BACKGROUND – PURPOSE OF PROJECT

Lower Paxton Township and Lower Paxton Township Authority have made major financial and legal commitments to eliminating sanitary sewer overflows in the Beaver Creek drainage basin and reducing hydraulic overloads in the Swatara Township Joint Use Interceptor, as outlined in the Second Consent Decree of May 2002 entered into by Lower Paxton Township, Lower Paxton Township Authority, Swatara Township Authority, Pennsylvania Department of Environmental Protection, and private development interests.

The commitments made by Lower Paxton, and agreed to by the other signers of the Second Consent Decree, include the construction of the Beaver Creek Wet Weather Wastewater Treatment Plant (WWTP), the upgrade of the existing Beaver Creek Pump Station, and construction of major improvements to the wastewater conveyance system. These three construction activities are all part of the Township's plans to eliminate sanitary sewer overflows and to treat wastewater flows in excess of the Township's allocation in the Swatara Township Authority's Joint Use Interceptor.

Key portions of the Second Consent Decree are included in Appendix A. Photographs of the project area and drawings are included as part of this mitigation plan.

2. DESCRIPTION OF PROJECT

As discussed above, Lower Paxton has committed to the construction of the Beaver Creek Wet Weather Wastewater Treatment Plant (WWTP), the upgrade of the existing Beaver Creek Pump Station, and construction of major improvements to the wastewater conveyance system. Each of these items is discussed below.

Beaver Creek Wet Weather Wastewater Treatment Plant

The treatment plant site is located on the east side of Beaver Creek, east of Nyes Road in South Hanover Township, and is within the 100-year flood plain of Beaver Creek. The area where the proposed treatment plant will be constructed consists of an existing gravel drive, open grass-covered areas and underbrush. A 60-foot diameter water storage tank had been located on the site. The tank was demolished approximately 15 years ago when the adjacent water treatment plant was demolished. After the tank was demolished, the site returned to natural vegetation with the exception of the sanitary sewer right-of-way, sewage metering chamber and the drive.

In order to meet PA DEP's flood protection requirements for wastewater treatment facilities contained in Section 41.3 of PA DEP's *Domestic Wastewater Facilities Manual*, engineered fill will be used to raise the elevation of the treatment plant site and the access road to insure that the WWTP structures and electrical and mechanical equipment are protected from damage by the 100-year flood.

A detailed hydrologic and hydraulic analysis of the impacts of these site changes is included as part of the Joint Application for Pennsylvania Water Obstruction and Encroachment Permit and U.S. Army Corps of Engineers Section 404 Permit.

Beaver Creek Pump Station

The Beaver Creek Pump Station, located in the 100-year flood plain of Beaver Creek, was originally constructed in the early 1970s as part of township's wastewater conveyance system. In addition to

equipment replacement inside the pump station building, the project includes the replacement of the emergency generator which will be located outside the pump station building in the 100-year flood plain.

Conveyance System Improvements

Lower Paxton's Beaver Creek wastewater conveyance system was installed, for the most part, in the 1970s. As documented in the Second Consent Decree, the sewer system is subject to excessive amounts of inflow and infiltration (I/I) during wet periods. During periods of extended wet weather, the sanitary sewer system surcharges and wastewater overflows from various manholes with the wastewater eventually flowing into Beaver Creek and wetlands near the manhole overflow chambers.

The wastewater conveyance system improvements that will be constructed as part of Lower Paxton's commitment to meeting the terms of the Second Consent Decree include the installation of approximately 22,640 feet of gravity sewer and 8,300 feet of force main. As shown on the drawings included as part of this Mitigation Plan, most of the sewer will be replacement sewer located at, or very close to, where the sanitary sewer currently is located. Construction of these improvements to the conveyance system will necessitate 35 stream crossings with temporary road crossings, stream bank restoration at all stream crossings and at one additional area where the sewer is parallel to the stream, and 24 wetland crossings.

The Mitigation Plan for Lower Paxton's Beaver Creek Wastewater Treatment Facility, Beaver creek Pump station Improvements and Beaver creek Conveyance Improvements was developed in accordance with DEP and COE guidances and includes avoidance, mitigation, and compensation activities.

As discussed previously, the Beaver Creek wastewater conveyance system is an existing conveyance system, most of which was constructed 30 years ago. The sanitary sewers convey wastewater to Swatara Township Authority's Joint Use Interceptor; from here the wastewater is carried to the Swatara Township Authority's wastewater treatment plant where it is treated prior to discharge to the Swatara Creek. For the most part, Lower Paxton's sanitary sewer system was built following the drainage basins in the township with the conveyance system located adjacent to the streams(for example, in the eastern part of the Township, Beaver Creek, Nyes run and tributaries to those streams).

3. ACTIONS TAKEN TO AVOID AND MINIMIZE IMPACTS BY LIMITING THE DEGREE OR MAGNITUDE OF THE ACTION AND ITS IMPLEMENTATION

Preliminary Planning Activities

A detailed Alternatives Analysis to address wastewater needs within the Township was conducted as part of negotiations of the Second Consent Decree and Lower Paxton Township's Act 537 planning process. More than ten alternatives were considered with four alternatives selected for detailed evaluation, (1) a wet weather treatment facility located on Beaver Creek, (2) a conventional wastewater facility on Beaver Creek, (3) expansion of the Swatara Township WWTP and (4) replacement of the entire Beaver Creek sewer system. Of these, the selected alternative was improvements to the conveyance system to accommodate peak flows (the proposed improvements to the Beaver Creek Pump Station and Nyes Road and Beaver Creek Interceptors), construction of a peak flow/wet weather treatment plant (the proposed Beaver Creek Wet Weather WWTP), and on-going sewer system maintenance to keep inflow and infiltration at or below levels present when the Act 537 Plan Update was developed. Information from this Alternatives Analysis was included as part of the Joint Application for Pennsylvania Water Obstruction and Encroachment Permit and U.S. Army Corps of Engineers Section 404 Permit application.

With respect to the location of the Wet Weather WWTP, several sites were considered, including a site remote from the interceptor. Practicality and cost-effectiveness, however, constrain the alternatives to

sites that: (1) are adjacent to or in immediate proximity to the Nyes Run interceptor; (2) are downstream of sub-basins BC-1 – BC-10 of the Beaver Creek drainage basin to allow control of peak flows within the Swatara WWTP peak flow limit; and (3) provide access to Beaver Creek for adequate stream discharge. The primary reasons for selecting the proposed site include the following:

- Meets all three site criteria.
  Continues similar land use (former water treatment plant site water storage facilities)
  Wooded area provides some screening of facilities
  Land available for sale
  Least cost

DEP approved this Act 537 Plan Update on March 20, 2003. The proposed Beaver Creek Wet Weather WWTP and the improvements to the Beaver Creek Pump Station and the conveyance system are in accordance with the approved Act 537 Plan Update.

Activities taken during the project design to avoid and minimize impacts

Wastewater Treatment Plant

Photographs of the treatment plant site and adjacent area are included in Appendix B. The site is located on the east side of Beaver Creek. Nyes Road (S.R. 2019) parallels the stream on the west side. The old water works dam shown in the photographs will remain.

The following actions were taken during the design of the WWTP to avoid and minimize impacts to wetlands and to Beaver Creek and its associated floodway and flood plain.

- As one of the preliminary design activities, wetlands were delineated on the site. The treatment facilities were then designed to avoid impacting the wetlands to the greatest extent possible.. These avoidance activities included:
  - The use of a retaining wall rather than the construction of a berm at one location along the eastern side of the treatment plant. Use of a retaining wall, the more expensive construction option, will minimize the impact to adjacent wetlands. This design change was made following the COE/DEP site visit in March 2004.
  - No construction activities in the wetlands that transverse the site except for a small area near one of the new trickling filters.

  The facilities located in the flood plain occupy as small an area as possible in accordance with good engineering practices and in accordance with South Hanover Township requirements.

  The facilities have been located as far as possible from Beaver Creek and still minimizing impacts to the wetlands that traverse the site.

  The new driveway will be located where the existing drive is located.

  No construction activities will take place within 10 feet of the top of the stream bank, thus protecting the stream bank and not impacting shading of the stream that the trees and brush provide.

- The Treatment Unit structure, which is located in the 100-year flood plain, utilizes common wall construction to minimize the foot print of the structure. The structure contains the sedimentation

basins, ultraviolet disinfection units, electrical area, work area, and office and utility space. If this structure had been designed as separate stand-alone units, as is normally done, a greater area would have been needed.

The Screen structure, which is located in the 100-year flood plain, has been designed to also contain the chemical feed facilities needed for the removal of phosphorus from the wastewater. As with the Treatment Unit structure, one structure will serve more than one purpose, reducing the amount of construction in the 100-year flood plain.

Ultraviolet disinfection will be used rather than chlorination. This will prevent the discharge of chlorinated wastewater to Beaver Creek and reduce the area required for chlorine contact tanks.

The treatment plant site will be provided with public water supplied by United Water Company. Rather than open-cut Beaver Creek to install the waterline, the waterline will be installed using directional drilling. This will minimize temporary construction impacts to Beaver Creek.

- The amount of paving is the minimum needed for the treatment facility and the width of the driveway is the minimum acceptable to South Hanover Township, as this is required by ordinance.

Beaver Creek Pump Station

Photographs of the pump station site are included in Appendix B. The pump station, an existing building constructed in the 1970s, is located in the 100-year flood plain of Beaver Creek. Rather than constructing a replacement pump station, the existing pump station will be rehabilitated thus minimizing impacts to the floodplain. Except for the replacement emergency generator and replacement fence, the modifications to the pump station will be conducted inside the building. Temporary wastewater pumping facilities will be used while the interior of the pump station is modified. Decisions made during the design of the project to minimize impacts to the flood plain included design of the new meter pit and surge relief pit to be flush with the ground surface and, therefore, not impact flood flows at the site, and removal of the existing hydrogen peroxide storage tank and foundation located in the flood plain.

Conveyance System

Stream Crossings

As discussed previously, the project calls for replacement of an existing gravity interceptor sewer and includes several stream crossings. Crossings are dictated by stream location, wetlands, surrounding topography and locations of existing collection sewer connections. As every effort was made to limit the amount of stream disturbance, the number of stream crossings for this project is considered the minimum necessary within these physical constraints.

Table 1 provides information on the stream crossing that are part of the project including the name of the stream, stream width, whether the crossing will be at or near an existing crossing or if the crossing will be a new crossing and information on how the stream bank will be rehabilitated. Approximately 400 feet of the 31,000 feet of sewer to be constructed will cross under perennial and intermittent streams. Except for one crossing where stream velocities are high during rain events, the stream banks will be revegetated with native plantings such as willow, redbud and elderberry.

Table 1
Stream Crossings

Crossing No.	Drawing No.	Stream	Municipality	Location	Stream Width (ft.)	Type Crossing	Bank Rehab.	Discussion
1	2	Beaver Ck.	Lower Paxton South Hanover	approx. 720 ft. S of intersection of Nyes Rd. & Willoughby Rd.	32	1	1	Sewer must cross Beaver Creek which is perpendicular to the sewer route. There is no alternative.
2	2	Nyes Run	Lower Paxton	approx. 510 ft. S of intersection of Nyes Rd. & Willoughby Rd.	14	3	2	An additional stream crossing to that required for existing sewer, this is necessary in order to avoid the bridge that was constructed after the sewer was originally installed. Disruption to the stream is considered to be less than that associated with excavating the existing sewer in the steep embankment next to the bridge.
3	3	Nyes Run	Lower Paxton	approx. 275 ft. S of intersection of Nyes Rd. & Willoughby Rd.	10	2	2	Existing interceptor is being replaced in place. There is no alternative to crossing the creek.
4	3	Nyes Run	Lower Paxton	approx. 460 ft. W of intersection of Nyes Rd. & Willoughby Rd.	15	3 (note a)	2	Interceptor re-routed to avoid a long stretch of wetlands over the existing sewer. Also, the existing stream crossing south of new manhole B16A will be stabilized and existing manhole B16 will be removed from Nyes Run.
5	4	Nyes Run	Lower Paxton	approx. 1,500 ft. W of intersection of Nyes Rd. & Willoughby Rd.	22	2	3	Interceptor re-routed adjacent to existing interceptor. Although there is no alternative to the stream crossing, the new location is more perpendicular to the stream and reducing disturbance to the stream bank.
6	4	Nyes Run	Lower Paxton	approx. 2,200 ft. NW of intersection of Nyes Rd. & Willoughby Rd.	13	2	2	Interceptor immediately adjacent to existing interceptor. There is no alternative to stream crossing as there is no room for construction of the sewer any further north because of steep slopes to the creek.

Table 1
Stream Crossings

Crossing No.	Drawing No.	Stream	Municipality	Location	Stream Width (ft.)	Type Crossing	Bank Rehab.	Discussion
7	5	UNT Nyes Run	Lower Paxton	approx. 900 ft. SE of intersection of Old Union Deposit Rd. & Nyes Rd.	5	2	4	Interceptor crosses a drainage swale tributary to Nyes Run at the location of existing crossing. Crossing cannot be avoided. Interceptor location has been re-located to the east of the existing interceptor from MH B25A to MH B29A (at crossing) to reduce disturbance to Nyes Run banks and to move out of forested wetlands.
8	7	UNT Nyes Run	Lower Paxton	approx. 1,900 ft. SE of intersection of Locust Ln. & Nyes Rd.	5	2	4	Force main crossing of drainage swale tributary to Nyes Run adjacent to location of existing crossing. The crossing cannot be avoided
9	7	UNT Nyes Run	Lower Paxton	approx. 1,380 ft. SE of intersection of Locust Ln. & Nyes Rd.	5	2	4	Force main crossing of intermittent stream tributary to Nyes Run adjacent to location of existing crossing. The crossing cannot be avoided
10	7	UNT Nyes Run	Lower Paxton	approx. 1,120 ft. SE of intersection of Locust Ln. & Nyes Rd.	5	2	4	Force main crossing of drainage swale tributary to Nyes Run at location of existing crossing. The crossing cannot be avoided.
11	7	UNT Nyes Run	Lower Paxton	approx. 960 ft. SE of intersection of Locust Ln. & Nyes Rd.	5	2	4	Force main crossing of drainage swale tributary to Nyes Run adjacent to location of existing crossing. The crossing cannot be avoided
12	8	UNT Nyes Run	Lower Paxton	approx. 600 ft. N of intersection of Locust Ln. & Nyes Rd.	5	2	2	Force main crossing of unnamed tributary to Nyes Run adjacent to location of existing crossing. The crossing cannot be avoided
13	9	UNT to Nyes Run	Lower Paxton	approx. 75 ft. SE of intersection of Nyes Rd. & Red Top Rd.	8	3 (note b)	2	Force main crossing of unnamed tributary to Nyes Run. The crossing is necessary to avoid multiple stream crossings and substantial stream bank disturbance that would be required if the force main followed the existing interceptor right-of-way on the west side of the creek.

Table 1
Stream Crossings

Crossing No.	Drawing No.	Stream	Municipality	Location	Stream Width (ft.)	Type Crossing	Bank Rehab.	Discussion
14	9	UNT to UNT to Nyes Run	Lower Paxton	approx. 175 ft. NE of intersection of Nyes Rd. & Red Top Rd.	5	3	4	Force main crossing of unnamed tributary to unnamed tributary to Nyes Run. The crossing is necessary to avoid multiple stream crossings and substantial stream bank disturbance that would be required if the force main followed the existing interceptor right-of-way on the west side of the creek
15	9	UNT to Nyes Run	Lower Paxton	approx. 700 ft. NE of intersection of Nyes Rd. & Red Top Rd.	10	1	2	Force main crossing of unnamed tributary to Nyes Run. The crossing is necessary to avoid multiple stream crossings and substantial stream bank disturbance that would be required if the force main followed the existing interceptor right-of-way on the west side of the creek.
16	9	UNT to UNT to Nyes Run	Lower Paxton	approx. 950 ft. NE of intersection of Nyes Rd. & Red Top Rd.	5	1	4	Force main crossing a drainage swale tributary to an unnamed tributary to Nyes Run adjacent to location of existing sewer. There is no practical alternative.
17	10	UNT to Nyes Run	Lower Paxton	approx. 350 ft. S of intersection of Nyes Rd. & Hunters Run Rd.	13	3 (note c)	2	Force main crossing an unnamed tributary to Nyes Run. Given site constraints (location of Nyes Road, steep banks, closeness of Nyes Road to stream), there is no practical alternative.
18	10	UNT to Nyes Run	Lower Paxton	approx. 200 ft. S of intersection of Nyes Rd. & Hunters Run Rd.	15	3 (note c)	2	Force main crossing an unnamed tributary to Nyes Run. Given site constraints (location of Nyes Road, steep banks, closeness of Nyes Road to stream), there is no practical alternative.
19	10	UNT to Nyes Run	Lower Paxton	approx. 90 ft. S of intersection of Nyes Rd. & Hunters Run Rd.	10	1	2	Force main crossing an unnamed tributary to Nyes Run. Given site constraints (location of Nyes Road, steep banks, closeness of Nyes Road to stream), there is no practical alternative.

Table 1
Stream Crossings

Crossing No.	Drawing No.	Stream	Municipality	Location	Stream Width (ft.)	Type Crossing	Bank Rehab.	Discussion
20	12	UNT to Beaver Creek	Lower Paxton	approx. 1,000 ft. N of intersection of Yorkshire Dr. & Deaven Rd.	5	3	2	Force main crossing an unnamed intermittent stream tributary to Beaver Creek. There is no practical alternative
21	14	Beaver Creek	Lower Paxton West Hanover	approx. 100 ft. N of intersection of Yorkshire Dr. & Deaven Rd.	28	2	3	Interceptor sewer constructed adjacent to existing interceptor at existing stream crossing. Given the upstream topography (steep slope stream embankment), there is no practical alternative.
22	15	Beaver Creek	Lower Paxton West Hanover	approx. 1,900 ft. N of intersection of Yorkshire Dr. & Deaven Rd.	15	2	3	Interceptor replacing existing interceptor in place. The location is necessary to accumulate future connections.
23	15	UNT to Beaver Creek	Lower Paxton	approx. 2,050 ft. N of intersection of Yorkshire Dr. & Deaven Rd.	7	2	2	Interceptor crossing an unnamed intermittent stream tributary to Beaver Creek adjacent to existing interceptor crossing.
24	15	Beaver Creek	Lower Paxton West Hanover	approx. 2,750 ft. N of intersection of Yorkshire Dr. & Deaven Rd.	40	2	3	Interceptor adjacent to location of existing interceptor. Stream crossing is necessary to avoid wetlands and steep embankment upstream on south side of the creek.
25	16	UNT to Beaver Creek	West Hanover	approx. 3,550 ft. N of intersection of Yorkshire Dr. & Deaven Rd.	5	2	4	Interceptor crossing a drainage swale tributary to Beaver Creek at location of existing crossing. There is no practical alternative.
26	16	Beaver Creek	Lower Paxton West Hanover	approx. 3,900 ft. N of intersection of Yorkshire Dr. & Deaven Rd.	25	2	3	Interceptor at location of existing interceptor. Stream crossing is necessary to connect to existing tributary collection sewer at MH B116A and interceptor crossing under Jonestown Road.
27	17	UNT to Beaver Creek	Lower Paxton	approx. 4,200 ft. N of intersection of Yorkshire Dr. & Deaven Rd.	5	2	4	Interceptor crossing a drainage swale tributary to Beaver Creek. There is no practical alternative.

Crossing No.	Drawing No.	Stream	Municipality	Location	Stream Width (ft.)	Type Crossing	Bank Rehab.	Discussion
28	18	Beaver Creek	Lower Paxton West Hanover	approx. 2,120 ft SE of intersection of Blue Ridge Ave. & Chelton Ave.	20	2	3	Interceptor at location of existing interceptor. Stream crossing necessary to connect the existing sewer crossings of Jonestown Road and Rt. 81, which will both be left in place.
29	18	UNT to Beaver Creek	Lower Paxton	approx. 2,030 ft SE of intersection of Blue Ridge Ave. & Chelton Ave.	5	2	2	Interceptor crosses an unnamed tributary to Beaver Creek at location of existing interceptor. Stream crossing necessary to connect the existing crossings of Jonestown Road and Rt. 81, which will both be left in place. Also avoids disturbing steep embankment on west side of unnamed tributary near MH B126
30	18	UNT to Beaver Creek	Lower Paxton	approx. 1,360 ft SE of intersection of Blue Ridge Ave. & Chelton Ave.	5	2	2	Interceptor crosses unnamed tributary to Beaver Creek adjacent to location of existing interceptor from MH B127 along existing cleared path. Following existing location minimizes disturbing wooded areas around stream.
31	19	UNT to Beaver Creek	Lower Paxton	approx. 830 ft SE of intersection of Blue Ridge Ave. & Chelton Ave.	5	2	2	Crossing unnamed tributary of Beaver Creek near existing interceptor location. Relocation of the sewer between B128A and B130A actually eliminates two stream crossings and one embankment disturbance. Also, this crossing 31 is more perpendicular to the stream than existing, limiting bank disturbance.
32	19	UNT to Beaver Creek	Lower Paxton	approx. 400 ft SW of intersection of Blue Ridge Ave. & Chelton Ave.	5	2	2	Crossing unnamed tributary of Beaver Creek near existing interceptor location. Relocation of the sewer further south upstream of this crossing actually eliminates two stream crossings, one of them either in the steam or embankment for about 75 feet between existing manholes B135 and B116
33	20	UNT to Beaver Creek	Lower Paxton	approx. 750 ft SW of intersection of Blue Ridge Ave. & Chelton Ave.	10	2	2	Crossing unnamed tributary of Beaver Creek near existing interceptor. Crossing is necessary to avoid steep, wooded embankment on the south side of the creek

Table 1
Stream Crossings

Crossing No.	Drawing No.	Stream	Municipality	Location	Stream Width (ft.)	Type Crossing	Bank Rehab.	Discussion
34	20	UNT to Beaver Creek	Lower Paxton	approx. 1,140 ft W of intersection of Blue Ridge Ave. & Chelton Ave.	10	2	2	Interceptor follows close to existing interceptor,
35	20	UNT to Beaver Creek	Lower Paxton	approx. 1,260 ft W of intersection of Blue Ridge Ave. & Chelton Ave.	10	2	2	Crossing the tributary to Beaver Creek twice. Consideration was given to moving the sewer to the side of the creek to avoid these crossings, but is essentially kept in the existing location to provide an access point of connection for future development that may occur to the south, without the need for a stream crossing. Also, no additional right-of-way is needed, and disturbance to landscaped area and mature trees on the north side of the creek is avoided
Total feet of sewer to be placed under the stream bed					402			
Total feet of stream bank impacted					1,750			Estimated at 25 feet on each side of stream
Feet of stream bank to be re-vegetated with native plantings					1,400			Estimated at 10 feet on each side of sewer on both sides of stream
Feet of stream bank to be re-vegetated with grass					300			Estimated at 5 feet; overtop of sewer
Feet of stream bank with rock riprap bank protection without native plantings					50			Beaver Creek crossing

Crossing Types
1. Replacement crossing near existing crossing.
2. Replacement crossing at or in immediate vicinity of existing crossing.
3. New crossing.

Bank Rehabilitation Types
1. Rock rip-rap.
2. BioD-block 2000 with jute matting; native plantings.
3. BioD-block 2000 with jute matting and rock rip rap; native plantings.
4. Jute matting; native plantings.

Notes
a. Crossing location moved to current location to reduce impact to wetlands.
b. Crossing location moved from current location to reduce number of crossings and stream bank disturbance.
c. Crossing location moved to avoid impacts to Nyes Road.

Temporary road crossings will be located immediately adjacent to the locations of the utility line stream crossings. These crossings will provide access for the construction vehicles to the work area.
The following procedures will be used to ensure that the sanitary sewers are constructed to minimize the potential for future problems.

Sewer Watertight Integrity and Alignment: In order that the sewer crossing under a stream will be rendered watertight and remain in alignment, all pipeline for stream crossing will be mechanical joint, ductile iron pipe between the manholes on either side of the crossing, and installed in a trench at a sufficient depth below the stream to prevent impact by stream flow or changes in streambed. At crossings of some drainage swales, concrete encasement is used.

Sufficient Cover: Stream crossings on the project are believed to be of sufficient depth to meet DEP's requirement of one (1) foot of cover in rock and three (3) feet of cover in other materials.

Watertight Manholes: Watertight manholes will be installed where the sewer is near a stream. These manholes will prevent surface water from entering the system, helping to control I/I.

Wetlands

Several decisions were made during the design of the conveyance system improvements to minimize or avoid impacts to wetlands. These are summarized in Table 2.

Activities that will be taken during the construction the of the project to avoid and minimize impacts

All construction activities will follow the erosion and sedimentation control plan approved by the Dauphin County Conservation District. Key items in this plan include:

- Stream crossings will be made in the dry.
- Stream banks will be stabilized and re-vegetated; stabilization information is on drawing E&S-3.
- Stream bank stabilization will be done immediately following the completion of the utility line installation.
- Clay dams will be installed at both sides of the utility line stream crossings.
- Pads, mats or other similar devices will be used when crossing wetlands.
- Where the sewers are installed in wetlands, the topsoil in wetlands will be segregated from the subsoil and then be used to backfill the trench backfill. Backfill is to be machine tamped and compacted to limit vertical drainage.
- Clay dams will be installed at both ends of wetlands and every 100 feet through the wetlands.
- Construction width is limited to 30-feet in non-forested wetlands and 20 feet in forested wetlands.
- Disturbed wetlands will be restored to pre-construction elevations and contours.

4. ACTIONS TAKEN TO RECTIFY THE IMPACT BY REPAIRING, REHABILITATING OR RESTORING THE IMPACTED ENVIRONMENT

All areas disturbed during construction will be restored in accordance with DEP's chapter 102 requirements. All construction activities will be in accordance with the Erosion and Sedimentation Control Plans approved by the Dauphin County Conservation District.

At the pump station site, all temporary pumping facilities will be removed from the flood plain as will the existing hydrogen peroxide tank and foundation. The Authority will continue to maintain the pump

Drawing No.	Minimization or avoidance activity
C-3	The original design for the section of sewer from new manhole (MH) B8A to Nyes Run located the replacement sewer adjacent to the existing sewer in wetlands. The design was revised, moving the location of the new sewer closer to Nyes Road, to eliminate the sewer crossing over 800 feet of wetlands and to reduce construction access in wetlands requirements.
C-3	Sewer location from new MHB14 to new MH B15 was moved to avoid wetlands.
C-4	Existing sewer from near existing MHB19 to near existing MHB21 is located very close to Nyes Run, crossing or adjacent to wetlands. The replacement sewer has been designed to be located away from the stream bank to protect the stream and to be located, where possible, at the edge of wetlands thus minimizing wetlands impacts.
C-4	From new MHB22-A to new MHB24A the sewer location was moved during design to the east so that the sewer could be located in an existing cleared path in the wetlands to avoid forested wetlands.
C-5	From new MH 26A to new MH 29A, rather than replace the sewer where it is currently located, during design the location was moved slightly to the east in an existing cleared path to avoid forested wetlands.
C-5/6	From existing MH 29 to existing MH 30, the decision was made during design to replace the sewer where it is currently located to avoid impacting forested wetlands.
C-6	At the old Union Deposit Road area the original design had construction access to the sewer located on both sides of old Union Deposit Road near the old Union Deposit Road bridge. During design, construction access on the north side of the road was moved to near the intersection of Nyes Road with old Union Deposit Road to avoid wetlands.
C-6	The new sewer will be constructed under old Union Deposit Road by boring rather than open-cut. The location of the boring receiving pit was moved during design to avoid wetlands.
C-6	Forested wetlands are present near the location of the replacement sewer from new MHB34A to new MHB35A. Although the replacement sewer is not located in wetlands, the original design included a small section of the wetlands in the construction easement. This area was removed during design from the construction easement.
C-14	From new MHB94A to new MHB98A the replacement sewer location was moved slightly during design to the west of the existing sewer to avoid forested wetlands.
C-15/16	During design the location of the replacement sewer from new MHB100A to new MH110A was moved slightly north of the existing sewer, which is located in forested wetlands, in an existing path to limit impacts to forested wetlands.

Table 2
Minimization and Avoidance Activities

Drawing No.	Minimization or avoidance activity
C-17	From new MHB113A to new MHB115A, during design the replacement sewer location was moved to an existing path to minimize impacts to wetlands. The existing sewer is located in wetlands.
C-19	The existing sewer from near new MH130A to near new MHB132A is located in wetlands. The replacement sewer location was moved during design to an existing path in the wetlands to minimize wetland impacts.
C-20	The existing sewer between existing MHB141 and existing MHB143 is located in forested wetlands. During design the replacement sewer location was moved north of the existing sewer to avoid forested wetlands.

station site as it currently does, mowing the area adjacent to the pump station building while not mowing or cutting the vegetation that grows on the stream bank.

At the locations of the conveyance system improvements, stream banks and wetlands disturbed during construction of the sewer will be stabilized as part of the construction activities. Specific stabilization procedures are contained on the project drawings.

5. ACTIONS TAKEN TO REDUCE OR ELIMINATE THE IMPACT OVER TIME BY PRESERVATION AND MAINTENANCE OPERATIONS DURING THE LIFE OF THE ACTION

At the treatment plant site, areas near the new treatment facilities will be maintained as mowed lawn. The areas adjacent to Beaver Creek will remain as they currently are, with native vegetation. The wetlands present at the site will also remain as they currently are. The operation of the WWTP will not impact the wetlands.

The pump station site will be maintained as is currently done. The lawn area will be mowed and the area adjacent to Beaver Creek will not be mowed and will remain in native vegetation.

Wetlands disturbed during the construction of the conveyance system improvements will be restored to pre-construction conditions after construction is completed. Trench plugs will be installed to prevent dewatering of the wetlands.

Stream banks disturbed during the construction of the conveyance system improvements will be restored during the construction process. Except for one location near the junction of Nyes Run and Beaver Creek, all bank restoration will include the use of native plantings.

6. PRIMARY AND SECONDARY IMPACTS

Primary impacts include permanent and temporary impacts to wetlands and stream banks. As shown on Table 3, permanent impacts to wetlands are estimated at only 0.045 acres for the entire project, including the wet weather treatment plant and 31,000 LF of pipe line. Of this, most is associated with a 1,490 sq.ft. (0.034 acres) area of wetlands identified on the treatment plant site. The net increase in permanent impact from the existing conditions due to the installation of some larger diameter manholes is 0.007 acres. As indicated on Table 3, temporary impacts are estimated at 6.1 acres.

As shown in Table 1, only 50 feet of the stream bank disturbed during construction will be stabilized with non-vegetative bank rehabilitation. Of the remaining 1,700 feet, 1,400 will be re-vegetated with native plantings while 300 feet (the area on top of the sewer trench) will be re-vegetated with grass. Because all stream banks will be re-habilitated, all stream bank impacts are considered temporary.

Secondary impacts include the temporary removal of trees at several of the wetland and stream crossing areas. As discussed above, the stream banks will be re-vegetated to re-establish the riparian corridor, to provide shading protection for the stream and help prevent future erosion.

7 COMPENSATION FOR THE IMPACT OF THE PROJECT

As shown on Table 3, the project will result new permanent impacts to 0.0.041 acres of wetlands. As compensation for this impact, Lower Paxton Township Authority proposes to improve conditions along the stream banks of Nyes Runs at several locations. Erosion of the Nyes Run stream banks has become a

TABLE 3

Lower Paxton Township Authority
Wetland Impacts Resulting from Beaver Creek Wet Weather WWTP and Conveyance System Improvements

Wetland (1,2)	Area [3]	Plan [4]	Location	Length (5)	Non-Forested Wetlands		Forested Wetlands				New Manholes			Manholes to be Replaced			Manholes to be Removed			Total Impacts		
					Temp.@30'(7)		Temp.@10'(8)		Temp.@20'(9)		Permanent Impacts			Existing Permanent Impacts			Existing Permanent Impacts			Temp.	Perm.	Net New Perm.[11]
					sq.ft.[6]	acres	sq.ft.(6)	acres	sq.ft.(6)	acres	no.	dia.	sq.ft.	no.	dia.	sq.ft.	no.	dia.	sq.ft.	sq.ft.	sq.ft.	sq.ft.
WWTP	WWTP	LDP-4	Off Old Nyes Road																	590	1,490	1,490
1	B6 - B7	2	Old Nyes Rd.	292	8,700	0.200					1	6	28.3							8,672	28	28
2	B15 - B18	3	Kendale	580	11,400	0.262	2,000	0.046	4,000	0.092	3	5	58.9							17,341	59	59
3	B19 - B22	4	Oaks	759	16,530	0.379					3	5	58.9							16,471	59	59
4	B22 - creek	4	N of Kendale Oaks	74	1,970	0.045														1,970	0	0
5	creek - B25	4	S of Union Deposit Rd	484	14,300	0.328					2	5	39.3	1	4	12.6	1	4	12.6	14,261	39	14
6	B26 - B28	5	east of Nyes Run	432	12,180	0.280	330	0.008	400	0.009	1	5	19.6	1	4	12.6				12,690	20	7
7	B29 - B30	5/6	along Nyes Rd.	494	13,980	0.321	380	0.009	230	0.005	1	5	19.6	1	4	12.6				14,570	20	7
8	FORCE MAIN	6	Union Dep. Rd.	4	120	0.003														120	0	0
9	FORCE MAIN	6	N of UD Rd. @ power line	115	3,270	0.075														3,270	0	0
10	FORCE MAIN	9/10	Ricker (Red Top-Hunter's Run)	1,626	15,040	0.345	8,130	0.187	17,010	0.390										40,180	0	0
(10)																						0
14	FORCE MAIN	12	power line off Yorkshire Dr.	148	2,060	0.047														2,060	0	0
15	B94 - B98	14	N of Beaver Ck. Pump Station	945	27,510	0.632	810	0.019	180	0.004	2	5	39.3	1	4	12.6				28,461	39	26
16	B99 - B101	14/15	east side of Beaver Creek	268	4,030	0.093	1,320	0.030	2,680	0.062	1	5	19.6	1	4	12.6				8,010	20	7
17	creek - B102	15	west side of Beaver Creek	135	4,270	0.098					1	5	19.6	1	4	12.6				4,250	20	7
18	B106 - B111	15/16	Westford Crossing	958	27,320	0.627	1,420	0.033			4	5	78.5	4	4	50.2				28,662	79	29
19	B113 - B116	16/17	south of Old Jonestown Rd.	595	17,830	0.409					1	5	19.6							17,810	20	20
20	B120 - B121.01	17	Rt. 22 Warehouse	247	5,730	0.132	440	0.010	1,230	0.028	1	4	12.6	1	4	12.6				7,387	13	0
21	B122 - B123	18	between Rt. 22 & Rt. 81	228	0	0.000	2,280	0.052	4,580	0.105	2	4	25.1	2	4	25.1				6,835	25	0
22	B126 - creek	19	Rt. 81 billboard	389	11,660	0.268					2	4	25.1							11,635	25	25
23	creek - B132	19	Chelton Ave.	522	15,630	0.359					1	4	12.6							15,617	13	13
24	B141 - B143	20	south of Blue Ridge Ave.	121	3,000	0.069	810	0.019	1,010	0.023										4,820		
	TOTALS			9,413	216,530	4.972	17,920	0.413	31,320	0.719	26		476.6							265,882	1,969	1,791
													Acres =							6.104	0.045	0.041

1 Wetland identification numbers in **bold** indicate wetlands added or revised as a result of the Corps of Engineers and DEP site inspection in March 2004 and April 2005.
2 Wetland crossings are numbered from downstream to upstream.
3 Areas are identified, for the most part, relative to the identification numbers of proposed manholes.
4 Plan number refers to drawing number of the 50-scale plan sheets included as Appendix C to the Beaver Creek Conveyance Improvements Wetland Delineation Report prepared by CET Engineering Services.
5 Linear feet of wetlands as listed in the Beaver Creek Conveyance Improvements Wetland Delineation Report prepared by CET Engineering Services.
6 Impacted wetland areas were calculated from the electronic plan drawings using AutoCAD. As shown on the plans, in some locations wetlands do not encompass entire width of construction right-of-way [i.e.: linear feet of wetlands from table X 30 ft. (max. construction width) does not necessarily equal impacted wetland area].
7 Construction will be limited to 30 feet in wetlands.
8 Construction will be limited to a 30-foot width. After sewer construction is completed, 5-foot edges of 30-foot width of disturbed area will be allowed to return to forested wetlands.
9 Construction will be limited to a 30-foot width. After sewer construction is completed, 20-foot center of right-of-way will be maintained so that sewer maintenance activities can take place.
10 Design changes after wetland delineation report was prepared eliminated 3 areas where wetlands were impacted; to maintain the same numbering system as in other portions of the Joint Application, the wetlands numbering system has not been changed.
11 Current permanent impacts from manholes to be replaced and manholes to be removed have been subtracted from permanent impacts from total new manholes to determine the net increase in permanent impact from the existing condition. While the estimated permanent impacts from manholes is 0.011 acres, the increase over the existing conditions is approximately 0.007 acres.

June 2005

significant problem over the years. In some areas, the stream channel has shifted to such an extent that some existing manholes are now exposed in the stream channel. This further destabilizes the stream. The stabilization of the stream channel impacts not only the immediate area, but reduces the sediment loading to all areas downstream, improving water quality. The proposed stream improvement projects are as follows:

Remove existing manhole B16 from Nyes Run and install approximately 10 linear feet of stream bank protection at this area to minimize further bank erosion. This manhole and adjacent area is shown on Photo MH-1.

2. Install approximately 40 linear feet of stream bank protection along Nyes Run south of Stream Crossing 14 (see stream crossing photo) where the stream is eroding the bank.

3. Remove existing interceptor manhole B50 from an unnamed tributary to Nyes Run as shown on in photograph MH-3 and re-vegetate the stream bank.

4. Install approximately 150 feet of stream bank protection near Stream Crossing No. 33 (see stream crossing photo) replacing the existing deteriorating bank protection.

PLAN SET NO. ___

BEAVER CREEK CONVEYANCE IMPROVEMENTS

MITIGATION PLAN SUBMITTAL

LOWER PAXTON TOWNSHIP AUTHORITY

LOWER PAXTON TOWNSHIP
SOUTH HANOVER TOWNSHIP, WEST HANOVER TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

JUNE 2005

CET ENGINEERING SERVICES

HARRISBURG, PENNSYLVANIA

INDEX OF DRAWINGS

SHEET No.	DRAWING No.	TITLE
		CIVIL
1	E&S-1	EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS
2	E&S-2	EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS
3	E&S-3	EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS
4	KP-0	OVERALL KEYPLAN
5	KP-1	KEYPLAN 1
6	KP-2	KEYPLAN 2
7	C-1	PLAN / PROFILE 1
8	C-2	PLAN / PROFILE 2
9	C-3	PLAN / PROFILE 3
10	C-4	PLAN / PROFILE 4
11	C-5	PLAN / PROFILE 5
12	C-6	PLAN / PROFILE 6
13	C-7	PLAN / PROFILE 7
14	C-8	PLAN / PROFILE 8
15	C-9	PLAN / PROFILE 9
16	C-10	PLAN / PROFILE 10
17	C-11	PLAN / PROFILE 11
18	C-12	PLAN / PROFILE 12
19	C-13	PLAN / PROFILE 13
20	C-14	PLAN / PROFILE 14
21	C-15	PLAN / PROFILE 15
22	C-16	PLAN / PROFILE 16
23	C-17	PLAN / PROFILE 17
24	C-18	PLAN / PROFILE 18
25	C-19	PLAN / PROFILE 19
26	C-20	PLAN / PROFILE 20

UNDERGROUND UTILITIES ACT

1. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF THE PENNSYLVANIA GENERAL ASSEMBLY UNDERGROUND UTILITY LINE PROTECTION ACT, ACT 287 of 1974 AS AMENDED BY ACT 187 OF 1996. FOR NOTIFICATION OF UTILITIES BEFORE EXCAVATION IN CONTRACT AREA THE ONE UNDERGROUND UTILITIES CALL NUMBER IS 800-242-1776.

   INDIVIDUAL LOCAL UTILITIES ARE AS FOLLOWS:

   COMCAST CABLE COMMUNICATIONS, INC.
   4601 SMITH STREET
   HARRISBURG, PA 17109
   CONTACT (L. PAXTON): JOHN DETWEILER

   COMCAST CABLE COMMUNICATIONS, INC.
   327 WEST CHOCOLATE AVENUE REAR
   HERSHEY, PA 17033
   CONTACT (S. HANOVER): DAN COLLISON

   PPL ELECTRIC UTILITIES CORP.
   1801 BROOKWOOD ST.
   HARRISBURG, PA 17104-2222
   CONTACT: RICHARD MUSA

   PENNSYLVANIA AMERICAN WATER
   852 WESLEY DRIVE
   MECHANICSBURG, PA 17055
   CONTACT: TED MOHN

   COMMONWEALTH TELECOM SERVICES, INC.
   100 CTE DR.
   DALLAS, PA 18612
   CONTACT: DAVID MORRIS

   BUCKEYE PIPELINE CO.
   CORAOPOLIS DIST.
   PO BOX 368
   5002 BUCKEYE ROAD
   EMMAUS, PA 18049-0368
   CONTACT: DONALD SAMALA

   UGI UTILITIES, INC.
   1300 PAXTON STREET
   HARRISBURG, PA 17104
   CONTACT: JARED STEVENS

   UNITED WATER PENNSYLVANIA
   4211 EAST PARK CIRCLE
   HARRISBURG, PA 17111
   CONTACT: KATHY RICHMOND

   VERIZON PENNSYLVANIA, INC.
   11TH FLOOR STRAWBERRY SQUARE
   HARRISBURG, PA 17101
   CONTACT: THERESA BEATTY

   FIRST ENERGY CORP. / VERIZON NORTH
   C/O CENTRAL LOCATING SERVICE
   401 EAST LOUTHER ST. SUITE 301
   CARLISLE, PA 17013
   CONTACT: DWAYNE STUPP

   WEST HANOVER TOWNSHIP
   WATER AND SEWER AUTHORITY
   7901 JONESTOWN ROAD
   HARRISBURG, PA 17112
   CONTACT: MARK SALISBURY

   XO COMMUNICATIONS, INC.
   C/O BAYLEA UTILITY PROTECTION LLC
   PO BOX 543
   STEELVILLE, MO 65565
   CONTACT: ANDY MALEAN

   SOUTH HANOVER TOWNSHIP
   111 WEST THIRD STREET VILLAGE OF UNION DEPOSIT
   HERSHEY, PA 17033
   CONTACT: BRIAN ENGLE

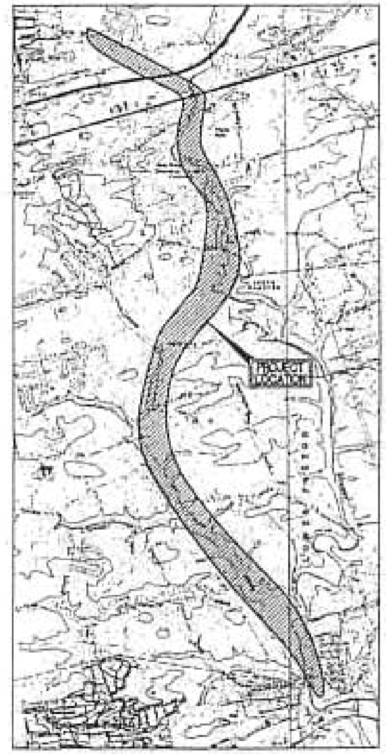
   SWATARA TOWNSHIP AUTHORITY
   8675 PAXTON STREET
   HUMMELSTOWN, PA 17036-8873
   CONTACT: MICHAEL KREISER

   LOWER PAXTON TOWNSHIP AUTHORITY
   5993 LOCUST LANE
   HARRISBURG, PA 17109
   CONTACT: SAM ROBBINS

   TEXAS EASTERN TRANSMISSION CORP.
   560 POTTSTOWN PIKE
   PO BOX 420
   EXTON, PA 19341-0420
   CONTACT: RON PILCHER

2. PA ONECALL POCS DESIGN SERIAL NUMBERS:

SOUTH HANOVER TOWNSHIP	0993016
WEST HANOVER TOWNSHIP	0995835 (BEAVER CREEK)
	0995834 (BEAVER CREEK)
LOWER PAXTON TOWNSHIP	0995563 (NYES ROAD)
	0995590 (HUNTERS RUN/ DEVONSHIRE HEIGHTS)
	0995824 (BEAVER CREEK)
	0995833 (I-81/ BLUE RIDGE AVE.)



PROJECT LOCATION
SCALE: 1"=2000'

JOB NO. 0899.7001

EROSION AND SEDIMENTATION CONTROL NOTES

1. A copy of the erosion and sedimentation control plan must be available at the site of the earth moving activity during construction and until the site is stabilized.
2. Prior to construction, hold an on-site meeting with engineer and County Conservation District staff to review specific erosion and sedimentation control measures to be employed. The contractor is to contact the Dauphin County Conservation District at least 7 working days before beginning any earth moving.
3. Contractor is responsible for installation and maintenance of all erosion and sediment Best Management Practices (BMP's).
4. As soon as disturbed areas reach final grade they must be stabilized immediately. During non-growing seasons, mulch must be applied at the recommended rate of 3 tons/acre. Disturbed areas which are not at finished grade and will be redisturbed within one year may be stabilized in accordance with temporary seeding specifications.
5. Stockpile heights must not exceed 35 feet. Stockpile slopes must be 2:1 or flatter. Stockpiles to be surrounded by filter fabric fence.
6. At the end of each workday any sediment tracked or conveyed onto a public roadway is to be removed and redeposited at the construction site. Washing the roadway or sweeping the deposits into roadway ditches, sewers, culverts, or other drainage is not acceptable.
7. All building materials and wastes must be removed from the site and recycled or disposed in accordance with DEP's Solid Waste Management Regulations at 25 Pa. Code 260.1 et. seq., 271 et. seq., and 287.1 et. seq. No building material or wastes or unused building materials shall be burned, dumped, or discharged at the site.
8. Comply with all applicable conditions of DEP and Corps of Engineers permits.
9. No burning is allowed on part of the project.
10. Failure to correctly install sediment control facilities or failure to prevent sediment laden runoff from leaving the construction site, failure to take corrective actions to immediately resolve failures of sediment control facilities may result in administrative, civil and/or criminal penalties being instituted by the Pennsylvania Department of Environmental Protection as defined in Section 602 of the Clean Streams Law of Pennsylvania. The Clean Streams Law provides for up to $10,000 per day in civil penalties, up to $10,000 in summary criminal penalties, and up to $25,000 in misdemeanor criminal penalties for each violation.
11. Contractor is required to have a Preparedness, Prevention and Contingency (PPC) Plan for the project site. PPC Plan is to be developed and implemented in accordance with PA DEP requirements and is to be in place before construction is started.
12. Construction on steep slopes parallel to stream to be in accordance with Benching Steep Slopes Parallel to Stream Detail.

STAGING OF CONSTRUCTION ACTIVITIES

[illegible]

1. Clear and grub area.
2. Construction of rock construction entrance.
3. Initial grading.
4. [illegible]
5. [illegible]
6. [illegible]
7. Installation of paving.
8. [illegible]
9. [illegible]

WORK AREA ACCESS

1. [illegible]
2. [illegible]
3. Contractor is to discuss any changes in access areas with County Conservation District.

STREAM CROSSINGS

1. Crossings are to be made in the dry by installing coffer dams and piping or pumping water around the work area.
2. Utility Line Stream Crossing, Stream Bypass Piping and Temporary Road Crossing Details are to be followed.
3. [illegible]

WETLAND CROSSINGS

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. The disturbed wetland areas shall be restored to pre-construction elevations and contours.

TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES

1. Filter fabric fence and rock construction entrance located and constructed as shown on the drawings.
2. Any required pumping of water shall be discharged to a pumped water filter bag.
3. [illegible]
4. Other control measures indicated in the Erosion and Sedimentation Control Notes.

PERMANENT CONTROL MEASURES AND FACILITIES

1. [illegible]
2. [illegible]

LAYDOWN AND EQUIPMENT STORAGE AREAS

[illegible]

STORAGE AND DISPOSAL AREAS FOR EXCESS EXCAVATED MATERIAL

[illegible]

RECYCLING

Where feasible, waste materials are to be recycled.

FILL MATERIAL

All fill material is to meet DEP Clean Fill requirements.

MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS

1. [illegible]
2. Other control measures indicated in the Erosion and Sedimentation Control Notes shall be maintained.

SEEDING AND FERTILIZING

1. Temporary Seeding

Fertilizer (Non-Wetlands)

[illegible]

Lime (Non-Wetlands)

[illegible]

Temporary Seeding

Seed

[illegible]

2. Permanent Seeding (Non-Wetlands)

Fertilizer

[illegible]

Lime

[illegible]

Permanent Seeding

[illegible]

3. Fertilizing and Liming

[illegible]

4. Mulching

[illegible]

5. Topsoil

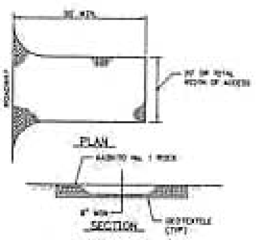
[illegible]

RECEIVING STREAM NAMES/CHAPTER 93 CLASSIFICATION

Beaver Creek – WWF
[illegible] – WWF

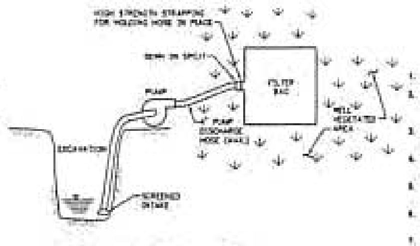
NOTES:

1. ROCK SIZE – AASHTO No. 1
2. THE STRUCTURE'S THICKNESS WILL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ON THE SITE FOR THIS PURPOSE. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS WILL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE.
3. GEOTEXTILE WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
4. WASHING OF THE ROADWAY OR SWEEPING THE DEPOSIT INTO ROADWAY DITCHES, SEWERS, CULVERTS OR OTHER DRAINAGE WAYS IS NOT ACCEPTABLE.
5. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 3:1 SLOPES WILL BE PERMITTED.
6. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PAVED ROADWAYS. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
7. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



ROCK CONSTRUCTION ENTRANCE

NO SCALE



PUMPED WATER FILTER BAG SPECIFICATIONS

GEOTEXTILE FABRIC PROPERTIES TYPE-NON WOVEN	TEST METHOD	UNITS
WEIGHT	ASTM D-3776	8 OZ/YD
GRAB TENSILE	ASTM D-4632	203 LBS
PUNCTURE	ASTM D-4833	130 LBS
FLOW RATE	ASTM D-4491	80 GAL/MIN/FT
PERMITTIVITY	ASTM D-4491	1.5 SEC⁻¹
UV RESISTANT	ASTM D-4355	70 %
AOS % RETAINED	ASTM D-4751	100 %

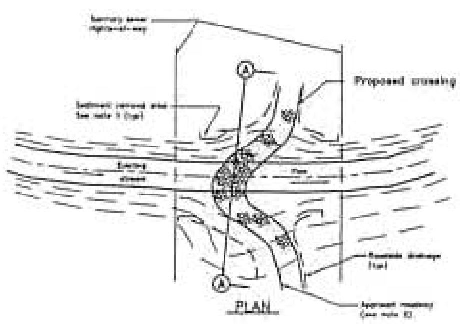
MODEL – DIRTBAG 53 AS MARKETED BY ACF ENVIRONMENTAL (1-800-448-3636) OR OTHER FILTER BAG THAT MEETS SPECIFICATIONS.

CONSTRUCTION NOTES

1. PLACE FILTER BAG ON STABILIZED, WELL VEGETATED [illegible]
2. PUMPING RATE IS NOT TO BE GREATER THAN [illegible] 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICH EVER IS LESS.
3. STRAP PUMP DISCHARGE HOSE FIRMLY TO FILTER [illegible] IN THE MANNER SPECIFIED BY THE MANUFACTURER.
4. MONITOR AND EVALUATE PUMPING OPERATION [illegible] ASSURE FILTER BAG CONTINUES TO FUNCTION [illegible]
5. REPLACE FILTER BAG WHEN BAG BECOMES 1/2 [illegible] WHEN DIRECTED BY ENGINEER OR CONSERVATION [illegible]
6. DISPOSE OF SEDIMENT IN A MANNER SATISFACTORY TO THE ENGINEER AND/OR CONSERVATION DISTRICT.
7. DISCHARGE FROM FILTER BAG SHALL BE TO [illegible] EROSION RESISTANT AREAS, WHERE THIS IS [illegible] A GEOTEXTILE FLOW PATH SHALL BE PROVIDED. [illegible] NOT BE PLACED ON SLOPES GREATER THAN [illegible]
8. EXTRA FILTER BAGS MUST BE MAINTAINED ON [illegible] TIMES.
9. FILTER BAGS ARE TO BE MADE FROM NON-WOVEN [illegible] MATERIAL, SEWN WITH HIGH STRENGTH, DOUBLE [illegible] TYPE SEAMS. THEY ARE TO BE CAPABLE OF [illegible] PARTICLES LARGER THAN 150 MICRONS.
10. PROVIDE SUITABLE MEANS OF ACCESSING BAG [illegible] MACHINERY REQUIRED FOR DISPOSAL PURPOSES.
11. PUMP INTAKE TO BE FLOATING AND SCREENED.
12. FILTER BAGS TO BE INSPECTED DAILY. IF ANY [illegible] IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

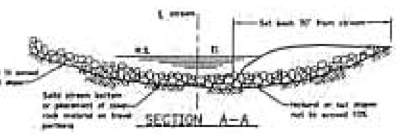
PUMPED WATER FILTER BAG DETAIL

NO SCALE



NOTES FOR FORD:

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]



TEMPORARY ROAD CROSSING – FORD DETAIL

NO SCALE

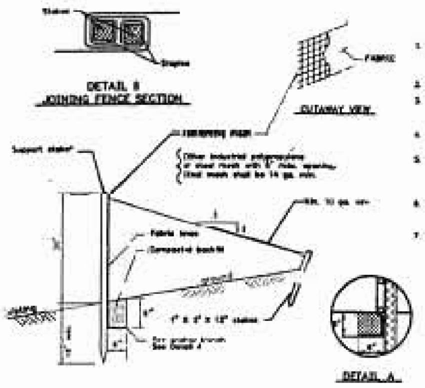
DATE	NO.	REVISIONS / SUBMISSIONS
8-15-05	6	MITIGATION PLAN SUBMITTAL
3-7-05	5	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN REVISIONS
10-20-04	4	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
8-19-04	3	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
2-11-04	2	NPDES STORMWATER ASSOCIATED W/ CONSTRUCTION SUBMITTAL
2-11-04	1	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL

DESIGNED BY: MJB
DRAWN BY: DHC
CHECKED BY: MJB
APPROVED BY: JCW
SCALE: AS NOTED

BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS

CET Engineering Services
Harrisburg, Pennsylvania

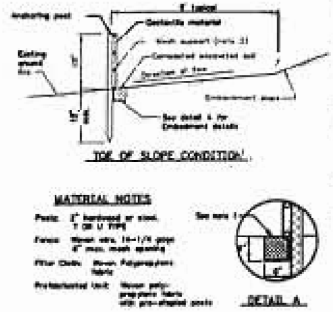


CONSTRUCTION NOTES

MATERIAL NOTES

REINFORCED FILTER FABRIC FENCE (30" HIGH) DETAIL

NO SCALE

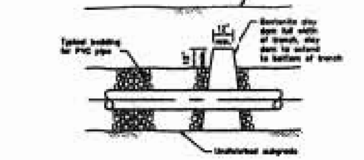


CONSTRUCTION NOTES

MATERIAL NOTES

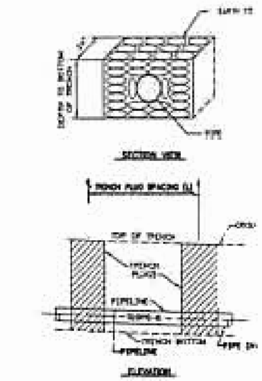
STANDARD FILTER FABRIC FENCE (18" HIGH)

NO SCALE



BENTONITE CLAY DAM (CLAY COLLAR) DETAIL

NO SCALE

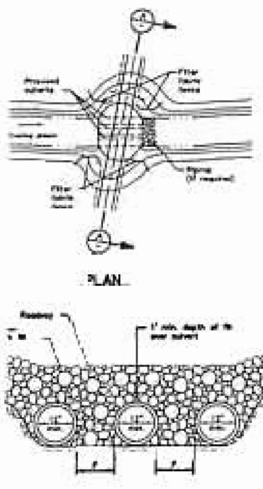


Required Spacing and Materials for Trench Plugs

Trench Slope (%)	Spacing (ft.)	Plug Material
[illegible]	[illegible]	[illegible]

TRENCH PLUG DETAIL

NO SCALE

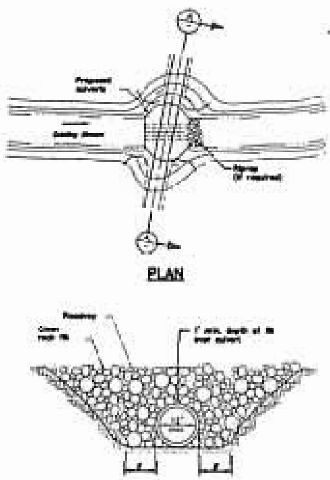


SECTIONS

PIPE DIAMETER (IN)	MIN. DISTANCE (F)
[illegible]	[illegible]

TEMPORARY ROAD CROSSING
MULTIPLE CULVERTS

NO SCALE



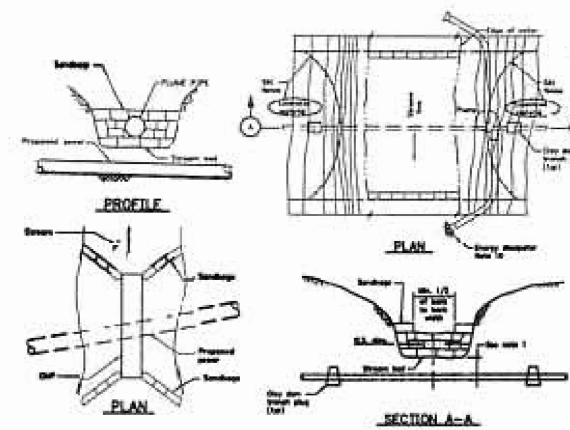
SECTION A-A

PIPE DIAMETER (IN)	MIN. DISTANCE (F)
[illegible]	[illegible]

TEMPORARY ROAD CROSSING
SINGLE CULVERT

NO SCALE

NOTES FOR CULVERTS:



NOTES:

UTILITY LINE STREAM CROSSING AND BYPASS PIPING DETAILS

NO SCALE

DATE	NO.	REVISIONS / SUBMISSIONS
6-15-05	6	MITIGATION PLAN SUBMITTAL
2-7-05	5	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN REVISIONS
10-20-04	4	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
5-19-04	3	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
2-11-04	2	NPDES STORMWATER ASSOCIATED W/ CONSTRUCTION SUBMITTAL
2-11-04	1	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL

DESIGNED BY MJB
DRAWN BY DWC
CHECKED BY MJB
APPROVED BY JCW
SCALE AS NOTED

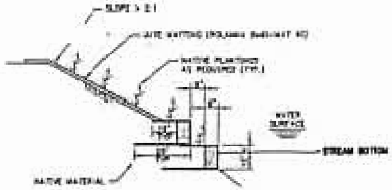
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

EROSION AND SEDIMENTATION CONTROL
NOTES AND DETAILS

CKT Engineering Services
Harrisburg, Pennsylvania

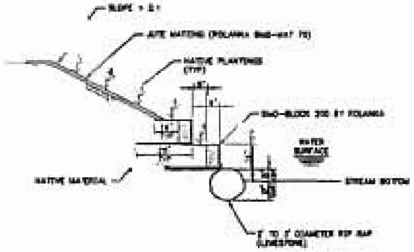
SWALES OR INTERMITTENT STREAMS – TYPE A DETAIL

NO SCALE



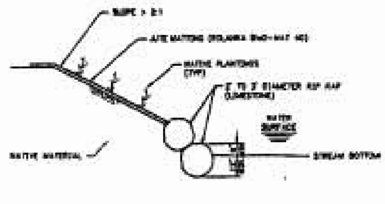
STREAM CROSSING – TYPE B DETAIL

NO SCALE



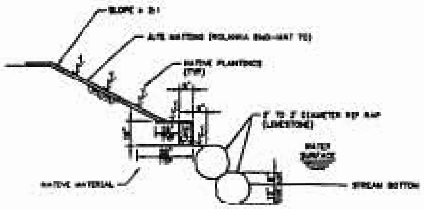
STREAM CROSSING – TYPE C DETAIL

NO SCALE



BANK RESTORATION (NO CROSSING) – TYPE D DE

NO SCALE



STEEP BANK RESTORATION – TYPE E DETAIL

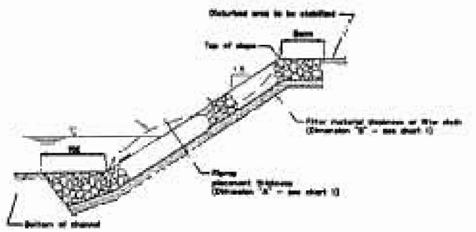
NO SCALE

1. All Jute Matting to be seeded in accordance with instructions on Drawing No. E&S-1.
2. All Jute Matting to be installed and secured in accordance with manufacturer's instructions.

CHART 1

STREAM	LOCATION	RIPRAP (R# No.)	RIPRAP DIMENSION "A" (INCHES)	FILTER MATERIAL (DGA No.)	FILTER MATERIAL DIMENSION "B" (INCHES)
BEAVER CREEK	STREAM CROSSING No. 1	R-7	36	[illegible]	[illegible]

NOTE: SEE TABLE 1 FOR STREAM BANK REHABILITATION AND SLOPE PROTECTION FOR ALL OTHER STREAM CROSSINGS



RIPRAP BANK REHABILITATION AND SLOPE PROTECTION – TYPE F DETAIL

NO SCALE

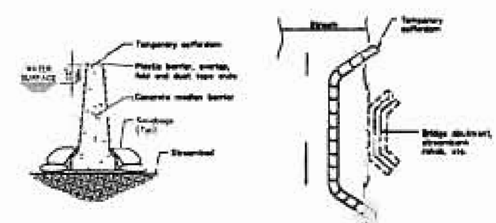
NOTES:

1. Bank stabilization and rehabilitation should not constrict or increase the normal channel width. The configuration of the shoreline shall remain approximately the same and be flush with existing soils, and not project further in the channel than adjacent upstream and downstream banks. The upstream and downstream ends of the project shall be keyed into the stream bank to ensure stability.
2. Only clean, nonpolluting materials shall be used for bank stabilization and rehabilitation in order to minimize excessive turbidity by leaching of fines as well as to preclude entrance of undesirable chemical constituents to the watercourse by natural runoff or leaching.
3. All disturbed areas shall be immediately stabilized in accordance with the erosion and sedimentation control plan.
4. Construction and other activities authorized by the permit for this project shall be performed in a manner that minimizes use of equipment within the stream channel or body of water.
5. Bank stabilization and rehabilitation shall take place during at low flow.
6. To the greatest extent possible, bank stabilization and rehabilitation shall be constructed in a manner which will (A) prevent permanent or long-term adverse changes in water quality, (B) minimize alterations in natural aquatic habitat and (C) maintain natural stream flow velocities and mixing patterns.
7. During construction activities, all public and private property including existing vegetation, landscape features and monuments within, along and adjacent to the work area, shall be protected and preserved to the maximum degree possible. This shall include, but not be limited to, precautions taken to minimize damage, erosion, injury or destruction, prevent pollution, provide protection of all trees and other woody plants; special care being taken to protect the natural vegetation and surroundings to include all natural drainageways, ponds, lakes, wetlands, rivers and fields, and storage of materials in such a manner to prevent leaching which would be injurious to soils and to plants. Precautions should be taken to prevent damage to pipes, conduits and other underground structures.
8. Rock riprap protection should not be placed with an exterior slope steeper than 1.5 horizontal to 1.0 vertical.
9. For rock riprap installations, a trench must be excavated at the toe of the slope to provide a supporting base. This trench should be extended to an elevation of at least 2 feet below the streambed level and be filled with the same material as the outer protection layer.

TABLE 1

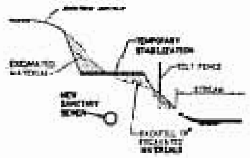
DWG. No.	CROSSING No.	STREAM NAME	BANK REHABILITATION DETAIL TO BE USED	TEMPORARY ROAD CROSSING
C-2	1	BEAVER CREEK	F	NO
C-3	2	WYES RUN	B	YES
C-3	3	WYES RUN	B	YES
C-3	4	WYES RUN	B	YES
C-4	5	WYES RUN	C	YES
C-4	6	WYES RUN	B	YES
[illegible]	7	SWALE	A	YES
[illegible]	8	SWALE	A	YES
C-7	9	INTERMITTENT	A	YES
C-7	10	SWALE	A	YES
C-7	11	SWALE	B	YES
C-8	12	UNNAMED	B	NO
C-8	13	UNNAMED	B	YES
C-8	14	SWALE	A	YES
C-8	15	UNNAMED	B	YES
C-9	16	SWALE	A	YES
C-10	17	UNNAMED	B	YES
C-10	18	UNNAMED	B	YES
C-10	19	UNNAMED	B	YES
C-13	20	UNNAMED	B	YES
C-14	21	BEAVER CREEK	C	YES
C-15	22	BEAVER CREEK	C	YES
C-15	23	INTERMITTENT	B	YES
	24	BEAVER CREEK	C	NO
	25	SWALE	A	YES
[illegible]	26	BEAVER CREEK	C	NO
C-17	27	SWALE	A	YES
C-18	28	BEAVER CREEK	C	YES
C-18	29	UNNAMED	B	YES
C-18	30	UNNAMED	B	YES
C-19	31	UNNAMED	B	YES
C-19	32	UNNAMED	B	YES
C-20	33	UNNAMED	B	YES
C-20	[illegible]	UNNAMED	C	YES
C-20	34	UNNAMED	B	YES
C-20	35	UNNAMED	B	YES
C-19	*	UNNAMED	B	YES

*TEMPORARY ROAD CROSSING FOR ACCESS ONLY



IN-STREAM COFFERDAM DETAILS

NO SCALE



BENCHING STEEP SLOPES PARALLEL TO STREAM DETAIL

NO SCALE

DATE	NO.	REVISIONS / SUBMISSIONS
6-15-05	6	MITIGATION PLAN SUBMITTAL
3-7-05	5	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN REVISIONS
10-20-04	4	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
5-19-04	3	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
2-11-04	2	NPDES STORMWATER ASSOCIATED W/ CONSTRUCTION SUBMITTAL
2-11-04	1	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL

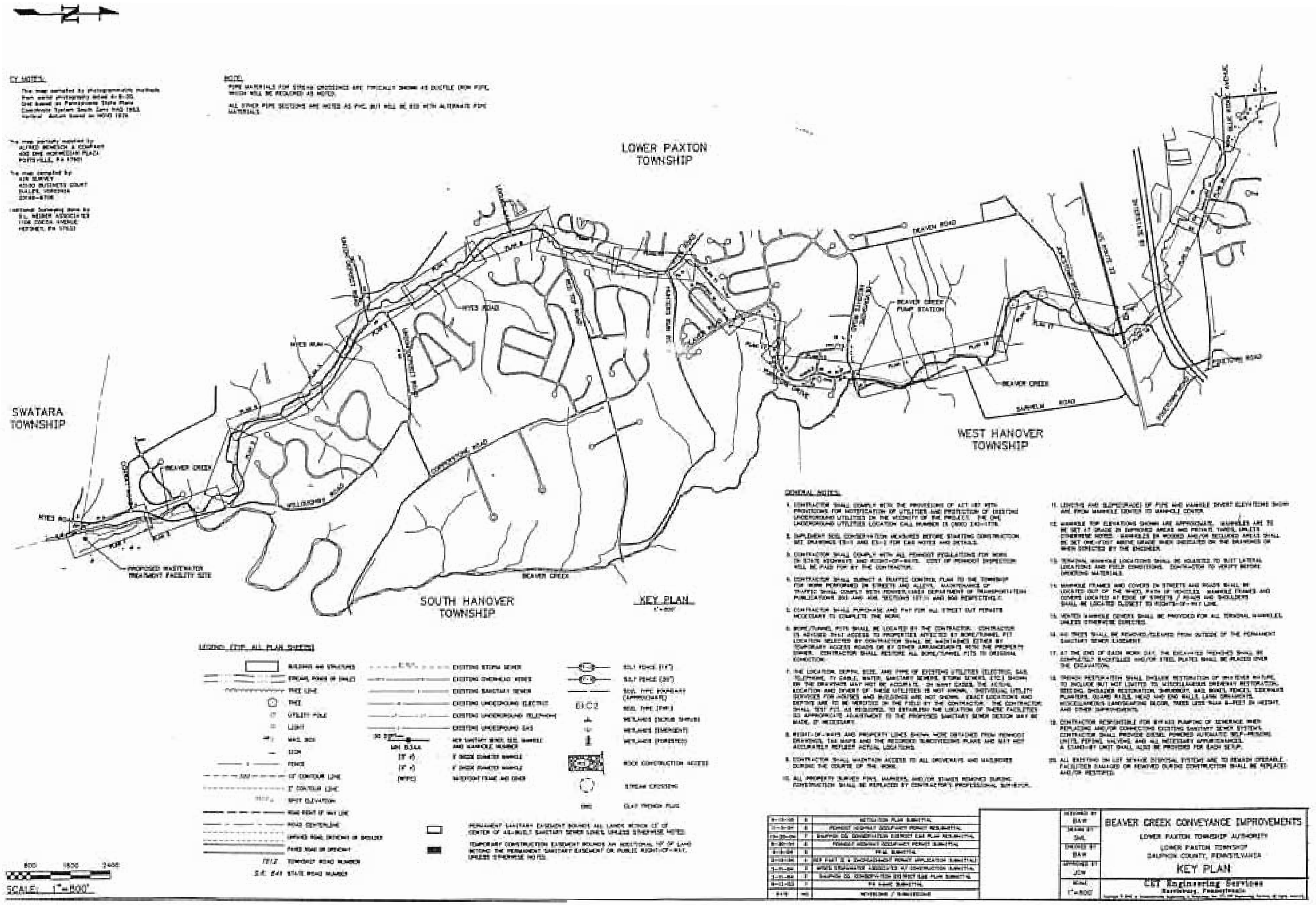
DESIGNED BY: MJB
DRAWN BY: DWC
CHECKED BY: MJB
APPROVED BY: JCW
SCALE: AS NOTED

BEAVER CREEK CONVEYANCE IMPROVEMENTS

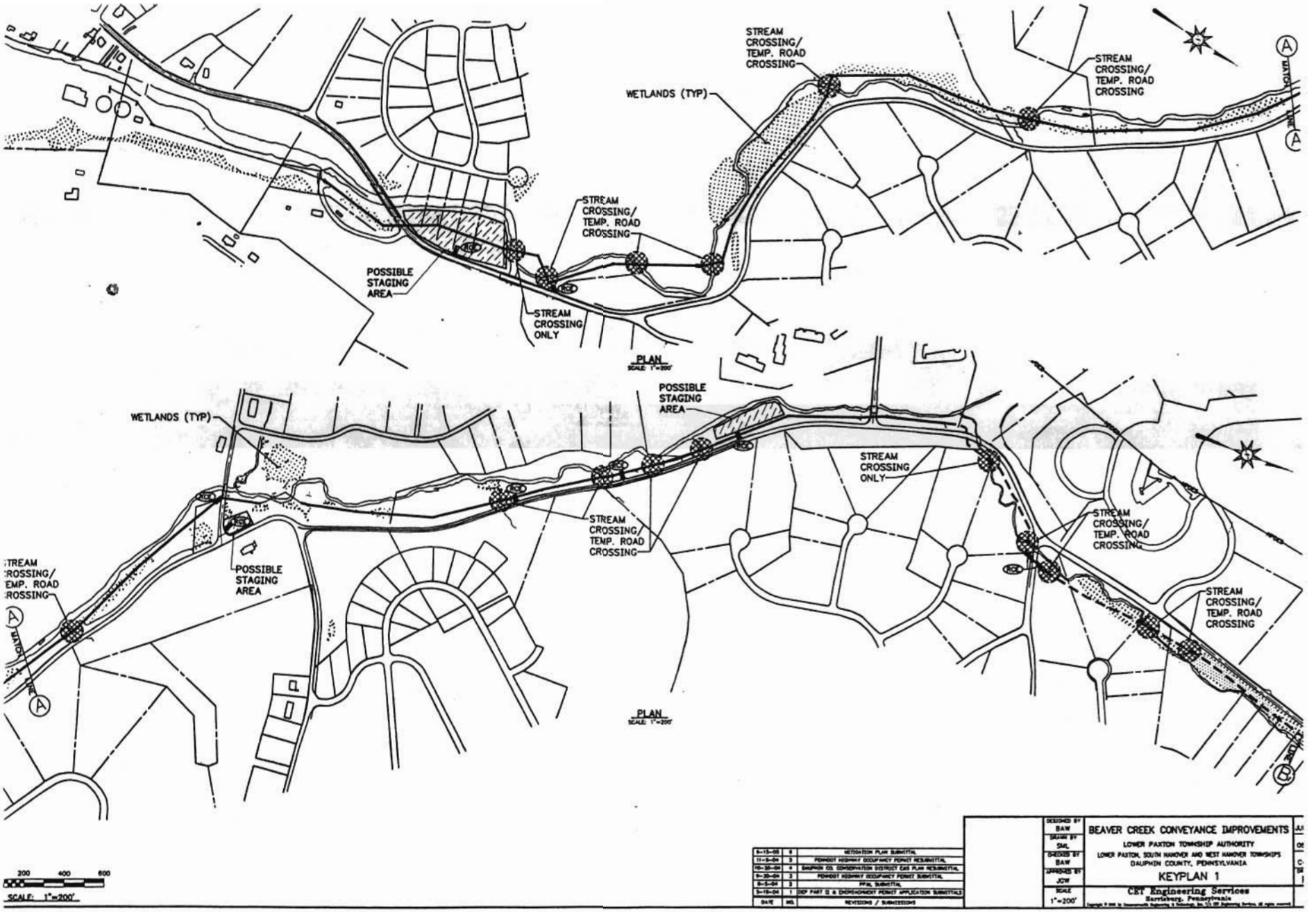
LOWER PAXTON TOWNSHIP

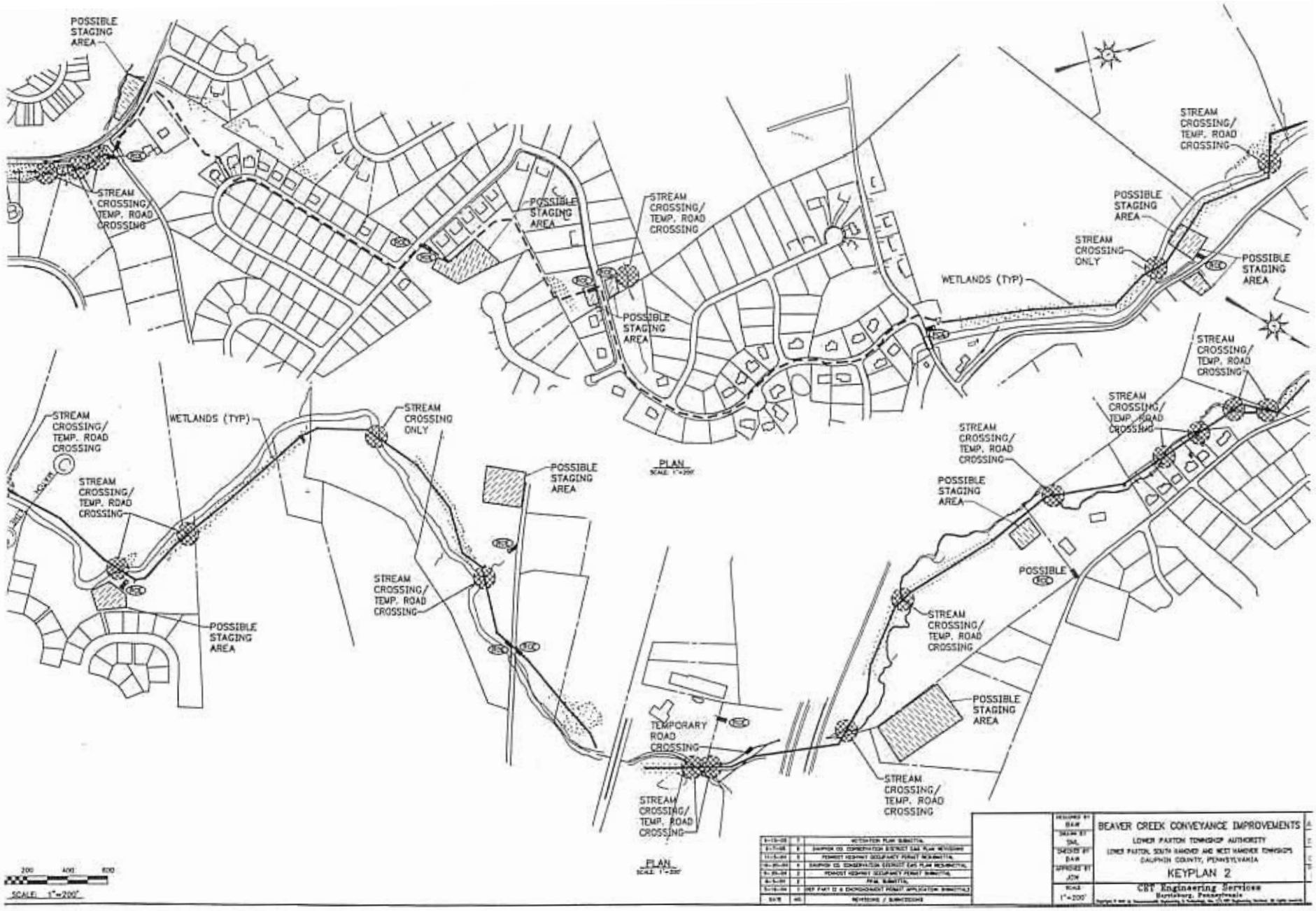
EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS

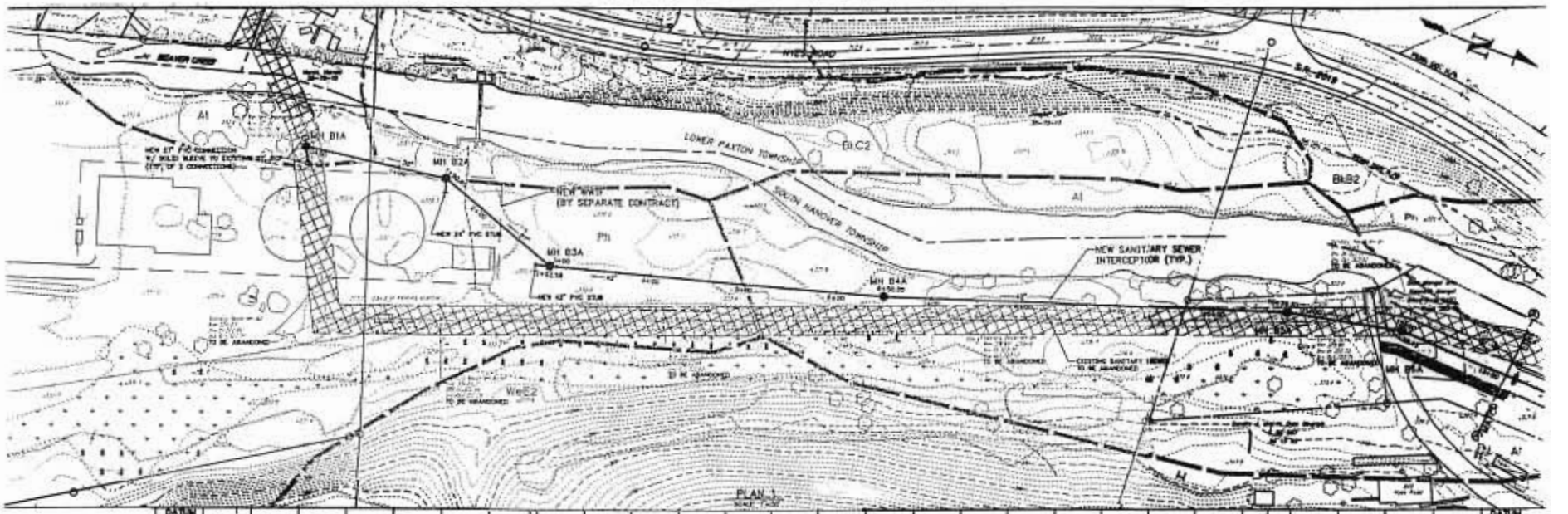
CET Engineering Services

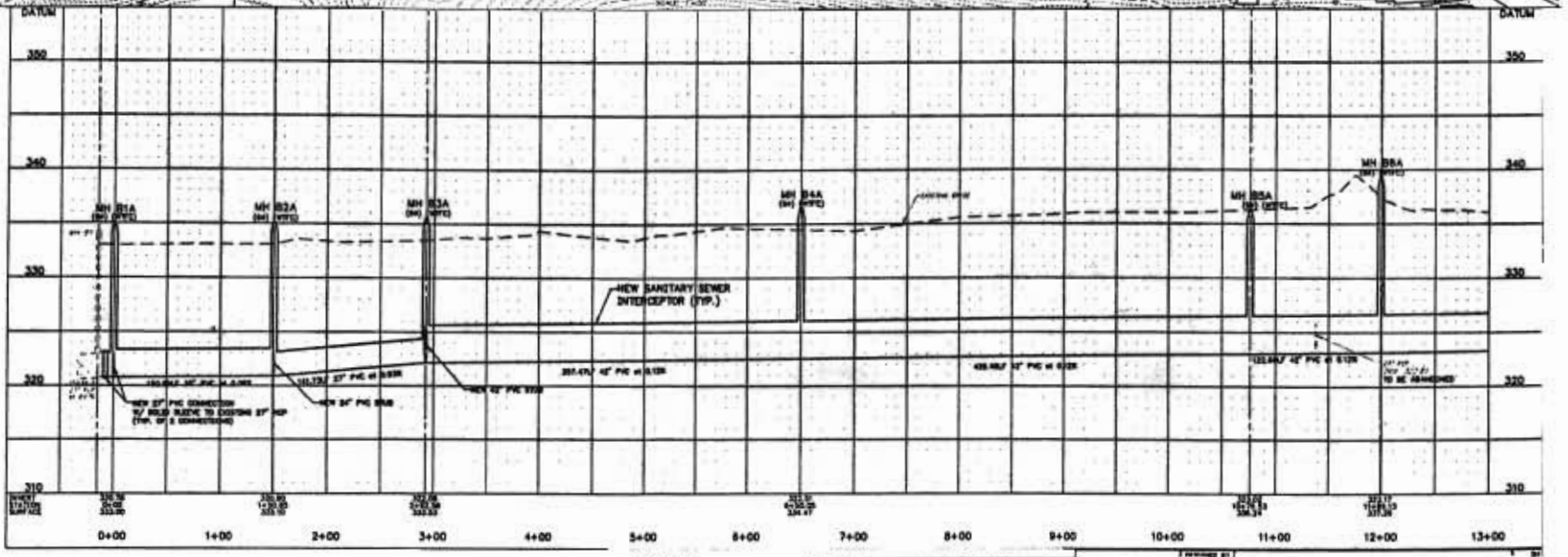


LOWER PAXTON TOWNSHIP
SWATARA TOWNSHIP
SOUTH HANOVER TOWNSHIP
WEST HANOVER TOWNSHIP
BEAVER CREEK
BEAVER ROAD
HYES ROAD
BEAVER CREEK PUMP STATION
PROPOSED WASTEWATER TREATMENT FACILITY SITE
US ROUTE 22
INTERSTATE 81
KEY PLAN
1"=800'
GENERAL NOTES:
LEGEND: (TYP. ALL PLAN SHEETS)
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
KEY PLAN
CET Engineering Services
Harrisburg, Pennsylvania
SCALE: 1"=800'
800
1600
2400


STREAM CROSSING/ TEMP. ROAD CROSSING
WETLANDS (TYP)
STREAM CROSSING/ TEMP. ROAD CROSSING
STREAM CROSSING/ TEMP. ROAD CROSSING
POSSIBLE STAGING AREA
STREAM CROSSING ONLY
PLAN
SCALE: 1"=200'
POSSIBLE STAGING AREA
WETLANDS (TYP)
STREAM CROSSING ONLY
STREAM CROSSING/ TEMP. ROAD CROSSING
STREAM CROSSING/ TEMP. ROAD CROSSING
STREAM CROSSING/ TEMP. ROAD CROSSING
POSSIBLE STAGING AREA
PLAN
SCALE: 1"=200'
200 400 800
SCALE: 1"=200'
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON, SOUTH HANOVER AND WEST HANOVER TOWNSHIPS
DAUPHIN COUNTY, PENNSYLVANIA
KEYPLAN 1
CET Engineering Services
Harrisburg, Pennsylvania


POSSIBLE STAGING AREA
STREAM CROSSING/ TEMP. ROAD CROSSING
POSSIBLE STAGING AREA
STREAM CROSSING/ TEMP. ROAD CROSSING
STREAM CROSSING/ TEMP. ROAD CROSSING
POSSIBLE STAGING AREA
STREAM CROSSING ONLY
WETLANDS (TYP)
POSSIBLE STAGING AREA
PLAN
SCALE: 1"=200'
STREAM CROSSING/ TEMP. ROAD CROSSING
WETLANDS (TYP)
STREAM CROSSING ONLY
STREAM CROSSING/ TEMP. ROAD CROSSING
STREAM CROSSING/ TEMP. ROAD CROSSING
POSSIBLE STAGING AREA
STREAM CROSSING/ TEMP. ROAD CROSSING
POSSIBLE STAGING AREA
STREAM CROSSING/ TEMP. ROAD CROSSING
POSSIBLE STAGING AREA
STREAM CROSSING/ TEMP. ROAD CROSSING
TEMPORARY ROAD CROSSING
STREAM CROSSING/ TEMP. ROAD CROSSING
PLAN
SCALE: 1"=200'
200 400 800
SCALE: 1"=200'
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON, SOUTH HANOVER AND WEST HANOVER TOWNSHIPS
DAUPHIN COUNTY, PENNSYLVANIA
KEYPLAN 2
CET Engineering Services
Harrisburg, Pennsylvania



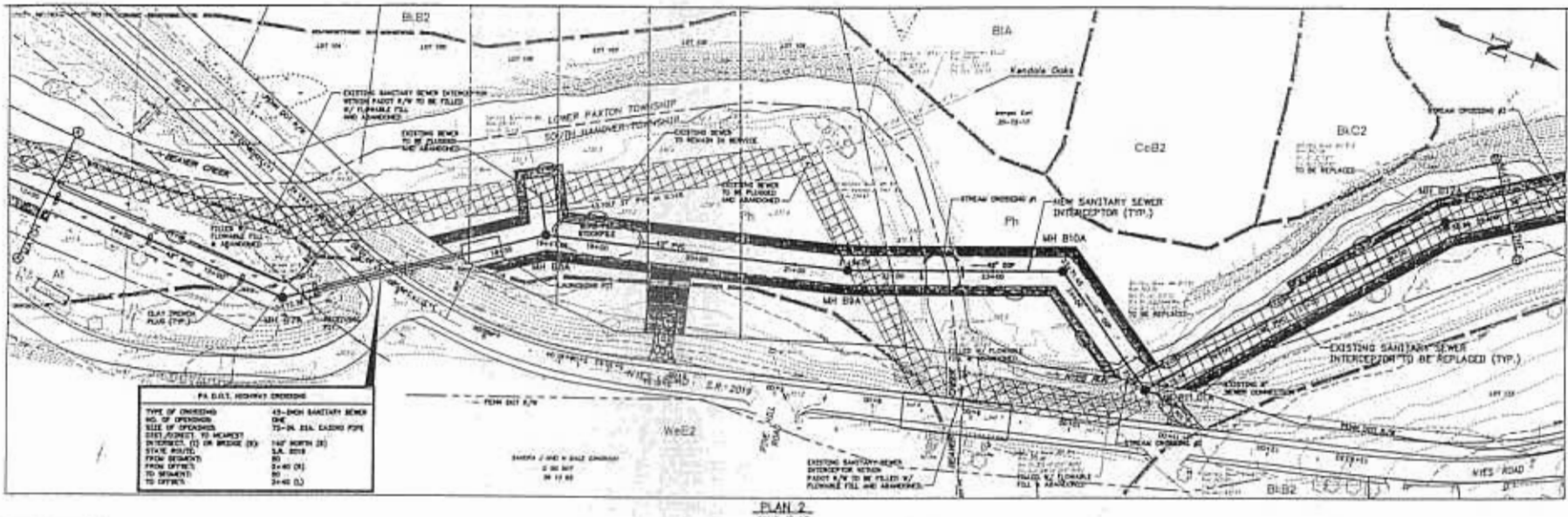


PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

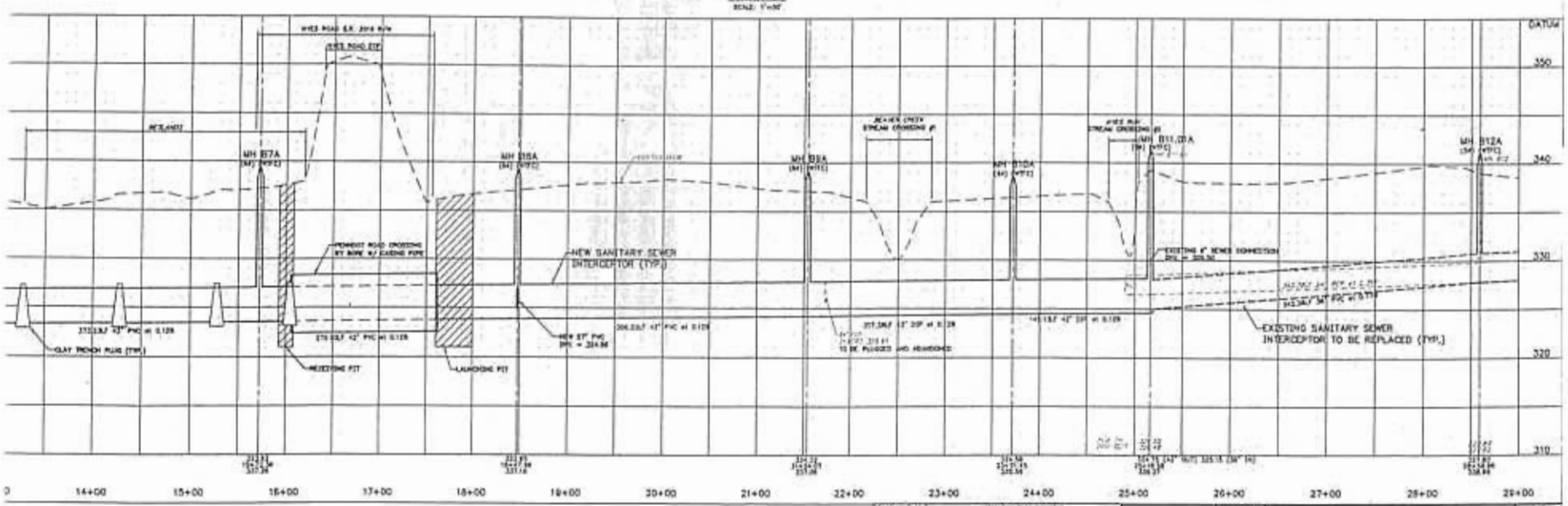
5-15-08	9	REVISION PLAN SUBMITTAL
10-6-08	8	PERMIT SEPARATE OCCUPANCY PERMIT RESUBMITTAL
10-30-08	7	SHOPPES OF DERRY CONSTRUCTION DISTRICT LAND PLAN RESUBMITTAL
9-30-08	6	PERMIT SEPARATE OCCUPANCY PERMIT SUBMITTAL
1-30-08	5	SDE SUBMITTAL
5-15-08	4	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
2-11-08	3	APPLE (FORMERLY ASSOCIATES) W/ CONSTRUCTION SUBMITTAL
2-11-08	2	SHOPPES OF DERRY CONSTRUCTION DISTRICT LAND PLAN SUBMITTAL
9-13-07	1	TO HARC SUBMITTAL

100 150

E: 1"=50'



PLAN 2
SCALE: 1"=50'



PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

0 100 150

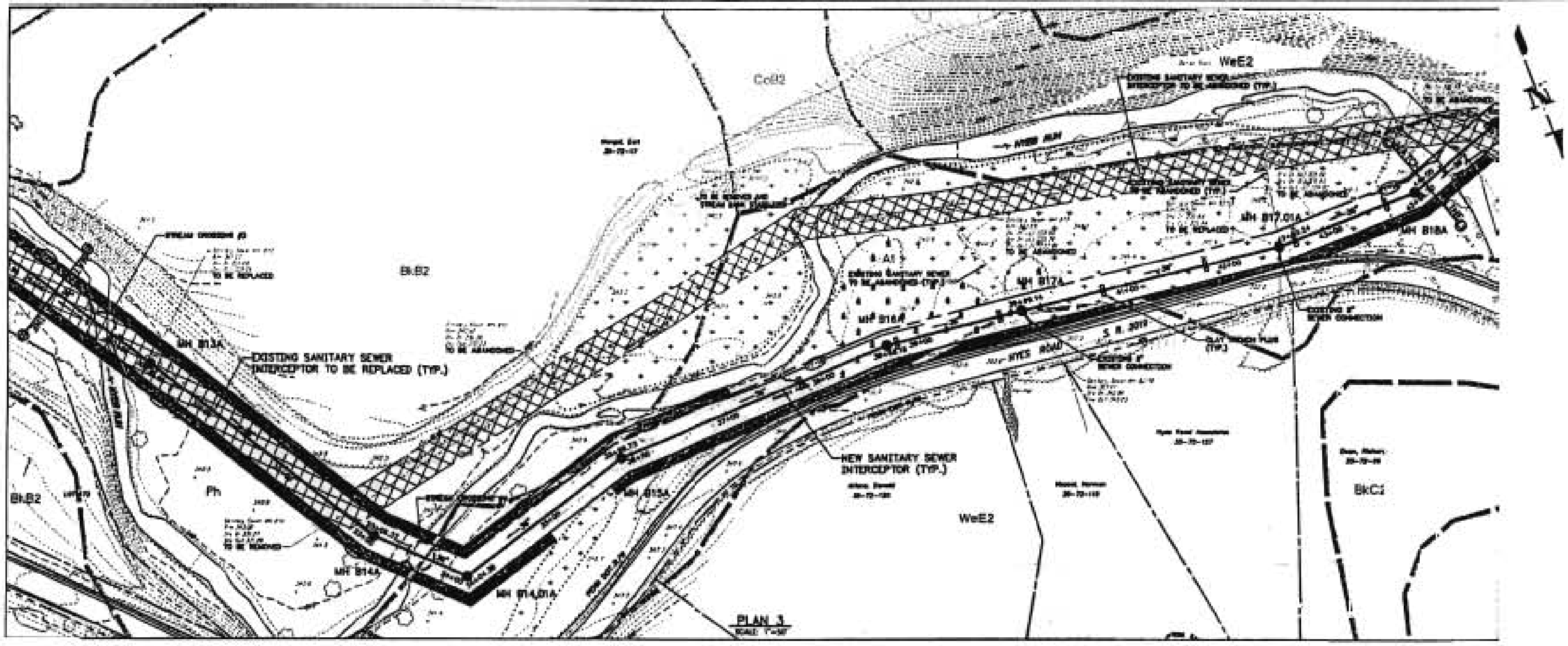
5-16-03	10	INTERCEPTOR PLAN SUBMITTAL
7-7-03	9	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN REVISIONS
11-5-04	8	PERMEOT HIGHWAY OCCUPANCY PERMIT RESUBMITTAL
10-20-04	7	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
6-30-04	6	PERMEOT HIGHWAY OCCUPANCY PERMIT SUBMITTAL
1-30-04	5	90% SUBMITTAL
5-19-04	4	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
2-11-04	3	WETLAND STUDY ASSOCIATED W/ CONSTRUCTION SUBMITTAL
2-11-04	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
2-10-04	1	75% SUBMITTAL

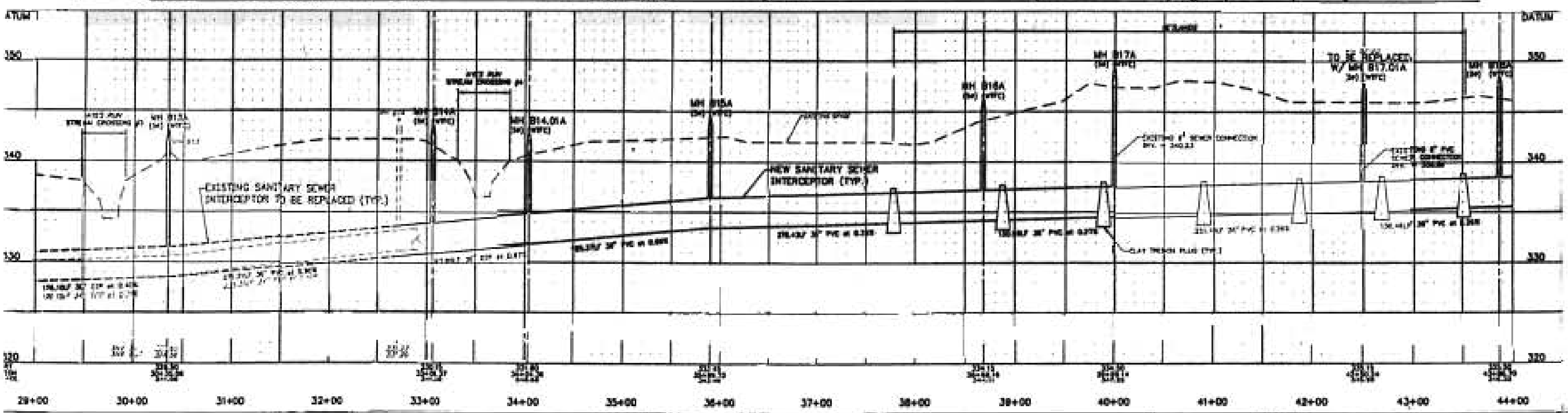
DESIGNED BY: BAM
DRAWN BY: SML
CHECKED BY: BAM
APPROVED BY: JCW
SCALE: 1"=50'

BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 2

CET Engineering Services
Harrisburg, Pennsylvania

DATE: JUNE 2003
JOB NO.: 0592.7001
FILE: C-SITE-1
DRAWING NO.: C-2
SHEET: of

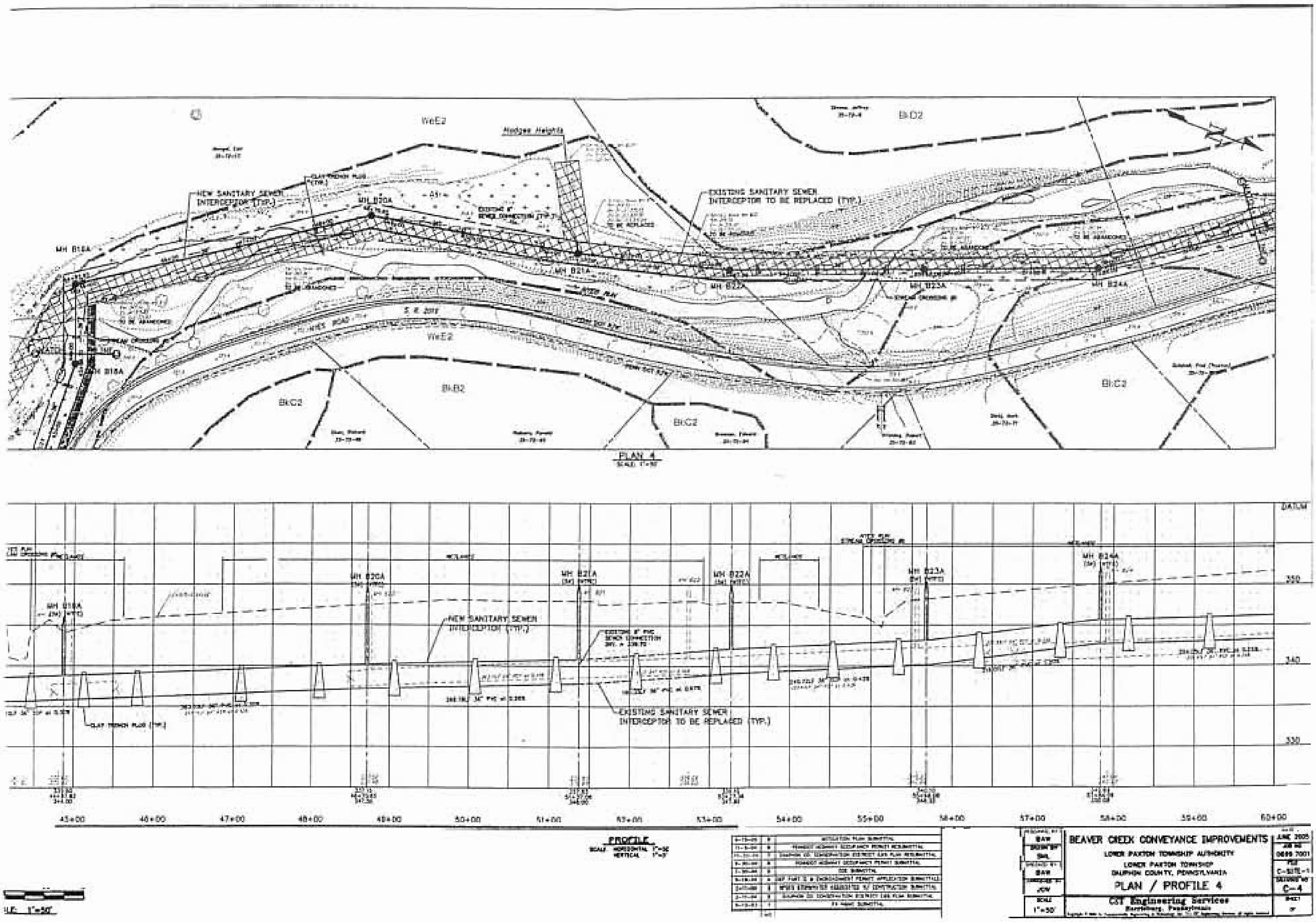




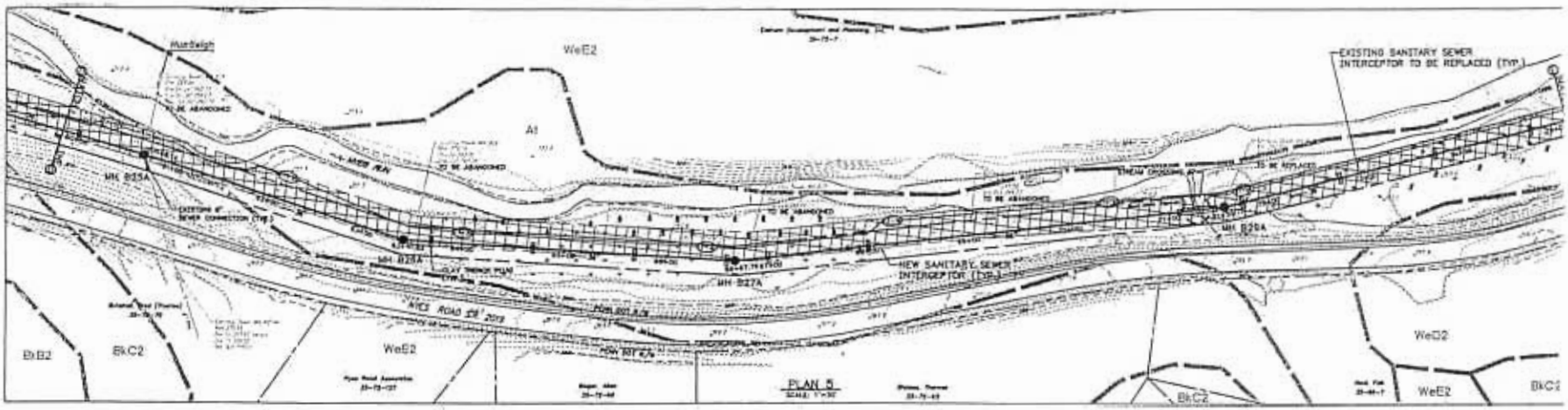
PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

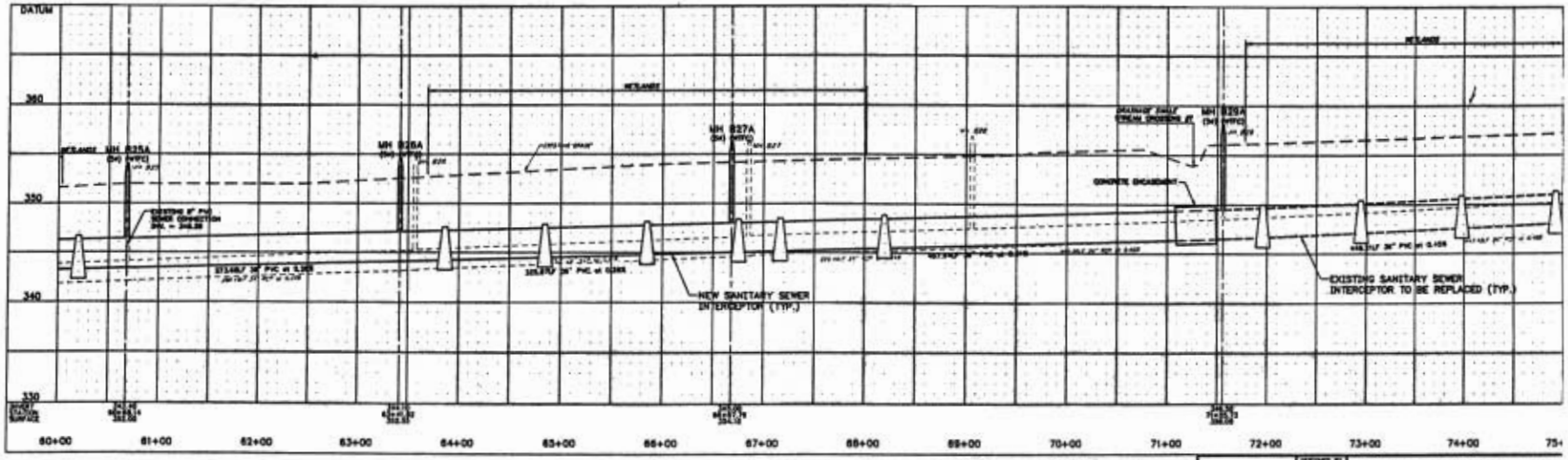
[illegible]	9	MITIGATION PLAN SUBMITTAL
[illegible]	8	PENNDOT HIGHWAY OCCUPANCY PERMIT RESUBMITTAL
[illegible]	7	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
[illegible]	6	PENNDOT HIGHWAY OCCUPANCY PERMIT SUBMITTAL
[illegible]	5	COE SUBMITTAL
[illegible]	4	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTAL
[illegible]	3	NPDES STORMWATER ASSOCIATED W/ CONSTRUCTION SUBMITTAL
[illegible]	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
[illegible]	1	[illegible] SUBMITTAL

DESIGNED BY BAW	BEAVER CREEK CONVEYANCE IMPROVEMENTS	DATE JUNE 200[illegible]
DRAWN BY [illegible]	LOWER PAXTON TOWNSHIP AUTHORITY	JOB NO. 0698.700
CHECKED BY BAW	LOWER PAXTON TOWNSHIP, DAUPHIN COUNTY, PENNSYLVANIA	FILE C-5170-
APPROVED BY JGM	PLAN / PROFILE 3	DRAWING NO. C-3
SCALE 1"=50'	CET Engineering Services, Harrisburg, Pennsylvania	SHEET [illegible]



WeE2
BkD2
Hodges Heights
NEW SANITARY SEWER INTERCEPTOR (TYP.)
EXISTING SANITARY SEWER INTERCEPTOR TO BE REPLACED (TYP.)
CLAY TRENCH PLUG (TYP.)
MH B18A
MH B20A
MH B21A
MH B22A
MH B23A
MH B24A
S.R. 2019
BkB2
BkC2
BkC2
BkC2
PLAN 4
SCALE: 1"=50'
DATUM
350
340
330
45+00
46+00
47+00
48+00
49+00
50+00
51+00
52+00
53+00
54+00
55+00
56+00
57+00
58+00
59+00
60+00
PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 4
CST Engineering Services
Harrisburg, Pennsylvania
JUNE 2005
0689.7001
C-SITE-1
C-4
1"=50'





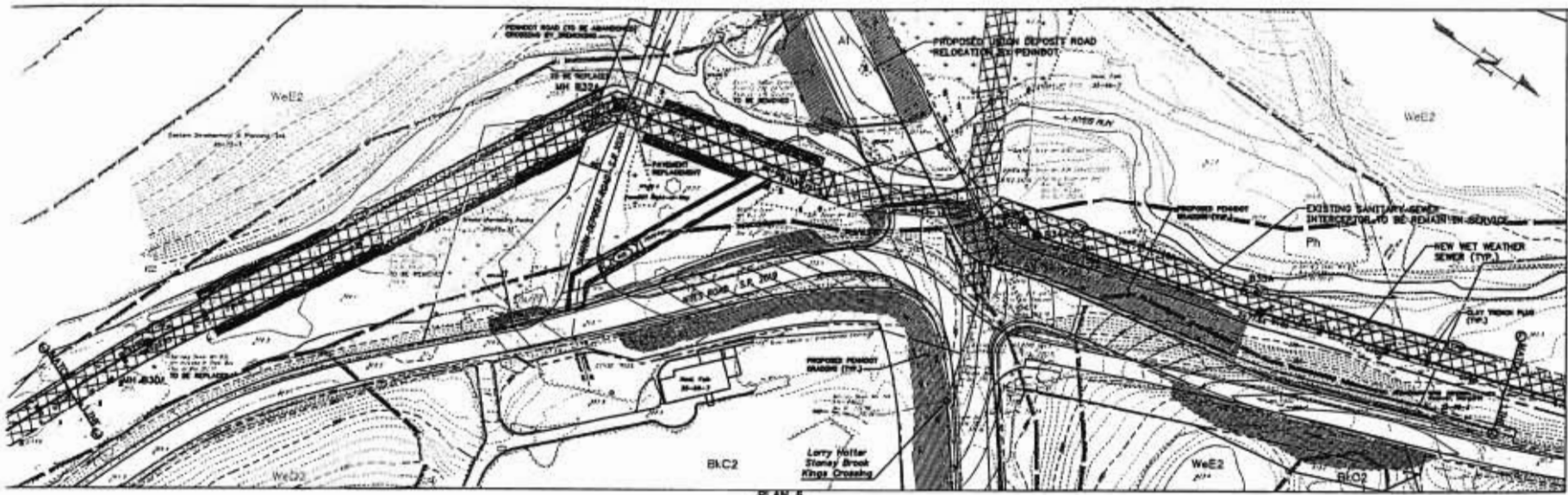
0 50 100 150
SCALE: 1"=50'

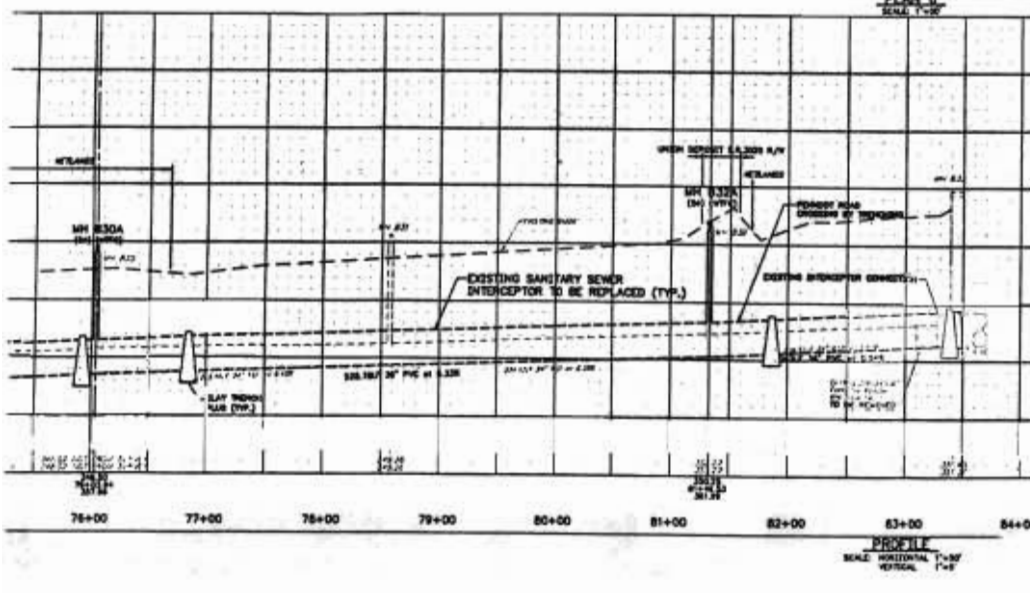
6-15-05	9	REVISION PLAN SUBMITTAL
11-3-04	8	PENNDOT HIGHWAY OCCUPANCY PERMIT RESUBMITTAL
10-28-04	7	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
9-20-04	6	PENNDOT HIGHWAY OCCUPANCY PERMIT SUBMITTAL
7-26-04	5	DEP SUBMITTAL
6-15-04	4	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
3-11-04	3	SPACE STRINGING FOR ADDITION TO T.V. INSPECTION SUBMITTAL
2-11-04	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
6-12-03	1	PA MANE SUBMITTAL
DATE	NO.	REVISIONS / SUBMISSIONS

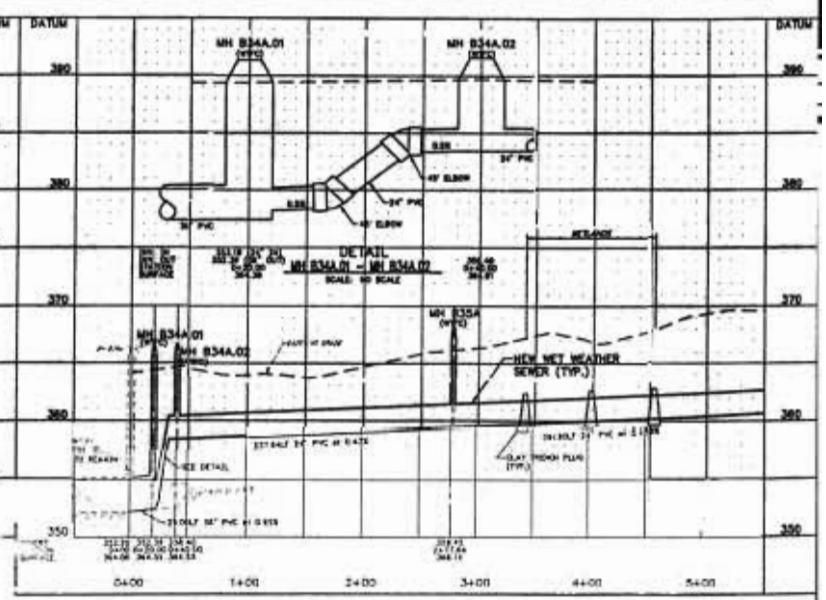
DESIGNED BY: BAW
DRAWN BY: SAL
CHECKED BY: BAW
APPROVED BY: JDW
SCALE: 1"=50'

BEAVER CREEK CONVEYANCE IMPROVE
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 5

CET Engineering Services
Harrisburg, Pennsylvania







5-15-03	8	EROSION PLAN SUBMITTAL
10-30-03	7	PENNDOT HIGHWAY OCCUPANCY PERMIT RESUBMITTAL
10-30-03	6	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
9-30-03	5	PENNDOT HIGHWAY OCCUPANCY PERMIT SUBMITTAL
7-30-03	4	DEP SUBMITTAL
5-30-03	3	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
2-11-03	2	UPDATED STORMWATER CALCULATIONS W/ CONSERVATION SUBMITTAL
2-11-03	1	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
6-12-02	0	PA NPDES SUBMITTAL
NO.		REVISIONS / DESCRIPTION

DESIGNED BY: BAW
DRAWN BY: SAL
CHECKED BY: BAW
APPROVED BY: JDW
SCALE: 1"=50'

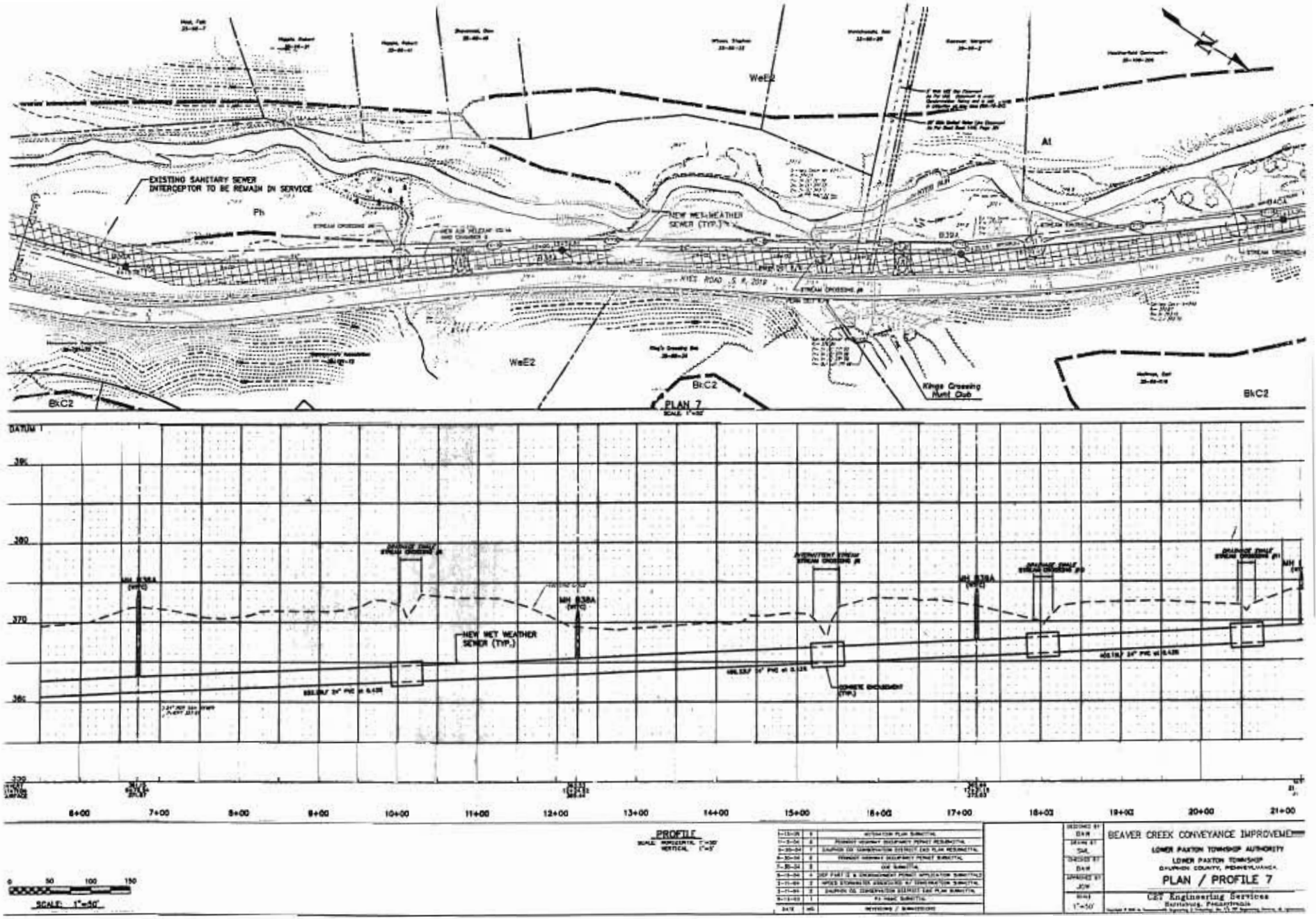
BEAVER CREEK CONVEYANCE IMPROVEMENTS

LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

PLAN / PROFILE 6

CET Engineering Services
Harrisburg, Pennsylvania

DATE: JUNE 2003
JOB NO: 0609 7001
FILE: C-SITE-1
DRAWING NO: C-6
SHEET NO:



PROFILE

SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

0 50 100 150

SCALE: 1"=50'

1-15-04	9	ACTIVATION PLAN SUBMITTAL
11-5-04	8	PENNDOT HIGHWAY OCCUPANCY PERMIT RESUBMITTAL
9-30-04	7	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
8-30-04	6	PENNDOT HIGHWAY OCCUPANCY PERMIT SUBMITTAL
7-30-04	5	DEP SUBMITTAL
6-3-04	4	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
3-11-04	3	NPDES STORMWATER ASSOCIATED W/ CONSTRUCTION SUBMITTAL
3-11-04	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
9-15-03	1	95 PERC SUBMITTAL
DATE	NO.	REVISIONS / SUBMISSIONS

DESIGNED BY	DAH
DRAWN BY	SML
CHECKED BY	DAH
APPROVED BY	JDW
SCALE	1"=50'

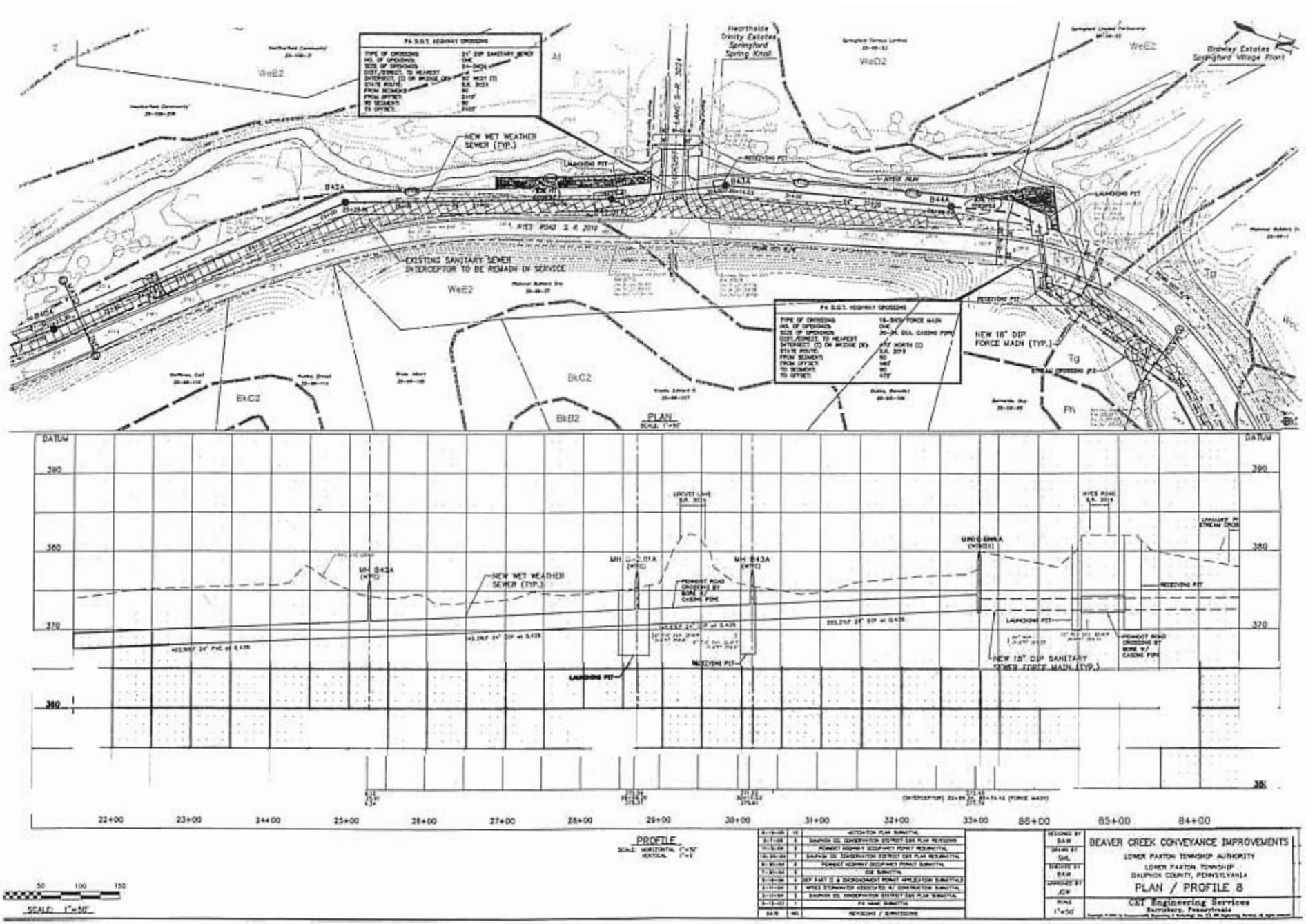
BEAVER CREEK CONVEYANCE IMPROVEMENTS

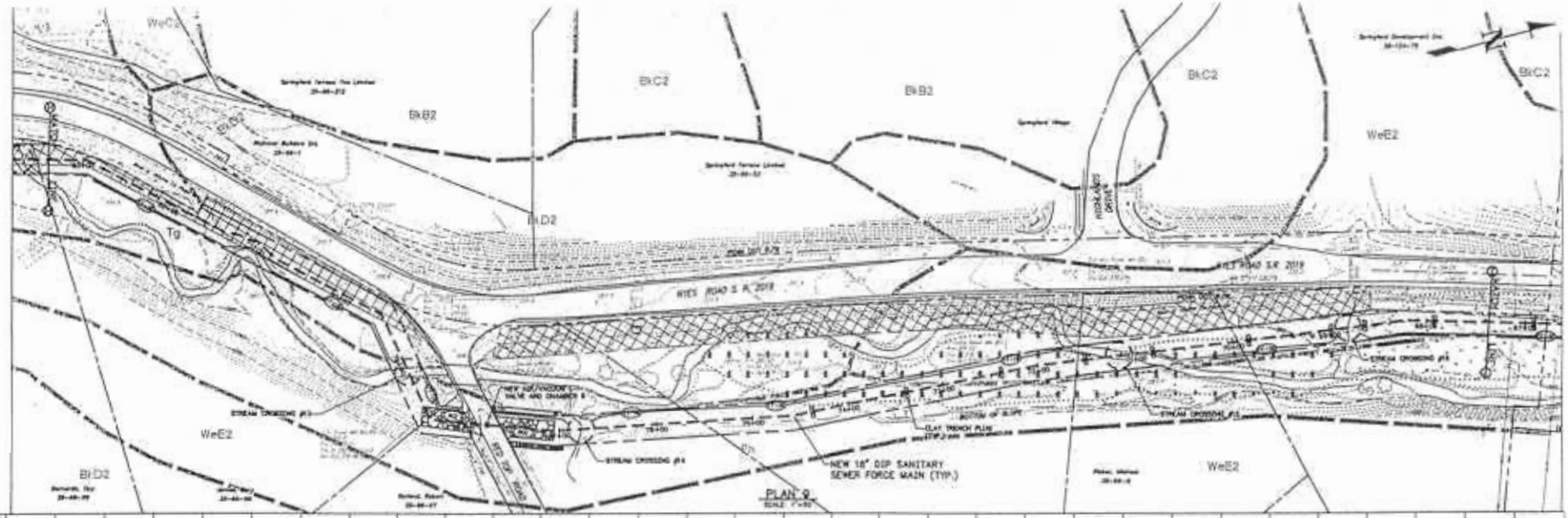
LOWER PAXTON TOWNSHIP AUTHORITY

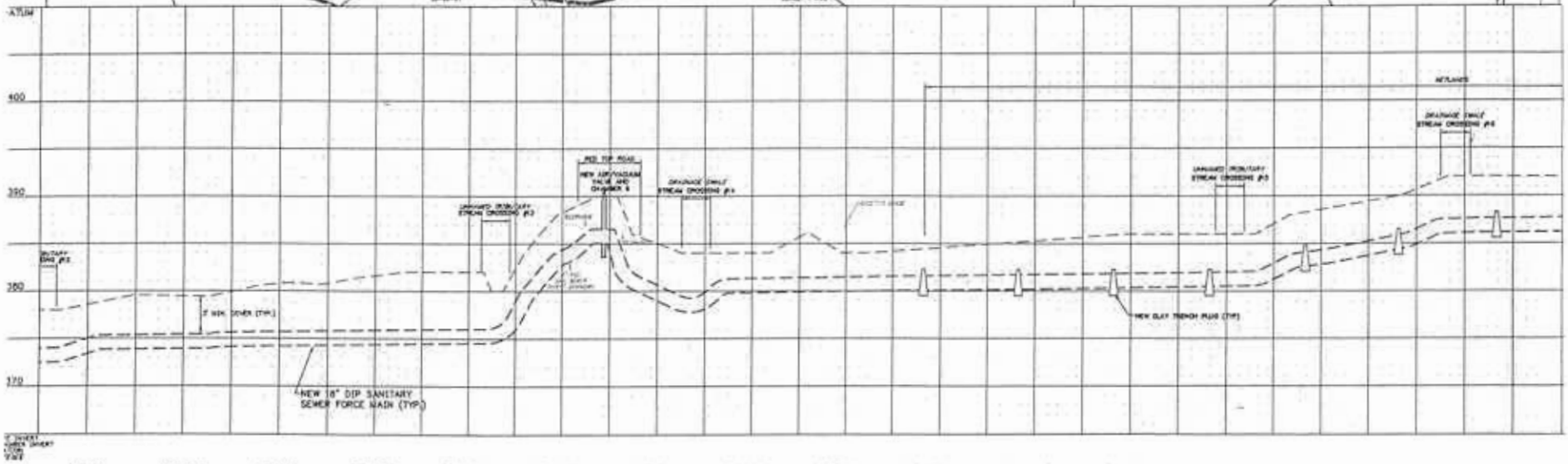
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

PLAN / PROFILE 7

CET Engineering Services
Bethlehem, Pennsylvania


NEW WET WEATHER SEWER (TYP.)
EXISTING SANITARY SEWER INTERCEPTOR TO BE REMAIN IN SERVICE
NEW 16" DIP FORCE MAIN (TYP.)
NEW 18" DIP SANITARY SEWER FORCE MAIN (TYP.)
PLAN
SCALE: 1"=50'
PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'
SCALE: 1"=50'
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 8
C&T Engineering Services
Harrisburg, Pennsylvania





PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

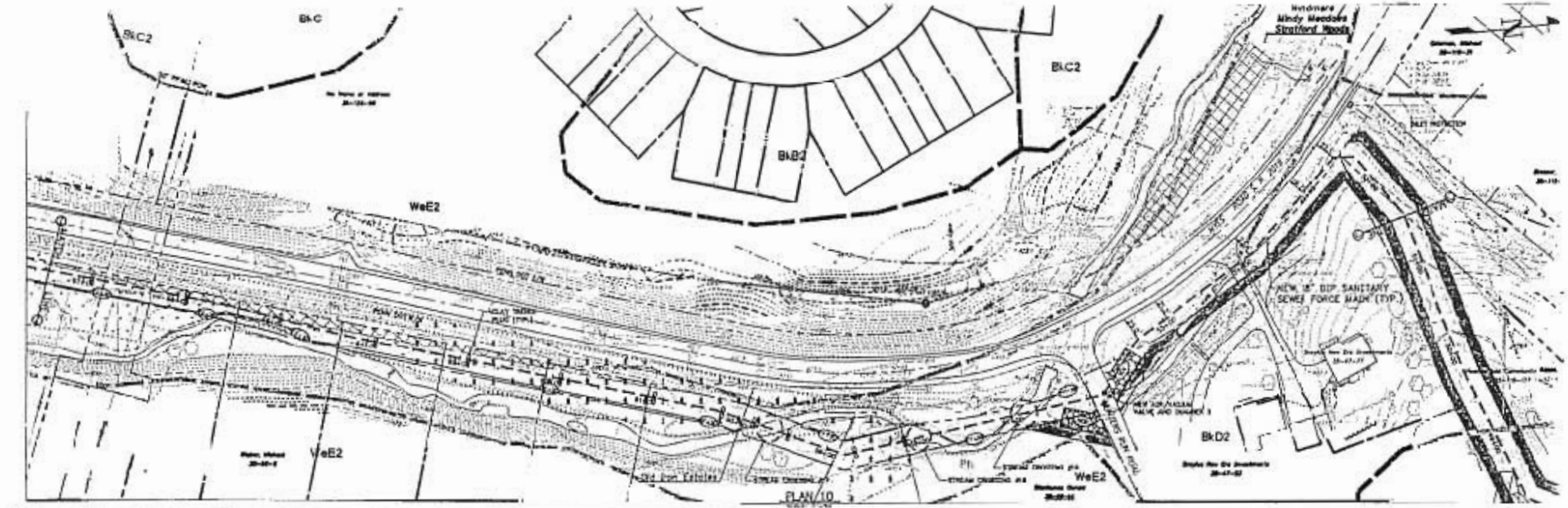
0 50 100 150
SCALE: 1"=50'

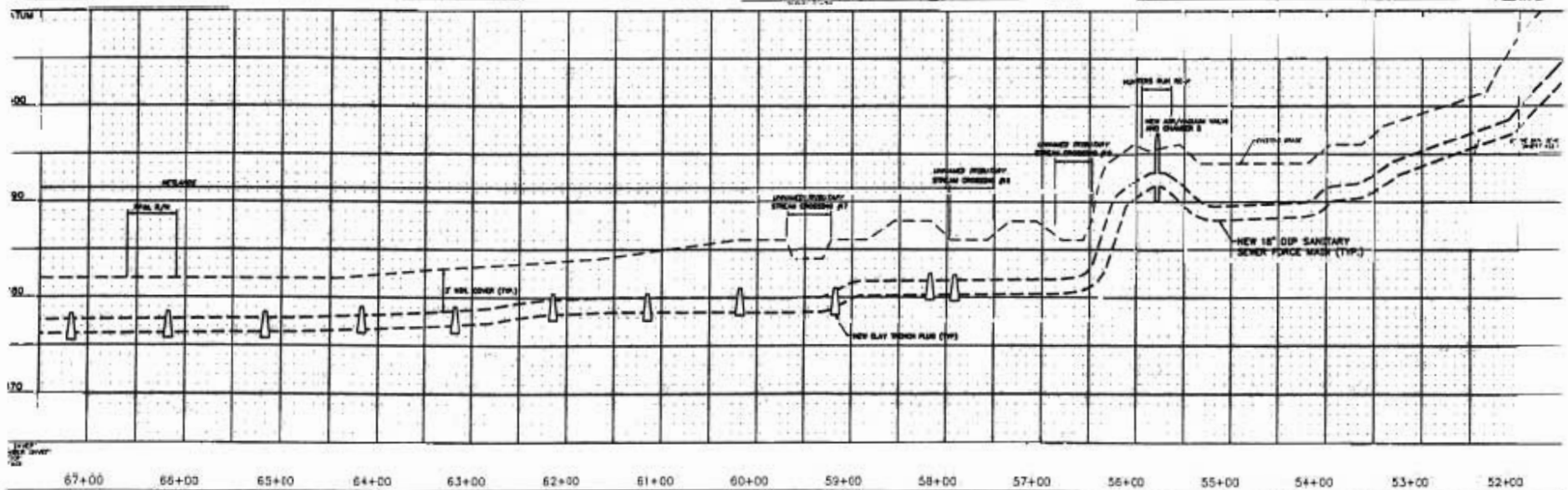
DATE	NO.	REVISIONS / SUBMISSIONS
9-15-03	5	NOTIFICATION PLAN SUBMITTAL
11-5-04	6	PENNDOT HIGHWAY OCCUPANCY PERMIT RESUBMITTAL
12-30-04	7	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
9-30-04	8	PENNDOT HIGHWAY OCCUPANCY PERMIT SUBMITTAL
1-30-04	9	DEP SUBMITTAL
2-15-04	9	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
3-11-04	9	MYERS STEWARD ASSOCIATES 'A' CONSTRUCTION SUBMITTAL
3-11-04	9	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
9-15-03	5	PA PHMC SUBMITTAL

DESIGNED BY: BAW
DRAWN BY: SWL
CHECKED BY: BAW
APPROVED BY: JDW
SCALE: 1"=50'

BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 9

CET Engineering Services
Harrisburg, Pennsylvania





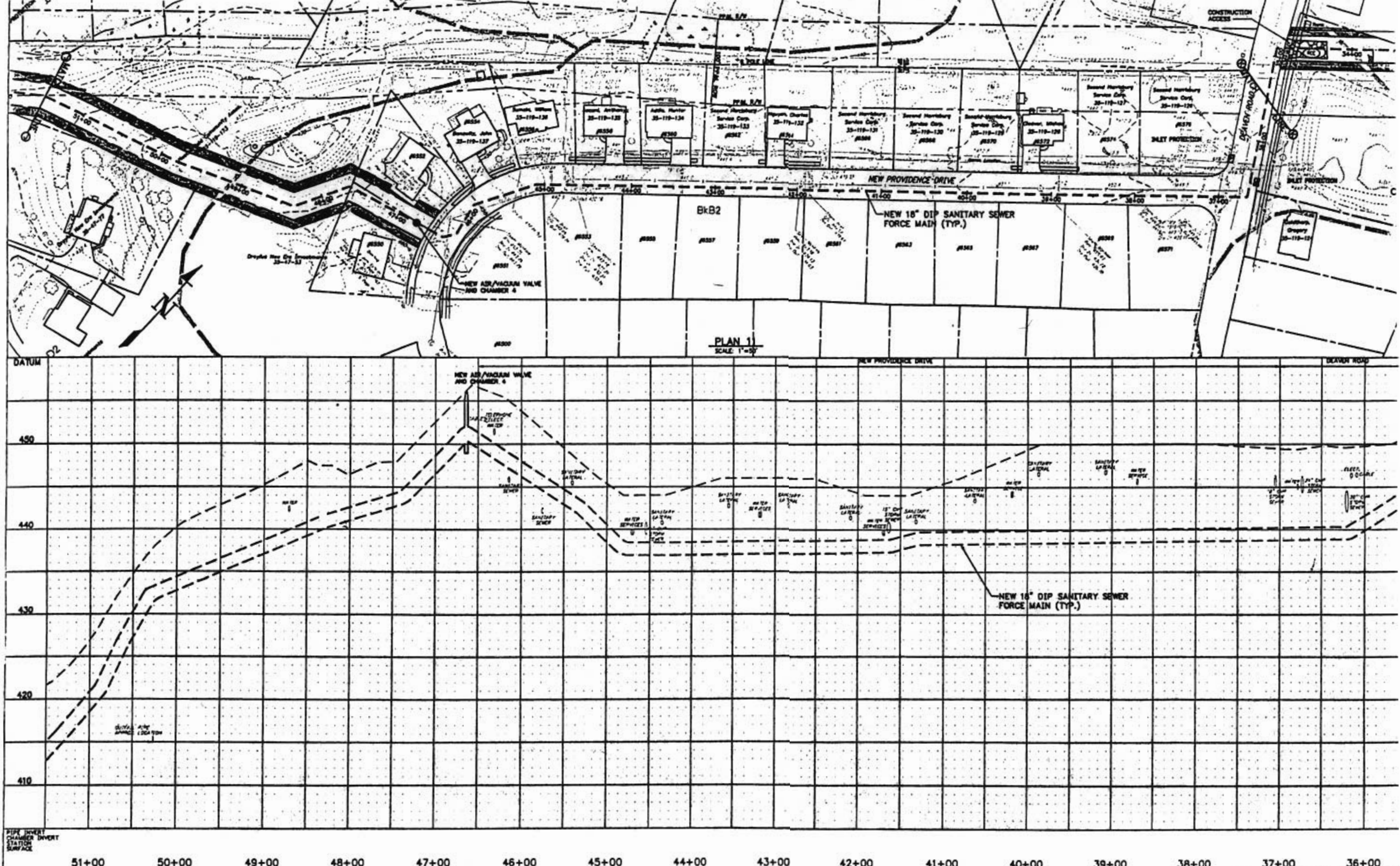
PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

6-15-09	5	INTEGRATION PLAN SUBMITTAL
11-5-04	4	PENNDOT HIGHWAY OCCUPANCY PERMIT RESUBMITTAL
10-25-04	3	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
7-30-04	2	E&S SUBMITTAL
6-3-04	1	PA DEP SUBMITTAL
5-13-04	0	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
2-27-04	3	UPPER PAXTON TOWNSHIP ASSOCIATES W/ CONSTRUCTION SUBMITTAL
2-27-04	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
9-12-03	1	PA MPDES SUBMITTAL
DATE	NO.	REVISIONS / SUBMISSIONS

DESIGNED BY: BLW
DRAWN BY: SRL
CHECKED BY: BLW
APPROVED BY: JLM
SCALE: 1"=50'

BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 10

CET Engineering Services
Harrisburg, Pennsylvania

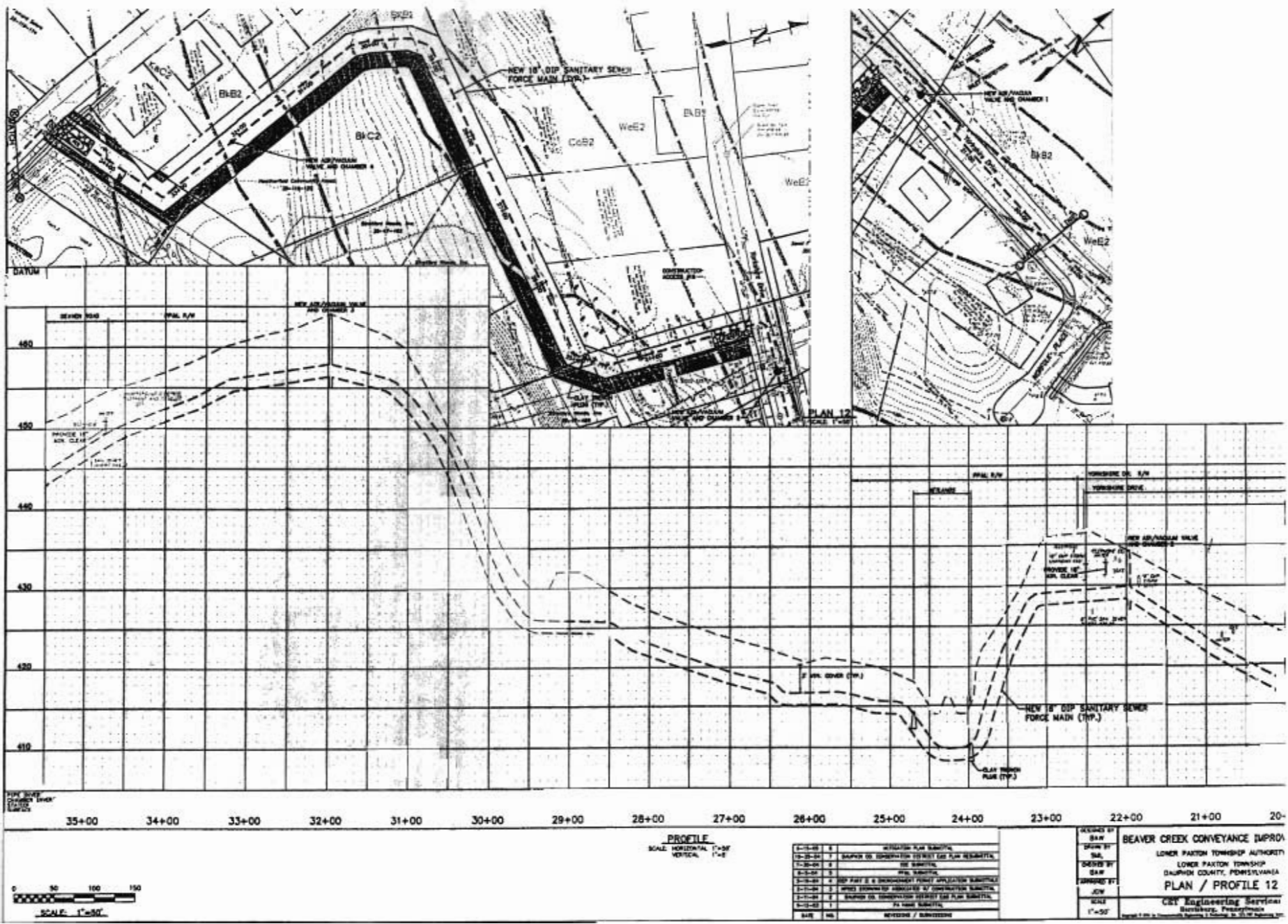


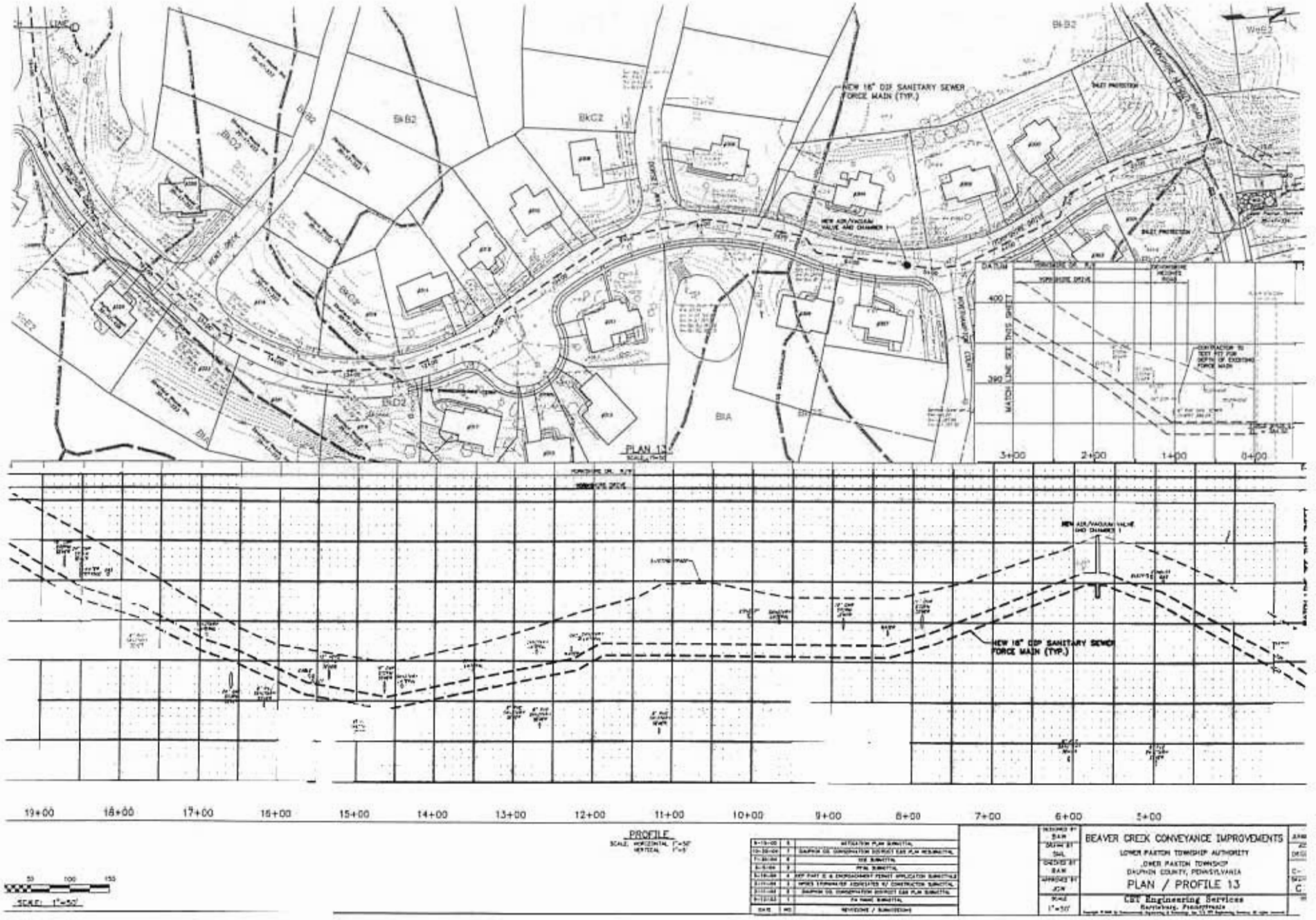
PLAN
SCALE: 1"=50'

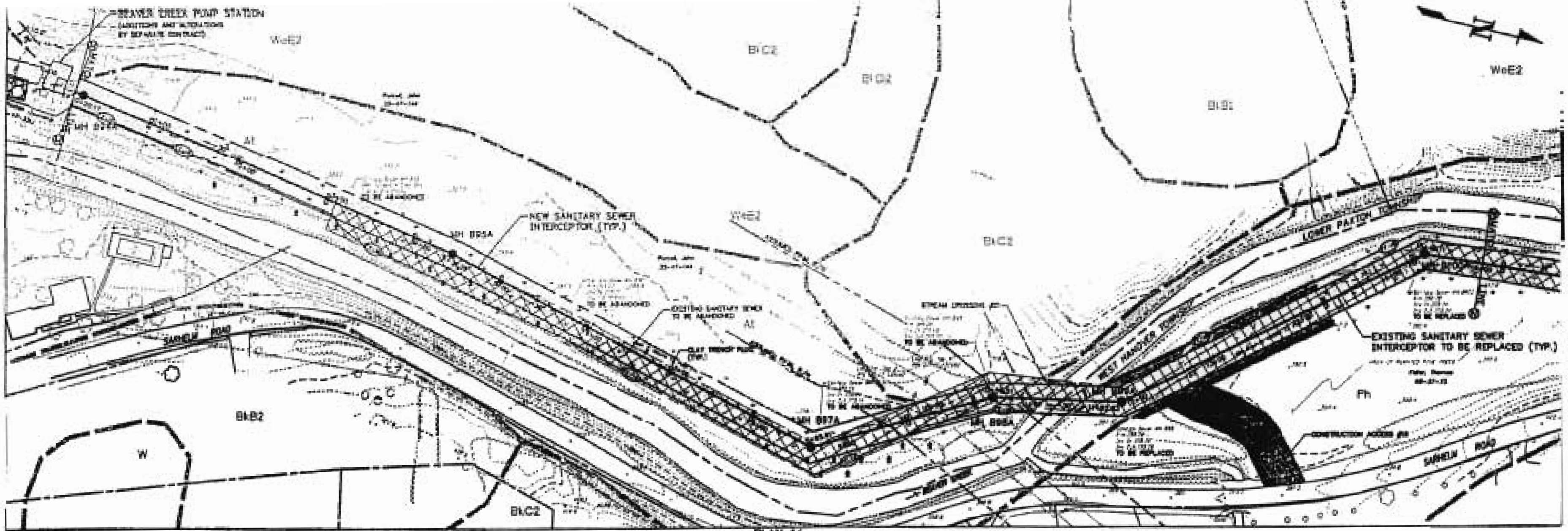
0 50 100 150
SCALE: 1"=50'

DATE	NO.	REVISIONS / SUBMISSIONS
6-15-05	8	MITIGATION PLAN SUBMITTAL
10-20-04	7	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
7-30-04	6	COE SUBMITTAL
6-5-04	5	PPAL SUBMITTAL
5-19-04	4	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
2-11-04	3	NPDES STORMWATER ASSOCIATED W/ CONSTRUCTION SUBMITTAL
2-11-04	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
9-12-03	1	PA H&MC SUBMITTAL

DESIGNED BY BAW	BEAVER CREEK CONVEYANCE IMPROVEMENTS
DRAWN BY SML	LOWER PAXTON TOWNSHIP AUTHORITY
CHECKED BY BAW	LOWER PAXTON TOWNSHIP DAUPHIN COUNTY, PENNSYLVANIA
APPROVED BY JGW	PLAN / PROFILE 11
SCALE 1"=50'	CET Engineering Services Harrisburg, Pennsylvania

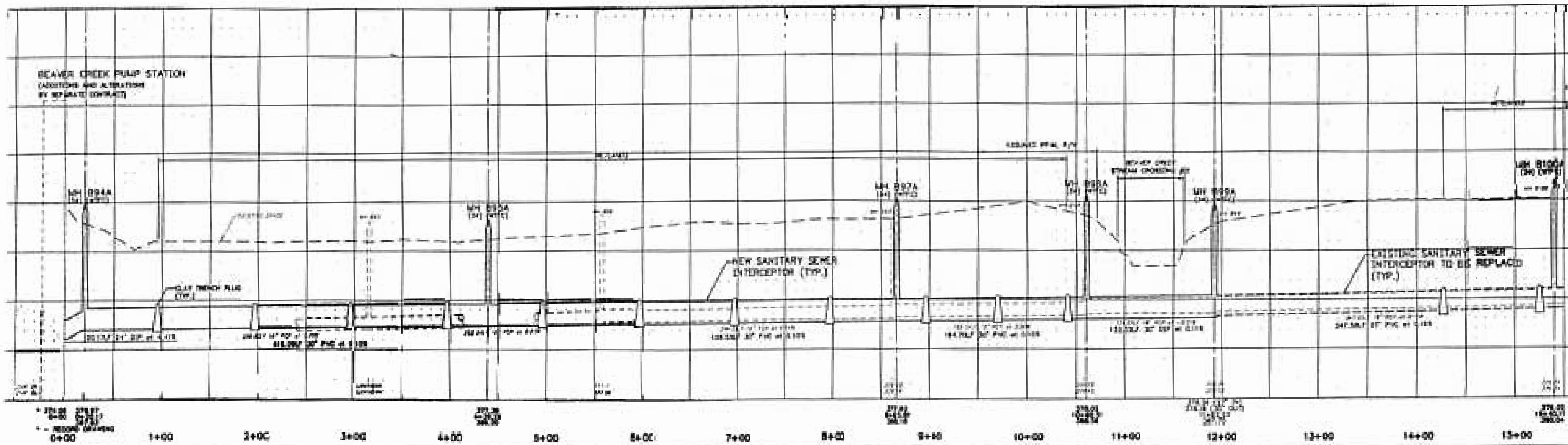

NEW 18" DIP SANITARY SEWER FORCE MAIN (TYP.)
PLAN 12
SCALE 1"=50'
DATUM
460
450
440
430
420
410
35+00
34+00
33+00
32+00
31+00
30+00
29+00
28+00
27+00
26+00
25+00
24+00
23+00
22+00
21+00
PROFILE
SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'
0 50 100 150
SCALE: 1"=50'
BEAVER CREEK CONVEYANCE IMPROV
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 12
CET Engineering Services
1"=50'


NEW 16" DIP SANITARY SEWER FORCE MAIN (TYP.)
NEW AIR/VACUUM VALVE AND CHAMBER
PLAN 13
DATUM
400
390
3+00
2+00
1+00
0+00
19+00
18+00
17+00
16+00
15+00
14+00
13+00
12+00
11+00
10+00
9+00
8+00
7+00
6+00
5+00
PROFILE
SCALE: 1"=50'
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 13
CBT Engineering Services
Harrisburg, Pennsylvania



PLAN 14

SCALE: 1"=50'



PROFILE

SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

SCALE: 1"=50'

DATE	NO.	REVISIONS / SUBMISSIONS
[illegible]	8	[illegible] PLAN SUBMITTAL
[illegible]	7	[illegible]
[illegible]	6	[illegible] SUBMITTAL
[illegible]	5	FINAL SUBMITTAL
[illegible]	4	[illegible] PERMIT APPLICATION SUBMITTAL
[illegible]	3	[illegible] CONSTRUCTION SUBMITTAL
[illegible]	2	[illegible] PLAN SUBMITTAL
[illegible]	1	[illegible] SUBMITTAL

DESIGNED BY: BAW
DRAWN BY: SML
CHECKED BY: BAW
APPROVED BY: JCW
SCALE: 1"=50'

BEAVER CREEK CONVEYANCE IMPROVEMENTS

LOWER PAXTON TOWNSHIP AUTHORITY

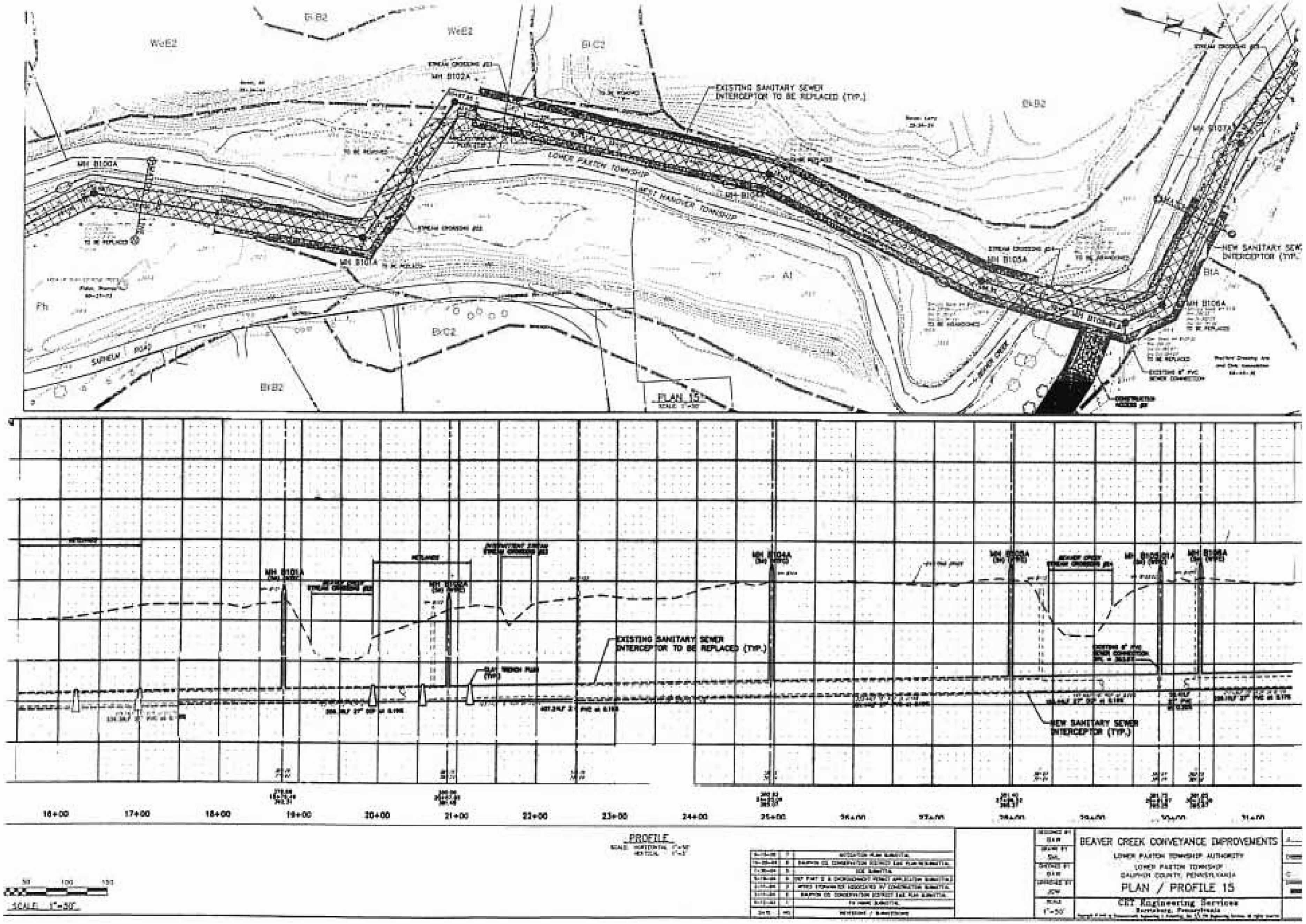
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

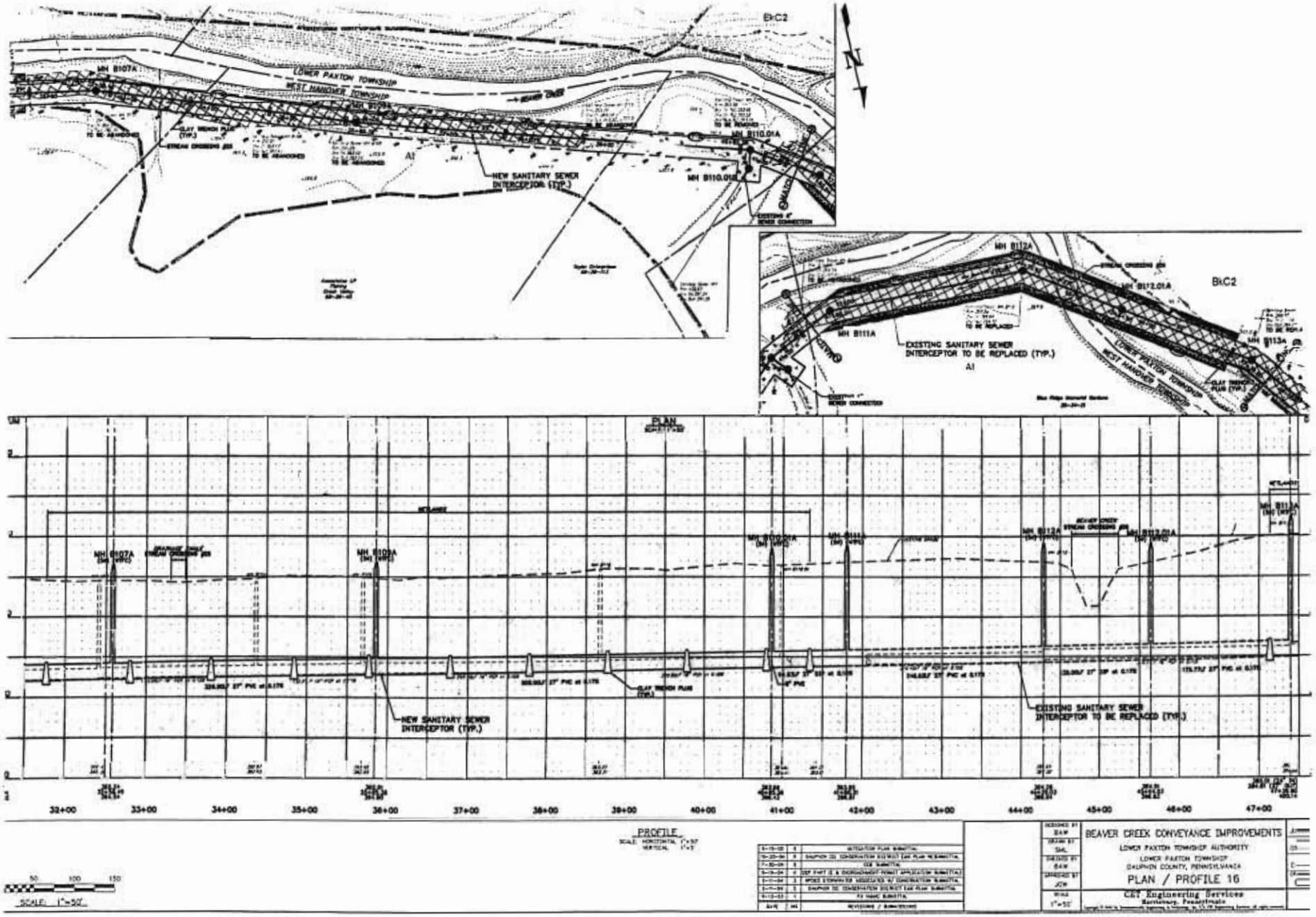
PLAN / PROFILE 14

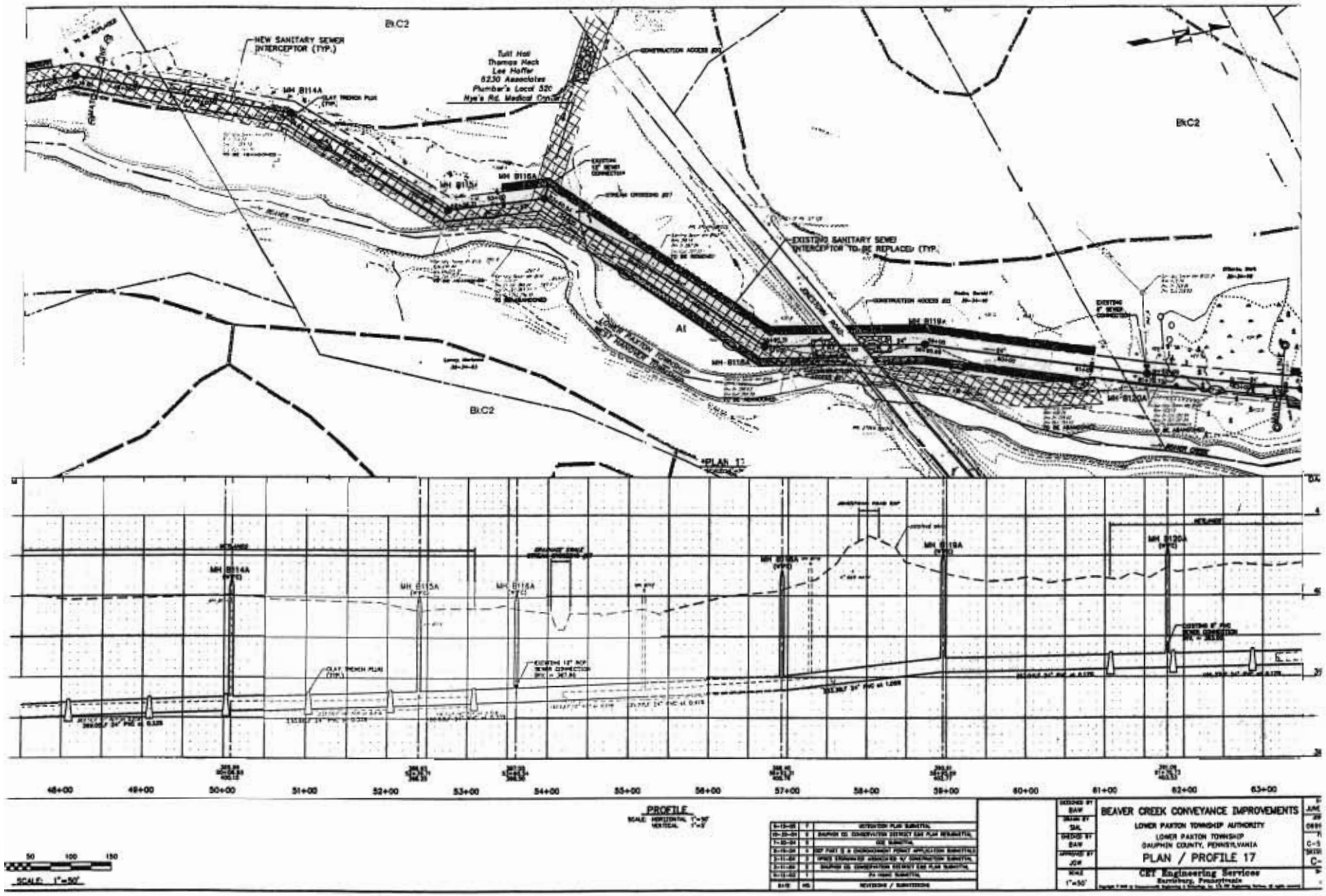
CET Engineering Services
Harrisburg, Pennsylvania

0855

C-31


PLAN 15
SCALE: 1"=50'
EXISTING SANITARY SEWER INTERCEPTOR TO BE REPLACED (TYP.)
NEW SANITARY SEWER INTERCEPTOR (TYP.)
LOWER PAXTON TOWNSHIP
WEST HANOVER TOWNSHIP
MH B100A
MH B101A
MH B102A
MH B104A
MH B105A
MH B106A
MH B107A
SAPHEM ROAD
BEAVER CREEK
WeE2
BkB2
BkC2
BkA
Ph
At
CLAY TRENCH PLUG (TYP.)
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00
PROFILE
SCALE: 1"=50'
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 15
CET Engineering Services
Harrisburg, Pennsylvania
REVISIONS / SUBMISSIONS
SCALE
1"=50'


BkC2
LOWER PAXTON TOWNSHIP
WEST HANOVER TOWNSHIP
MH B107A
MH B108A
MH B110.01A
MH B110.01B
NEW SANITARY SEWER INTERCEPTOR (TYP.)
EXISTING 6" SEWER CONNECTION
CLAY TRENCH PLUG (TYP.)
STREAM CROSSING (TYP.)
TO BE ABANDONED
A1
MH B112A
MH B112.01A
MH B111A
EXISTING SANITARY SEWER INTERCEPTOR TO BE REPLACED (TYP.)
MH B113A
MH B113.01A
EXISTING 4" SEWER CONNECTION
PLAN
PROFILE
32+00
33+00
34+00
35+00
36+00
37+00
38+00
39+00
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00
NEW SANITARY SEWER INTERCEPTOR (TYP.)
EXISTING SANITARY SEWER INTERCEPTOR TO BE REPLACED (TYP.)
50
100
150
SCALE: 1"=50'
BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 16
C&T Engineering Services
Harrisburg, Pennsylvania



PROFILE

SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

50 100 150

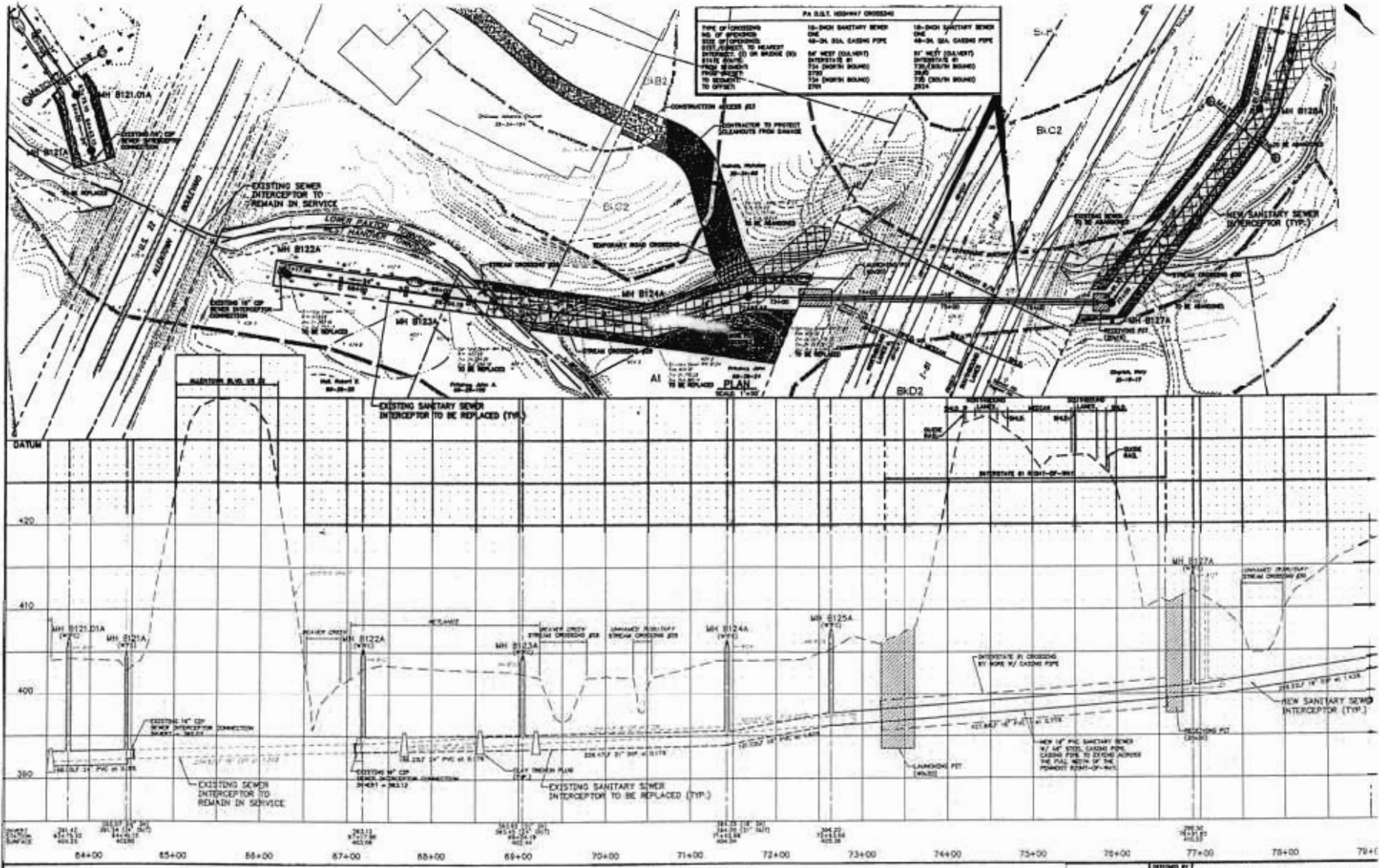
SCALE: 1"=50'

5-13-04	7	INTERCEPTOR PLAN SUBMITTAL
09-20-04	6	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
7-12-04	5	DEP SUBMITTAL
6-15-04	4	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
5-11-04	3	SPACE ENGINEER ASSOCIATES 'A' CONSTRUCTION SUBMITTAL
5-11-04	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
5-11-04	1	PA 1-CALL SUBMITTAL
DATE	NO.	REVISIONS / SUBMISSIONS

DESIGNED BY	BAW
DRAWN BY	TAL
CHECKED BY	BAW
APPROVED BY	JGH
SCALE	1"=50'

BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 17

CET Engineering Services
Harrisburg, Pennsylvania



6-11-08	2	NPDES PERMIT SUBMITTAL
5-1-08	1	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN REVISIONS
10-30-07	1	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
1-25-07	0	DEP SUBMITTAL
3-11-04	4	DEP PART II & IMPOUNDMENT PERMIT APPLICATION SUBMITTALS
3-11-04	3	NPDES STORMWATER (ASSOCIATED W/ CONSTRUCTION) SUBMITTAL
3-11-03	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
6-11-02	1	PA NAME SUBMITTAL
DATE	NO.	REVISIONS / SUBMISSIONS

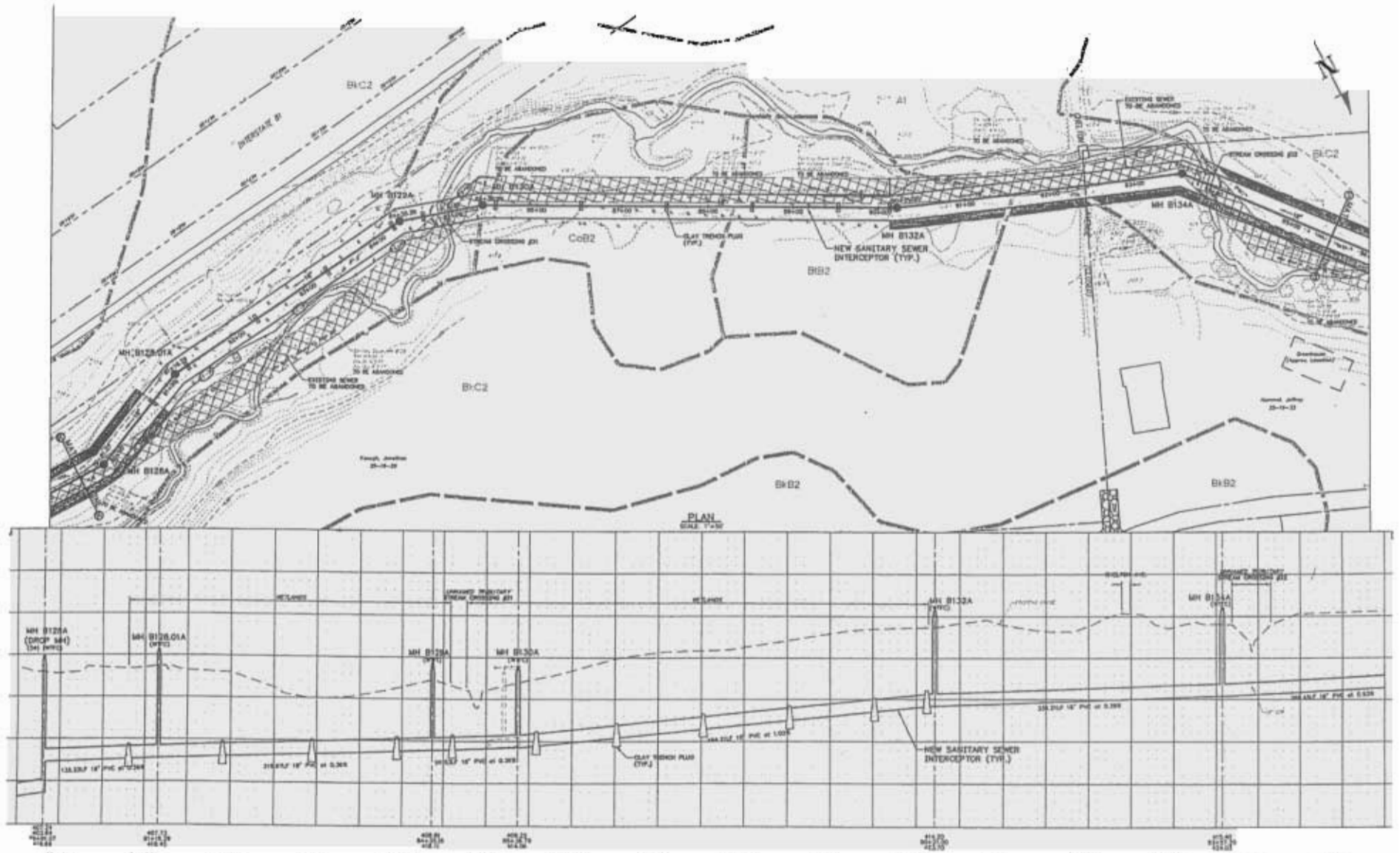
DESIGNED BY: BAW
DRAWN BY: SML
CHECKED BY: BAW
QUANTITIES BY: JDW
SCALE: 1"=50'

BEAVER CREEK CONVEYANCE IMPROVE

LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

PLAN / PROFILE 18

CET Engineering Services
Harrisburg, Pennsylvania



PLAN

PROFILE

SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

50 100 150

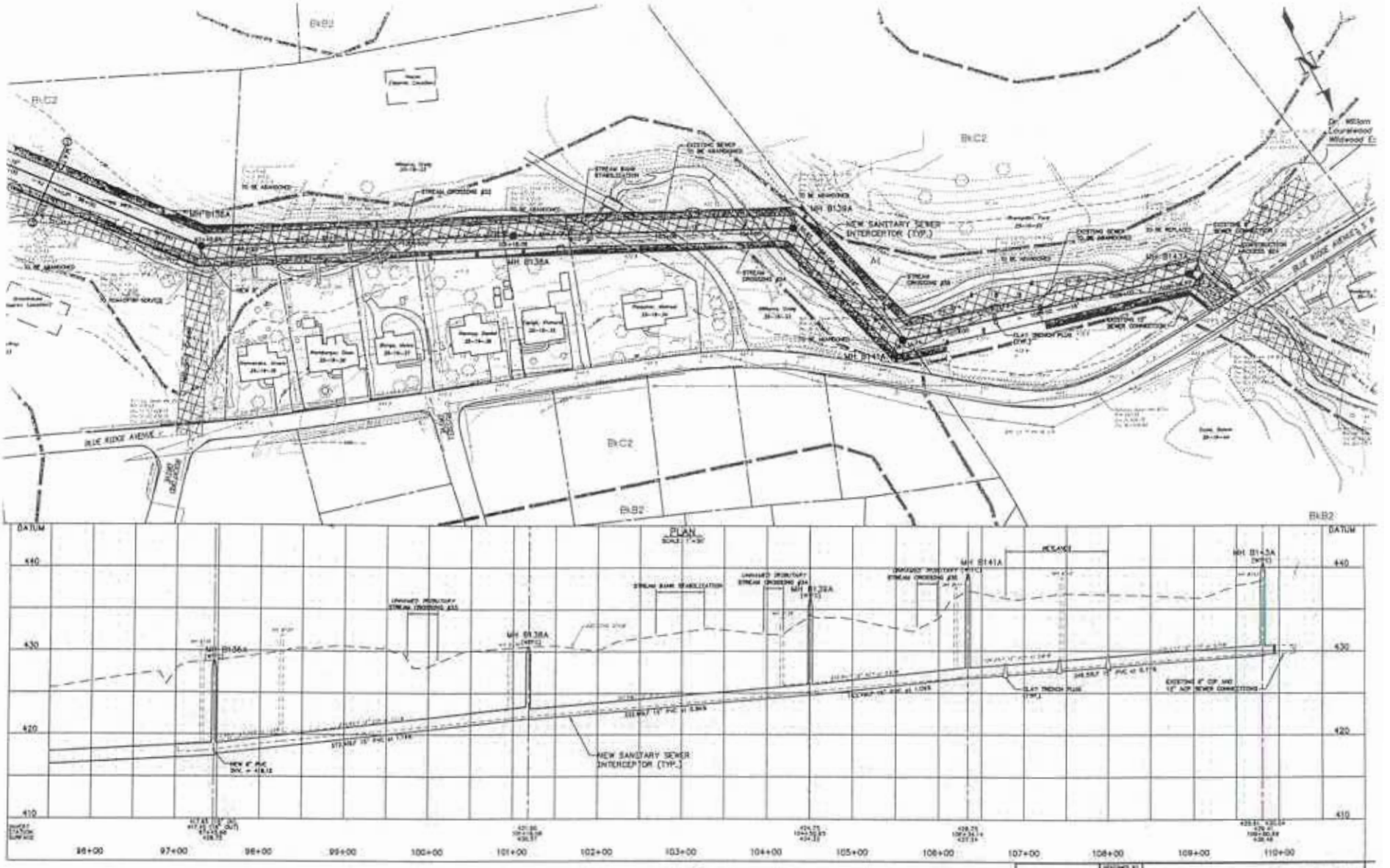
SCALE: 1"=50'

4-13-05	6	ACT 537 PLAN SUBMITTAL
10-20-04	5	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
7-30-04	4	DEP SUBMITTAL
3-12-04	3	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
3-11-04	2	HRGES STORMWATER ASSOCIATES W/ CONSTRUCTION SUBMITTAL
3-11-04	1	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
9-13-03	1	PA SAND SUBMITTAL
DATE	NO.	REVISIONS / SUBMISSIONS

DESIGNED BY: DAW
DRAWN BY: SWL
CHECKED BY: DAW
APPROVED BY: JCW
SCALE: 1"=50'

BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA
PLAN / PROFILE 19

CET Engineering Services
Harrisburg, Pennsylvania



6-15-05	8	MITIGATION PLAN SUBMITTAL
9-20-04	6	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN RESUBMITTAL
7-30-04	5	PZR SUBMITTAL
5-19-04	4	DEP PART II & ENCROACHMENT PERMIT APPLICATION SUBMITTALS
5-11-04	3	REVISED STORMWATER ASSOCIATED W/ CONSTRUCTION SUBMITTAL
4-19-04	2	DAUPHIN CO. CONSERVATION DISTRICT E&S PLAN SUBMITTAL
8-12-03	1	PA NHMC SUBMITTAL
DATE	NO.	REVISIONS / SUBMISSIONS

DESIGNED BY	BAR
DRAWN BY	SAL
CHECKED BY	BAR
APPROVED BY	JDW
SCALE	1"=50'

BEAVER CREEK CONVEYANCE IMPROVEMENTS
LOWER PAXTON TOWNSHIP AUTHORITY
LOWER PAXTON TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

PLAN / PROFILE 20

CET Engineering Services
Harrisburg, Pennsylvania