

# Construction Plans For WATER MAIN REPLACEMENT VARIOUS LOCATIONS

## Village of Elk Rapids - Antrim County - Michigan

Sections 20 & 21, Township 29N, Range 09W

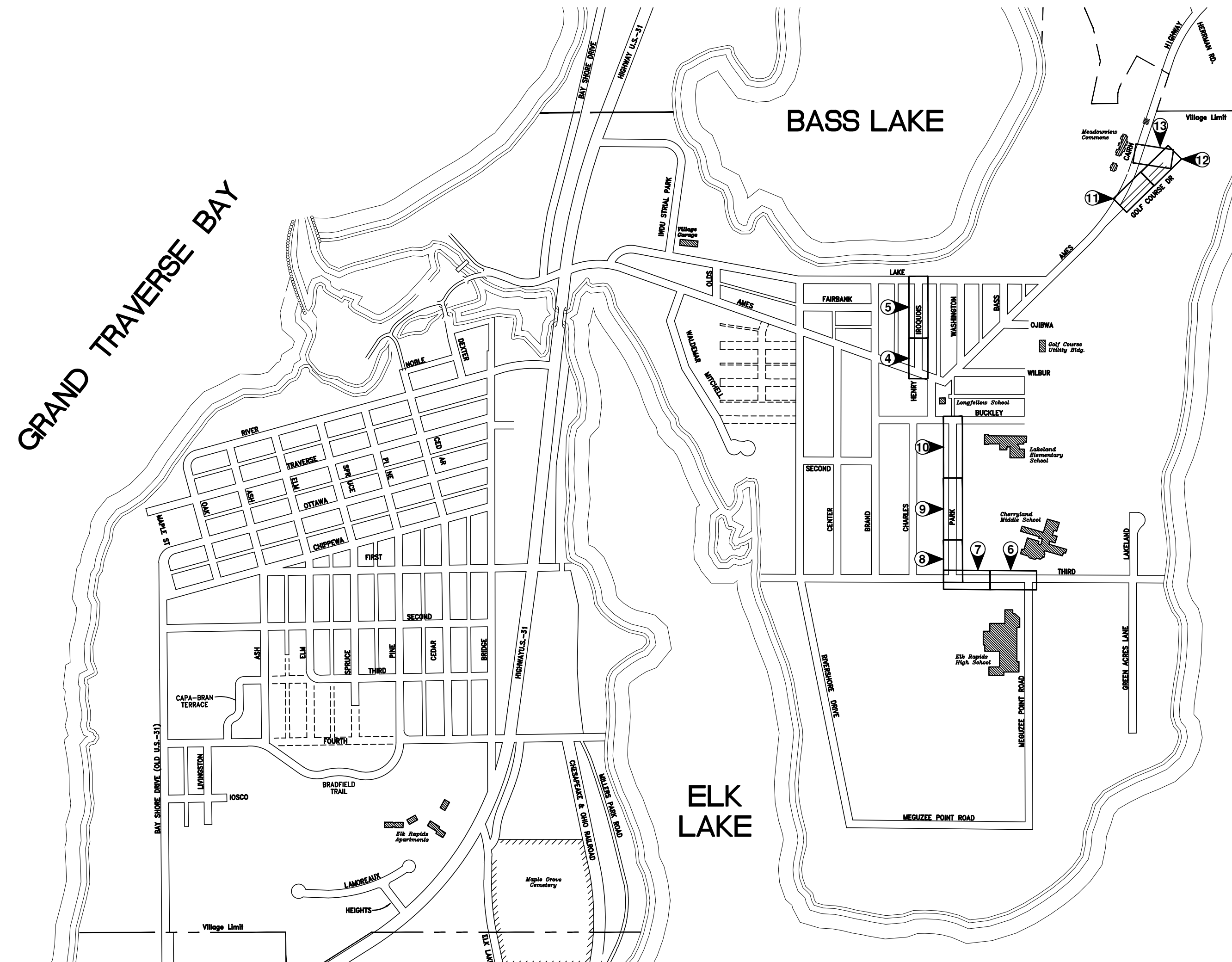
### Owner

VILLAGE OF ELK RAPIDS  
MANAGER: JOHN MATTHEWS  
P.O. BOX 398  
315 BRIDGE STREET  
ELK RAPIDS, MICHIGAN 49629  
(231) 264-9971 - (231) 264-9274  
jmatthews@elkrapids.org



### Engineer

GOSLING CZUBAK  
ENGINEERING SCIENCES, INC.  
1280 BUSINESS PARK DRIVE  
TRAVERSE CITY, MICHIGAN 49686-8607  
(231) 946-9191 - (800) 968-1062  
Fax : (231) 941-4603  
www.goslingczubak.com



Village of Elk Rapids  
Site Location Map  
SCALE: 1" = 600'

### PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY "MISS DIG" (1-800-482-7171) THREE WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

DTE ENERGY COMPANY  
GAS DISTRIBUTION  
1294 NORTH U.S. 31  
PETOSKEY, MI 49770  
231-258-3785

DTE ENERGY COMPANY  
HIGH PRESSURE GAS TRANSMISSION  
250 MICHCON LN.,  
KALKASKA, MI 49646  
231-499-7648

CHARTER COMMUNICATIONS VILLAGE OF ELK RAPIDS DPW  
701 S. AIRPORT RD.  
TRAVERSE CITY, MI 49686  
231-929-7012 EXT. 102

CONSUMERS ENERGY  
821 HASTINGS  
TRAVERSE CITY, MI 49686  
231-929-6244

MR. ALEX PRAY  
315 BRIDGE STREET  
P.O. BOX 398  
ELK RAPIDS, MI 49629  
231-264-9971

AT&T  
142 E. STATE STREET  
TRAVERSE CITY, MI 49684  
231-941-2707



Know what's below.  
Call before you dig.

THE LOCATION OF THE EXISTING UTILITIES, AS SHOWN ON THIS PLAN, ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF ALL EXISTING UTILITIES. THE OWNER AND THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATION SHOWN. THE CONTRACTOR SHALL NOTIFY "MISS DIG" AT 1 (800) 482-7171 OR 811 THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

### SHEET LIST

| SHEET NUMBER | SHEET TITLE              |
|--------------|--------------------------|
| 1            | COVER                    |
| 2            | GENERAL NOTES            |
| 3            | DEMOLITION               |
| 4            | STA. 0+00 TO STA. 5+00   |
| 5            | STA. 5+00 TO STA. 8+50   |
| 6            | STA. 8+50 TO STA. 13+00  |
| 7            | STA. 13+00 TO STA. 16+00 |
| 8            | STA. 16+00 TO STA. 21+00 |
| 9            | STA. 21+00 TO STA. 26+00 |
| 10           | STA. 26+00 TO STA. 29+00 |
| 11           | STA. 29+00 TO STA. 34+00 |
| 12           | STA. 34+00 TO STA. 39+00 |
| 13           | STA. 39+00 TO STA. 44+00 |
| 14           | DETAILS 1                |
| 15           | DETAILS 2                |

WATER MAIN REPLACEMENT VARIOUS LOCATIONS

Gosling Czubak  
Engineering Sciences, Inc.  
1280 Business Park Drive  
Traverse City, Michigan  
49686-8607  
(231) 946-9191  
www.goslingczubak.com



Issue Date  
2/26/2024

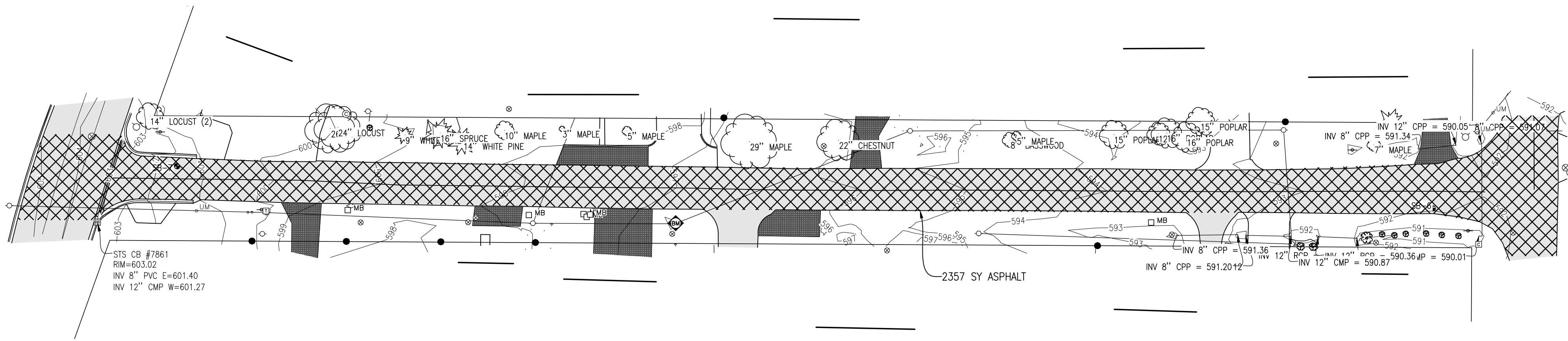
Project No.  
2023150003

Sheet

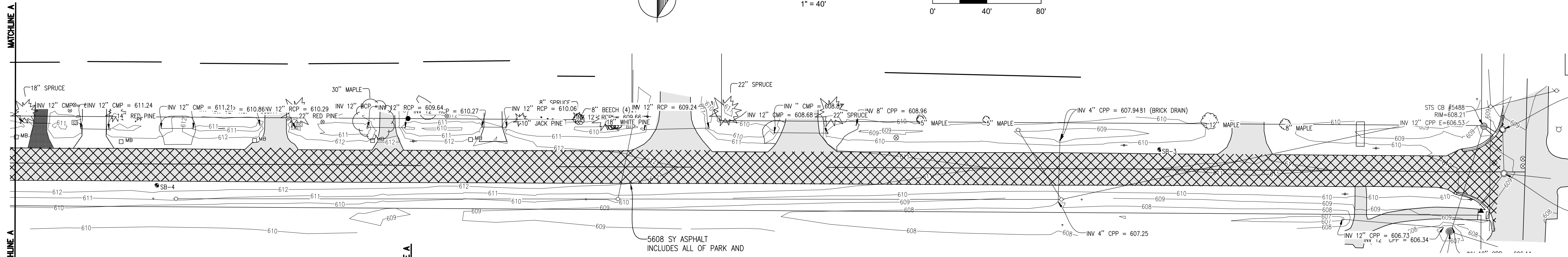
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ORIGINAL SHEET SIZE IS 22x34 - HALF SCALE SHEET IS 11x17

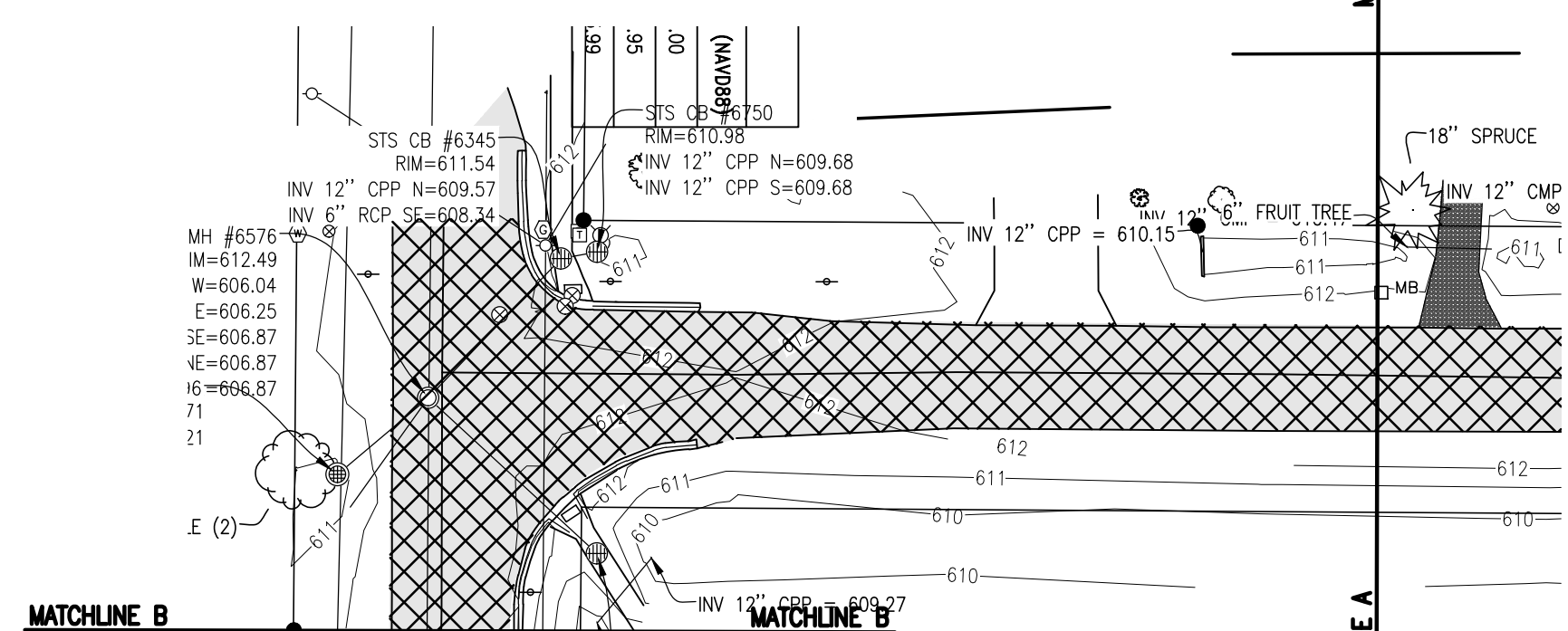




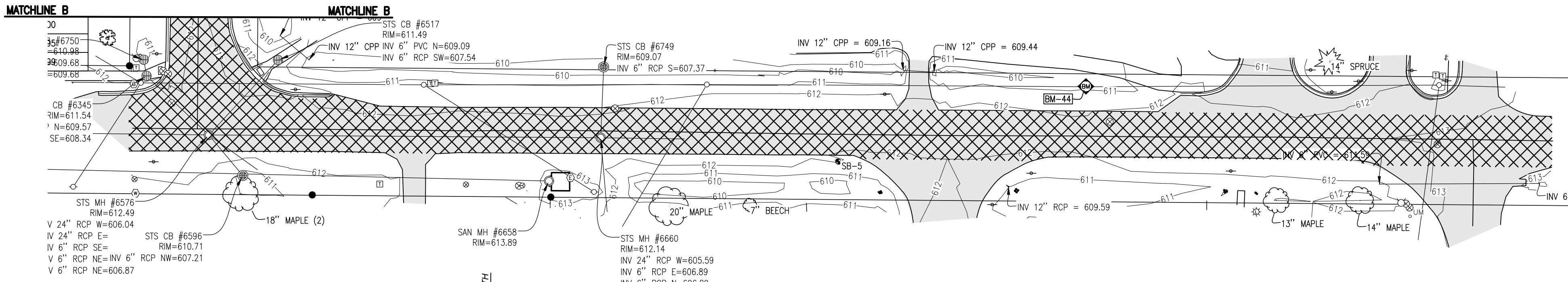
**IROQUOIS DEMOLITION PLAN**  
 SCALE 1" = 40'  
 0' 40' 80'



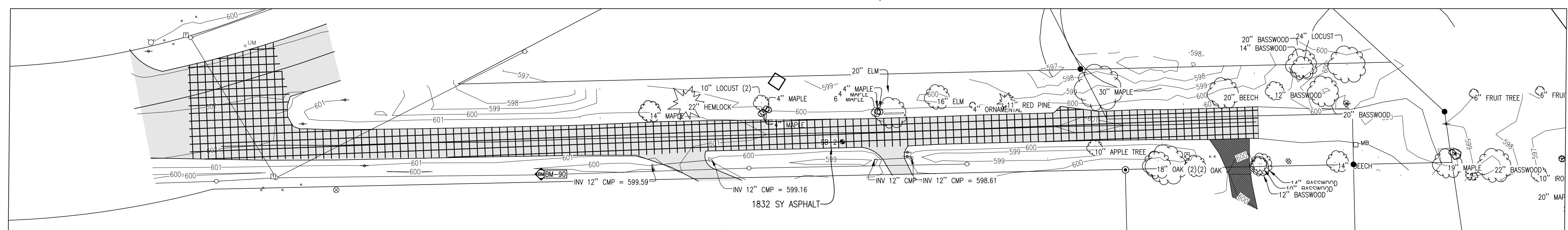
**PARK DEMOLITION PLAN**  
 SCALE 1" = 40'  
 0' 40' 80'



**PARK DEMOLITION PLAN**  
 SCALE 1" = 40'  
 0' 40' 80'



**THIRD DEMOLITION PLAN**  
 SCALE 1" = 40'  
 0' 40' 80'



**GOLF COURSE DEMOLITION PLAN**  
 SCALE 1" = 40'  
 0' 40' 80'

| No. | Date | Revision | By |
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**DEMOLITION WATER MAIN REPLACEMENT VARIOUS LOCATIONS ELK RAPIDS**

Date Issued: 2/28/2024  
 Date Surveyed: 2023  
 Designed By: TNK  
 Drawn By: TNK  
 Checked By: MUJ  
 Scale: AS NOTED

Original sheet size is 22x34

Location:  
 T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number:  
 2023150003

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**3**

| No. | Date | Revision | By |
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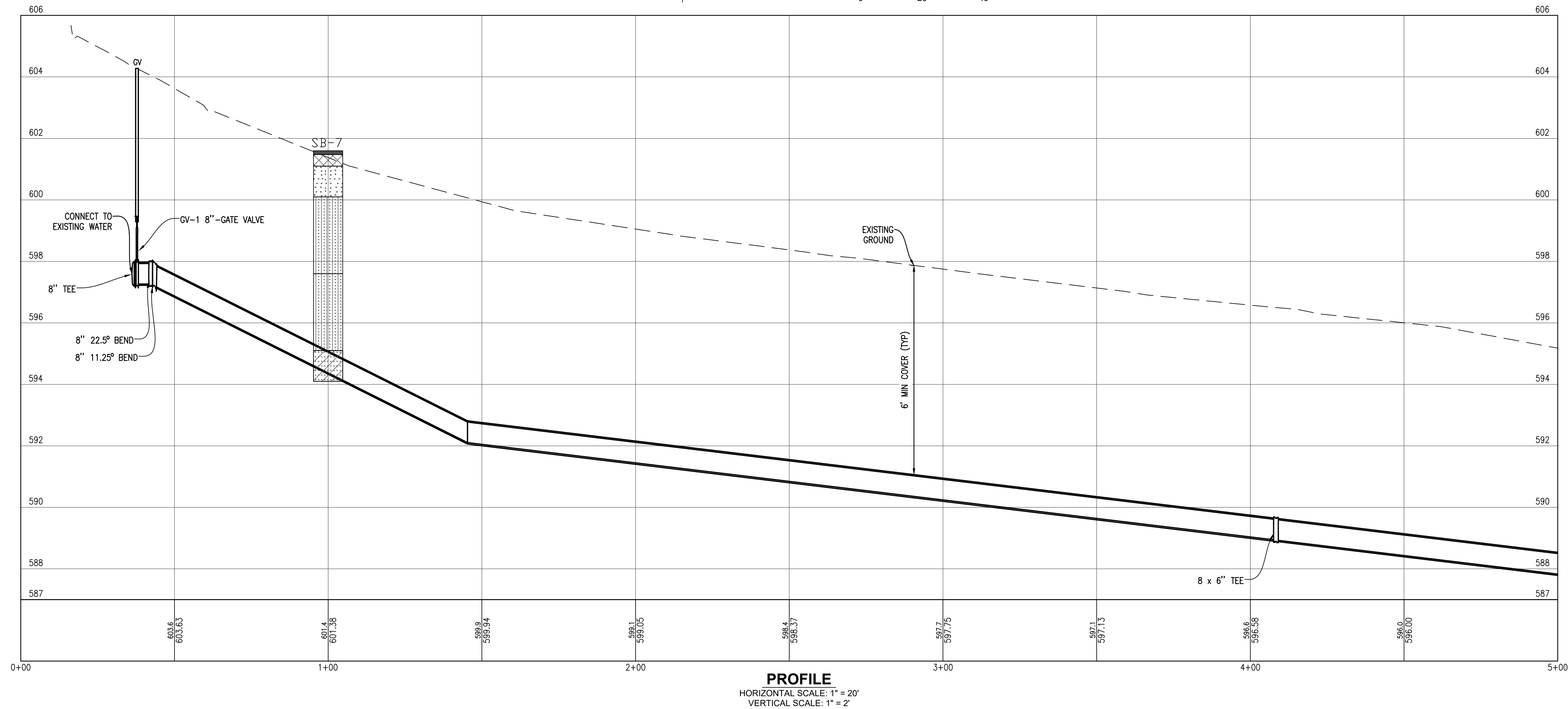
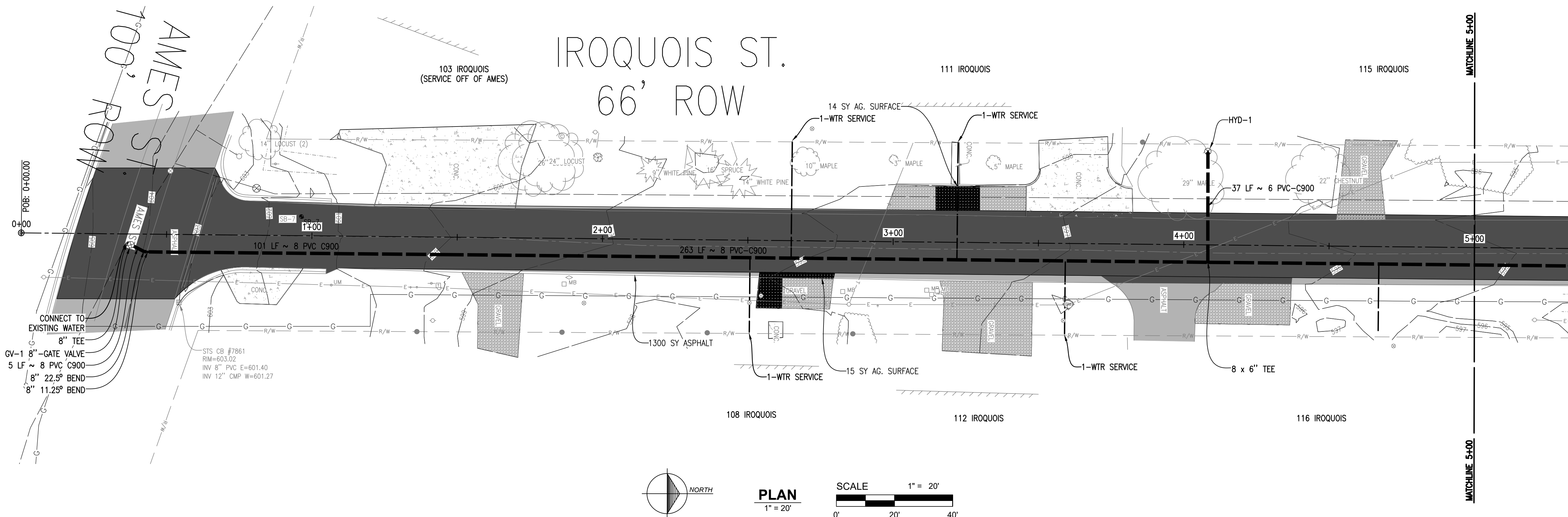
**STA. 0+00 TO STA. 5+00**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
**ELK RAPIDS**

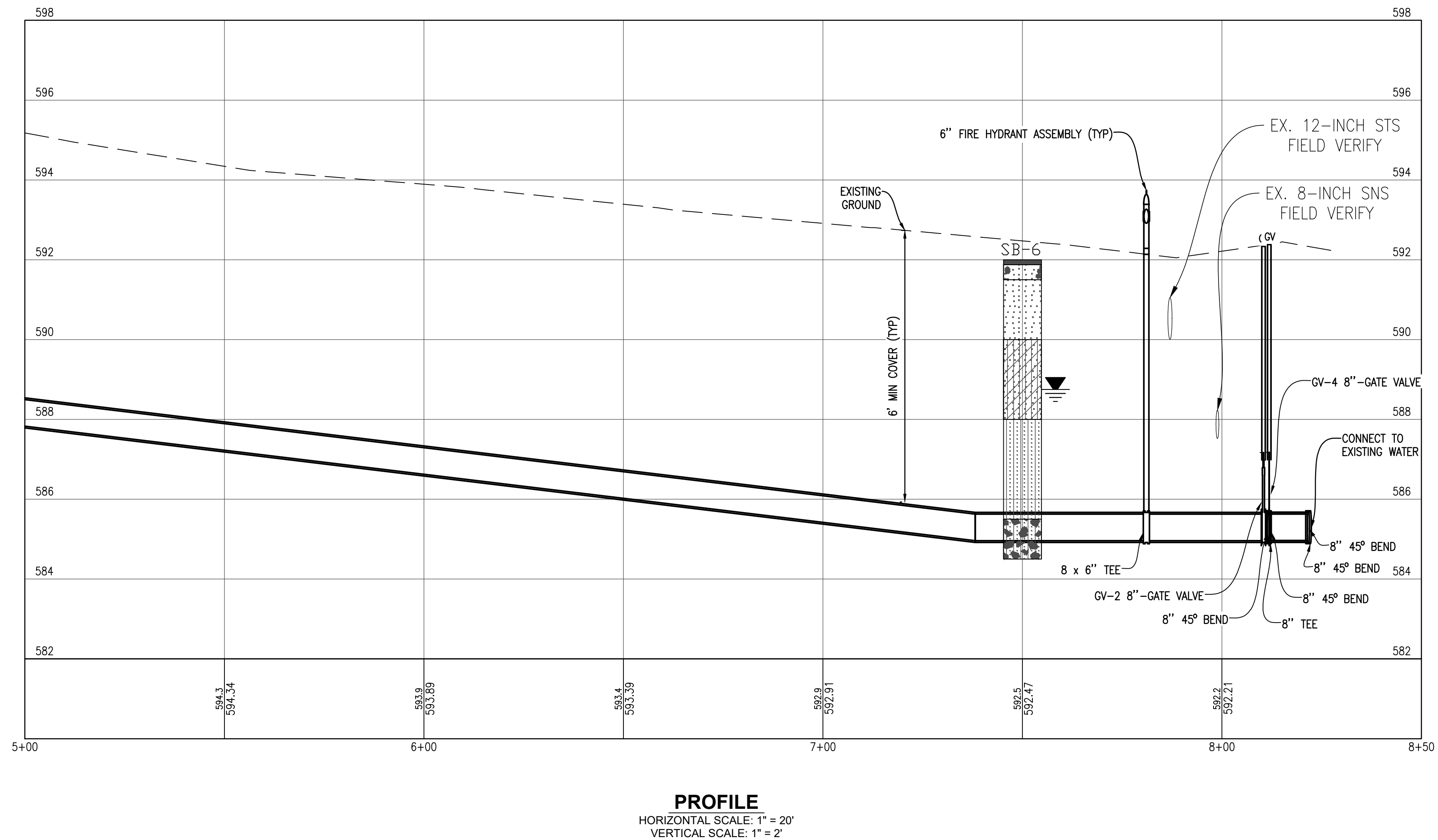
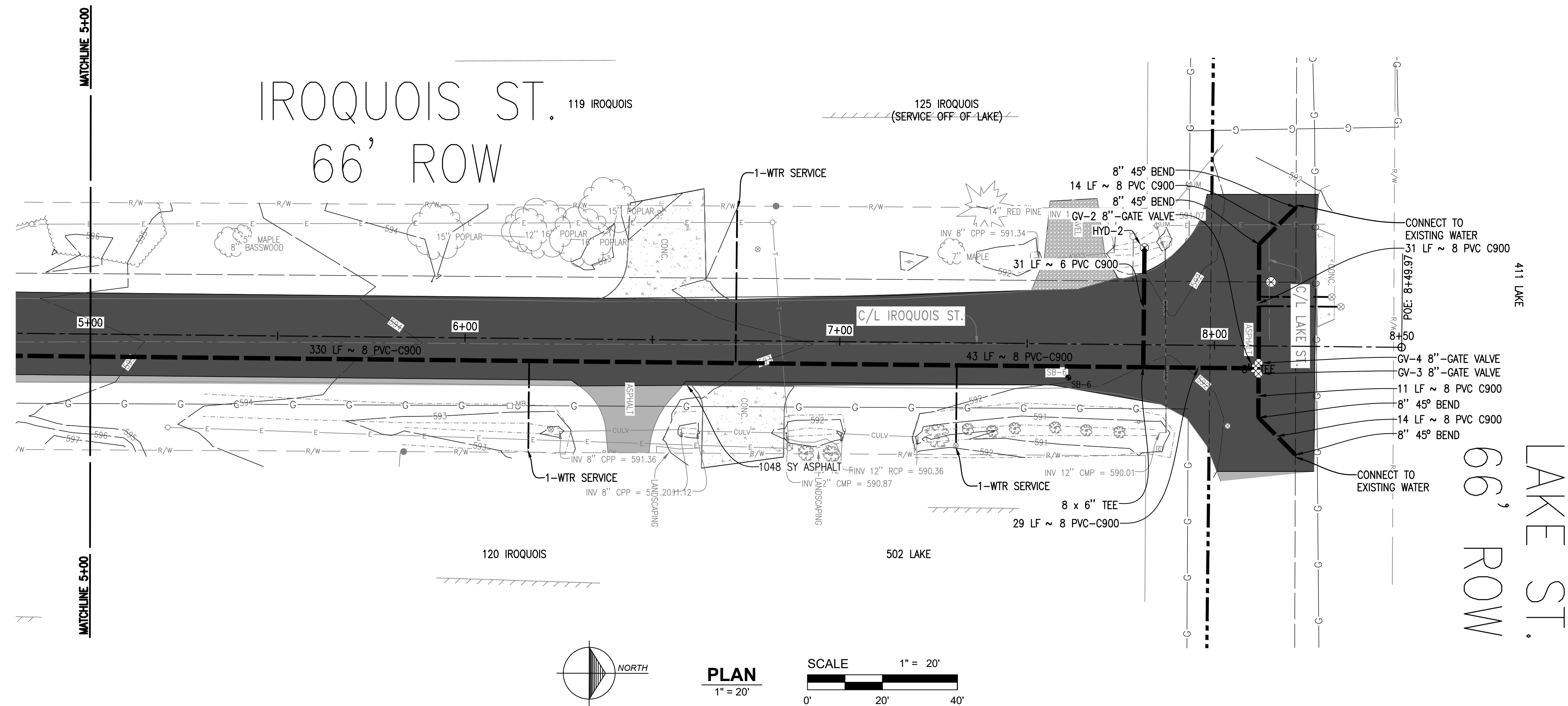
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 Date Surveyed: 2023  
 Designed By: TNK  
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 Scale: AS NOTED  
 Original sheet size is 22x34

Location:  
 T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number:  
 2023150003

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**PROFILE**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 2'

| No. | Date | Revision | By |
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**STA. 5+00 TO STA. 8+50**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
 ELK RAPIDS

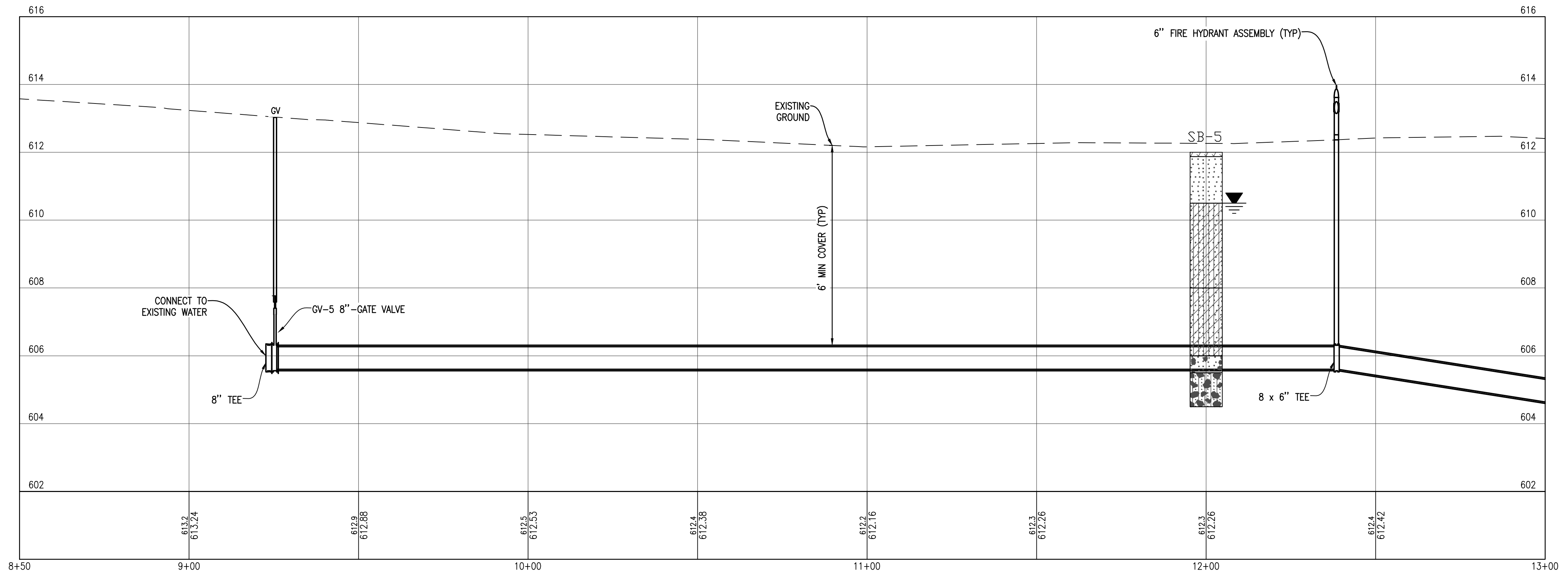
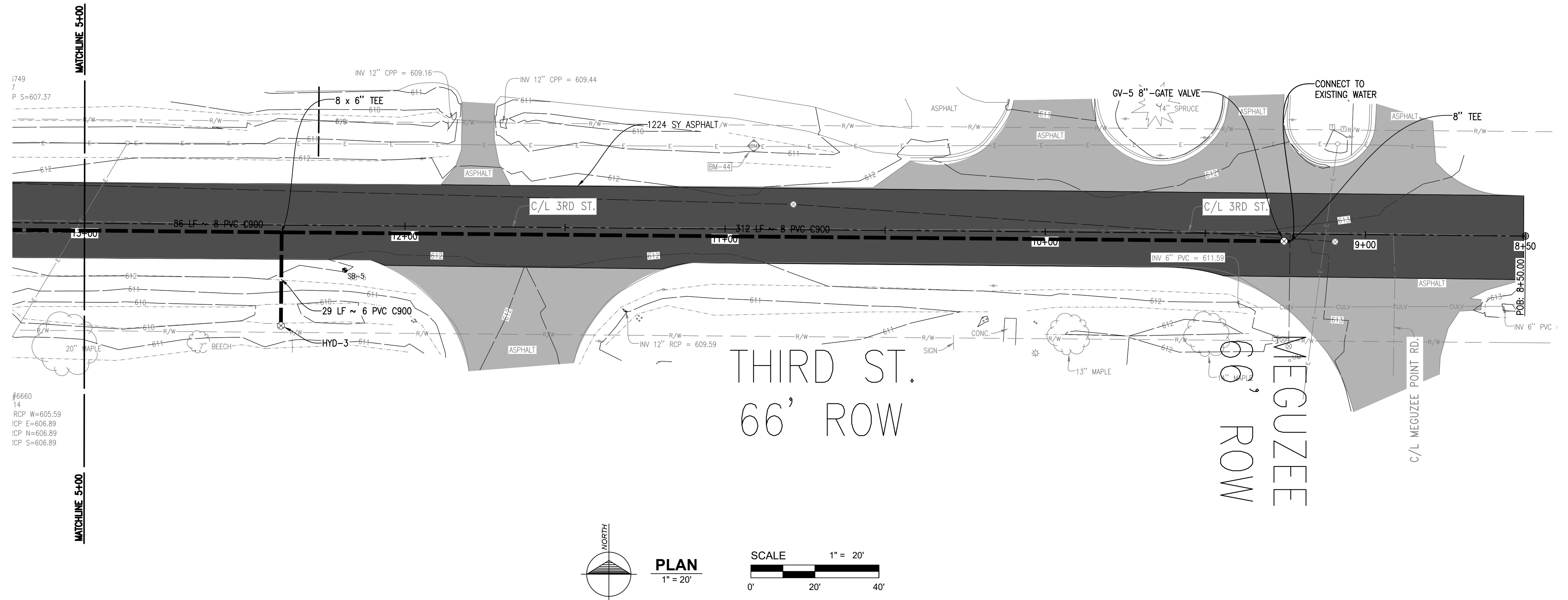
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 Date Surveyed: 2023  
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 Checked By: MUH  
 Scale: AS NOTED

Original sheet size is 22x34

Location:  
 T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number:  
 2023150003

Sheet:  
**5**



| No. | Date | Revision | By |
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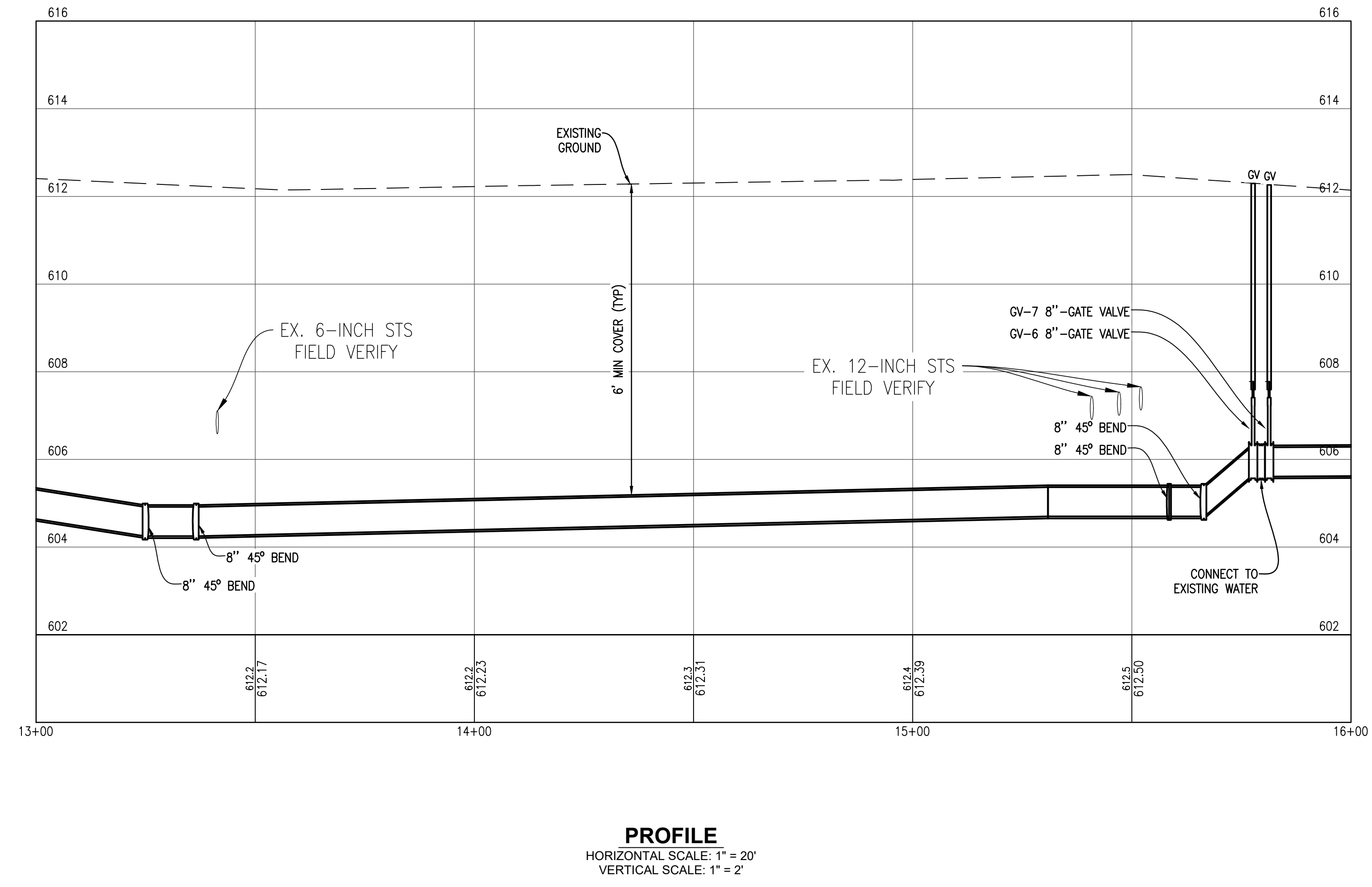
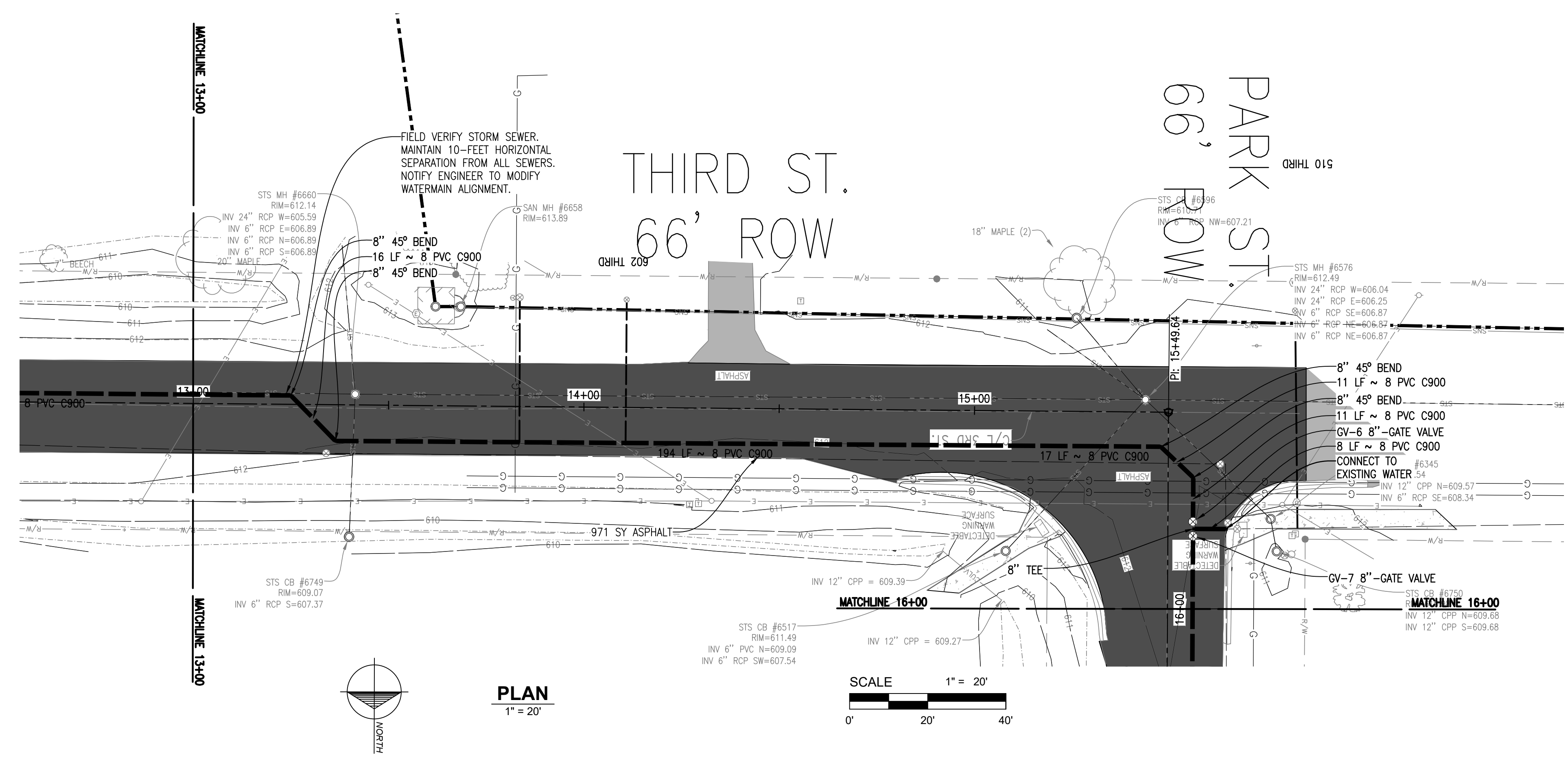
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**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
**ELK RAPIDS**

Date Issued: 2/26/2024  
 Date Surveyed: 2023  
 Designed By: TNK  
 Drawn By: TNK  
 Checked By: MUH  
 Scale: AS NOTED  
 Original sheet size is 22x34

Location:  
 T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number:  
 2023150003

Sheet:  
**6**



| No. | Date      | By  | Revision                    |
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| 1   | 2/26/2024 | TNK | STORM SEWER SEPARATION NOTE |

**STA. 13+00 TO STA. 16+00**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
**ELK RAPIDS**

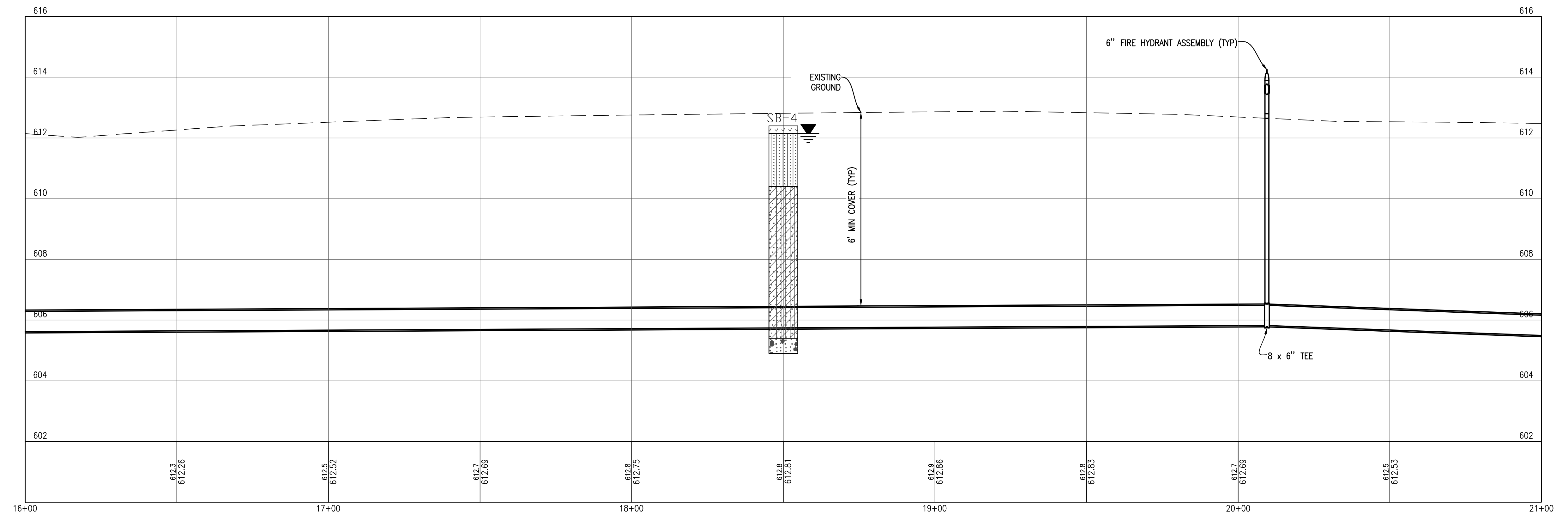
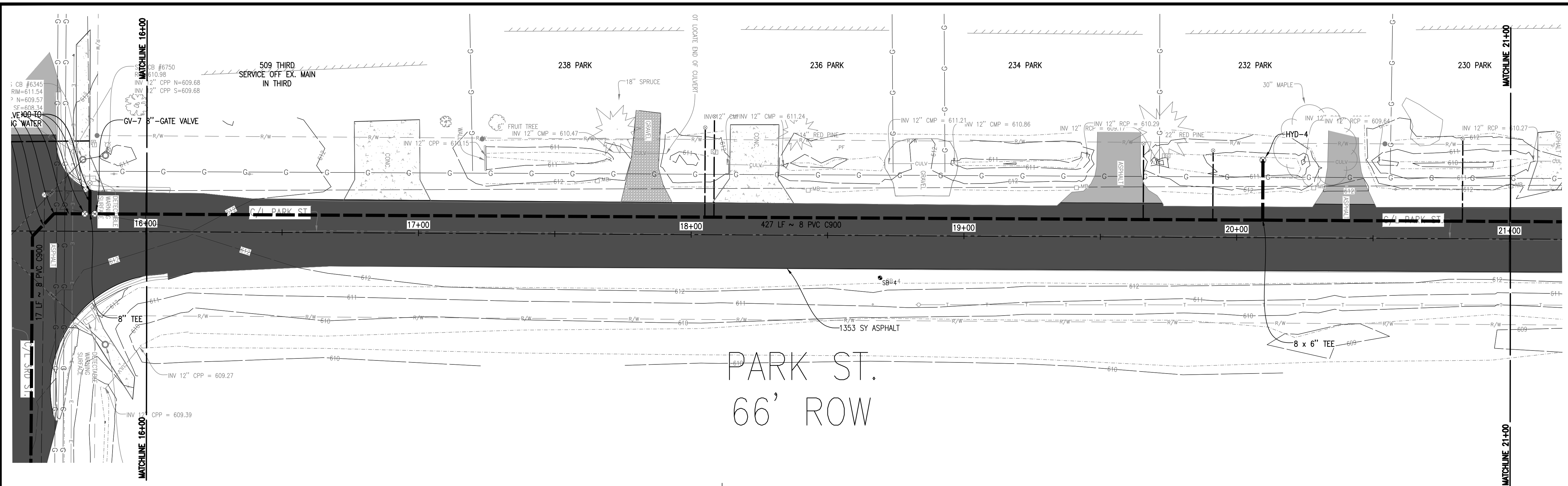
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 Scale: AS NOTED

Original sheet size is 22x34

Location: T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number: 2023150003

Sheet: **7**



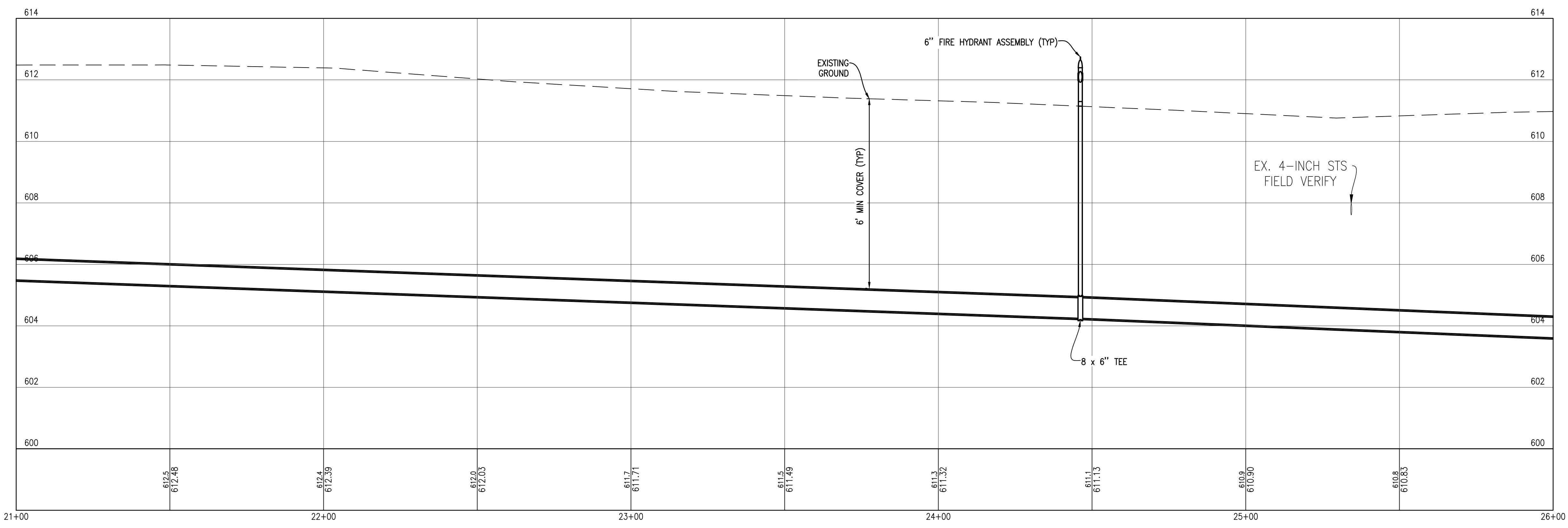
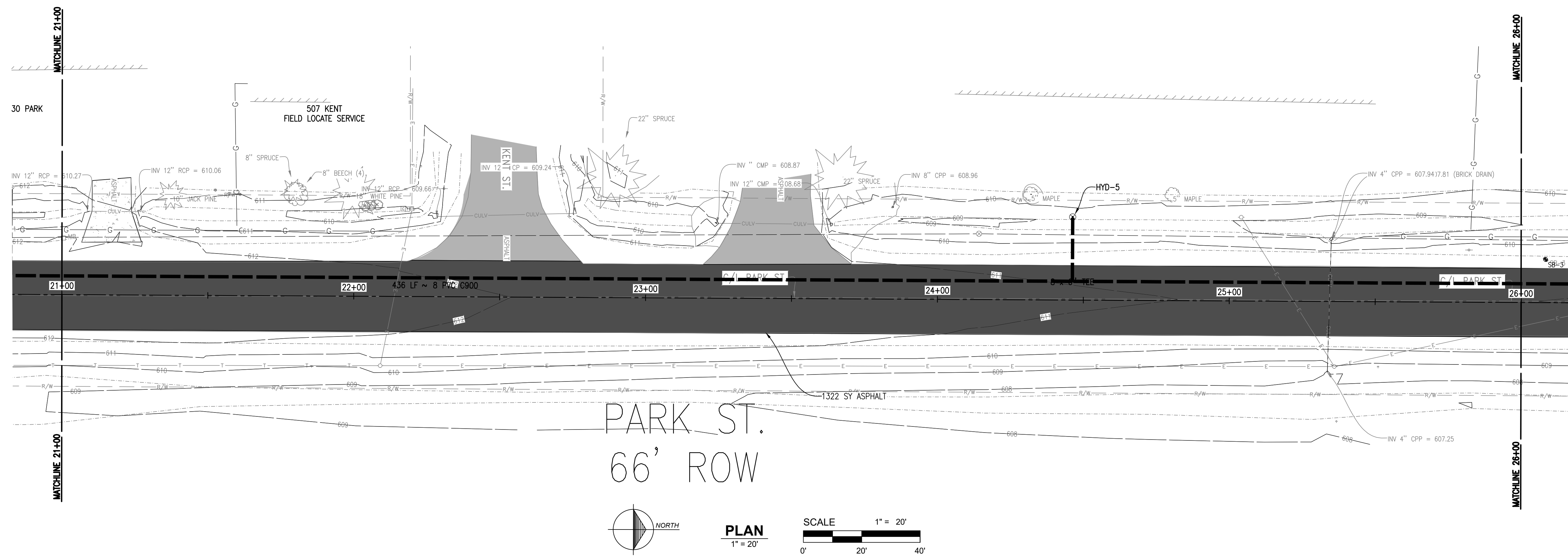
**PROFILE**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 2'

| No. | Date | Revision | By |
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STA. 16+00 TO STA. 21+00  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
 ELK RAPIDS

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 Designed By: TNK  
 Drawn By: TNK  
 Checked By: MUH  
 Scale: AS NOTED  
 Original sheet size is 22x34  
 Location: T29N R09W S21 VILLAGE OF ELK RAPIDS ANTRIM COUNTY MICHIGAN  
 Project Number: 2023150003  
 Sheet: 8





**PROFILE**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 2'

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**STA. 21+00 TO STA. 26+00**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
 ELK RAPIDS

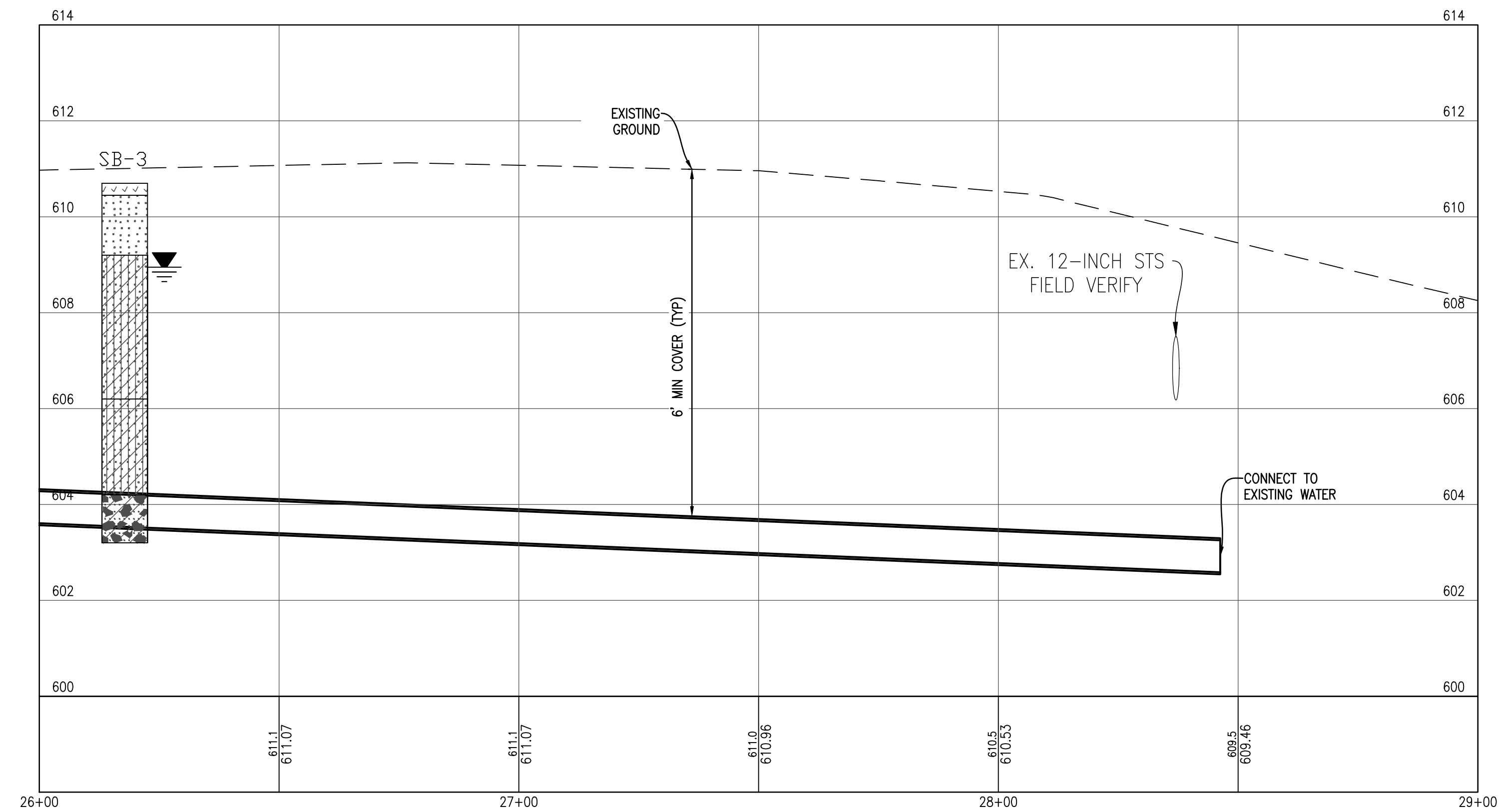
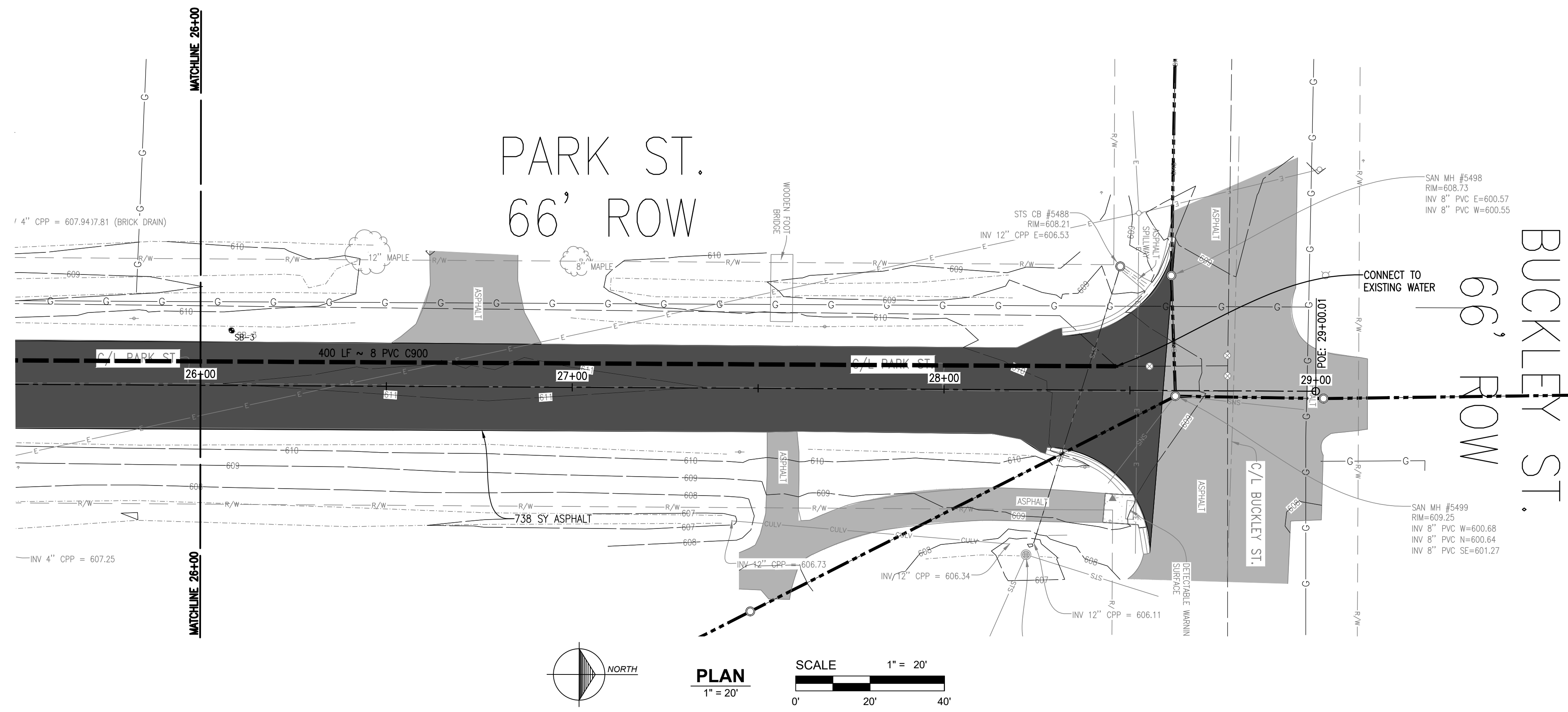
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Original sheet size is 22x34

Location:  
 T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number:  
 2023150003

Sheet:  
**9**



**PROFILE**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 2'

| No. | Date | Revision | By |
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**STA. 26+00 TO STA. 29+00**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
 ELK RAPIDS

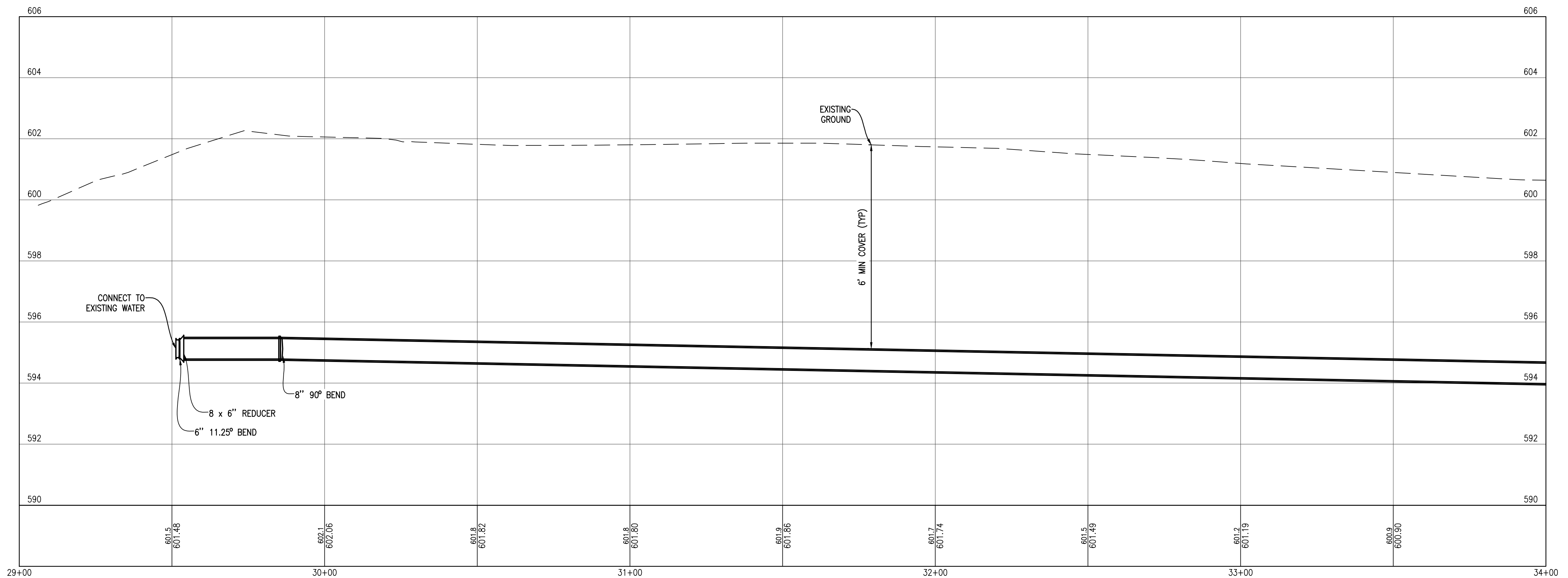
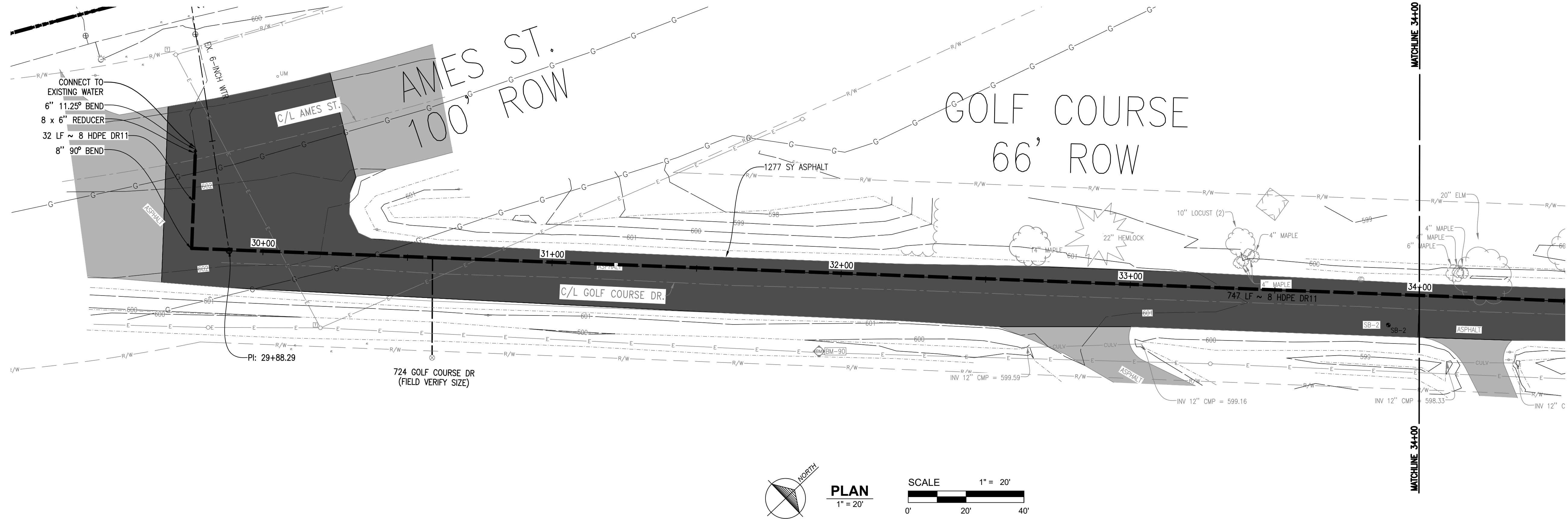
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| Date Surveyed: | 2023      |
| Designed By:   | TNK       |
| Drawn By:      | TNK       |
| Checked By:    | MUH       |
| Scale:         | AS NOTED  |

Location:  
 T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number:  
 2023150003

Sheet:  
**10**



| No. | Date | Revision | By |
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**STA. 29+00 TO STA. 34+00**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
 ELK RAPIDS

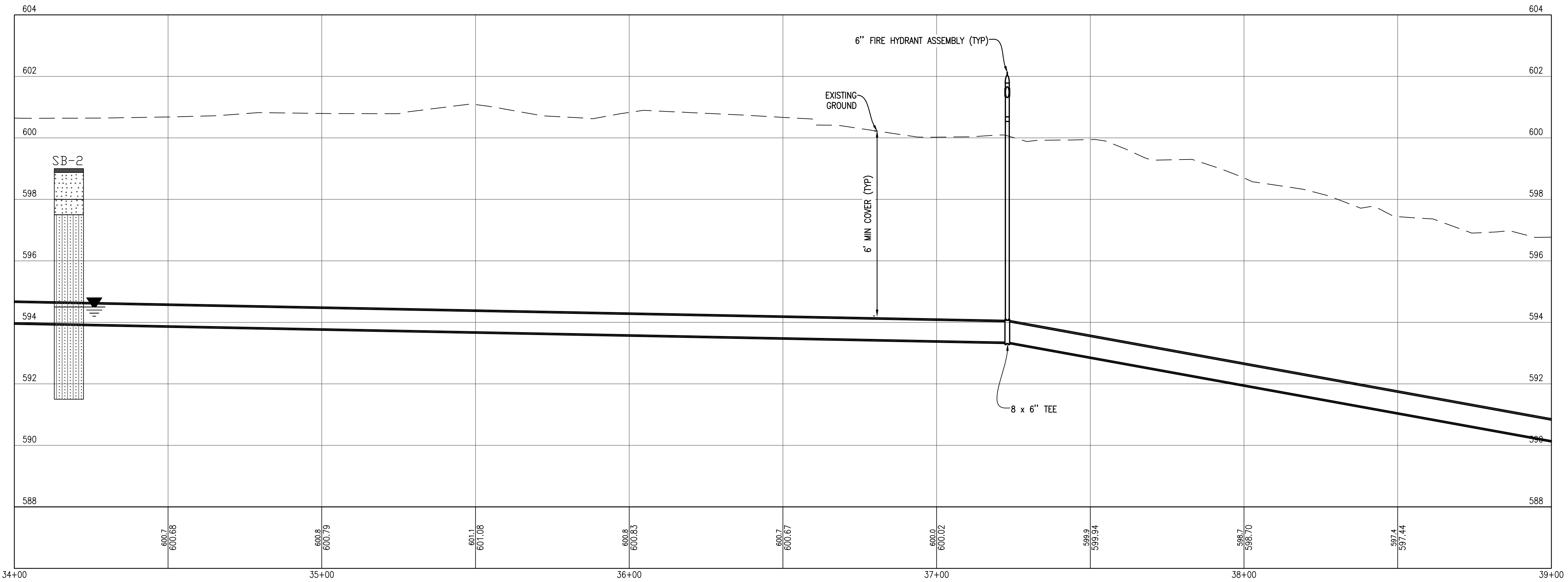
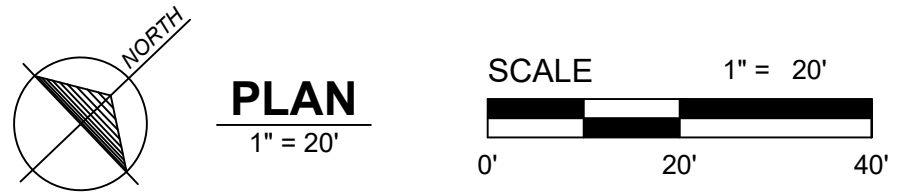
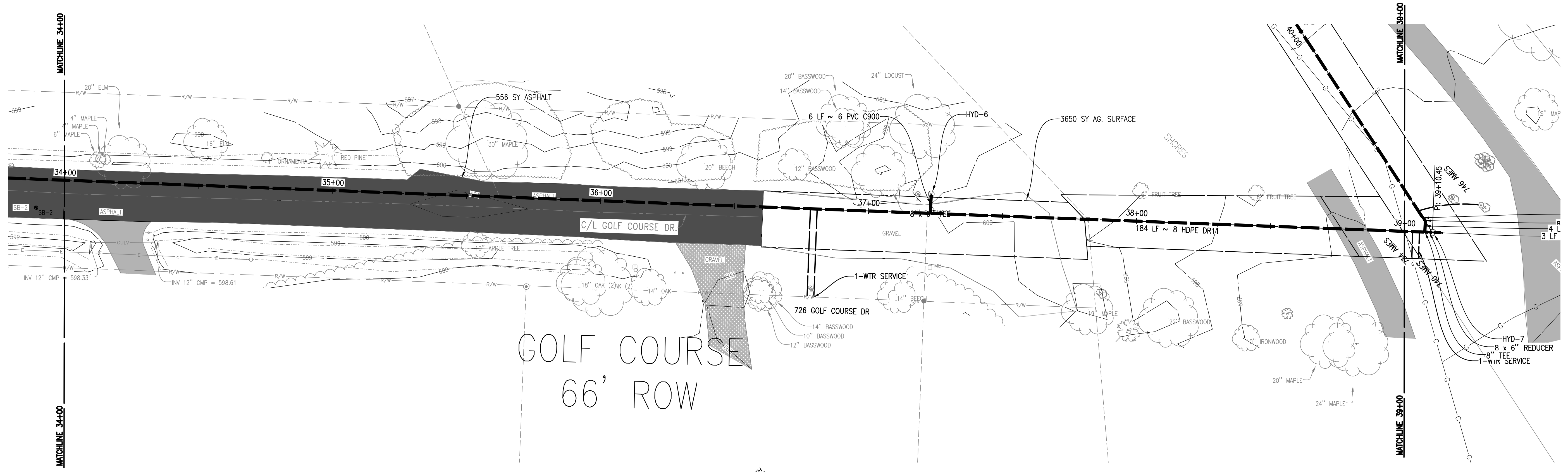
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Location:  
 T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number:  
 2023150003

Sheet:  
**11**



**PROFILE**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 2'

| No. | Date | Revision | By |
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**STA. 34+00 TO STA. 39+00**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
 ELK RAPIDS

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Location: T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number: 2023150003

Sheet: **12**

| No. | Date | Revision | By |
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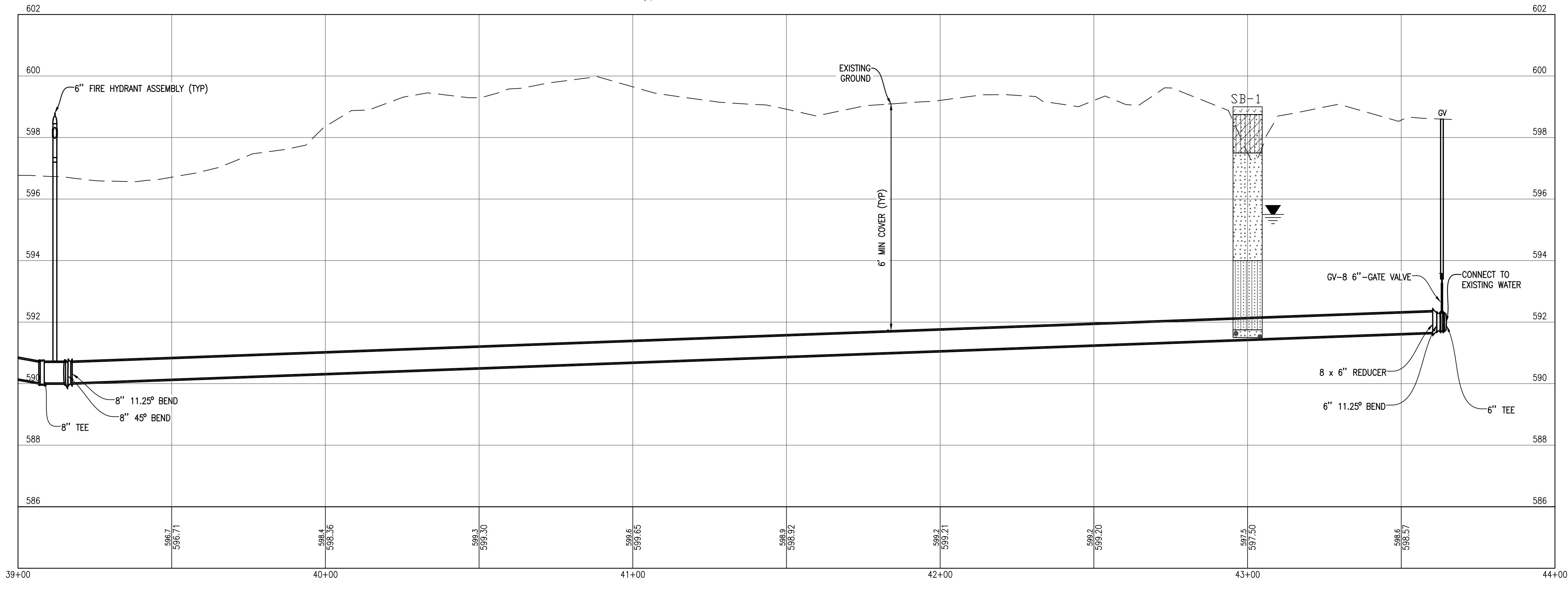
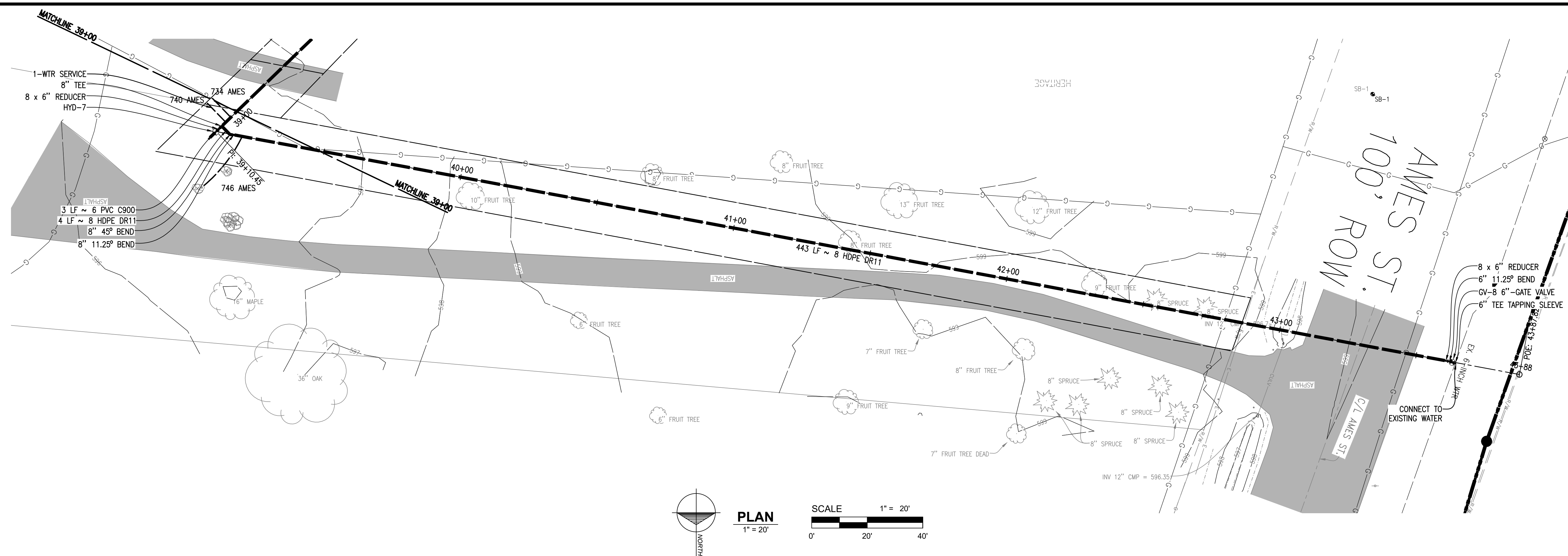
**STA. 39+00 TO STA. 44+00**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
**ELK RAPIDS**

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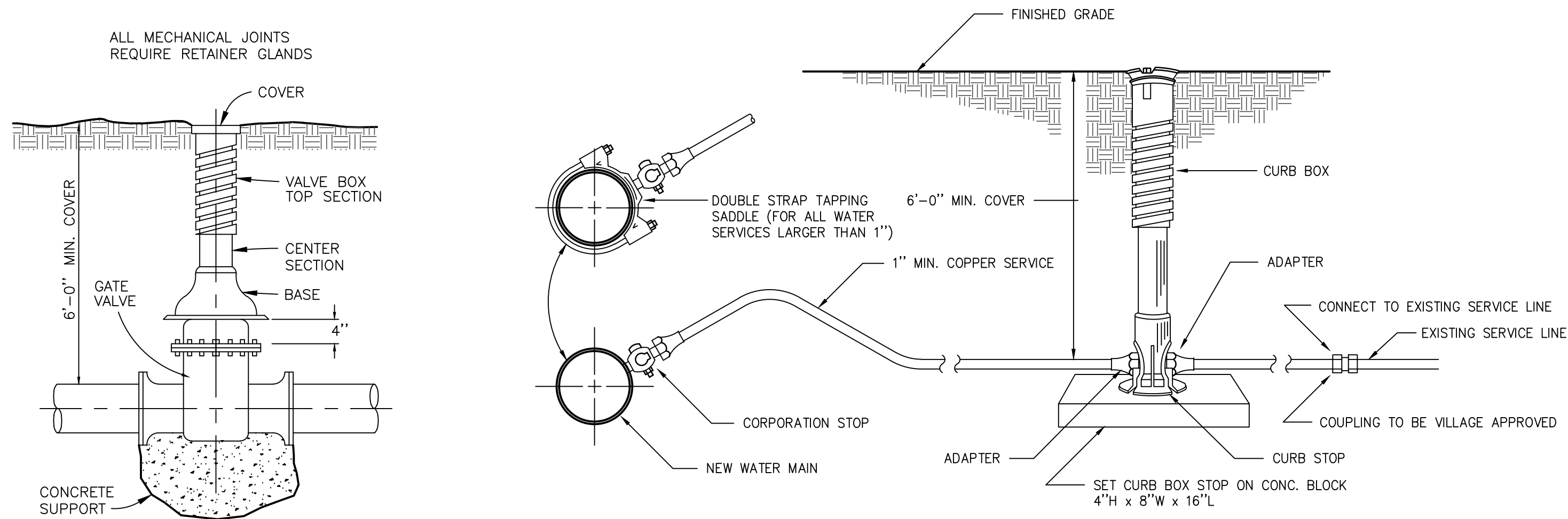
Sheet:  
**13**





**Gosling Czubak**  
 engineering sciences, inc.  
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 Traverse City, Michigan  
 231-946-9191 phone  
 info@goslingczubak.com  
 www.goslingczubak.com

CIVIL ENGINEERING  
 SURVEYING  
 ENVIRONMENTAL SERVICES  
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 DRILLING  
 LANDSCAPE ARCHITECTURE

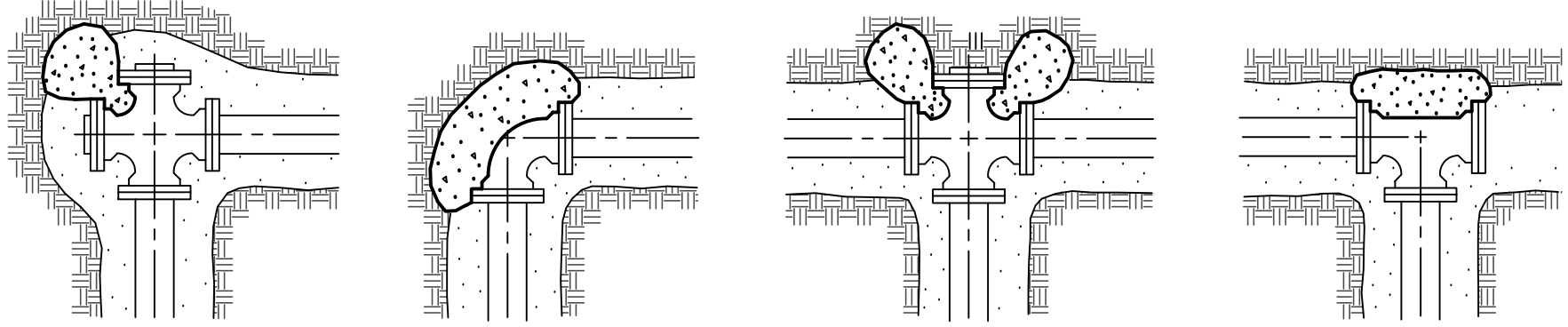


**VALVE BOX INSTALLATION DETAIL**

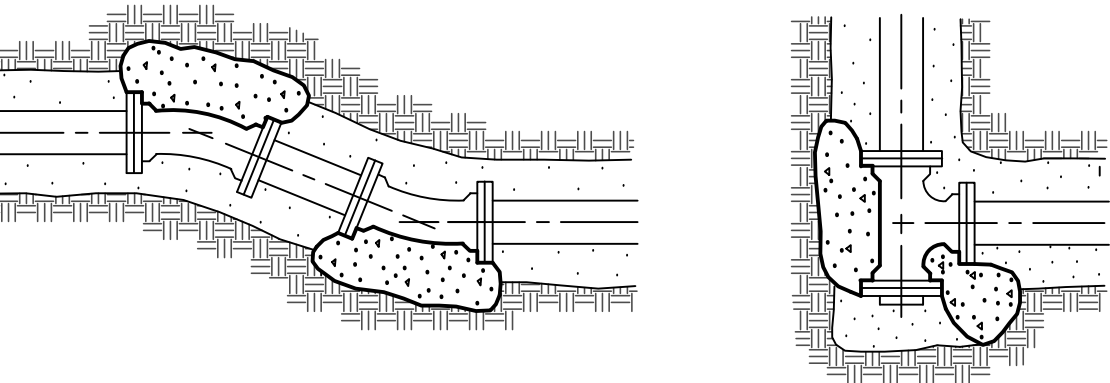
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**WATER MAIN SERVICE CONNECTIONS**

NOT TO SCALE

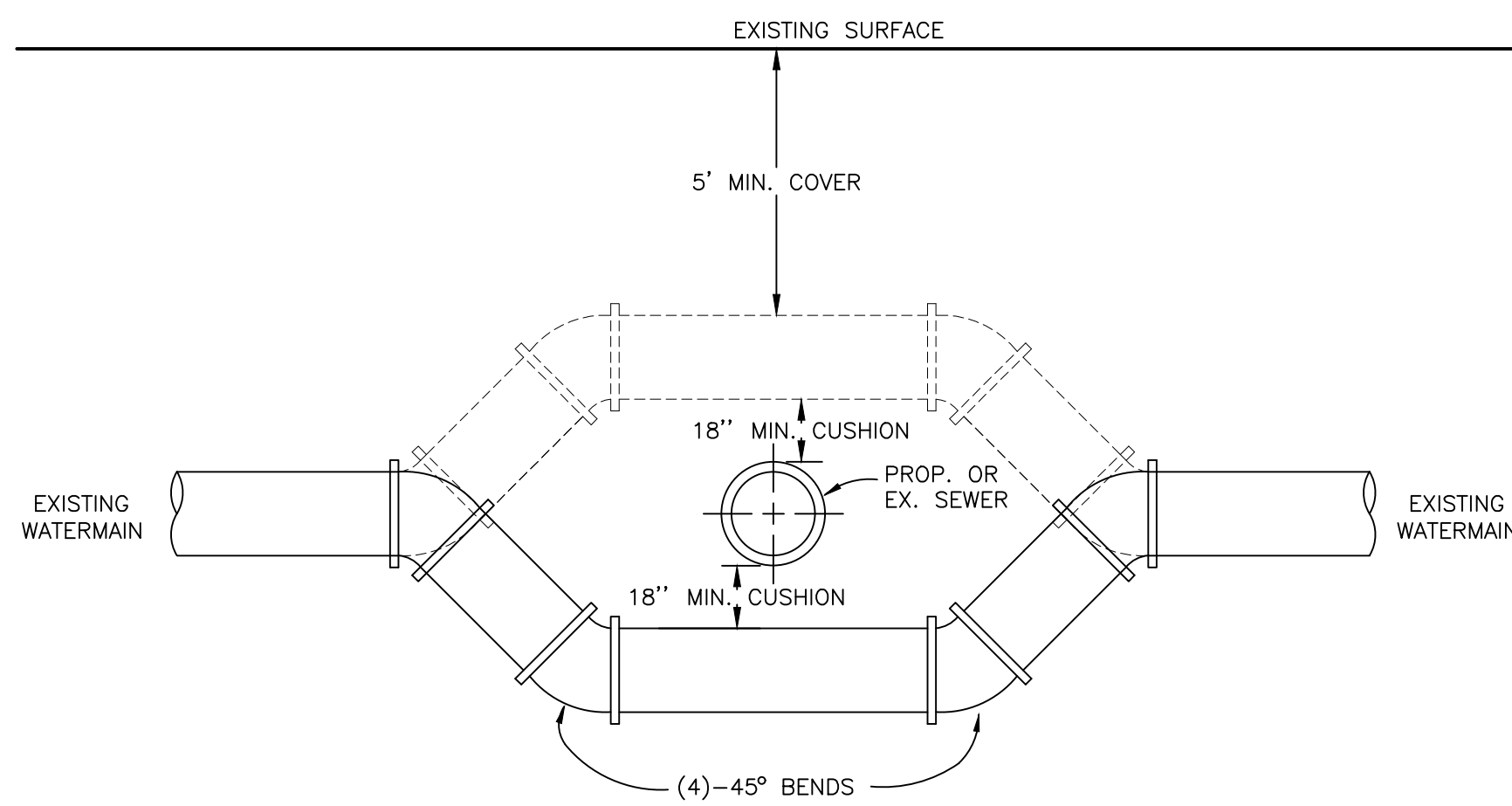


THE MINIMUM BEARING AREA, AGAINST UNDISTURBED EARTH, OF THE VARIOUS THRUST BLOCKS, SHALL BE AS FOLLOWS :  
 6" WATER MAIN 2.0 S.F.  
 8" WATER MAIN 3.0 S.F.  
 10" WATER MAIN 7.0 S.F.  
 12" WATER MAIN 8.0 S.F.  
 (BASED ON AN ALLOWED BEARING PRESSURE OF 2500 P.S.F.)  
 ALL THRUST BLOCKS ARE TO BE 3000 P.S.I. HIGH EARLY STRENGTH CONCRETE POURED AGAINST UNDISTURBED EARTH



**TYPICAL THRUST BLOCK DETAILS**

NO SCALE

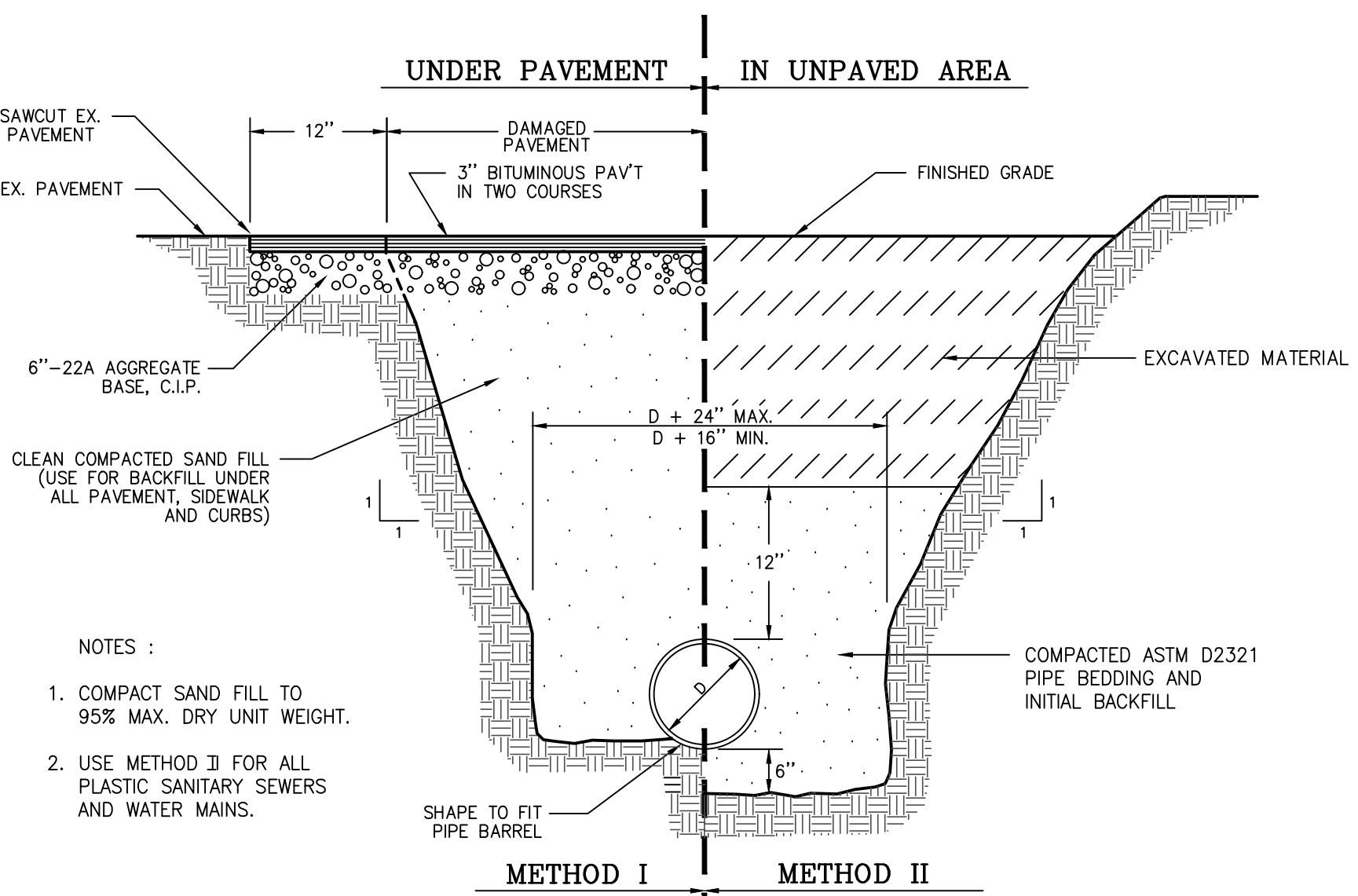


**NOTES:**

1. WHEN MINIMUM CLEARANCE AND COVER CANNOT BE OBTAINED, THE WATERMAIN IS TO BE OFFSET UNDER THE SEWER.
2. JOINT RESTRAINT SHALL BE OBTAINED BY RESTRAINED JOINT PIPE OR MEGA-LUG CONSTRUCTION.
3. THIS DETAIL ALSO USED FOR CROSSING COUNTY DRAINS.

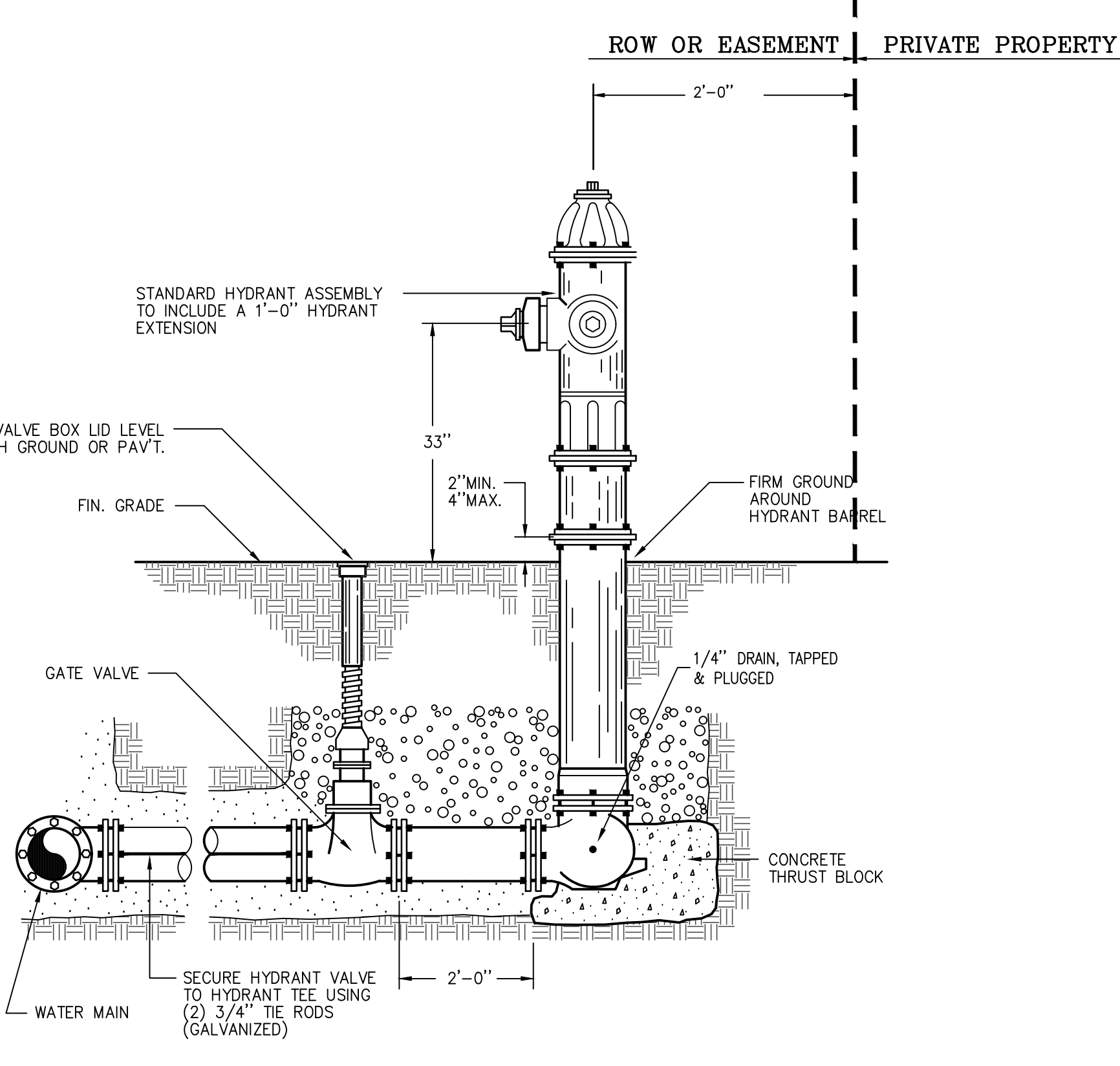
**WATER MAIN OFFSET DETAIL**

NOT TO SCALE



**TRENCH DETAIL**

NOT TO SCALE



**DETAIL-HYDRANT INSTALLATION**

NOT TO SCALE

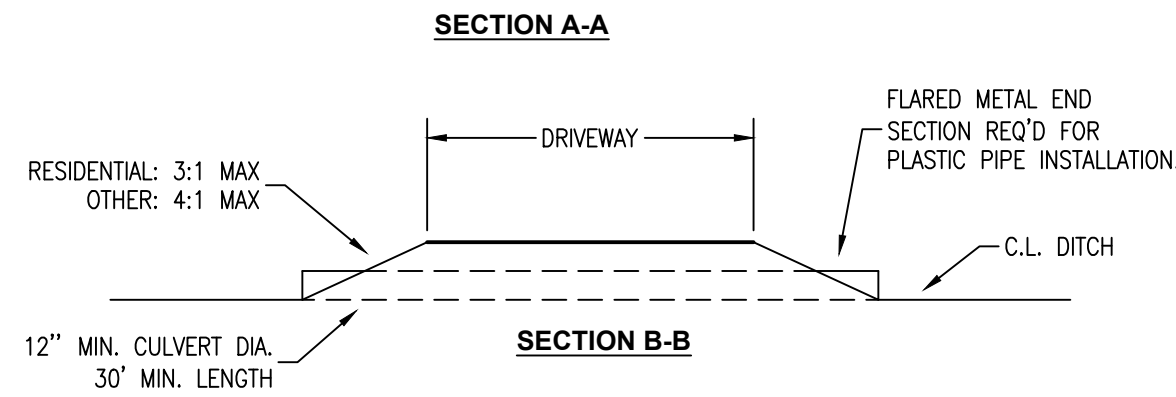
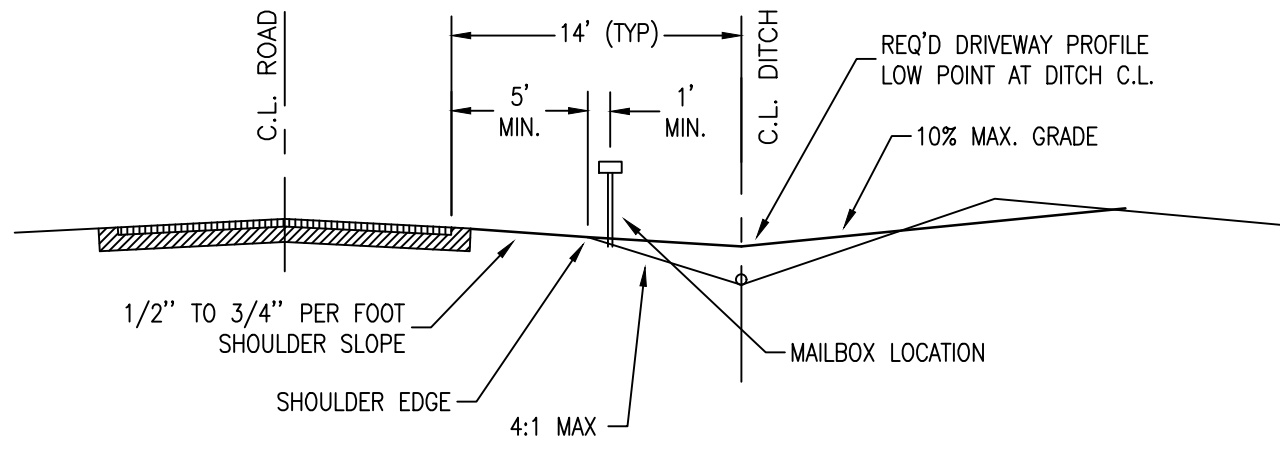
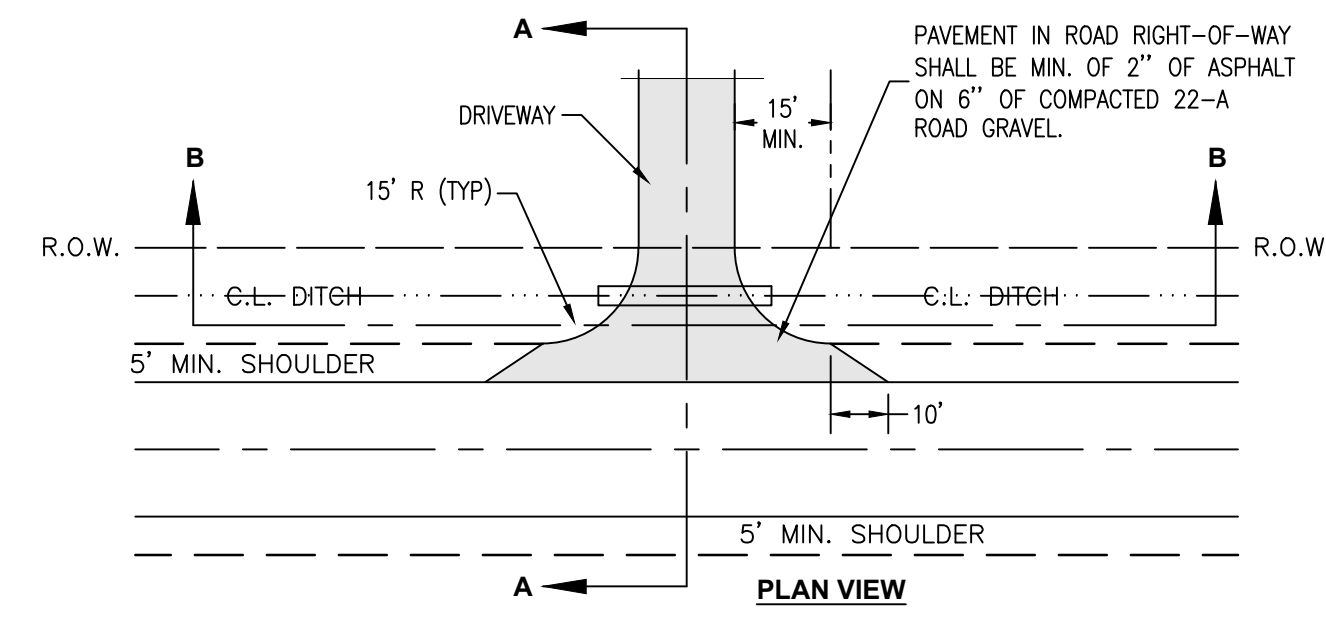
| No. | Date | By | Revision |
|-----|------|----|----------|
|     |      |    |          |
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|     |      |    |          |

**DETAILS 1**  
**WATER MAIN REPLACEMENT VARIOUS LOCATIONS**  
**VILLAGE OF ELK RAPIDS**

Date Issued: 2/26/2024  
 Date Surveyed: 2023  
 Designed By: TNK  
 Drawn By: TNK  
 Checked By: MJH  
 Scale: AS NOTED  
 Original sheet size is 22x34  
 Location: T29N R09W S21  
 VILLAGE OF ELK RAPIDS  
 ANTRIM COUNTY  
 MICHIGAN

Project Number:  
 2023150003

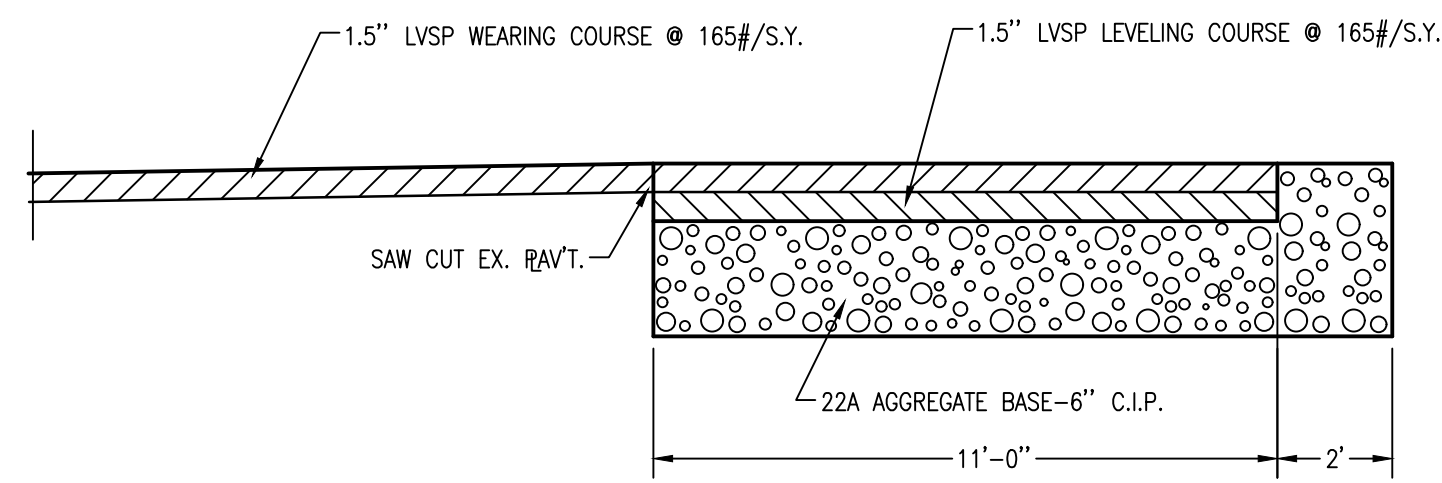
Sheet:  
**14**



**RESIDENTIAL DRIVEWAY APPROACH DETAIL**

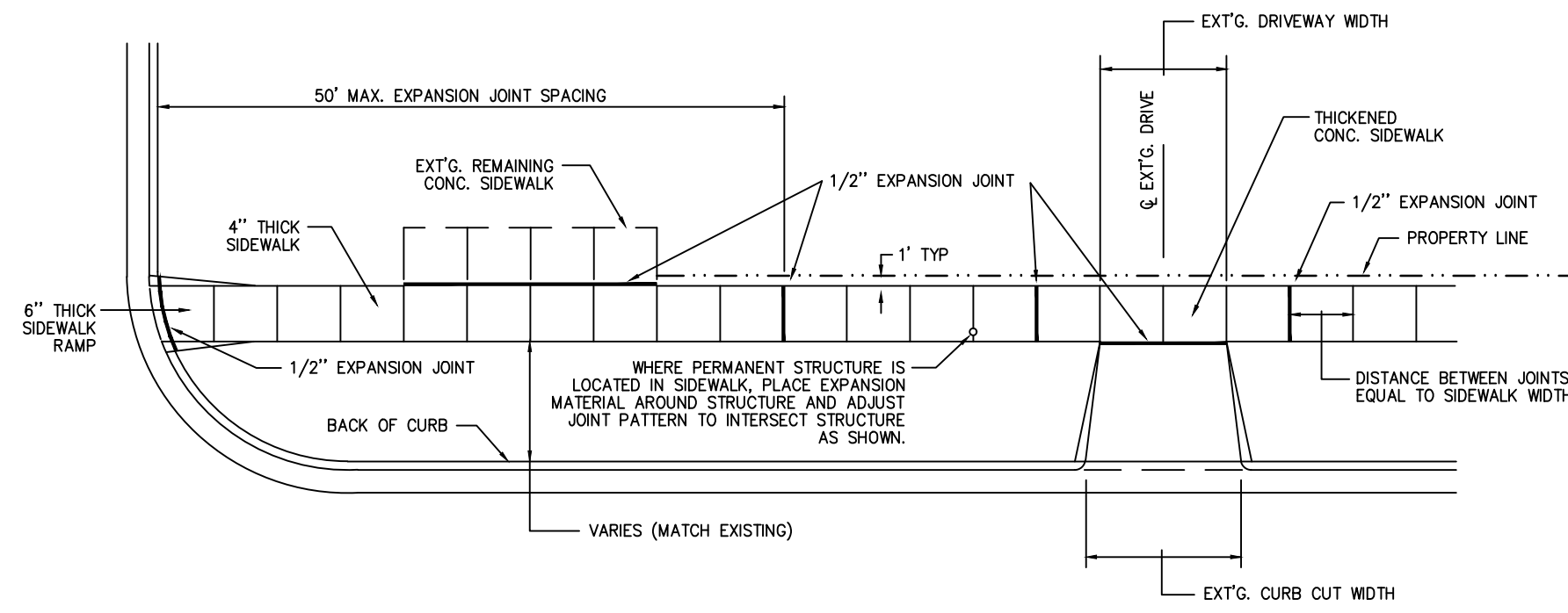
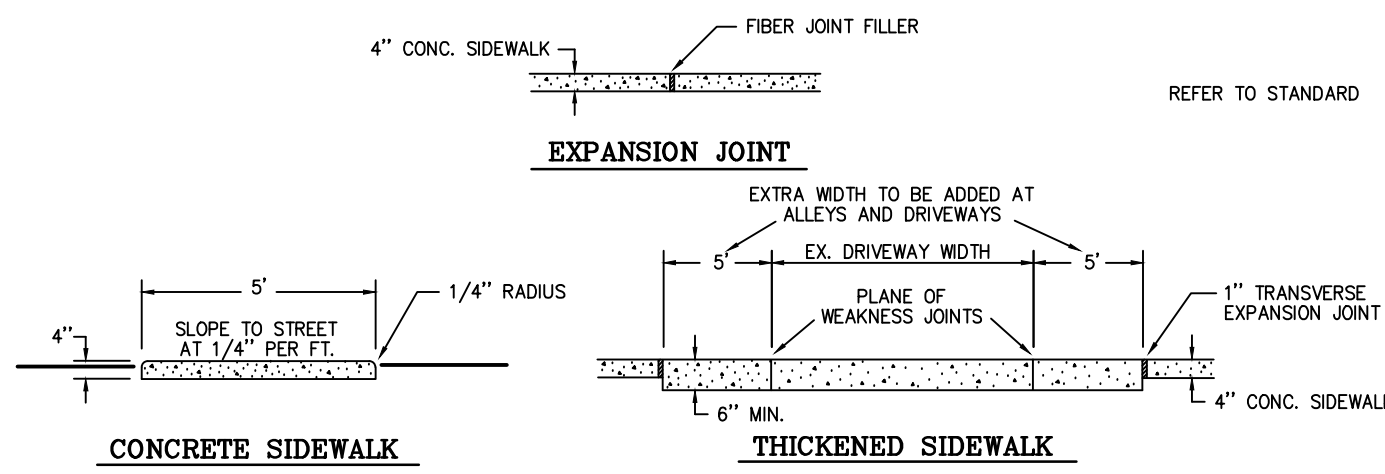
NOT TO SCALE

NOTE: THIS DETAIL APPLIES TO SINGLE FAMILY AND DUPLEX HOMES. ALL COMMERCIAL DRIVEWAYS AND MULTIPLE FAMILY DRIVEWAYS SHALL COMPLY WITH MDOT STANDARDS.



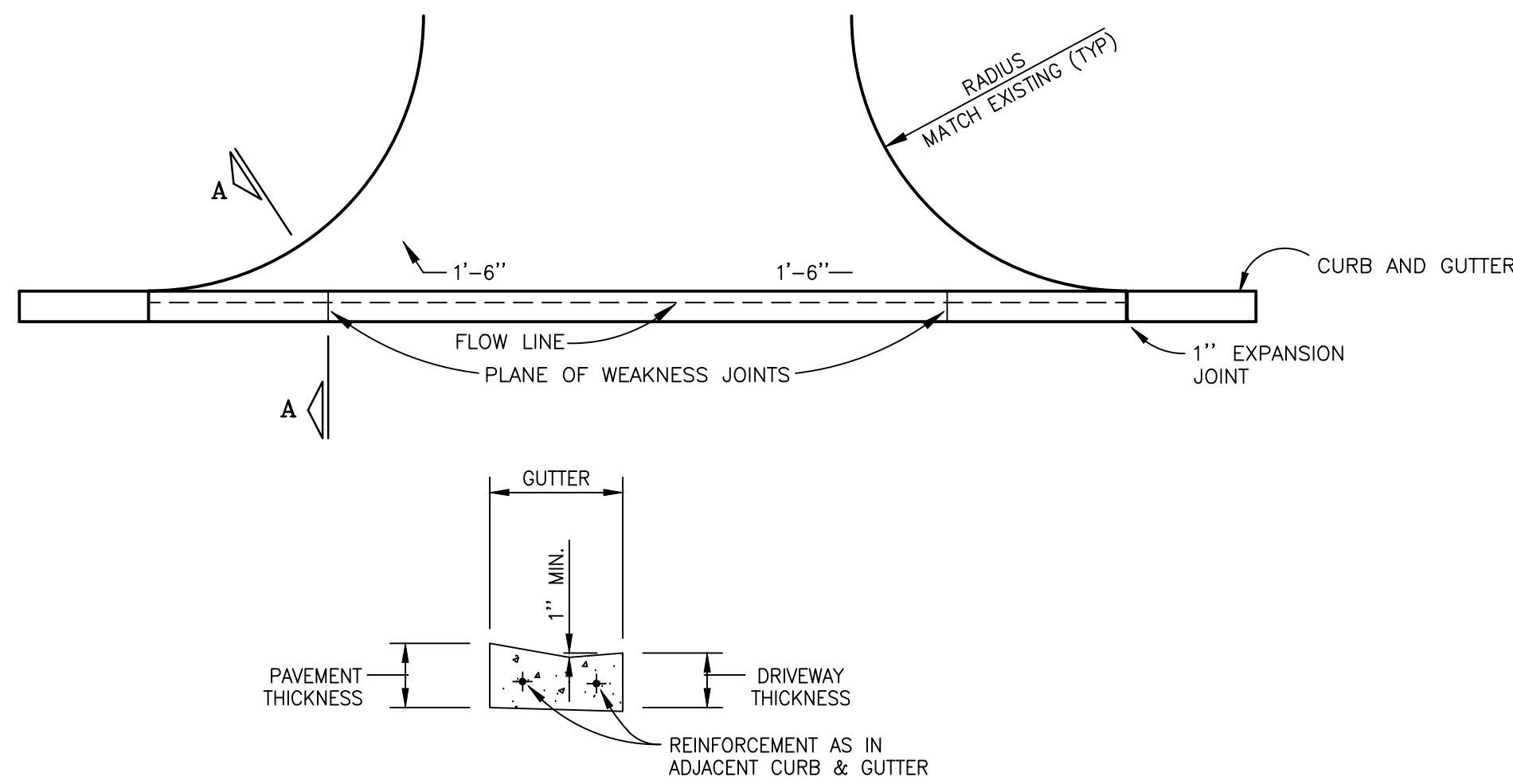
**TYPICAL SECTION PAVEMENT**

NOT TO SCALE



**CONCRETE SIDEWALK DETAILS**

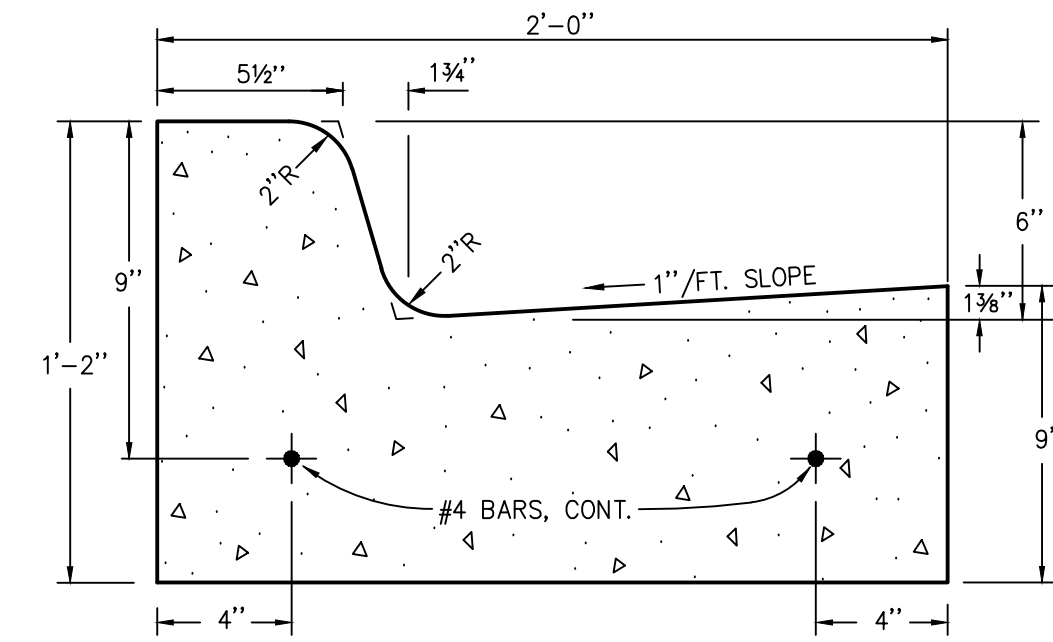
NOT TO SCALE



**SECTION A-A**

**DETAIL DRIVE OPENING**

NOT TO SCALE



**STANDARD M.D.O.T. "F4" CONCRETE CURB & GUTTER DETAIL**

NOT TO SCALE

| No. | Date | Revision | By |
|-----|------|----------|----|
|     |      |          |    |
|     |      |          |    |
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**DETAILS 2  
WATER MAIN REPLACEMENT VARIOUS LOCATIONS  
VILLAGE OF ELK RAPIDS**

|   |           |
|---|-----------|
| Date Issued:  | 2/26/2024 |
| Date Surveyed:  | 2023      |
| Designed By:  | TNK       |
| Drawn By:   | MJH       |
| Checked By:   | MJH       |
| Scale:  | AS NOTED  |
| Original sheet size is 22x34  |           |
| Location: T29N R09W S21<br>VILLAGE OF ELK RAPIDS<br>ANTRIM COUNTY<br>MICHIGAN |           |
| Project Number:<br>2023150003   |           |
| Sheet:<br><b>15</b>   |           |