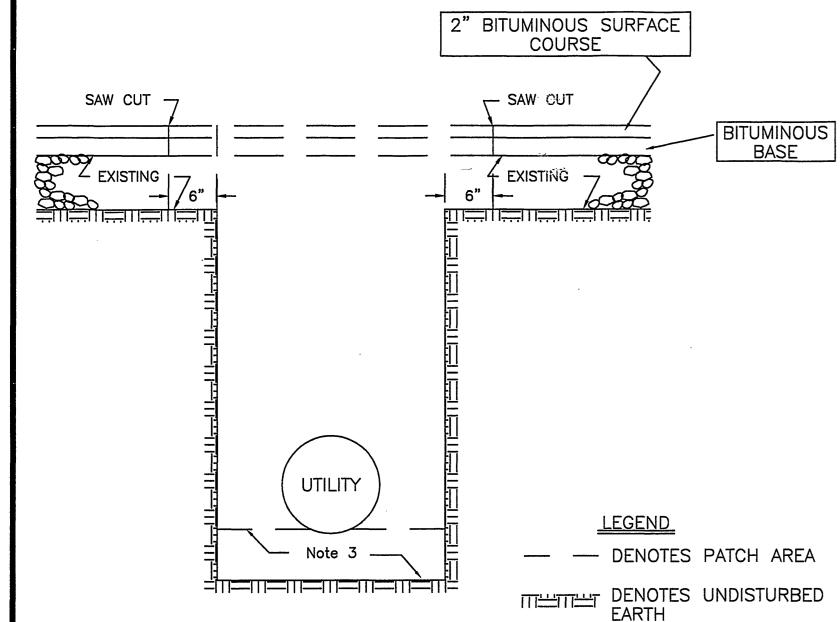


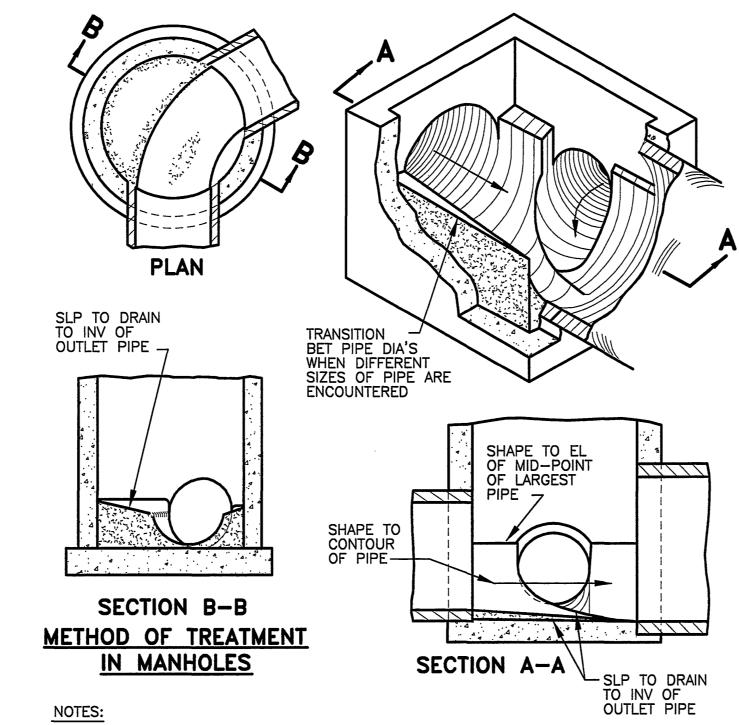
- ALL PAVEMENTS SHALL BE SAW CUT WITH NEAT, UNIFORM LINES PRIOR TO EXCAVATION.
- PIPE BEDDING MATERIAL SHALL BE CRUSHER RUN (VDOT NO. 25 OR 26) OR OPEN GRADED AGGREGATE (VDOT NO. 57, 68, 7, OR 8). ALTERNATE MATERIAL MUST BE APPROVED BY THE CITY ENGINEER.
- 3. MAXIMUM DEPTH OF PIPE BEDDING MATERIAL IF USING OPEN GRADED AGGREGATE FOR BEDDING.
- OPTIONAL CONCRETE ENCASEMENT FOR POWER OR COMMUNICATION CONDUIT. PROVIDE A MINIMUM OF 4" CONCRETE COVER FROM ALL SIDES OF CONDUIT.
- . BACKFILL MATERIAL SHALL BE VDOT NO. 21A AGGREGATE, PLACED IN LIFTS NOT EXCEEDING 6", AND COMPACTED TO AT LEAST 95% MAXIMUM DRY DENSITY WITHIN 2% OPTIMUM MOISTURE (ASTM D 698) WITH THE USE OF MECHANICAL TAMPERS OR VIBRATORY ROLLERS. WATER COMPACTION IS NOT PERMITTED. TYPE I SELECT MATERIAL MAY BE USED AS BACKFILL UPON PRIOR APPROVAL BY THE CITY ENGINEER. MATERIAL CLASSIFICATION SHALL BE PERFORMED ON THE ACTUAL SOIL TO VERIFY THAT SOIL MEETS VDOT SPECIFICATIONS BY A QUALIFIED TESTING LABORATORY AND TEST RESULTS SHALL BE CERTIFIED BY A VIRGINIA REGISTERED PROFESSIONAL ENGINEER. COMPACTION REQUIREMENS ARE THE SAME AS ABOVE.
- ALL COMPACTION TESTING SHALL BE PERFORMED BY A VDOT-CERTIFIED TECHNICIAN. RESULTS SHALL BE PROVIDED TO THE INSPECTOR WITHIN 24 HOURS OF TESTING COMPLETION. THE COST OF ALL TESTING IS THE RESPONSIBILITY OF THE PERMITTEE.
- ALL PAVEMENTS SHALL BE RESTORED TO MATCH DEPTHS OF EXISTING SURFACE, BASE, AND AGGREGATE LAYERS. THE ASPHALT SURFACE LAYER SHALL BE A MINIMUM OF 2" THICK AND EXTEND OVER UNDISTURBED BASE A MINIMUM OF 12" ON ALL SIDES. ALL PAVEMENT MATERIALS SHALL MEET VDOT REQUIREMENTS FOR SURFACE MIX (SM-9.5AL, SM-9.5A, OR SM-12.5D), BASE MIX (BM-25), AND STONE AGGREGATE (21A OR 21B). PLANT CERTIFICATION FOR EACH MIX INCORPORATED INTO THE WORK SHALL BE PROVIDED TO THE INSPECTOR. WHEN MATCHING NON-STANDARD MATERIALS, THE INSPECTOR SHALL DETERMINE AN ACCEPTABLE MATERIAL
- THE REPAIR SHALL BE RECTANGULAR AND SAW CUT IN STRAIGHT, UNIFORM LINES THAT ARE ALIGNED WITH THE STREET CENTERLINE. WHEN EDGES OF PAVEMENT HAVE BEEN UNDERMINED, PAVEMENT SHALL BE REMOVED TO A NEAT LINE 12" BEYOND THE UNDERMINED AREA. THE FINISHED PATCH SURFACE SHALL BE WITHIN 1/4 INCH AT ANY POINT ACROSS THE PATCH AS IT RELATES TO THE SURROUNDING STREET SURFACE.
- 8. A FULL COVERAGE TACK COAT IS REQUIRED ON ALL SURFACES THAT WILL CONTACT THE NEW SURFACE LAYER.

## UTILITY TRENCH REPAIR IN PAVEMENT USING VDOT NO. 21A AGGREGATE



- Surface and base replacement will generally be required to match existing asphalt layers and shall be compacted in lifts according to Virginia Department of Transportation Road and Bridge Specifications.
- Bedding material shall be according to requirement of each utility.
- 3. Saw cut to be made with mechanical saw and sides to be tacked with bituminous material type RC-250 or equal.
- 4. Street opening permit required before any work in public right—of—way. Contact City Development Assistance Center for permit, Phone (853—1090).
- 5. Contact City Engineering Inspector 48 hours prior to beginning any work, Phone (853-2856)

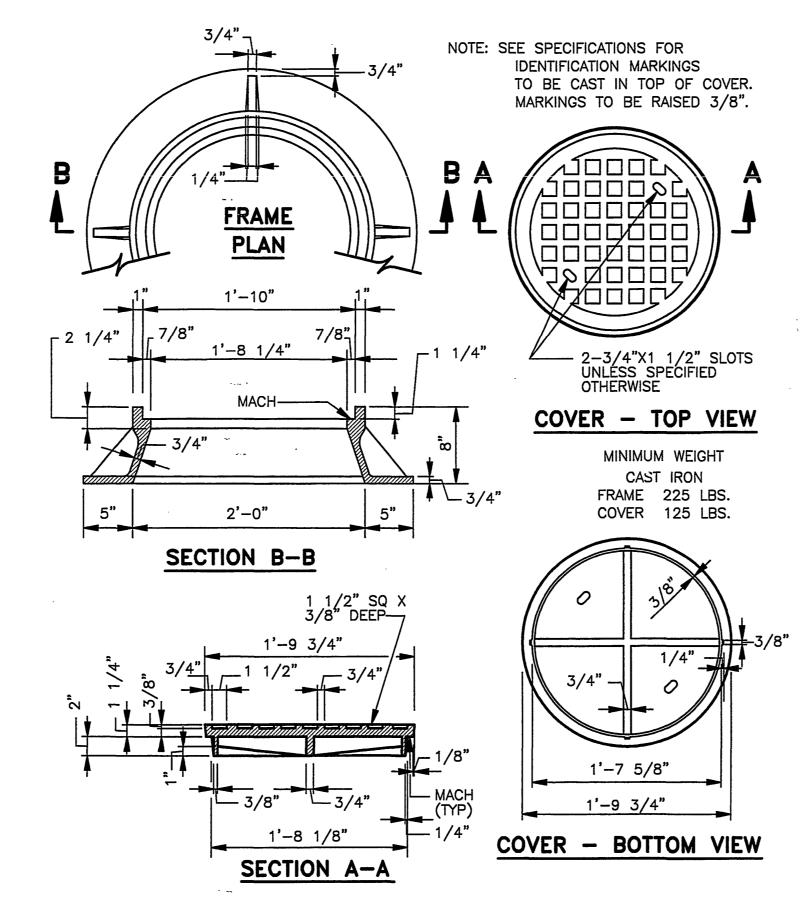
TYPICAL DETAIL PAVEMENT CUTTING AND REPLACEMENT



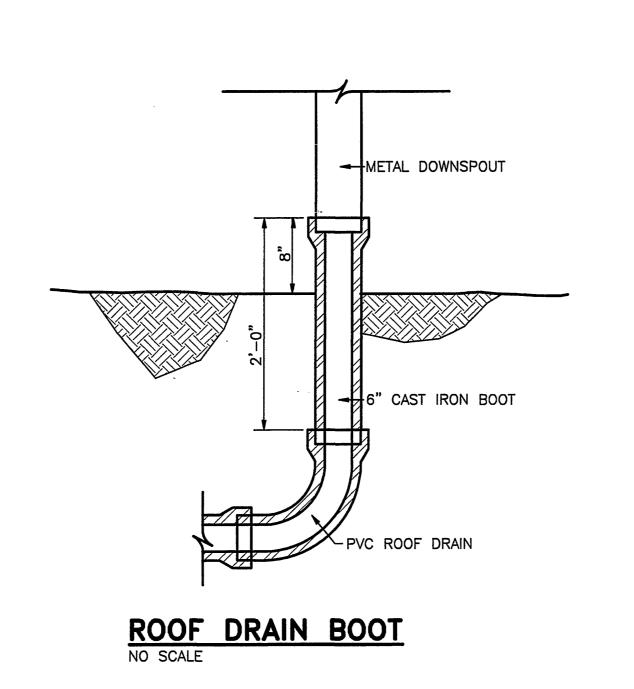
I. SURFACES SHALL BE LEFT SMOOTH BY HAND TROWELING. COARSE AGGR SHALL NOT REMAIN EXPOSED. 2. DET'S OF INV SHAPING AS SHOWN HEREON ARE FOR EXAMPLE PURPOSES ONLY. EA MH OR DI SHALL BE SHAPED INDIVIDUALLY TO FIT THE PARTICULAR INLET AND OUTLET CONFIGURATION AND FLOW LINES.

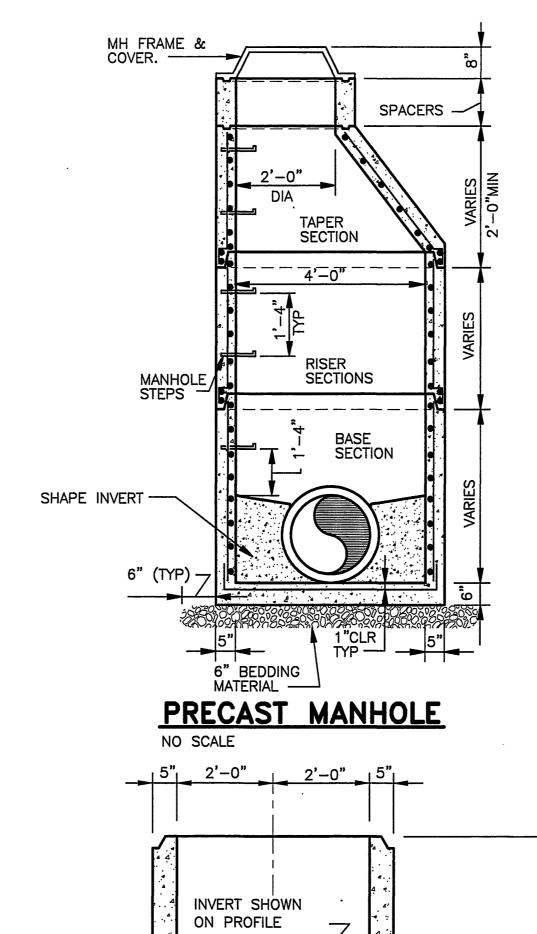
METHOD OF TREATMENT IN DROP INLETS

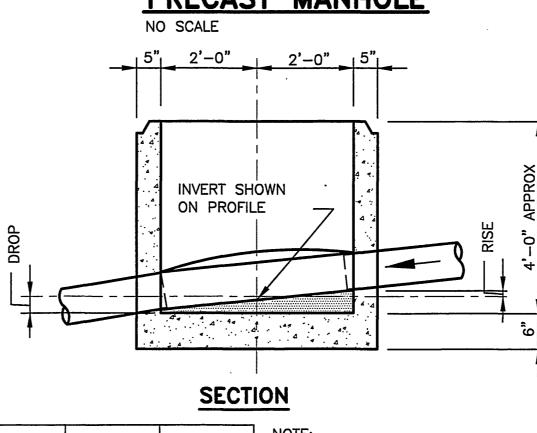
## METHOD OF SHAPING MANHOLE



STANDARD MANHOLE FRAME & COVER





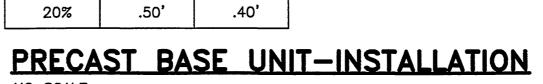


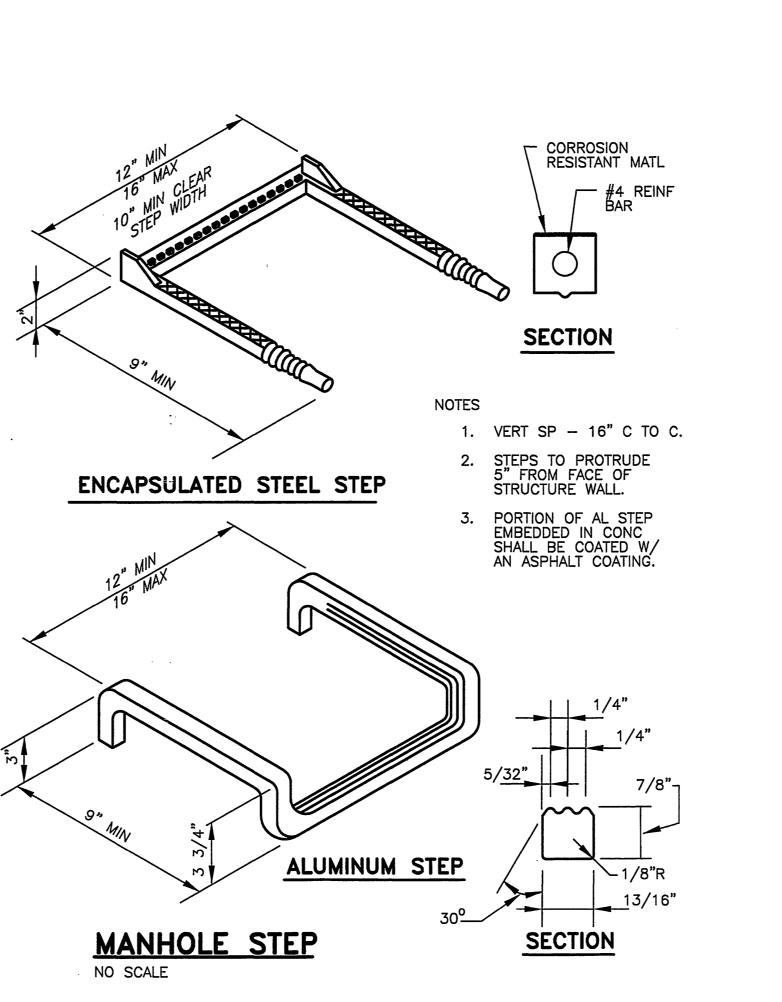
FURNISH BASE WITH PIPE OPENINGS

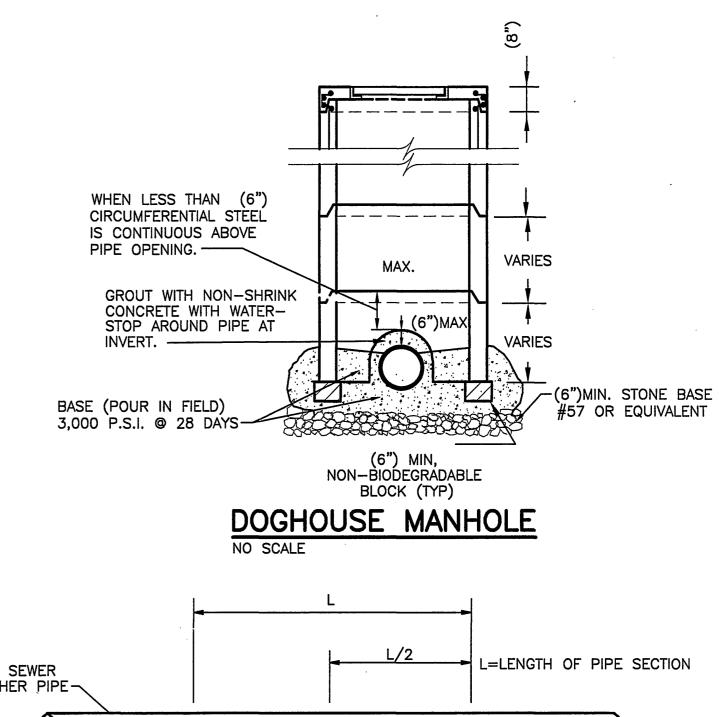
LOCATED TO ALLOW VERTICAL OFFSETS OF PIPE INVERTS, AS SHOWN, WHENEVER PIPE SLOPES

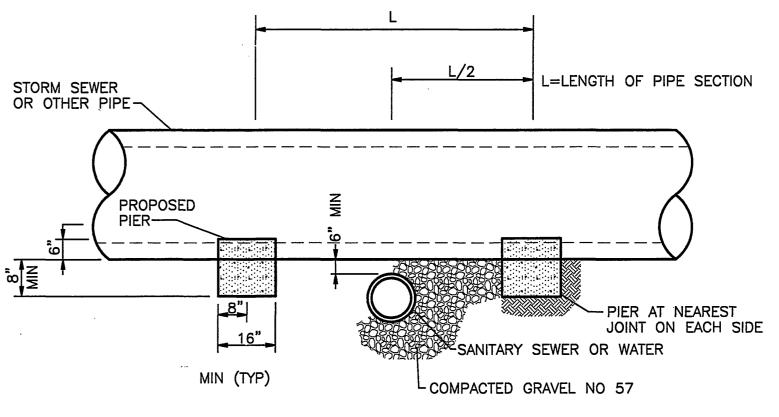
ARE 5% OR GREATER.

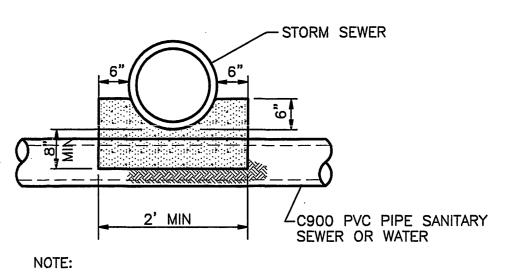
	<u> </u>			
SLOPE	DROP	RISE		
5%	.15'	.10'		
6%	.15'	.10'		
8%	.20'	.15'		
10%	.25'	.20'		
12%	.30'	.20'		
_14%	.35'	.25'		
16%	.40'	.30'		
18%	.45'	.35'		
İ				







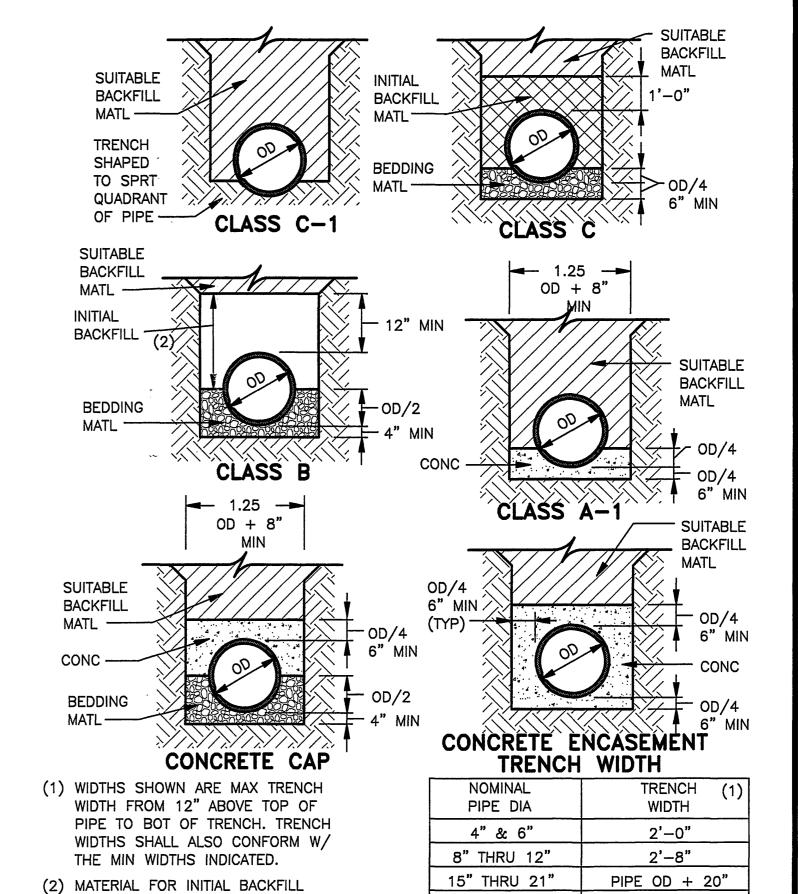




 PIER REQUIRED WHEN STORM DRAIN OR OTHER PIPES CROSSES OVER THE OTHER UTILITY WITH A VERTICAL CLEARANCE OF LESS THAN 18". 2. PIER TO BE BUILT ON UNDISTURBED EARTH.

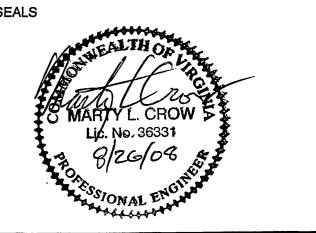
3. CONCRETE TO BE VDOT CLASS A3. CONCRETE PIERS

NO SCALE



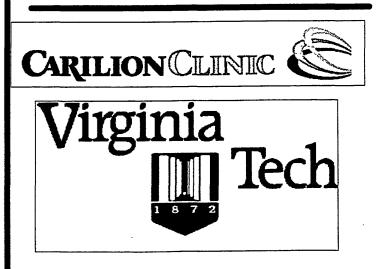


HAYES, SEAY, MATTERN & MATTERN, INC. 1315 FRANKLIN ROAD ROANOKE, VA 24016



CONSULTANT

CONSULTANT



**VIRGINIA** TECH/CARILION SCHOOL OF **MEDICINE AND** RESEARCH INSTITUTE ROANOKE, VIRGINIA

PROJECT CODE: 208-16759

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	<i></i> 4						
REV	DATE		DESCRIPTION	APF			
PROJ	ECT NO: 4008	0	PROJECT PHASE:				
ISSUE DATE: AUGUST 26, 2008							
DESIG	NED BY:	KSH	DRAWN BY:	MDF			
CHEC	KED BY:	MLC	SUBMITTED BY: SCG				

CIVIL

SITE AND UTILITY DETAILS

C503

M:\PROJECTS\40000SERIES\40080\CADD\DWG\KM7CSN\_0503.DWG 40080 09/02/2008 12:50:47 HURT, KEVIN RF: km7c\_nxdt00,km7c\_nxbrdr IMG: NONE

24" THRU 30"

33" THRU 42"

48" & LARGER

PIPE OD + 24"

PIPE OD + 30"

PIPE OD + 36"

SHALL BE AS SPECIFIED.

PIPE TRENCH