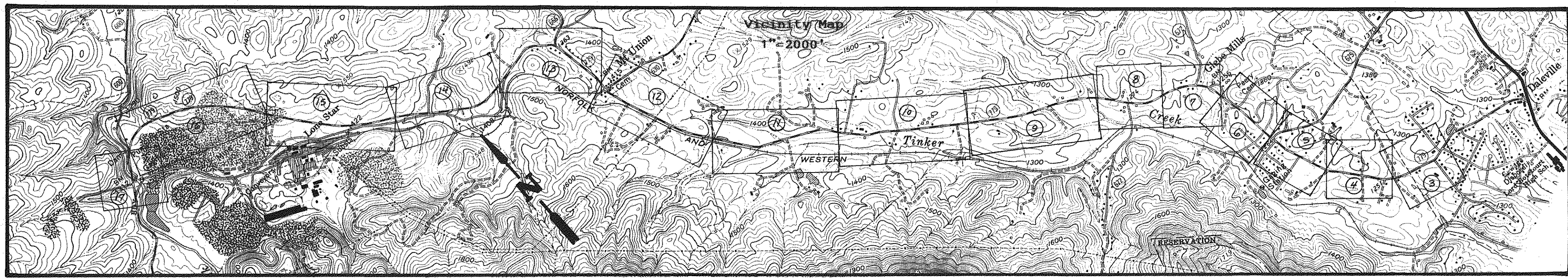


PROJECT NAME: Tarmac Roan Cement
DATE: 10-90
TYPE: Pump Station + FM
LOCATION: 18
TOTAL # SHEETS: Brightwaters
A/E FIRM: 1
OF SETS: 1

**TARMAC
Roanoke Cement Company
Pump Station
and
Force Main
Botetourt County
Virginia**

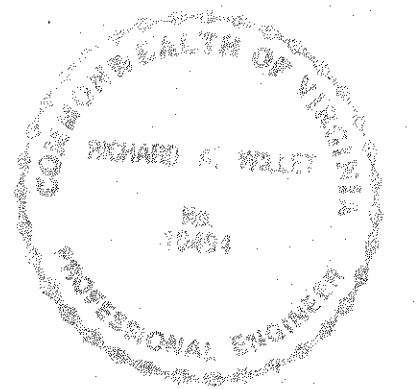
**AS - BUILT
RECORD DRAWINGS**

Oct. 10, 1990



BRIGHTWATERS ENGINEERING
4836 Warrior Drive
SALEM, VIRGINIA 24153
(703) 380-2944

Feb. 7, 1990

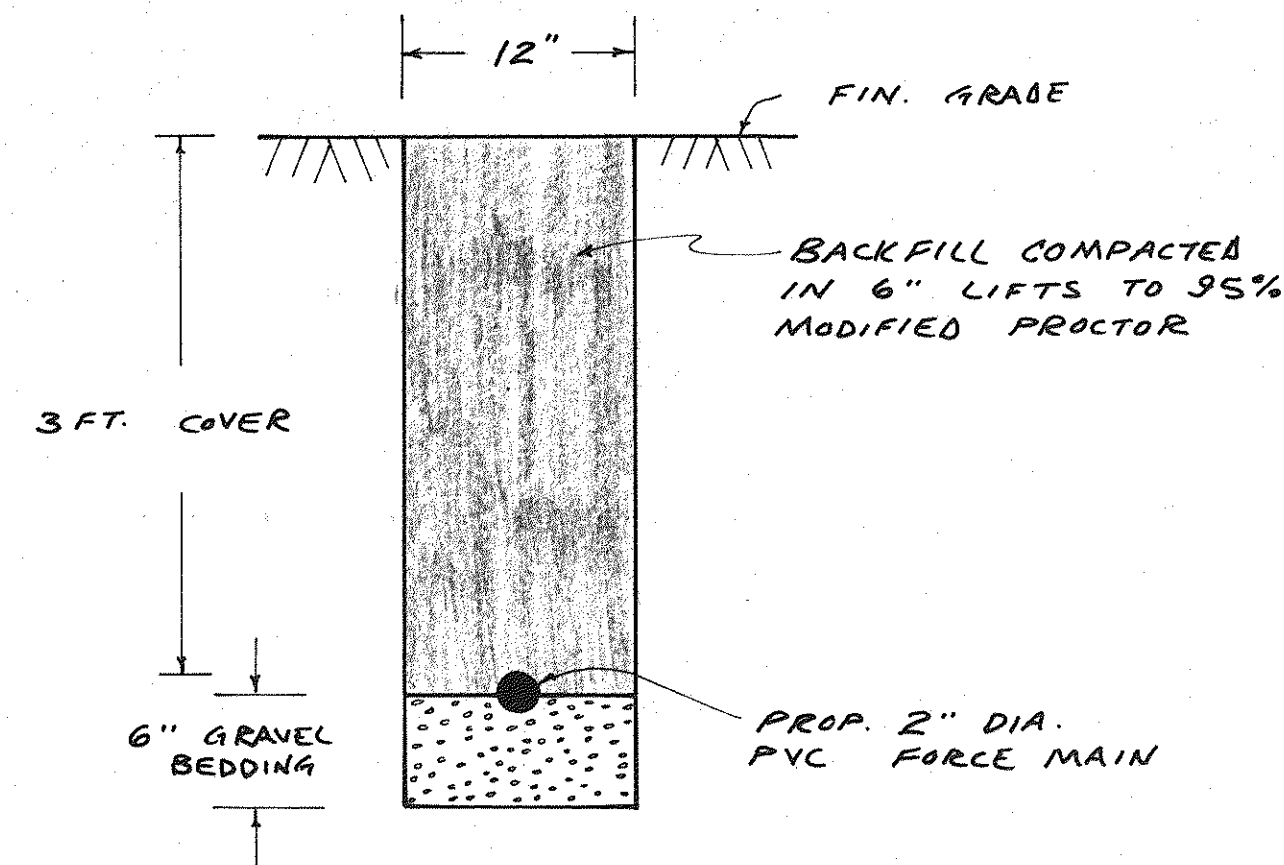


SEEDING SCHEDULE

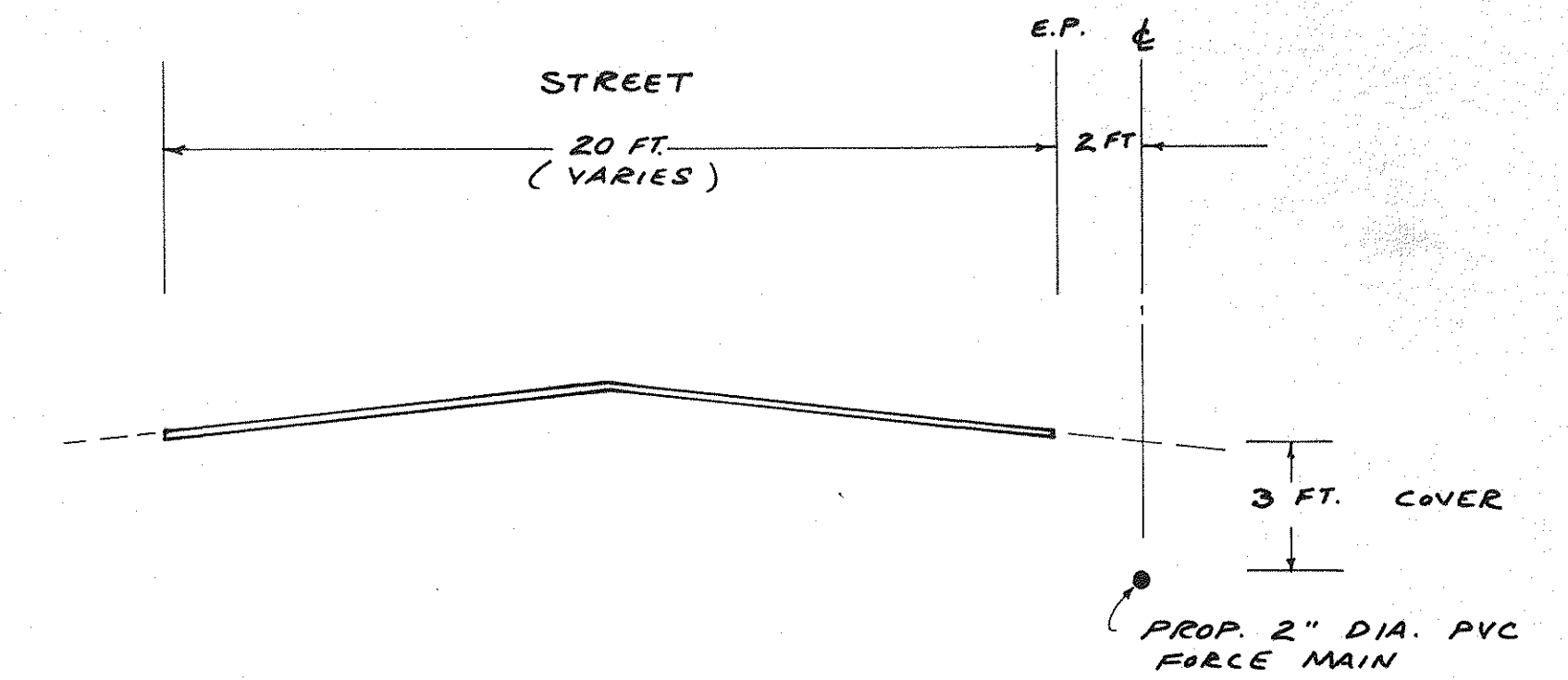
October 15 to February 1:
K-31 fescue at 5 lbs per 1000 sf
Borzy winter rye at 1/2 lb. per 1000 sf
February 1 to June 1:
K-31 fescue at 5 lbs per 1000 sf
Annual rye at 1/2 lb. per 1000 sf
June 1 to September 1:
K-31 fescue at 5 lbs per 1000 sf
German millet at 1/2 lb. per 1000 sf
September 1 to October 15:
K-31 fescue at 5 lbs per 1000 sf
Annual rye at 1/2 lb. per 1000 sf

Also provide and apply in accordance with industry standards -
1. Pulverised agricultural limestone at 100 lbs per 1000 sf
2. 5-20-10 fertilizer at 5 lbs. per 1000 sf
3. 38-0-0 fertilizer at 3 lbs. per 1000 sf

Temporary seeding is to consist of annual ryegrass applied at a rate of 1 1/2 lbs. per 1000 sf



Typical Trench Section

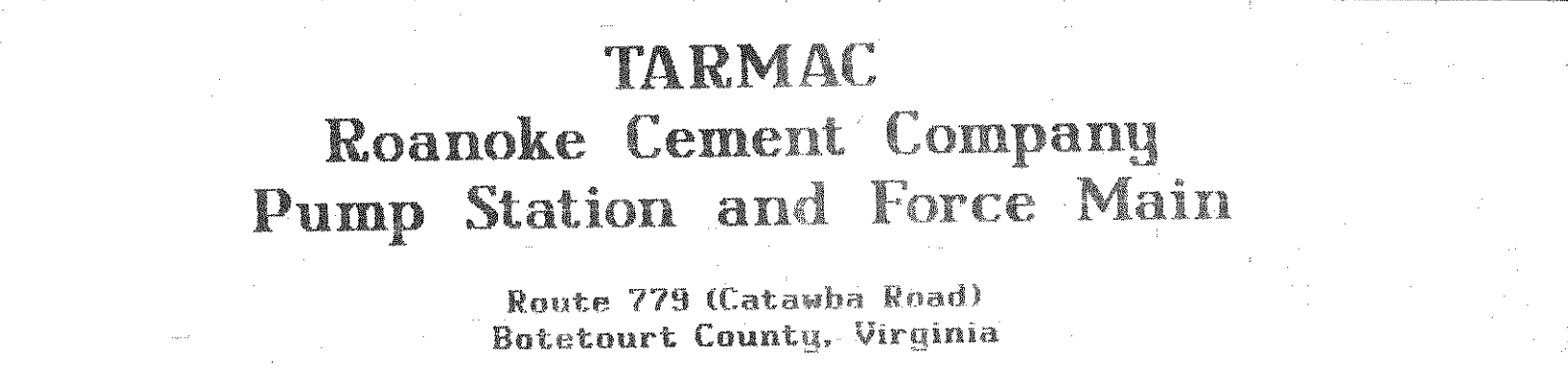
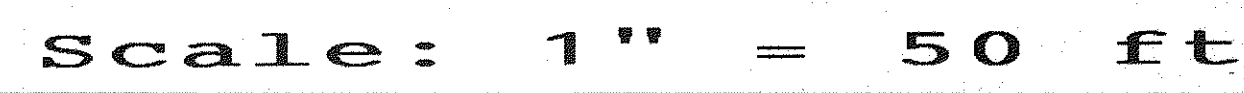


Typical Section

GENERAL NOTES:

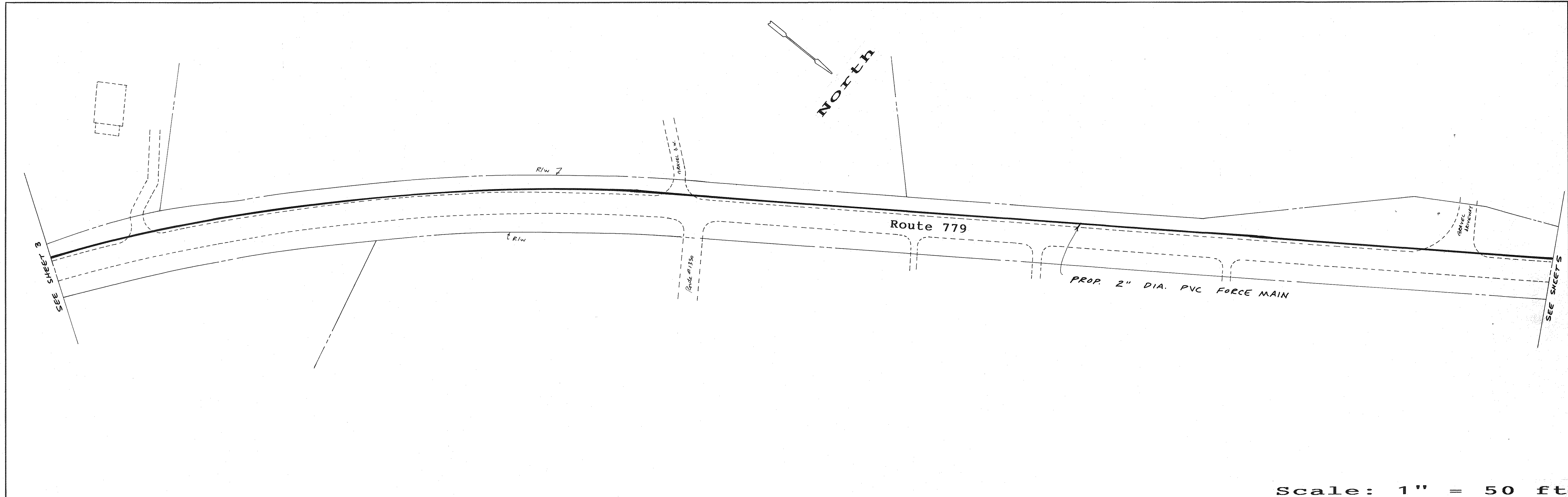
- Performance of the construction of this project is to be as shown in the project plans and specifications, and is to be in strict accordance with the standards and regulations of the Virginia Department of Transportation, the Virginia Department of Health, and Botetourt County.
- The Contractor is responsible for providing and maintaining a jobsite safe for its workers and for the general public, and is responsible for adhering to standard Virginia Department of Transportation traffic control provisions; the Virginia Department of Transportation reserves the right to require additional traffic control measures as may be warranted by conditions encountered during the performance of the construction in order to provide an adequate level of safety while maintaining a smooth flow of traffic.
- The plans are a compilation of a variety of records, and are not the result of a comprehensive field survey; the Contractor is responsible for verification of job site conditions.
- The Contractor is responsible for notifying the appropriate Utility Operators prior to excavation in accordance with the Underground Utility Damage Prevention Act.
- The proposed force main is to be 2" inside diameter J-M Ring-Tite PVC pipe (or approved equivalent) with rubber ring gaskets, and rated 200 psi (SDR 21) in accordance with ASTM D2241; the pipe is to be installed in accordance with manufacturer's specifications, and with radii of curvature not less than 50 feet, unless premanufactured bends are used.
- The excavation for the installation of the proposed force main may be either by backhoe or by trencher; however, all street crossings are to be bored.
- All soft, spongy, or otherwise unsuitable materials encountered at the bottom the trench are to be undercut and replaced with gravel; excavated materials unsuitable for backfilling are to be properly disposed of off-site.
- Any damage to pavement, gravel, or vegetated areas occurring as a result off the construction is to be properly repaired.
- The Contractor is responsible for maintaining the jobsite in a reasonably clean and orderly condition throughout the period of construction, and removal and proper disposal of all construction debris upon completion of the work.

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	B. M.'s NOTED _____		
	STRUCTURE NOTATIONS CHECKED _____		

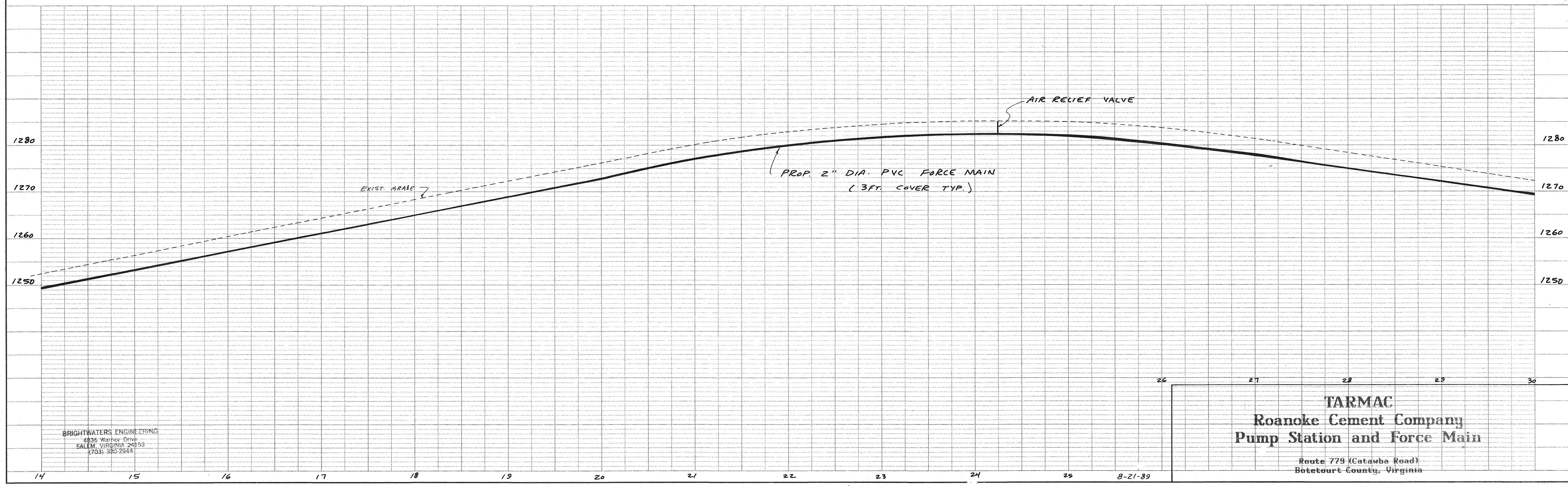


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NOTE BOOK	_____	_____
ALIGNMENT CHECKED	_____	_____
RT. OF WAY CHECKED	_____	_____

PROFILE	DATE	BY
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NOTE BOOK	_____	_____
GRADES CHECKED	_____	_____
B.M.'S NOTED	_____	_____
STRUCTURE NOTATIONS CHECKED	_____	_____



Scale: 1" = 50 ft

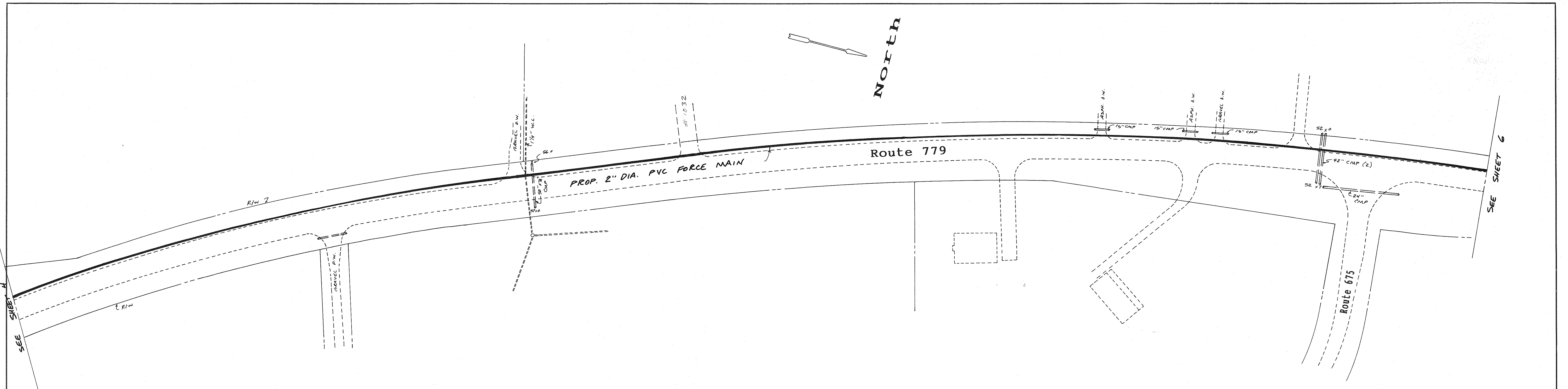


BRIGHTWATERS ENGINEERING
4836 Warner Drive
SALEM, VIRGINIA 24153
(703) 380-2368

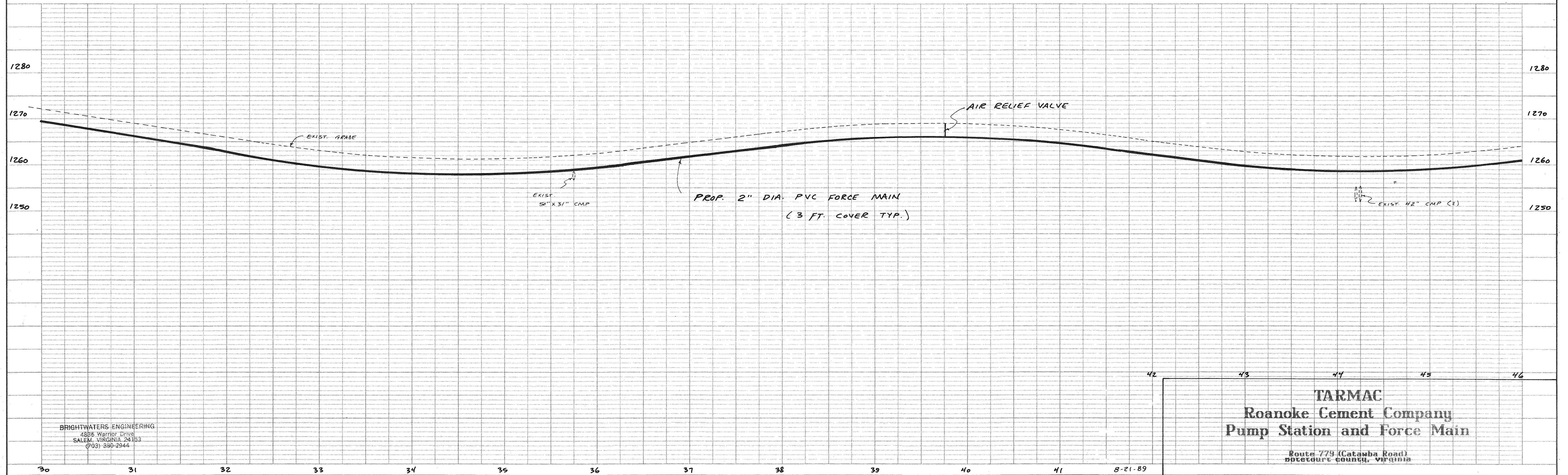
TARMAC
Roanoke Cement Company
Pump Station and Force Main
Route 779 (Catawba Road)
Botetourt County, Virginia

PLAN	DATE
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PROFILE	DATE
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Scale: 1" = 50 ft



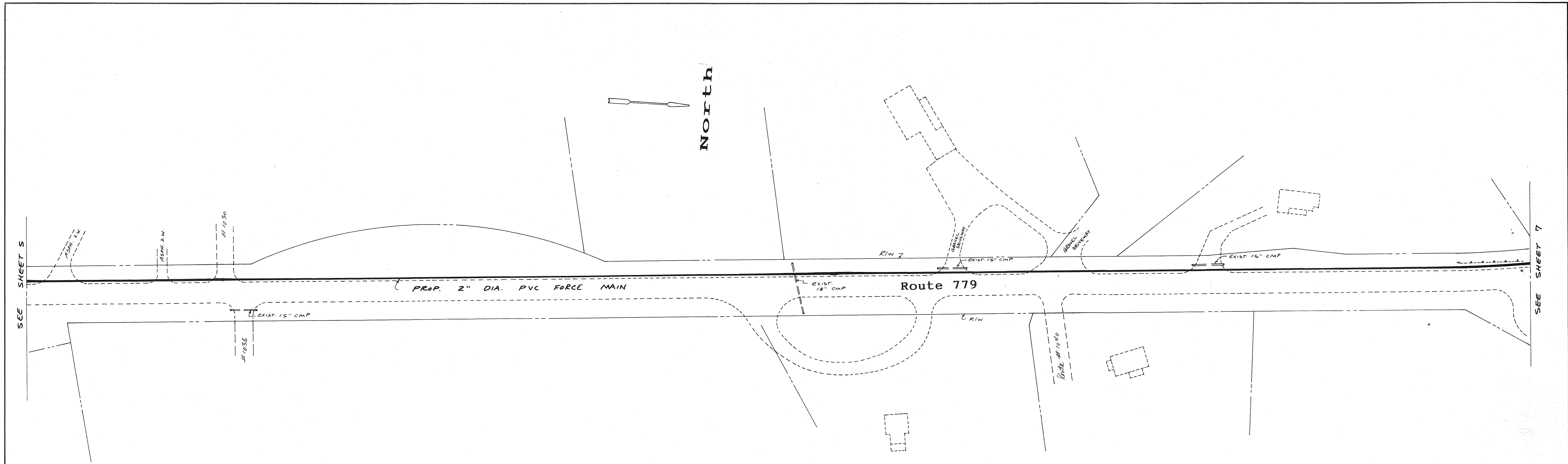
BRIGHTWATERS ENGINEERING
4886 Warrior Drive
SALEM, VIRGINIA 24153
(703) 890-2944

TARMAC
Roanoke Cement Company
Pump Station and Force Main

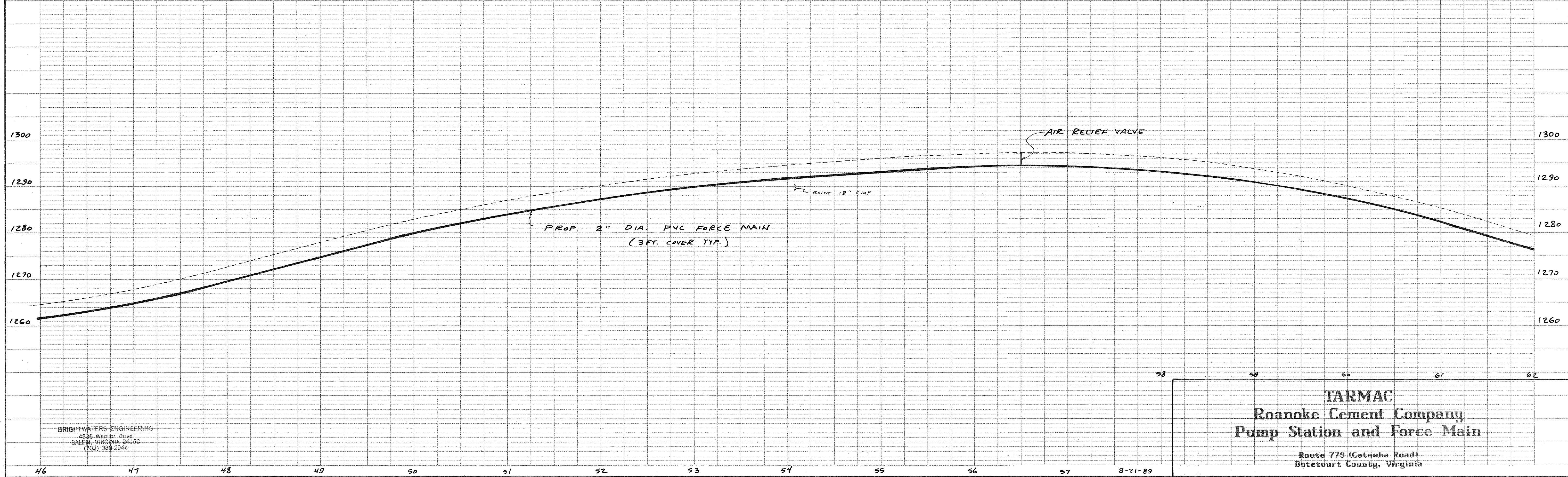
Route 779 (Catawba Road)
Botetourt County, Virginia

PLAN	DATE
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NOTE BOOK	ALIGNED CHECKED
	RT. OF WAY CHECKED

PROFILE	DATE
NO. 1	8-21-89
NOTE BOOK	GRADES CHECKED
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	CONCRETE NOTATIONS CHECKED



Scale: 1" = 50 ft



BRIGHTWATERS ENGINEERING
4836 Warner Drive
SALEM, VIRGINIA 24153
(703) 389-2944

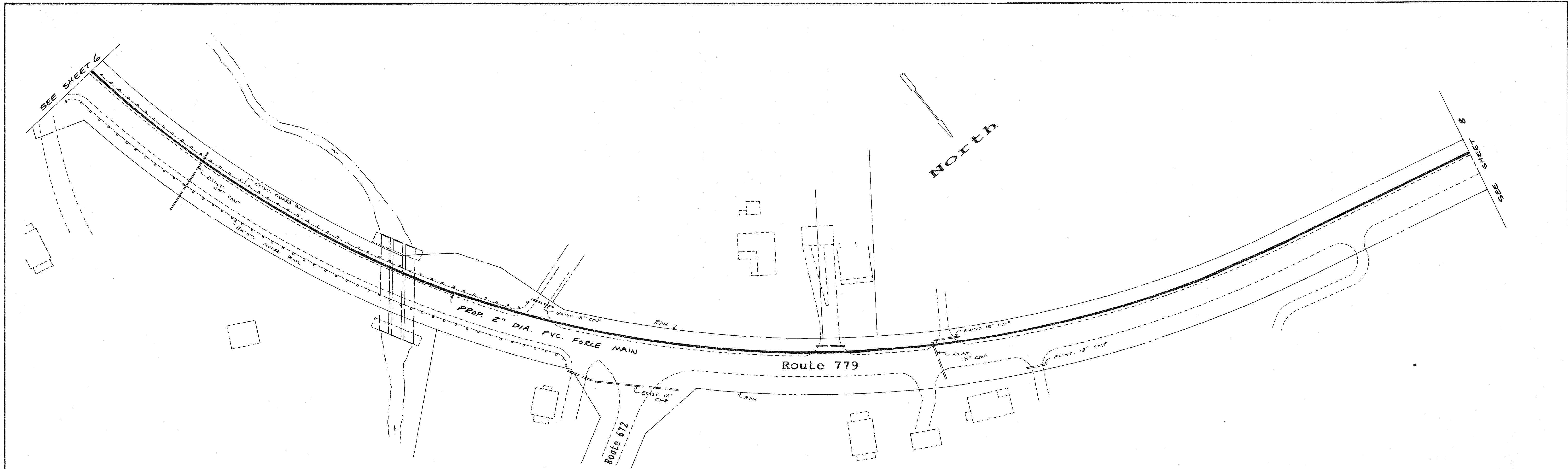
TARMAC
Roanoke Cement Company
Pump Station and Force Main

Route 779 (Catawba Road)
Botetourt County, Virginia

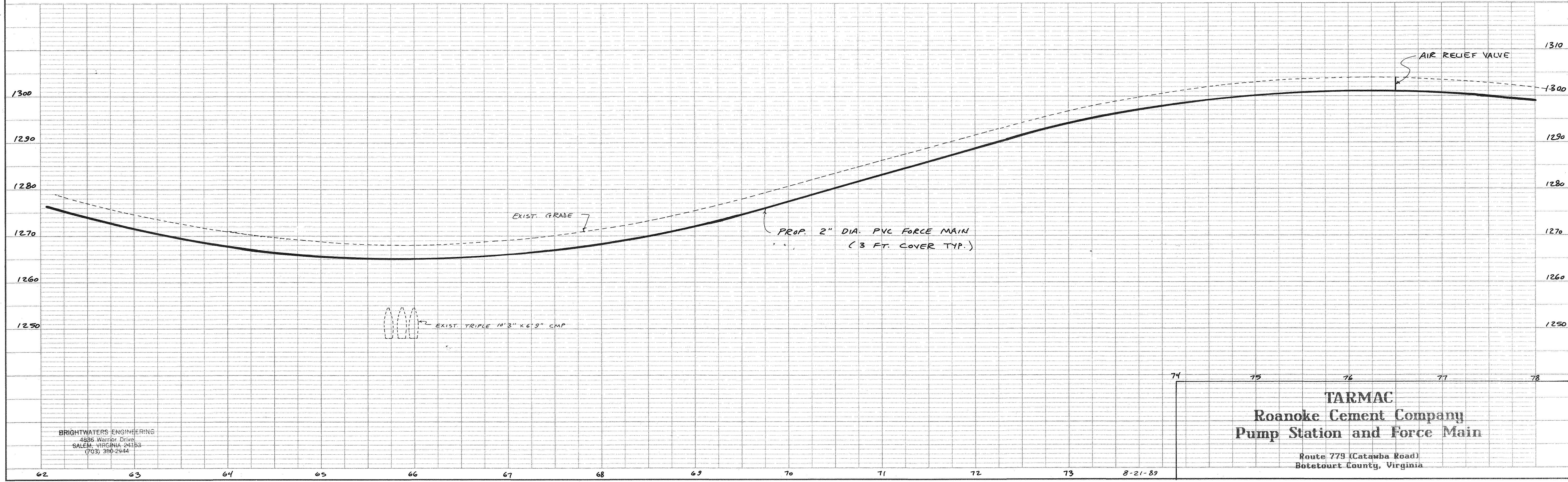
8-21-89

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Scale: 1" = 50 ft



BRIGHTWATERS ENGINEERING
4886 Warrior Drive
SALEM, VIRGINIA 24153
(703) 380-2944

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TARMAC

Roanoke Cement Company

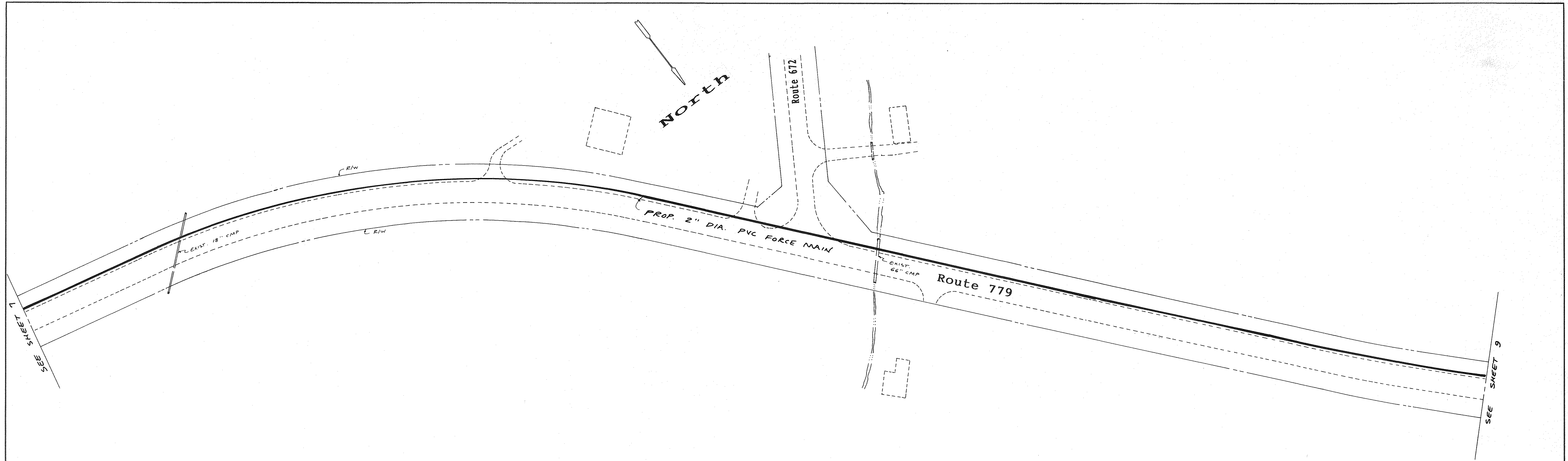
Pump Station and Force Main

Route 779 (Catawba Road)

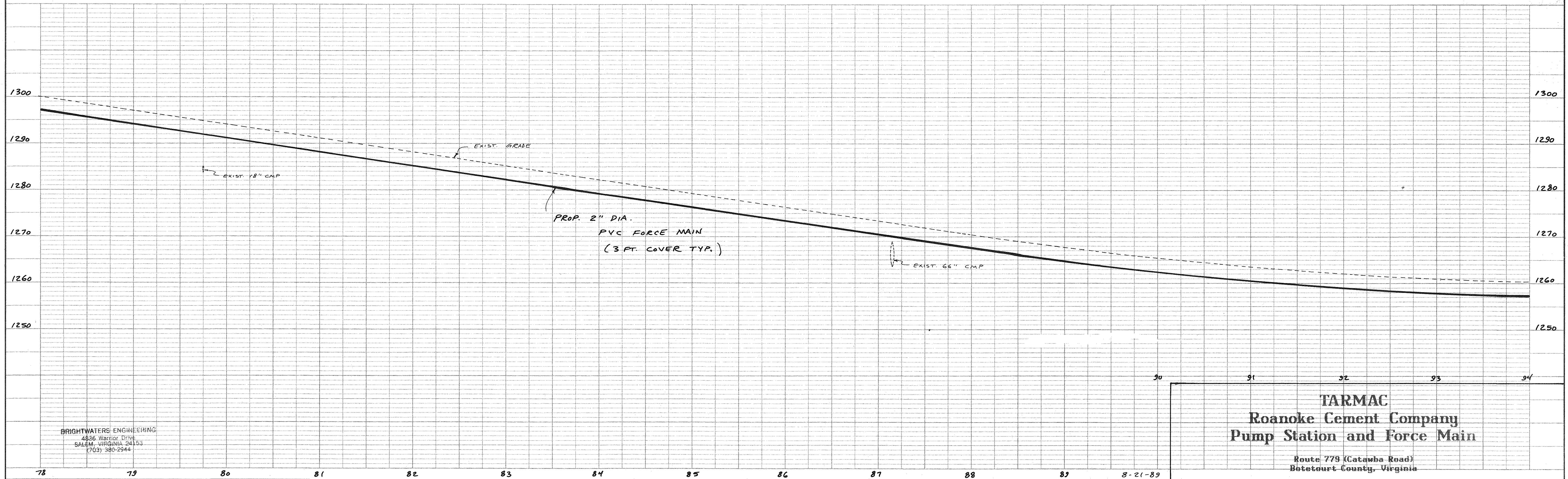
Botetourt County, Virginia

PLAN	DATE
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Scale: 1" = 50 ft

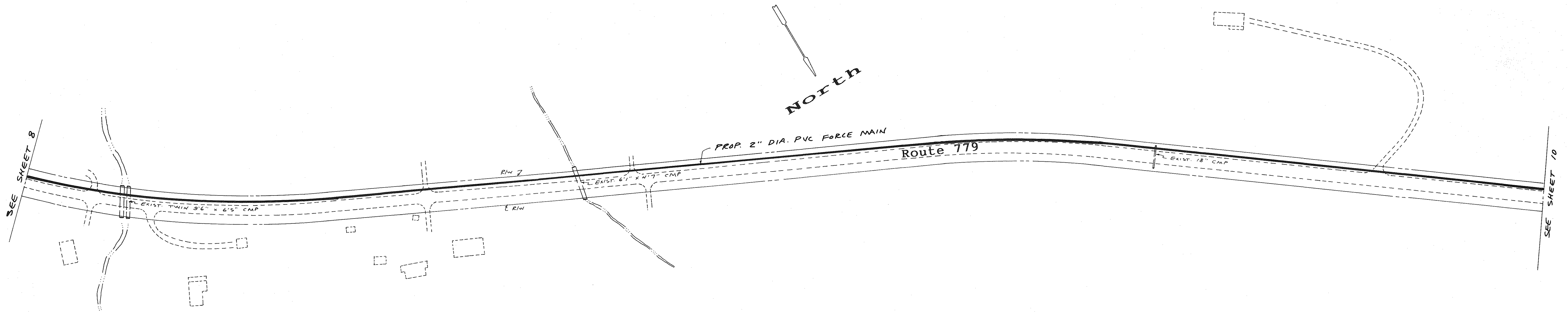


BRIGHTWATERS ENGINEERING
4836 Warner Drive
SALEM, VIRGINIA 24153
(703) 380-2944

TARMAC
Roanoke Cement Company
Pump Station and Force Main

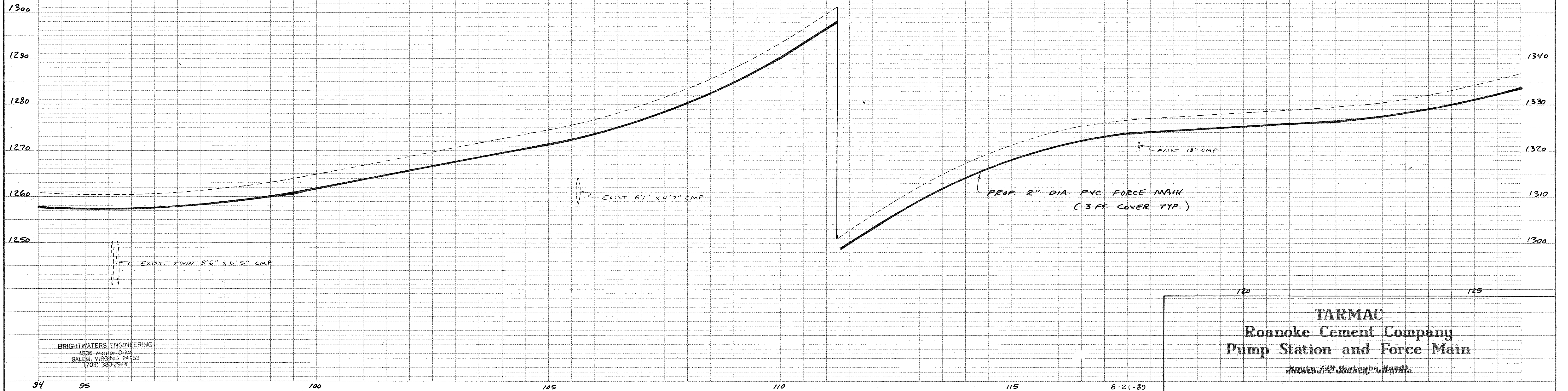
Route 779 (Catawba Road)
Botetourt County, Virginia

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Scale: 1" = 100 ft

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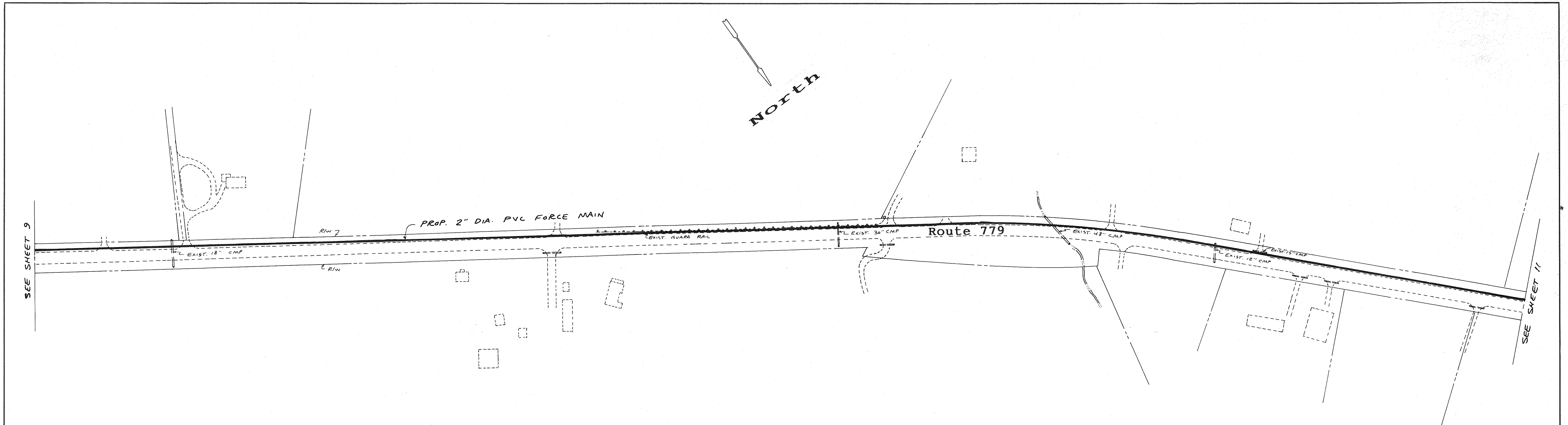


BRIGHTWATERS ENGINEERING
4856 Warner Drive
SALEM, VIRGINIA 24153
(703) 380-2944

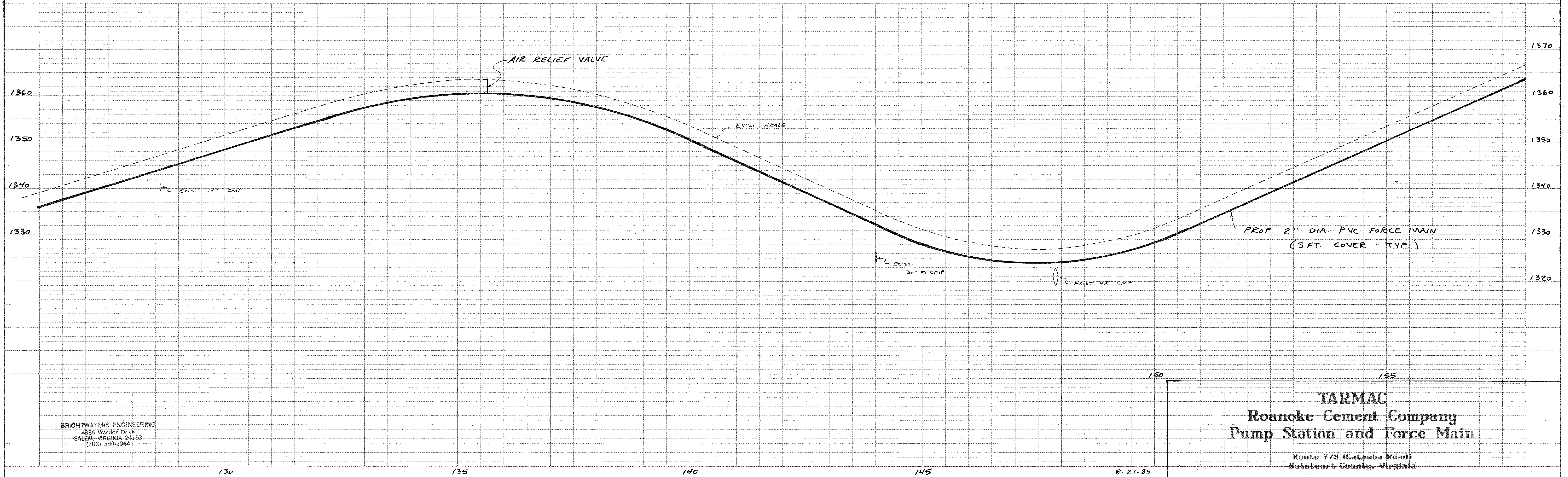
TARMAC
Roanoke Cement Company
Pump Station and Force Main
Route 779, Shenandoah County, Virginia

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Scale: 1" = 100 ft



BRIGHTWATERS ENGINEERING
4856 Warbler Drive
SALEM, VIRGINIA 24153
(703) 380-2944

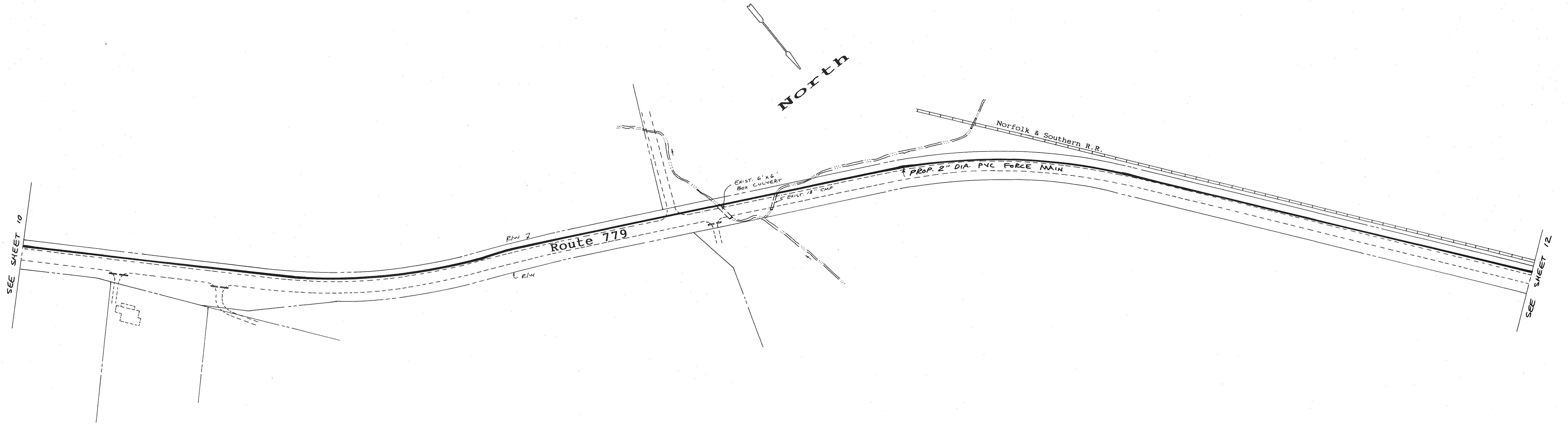
TARMAC
Roanoke Cement Company
Pump Station and Force Main

Route 779 (Catawba Road)
Botetourt County, Virginia

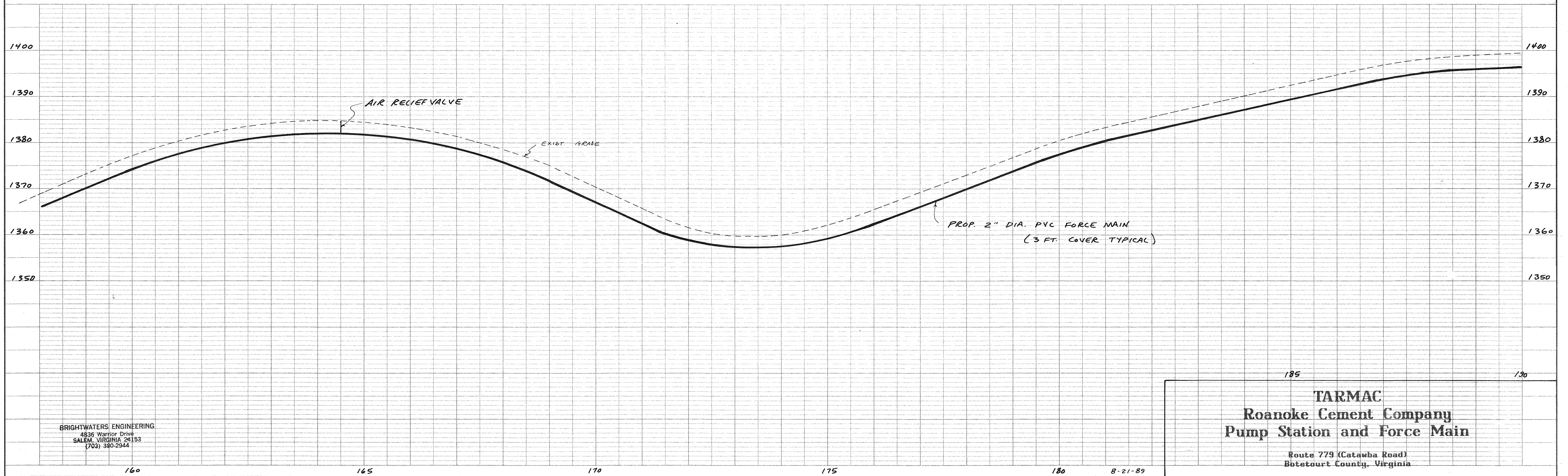
8-21-89

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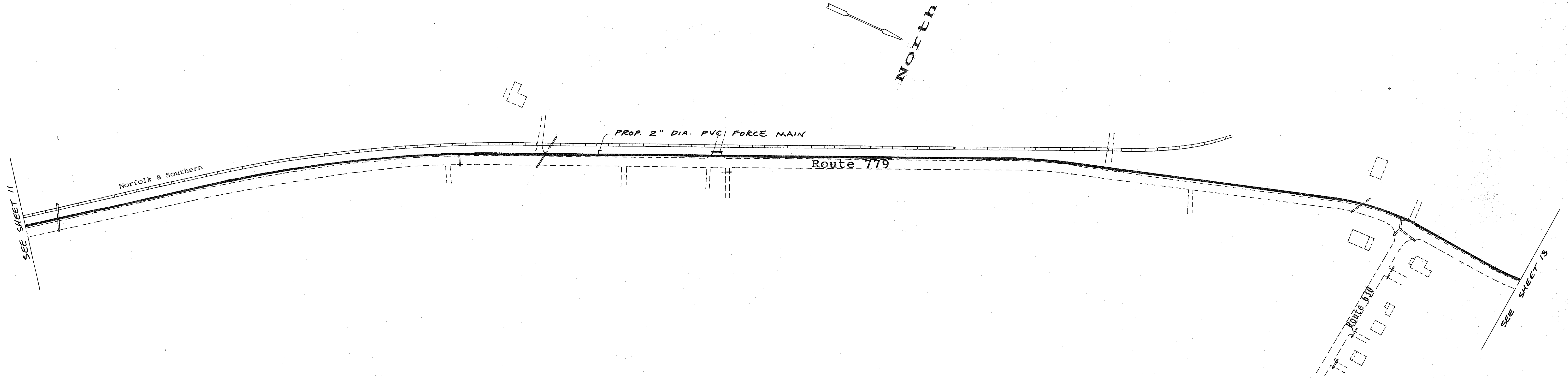


BRIGHTWATERS ENGINEERING
4336 Warrior Drive
SALEM, VIRGINIA 24153
(703) 380-2944

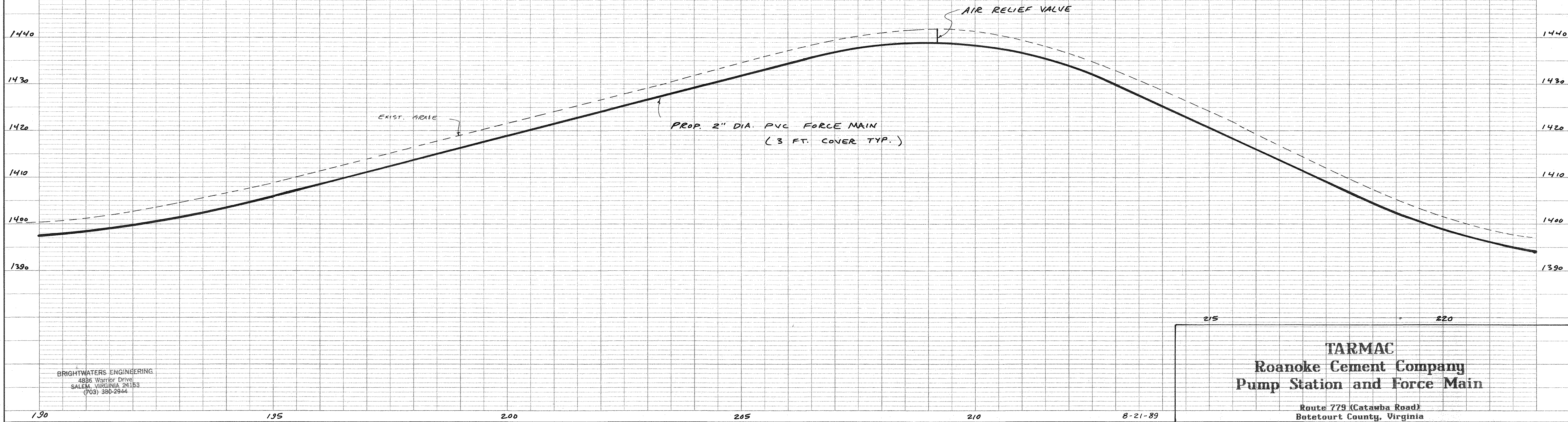
TARMAC
Roanoke Cement Company
Pump Station and Force Main
Route 779 (Catawba Road)
Botetourt County, Virginia

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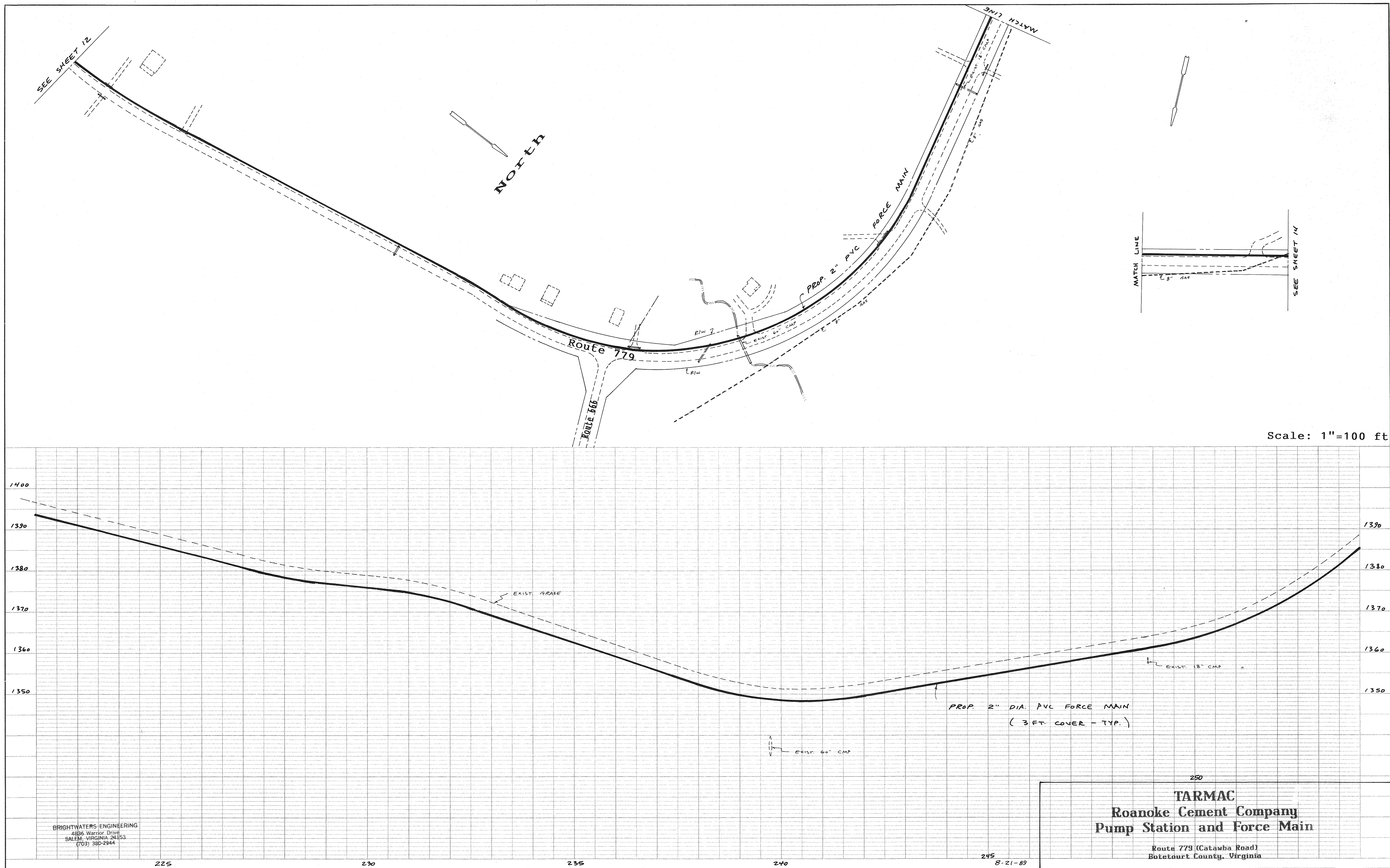
BRIGHTWATERS ENGINEERING
4886 Warrior Drive
SALEM, VIRGINIA 24153
(703) 580-2944

TARMAC
Roanoke Cement Company
Pump Station and Force Main

Route 779 (Catawba Road)
Botetourt County, Virginia

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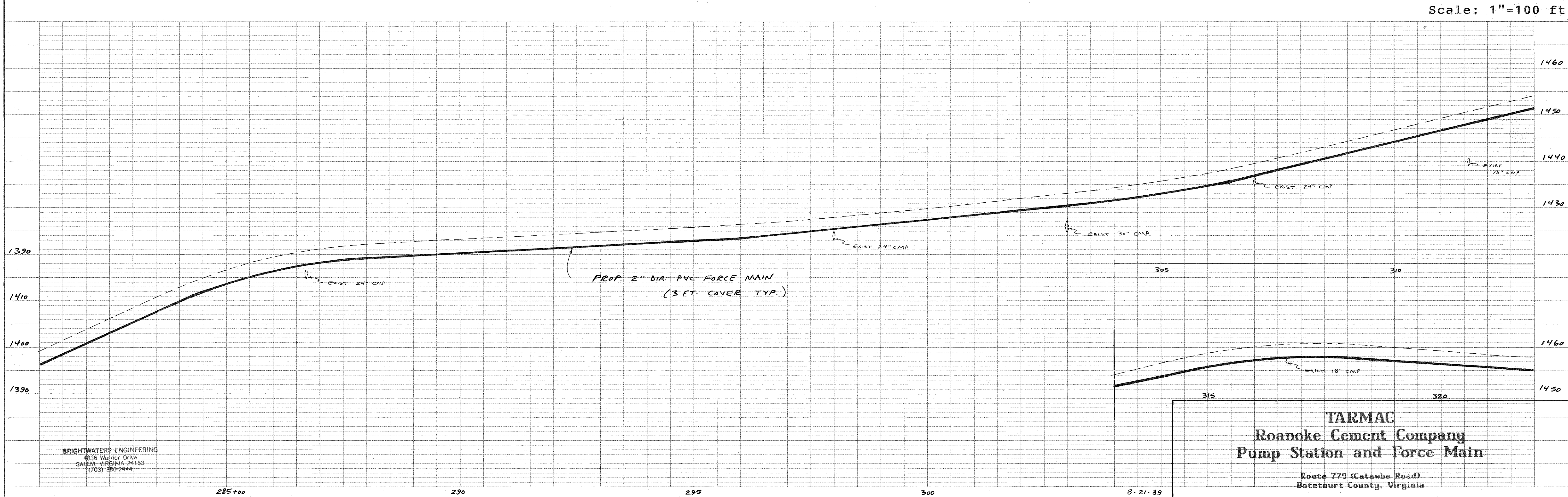
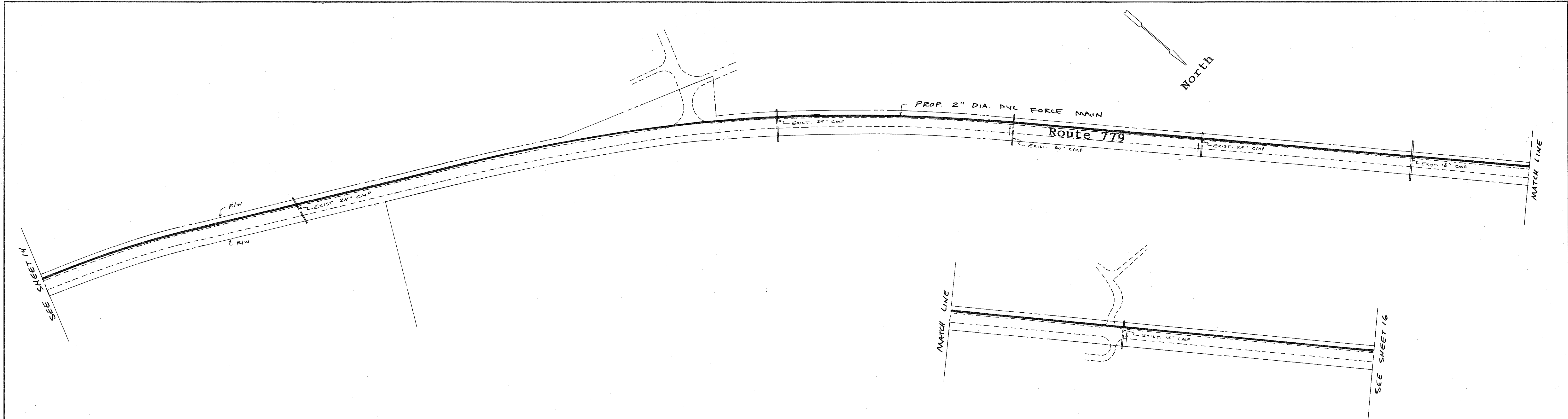


BRIGHTWATERS ENGINEERING
4836 Warrior Drive
SALEM, VIRGINIA 24153
(703) 380-2344

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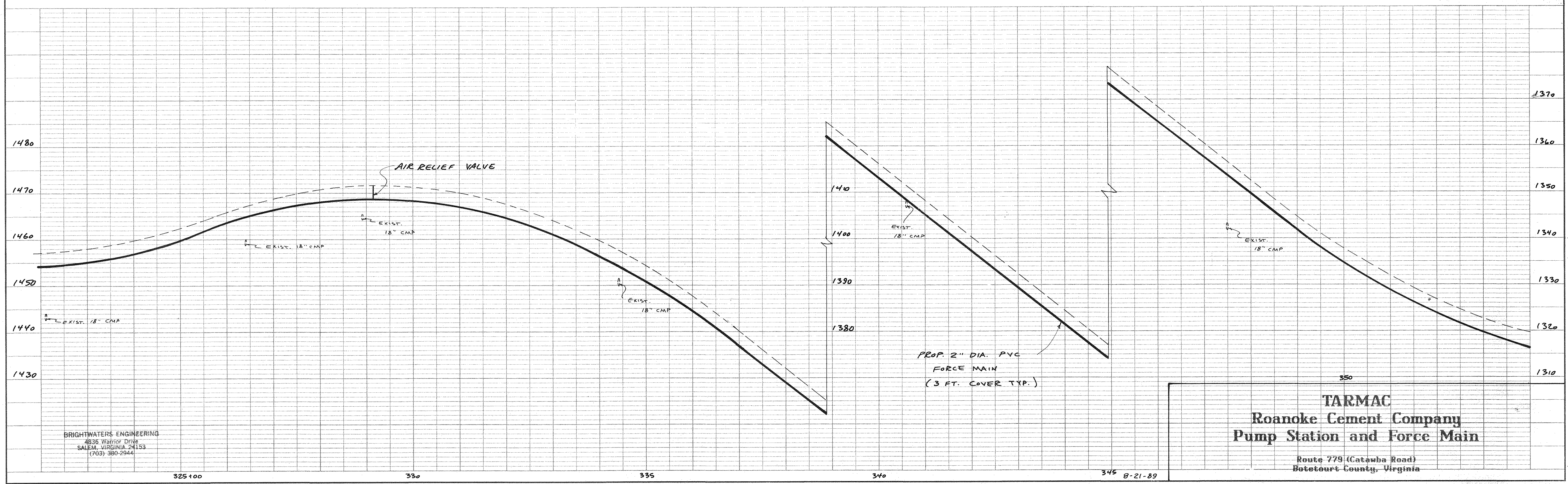
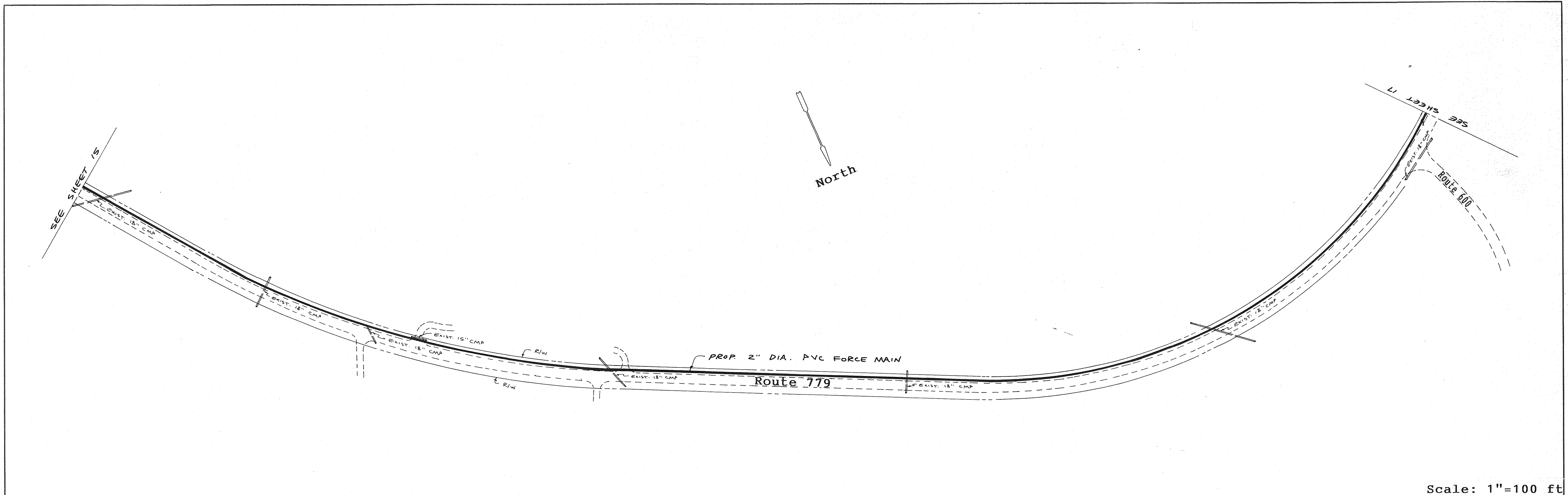


BRIGHTWATERS ENGINEERING
4836 Warrior Drive
SALEM, VIRGINIA 24153
(703) 390-2944

TARMAC
Roanoke Cement Company
Pump Station and Force Main
Route 779 (Catawba Road)
Botetourt County, Virginia

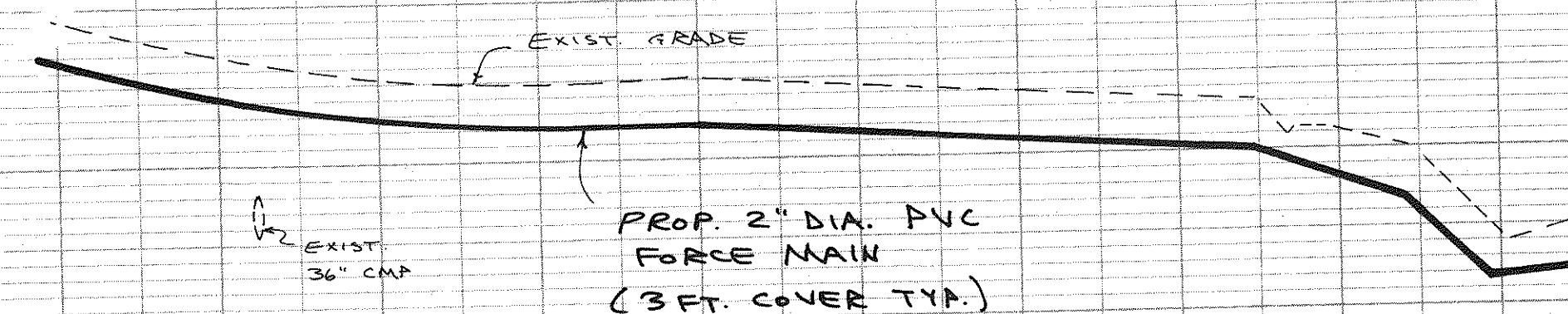
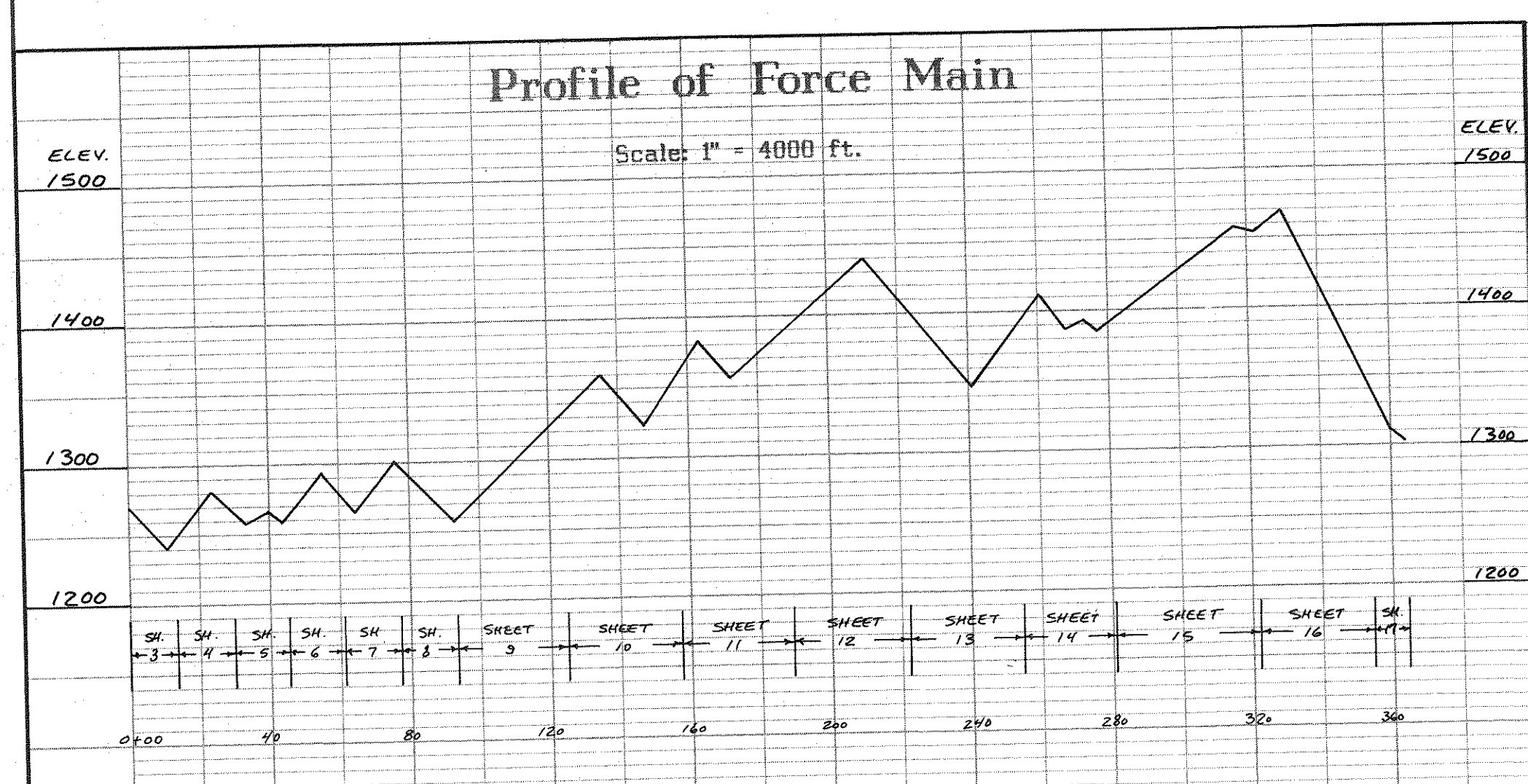
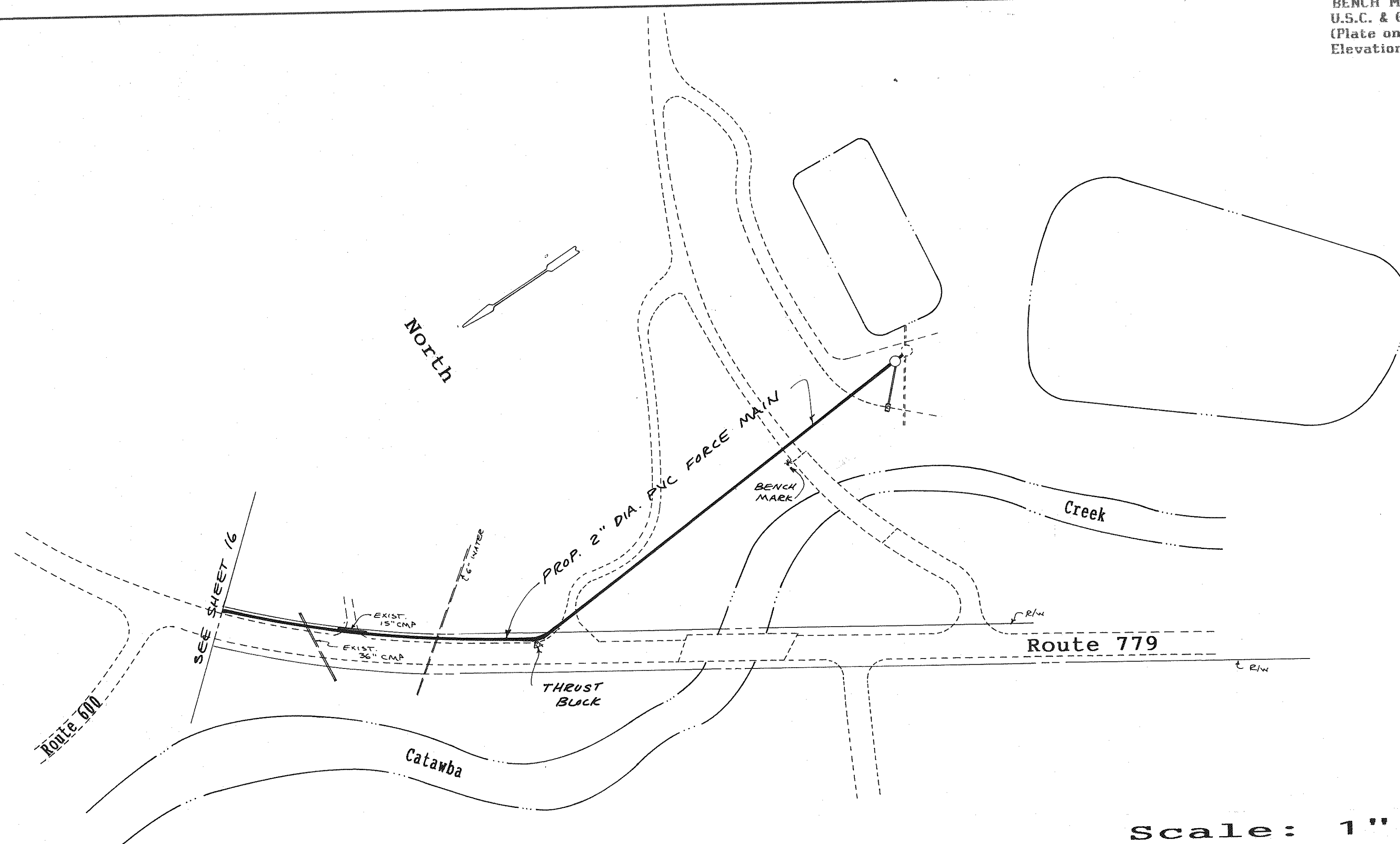
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BRIGHTWATERS ENGINEERING
4836 Warrior Drive
SALEM, VIRGINIA 24153
(703) 360-2944

TARMAC
Roanoke Cement Company
Pump Station and Force Main
Route 779 (Catawba Road)
Botetourt County, Virginia



REVISION
10-27-89

Route 779 (Catawba Road)
Botetourt County, Virginia

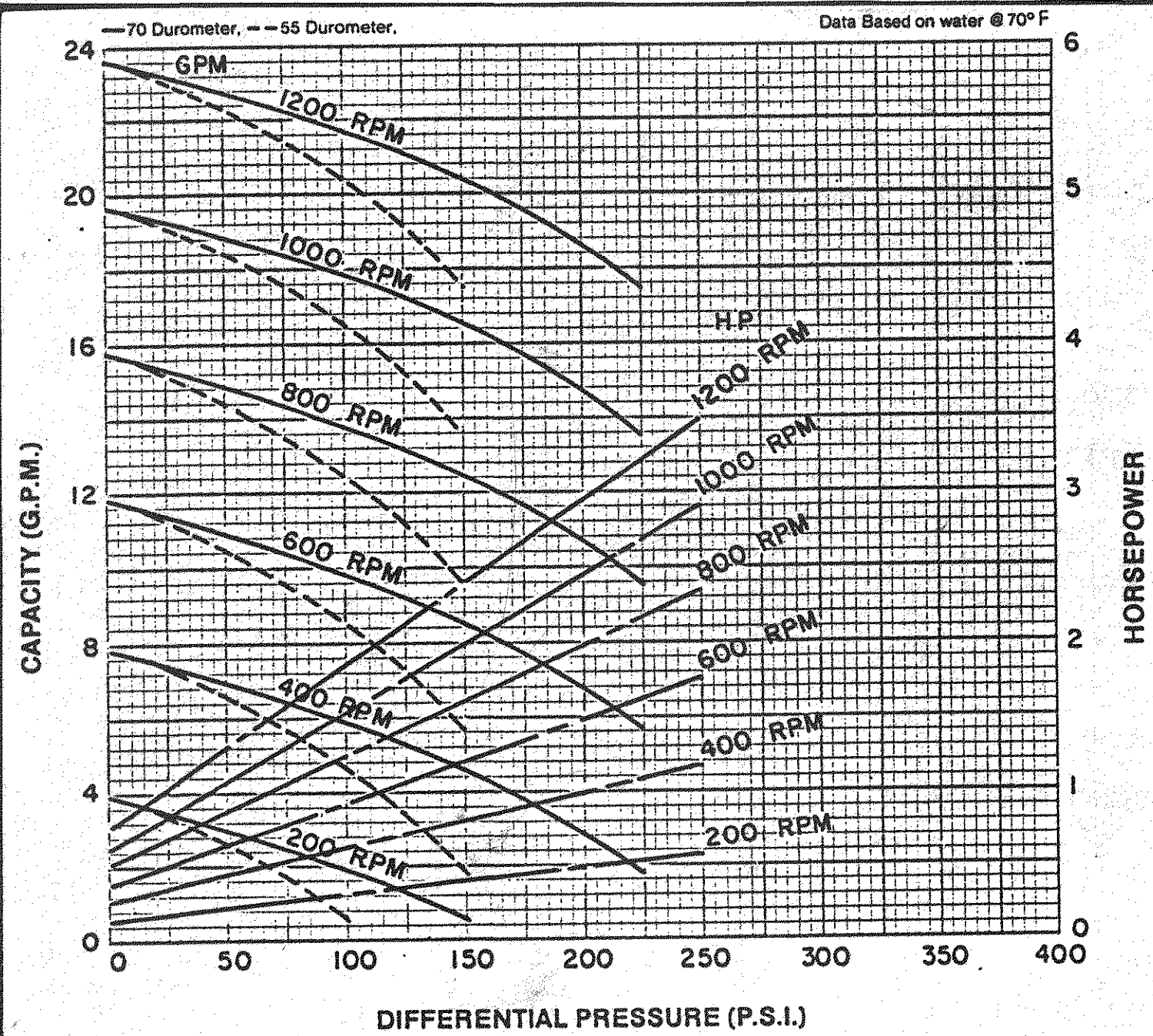
BRIGHTWATERS ENGINEERING
4836 Warrior Drive
SALEM, VIRGINIA 24153
(703) 380-2944

355 + 00

 $360 + 0$

8-21-89

Sheet 17 of 18



Continental Progressing Cavity Pump
(Model 3CL4, 2" discharge line, 2 Hp Motor)

Pump Curves

EXIST. 6" DIA.
DUCTILE IRON DISCHARGE LINE
— TO BE PLUGGED

EXIST. WATER LEVEL

ELEV. 1307.50
(ALARM ON)

ELEV. 1306.50
2ND PUMP ON

ELEV. 1305.00
1ST PUMP ON

ELEV. 1304.75

SUCTION PORT ELEV.

ELEV. 1303.50

PUMPS OFF

PROP. 4" DIA.
DUCTILE IRON PIPE
(2 REQ'D)

Section B-B

No Scale

Notes

- Duplex pumps to be Continental Progressing Cavity Pumps, model 3CL4, with 2" diameter discharge lines.
- The pump housing is to be cast iron; the pump rotor is to be chrome plated alloy steel.
- Motors to be 2 HP, 1200 RPM Baldor model #215.
- Electrical equipment is to operate on 220 volt 60 Hz single phase alternating current.
- The pumps are to be securely mounted in a 4 ft. diameter precast concrete manhole conforming to VDOT MH-1, complete with cast iron frame and cover situated more or less above the pumps to expedite removal by portable hoist (hoist not in contract).
- The floor of the manhole is to be pitched 1/8" per foot towards a low point, at which point the floor is to contain a pit with a submersible basement-type sump pump capable of pumping 25 gpm or more, constructed of corrosion resisting stainless steel, and with built in check valve and float switch, 1 1/2" discharge line, with discharge running back to the wet well.
- A mechanical ventilation system is to be provided consisting of a 4" diameter screened intake port with "muffin fan" (100 cfm or better), and a 4" diameter screened discharge port. The fan is to be manually operated with switch located in the electrical control panel.
- Lighting to be provided by portable light (not in contract) with drop cord running from receptacle located in electrical control panel.
- The existing chlorine contact tank is to be converted to a wet well by:
 - removal of existing baffles
 - plugging existing discharge line
 - dismantling and removing existing chloring contact equipment
 - installation of twin 4" diameter discharge lines running to pumps
 - installation of 4" diameter screened mushroom vent for ventilation
 - installation of 3 float switches
 - installation of a "high water" alarm system including a flashing light located above the electrical panel, as well as a signal audible to plant personnel

8 FT.

ELEV. 1308.75

ELEV. 1309.50

2HP / 1200 RPM
MOTOR
(SUPPORTS NOT SHOWN)

SUPPORT
BRACKET

SUCTION
PORT

SUPPORT
BRACKET

ELEV. 1303.00

DISCHARGE
PORT
ELEV. 1302.50

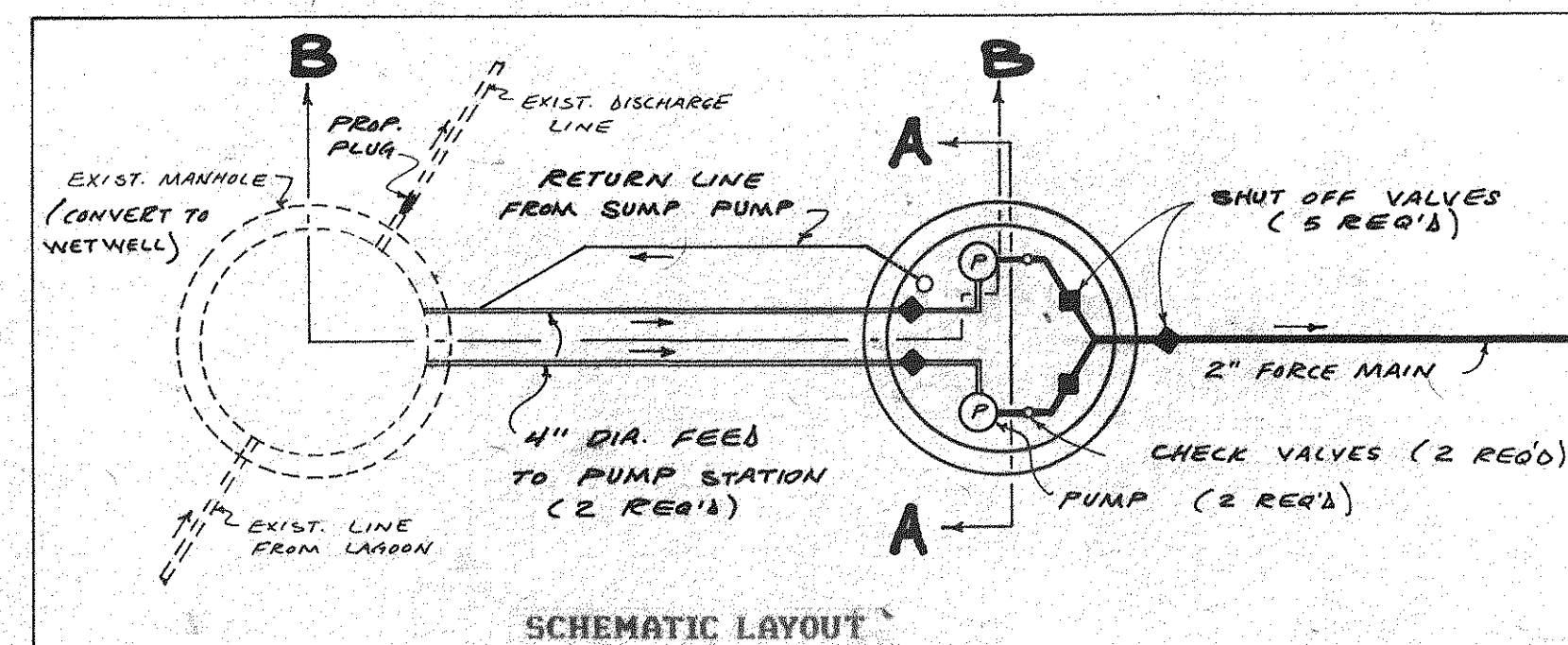
6" GRAVEL
BEDDING

4 FT. DIA. PRECAST MANHOLE

Section A-A

No Scale

NOTE: For clarity, details do not show required items such as vents, fan, floor pit and sump pump, float switches, floor pitch, motor mounting brackets, check valves, dismantling chlorine contact tank, etc.



REVISIONS
10-27-89
10-10-90 (AS-BUILT)

9-8-89

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Roanoke Cement Company
Pump Station and Force Main

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