<ul> <li>C. All frames and covers shall be coated by the manufacturer with coal tar pitch varnish or other asphaltum coating approved by the ENGINEER.</li> <li>2.05 MANHOLE STEPS</li> <li>A. Steps shall be plastic coated steel. They shall be M.A. Industries PS1-PF or PS1-B or equal.</li> </ul>	<ol> <li>For use on catch basins in asphalt and concrete areas: Frames shall be EJ Model 3024 SELFLEVEL assembly product number 00302514A01 for concrete, all with EJ Type M1 Covers with trout logo.</li> <li>For use on catch basins in curbed areas frames shall be EJ 7045 or 7065 with M1 cover with trout logo, or equal.</li> <li>For use on catch basins in landscaped areas frames shall be EJ 1040Z, with Type 02 Beehive grate with trout logo, or equal.</li> </ol>	<ul> <li>B. Frames and covers shall be as follows:</li> <li>1. For use on manholes in asphalt and concrete areas: Frames shall be EJ Model 3024 SELFLEVEL assembly product number 00302403 for asphalt, EJ 3025ZPT SELFLEVEL assembly product number 00302514A01 for concrete, all with EJ Type B Covers with eight (8) holes and with the trout logo.</li> </ul>	<ul> <li>2.04 STRUCTURE FRAMES AND COVERS</li> <li>A. Structures frames and covers shall weigh not less than 350 lbs. Each frame and cover shall have machined bearing surfaces and shall be suitably notched for convenient removal of the cover. All manhole and catch basin covers shall have the trout logo. Each solid manhole cover shall be marked "STORM SEWER" with letters integrally cast into the cover.</li> </ul>	A. Mortar for plastering manholes and drainage structures shall be made of one part Portland cement and two parts fine aggregate.	C. Manhole component cut sheets shall be provided for all manholes.  2.03 MORTAR FOR MANHOLES	B. All manhole component parts shall have the name of the manufacturer stenciled on the inside. The lettering or logo shall be a minimum of 4 inches high.	A. Manholes shall conform to the current ASTM Specifications for precast reinforced concrete Manhole Sections, serial designation C478. Manhole section joints shall conform to ASTM Designation C990. All cones shall be eccentric with an offset step configuration. Concrete adjustment rings, riser rings or manhole bricks, shall be used for adjusting the height of the structure.	2.02 REINFORCED CONCRETE MANHOLES	<ul><li>D. HDPE pipe shall meet or exceed all requirements of the current ASTM F-2136, and shall have silt tight joints.</li><li>E. PVC pipe shall meet or exceed all requirements of SCH 40 or SDR 26.</li></ul>	Corrugated steel pipe shall meet the requirements of the latest revision of AA: gage thickness shall be as shown on the Plans.	<ul><li>A. Reinforced concrete pipe and manhole tees shall be no less than the latest revision of ASTM C76, class IV.</li><li>B. Concrete pipe shall have tongue and groove gasketed premium joints.</li></ul>			<ul><li>D. Submittals</li><li>1. The CONTRACTOR shall submit shop drawings or data sheets for all castings, steps and structures.</li></ul>	The CONTRACTOR shall have tests of pipe strength made by an independent testing laboratory. Tests of up to 4 lengths of sewer pipe per hundred lengths may be required to show compliance with the Specifications. All pipe delivered to the job site shall be accompanied with a manufacturer's certificate of compliance to the Specifications. Pipe certification letters shall include the <i>Project Name</i> and <i>Name of Manufacturer</i> .	accura	<ol> <li>Test for Alignment</li> <li>All sewers shall be laid accurately to the line and grade designed by the ENGINEER. The CONTRACTOR shall use</li> </ol>	<del>_</del>	1.02 TESTING  A. General	A. The CONTRACTOR shall furnish all labor, tools, equipment and materials to construct all storm sewers, and drainage structures as herein specified. No sewers shall be accepted until the sewer system has passed the system acceptance tests.	1.01 DESCRIPTION
					AAT FEBRUARY 200	formed area shall then be filled with concrete.  D. Closure of the manhole wall shall be made watertight using concrete.	<ul> <li>B.If the existing manhole is of brick construction, a single rowlock of brick shall be turned over the new pipe existing manhole brick work shall be cleaned, pointed and given a 1/2-inch mortar coat on the outside surface.</li> <li>C.For connections to existing precast reinforced concrete manholes, a hole shall be cored (with proper coring economic to the concrete manhole wall to receive the pipe. A form shall be constructed over the area of pipe penetral</li> </ul>	<ul><li>3.04 CONNECTIONS TO EXISTING MANHOLES</li><li>A. When a sewer is connected to an existing manhole, a hole adequate to receive the new pipe shall be corec manhole with proper coring equipment.</li></ul>	F. Breaks in pipe or joints shall be repaired to the satisfaction of the ENGINEER and at the expens CONTRACTOR. Breaks or cracked pipe could be cause for rejection of the material at the discretic ENGINEER.	E. All cutting of the pipe shall be done in a neat workmanlike manner with the least amount of waste and withou to existing or new lines. A fine toothsaw, tubing cutter or similar tool may be used to cut concrete pipe. Cuts square. Ragged edges shall be removed with a cutting tool or file.	D. All pipe shall be carefully lowered and moved into position in trench or vault in a controlled manner such as w damage to the pipe and any coatings or lining. An excessive amount of scratching on the surface of the con will be considered cause for rejection.	C. The location of the piping as shown on the Plans has been determined to avoid, insofar as possible, interferences or structures or fixtures above ground and other underground mains, services, utilities or structures. And in location or alignment of piping, which may be found more feasible or practicable as the work progresses made by the CONTRACTOR, as the ENGINEER may direct.	B. The grade as shown on the profiles is that of the pipe invert and that to which the work must conform. The g be kept by pipe laser which shall be furnished by the CONTRACTOR at his expense. Each pipe shall be laid at to the line and grade as shown on the Plans and in such manner as to form a close concentric joint with the pipe and prevent sudden offsets of the invert. The interior of sewers shall, as the work progresses, be clearly dirt, cement, debris and other superfluous materials of every description. The pipe shall be capped to keep materials out of the open end of the sewer when work is not in progress.	A.All pipe shall be laid true to the required lines and grades. All trenches when pipe laying is in progress, shadry, and all pipes and fittings shall be uniformly supported on a properly trimmed bedding with holes at each receive bells. All pipe shall be laid with bells uphill.	C."Granular Material" shall be MDOT class II, placed in not more than 6-inch layers and compacted to not less standard density.  3.03 PIPE INSTALLATION	used.  B.For all pipes, compacted aggregate material shall be placed at the sides of the pipe in 12-inch lifts and cove than 12 inches above the crown of the pipe.	3.02 BEDDING  A. Concrete pipe shall be laid on a compacted granular material placed on the bottom of the trench to a depth of the first of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the trench to a depth of the standard on the bottom of the standard on the standard	A. All excavation and backfill 12 inches above the crown of pipe shall conform to Section 2.04, Subsections 3.08-3.11, Earthwork of these specifications.  B. The trench shall be backfilled closely behind the pipe laying. Unless otherwise directed or permitted by the ENGINEER, the backfilling shall follow and be completed to the top of the trench within four pipe lengths behind pipe laying.	3.00 EXECUTION  3.01 EXCAVATION AND BACKELL	C.Final adjustment of the top of manholes and catch basins, so that the manhole or catch basin cover is at elevations as shown on the Plans or meets the finished surface, may be accomplished with sewer brick confict the previously listed Specifications. The total height of brick for this purpose shall not exceed 9 inches. distance from the top step to the rim shall not exceed 18 inches.	A. All mannoles and catch pasins snall be precast unless outerwise specified.  B. Manhole and catch basin bottoms shall be concrete and top of slab shall have a troweled finish.

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The Contractor shall verify and be responsible for all dimensions. DO NOT scale the drawing — any errors or omissions shall be reported to Stantec without delay.

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18.03.01 18.02.23 17.03.28 13.01.17 YY.MM.DD

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Project No.

STORM SEWER SPECIFICATIONS

Client/Project
ANN ARBOR TOWNSHIP

TTN DRW DRW Dwn. Chkd. Dsgn.

Standard Specifications and Details

Drawing No.

Sheet

Revision

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