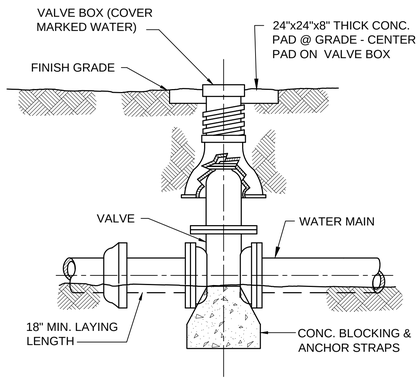
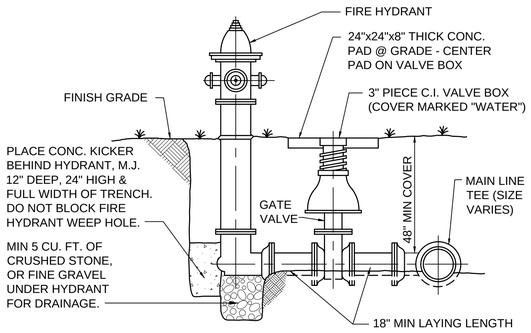



## DETAIL
## TYPICAL WATER VALVE SETTING

NOT TO SCALE




## DETAIL
## FIRE HYDRANT ASSEMBLY

NOT TO SCALE

| PLUGS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SIZE | 4" | 6" | 8" | 12" | 16" | 18" | 20" | 24" |
| D | 16" | 18" | 18" | 24" | 24" | 30" | 30" | 30" |
| L | 16" | 18" | 22" | 30" | 48" | 48" | 48" | 48" |
| T | 10" | 12" | 12" | 12" | 12" | 18" | 24" | 24" |
| W | 16" | 18" | 22" | 24" | 30" | 30" | 48" | 48" |

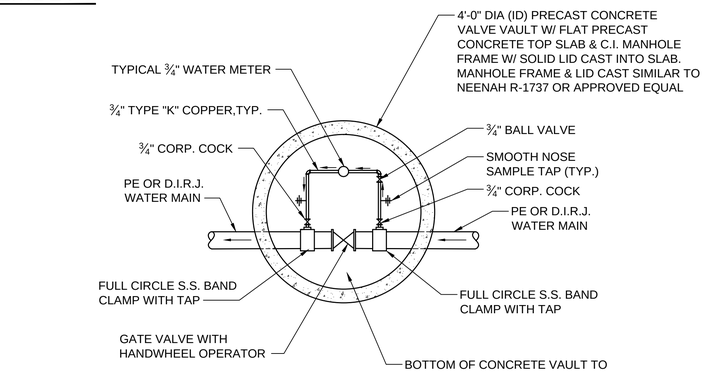
| 11 1/4°, 22 1/2° & 45° BENDS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SIZE | 4" | 6" | 8" | 12" | 16" | 18" | 20" | 24" |
| D | 6" | 6" | 6" | 6" | 6" | 8" | 16" | 16" |
| L | 12" | 14" | 16" | 20" | 34" | 40" | 45" | 52" |
| T | 12" | 14" | 14" | 16" | 28" | 33" | 37" | 46" |
| W | 10" | 12" | 14" | 18" | 22" | 25" | 28" | 32" |

| 90° BENDS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SIZE | 4" | 6" | 8" | 12" | 16" | 18" | 20" | 24" |
| D | 8" | 8" | 10" | 12" | 12" | 16" | 20" | 20" |
| L | 20" | 24" | 27" | 34" | 48" | 51" | 54" | 70" |
| T | 10" | 16" | 18" | 22" | 36" | 40" | 44" | 50" |
| W | 12" | 12" | 16" | 24" | 28" | 34" | 40" | 44" |

| TEES | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SIZE | 4" | 6" | 8" | 12" | 16" | 18" | 20" | 24" |
| D | 8" | 8" | 12" | 12" | 12" | 16" | 38" | 38" |
| L | 10" | 18" | 24" | 27" | 28" | 30" | 48" | 48" |
| W | 16" | 12" | 18" | 24" | 28" | 34" | 48" | 48" |
| T | 12" | 12" | 15" | 18" | 20" | 22" | 24" | 24" |

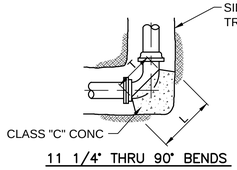
| VERTICAL BEND & STRAIGHT PIPE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SIZE | 4" | 6" | 8" | 12" | 16" | 18" | 20" | 24" |
| D | 12" | 15" | 15" | 18" | 21" | 21" | 24" | 24" |
| L | 18" | 24" | 24" | 30" | 36" | 36" | 36" | 42" |

NOTE:
DEPTH "D" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE. BLOCKING MUST BE PLACED AGAINST UNDISTURBED EARTH.

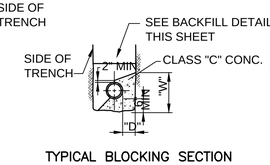



## DETAIL
## LEAK DETECTION AND SAMPLING VAULT

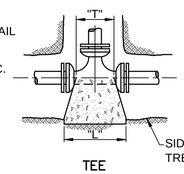
NOT TO SCALE



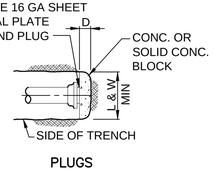

11 1/4° THRU 90° BENDS




TYPICAL BLOCKING SECTION




TEE




PLUGS

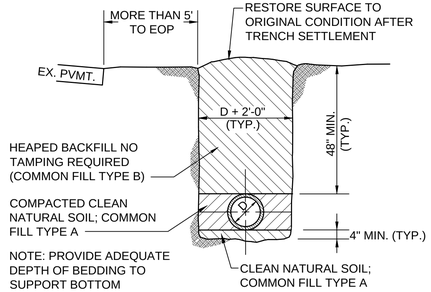
NOTE: FOR ADDITIONAL INFORMATION SEE DETAIL SHEET

## DETAILS - CONCRETE THRUST BLOCKS

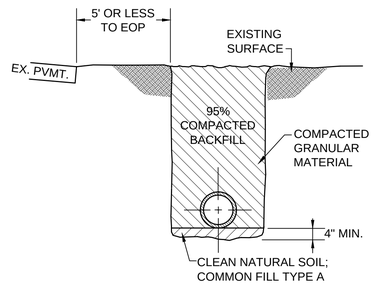
NOT TO SCALE

## BEDDING / BACKFILL / PAVEMENT REPLACEMENT DETAILS

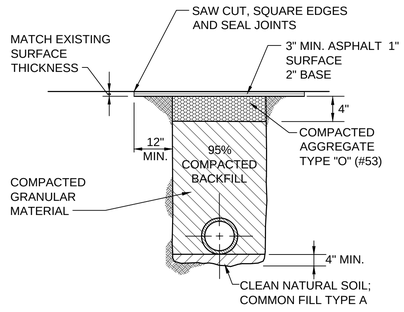
NOT TO SCALE



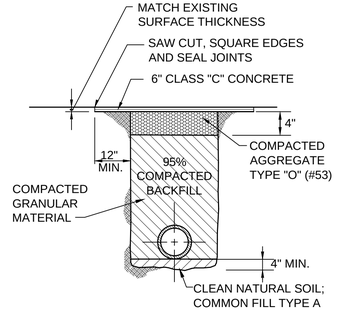

METHOD A
OPEN TERRAIN



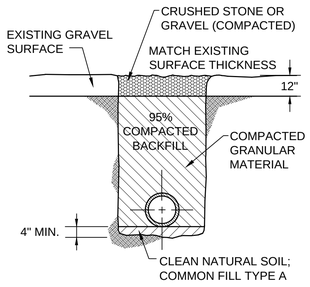

METHOD B
OPEN TERRAIN



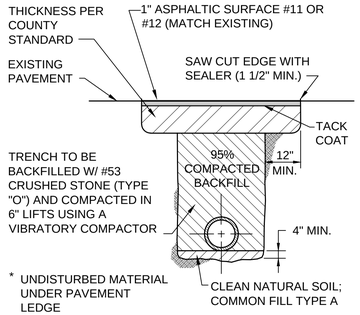

METHOD C
ASPHALT DRIVEWAYS



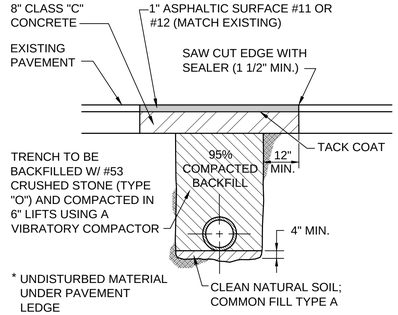

METHOD D
CONCRETE DRIVEWAYS



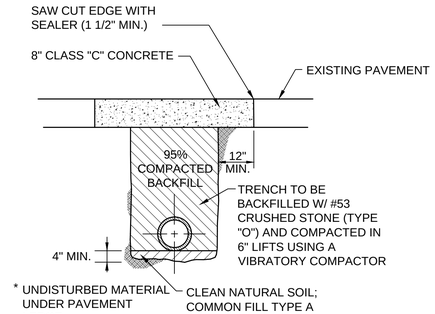

METHOD E
UNPAVED DRIVEWAYS



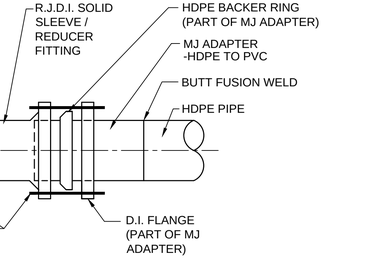

METHOD F
ASPHALT ROADS




METHOD G
CONCRETE ROAD UNDER ASPHALT SURFACE




METHOD H
CONCRETE ROAD




## DETAIL
## FIELD DRAIN REPLACEMENT

NOT TO SCALE




## DETAIL
## HDPE/PVC TRANSITION COUPLING

NOT TO SCALE

CONTRACT H-2

THIS RECORD DOCUMENT HAS BEEN PREPARED BASED ON INFORMATION PROVIDED BY THE CONSTRUCTION CONTRACTOR. GRW ENGINEERS, INC. HAS ATTEMPTED TO VERIFY THE INFORMATION PROVIDED, BUT MAKES NO REPRESENTATION BUT SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

ENGINEERS - ARCHITECTS - PLANNERS
ENGINEER/ARCHITECT: CRAIG FARRELL
CONSTRUCTION COMPANY: LITTLE GREEN CONSTRUCTION, INC.
DATE: 9/2014

CONTRACT H-3

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ENGINEERS - ARCHITECTS - PLANNERS
ENGINEER/ARCHITECT: CRAIG FARRELL
CONSTRUCTION COMPANY: MIKE HOLMAN EXC., INC.
DATE: 9/2014

CONTRACT H-4

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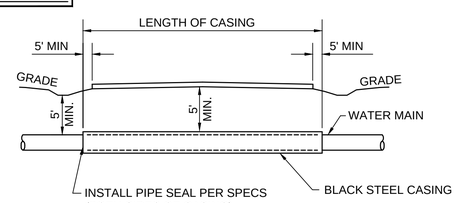
ENGINEERS - ARCHITECTS - PLANNERS
ENGINEER/ARCHITECT: CRAIG FARRELL
CONSTRUCTION COMPANY: ERDACHEW, INC.
DATE: 9/2014

## DETAIL
## LEAK DETECTION AND SAMPLING VAULT

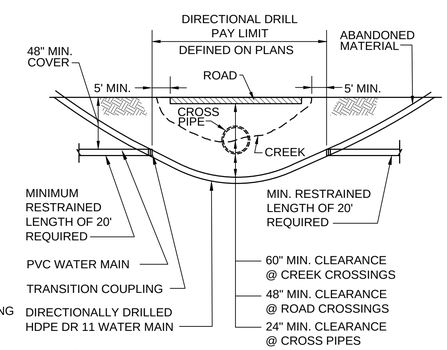
NOT TO SCALE

CENTERING CASING SPACER




## DETAILS
## TYPICAL CASING

NOT TO SCALE




## DETAIL
## DIRECTIONAL DRILLING

NOT TO SCALE

This document, originally issued, sealed, and signed by Daniel R. Cutshaw, Indiana Professional Engineer, No. 11200431, on April 19, 2013, shall not be used in lieu of a certified document.

GRW PROJECT NO. 3916-01

CLIENT CONTRACT NO. H

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ENGINEERS - ARCHITECTS - PLANNERS
www.grwinc.com

# STANDARD DETAILS

DIVISION H - WATERWORKS SYSTEM IMPROVEMENTS
HOOSIER HILLS REGIONAL WATER DISTRICT
RIPLEY AND FRANKLIN COUNTIES, INDIANA

DESIGNED: ALW
DRAWN: JAJ
REVIEWED: CJF
APPROVED: DRC

REVISIONS

| NO. | DESCRIPTION | DATE | BY |
|---|---|---|---|
| 1. | AS-BUILT REVISION | 9/2014 | JEC |

THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

SCALE CHECK:

DATE: APRIL 2013

SCALE: NONE

SHEET NO. C-01

PRINTED: 11/12/2014 @ 3:49PM

FILE NAME: Y:\3916-HHRWD Div H\Working Drawings\Civil 3D\H-2\3916-C-01 std dets.dwg