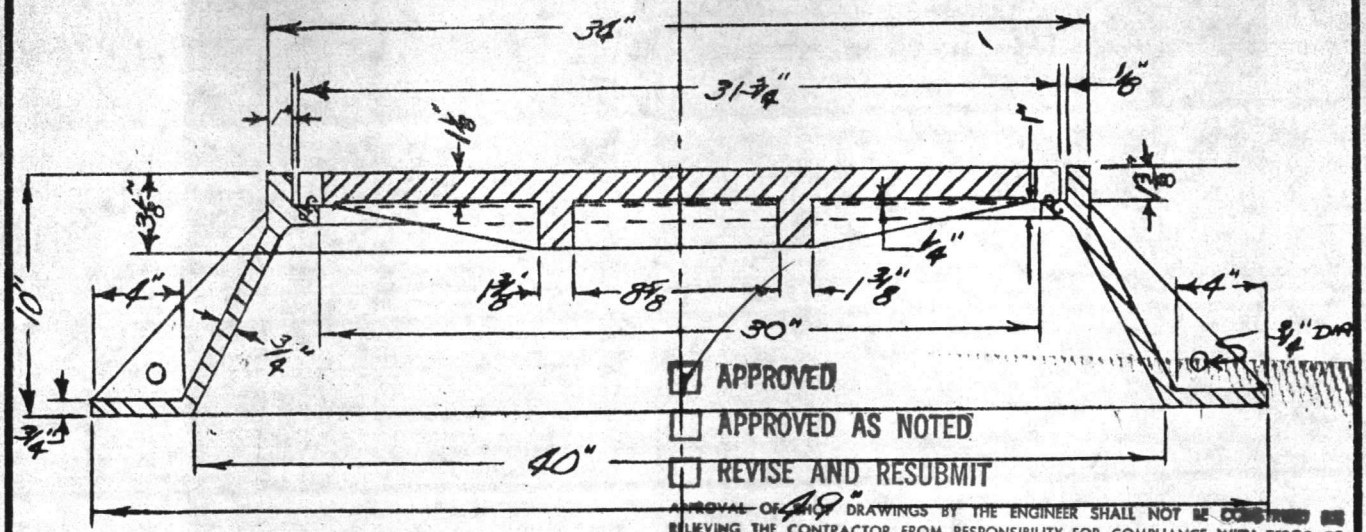


C-C TYPICAL WALL SECTION NO SCALE



D-D PLAN SECTION - HORIZONTAL EDGE BEAM @ CORNERS NO SCALE





MINIMUM AVERAGE WEIGHT

RING	448 #
COVER	292 #
TOTAL	740 #

☑ APPROVED
☐ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH THE LINES OR DESIGNS OF THE CONTRACT DOCUMENTS, NOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS, UNLESS SUCH LACK OF COMPLIANCE OR ERRORS FIRST HAVE BEEN CALLED IN WRITING TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR

Harry P. Hatchell — 11/11/26
ENGINEER — DATE

DIBBLE AND ASSOC, WASHINGTON, N. C.

SCALE 1½"=1'-0"	DRAWN BY G.A. Hamlet	DEWEY BROS., INC. MUNICIPAL & CONSTRUCTION CASTINGS GOLDSBORO, N. C.	TOTAL WEIGHT 740#
A.S.T.M. CLASS A-48 48 E30	APPROVED		DATA SHEET NO.
MATERIAL Grey Cast Iron	DATE 3-18-60	TITLE MANHOLE RING & COVER	CODE NO. MH-RCR-74

☐ APPROVED

☐ APPROVED AS NOTED

☐ REVISE AND RESUBMIT

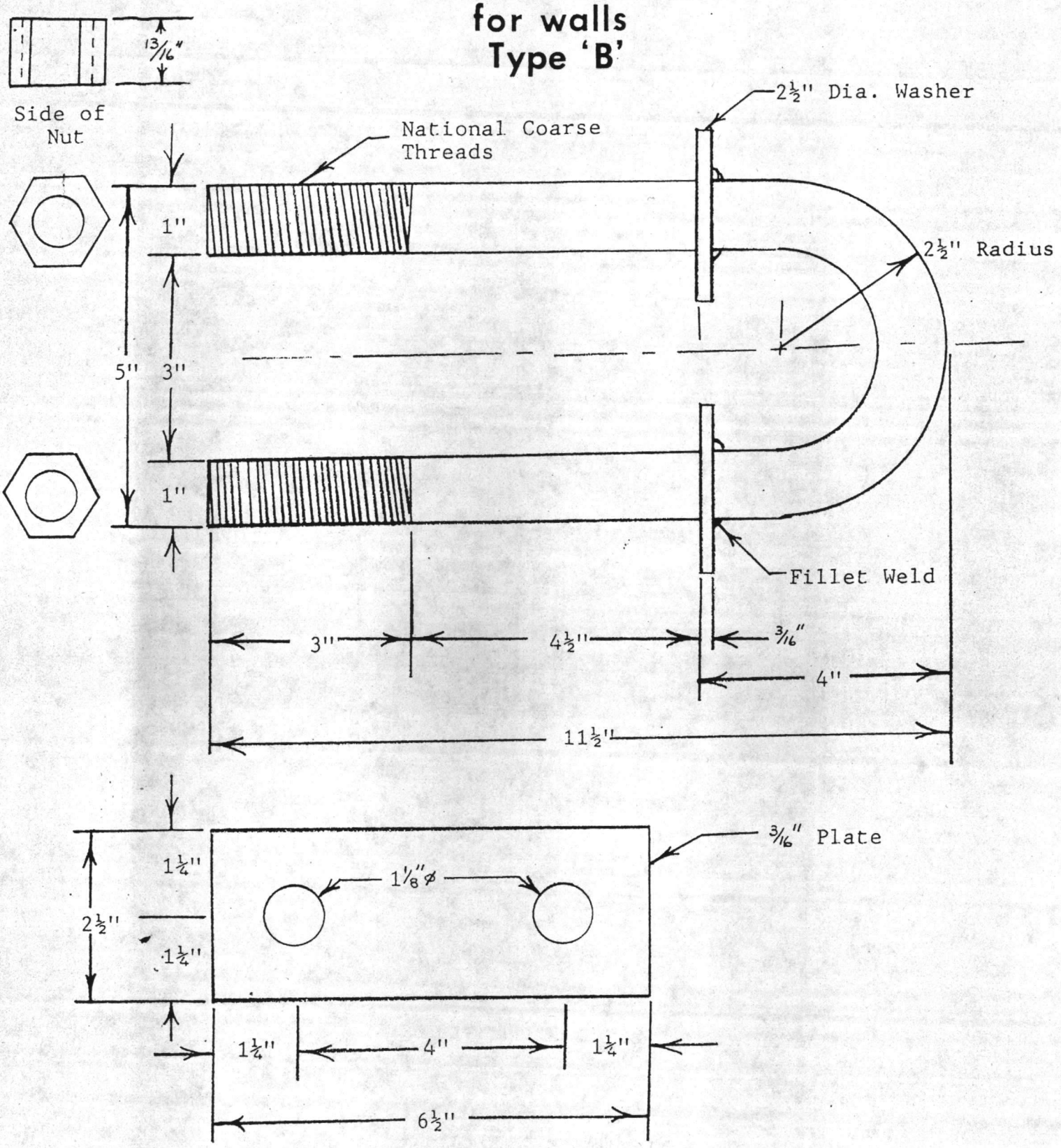
APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH CONTRACT REQUIREMENTS OF THE CONTRACT DOCUMENTS. THIS APPROVAL SHALL NOT BE CONSTRUED AS A CHANGE ORDER OR ANY SORT IN THE SHOP DRAWINGS. UNLESS SUCH LABOR OR COMPLIANCE OR REVISION HAS BEEN CALLED TO WRITING TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR.

ENGINEER

DATE

DIBBLE AND ASSOC. WASHINGTON, N. C.

PULLING IRONS
for walls
Type 'B'



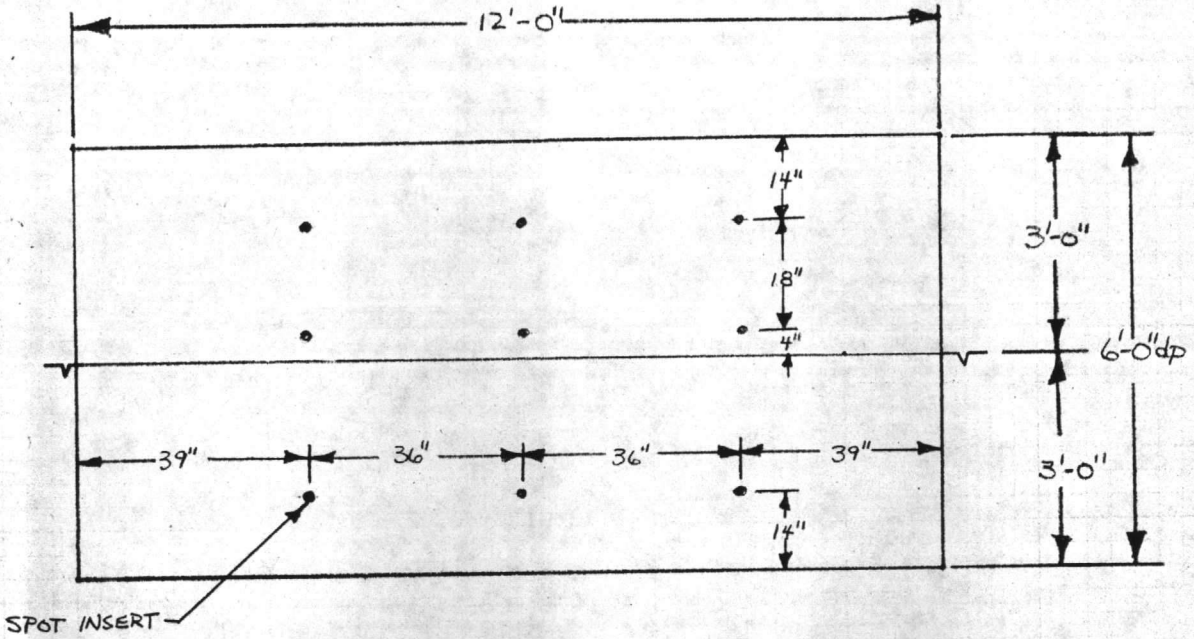
NOTE: ALL GALVANIZED MATERIAL

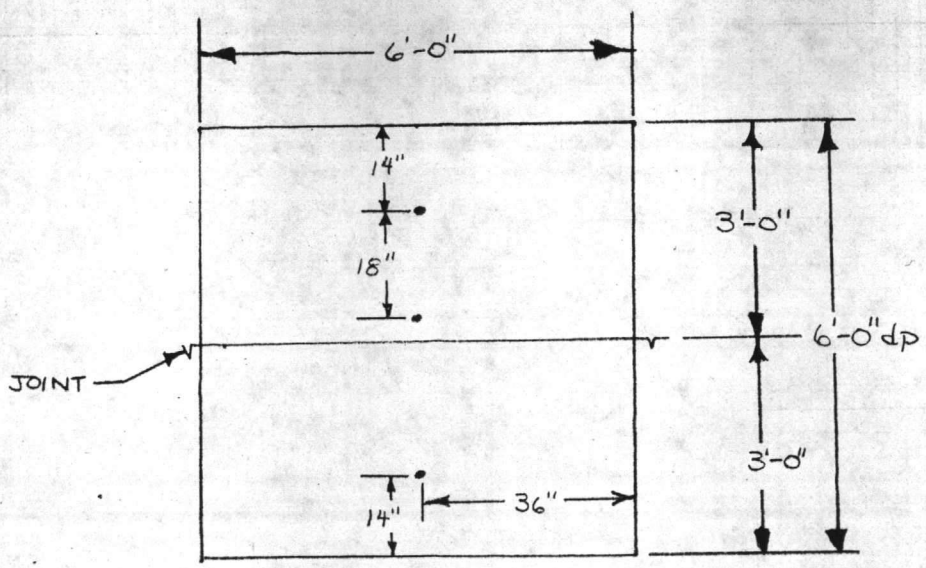
BY.....DATE.....

CHKD. BY.....DATE.....

SUBJECT INSIDE WALL VIEW OF 6' x 12' x 6' dp SIGNAL MANHOLE

JOB NO.....





Stay-Right Tank COMPANY INC

Pre-Cast Concrete Products

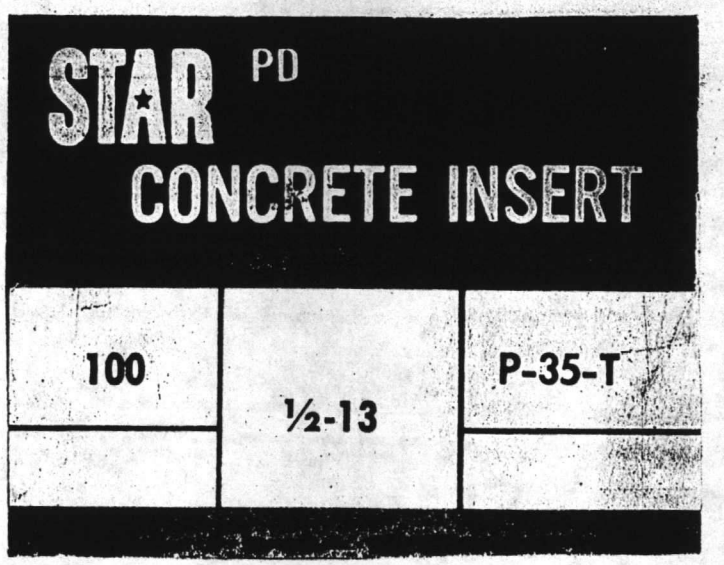
P.O. BOX 33097 / RALEIGH, N.C. 27606

Office - 876-8600

Stay-Right Tank COMPANY, INC.

P.O. BOX 33097 / RALEIGH, NORTH CAROLINA 27606 / PHONE (919) 876-8600

SPOT INSERT FOR MOUNTING
OF CABLE RACK



☑ APPROVED
☐ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH TERMS OR DESIGNS OF THE CONTRACT DOCUMENTS, NOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS, UNLESS SUCH LACK OF COMPLIANCE OR ERRORS FIRST HAVE BEEN CALLED IN WRITING TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR

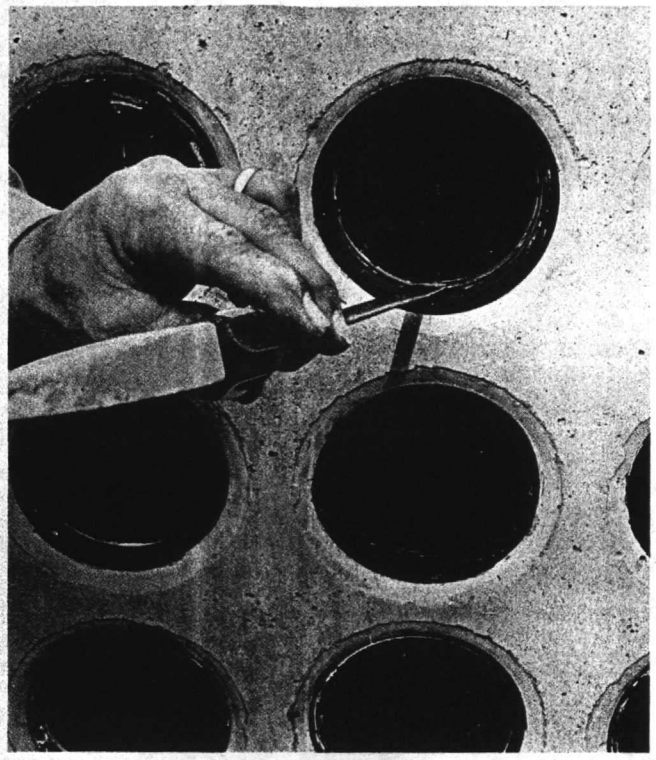
Henry R Hatchell — 11/11/85
ENGINEER — DATE

DIBBLE AND ASSOC, WASHINGTON, N. C.

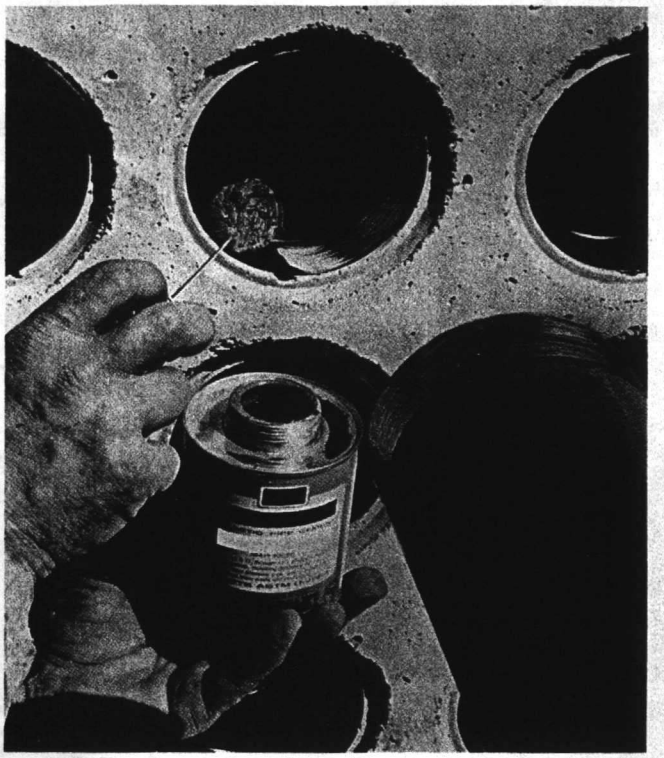
☐ APPROVED

☐ APPROVED AS NOTED

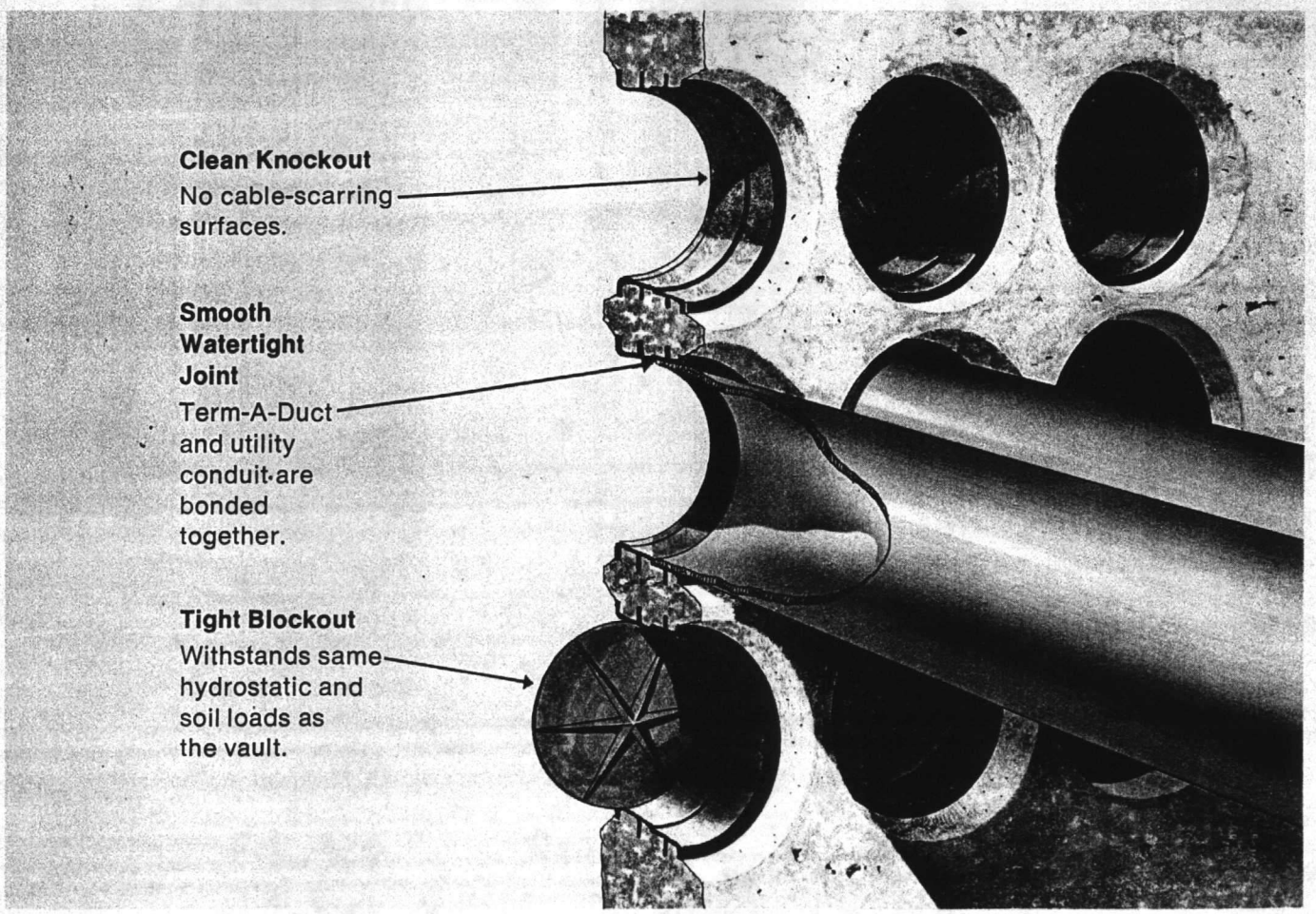
☐ REVISE AND RESUBMIT



To remove diaphragm in Term-A-Duct place a screwdriver tip against outer rim and tap screwdriver with a hammer.



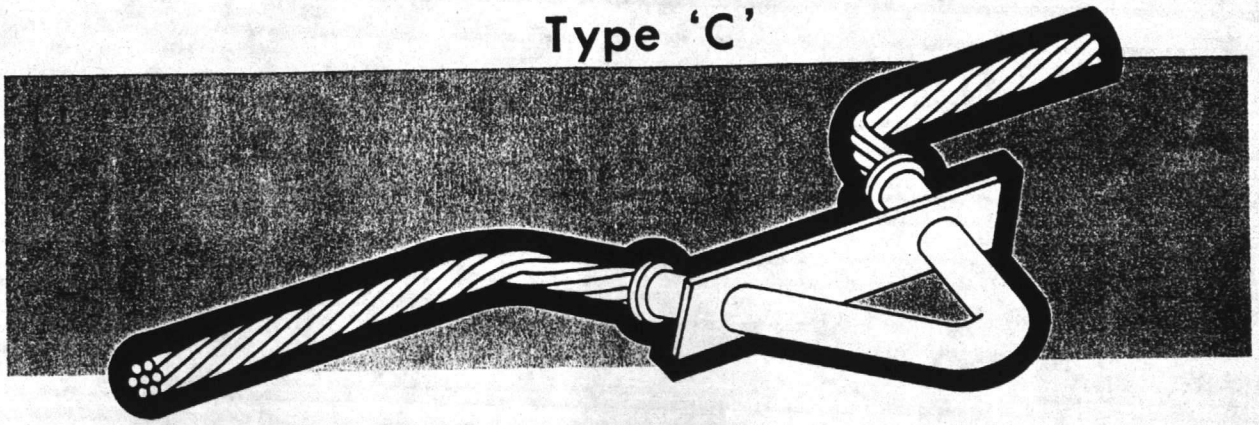
Just prior to inserting utility conduit, paint inside surfaces of Term-A-Duct and outside of conduit with recommended solvent.



FOR ANCHORING ONLY

PULLING IRONS

Type 'C'



We've developed a totally unique, time proven, concept in pulling irons. Featuring the advantages of noncorrosion, structural integrity, flexibility and economy. All of which are geared to improve the efficiency of your operations.

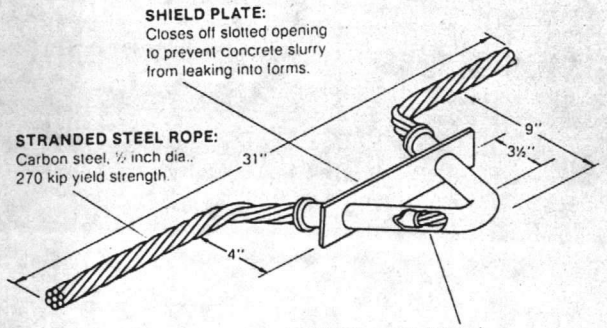
NONCORROSIVE: Unlike old style galvanized steel, Pennsylvania Pulling Irons will be there when you need them. Durable plastic protects strong steel cable from sea water, swamp water, gasoline and many other corrosive agents that destroy other pulling irons.

STRONGER: Stress-relieved carbon steel roping designed specially for concrete applications (seven strand, ½" diameter, with an ultimate strength of 270,000 psi) makes Pennsylvania Pulling Irons virtually indestructible. (Test results available on request.)

FLEXIBLE: Pennsylvania Pulling Irons flex to conform to odd angle pulls without loss of strength or corrosion resistance.

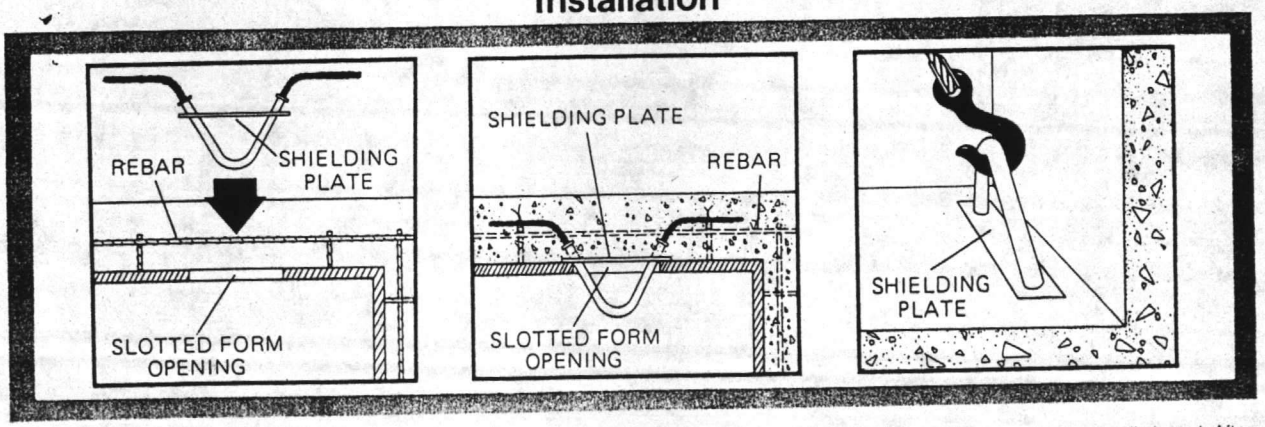
ECONOMICAL: Costly set up time is greatly reduced (see installation illustrations below), and you save in shipping costs too.

WIRE ENCAPSULATION: First a rust proof sleeve is slipped over the steel rope and then it is encapulated in indestructible Hytrel polyester elastomers.



Patent 3,916,590

Installation



SETTING UP: After form preparation and rebar positioning simply insert the new Pulling Irons into slotted openings on the form and tie to the rebar. **POURING:** The integrally molded shielding plate positions neatly into the slots on the form to prevent concrete slurry from leaking into the forms. **STRIPPING:** Since no bolting plates are required with the use of the new Pulling Irons, all bolting and unbolting procedures are eliminated. After curing cycles simply remove the piece from the forms. **IN POSITION:** The securely embedded Pulling Irons are now ready for use. The non-corrosive durable plastic material encapsulating the stranded wire is exposed assuring you of fail-safe cable pulling procedures.

JOINT SEALER

Technical Data
Flexible Butyl Resin Sealant
CONCRETE SEALANTS
CS-102 & CS-202

CHEMICAL COMPOSITION

	Spec	Required	CS-102	CS-202
Hydrocarbon plastic content % by weight	ASTM D4 (mod.)	50-70	50.8	51.2
Inert mineral filler % by weight	SS-S-210A	30-50	49.2	48.8
Volatile Matter % by weight	ASTM D6	3.0 max.	1.2	1.2

PHYSICAL PROPERTIES

Specific Gravity, 77°F	ASTM D71	1.20-1.35	1.35	1.34
Ductility, 77°F	ASTM D113	5.0 min.	10	12
Softening point, ring and ball °F	ASTM D36	320 min.	390+	335+
Penetration, cone 77°F, 150 gm. 5 sec.	ASTM D217	50-120 mm	105 mm	114 mm
Flash point, C.O.C., °F	ASTM D92	600 min.	630°	630°
Fire point, C.O.C., °F	ASTM D92	625 min.	630°	630°

30-Day Immersion: No visible deterioration when tested for 30 days in 5% caustic potash, 5% Hydrochloric Acid, 5% Sulphuric Acid, or 5% saturated Hydrogen Sulfide.

Laboratory-certified test data available upon request

QUANTITY OF MATERIAL REQUIRED

Size of Gasket Surface (dia.)	Structure Size	Inches of Sealant	Sealant *Size
54″	48″	170	1″
66″	60″	208	1¼″
80″	72″	252	1½″
92″	84″	290	2″
106″	96″	334	2″
118″	108″	372	2″

*NOTE: Other sizes may be used depending on application and joint design.

STOCK SIZES

*Size	Round Equiv.	Feet Per Carton 36″ Lengths	Feet Per Roll
½″ dia. bd.	½″	360	21'0″
.55 x ¾″	¾″	144	21'0″
.88″ x .88″	1″	90	14'6″
⅞″ x 1⅜″	1¼″	60	14'6″
1⅛″ x 1½″	1½″	36	10'0″
1⅛″ x 2⅛″	1¾″	24	—
1½″ x 2 1/16″	2″	18	—

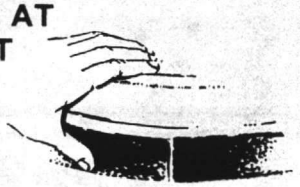
*Other Standard Sizes and Lengths Available.

INSTALLATION INSTRUCTIONS

1. CLEAN SURFACE

2. APPLY

3. BUTT AT JOINT



CONCRETE SEALANTS INC.

8917 S. Palmer Road
New Carlisle, Ohio 45344
Telephone: (513) 845-8776

Associate american concrete pipe association Member

Form CS102-1/81

Printed in USA

BICC

Stay-Right Tank COMPANY, INC.

P.O. BOX 33097 / RALEIGH, NORTH CAROLINA 27606 / PHONE (919) 876-8600

10/29/85

Bryant Electric Repair Co., Inc.
P.O. Box 1658
Gastonia, N.C. 28503

RE: Manholes for NRMM

Dear Mr. Hunter,

We forward our data in regards to the above referenced job for your approval. The following items are for your consideration:

1. We supply (22) twenty-two 6' x 12' x 6' deep (ID) precast concrete telephone manholes as per our attached shop drawings and calculations.

We feel that these units meet with the spirit of your requirements. Thanks for this opportunity to assist you.

Sincerely,

Stay-Right Tank Co., Inc.

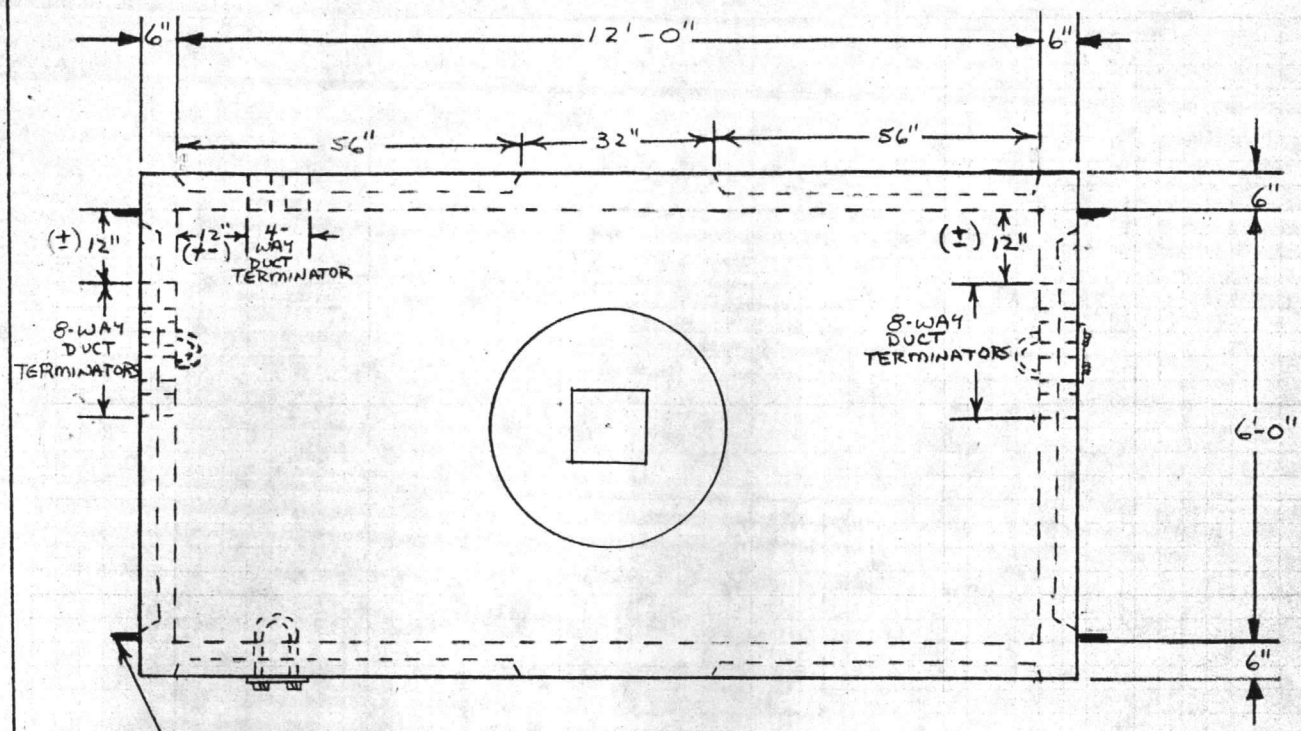
Mike Franklin

Mike Franklin
Vice President

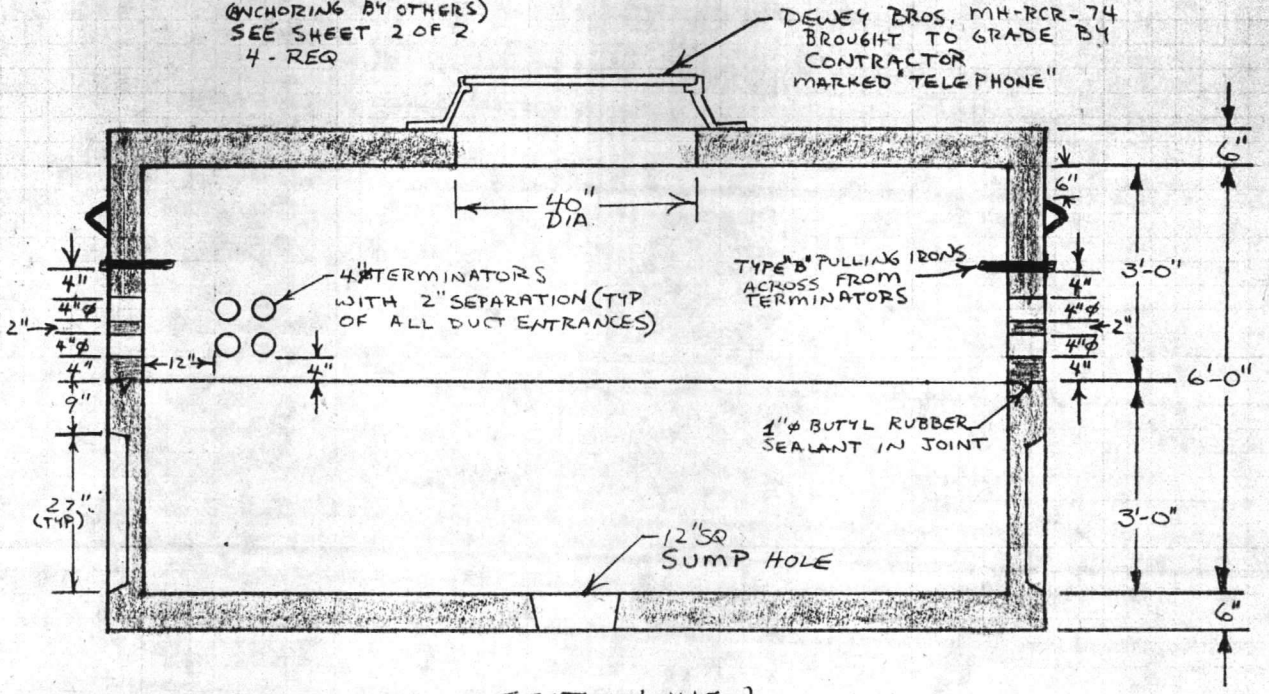
BY JLL DATE 10/29/85 SUBJECT 6' x 12' x 6' MANHOLE SHEET NO. 1 OF 2

CHKD. BY DATE for NALCOMIS REPAIRABLE MANAGEMT. MODULE JOB NO.

for BRYANT ELECTRIC REPAIR CO., INC. 22 REQ



PLAN VIEW



SECTION VIEW

NOTE:
KNOCKOUT PANELS REMOVED WHERE DUCT ENTRANCES ARE LOCATED.

CONCRETE:
4000 PSI @ 28 days

REINFORCING:
H-20 BRIDGE LOADING

Stay-Right Tank COMPANY, INC.

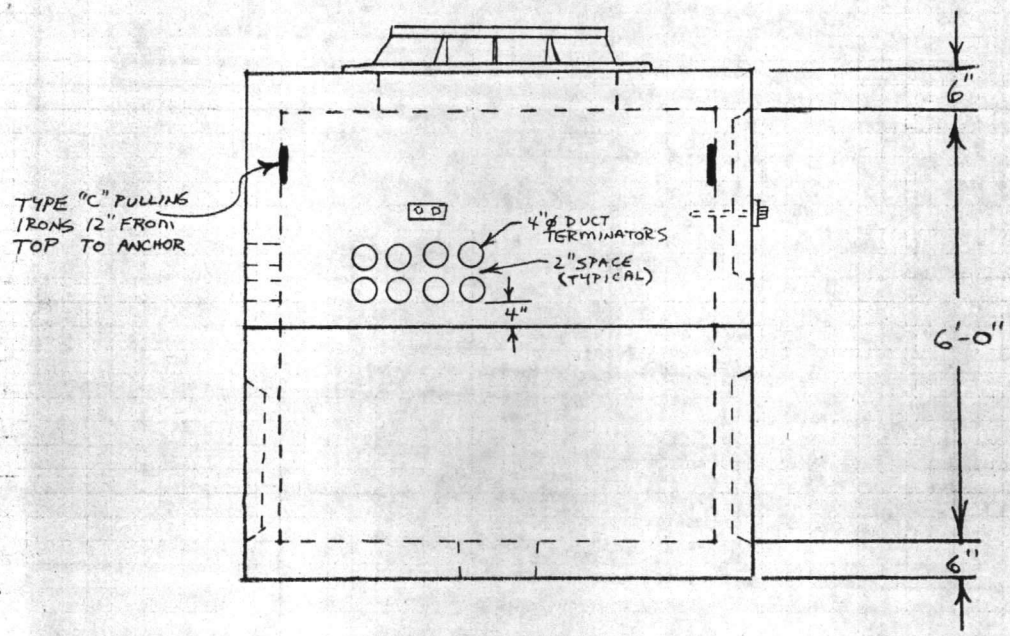
Pre-Cast Concrete Products

P.O. BOX 33097 / RALEIGH, N.C. 27606

Office - 876-8600

CHKD. BY..... DATE..... for NALCOMIS REPAIRABLE MANAGEMENT MODULE JOB NO.....

for BRYANT ELECTRIC REPAIR CO. INC



END VIEW

☑ APPROVED

☐ APPROVED AS NOTED

☐ REVISE AND RESUBMIT

APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH TERMS OR DESIGNS OF THE CONTRACT DOCUMENTS, NOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS, UNLESS SUCH LACK OF COMPLIANCE OR ERRORS FIRST HAVE BEEN CALLED IN WRITING TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR

Henry P Hotchkiss — ENGINEER

12/11/81 — DATE

DIBBLE AND ASSOC, WASHINGTON, N. C.

Stay-Right Tank

Pre-Cast Concrete Products

P.O. BOX 33097 / RALEIGH, N.C. 27606

Office - 876-8600

GEORGE K. COFFIN AND ASSOCIATES

CONSULTING ENGINEERS

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 1 OF 9

CONCRETE VAULT DESIGN

FOR
STAY-RIGHT TANK COMPANY, INC.
RALEIGH, NORTH CAROLINA

LOADS

1. LIVE LOAD: HS20-44(MS18), 16,000#
2. LIVE LOAD IMPACT FACTOR: 1.3
3. SOIL COVER: 1'-0" MINIMUM, 2'-0" MAXIMUM
4. SOIL DENSITY: 120 PCF DRY, 70 PCF SUBMERGED
5. COEFFICIENT OF ACTIVE SOIL PRESSURE: 0.5
6. WATER TABLE: AT TOP OF VAULT
7. SURCHARGE ON SIDE WALLS: 2'-0" OF SOIL

MATERIALS

1. CONCRETE: 4,000 PSI MINIMUM 28-DAY COMPRESSIVE STRENGTH, 0.48 MAXIMUM WATER/CEMENT RATIO BY WEIGHT
2. REINFORCING: ASTM A616, GRADE 60

DESIGN STANDARDS

1. ACI BUILDING CODE FOR REINFORCED CONCRETE
2. AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES, 1977

ULTIMATE LOAD FACTORS

1. LIVE LOAD: 1.7
2. ACTIVE SOIL PRESSSURE: 1.7
3. DEAD LOAD: 1.4
4. FLUID PRESSURE: 1.4

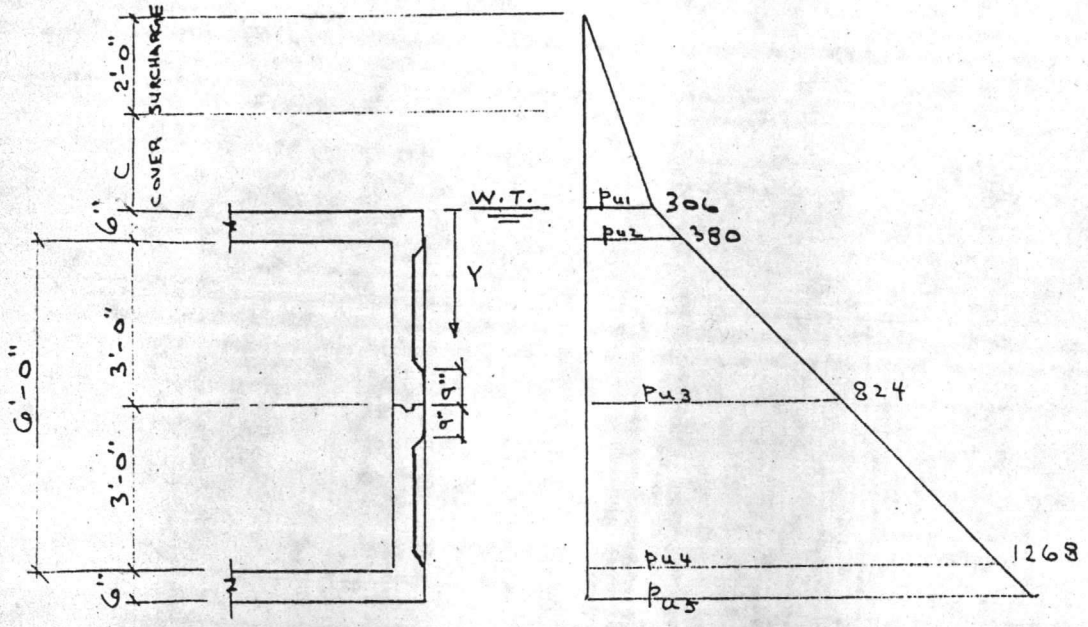
REFERENCES

1. PCA, "RECTANGULAR CONCRETE TANKS", 1969

3510 UNIVERSITY DR. DURHAM, NORTH CAROLINA 27707 919-493-8426

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 2 OF 9

SIDE WALL PRESSURES (ULTIMATE)



C = SOIL COVER = 1'-0"

$p_{u1} = 1.7\,(2'+C)(.50\times120) = 102\,(C+2)$

$p_u = p_{u1} + 1.7(Y)(.50\times70) + 1.4(Y)63$

$p_u = 148\,Y + 102C + 204$ PSF ULTIMATE

$p_u = 148Y + 306$

EDGE BEAM @ JOINT

@ SHORT WALLS SPAN = 6.5'

@ LONG WALLS SPAN = 12.5'/2 = 6.25' (SUPPORTED BY VERT. POST @ CENTER SPAN)

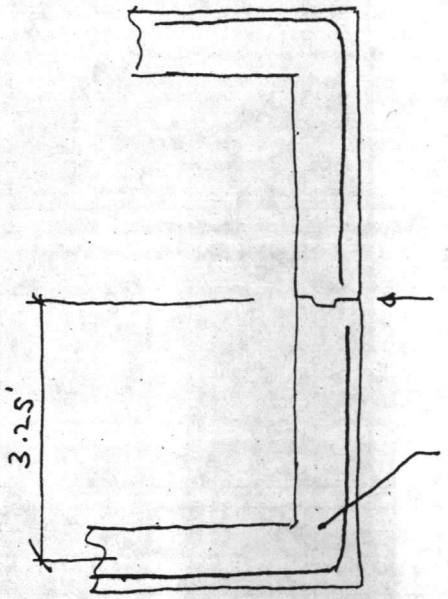
$W_u = 3.0' \times p_{u3} = 2472\ \#/FT$

$M_u \le 2472\,(6.5)^2/8 = 13.06$

$B = 18"$, $d = 4.5"$ SAY $\rightarrow A_s = 0.80 \rightarrow$ 3#5 OR 4#4

$V_u = 2472\times6.5/2 = 8034 \rightarrow v_u = \dfrac{8034}{.85\times18\times4.5} = 116 < 2\sqrt{f_c'}$ OK

CENTER POST ON LONG SIDES



$B = 32''$, $d = 4.5''$

$P_u = 3.0' \times p_{u3} \times 12'/2 = 14832^{\#}$

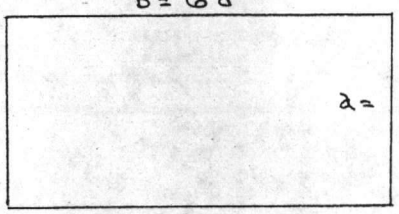
ASSUME ALL LOAD INTO BOTTOM POST

$V_u = 14832^{\#} \rightarrow v_c = \frac{14832}{.85 \times 32 \times 4.5} = 121 < 2\sqrt{f_c'}$ OK

$M_u = 14832 \times 3.25' = 48.2$ K-FT

$A_s = 2.89 \rightarrow 7\#6$ OR $10\#5$

K.O. PANELS



$b/a = 2.52$

Moment Coeff. From Ref. 1 Table IV

$M_{u\,max} = .112\, w_u a^2$

BOTTOM K.O. PANELS: $M_u = \frac{1}{2}(824 + 1268)(.112)(27/12)^2 =$
$= 593$ #-FT/FT

$d = 1.5''$ $B = 12''$

$A_s = 0.09 \rightarrow$ WWF 4X4 - W2.9 X W2.9

TOP K.O. PANELS: $M_u = \frac{1}{2}(380 + 824)(.112)(27/12)^2 = 341$

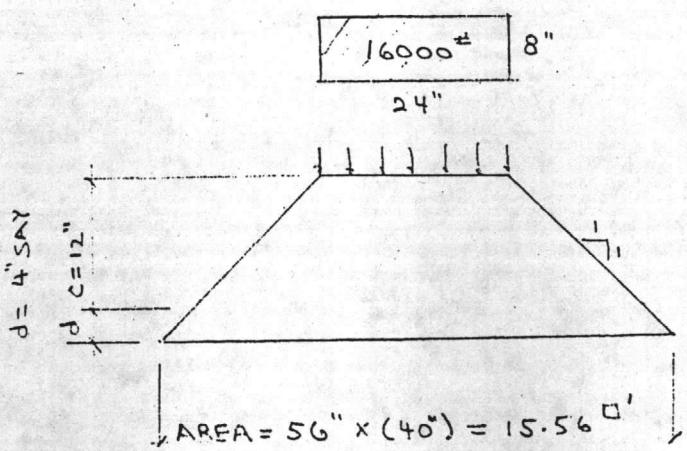
$d = 1.5''$ $B = 12''$

$A_s = 0.05 \rightarrow$ WWF 6X6 - W2.9 X W2.9

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 4 OF 9

TOP SLAB W/ 1'-0" OF COVER

ASSUME WHEEL LOAD DISTRIBUTION THUS:



ULT. LIVE LOAD PRESSURE = 1.7 X (1.3 IMPACT) X 16000 / 15.56 □' = 2272 PSF

ULT. DEAD LOAD PRESSURE = 1.4 X 120 X 1' = 168 PSF

2440 PSF

USING PCA TWO-WAY SLAB COEFFICIENTS (HINGED EDGES)

A = 6.5' B = 12.5' B/A = 1.92 → COEFF. = 0.100 SHORT DIR, 0.038 LONG DIR

SHORT DIR. $M_u = 0.100(2.44)6.5^2 =$ 10.31 K-FT/FT d = 4.25" → As = 0.61 → #5@6"

LONG DIR. $M_u = 0.038(2.44)6.5^2 =$ 3.92 d = 3.75" → As = 0.24 → #4@10"

TOP SLAB W/ MAXIMUM SOIL COVER

ASSUME WHEEL LOAD DISTRIBUTION SAME AS ABOVE W/ C = 2' → AREA =

ULT. LIVE LOAD PRESSURE = 1.7 X (1.3 IMPACT) X 16000 / 28 □' = 1263 PSF

ULT. DEAD LOAD PRESSURE = 1.4 X 120 X = 168 PSF

1431 PSF

NOTE DESIGN PRESSURE W/ MAXIMUM COVER LESS THAN W/ MINIMUM 1'-0" COVER

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 5 OF 9

BOTTOM SLAB

ULT LIVE LOAD : $2 \times 1.7 \times 16000 / 13' \times 7'$ = 598 psf (2 - WHEELS)

$1.4 \times 120 \times 2'$ = 336 (2' SOIL COVER)

$1.4 \times 150 [(13' \times 7' \times 7') - (12' \times 6' \times 6')] / 7' \times 13'$ = 473 (VAULT)

1407 psf

USE PCI TWO-WAY SLAB COEFFICIENTS (HINGED EDGES)

$A = 6.5'$, $B = 12.5$, $B/A = 1.92$ SAY 2.00

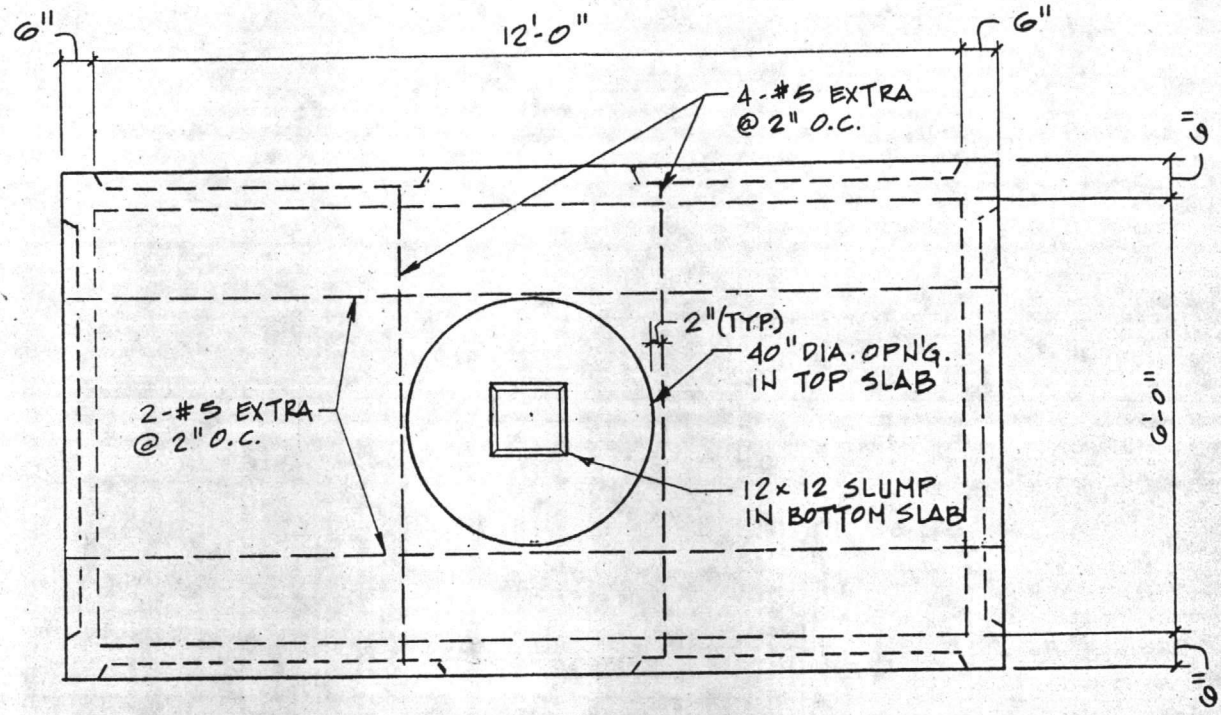
COEFF. = 0.100 SHORT DIR., 0.038 LONG DIR.

SHORT DIR $Mu = 0.100(1407)(6.5)^2 =$ 5.94 K-FT/FT, $d = 4.25''$, $As = 0.33 \rightarrow$ #5@10"

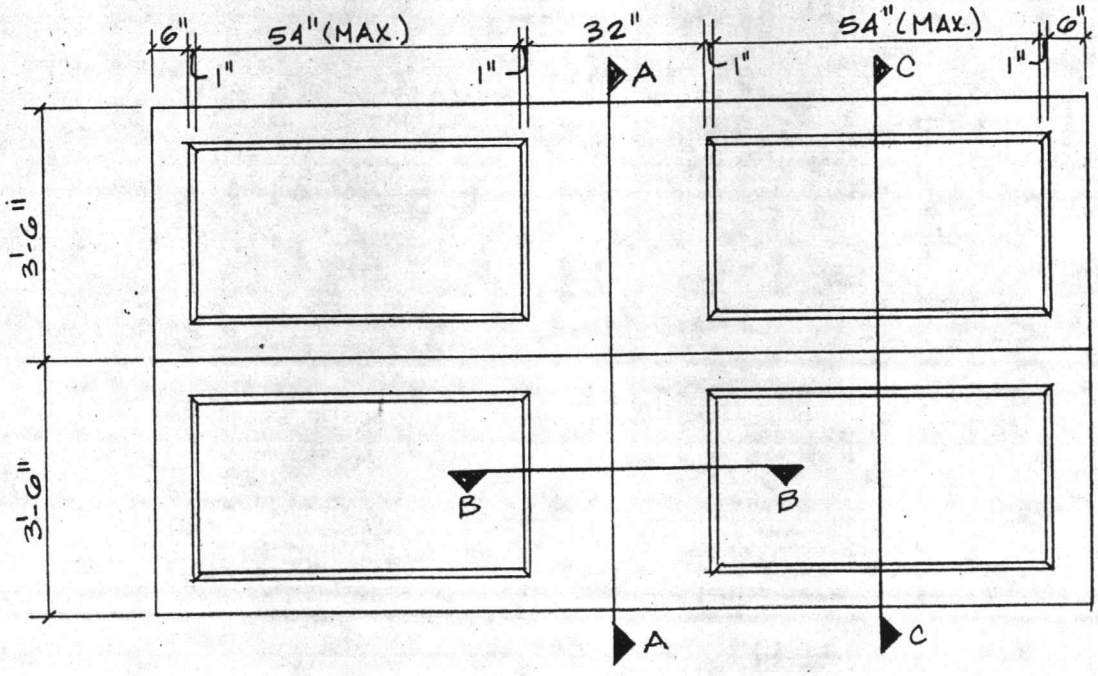
LONG DIR $Mu = 0.038(1407)(6.5)^2 =$ 2.36 K-FT/FT, $d = 3.75''$, $As = 0.14 \rightarrow$ #4@16"

$As\ MIN = 0.003 \times 6 \times 12 = 0.22 \rightarrow$ #4@10"

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 6 OF 9



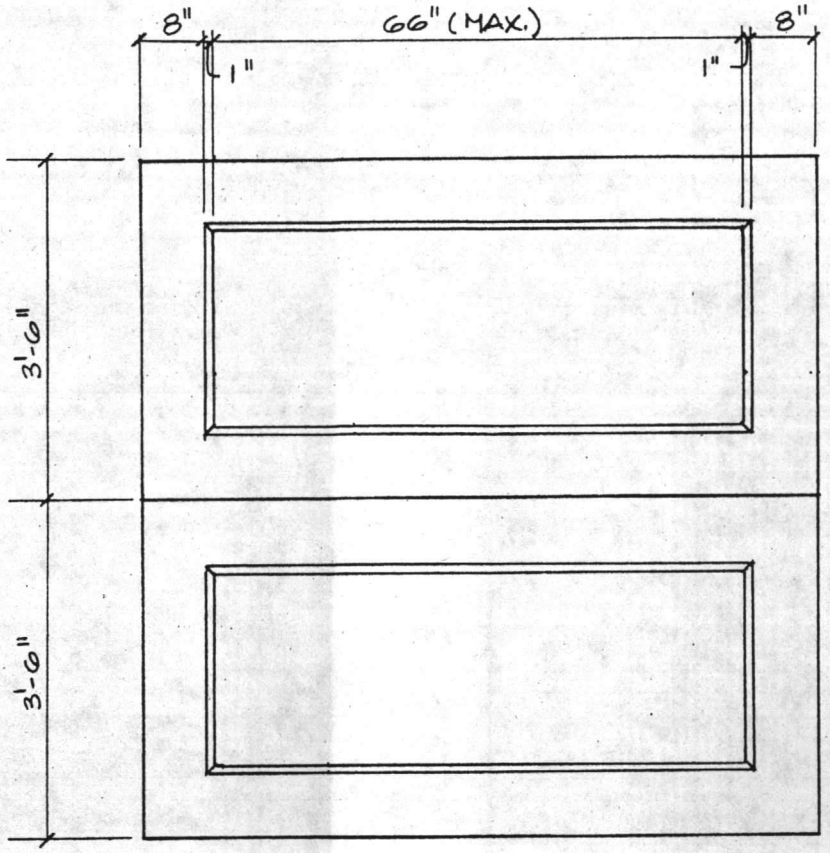
TOP PLAN NO SCALE



ELEVATION - LONG SIDE NO SCALE

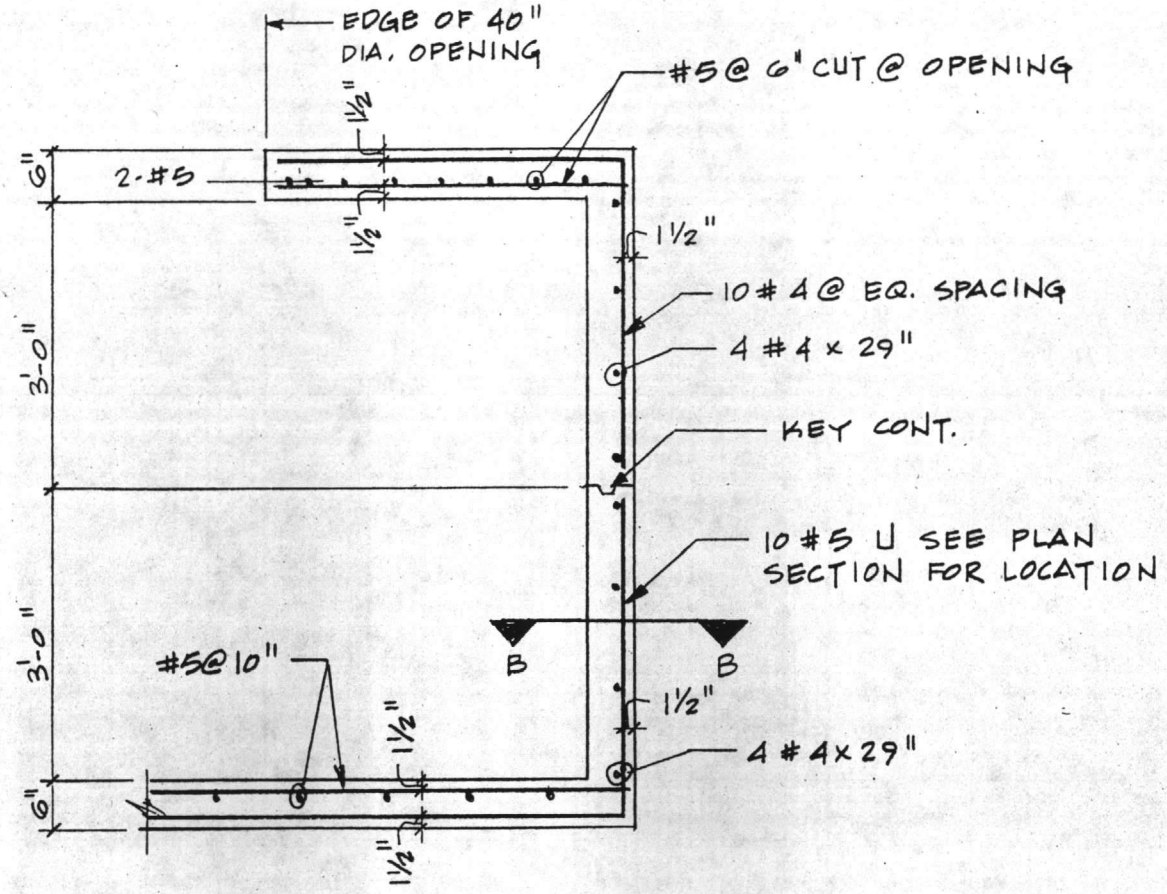
NOTE: KNOCK-OUT PANELS ARE OPTIONAL & MAY BE REMOVED.

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 7 OF 9

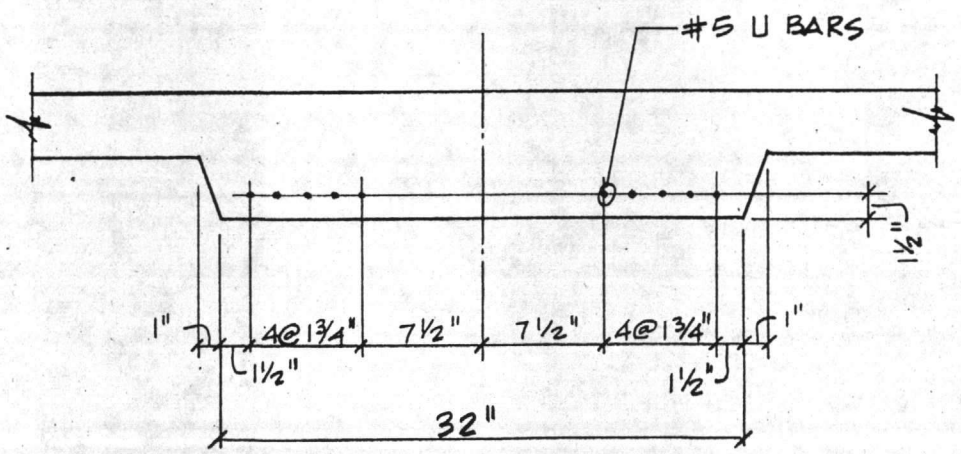


ELEVATION - SHORT SIDE NO SCALE

JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 8 OF 9

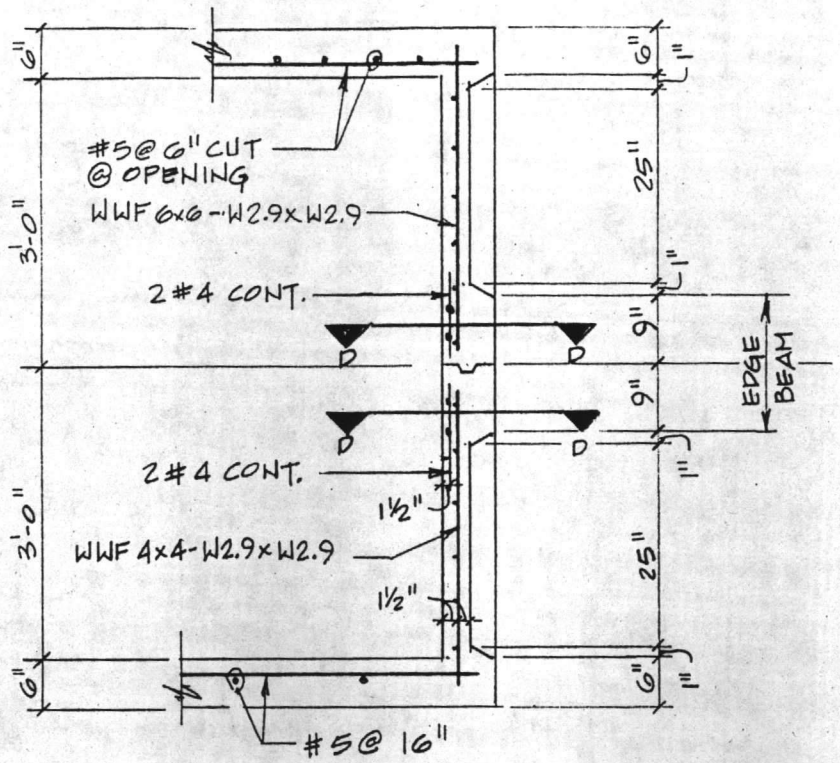


A-A SECTION THRU CENTER POST - LONG SIDE NO SCALE

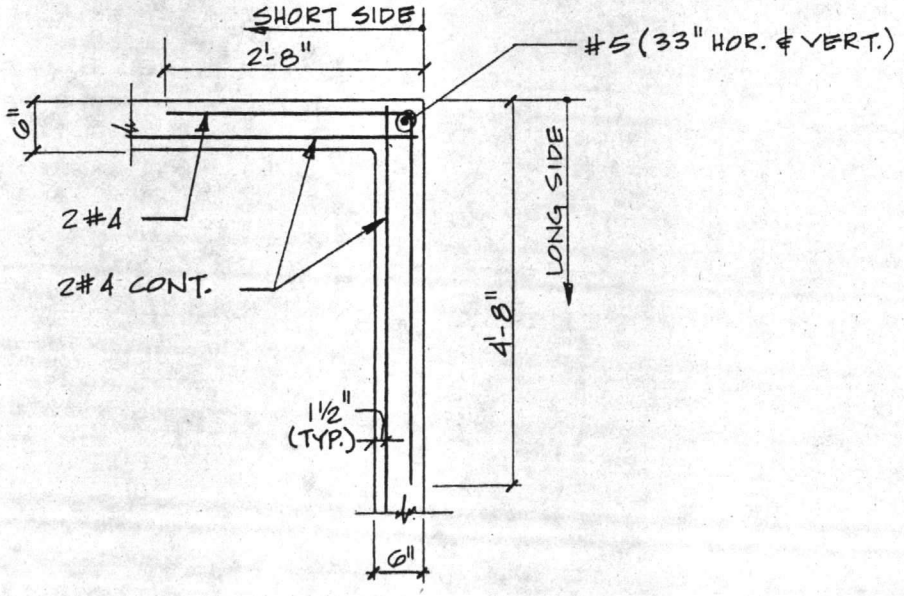


B-B PLAN - CENTER POST ON LONG SIDE BOTTOM PART OF VAULT NO SCALE

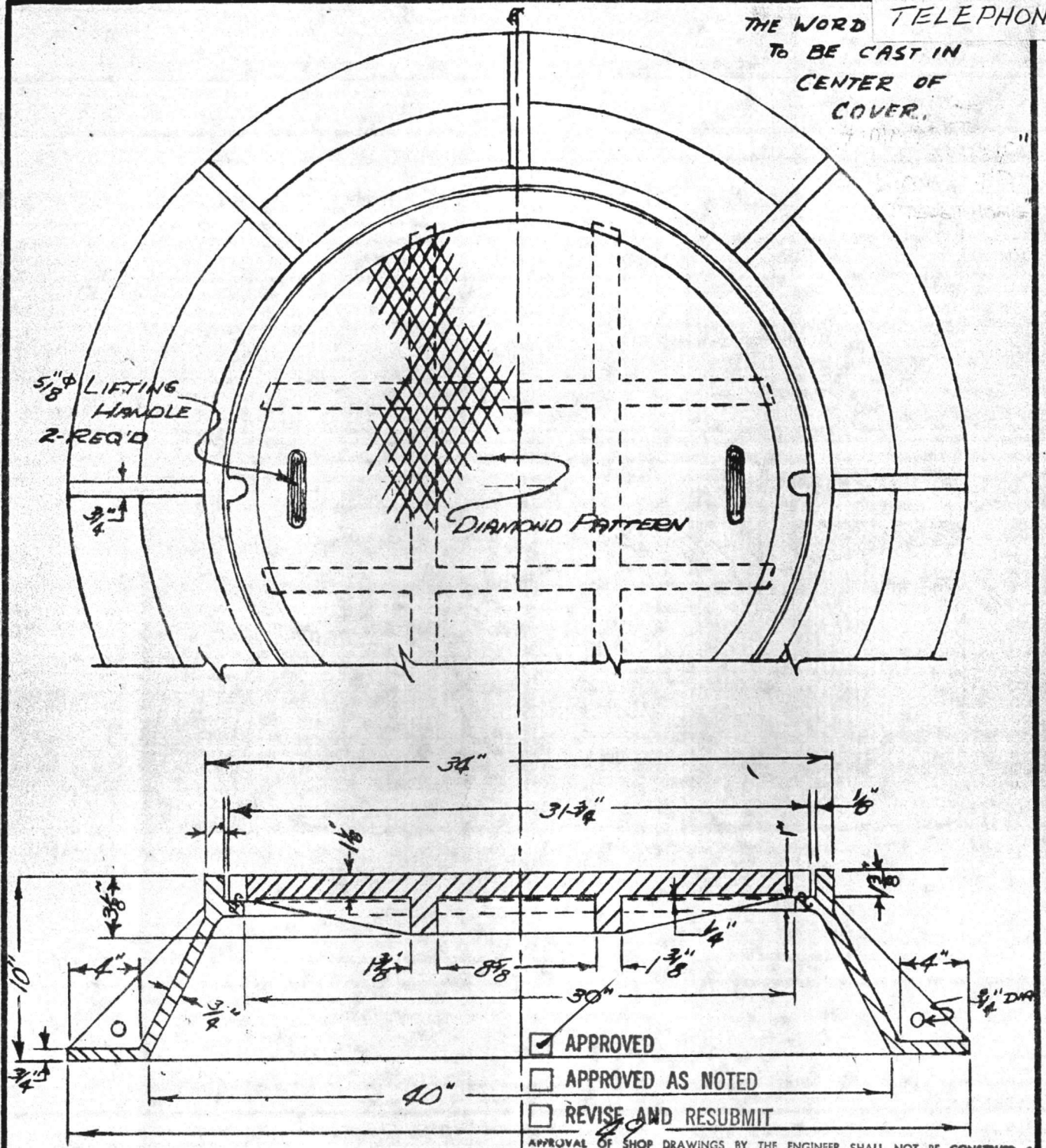
JOB 6'-0" X 12'-0" X (6'-0" HIGH) BY GKC DATE 10/28/85 SHEET NO. 9 OF 9



C-C TYPICAL WALL SECTION NO SCALE



D-D PLAN SECTION - HORIZONTAL EDGE BEAM @ CORNERS NO SCALE



☑ APPROVED

☐ APPROVED AS NOTED

☐ REVISE AND RESUBMIT

APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH TERMS OF DESIGNS OF THE CONTRACT DOCUMENTS, NOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS, UNLESS SUCH LACK OF COMPLIANCE OR ERRORS FIRST HAVE BEEN CALLED IN WRITING TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR

Henry L Hatchell — ENGINEER

11/11/85 — DATE

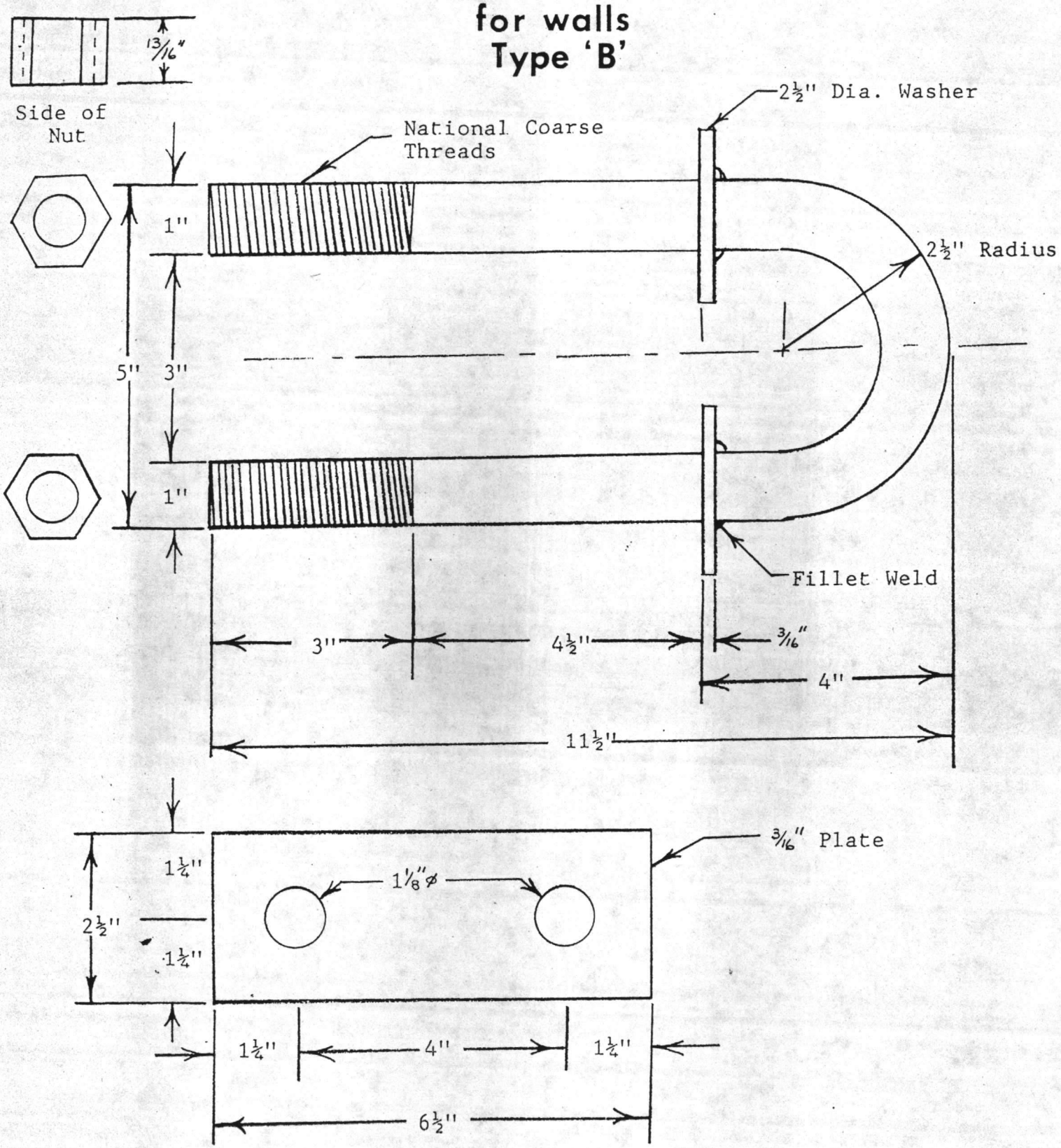
DIBBLE AND ASSOC, WASHINGTON, N. C.

MINIMUM AVERAGE WEIGHT

RING	448 #
COVER	292 #
TOTAL	740 #

SCALE 1½"=1'-0"	DRAWN BY G.A. Hamlet	DEWEY BROS., INC. MUNICIPAL & CONSTRUCTION CASTINGS GOLDSBORO, N. C.	TOTAL WEIGHT 740#
A.S.T.M. CLASS A-48 48 & 30	APPROVED		DATA SHEET NO.
MATERIAL Grey Cast Iron	DATE 3-18-60	TITLE MANHOLE RING & COVER	CODE NO. MH-RCR-74

PULLING IRONS
for walls
Type 'B'



NOTE: ALL GALVANIZED MATERIAL

BY..... DATE.....

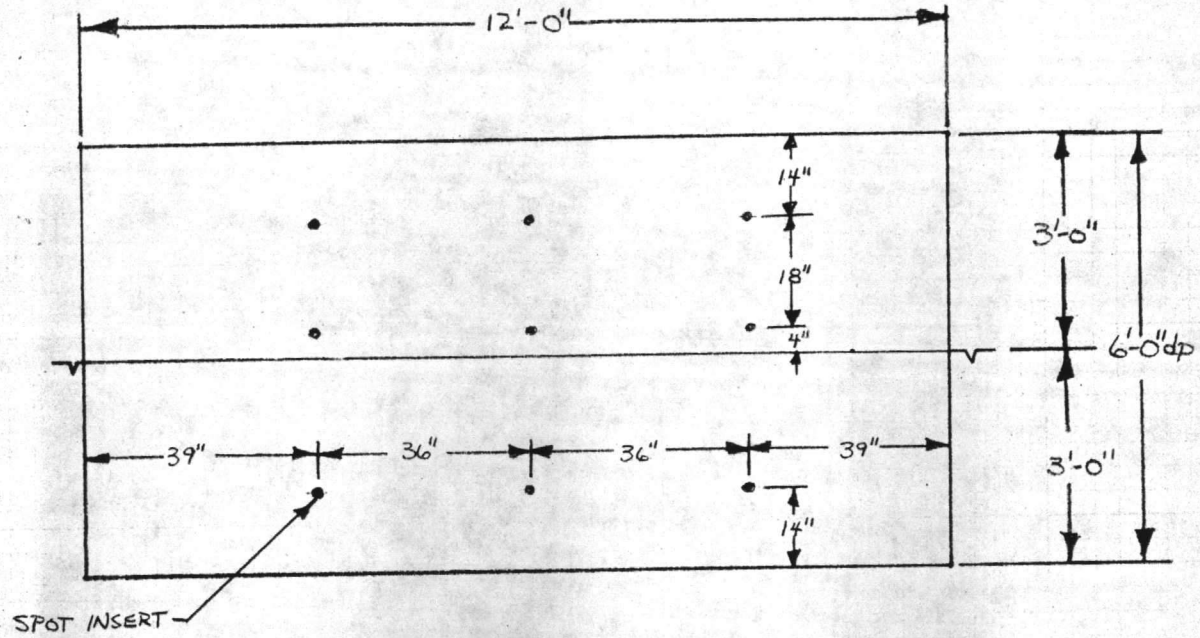
CHKD. BY..... DATE.....

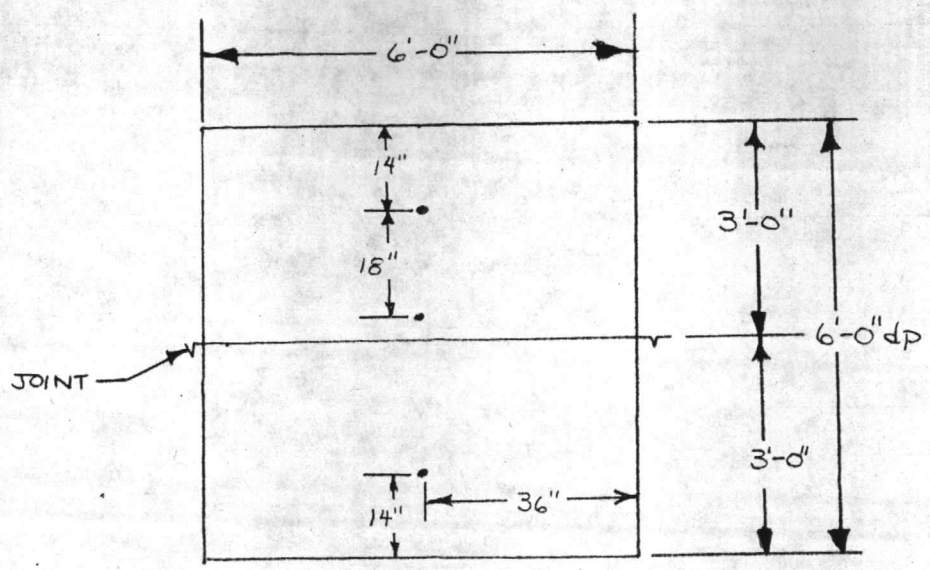
SUBJECT SPOT INSERT LOCATION DIAGRAM

INSIDE WALL VIEW OF 6' x 12' x 6' dp SIGNAL MANHOLE

SHEET NO. 1 OF 1

JOB NO.





Stay-Right Tank COMPANY INC

Pre-Cast Concrete Products

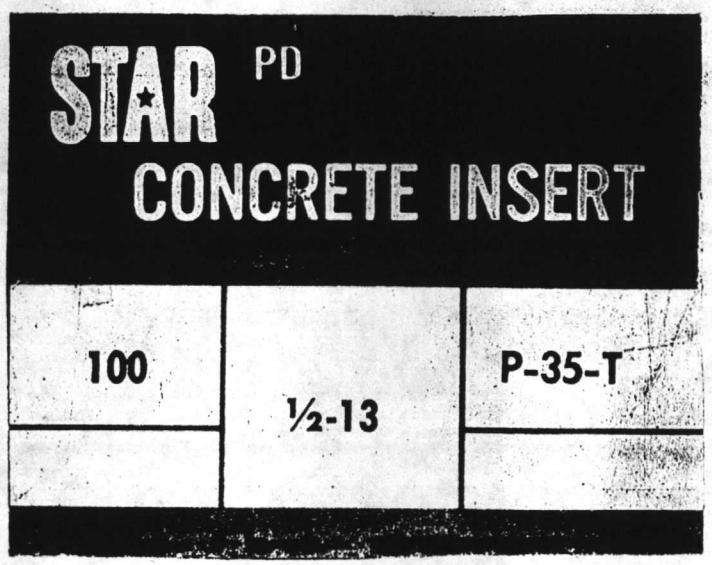
P.O. BOX 33097 / RALEIGH, N.C. 27606

Office - 876-8600

Stay-Right Tank COMPANY, INC.

P.O. BOX 33097 / RALEIGH, NORTH CAROLINA 27606 / PHONE (919) 876-8600

SPOT INSERT FOR MOUNTING
OF CABLE RACK



☑ APPROVED
☐ APPROVED AS NOTED
☐ REVISE AND RESUBMIT

APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH TERMS OR DESIGNS OF THE CONTRACT DOCUMENTS, NOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS, UNLESS SUCH LACK OF COMPLIANCE OR ERRORS FIRST HAVE BEEN CALLED IN WRITING TO THE ATTENTION OF THE ENGINEER BY THE CONTRACTOR

Henry R Hatchell — 11/11/85
ENGINEER — DATE

DIBBLE AND ASSOC, WASHINGTON, N. C.

☐ APPROVED

☐ APPROVED AS NOTED

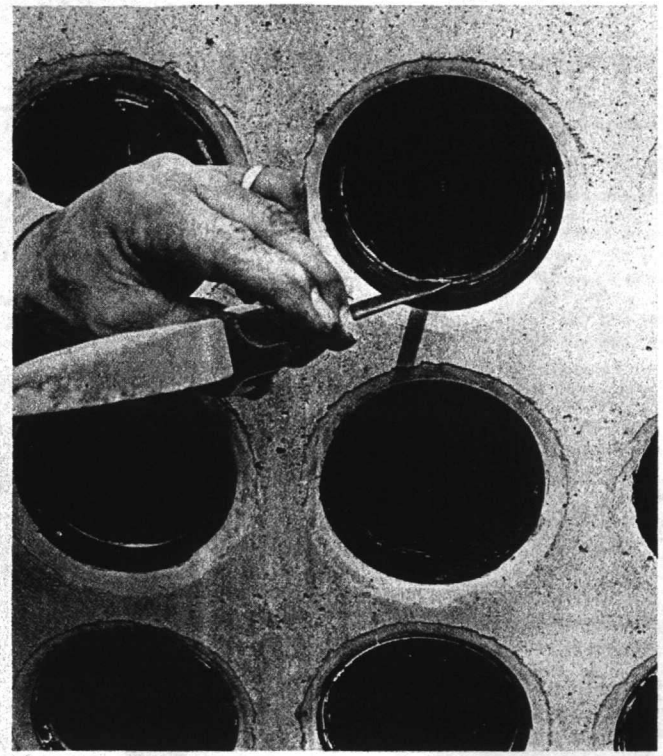
☐ REVISE AND RESUBMIT

APPROVAL OF SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH TERMS OR INTENT OF THE CONTRACT DOCUMENTS, NOR FROM RESPONSIBILITY FOR ERRORS OR OMISSIONS OF ANY SORT IN THE SHOP DRAWINGS. SUCH APPROVAL OR CORRECTIONS DO NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS FROM THE CONTRACT DOCUMENTS UNLESS SUCH DEVIATIONS HAVE BEEN BROUGHT TO THE ATTENTION OF THE ENGINEER AT THE TIME SUBMITTED AND THE ENGINEER HAS APPROVED THEM IN WRITING. APPROVAL DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF THE ACCURACY OF QUANTITIES AND DIMENSIONS WHICH ARE TO BE CHECKED AND CONFIRMED BY THE CONTRACTOR.

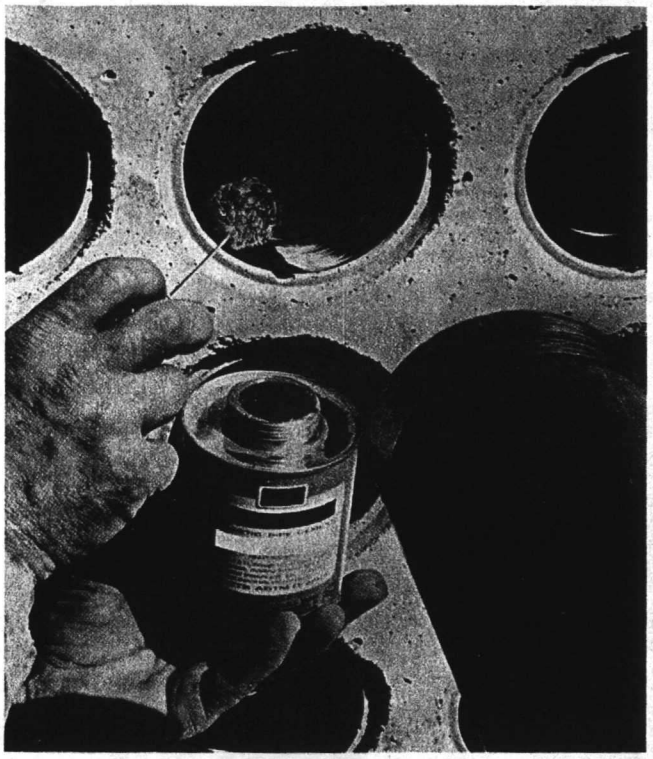
ENGINEER

DATE

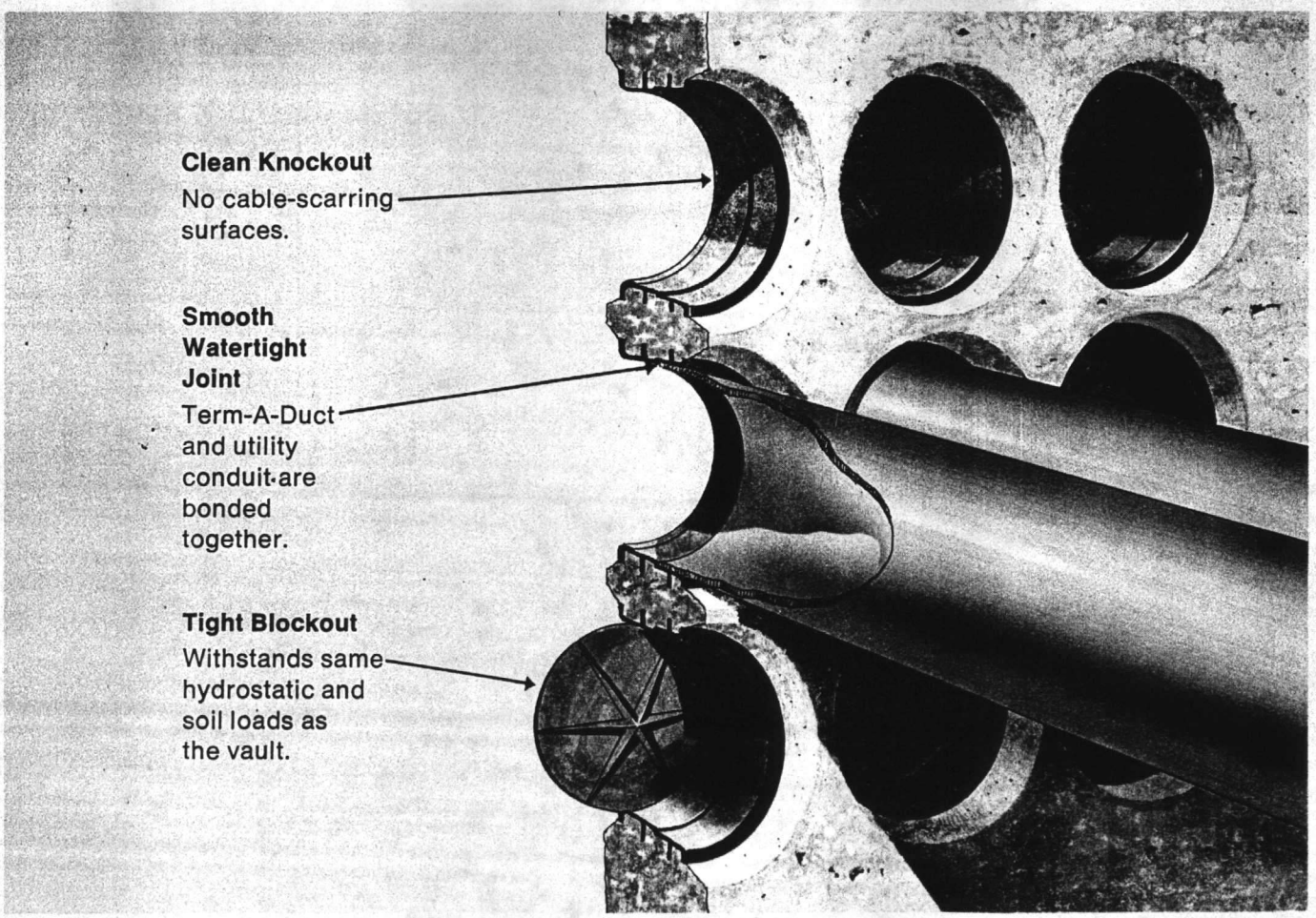
DIBBLE AND ASSOC. WASHINGTON, N. C.



To remove diaphragm in Term-A-Duct place a screwdriver tip against outer rim and tap screwdriver with a hammer.



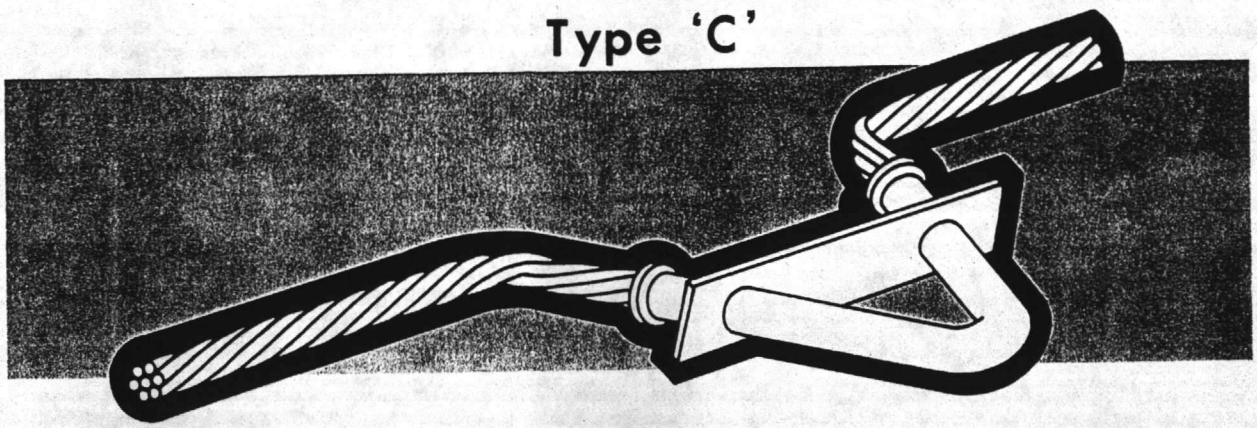
Just prior to inserting utility conduit, paint inside surfaces of Term-A-Duct and outside of conduit with recommended solvent.



FOR ANCHORING ONLY

PULLING IRONS

Type 'C'



We've developed a totally unique, time proven, concept in pulling irons. Featuring the advantages of noncorrosion, structural integrity, flexibility and economy. All of which are geared to improve the efficiency of your operations.

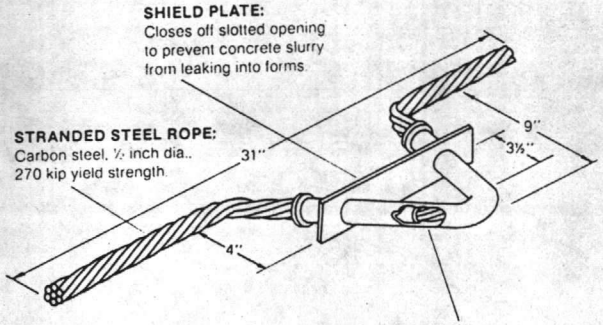
NONCORROSIVE: Unlike old style galvanized steel, Pennsylvania Pulling Irons will be there when you need them. Durable plastic protects strong steel cable from sea water, swamp water, gasoline and many other corrosive agents that destroy other pulling irons.

STRONGER: Stress-relieved carbon steel roping designed specially for concrete applications (seven strand, ½" diameter, with an ultimate strength of 270,000 psi) makes Pennsylvania Pulling Irons virtually indestructible. (Test results available on request.)

FLEXIBLE: Pennsylvania Pulling Irons flex to conform to odd angle pulls without loss of strength or corrosion resistance.

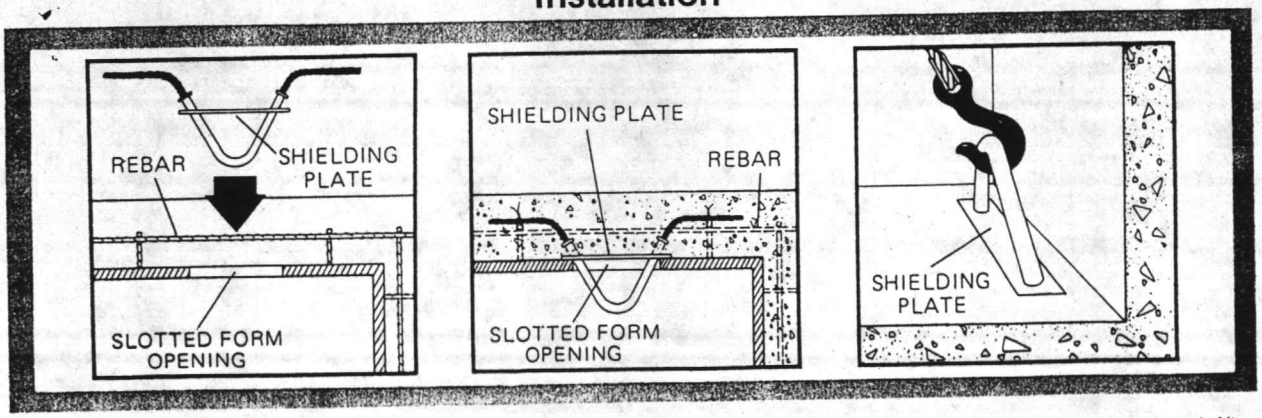
ECONOMICAL: Costly set up time is greatly reduced (see installation illustrations below), and you save in shipping costs too.

WIRE ENCAPSULATION: First a rust proof sleeve is slipped over the steel rope and then it is encapulated in indestructible Hytrel polyester elastomers.



Patent 3,916,590

Installation



SETTING UP: After form preparation and rebar positioning simply insert the new Pulling Irons into slotted openings on the form and tie to the rebar. **POURING:** The integrally molded shielding plate positions neatly into the slots on the form to prevent concrete slurry from leaking into the forms. **STRIPPING:** Since no bolting plates are required with the use of the new Pulling Irons, all bolting and unbolting procedures are eliminated. After curing cycles simply remove the piece from the forms. **IN POSITION:** The securely embedded Pulling Irons are now ready for use. The non-corrosive durable plastic material encapsulating the stranded wire is exposed assuring you of fail-safe cable pulling procedures.

JOINT SEALER

Technical Data
Flexible Butyl Resin Sealant
CONCRETE SEALANTS
CS-102 & CS-202

CHEMICAL COMPOSITION

	Spec	Required	CS-102	CS-202
Hydrocarbon plastic content % by weight	ASTM D4 (mod.)	50-70	50.8	51.2
Inert mineral filler % by weight	SS-S-210A	30-50	49.2	48.8
Volatile Matter % by weight	ASTM D6	3.0 max.	1.2	1.2

PHYSICAL PROPERTIES

Specific Gravity, 77°F	ASTM D71	1.20-1.35	1.35	1.34
Ductility, 77°F	ASTM D113	5.0 min.	10	12
Softening point, ring and ball °F	ASTM D36	320 min.	390+	335+
Penetration, cone 77°F, 150 gm. 5 sec.	ASTM D217	50-120 mm	105 mm	114 mm
Flash point, C.O.C., °F	ASTM D92	600 min.	630°	630°
Fire point, C.O.C., °F	ASTM D92	625 min.	630°	630°

30-Day Immersion: No visible deterioration when tested for 30 days in 5% caustic potash, 5% Hydrochloric Acid, 5% Sulphuric Acid, or 5% saturated Hydrogen Sulfide.

Laboratory-certified test data available upon request

QUANTITY OF MATERIAL REQUIRED

Size of Gasket Surface (dia.)	Structure Size	Inches of Sealant	Sealant *Size
54″	48″	170	1″
66″	60″	208	1¼″
80″	72″	252	1½″
92″	84″	290	2″
106″	96″	334	2″
118″	108″	372	2″

***NOTE:** Other sizes may be used depending on application and joint design.

STOCK SIZES

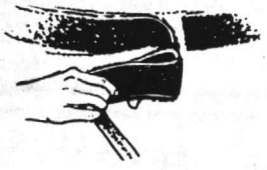
*Size	Round Equiv.	Feet Per Carton 36″ Lengths	Feet Per Roll
½″ dia. bd.	½″	360	21'0″
.55 x ¾″	¾″	144	21'0″
.88″ x .88″	1″	90	14'6″
⅞″ x 1⅜″	1¼″	60	14'6″
1⅛″ x 1½″	1½″	36	10'0″
1⅛″ x 2⅛″	1¾″	24	—
1½″ x 2 1/16″	2″	18	—

*Other Standard Sizes and Lengths Available.

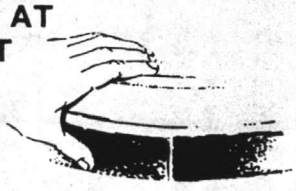
INSTALLATION INSTRUCTIONS

1. **CLEAN SURFACE**

2. **APPLY**



3. **BUTT AT JOINT**



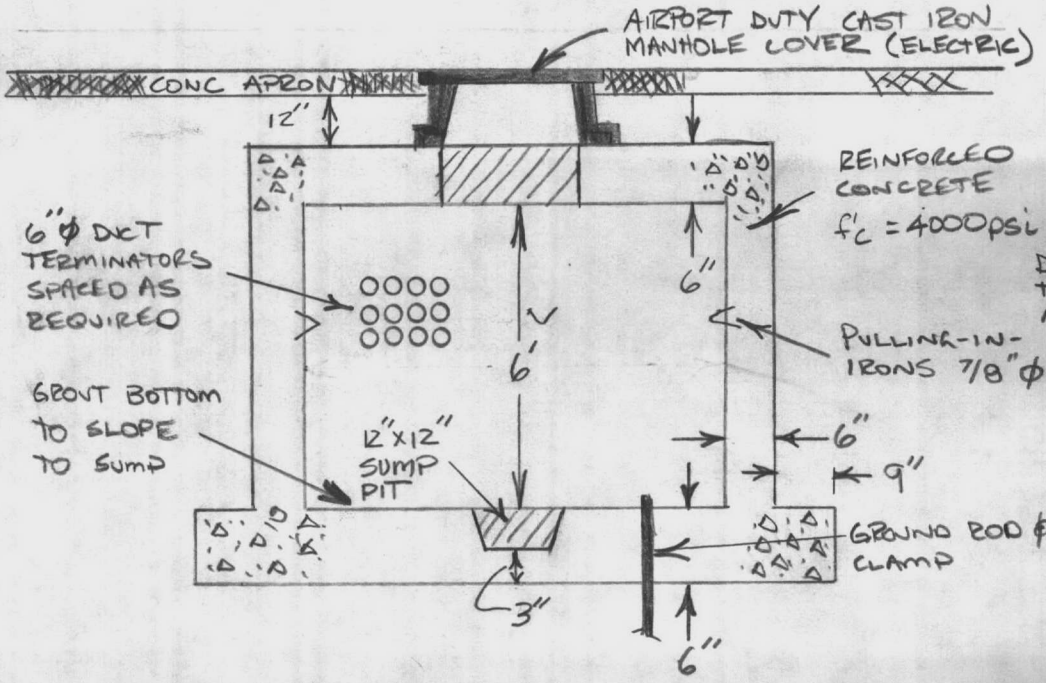
CONCRETE SEALANTS INC.

8917 S. Palmer Road
New Carlisle, Ohio 45344
Telephone: (513) 845-8776

Associate american concrete pipe association Member

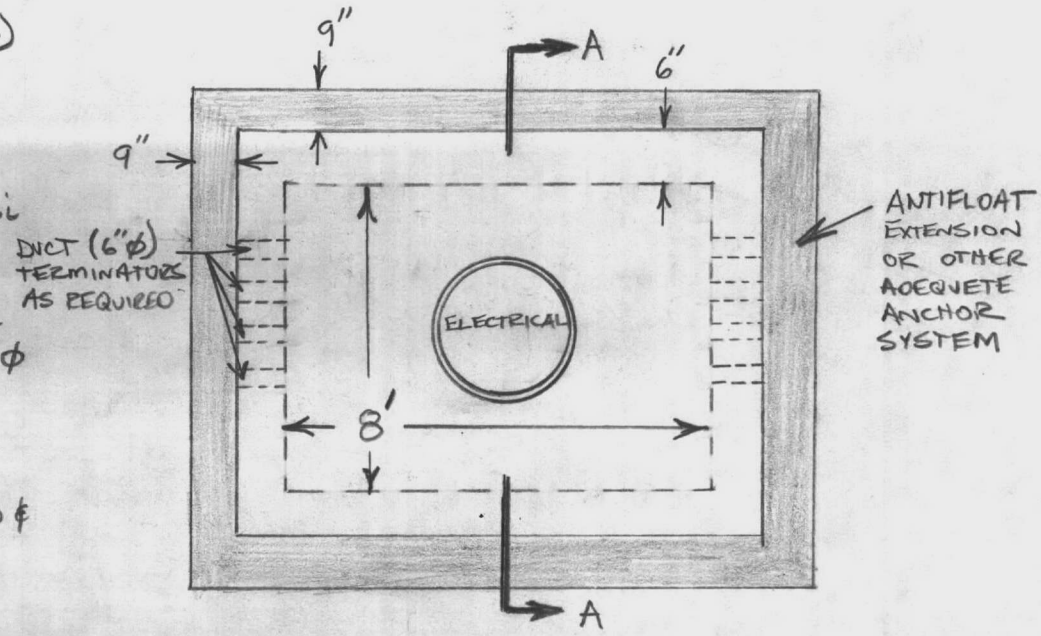
Form CS102-1/81

Printed in USA



SECTION A-A

NTS



PLAN VIEW

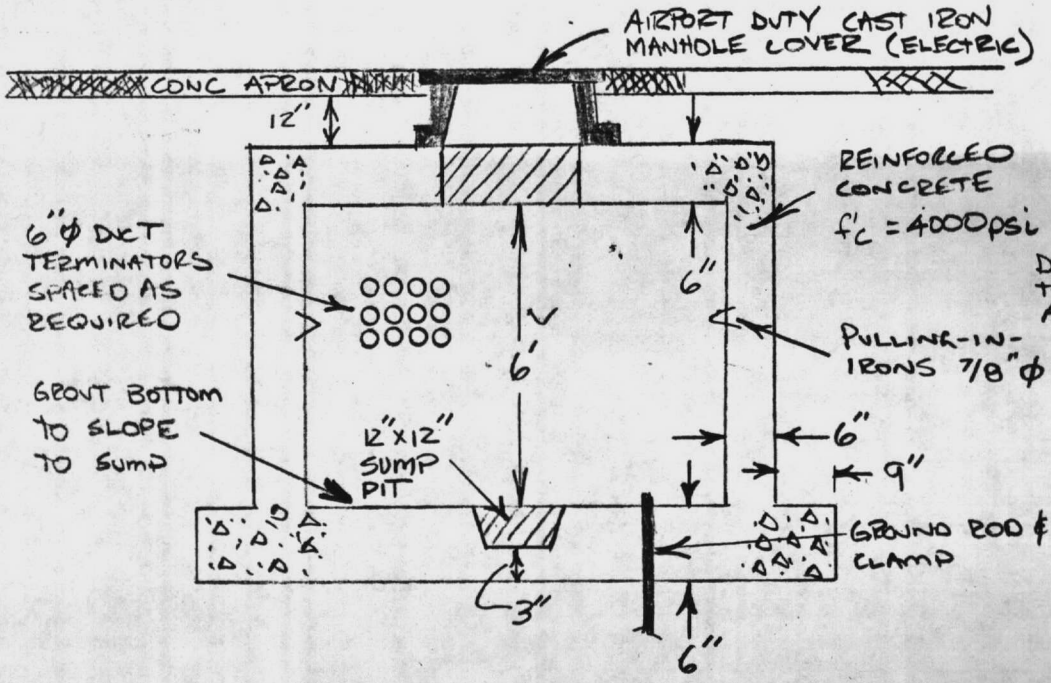
NTS

NOTES:

PROVIDE PREFABRICATED ELECTRICAL MANHOLE. DESIGN FOR 16000# WHEEL LOAD AND FACTOR OF SAFETY = 2 FOR ALL LOAD FACTORS, ASSUME WATER TABLE AT VAULT TOP AND SOIL DENSITY = 120 PCF (DRY) AND 70 PCF (SUBMERGED). SPACE DUCT TERMINATORS AS NECESSARY FOR SPECIFIC INSTALLATION REQUIREMENTS. DESIGN BY ACI CODE & AASHTO (HWY BRIDGES HS20) CRITERIA. PROVIDE PULLING-IN-IRONS AND CABLE RACKS.

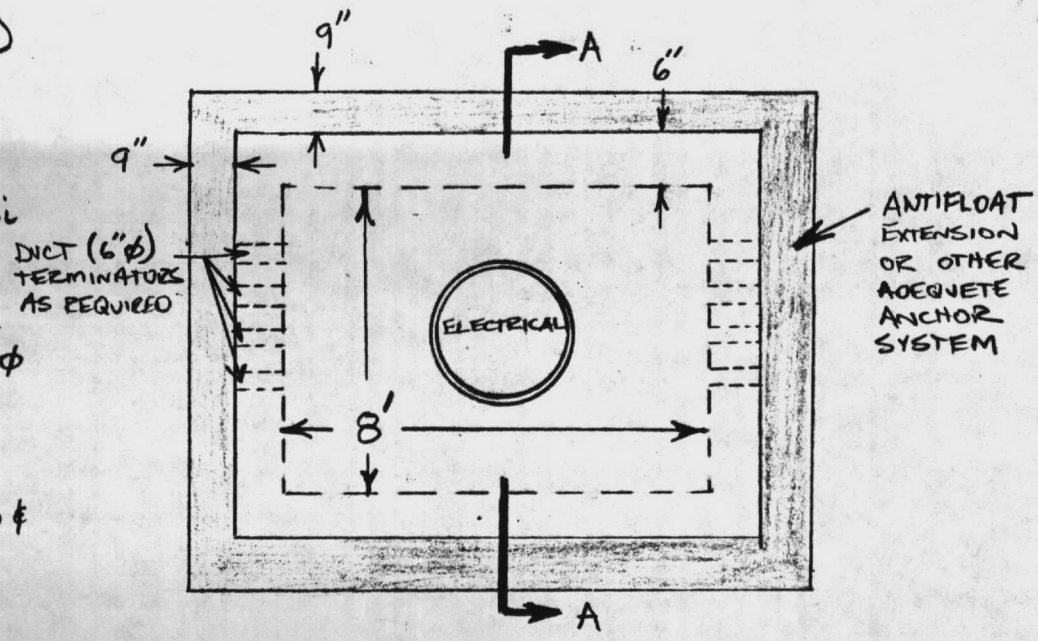
ELECTRICAL MANHOLE

NTS



SECTION A-A

NTS



PLAN VIEW

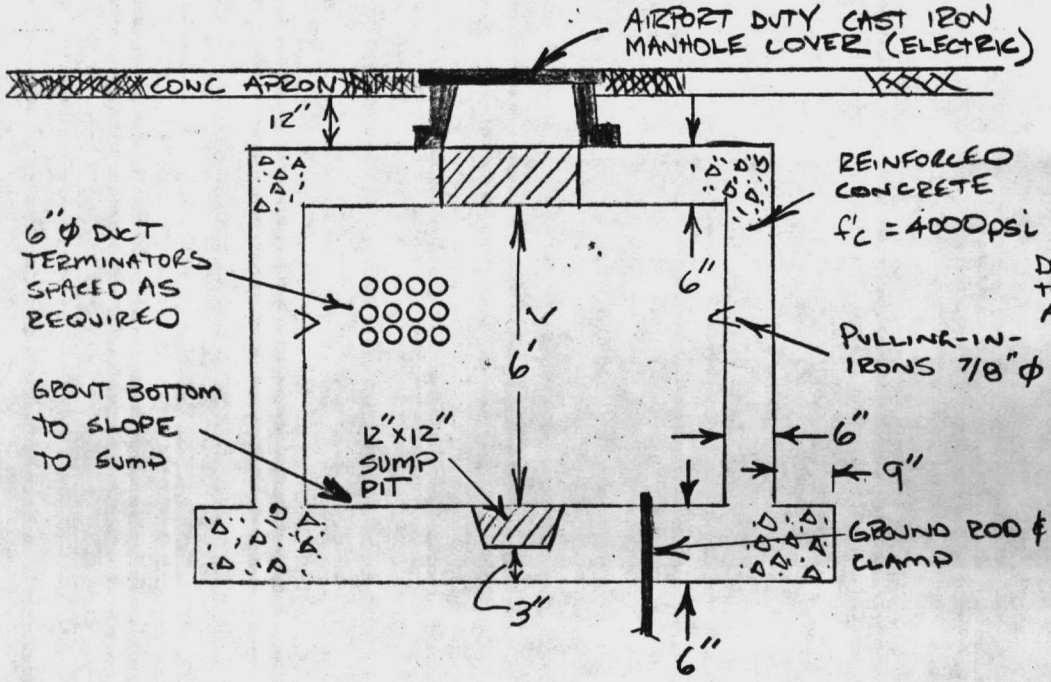
NTS

NOTES:

PROVIDE PREFABRICATED ELECTRICAL MANHOLE. DESIGN FOR 16000# WHEEL LOAD AND FACTOR OF SAFETY = 2 FOR ALL LOAD FACTORS, ASSUME WATER TABLE AT VAULT TOP AND SOIL DENSITY = 120 PCF (DRY) AND 70 PCF (SUBMERGED). SPACE DUCT TERMINATORS AS NECESSARY FOR SPECIFIC INSTALLATION REQUIREMENTS. DESIGN BY ACI CODE & AASHTO (HWY BRIDGES HS20) CRITERIA. PROVIDE PULLING-IN-IRONS AND CABLE RACKS.

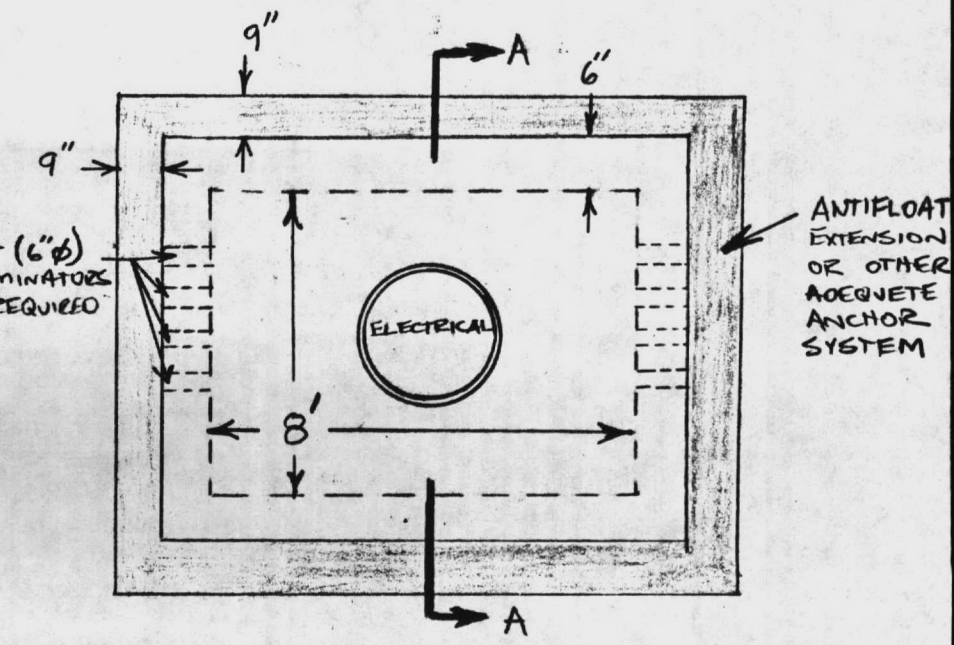
ELECTRICAL MANHOLE

NTS



SECTION A-A

NTS



PLAN VIEW

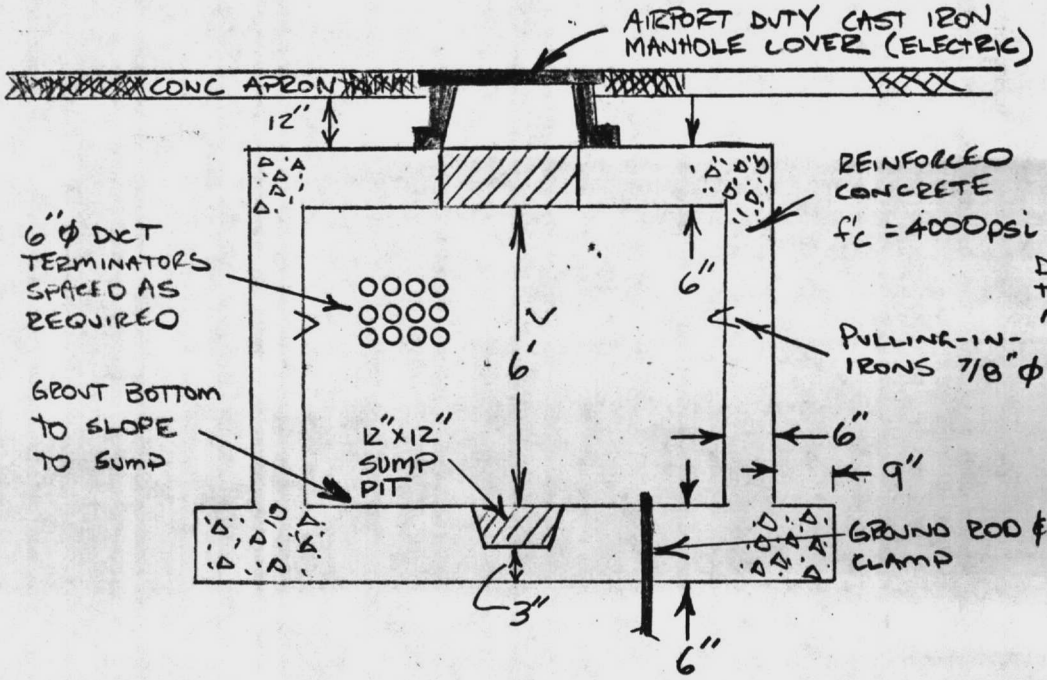
NTS

NOTES:

PROVIDE PREFABRICATED ELECTRICAL MANHOLE. DESIGN FOR 16,000# WHEEL LOAD AND FACTOR OF SAFETY = 2 FOR ALL LOAD FACTORS, ASSUME WATER TABLE AT VAULT TOP AND SOIL DENSITY = 120 PCF (DRY) AND 70 PCF (SUBMERGED). SPACE DUCT TERMINATORS AS NECESSARY FOR SPECIFIC INSTALLATION REQUIREMENTS. DESIGN BY ACI CODE & AASHTO (HWY BRIDGES HS20) CRITERIA. PROVIDE PULLING-IN-IRONS AND CABLE RACKS.

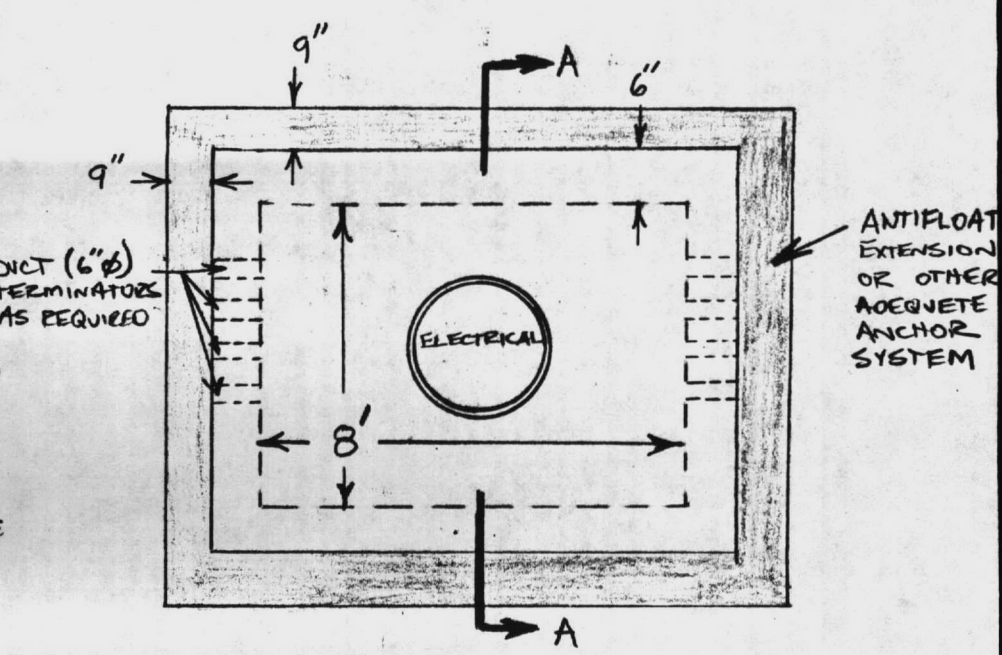
ELECTRICAL MANHOLE

NTS



SECTION A-A

NTS



PLAN VIEW

NTS

NOTES:

PROVIDE PREFABRICATED ELECTRICAL MANHOLE. DESIGN FOR 16000# WHEEL LOAD AND FACTOR OF SAFETY = 2 FOR ALL LOAD FACTORS, ASSUME WATER TABLE AT VAULT TOP AND SOIL DENSITY = 120 PCF (DRY) AND 70 PCF (SUBMERGED). SPACE DUCT TERMINATORS AS NECESSARY FOR SPECIFIC INSTALLATION REQUIREMENTS. DESIGN BY ACI CODE & AASHTO (HWY BRIDGES HS20) CRITERIA. PROVIDE PULLING-IN-IRONS AND CABLE RACKS.

ELECTRICAL MANHOLE

NTS