
EXHIBIT F59

GRADYVILLE ROAD FORCE MAIN CONNECTION AGREEMENT,
DATED 2014, BY AND AMONG EDGMONT TOWNSHIP,
DELCORA, ASHFORD LAND COMPANY LLP,
NEWTOWN TOWNSHIP AND NEWTOWN TOWNSHIP,
DELAWARE COUNTY MUNICIPAL AUTHORITY

GRADYVILLE ROAD FORCE MAIN CONNECTION AGREEMENT

This Agreement is made this day of , 2014, by and between Edgmont Township, a Pennsylvania Township of the Second Class ("Edgmont"), the Delaware County Regional Water Quality Authority, a Pennsylvania Regional Municipal Authority ("DELCORA"), Ashford Land Company, L.L.P. ("Developer"), Newtown Township, Delaware County, a Pennsylvania Township of the Second Class ("Newtown") and the Newtown Township, Delaware County, Municipal Authority, a Pennsylvania Municipal Authority ("Newtown Authority")

BACKGROUND

WHEREAS, Edgmont is undertaking to provide public sewer service to the eastern portion of its Township having received approval from the Pennsylvania Department of Environmental Protection of its Act 537 Plan entitled Edgmont Township, Delaware County, 2010 Act 537 Special Study – Crum Creek Sewer District, prepared by Bradford Engineering Associates, Inc., dated August 2010, revised February, 2011;

WHEREAS, Newtown and Newtown Authority have entered into a Sewer Agreement with an Addendum to the Sewer Agreement with Developer which Sewer Agreement and Addendum to the Sewer Agreement are dated April 28, 2011, including a first amendment dated February 11, 2013, to provide public sewer to the development currently known as the Liseter Development located at the northwest corner of the intersection of State Route 252 and Goshen Road, Newtown Township, Delaware County, Pennsylvania as well as to other current and proposed residents and commercial entities in Newtown Township;

WHEREAS, DELCORA and Newtown Authority were formed under the Pennsylvania Municipality Authorities Act of 1945, as amended and supplemented, and are authorized to exercise all the powers enumerated therein, including the power to make contracts of every name and nature and to execute all instruments necessary and convenient for the carrying on of their business;

WHEREAS, Edgmont and Newtown, by adoption of the New Membership Agreement with the Central Delaware County Authority ("CDCA"), also known as the Supplemental Agreement ("Supplemental Agreement"), and the issuance of a Certificate of Amendment by the Secretary of the Commonwealth dated February 25, 2009, have become members of CDCA;

WHEREAS, Developer has received approval of its Sewer Facilities Planning Module from the PA Department of Environmental Protection by approval letter dated April 2, 2012 and received its Part II Construction and Operation Permit issued March 12, 2012, to design, construct and install a pump station, force main, and collection and conveyance system to provide public sewer to the Liseter Development. The force main constructed and installed by Developer in conformity with its Planning Module and Part II Permit, includes a segment which will extend along State Route 252 from Gradyville Road to the CDCA interceptor at or near its location adjacent to the Delaware County Community College, where it will connect with the CDCA Sewer System ("Liseter Force Main");

WHEREAS, DELCORA and Edgmont have entered into an Agreement dated October 17, 2012 whereby DELCORA shall provide certain public sanitary sewer services to Edgmont's Crum Creek Sewer District;

WHEREAS, pursuant to a Sewer Agreement dated October 17, 2012, DELCORA is obligated to finance, design, construct, install, own, operate, repair and maintain the Crum Creek Sewer District System consistent with Edgmont's approved Act 537 Plan, which System shall include the design, construction and installation of a force main extending upon, across, under and/or along Gradyville Road from Edgmont Township into and through Newtown Township to the intersection of Gradyville Road and State Route 252 ("Gradyville Road Force Main") to collect and convey wastewater from Edgmont's Crum Creek Sewer District to the CDCA system for ultimate conveyance to the DELCORA system for treatment and ultimate disposal and discharge;

WHEREAS, Newtown and DELCORA have entered into an agreement dated October 15, 2013 ("Newtown-DELCORA Agreement") whereby Newtown granted and conveyed to DELCORA a non-exclusive easement and right-of-way upon, across, under and along Gradyville Road within Newtown Township to allow DELCORA to construct, install, operate, maintain, repair, upgrade, replace, enlarge and improve a force main and all appurtenances related thereto;

WHEREAS, it is determined to be in the mutual best interest of all parties to this Agreement, as well as consistent with the Commonwealth's policy of favoring and encouraging inter-municipal cooperation, that the Gradyville Road Force Main connect to the Liseter Force Main to allow for the conveyance and transmission of wastewater from Edgmont's Crum Creek Sewer District to the CDCA interceptor for conveyance through the CDCA system to the DELCORA system for treatment and ultimate disposal and discharge;

TERMS AND CONDITIONS

AND NOW THEREFORE, the parties hereto, in consideration of the premises and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged and intending to be legally bound, do agree as follows:

1. Newtown and Newtown Authority hereby approve and grant to DELCORA and/or Edgmont the right to connect the Gradyville Road Force Main to the Liseter Force Main to allow for the conveyance of wastewater flow from Edgmont's Crum Creek Sewer District and from other areas of Newtown Township to the CDCA system for conveyance into the DELCORA system for treatment and ultimate disposal and discharge. In the event the Liseter Force Main has not been accepted for dedication by Newtown and/or Newtown Authority at or by the time DELCORA and/or Edgmont desire and are prepared to install and construct the connection of the Gradyville Road Force Main to the Liseter Force Main, then Developer hereby approves and grants to DELCORA and/or Edgmont the right to install and construct the connection of the Gradyville Road Force Main to the Liseter Force Main subject to the terms and conditions as contained hereinafter.
2. Edgmont and/or DELCORA shall be responsible to pay the costs of the design, construction, installation, operation, maintenance, repair and replacement of the connection of the Gradyville Road Force Main to the Liseter Force Main, which connection shall be subject to the inspection and approval of Newtown Authority's engineer, which approval shall not be unreasonably withheld. Newtown Authority engineer James W. MacCombie, P.E. has reviewed DELCORA's plans for the

connection of the Gradyville Road Force Main to the Liseter Force Main attached as Exhibit "A" ("Connection Plans") and has approved same.

3. Edgmont agrees to adopt rules and regulations which, at a minimum, offer equivalency with DELCORA's then effective standards, rules and regulations as required by the Agreement between DELCORA and Edgmont dated October 17, 2012.
4. DELCORA and Edgmont agree only flow from Edgmont's Crum Creek Sewer District shall be conveyed by and permitted to flow into the Gradyville Road Force Main from Edgmont Township and, under no circumstances, shall the flow from Edgmont Township exceed the amount set forth in Edgmont's approved Act 537 Plan entitled Edgmont Township, Delaware County, 2010 Act 537 Special Study – Crum Creek Sewer District, prepared by Bradford Engineering Associates, Inc., dated August 2010, revised February, 2011, in the average amount of 350,000 gallons per day (with peak flows of approximately 1,000,000 gallons per day), except upon further written agreement and approval by the parties hereto. The parties agree that, as contemplated by the Newtown-DELCORA Agreement, sanitary sewer flow of 50,000 gallons average flow per day generated from Newtown Township may also be conveyed by and permitted to flow into the Gradyville Road Force Main and, further, that the provisions of this paragraph shall not prohibit DELCORA from accepting and permitting additional sanitary sewer flow generated in Newtown Township into the Gradyville Road Force Main and conveying such flow by the Gradyville Road Force Main to the Liseter Force Main.

5. Consistent with the Sewer Agreement and Addendum to the Sewer Agreement dated April 28, 2011, including a first amendment dated February 11, 2013, Developer shall be responsible for operating, maintaining and repairing the Liseter Force Main until such time as dedication is accepted of the Liseter Force Main by either Newtown or Newtown Authority. Thereafter, beginning from the date dedication is accepted by either Newtown or Newtown Authority of the Liseter Force Main, Edgmont and/or DELCORA shall be responsible for post-connection service charges (including repair and capital improvement costs attributable to sewage discharged into the Liseter Force Main from Edgmont's Crum Creek Sewer District as a result of said connection in the same manner as set forth in paragraph 4 of the Newtown-DELCORA Agreement, said post-connection service charges to be calculated by DELCORA, subject to review by Newtown and assessed to and paid by Edgmont and/or DELCORA on an annual basis. Edgmont/DELCORA's responsibility for the services charges will be limited to the portion of the Liseter Force Main that extends from the Gradyville Force Main connection to Liseter Force Main at the intersection of Gradyville Road and Route 252 to the Liseter Force Main's connection to the CDCA system. Service charges shall be based on the formula attached hereto as Exhibit "B" with the flows utilized in calculating the formula based on the most recent quarterly meter readings at the time immediately preceding the assessment of the service charges. Service charges shall apply to charges related to the Force Main and shall not apply to pump stations' maintenance or operating costs.
6. Any capital improvements (upgrades and/or expansion) and costs related thereto that are needed for the Gradyville Road Force Main shall be the sole responsibility of

Newtown if the improvements only benefit Newtown. Any capital improvements (upgrades and/or expansion) and costs related thereto that are needed for the Gradyville Road Force Main shall be the sole responsibility of Edmont/DELCORA if the improvements only benefit Edgmont/DELCORA. Any capital improvements (upgrades and/or expansion) and costs related thereto that are needed for the Gradyville Road Force which benefit both Newtown and Edgmont/DELCORA Main shall be the responsibility of Newtown and Edgmont/DELCORA based the percent (%) of the total flow for which either line is designed – for Edgmont/DELCORA based on Three Hundred Fifty Thousand gallons per day (350,000 gpd) and for Newtown based on Fifty Thousand gallons per day (50,000 gpd). The cost of any and all repairs maintenance work performed on the Gradyville Road Force Main shall be based on the formula attached hereto as Exhibit “B”. The flows to be utilized in calculating the formula shall be based on the most recent quarterly meter readings preceding the date the repair and/or maintenance work is undertaken.

Edgmont/DELCORA’s responsibility for the cost of any and all repairs maintenance work performed to the Gradyville Road Force Main will be limited to any repairs or maintenance work performed to the portion of the Liseter Force Main that extends from the Gradyville Force Main connection to Liseter Force Main at the intersection of Gradyville Road and Route 252 to the Liseter Force Main’s connection to the CDCA system and shall be based on the formula set forth in Exhibit “B”, with the flows utilized in calculating the formula based on the most recent quarterly meter readings preceding the date the repair and/or maintenance work is undertaken.

7. Wastewater generated from Edgmont Township and delivered by DELCORA and/or Edgmont into the Gradyville Road Force Main shall be limited exclusively to flow from Edgmont's Crum Creek Sewer District and not generally available to the public throughout Edgmont Township. The parties agree that, as contemplated by the Newtown-DELCORA Agreement, sanitary sewer flow generated from Newtown Township may also be conveyed by and permitted to flow into the Gradyville Road Force Main and, further, that the provisions of this paragraph shall not prohibit DELCORA from accepting and permitting additional sanitary sewer flow generated in Newtown Township into the Gradyville Road Force Main and conveying such flow by the Gradyville Road Force Main to the Liseter Force Main.
8. Neither Newtown nor Newtown Authority shall have any ownership interest in any lines, pump stations and/or any appurtenances related thereto or any other parts of the public sewer system that comprises the Crum Creek Sewer District.
9. This Agreement shall start on the Effective Date and shall continue in full force and effect thereafter unless and until terminated by either party in accordance with the terms hereof.
10. Newtown and/or Newtown Authority shall have the right to terminate this Agreement for "cause" at any time, but only upon three (3) months written notice to DELCORA of such alleged cause for termination and DELCORA's failure to cure same within such three (3) month time period. Said three month notice intended to provide DELCORA and/or Edgmont a reasonable period of time within which to cure the cause for termination. "Cause" shall mean any of the following:

- (1.) Continuing exceedances of the limitations on average daily flow generated from Edgmont Township permitted to be conveyed by DELCORA and/ Edgmont into and through the Gradyville Road Force Main from Edgmont's Crum Creek Sewer District; or
- (2.) Continuing exceedances of the then effective DEP loading limits and/or of DELCORA's then effective standards, rules and regulations for a period of two (2) months which are not corrected as required by this Agreement; or
- (3.) Failure by DELCORA and/or Edgmont to meet its financial obligations under this Agreement for a period of more than two (2) months; or
- (4.) Failure to meet and/or comply with DELCORA's then effective standards, rules and regulations for a period of more than two (2) months;
- (5.) DELCORA and/or Edgmont, their successors or assigns, discontinue the conveyance of flow into or through the Gradyville Road Force Main after such flow is first introduced into the Gradyville Road, other than for reasons attributable to maintenance, repair, upgrade, expansion and/or improvement or by written agreement of the parties hereto. DELCORA may also terminate this Agreement if it elects to discontinue flow into or through the Gradyville Road Force Main.

11. DELCORA and/or Edgmont, at its sole expense, shall install and shall own and maintain a meter equipment and the electronics associated therewith of a kind, quality and manufacturer approved by Newtown Authority and/or Newtown and CDCA. Meter equipment meeting the specifications contained in Exhibit "C" is acceptable to Newtown Authority and Newtown.

12. DELCORA and/or Edgmont shall provide readings on a monthly basis to CDCA, Newtown and Newtown Authority documenting the amount of flow from Edgmont Township into the Gradyville Road Force Main, as well as calibration tests/studies performed on the meter which shall performed and supplied to CDCA, Newtown and Newtown Authority on a quarterly basis. The Newtown Authority and/or Newtown Township, upon reasonable notice to DELCORA, shall be entitled to inspect the metering equipment maintained by DELCORA and/or Edgmont. Newtown and/or Newtown Authority shall provide readings on a monthly basis to CDCA, DELCORA and Edgmont documenting the amount of flow from Newtown Township into the Liseter Force Main, as well as calibration tests/studies performed on the meter which shall performed and supplied to CDCA, Newtown and Newtown Authority on a quarterly basis.
13. DECLORA and/or Edgmont shall be responsible to pay directly to CDCA any and all costs and fees as set forth in the Supplemental Agreement for the flow conveyed in and through the Gradyville Force Main from Edgmont's Crum Creek Sewer District.
14. DELCORA and Edgmont agree to perform the work associated with the design, construction and installation of the connection of the Gradyville Force Main to the Liseter Force Main in accordance with the Connection Plans attached as Exhibit "A", and all details thereon. All work shall be performed in a good and workmanlike manner by a contractor or contractors properly insured and licensed.
15. DELCORA and Edgmont Township, its successors and assigns, agree to be responsible for and to indemnify, hold harmless and defend Newtown, Newtown Authority and Developer, their engineers and agents from any and all liability, claims

or costs, including reasonable counsel fees, suffered and/or incurred by Newtown, Newtown Authority and Developer by reason of any injury, including death, to any person or damage to any property by reason of the operation, construction, installation, operation, maintenance, function or malfunction of the connection of the Gradyville Road Force Main to the Liseter Force Main, except as the result of any negligence, gross negligence and/or intentional acts of Newtown, Newtown Authority and/or Developer, their engineers, agents, employees and/or workmen. Newtown, Newtown Authority and Developer (only for so long as Developer retains ownership of the Liseter Force Main), their successors and assigns, agree to be responsible for and to indemnify, hold harmless and defend, DELCORA and Edgmont Township, their engineers and agents from any and all liability, claims or costs, including reasonable counsel fees, suffered and/or incurred by DELCORA and Edgmont Township by reason of any injury, including death, to any person or damage to any property by reason of the operation, construction, installation, operation, maintenance, function or malfunction of the Liseter Force Main at or prior to its connection with the Gradyville Road Force Main, except as the result of any negligence, gross negligence and/or intentional acts, of DELCORA and/or Edgmont, their engineers, agents, employees and/or workmen.

16. DELCORA and Edgmont agree to be responsible for and shall reimburse the Newtown Authority and/or Newtown for all reasonable and necessary professional fees incurred by Newtown Authority and/or Newtown for the preparation and review of this Agreement, as well as review of the plans for the connection of the Gradyville Road Force Main to the Liseter Force Main and for all field inspections of the

connection of the Gradyville Road Force Main to the Liseter Force Main by Newtown Authority's engineer. Such fees will be in accordance with the ordinary and customary fees charged by such professional for similar services, but in no event shall exceed the fee or rates charged by such professionals to Newtown and/or Newtown Authority.

17. This Agreement shall be binding upon the successors and assignees of the parties hereto and the Surety of the Financial Security.
18. This Agreement cannot be modified except in a writing signed by the parties hereto.
19. This Agreement constitutes the entire Agreement between the parties hereto and, supersedes all prior negotiations, representations, offers, other writings and oral statements of every description relating to the subject matter herein.
20. The validity, construction and interpretation of this Agreement and the performance of the parties to this Agreement, shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania. The parties hereto agree that any unresolved dispute arising out of, or related to this Agreement, shall be resolved by litigation with venue lying in the Court of Common Pleas of Delaware County.
21. The failure of either party to exercise in any respect a right provided for in this Agreement shall not be deemed to be a subsequent waiver of the same right or of any other right.
22. The invalidity or enforceability of any particular provision of this Agreement shall not affect the other provisions of this Agreement and the Agreement shall be construed as if the invalid or unenforceable provisions were omitted.

23. This Agreement may be executed in any number of counterparts each of which when executed and delivered shall be deemed to an original with all the counterparts constituting but one and the same Agreement. The execution of this Agreement by any parties hereto will not become effective until all the counterparts hereof have been executed by all the parties.

24. All notices, payments and communications required to be given in writing under this Agreement shall be sent by certified United States mail, postage prepaid and by email communication or delivered by hand delivery with receipt obtained, to the addresses below or at other such addresses as DELCORA, Edgmont, Newtown or Newtown Authority or as may be otherwise designated in writing from time to time:

Newtown Township
C/o Township Manager
209 Bishop Hollow Road
Newtown Square, PA 19073

Newtown Township, Delaware County, Municipal Authority
C/o Chairman
209 Bishop Hollow Road
Newtown Square, PA 19073

Edgmont Township
C/o Township Manager
P. O. Box 267
1000 Gradyville Road
Gradyville, PA 19039

Delaware County Regional Water Quality Authority
100 East Fifth Street
P.O. Box 999
Chester, PA 19016-0999

Ashford Land Company, L.L.P.
4 Hillman Drive, Suite 120
Chadds Ford, Pennsylvania 19317

WHEREFORE, the parties hereto have executed this Agreement by their authorized Representatives, intending to be legally bound.

ATTEST:

NEWTOWN TOWNSHIP

 6/29/15.

CHAIRMAN, BOARD OF SUPERVISORS

NEWTOWN TOWNSHIP, DELAWARE COUNTY
MUNICIPAL AUTHORITY

ATTEST:

CHAIRPERSON

EDGMONT TOWNSHIP

ATTEST:

CHAIRPERSON

DELAWARE COUNTY REGIONAL WATER
QUALITY AUTHORITY

ATTEST:

EXECUTIVE DIRECTOR

ASFORD LAND COMPANY, L.L. P

ATTEST:

AUTHORIZED REPRESENTATIVE

WHEREFORE, the parties hereto have executed this Agreement by their authorized Representatives, intending to be legally bound.

ATTEST: NEWTOWN TOWNSHIP

CHAIRPERSON

ATTEST: NEWTOWN TOWNSHIP, DELAWARE COUNTY
MUNICIPAL AUTHORITY



CHAIRPERSON

ATTEST: EDGMONT TOWNSHIP

CHAIRPERSON

ATTEST: DELAWARE COUNTY REGIONAL WATER
QUALITY AUTHORITY

EXECUTIVE DIRECTOR

ATTEST: ASHFORD LAND COMPANY, L.L.P.

AUTHORIZED REPRESENTATIVE

WHEREFORE, the parties hereto have executed this Agreement by their authorized Representatives, intending to be legally bound.

ATTEST: NEWTOWN TOWNSHIP

CHAIRMAN

ATTEST: NEWTOWN TOWNSHIP, DELAWARE COUNTY
MUNICIPAL AUTHORITY

CHAIRPERSON

ATTEST: EDGMONT TOWNSHIP

Samantha Spivey, Secy

Ronald Maxine

CHAIRPERSON

ATTEST: DELAWARE COUNTY REGIONAL WATER
QUALITY AUTHORITY

EXECUTIVE DIRECTOR

ATTEST: ASFORD LAND COMPANY, L.L. P

AUTHORIZED REPRESENTATIVE

WHEREFORE, the parties hereto have executed this Agreement by their authorized Representatives, intending to be legally bound.

ATTEST: NEWTOWN TOWNSHIP

CHAIRMAN

ATTEST: NEWTOWN TOWNSHIP, DELAWARE COUNTY
MUNICIPAL AUTHORITY

CHAIRPERSON

ATTEST: EDGMONT TOWNSHIP

CHAIRPERSON

ATTEST: DELAWARE COUNTY REGIONAL WATER
QUALITY AUTHORITY



ROBERT A. POWELL
Bus. Dev. & Strategic Plng. Mgr.



ROBERT J. WILLERT, EXECUTIVE DIRECTOR

ATTEST: ASFORD LAND COMPANY, L.L. P

AUTHORIZED REPRESENTATIVE

Exhibit "A"

— — — — —

DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY

GRADYVILLE ROAD FORCE MAIN

SEWER PROJECT

OCTOBER 2013

PROJECT LOCATION



Delaware County
Regional Water
Quality Control
Authority
103 East 4th Street
P.O. Box 100
Pottsville, PA 17854-0100

Engineering Consultant

Bradford Engineering Associates
1101 Engineers

2110 Laurel Road, Suite 101
York, Pennsylvania 17403
(717) 766-1111
www.bradfordeng.com

Survey & Map



MANAGEMENT BOARD
EDGEMOOR TOWNSHIP CONTRACT 50-1110-0

DATE	10/1/13
BY	JEP
DATE	10/1/13
BY	JEP
DATE	10/1/13
BY	JEP
DATE	10/1/13
BY	JEP

EDGEMOOR TOWNSHIP
DELAWARE COUNTY
PENNSYLVANIA

GRADYVILLE
FORCE MAIN PROJECT
ASBUILT PLAN

1	ASBUILT PLAN
2	Full Gradyville Rd. ROW
3	E&S Plan Additions
4	Final Gradyville Rd. Construction
5	Final Gradyville Rd. Construction
6	Final Gradyville Rd. Construction
7	Final Gradyville Rd. Construction
8	Final Gradyville Rd. Construction

Title Page
Gradyville Rd
Force Main

Sheet 1 of 12

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3

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13

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1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621,

1. The authors of the paper have shown that extensive sales in foreign locations of complex, costly equipment, and plants of foreign or indigenous plants for production of the equipment, may be the best alternative for the manufacturer.
2. The authors have shown that the manufacturer should consider the local market and the local government's attitude towards foreign investment in the manufacturing industry.

[illegible][illegible]

1. NAME _____
 2. DATE _____
 3. PERIOD _____
 4. TEACHER _____
 5. SUBJECT _____
 6. TOPIC _____
 7. OBJECTIVES _____
 8. CONTENT _____
 9. ASSESSMENT _____
 10. REFLECTION _____
 11. ATTACHMENTS _____
 12. REMARKS _____
 13. SIGNATURE _____
 14. DATE _____
 15. TIME _____
 16. PLACE _____
 17. TEACHER'S NAME _____
 18. TEACHER'S SIGNATURE _____
 19. TEACHER'S DATE _____
 20. TEACHER'S TIME _____
 21. TEACHER'S PLACE _____
 22. TEACHER'S REMARKS _____
 23. TEACHER'S SIGNATURE _____
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 25. TEACHER'S TIME _____
 26. TEACHER'S PLACE _____
 27. TEACHER'S REMARKS _____
 28. TEACHER'S SIGNATURE _____
 29. TEACHER'S DATE _____
 30. TEACHER'S TIME _____
 31. TEACHER'S PLACE _____
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 **DELEWARE**
Delaware Quilts
Regional Quilts
Quilts Central
Authority
401 East Fern Street
P.O. Box 970
Camden, NJ 08318-0700

[illegible]

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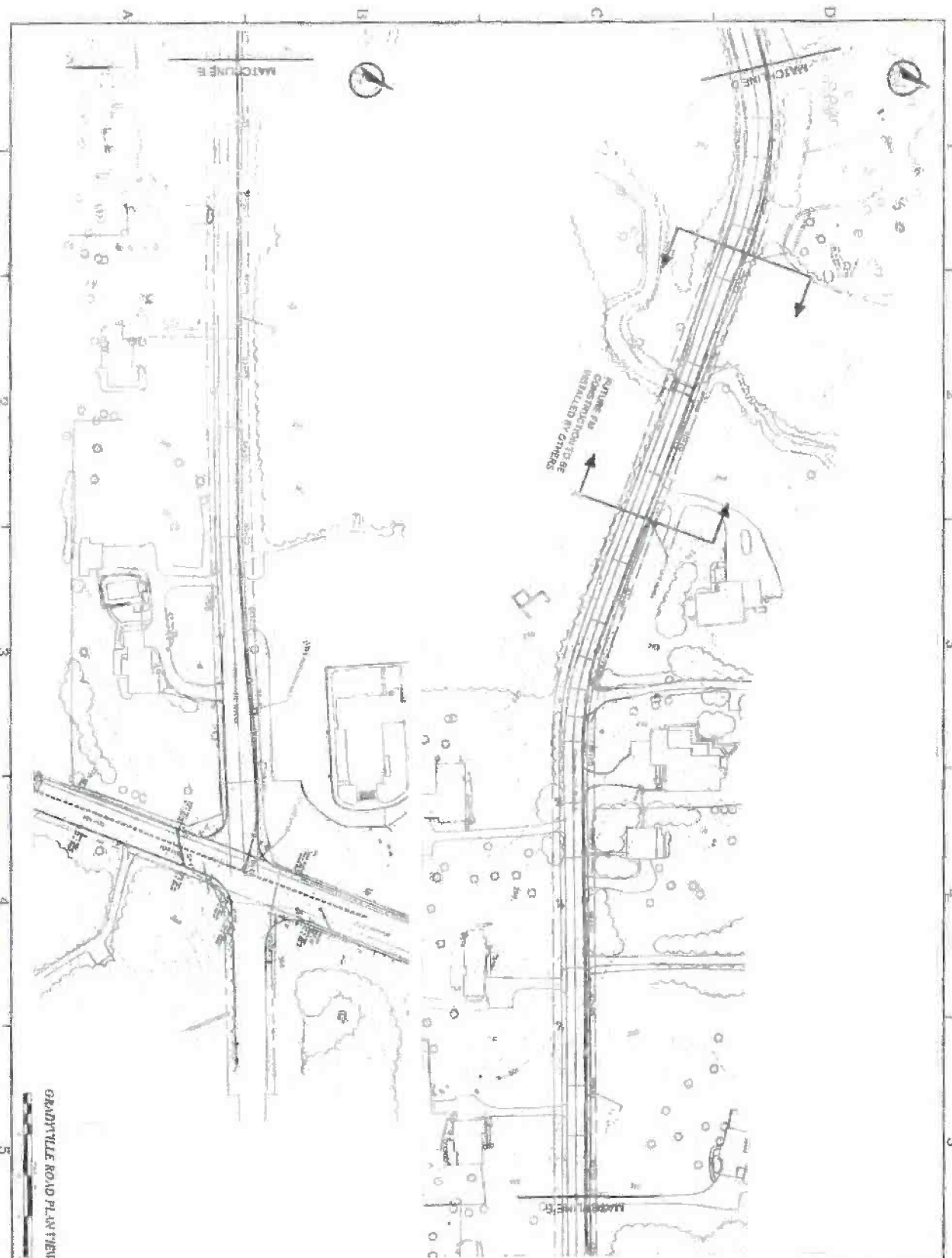
EDMONT TOWNSHIP
DELAWARE COUNTY
PENNSYLVANIA

GRADYVILLE
FORCE MAIN PROJECT
ASBUILT PLAN

	4	10-4	A58J.4 P.M.	
	3	20-6	Add Corrections of JCOyl	
	2	11-10	[15] Page Additions	
	1	9-12	Main Book Editor's Comments	
	0	10-0	spaces for Bids	
Mz.	27-16		Gravel	

GENERAL INFORMATION
Gradyville Rd
Force Main

Serial 7-12



GRADYVILLE ROAD PLAN VIEW

Robert A. Feltz, P.E.
No. 13461
State of Pennsylvania

BRIDGEMOUNT ENGINEERING ASSOCIATES
214 Quaker Lane, Suite 1
Lancaster, PA 17602-0753
Tel: 717/391-1111
Fax: 717/391-1112
www.bridgemount.com

GRADYVILLE ROAD PROJECT
ABSOLUTE PLAN

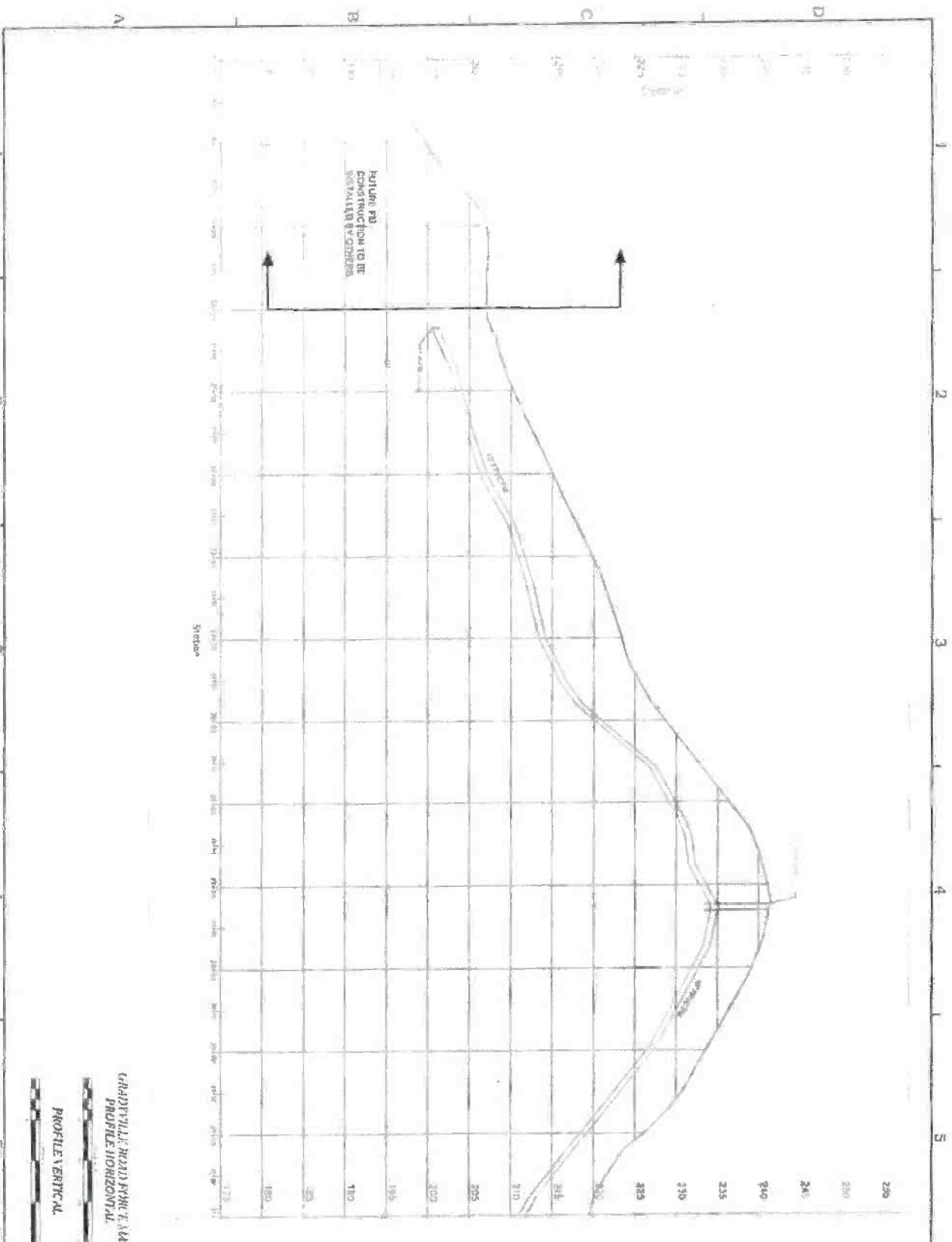
EDGEMONT TOWNSHIP
DELAWARE COUNTY
PENNSYLVANIA

REV	DATE	BY	CHK	APP	DESC	REVISION
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2	10/1/01	RF	RF	RF	RF	REVISION
3	10/1/01	RF	RF	RF	RF	REVISION
4	10/1/01	RF	RF	RF	RF	REVISION

GRADYVILLE ROAD PROJECT
ABSOLUTE PLAN

EDGEMONT TOWNSHIP
DELAWARE COUNTY
PENNSYLVANIA

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Lancaster, PA 17602-0753
Tel: 717/391-1111
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DELCO ENGINEERING ASSOCIATES
 Delaware County
 Regional Water
 Quality Control
 Authority
 100 East Main Street
 P.O. Box 999
 Chester, Pa 19018-0999
 (610) 336-0000

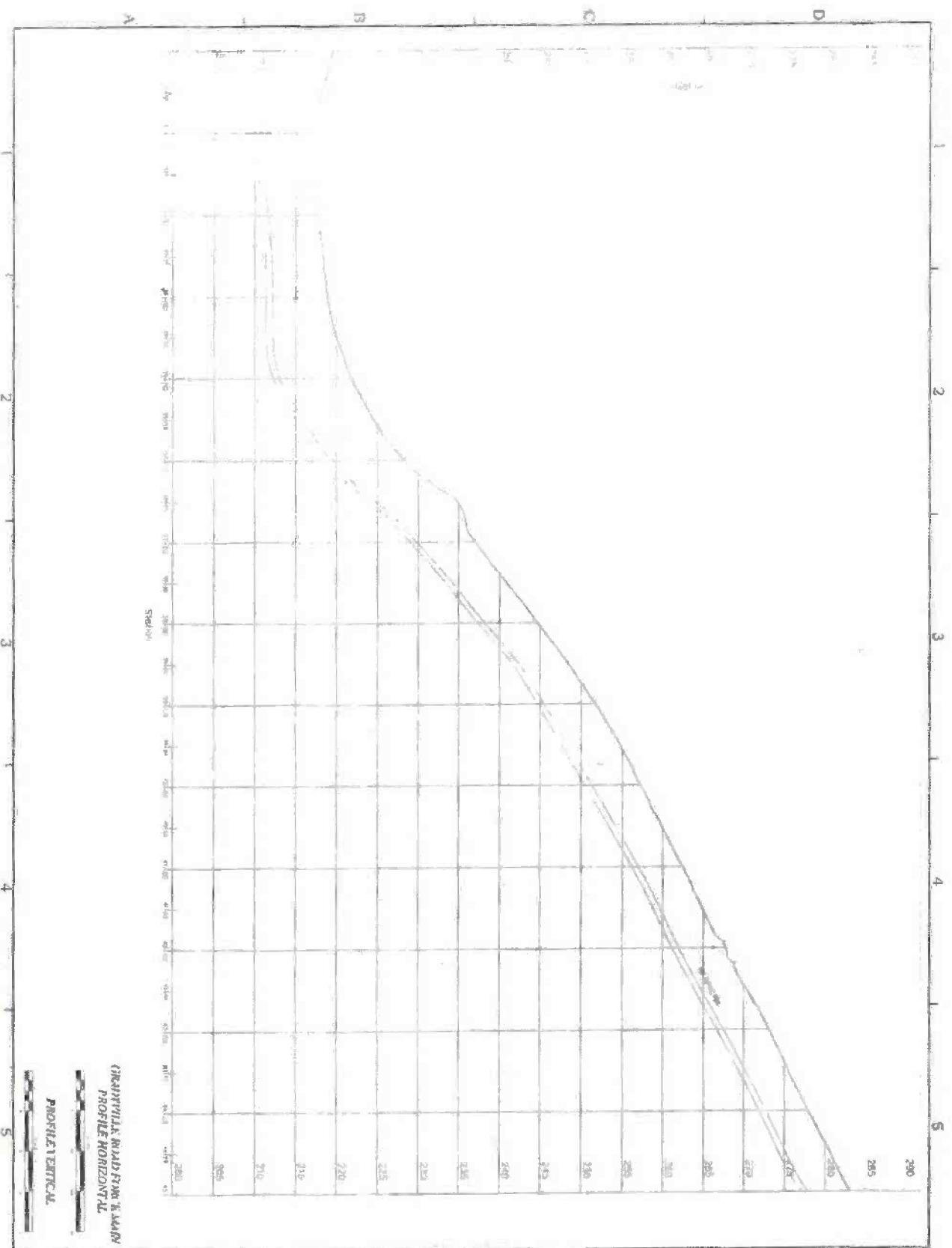
BRUNFELD ENGINEERING ASSOCIATES
 3101 E. 12th Street
 Erie, Pa 16510-1200
 (814) 833-1000

EDMONT TOWNSHIP
 DELAWARE COUNTY
 PENNSYLVANIA

GRADYVILLE FORCE MAIN PROJECT ASSESSMENT PLAN

NO.	REVISION	DATE
1	ISSUED FOR BIDDING	10/1/00
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Profile
 Gradyville Rd
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CRADYVILLE ROAD FROM N. MAIN
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CRADYVILLE
FORCE MAIN PROJECT
ASBUILT PLAN

EDGEMONT TOWNSHIP
DELAWARE COUNTY
PENNSYLVANIA

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Profile
Gradyville Rd
Force Main

Sheet 2 of 12



1500 Market Street
Harrisburg, PA 17102-1099
Tel: 717-781-1000
Fax: 717-781-1001
www.penn.gov

Gradyville Road Force Main

2100 Market Street
Harrisburg, PA 17102-1099
Tel: 717-781-1000
Fax: 717-781-1001
www.penn.gov

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Gradyville Road Force Main

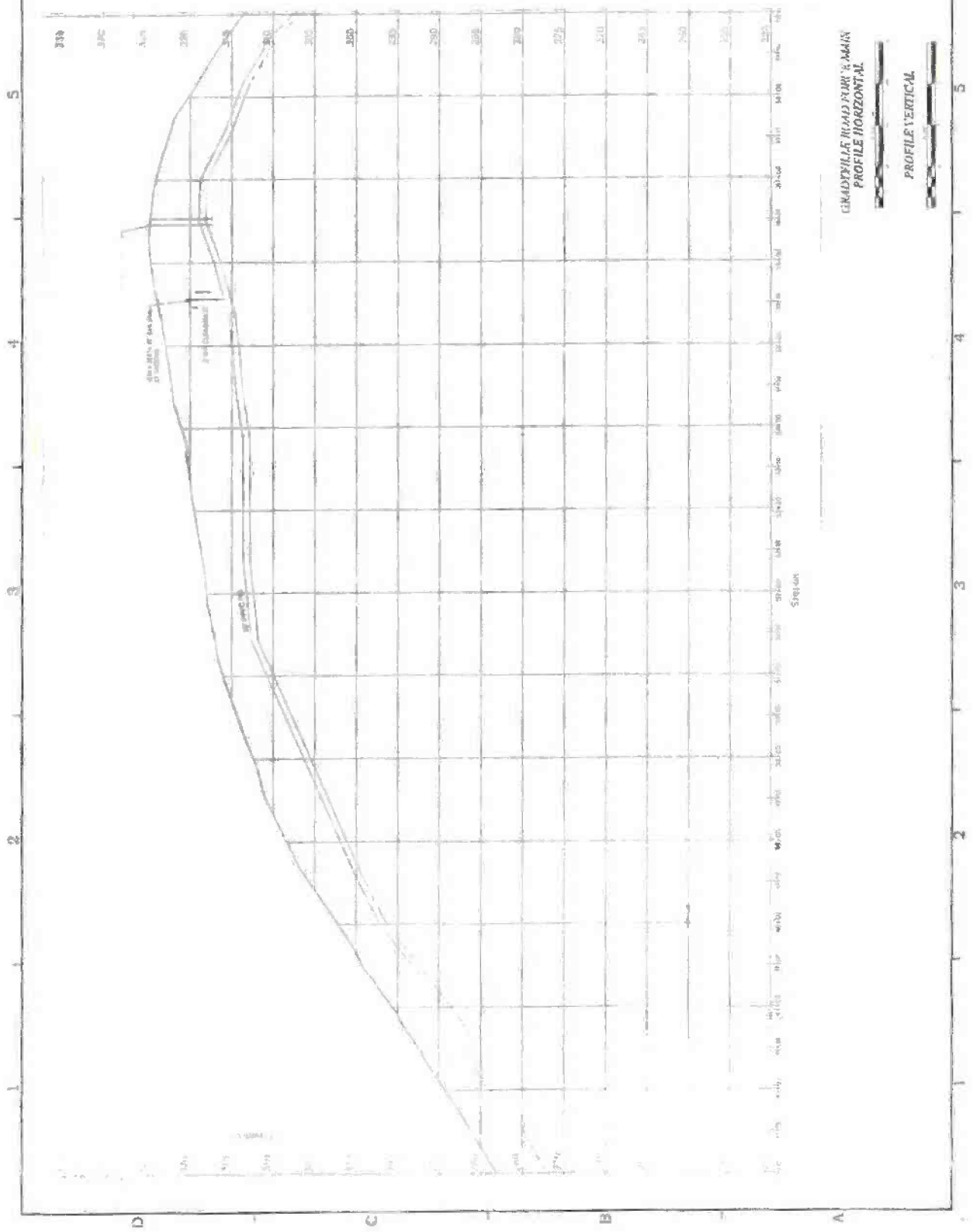
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www.penn.gov



Gradyville Road Force Main
PROFILE HORIZONTAL

PROFILE VERTICAL





GILROY
Engineering Associates, Inc.
Professional Engineers
Delaware County
Quality Control
Authority
1525 Linn Park Drive
P.O. Box 100
Parsippany, NJ 07054-0100
Tel: 973-261-1111
Fax: 973-261-1112

Project Engineer

Bradford Engineering Associates

1714 Concord Road, Suite B

Delmar, Delaware 19941

Delaware Professional No. 10174

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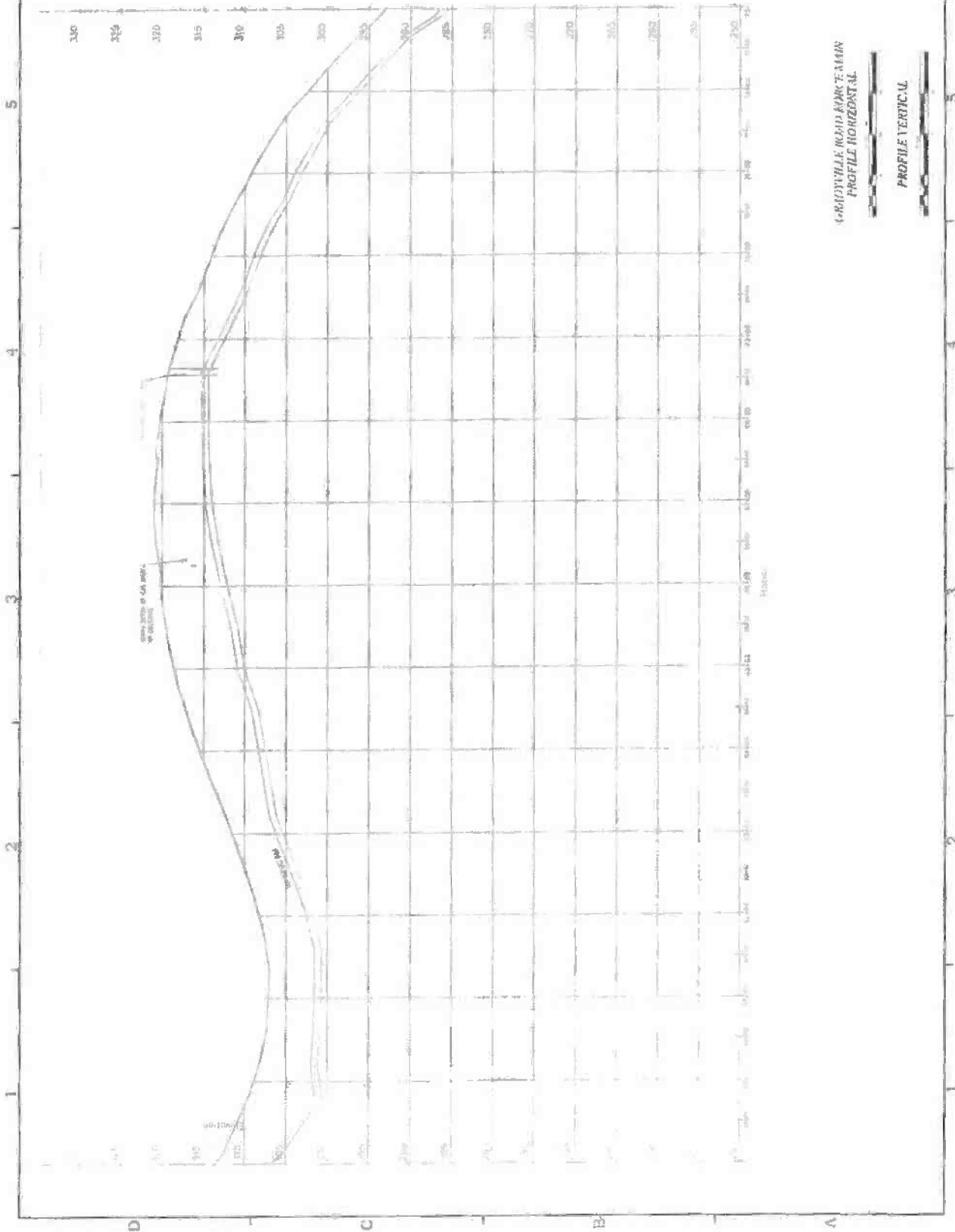
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Gradyville Road
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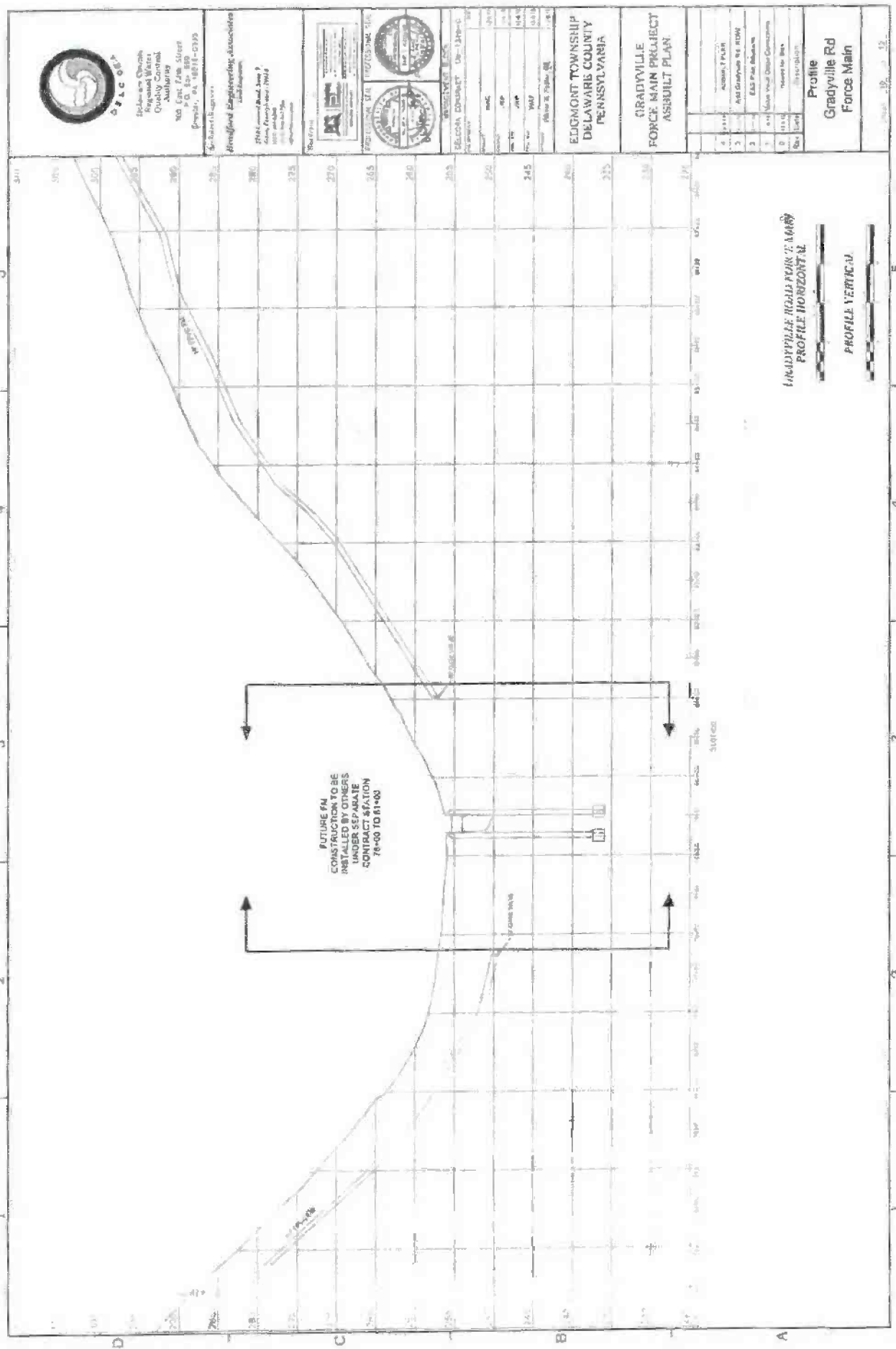
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Delaware County
Regional Water
Quality Control
Authority
100 East Erie Street
P.O. Box 800
Greenville, PA 16131-0800

Gradyville Engineering Associates
100 East Erie Street
Greenville, PA 16131-0800

EDMONT TOWNSHIP
DELAWARE COUNTY
PENNSYLVANIA

GRADYVILLE
FORCE MAIN PROJECT
ASBUILT PLAN

Profile
Gradyville Rd
Force Main

Station	Profile	Asbuilt
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2+00	245.00	245.00
3+00	250.00	250.00
4+00	255.00	255.00
5+00	260.00	260.00

Station	Profile	Asbuilt
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4+00	255.00	255.00
5+00	260.00	260.00

GRADYVILLE ROAD FORCE MAIN
PROFILE HORIZONTAL



PROFILE VERTICAL





Delaware County
Regional Water
Quality Control
Authority

100 East Fifth Street
Christiana, DE 19701-4999

Telephone: 302-398-1000

Associated Engineering Association
Civil Engineers

2740 University Blvd., Suite 200
Christiana, DE 19701-4999
Phone: 302-398-1000
Fax: 302-398-1001



UNLICENSED ENGINEER

PROJECT CONTRACT NO. 1111-1

DATE: 11/11/11

BY: RSK

DATE: 11/11/11

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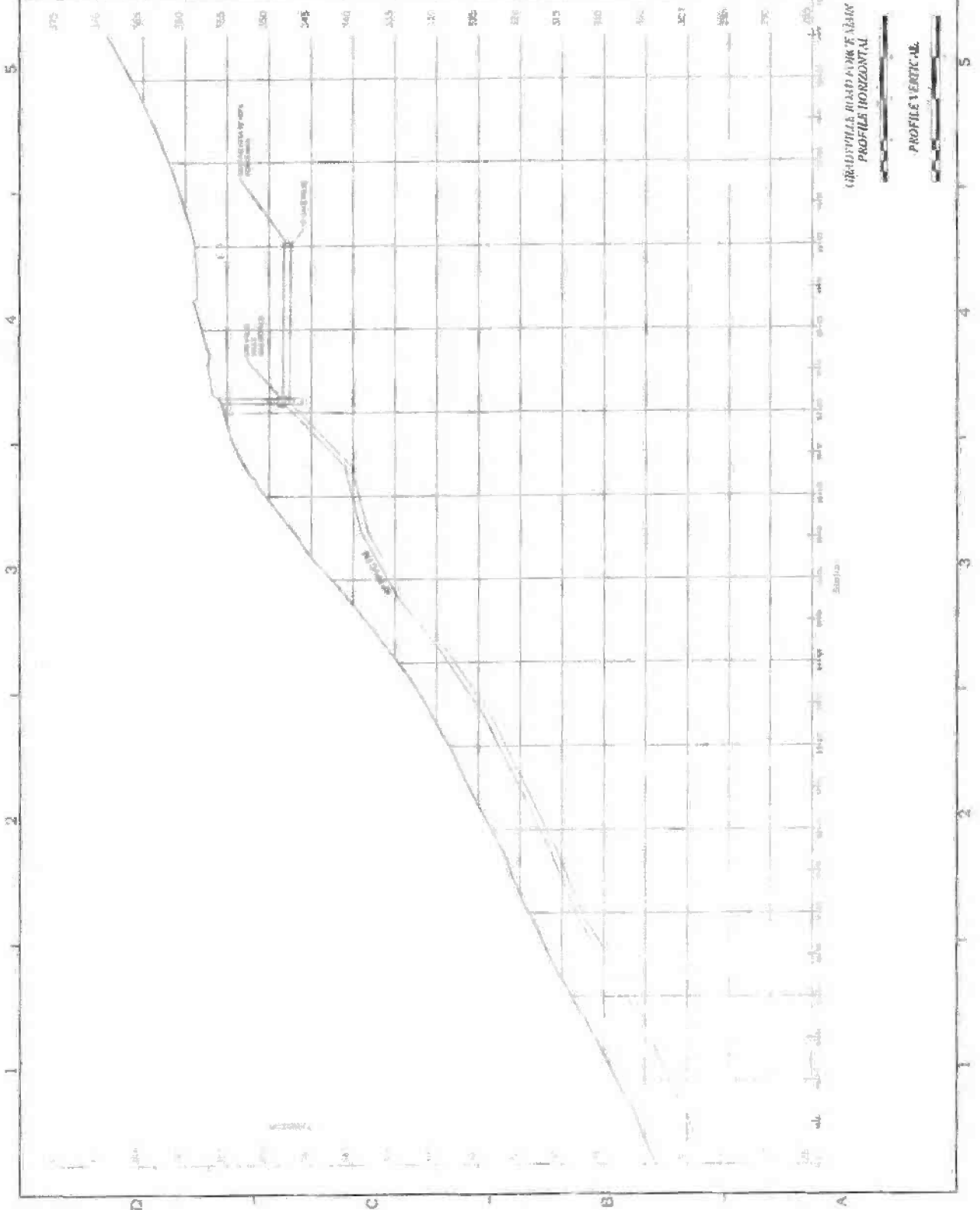
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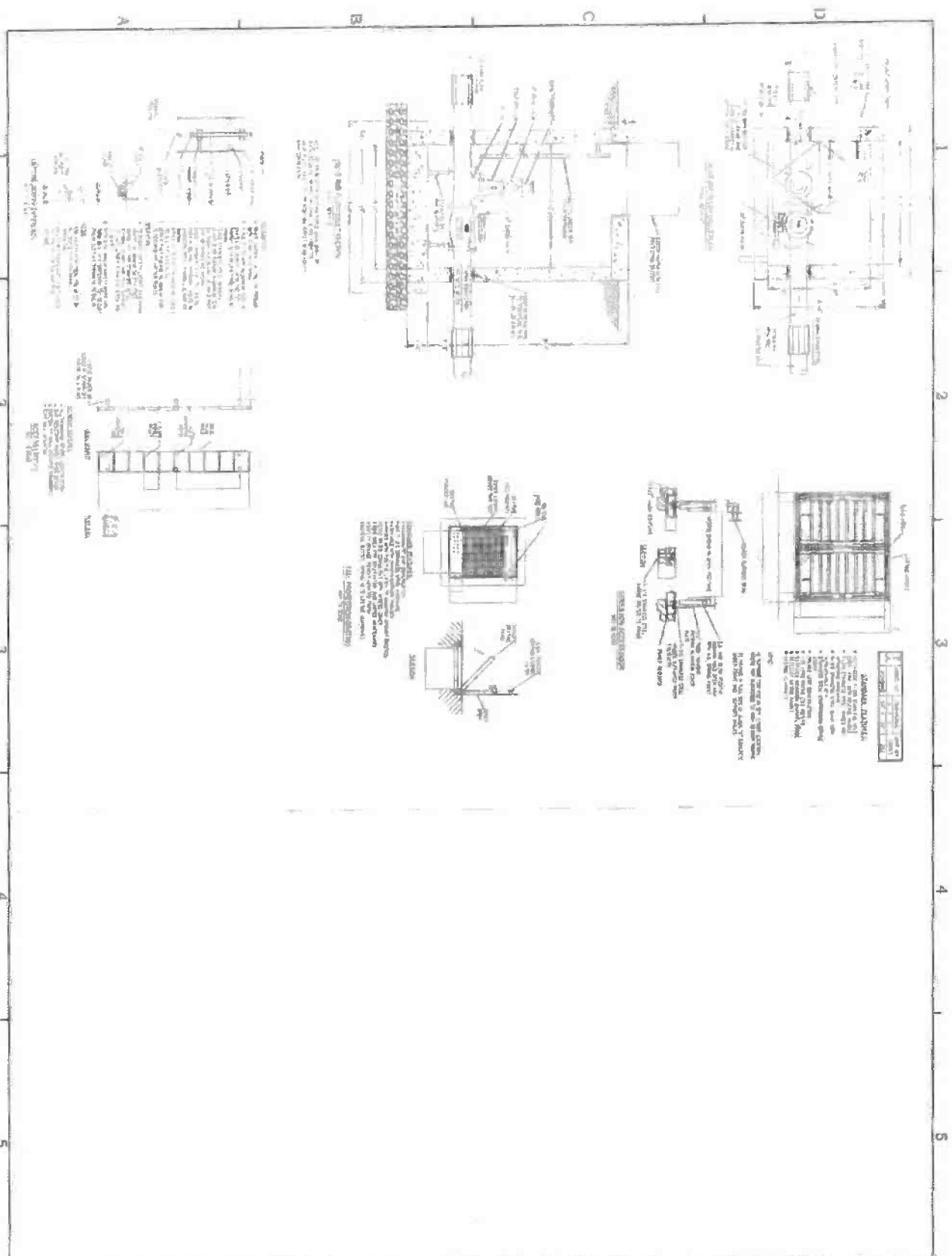
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GRADYVILLE ROAD MAIN
PROFILE HORIZONTAL

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Profile
Gradyville Rd
Force Main



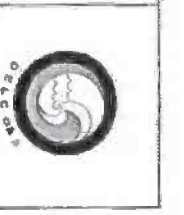
 <p>Delaware County Regional Water Authority 100 East Fifth Street P.O. Box 388-0820 Cherry, PA 17011-0820 Phone: 717/241-1111</p>	<p>Landward Engineering Associates 2141 Young Road, Suite 1 Aston, Pennsylvania 19016 Phone: 610/481-1111 Fax: 610/481-1112</p>	<p>PROFESSIONAL SEAL REGISTERED PROFESSIONAL ENGINEER EDMONT TOWNSHIP DELAWARE COUNTY PENNSYLVANIA</p>	<p>GRADYVILLE FORCE MAIN PROJECT ASBUILT PLAN</p>	<p>Details Gradyville Rd Force Main</p>
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Exhibit "B"

10/10/10

10/10/10

Exhibit "B"

DELCORA shall pay an amount of post-connection service charges proportional to the percentage of the total flow in the Liseter Force Main that is from the Crum Creek System. These service charges should include maintenance costs for any repairs or capital costs to replace sections of pipe. DELCORA shall only pay for any maintenance or capital work that involves the section of pipe that Crum Creek's flow passes through. DELCORA shall pay 0% of any maintenance or capital work only affecting force main upstream of the shared section. DELCORA shall not pay any operational costs (pump station electricity, etc.).

The calculation shall be:

$$\begin{aligned} & \text{DELCORA's Post - Connection Service Charges} \\ &= (\text{Total Maintenance or Capital Cost}) \\ & \quad * \frac{\text{Flow}_{\text{Crum Creek}}}{\text{Flow}_{\text{Crum Creek}} + \text{Flow}_{\text{Liseter or Ellis}}} \end{aligned}$$

When the pump stations are actually in use, actual flow numbers will be available to calculate what the actual percentages will be. This can be based on average flow during the time the work is done (using the most recent quarter's meter readings).

This calculation should apply to Newtown Township's service charges in the event that they tie-in to DELCORA's Gradyville Road Force Main at some time in the future with the parties reversed.

For clarification, the Liseter Pump Station Flow would be used up until the time that its flow is redirected to Ellis Pump Station. After that time, the Ellis Pump Station Flow would be used

Exhibit "C"



ENVIROMAG 2000

Technical Datasheet

Electromagnetic Flow Sensor

- Engineered and manufactured for the North American water and wastewater industry
- NSF Approved for potable water
- Proven and unsurpassed lifetime performance
- Long-term reliability and durability
- Available IP68 rating
- Available for direct burial installation



KROHNE

Solution for the water & wastewater industry

The **ENVIROMAG 2000** magnetometer is the optimum solution for North American water and wastewater measurement applications. Its design and performance makes it the choice for flow measurement throughout the process.



1. Flanged design
2. PP, Polyurethane and Hard Rubber liner
3. 3/8" to 80" diameter
4. ANSI or AWWA flanges

Highlights

- Short inlet and outlet runs
- Unaffected by contamination, solids, fibers, slurries
- No maintenance
- Wet calibrated - includes calibration report
- Suitable for potable, chlorinated, fluorinated water, etc.
- Continuous self diagnostics
- NSF approved (Hard Rubber Liner)
- Available "virtual reference" eliminates grounding rings

Applications

- Wastewater processes
- Desalination processes
- Irrigation networks
- Clean water processes
- Water distribution
- Cooling stations - district heating

OPTIFLUX converters: All converters fit to all sensors



IFC 300 High-performance solution



IFC 100 Economical solution

Technical Data

Nominal diameter	VB14										VB15										VB16									
ASME (inch)	3/8"	1/2"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	40"	48"	54"	56"	60"	64"	72"	80"
DN (mm)	10	15	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1350	1400	1500	1600	1800	2000

Nominal Flange Pressure

ASME B16.5 - 150 lbs RF																															
ASME B16.5 - 300 lbs RF																															
AWWA - class B FF																															
AWWA - class D FF																															

> 80" 2000 mm on request (OPTIFLUX Series)

AWWA Class D flanges ≤ 150 PSI

AWWA Class B flanges ≤ 50 PSI

Liner

Polypropylene																															
Hardrubber																															
Polyurethane																															

See pressure and temperature limits for various liners

Electrodes (Replaceable)

Stainless steel (AISI 316 L)																															
Hastelloy C22																															
Hastelloy C4																															

(Titanium, Tantalum, Platinum available on request)

Grounding rings

Virtual Reference [†]																															
Hastelloy C4																															
Stainless steel 1,4571 (AISI 316 Ti)																															

[†]Only with IFC300 Converter. Must specify option at time of order.

Materials

Measuring tube - austenitic stainless steel																															
Housing																															
Sheet steel (polyurethane coated)																															
Stainless steel																															
Flanges																															
Carbon Steel																															
Stainless steel (AISI 316 L)																															
Stainless steel (AISI 304)																															
Connection box																															
Die-cast aluminium (polyurethane coated)																															
Stainless steel connection box																															

Protection category

IP 66 / 67 (NEMA 4/4X / 6)																															
IP 68 (NEMA 6P [†])																															

Approvals

General Purpose																															
CSA - Ordinary Locations																															

Please note the approvals are for flow sensors only.

Versions

Compact + IFC 300 C																															
Separate + IFC 300 F, R, W																															
Compact + IFC 100 C																															
Separate + IFC 100 W																															

Conductivity

Min. conductivity																															
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[†]Separate Only with Stainless Steel Junction Box

min. 20 µS/cm

Standard Feature

Optional Feature

Temperature Range

Temperature range [°C]	Process [°C]		Ambient [°C]	
	min.	max.	min.	max.
Hardrubber				
Separate flow sensor (2000 F)	-5	80	-40	65
Compact with IFC 300 (2300 C)	-5	80	-40	65
Compact with IFC 100 (2100 C)	-5	80	-25	60

* Hard Rubber available for sizes DN25 - 2000

Polyurethane

Separate flow sensor (2000 F)	-5	69	-40	65
Compact with IFC 300 (2300 C)	-5	69	-40	65
Compact with IFC 100 (2100 C)	-5	69	-25	60

* Polyurethane available for DN 50-1000

Polypropylene

Separate flow sensor (2000 F)	-5	90	-40	65
Compact with IFC 300 (2300 C)	-5	90	-40	65
Compact with IFC 100 (2100 C)	-5	90	-25	60

* Polypropylene available for DN 10-15

Temperature range [°F]	Process [°F]		Ambient [°F]	
	min.	max.	min.	max.
Hardrubber				
Separate flow sensor (2000 F)	23	176	-40	149
Compact with IFC 300 (2300 C)	23	176	-40	149
Compact with IFC100 (2100 C)	23	176	-13	140

* Hard Rubber available for sizes 1" - 80"

Polyurethane

Separate flow sensor (2000 F)	23	156	-40	149
Compact with IFC 300 (2300 C)	23	156	-40	149
Compact with IFC 100 (2100 C)	23	156	-13	140

* Polyurethane available for sizes 2" - 40"

Polypropylene

Separate flow sensor (2000 F)	23	194	-40	149
Compact with IFC 300 (2300 C)	23	194	-40	149
Compact with IFC 100 (2100 C)	23	194	-13	140

* Polypropylene available for ASME 3/8" - 1/2"

Vacuum Load

Liner	Diameter [mm]	Minimum operating pressure absolute in mbar (abs) at process temperature			
		20°C	40°C	60°C	80°C
Polypropylene Hardrubber and Polyurethane	DN 10 - 15	250	250	400	400
	DN 25 - 300	250	250	400	400 ¹
	DN 350 - 1000	500	500	600	600 ¹
	DN 1200 - 2000	600	600	750	750 ¹

Liner	Diameter [inch]	Minimum operating pressure absolute in psia at process temperature			
		68°F	104°F	140°F	176°F
Polypropylene Hardrubber and Polyurethane	3/8" - 1/2"	3.6	3.6	5.8	5.8
	1"-12"	3.6	3.6	5.8	5.8 ¹
	14" - 40"	7.3	7.3	8.7	8.7 ¹
	48" - 80"	8.7	8.7	10.9	10.9 ¹

¹Notes: Not applicable to Polyurethane liner, exceeds process temperature limit.