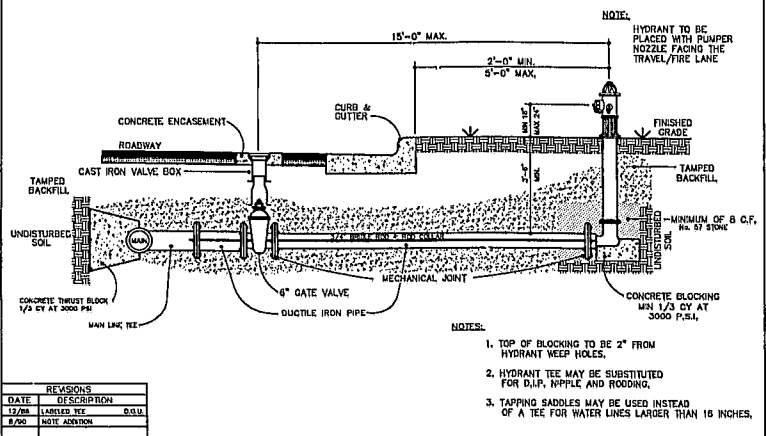


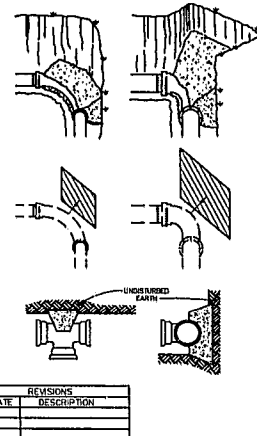
CARRIER PIPE

| REVISIONS |
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| DATE DESCRIPTION |
| DATE DESCRIPTION |
| DATE DESCRIPTION |



STANDARD HYDRANT INSTALLATION

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| DATE DESCRIPTION |

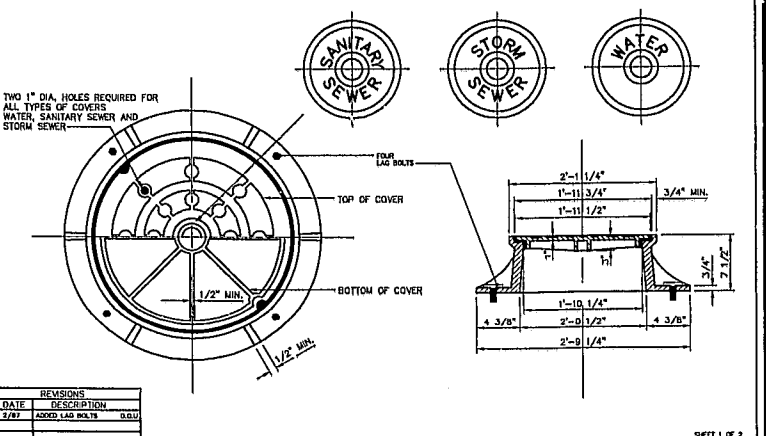


STANDARD REACTION BLOCKING

| REVISIONS |
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| DATE DESCRIPTION |
| DATE DESCRIPTION |
| DATE DESCRIPTION |

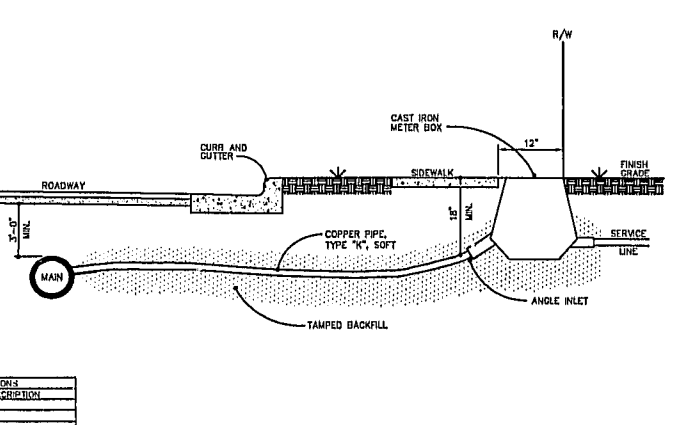
| MIN. PIPE DIA. IN. | MINIMUM CONCRETE BLOCKING (C.Y.) * | | | |
|--------------------|------------------------------------|----------|----------|--------------|
| | TEES & DEAD ENDS | 90° BEND | 45° BEND | 22-1/2° BEND |
| 4 | 1/3 | 1/3 | 1/3 | 1/3 |
| 6 | 1/3 | 1/3 | 1/3 | 1/3 |
| 8 | 1/3 | 1/2 | 1/3 | 1/3 |
| 10 | 2/3 | 3/4 | 1/2 | 1/3 |
| 12 | 3/4 | 1.0 | 2/3 | 1/3 |
| 14 | 1.0 | 1-1/2 | 3/4 | 1/2 |
| 16 | 1-1/3 | 2.0 | 1.0 | 1/2 |
| 18 | 1-2/3 | 2-1/3 | 1-1/3 | 2/3 |
| 20 | 2.0 | 3.0 | 1-2/3 | 3/4 |
| 24 | 3.0 | 4-1/3 | 2-1/3 | 1-1/3 |

* CONCRETE SHALL BE 3000 P.S.I. MIN.



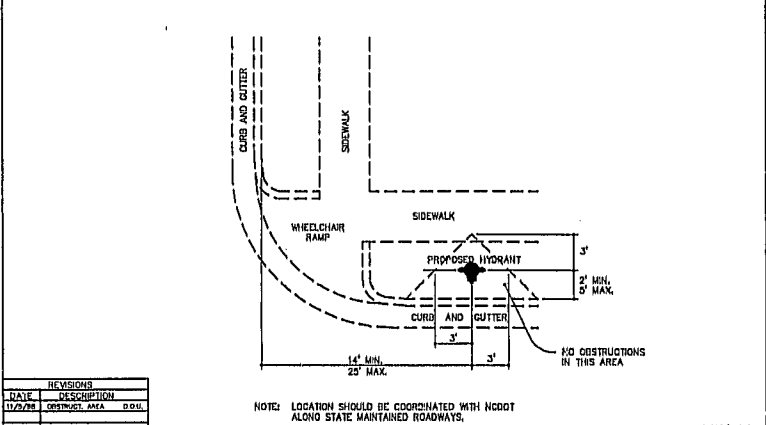
STANDARD MANHOLE RING AND COVER

| REVISIONS |
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| DATE DESCRIPTION |
| DATE DESCRIPTION |
| DATE DESCRIPTION |



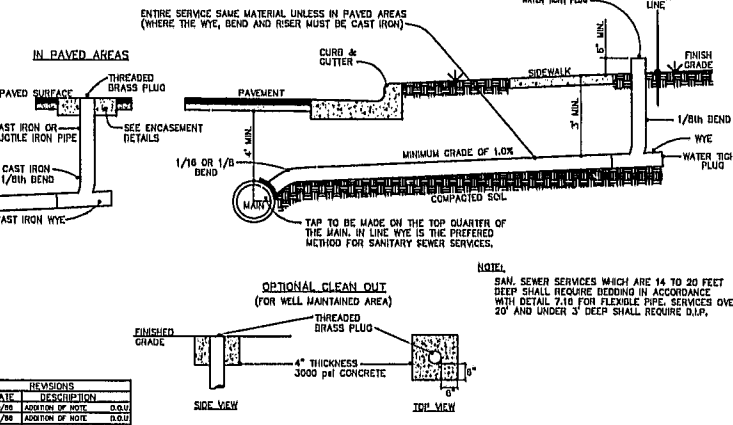
STANDARD 3/4" AND 1" METER BOX INSTALLATION

| REVISIONS |
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| DATE DESCRIPTION |
| DATE DESCRIPTION |
| DATE DESCRIPTION |



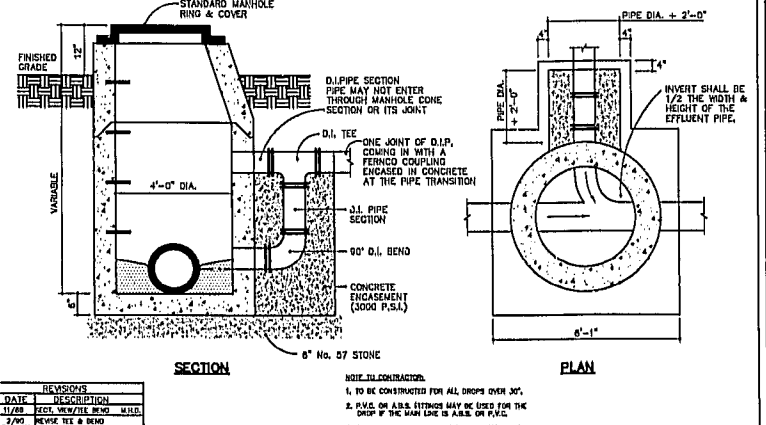
STANDARD HYDRANT LOCATION

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| DATE DESCRIPTION |
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| DATE DESCRIPTION |



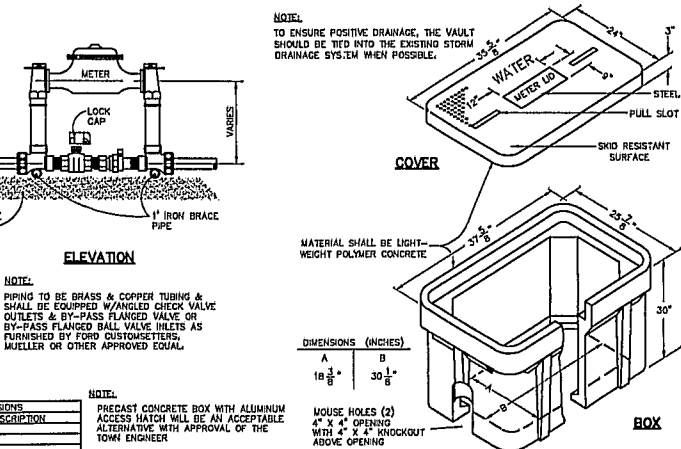
STANDARD SANITARY SEWER TAP AND SERVICE

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| DATE DESCRIPTION |
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| DATE DESCRIPTION |



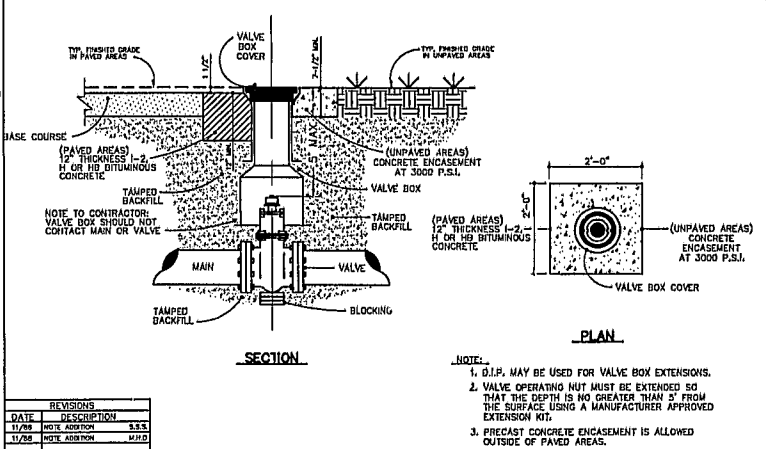
STANDARD OUTSIDE DROP MANHOLE

| REVISIONS |
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| DATE DESCRIPTION |
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| DATE DESCRIPTION |



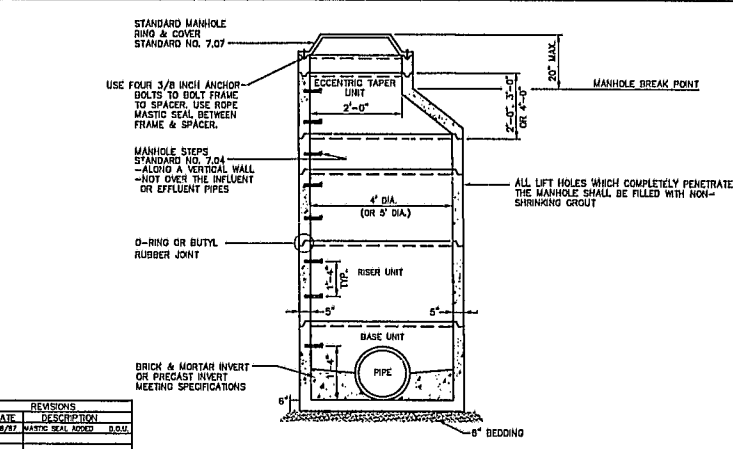
STANDARD 1-1/2" & 2" METER INSTALLATION AND VAULT

| REVISIONS |
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| DATE DESCRIPTION |
| DATE DESCRIPTION |
| DATE DESCRIPTION |



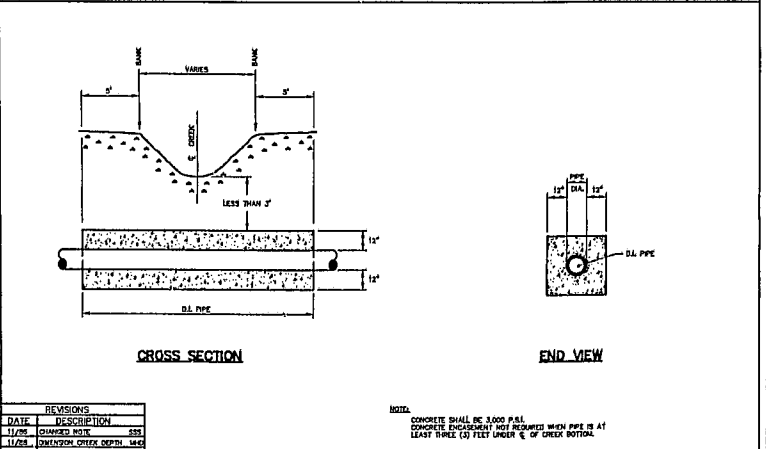
STANDARD VALVE BOX INSTALLATION

| REVISIONS |
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| DATE DESCRIPTION |
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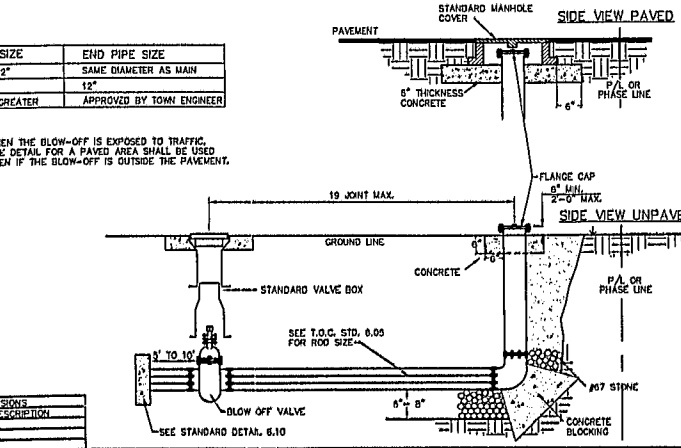
STANDARD PRECAST CONCRETE MANHOLE

| REVISIONS |
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| DATE DESCRIPTION |
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| DATE DESCRIPTION |



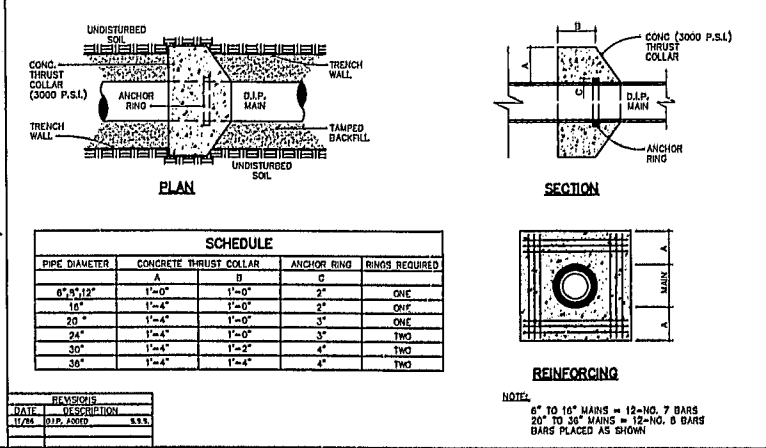
STANDARD CONCRETE ENCASMENT FOR STREAM CROSSING

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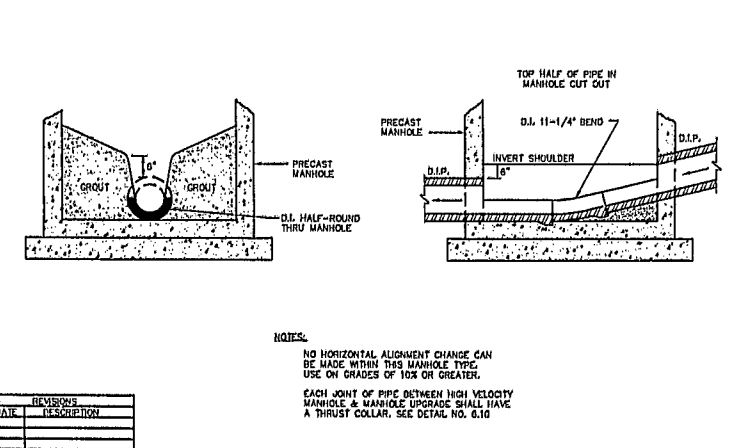
STANDARD BLOW-OFF ASSEMBLY

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| DATE DESCRIPTION |
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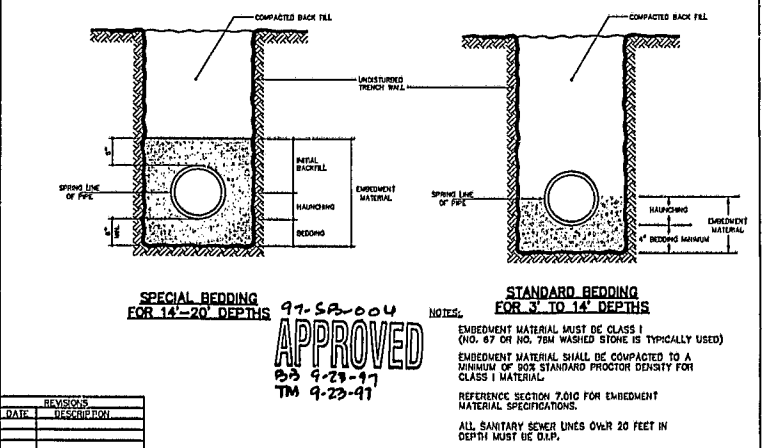
STANDARD THRUST COLLAR INSTALLATION

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STANDARD HIGH VELOCITY MANHOLE INVERT

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BEDDING FOR FLEXIBLE & SEMI-RIGID SANITARY SEWER PIPE

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| DATE DESCRIPTION |
| DATE DESCRIPTION |
| DATE DESCRIPTION |

WITHERS & RAVENEL Engineering & Surveying, Inc.
 111 MacKenan Drive • Cary, N.C. 27511
 919-469-3340 FAX 919-467-6008

| No. | Description | Date | By |
|-----|-----------------|---------|-----|
| A | FINAL REVISIONS | 9/19/87 | GAS |

CARY GLEN P.U.D.
 (FORMERLY PANTHER CREEK P.U.D.)
 PARCELS SF-3, SF-4 AND SF-5

UTILITY DETAILS

| | | |
|-------------------|------------------|----------------------|
| Designer W&R | Scale NTS | CAD File SHT9.DWG |
| Drawn By GAS | Date 3/3/87 | Sheet No. 9 |
| Checked By JEC | Job No. 8704C | |

K:\CADD\1974\04\04\1919 Tue Sep 15 10:56:27 1997 WITHERS & RAVENEL, ENGINEERING & SURVEYING, INC.