

SCALE - 1"=50'

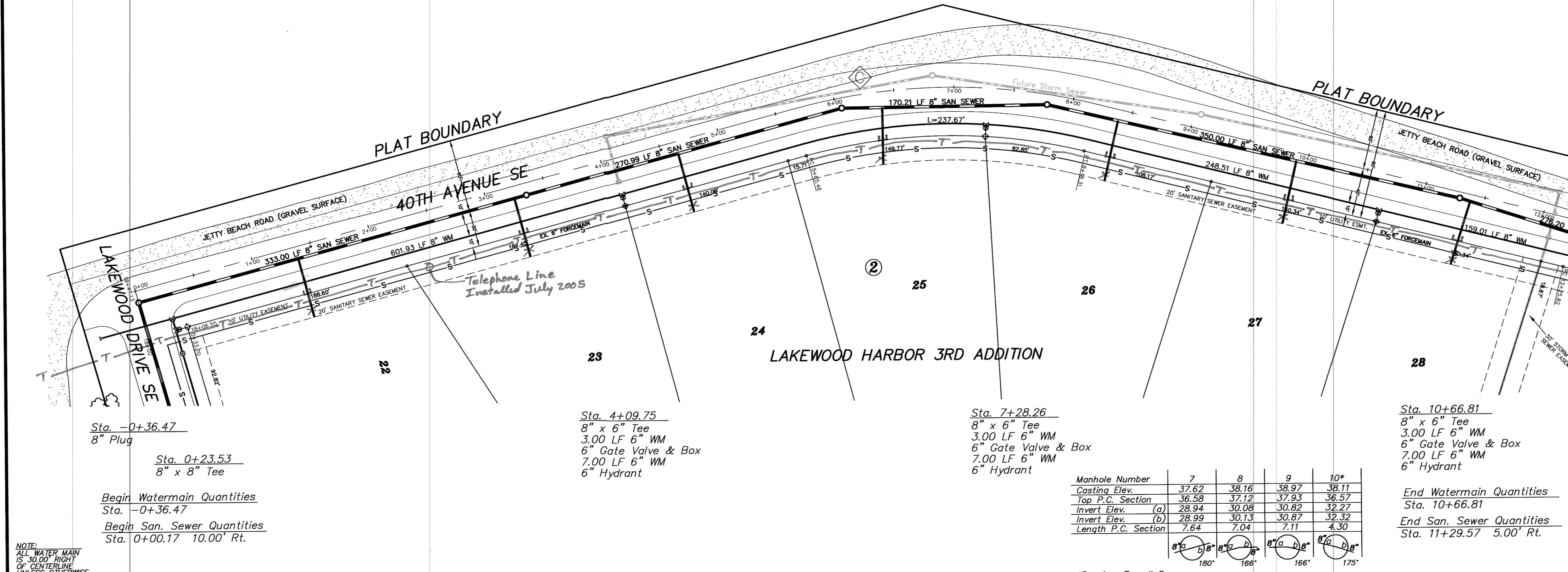
Sta. 0+00.17 10.00' Rt.  
=San. Sewer Sta. 3+49.51 Bk.  
=San. Sewer Sta. 0+00.00 Ahd.  
Manhole No. 6

Sta. 3+33.17 10.00' Rt.  
=San. Sewer Sta. 3+33.00 Bk.  
=San. Sewer Sta. 0+00.00 Ahd.  
Manhole No. 7

Sta. 6+04.87 8.47' Rt.  
=San. Sewer Sta. 2+70.99 Bk.  
=San. Sewer Sta. 0+00.00 Ahd.  
Manhole No. 8

Sta. 7+78.90 8.47' Rt.  
=San. Sewer Sta. 1+70.21 Bk.  
=San. Sewer Sta. 0+00.00 Ahd.  
Manhole No. 9

Sta. 11+29.57 5.00' Rt.  
=San. Sewer Sta. 3+50.00 Bk.  
=San. Sewer Sta. 0+00.00 Ahd.  
Manhole No. 10



- CONSTRUCTION NOTES (THIS SHEET)**
- BACKFILL SHALL BE CLASS 'A'.
  - THE PROFILE SHOWS THE EXISTING GROUND CENTERLINE OF THE STREETS. THE PLAN VIEW SHOWS THE EXISTING GROUND CONTOURS. THIS WILL BE THE CONDITION AT THE TIME OF CONSTRUCTION. UPON COMPLETION OF THE CONSTRUCTION OF THE WATER/SEWER THE EARTHWORK CONTRACTOR WILL BUILD THE STREETS UP TO THE PROPOSED CURB GRADES.
  - THE CONTRACTOR SHALL VERIFY THE ELEVATION OF THE GROUND WATER AT THE TIME OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DEWATERING OR SOIL STABILIZATION (OTHER THAN USING SUBCUT GRAVEL) OF THE CONSTRUCTION SITE AS REQUIRED TO INSTALL THE PROPOSED UTILITIES. IT IS EXPECTED THAT DEWATERING WILL BE REQUIRED TO STABILIZE THE TRENCH FOR THE CONSTRUCTION OF THE DEEPER PORTIONS OF THE SEWERMAINS.
  - THE STORM SEWER IS NOT PART OF THIS CONTRACT.
  - PROTECT ALL SURVEY MONUMENTS. MONUMENTS DISTURBED OR DESTROYED SHALL BE REPLACED BY THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
  - THE CONTRACTOR SHALL PROVIDE ALL SIGNAGE AND TRAFFIC CONTROL AS NECESSARY TO CONSTRUCT THE SANITARY SEWER AND WATERMAIN. THE CONTRACTOR SHALL PROVIDE ACCESS FOR THE RESIDENCE SOUTHWEST OF THE PROJECT AT ALL TIMES. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER BID ITEMS.
  - ALL HYDRANTS SHALL HAVE 8.5' BURY DEPTH AND THE HYDRANT NOZZLE SHALL BE 18" ABOVE THE FINAL PLAN GROUND ELEVATION.
  - THERE ARE APPROXIMATELY 10 TREES ALONG THE NORTHWEST SIDE OF THE PROJECT. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THEM OFFSITE. SAID WORK SHALL BE CONSIDERED INCIDENTAL TO THE LUMP SUM BID FOR "TREE REMOVAL".
  - THE SPEED LIMIT SIGN ON THE EAST SIDE OF 40TH AVENUE SE SHALL BE REMOVED, SALVAGED AND RELOCATED AS DIRECTED BY THE ENGINEER.
  - THERE ARE A NUMBER OF CROSSINGS OF THE EXISTING 6" SANITARY SEWER FORCEMAIN. PROVIDE ADDITIONAL CAUTION NOT TO DAMAGE THIS LINE.

Lot	Block	4" Sewer Service	4" 22 1/2 Bend	4" 45 Bend	8" x 4" Wye Branch	Sewer Service Invert At The Cap	1" Copper Service	1" Nipples Service	7" Box Valve	1 1/2" Box
22	2	50.0	7	1	28.95					
23	2	50.0	7	1	30.10					
24	2	50.0	7	1	30.31					
25	2	47.1	7	1	31.04					
26	2	50.9	7	1	31.92					
27	2	53.0	7	1	32.54					
<b>TOTAL</b>		<b>301.0</b>	<b>6</b>	<b>6</b>						

Note: Sewer Services Shorten by 20' each. Cap is at the property line.

**APPROXIMATE WYE LOCATIONS**

STATION	DIRECTION	LOT	BLOCK
FROM MANHOLE 6 TO MANHOLE NO. 7			
1+3	E	22	2
3+23	E	23	2
FROM MANHOLE NO. 7 TO MANHOLE NO. 8			
1+30	E	24	2
FROM MANHOLE NO. 8 TO MANHOLE NO. 9			
0+38	SE	25	2
FROM MANHOLE 9 TO MANHOLE NO. 10			
0+60	SE	26	2
2+11	SE	27	2

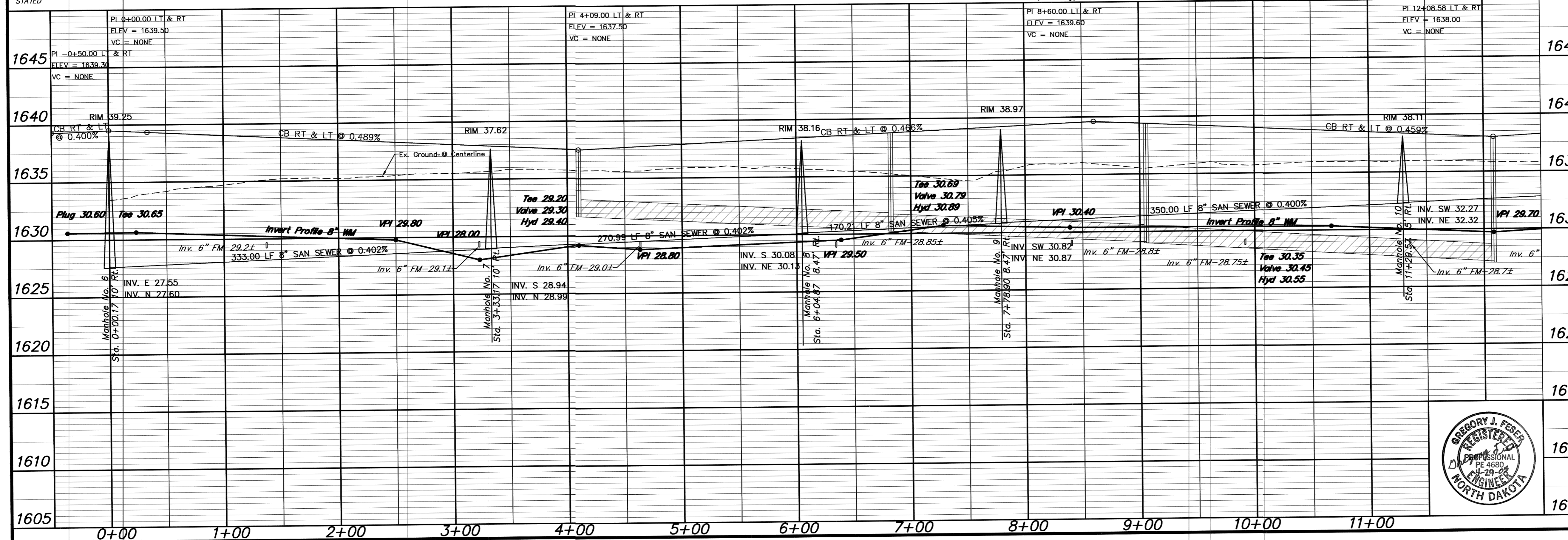
Manhole Number	7	8	9	10*
Costing Elev.	37.62	38.16	38.97	38.11
Top P.C. Section	36.58	37.12	37.93	36.57
Invert Elev. (a)	28.94	30.08	30.82	32.27
Invert Elev. (b)	28.99	30.13	30.87	32.32
Length P.C. Section	7.64	7.04	7.11	4.30

Sta. 10+66.81  
8" x 6" Tee  
3.00 LF 6" WM  
6" Gate Valve & Box  
7.00 LF 6" WM  
6" Hydrant

End Watermain Quantities  
Sta. 10+66.81

End San. Sewer Quantities  
Sta. 11+29.57 5.00' Rt.

NOTE:  
ALL WATER MAIN IS 30.00' RIGHT OF CENTERLINE UNLESS OTHERWISE STATED



**CURVE DATA**

CURVE	RADIUS	LENGTH	TANGENT	DELTA
C	500.00'	252.84'	129.19'	28°58'26"

**APPROXIMATE QUANTITIES**

San. Sewer Items	Quantity
8" Sanitary Sewer	1124 LF
8" x 4" Wye Branch	6 EA
Concrete Manhole	4 EA
4" Sewer Service Pipe	301 LF
4" 45° Bend	6 EA
Tree Removal	1 LS

Watermain Items	Quantity
6" PVC Watermain	30 LF
8" PVC Watermain	1088 LF
6" Hydrant	3 EA
6" Gate Valve & Box	3 EA
Ductile Iron Fittings	(incidental)

**SWENSON, HAGEN & COMPANY P.C.**

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**40TH AVENUE SE**  
FROM THE INTERSECTION OF LAKEWOOD DRIVE SE  
NORTH TO 280' SW OF BEACHFRONT PLACE SE

WATER AND SEWER IMPROVEMENT PROJECT 2005-17  
SHEET NO. 4 OF 8  
MANDAN, ND APRIL 22, 2005

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