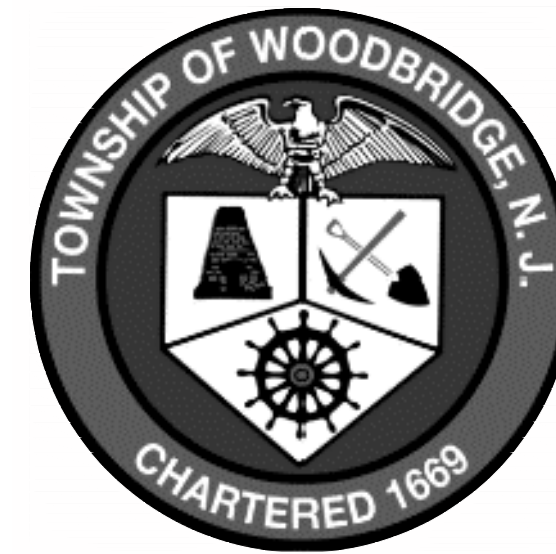


CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I

TOWNSHIP OF WOODBRIDGE MIDDLESEX COUNTY, NEW JERSEY MARCH, 2024 CONTRACT NO. 2024-006



UTILITIES

ELECTRIC
PUBLIC SERVICE ELECTRIC AND GAS CO.
472 WESTON CANAL ROAD
SOMERSET, NJ 08873

CABLE
COMCAST CABLE
800 RAHWAY AVENUE
UNION, NJ 07083

WATER
MIDDLESEX WATER COMPANY
ENGINEERING DEPARTMENT
1500 RONSONI ROAD, P.O. BOX 1500
ISELIN, NJ 08830-452

TELEPHONE/COMMUNICATIONS
VERIZON-NEW JERSEY, INC.
999 WEST MAIN STREET
FREEHOLD, NJ 07728

SANITARY SEWER
TOWNSHIP OF WOODBRIDGE
DIVISION OF ENGINEERING
1 MAIN STREET
WOODBRIDGE, NJ 07095

UNDERGROUND LOCATION SERVICE CALL: 1-800-272-1000.

GAS
BUCKEYE PARTNERS, LP
9999 HAMILTON BOULEVARD
BREINGSVILLE, PA 18031
(610) 283-1701

ELIZABETH GAS CO.
520 GREEN LANE
UNION, NJ 07083

**MIDDLESEX COUNTY UTILITIES
AUTHORITY**
2571 MAIN STREET P.O. BOX 1500
SAYREVILLE, NJ 08872

WILLIAM GAS PIPELINE-TRANSCO
99 FARBER ROAD
PRINCETON, NJ 08540

TEXAS EASTERN GAS PIPELINE
501 COOLIDGE STREET
SOUTH PLAINFIELD, NJ 07080

JOHN E. McCORMAC - MAYOR

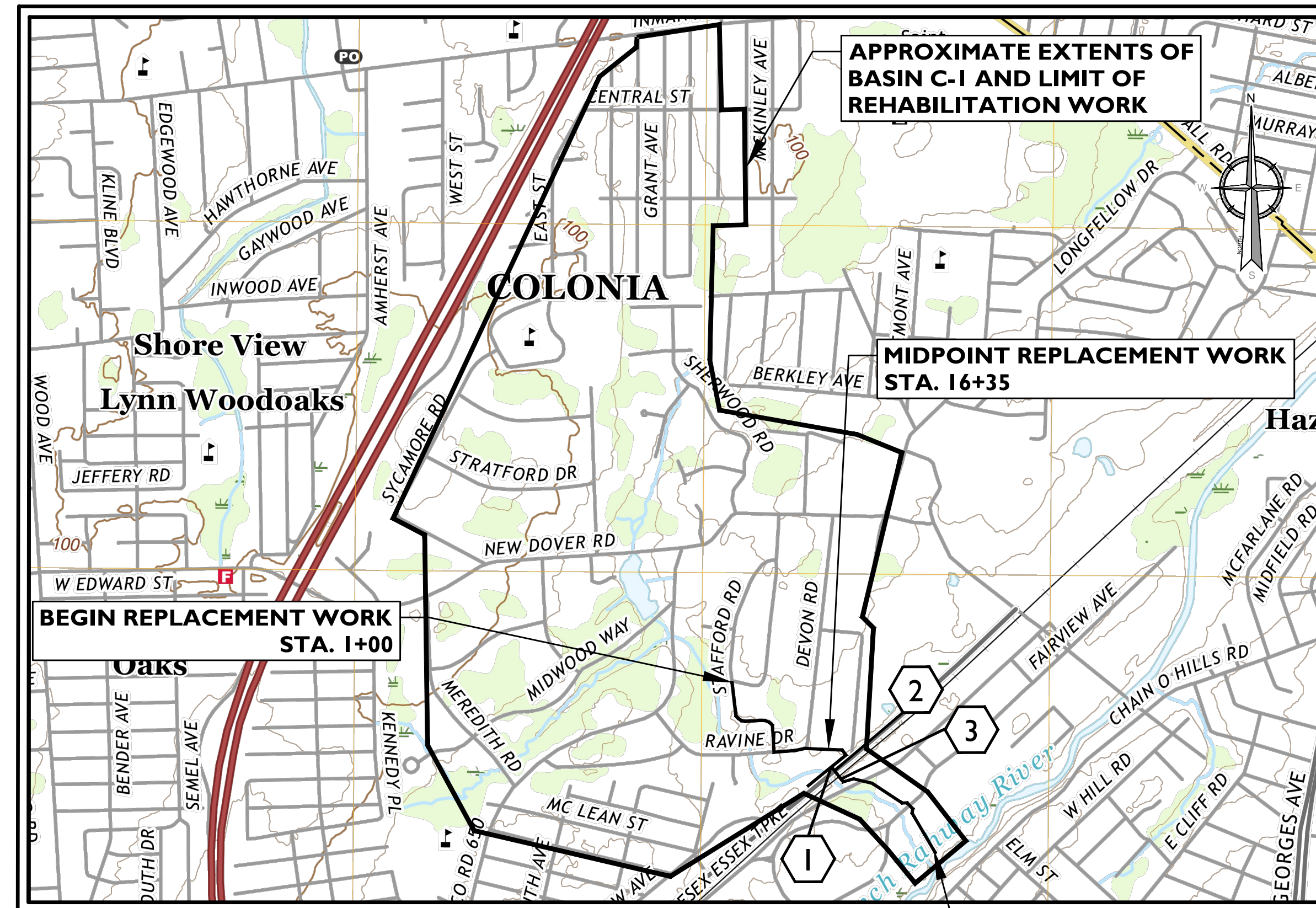
TOWNSHIP COUNCIL

CORY SPILLAR
SHARON MCAULIFFE
HOWIE BAUER
VIRBHADRA N. PATEL
DEBBIE MEEHAN
KYLE ANDERSON
LIZBETH DEJESUS
GREGG M. FICARRA
BRIAN SMALL

COUNCIL PRESIDENT - THIRD WARD
COUNCIL VICE PRESIDENT - FIRST WARD
COUNCILMAN - SECOND WARD
COUNCILMAN - FOURTH WARD
COUNCILWOMAN - FIFTH WARD
COUNCILMAN-AT-LARGE
COUNCILWOMAN-AT-LARGE
COUNCILMAN-AT-LARGE
COUNCILMAN-AT-LARGE

VITO CIMILLUCA
JOHN M. MITCH
JAMES P. NOLAN, JR., ESQ.
GEORGE BREW
MICHAEL GELIN, PE

BUSINESS ADMINISTRATOR
MUNICIPAL CLERK
DIRECTOR OF LAW
DIRECTOR OF PUBLIC WORKS
MUNICIPAL ENGINEER



LOCATION MAP

1" = 1000'

SOURCE: USGS 7.5 MINUTE QUADRANGLE, PERTH AMBOY, NJ
LENGTH OF REPLACEMENT WORK = 3,270 LINEAR FEET OR 0.62 MILES

MIDPOINT OF REPLACEMENT WORK
LONGITUDE: 74° 18' 40" W
LATITUDE: 40° 34' 50" N

INDEX OF SHEETS	
SHT. No.	DESCRIPTION
1	COVER SHEET
2	GENERAL NOTES & LEGEND
3	CONSTRUCTION NOTES
4	ESTIMATE-DISTRIBUTION OF QUANTITIES
5	KEY PLAN
6	SANITARY SEWER PLAN & PROFILE (STA. 1+00 - STA. 7+65)
7	SANITARY SEWER PLAN & PROFILE (STA. 7+65 - STA. 15+00)
8	SANITARY SEWER PLAN (STA. 15+00 - STA. 22+50)
9	SANITARY SEWER PROFILE (STA. 15+00 - STA. 22+50)
10	SANITARY SEWER PLAN & PROFILE (STA. 22+50 - STA. 30+00)
11	SANITARY SEWER PLAN & PROFILE (STA. 30+00 - STA. 33+70)
12	SANITARY SEWER PLAN & PROFILE - STREAM CROSSING (STA. 0+00A - STA. 2+13A)
13	CONSTRUCTION DETAILS
14	CONSTRUCTION DETAILS
15	SOIL EROSION AND SEDIMENT CONTROL NOTES
16	SOIL EROSION AND SEDIMENT CONTROL DETAILS
17	SOIL EROSION AND SEDIMENT CONTROL DETAILS
18	SOIL EROSION AND SEDIMENT CONTROL PLAN
19	SOIL EROSION AND SEDIMENT CONTROL PLAN
20	SOIL EROSION AND SEDIMENT CONTROL PLAN
21	INFLOW AND INFILTRATION IMPROVEMENTS PLAN
22	INFLOW AND INFILTRATION IMPROVEMENTS PLAN
23	INFLOW AND INFILTRATION IMPROVEMENTS PLAN
24	INFLOW AND INFILTRATION IMPROVEMENTS PLAN

CHANGES MADE TO THESE PLANS SINCE SIGNATURE BY THE ENGINEER MAY BE DETERMINED BY COMPARISON OF THE PLANS FILED AT THE DEPARTMENT WITH THOSE FILED AT THE OFFICE OF THE ENGINEER.

THE NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD ROADWAY CONSTRUCTION/TRAFFIC CONTROL/BRIDGE CONSTRUCTION DETAILS BOOKLET DATED 2016 AND ELECTRICAL BUREAU STANDARD DETAILS (2007) TO GOVERN, EXCEPT FOR THOSE DETAILS CONTAINED HEREIN.

2019 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION TO GOVERN ALONG WITH TOWNSHIP CONSTRUCTION SPECIFICATIONS.

DESIGN OF THE SANITARY SEWER IS IN ACCORDANCE WITH ALL AGENCIES HAVING JURISDICTION. CONSTRUCTION SHALL ADHERE TO, INCLUDING BUT NOT LIMITED TO REGULATIONS PUBLISHED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), NFPA, UNIFORM BUILDING CODE (UBC), NEMA, AND OTHERS AS APPLICABLE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL PERMIT REQUIREMENTS INCLUDED IN THIS CONTRACT

CROSSINGS IN THIS CONTRACT	
1	SOUTH BRANCH OF THE RAHWAY RIVER TRIBUTARY
2	ROUTE 27 (AKA LINCOLN HIGHWAY)
3	AMTRAK NORTHEAST CORRIDOR LINE

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION PERMITS IN THIS CONTRACT		
PERMIT TYPE	PERMIT NO.	APPROVAL DATE
TREATMENT WORKS APPROVAL	24-0230	9/10/2024
FRESH WATER WETLANDS GENERAL PERMIT 2	1225-19-0003.2 LUP24001	1/26/2025
GREEN ACRES	SHC-1200052	2/13/2025

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REV	DATE	DESCRIPTION	DRAWN BY	DATE	REVISED PER NADP COMPLIANCE ITEMS	DATE	REVISED PER NADP COMPLIANCE ITEMS	DATE	REVISED PER NADP COMPLIANCE ITEMS	DATE	REVISED PER NADP COMPLIANCE ITEMS	DATE	REVISED PER NADP COMPLIANCE ITEMS	DATE	REVISED PER TOWNSHIP COMMENTS
1	5/14/24		DJI												
2	5/20/24		JL												
3	6/25/24		DJI												
4	6/24/24		DJI												
5	8/27/24		DJI												
6	8/26/24		DJI												
7	10/25/24		DJI												
8	5/9/25		DJI												

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR STAFFORD ROAD
SANITARY SEWER REPLACEMENT AND REHABILITATION
PHASE I

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

HOLMDEL (Headquarters)
101 Crawford's Corner Road,
Suite 3400
Holmdel, NJ 07733
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTANTS

SCALE AS SHOWN	DATE: 02/21/24	DRAWN BY: DJI	CHECKED BY: RAP
PROJECT NUMBER: 220052296	DRAWING NAME: W-CVER		

COVER SHEET

SHEET NUMBER: 1 of 24

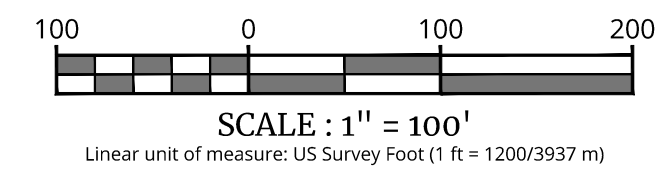
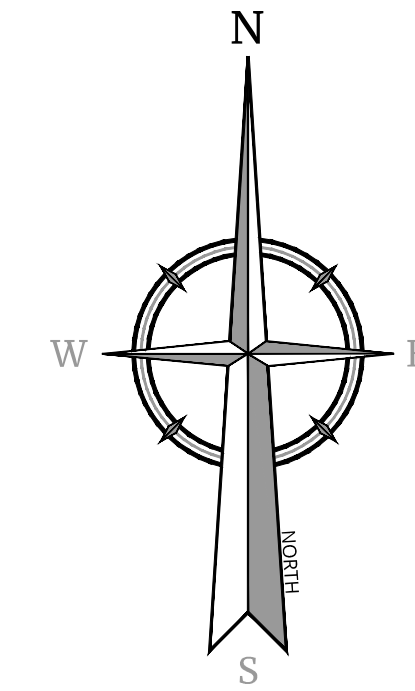
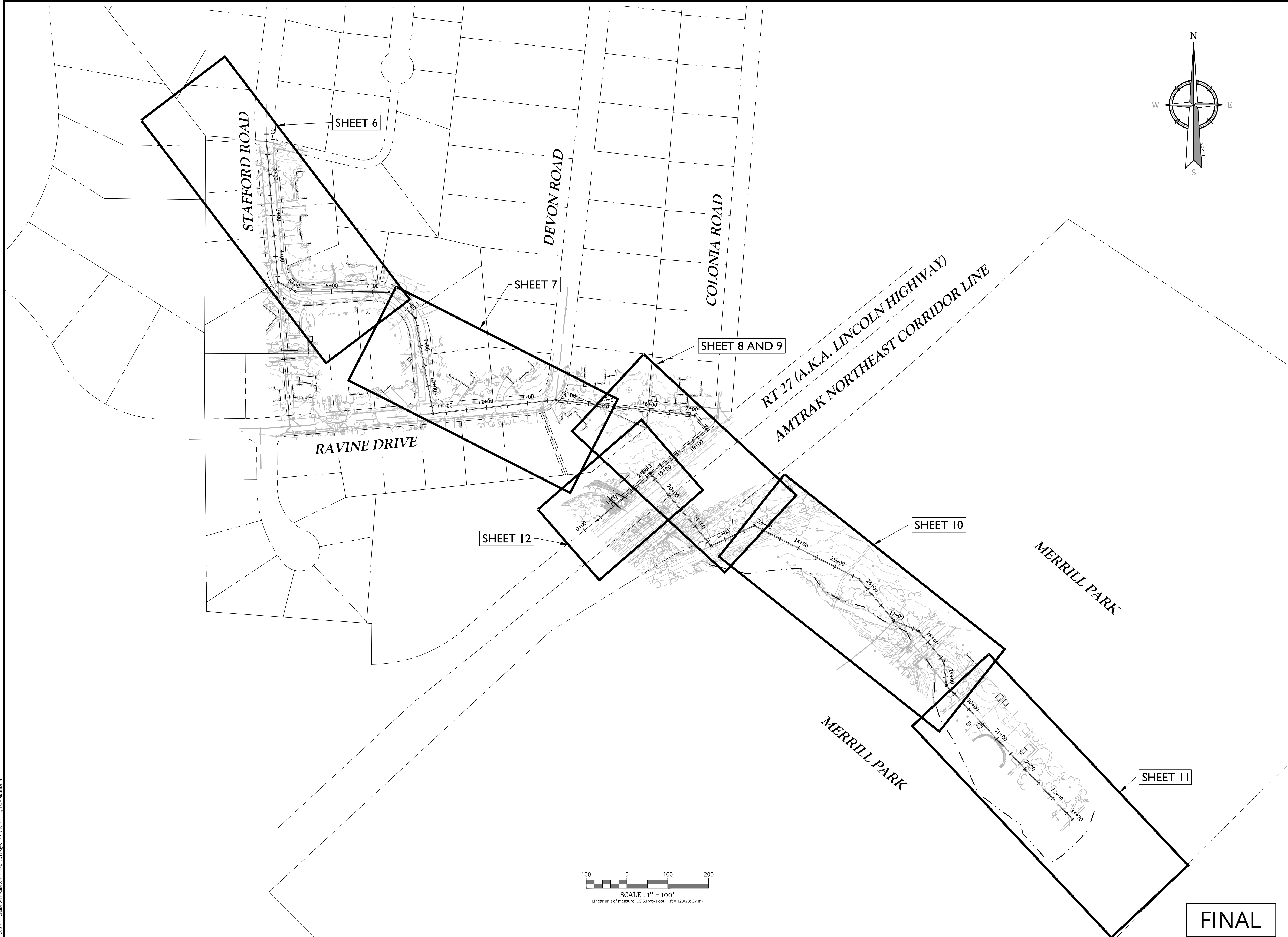
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TOWNSHIP OF WOODBRIDGE

COUNTY OF MIDDLESEX

ESTIMATE-DISTRIBUTION OF QUANTITIES

ITEM NUMBER	DESCRIPTION	UNIT	CONTRACT TOTAL	IF & WHERE DIRECTED	CONSTRUCTION PLANS														ITEM NUMBER
					SHEET 6	SHEET 7	SHEET 8	SHEET 10	SHEET 11	SHEET 12	SHEET 17	SHEET 18	SHEET 19	SHEET 20	SHEET 21	SHEET 22	SHEET 23	SHEET 24	
1	CLEARING SITE & MOBILIZATION																		1
A.	Clearing Site	LS	1																A.
B.	Mobilization	LS	1																B.
2	SOIL EROSION & SEDIMENT CONTROL																		2
A.	Inlet Filters	UN	8									8							A.
B.	Silt Fence	LF	3,600									250	1,200	2,150					B.
C.	Remove and Restore Rip Rap Slope Protection in Kind	SY	150											150					C.
D.	Stabilized Construction Access	SY	600																D.
E.	Floating Turbidity Barrier	UN	2								100	135	65	300					E.
F.	Stream Bypassing Including Temporary Cofferdam, Bypass Pumping and Filter Bag	LS	1											1					F.
3	TRAFFIC PROTECTION & DIRECTION																		3
A.	Construction Signs	SF	35			15	20												A.
B.	Break Away Barricade	UN	5			2	3												B.
C.	Drums	UN	10			5	5												C.
D.	Traffic Cones	UN	40			20	20												D.
E.	Variable Message Sign (VMS)	UN	2			1	1												E.
F.	Yellow Flashing Lights	UN	30			15	15												F.
G.	Barricades Type I	UN	10			5	5												G.
H.	Barricades Type II	UN	20			10	10												H.
I.	Uniformed Police Officers	ALLOW	1																I.
4	UTILITY TEST PITS																		4
A.	Sanitary Sewer Mains (Including Bypass Pumping, Dewatering, Excavation, Backfilling, Compaction and Removal of Existing Sewers and Manholes)	CY	120			96													A.
B.	6" Pipe, <12' Deep	LF	20			10													B.
C.	8" Pipe, <12' Deep	LF	20			5	10												C.
D.	8" Pipe, >12' Deep	LF	10			5													D.
E.	10" Pipe, <12' Deep	LF	80			10	5												E.
F.	10" Pipe, >12' Deep	LF	120			9													F.
G.	18" Pipe, <12' Deep	LF	1,150			48	647	455											G.
H.	18" Pipe, >12' Deep	LF	725			13		280											H.
I.	24" Pipe, <12' Deep	LF	1,100			57													I.
J.	24" Pipe, >12' Deep	LF	185			10													J.
K.	Abandon Existing Sanitary Sewer Mains	LF	785				110	185											K.
L.	Abandon Existing Sanitary Sewer Manhole	UN	3			1	1	1											L.
6	24" PIPE VIA MICROTUNNEL																		6
A.	Sanitary Sewer Branch Connections (All Sizes)	UN	18			2	8	8											A.
8	SANITARY SEWER LATERALS (ALL SIZES)																		8
A.	Sanitary Sewer Lateral - Connection to Existing Lateral (All Sizes)	UN	18			2	8	8											A.
10	SANITARY SEWER MANHOLES (INCLUDING BYPASS PUMPING, DEWATERING, EXCAVATION, BACKFILLING AND COMPACTION)																		10
A.	4" Diameter, <12' Deep	UN	6			4	2												A.
B.	4" Diameter, >12' Deep	UN	3			1	1												B.
C.	5" Diameter, <12' Deep	UN	6							5	1								C.
D.	5" Diameter, >12' Deep	UN	3								3								D.
E.	6" Diameter, >12' Deep	UN	1								1								E.
F.	Drop Manhole Connection	VF	15			4	3				4	4							F.
G.	Watertight Manhole Cover/Frame	UN	9								2	5	1	1					G.
11	GRAVITY SEWER SPOT LINER																		11
A.	8" (10' Length)	UN	2															2	A.
B.	10" (10' Length)	UN	3															3	B.
12	GROUT INJECTION																		12
A.	Sanitary Gravity Sewer Pipe	GAL.	50			15									5	5	25		A.
B.	Sanitary Manhole	GAL.	50			30									5	5	5	5	B.
13	GEOPOLYMER SPRAY - MANHOLE INTERIOR WALLS																		13
A.	Application of Root Inhibitor / Root Killer	LF	90			11									47	25	7		A.
14	APPLICATION OF ROOT INHIBITOR / ROOT KILLER																		14
A.	Borrow Excavation	CY	650			25									100	299	226		A.
15	BORROW EXCAVATION																		15
A.	Dense Graded Aggregate	CY	2,250			312	815	1076											A.
B.	Select Fill (If and Where Directed)	CY	2,500			2,500													B.
16	TRANSPORTATION AND DISPOSAL OF REGULATED EXCAVATED MATERIAL (IF AND WHERE DIRECTED)																		16
A.	Bedding - NJDOT No. 57 Stone	CY	500			500													A.
B.	Bedding Under and Around Piping, Manholes and Other Structures	CY	1,500			115	288	327											B.
C.	Additional Bedding (If and Where Directed)	CY	300			300													C.
18	CONCRETE PIPE ENCASEMENT																		18
A.	Temporary Pavement Restoration	CY	50			35													A.
19	TEMPORARY PAVEMENT RESTORATION																		19
A.	Permanent Pavement Trench Repairs - 7" HMA 19M64 Base Course	SY	1,400			101	739	526											A.
B.	Final Surface Course Paving Work	TON	540			20	290	210											B.
C.	2" Milling	SY	5,000			290	2157	2450											C.
D.	2" HMA 9.5M64 Surface Course	TON	560			15	250	280											D.
E.	Tack Coat	GAL.	500			250	250												E.
F.	Furnish and Install Bicycle Safety Grate	UN	7			5	2												F.
22	SEWER FINAL TESTING																		22
A.	CCTV Inspection (All Sizes)	LF	3,635			172	662	745											A.
B.	Deflection Testing (All Sizes)	LF	3,635			172	662	745											B.
23	CURB RESTORATION																		23
A.	Concrete Curb	LF	2,600			20													A.
B.	Belgian Block Curb	LF	350			50	200	100											B.
24	DRIVEWAY RESTORATION (IF AND WHERE DIRECTED)																		24
A.	Bituminous Concrete Drives	SY	200			200													A.
B.	Concrete Drives/Aprons	SY	50			50													B.
C.	Decorative Gravel or Stone Drives	SY	75			75													C.
25	SIDEWALK RESTORATION - 4" THICK (IF AND WHERE DIRECTED)																		25
A.	Removal & Disposal of Unknown Buried Structures and/or Materials (If and Where Directed)	SY	100			100													A.
B.	Concrete Material (Excluding Roadway)	TON	25			25													B.
C.	Iron and Steel Material	TON	25			25													C.
D.	Timber Material	TON	25			25													D.
E.	Buried Concrete Pavement Removal	TON	80			80													E.
27	RESTORATION, CLEAN-UP AND DEMOBILIZATION																		27
A.	Topsoiling, Seeding and Fertilization	LS	1																A.
B.	Planting Allowance (If and Where Directed)	SY	6,750			403	437	2639											B.
C.	Fuel Price Adjustment Allowance	ALLOW	1																C.
D.	Asphalt Price Adjustment Allowance	ALLOW	1																



FINAL

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REV	DATE	DRAWN BY	DESCRIPTION
1	5/14/24	DJI	REVISED PER AMTRAK COMMENTS
2	5/20/24	JL	REVISED PER NJDEP COMPLIANCE ITEMS
3	6/02/24	DJI	REVISED PER AMTRAK REVIEW COMMENTS
4	6/04/24	DJI	REVISED PER NJDEP REVIEW COMMENTS
5	8/27/24	DJI	REVISED PER NJDEP TWA COMMENTS
6	9/26/24	DJI	REVISED PER NJDEP COMMENTS
7	1/20/25	DJI	REVISED PER NJDEP COMMENTS
8	5/09/25	DJI	REVISED PER TOWNSHIP COMMENTS

STATE OF NEW JERSEY
JOHN J. MCKELVEY
No. GE31596
LICENSED PROFESSIONAL ENGINEER
John J. McKelvey
John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS
FOR STAFFORD ROAD
SANITARY SEWER
REPLACEMENT AND
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PHASE I

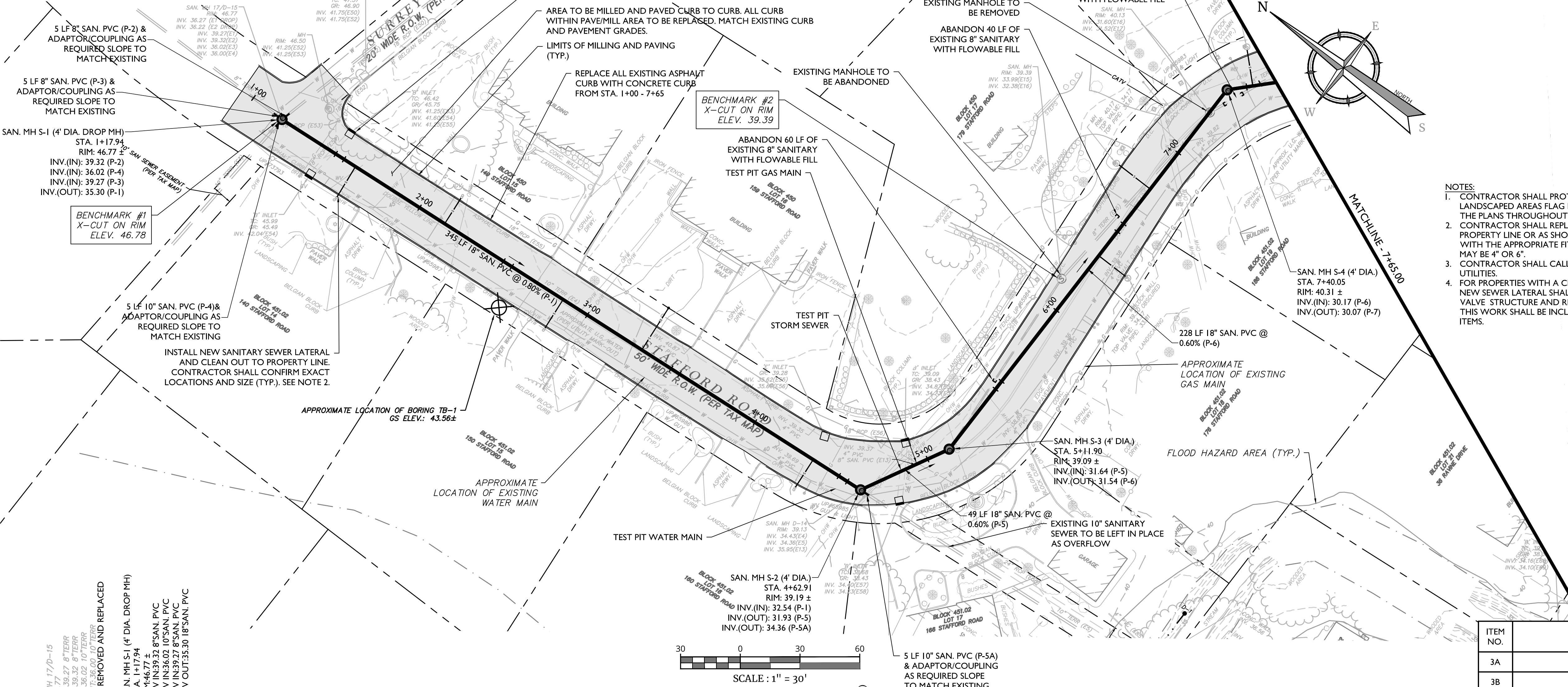
TOWNSHIP OF
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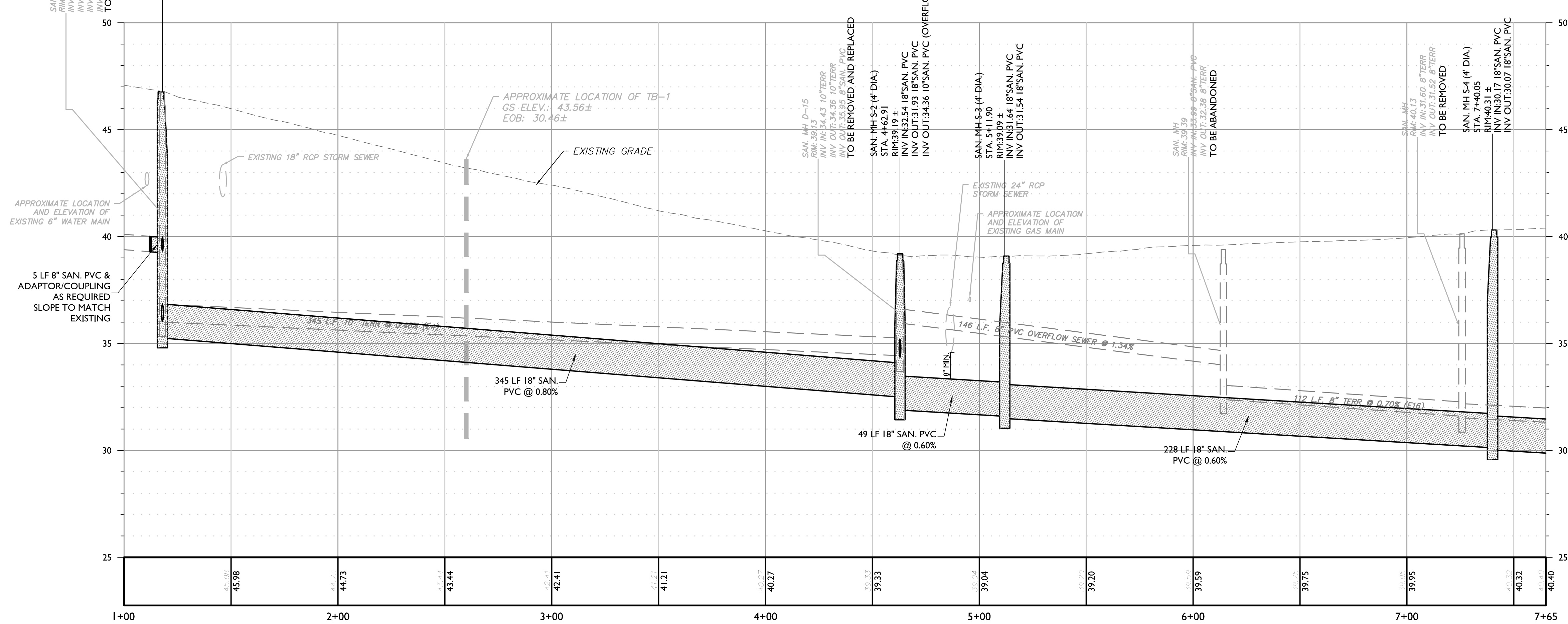
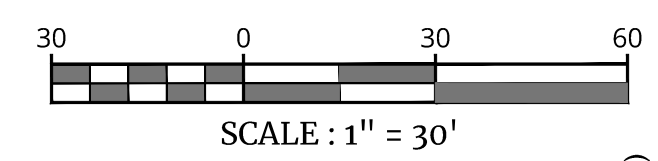
SCALE: AS SHOWN	DATE: 02/21/24	DRAWN BY: DJI	CHECKED BY: RAP
PROJECT NUMBER: 220052296	DRAWING NAME: W-LAYT		

SHEET TITLE:
KEY PLAN

SHEET NUMBER:
5 of 24



- NOTES:
- CONTRACTOR SHALL PROTECT ALL EXISTING MAILBOXES, TREES, FENCING, RETAINING WALLS, LANDSCAPED AREAS FLAG POLES, SIGNS, CURBS AND STEPS UNLESS SPECIFIED OTHERWISE ON THE PLANS THROUGHOUT THE COURSE OF THE WORK.
 - CONTRACTOR SHALL REPLACE ALL SANITARY SEWER LATERAL CONNECTIONS TO THE PROPERTY LINE OR AS SHOWN AND RECONNECT TO THE EXISTING LATERAL CONNECTION WITH THE APPROPRIATE FITTINGS/COULINGS. CONTRACTOR IS ADVISED EXISTING LATERAL MAY BE 4" OR 6".
 - CONTRACTOR SHALL CALL FOR UTILITY MARKOUT AND PROTECT ALL UNDERGROUND UTILITIES.
 - FOR PROPERTIES WITH A CHECK VALVE INSTALLED ON THE SANITARY SEWER LATERAL, THE NEW SEWER LATERAL SHALL BE INSTALLED UP TO THE DOWNSTREAM SIDE OF THE CHECK VALVE STRUCTURE AND RECONNECTED TO THE LATERAL AT THAT LOCATION. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR VARIOUS SANITARY SEWER LATERAL ITEMS.



PROFILE OF PROPOSED SANITARY SEWER
HORIZONTAL : 1" = 30'
VERTICAL : 1" = 3'

ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
3A	CONSTRUCTION SIGNS	15 SF
3B	BREAK AWAY BARRICADE	2 UN
3C	DRUMS	5 UN
3D	TRAFFIC CONES	20 UN
3E	VARIABLE MESSAGE SIGN (VMS)	1 UN
3F	YELLOW FLASHING LIGHTS	15 UN
3G	BARRICADES TYPE I	5 UN
3H	BARRICADES TYPE II	10 UN
4	UTILITY TEST PITS	9 CY
5B	SANITARY SEWER MAINS - 8" PIPE, <12' DEEP	10 LF
5D	SANITARY SEWER MAINS - 10" PIPE, <12' DEEP	5 LF
5F	SANITARY SEWER MAINS - 18" PIPE, <12' DEEP	647 LF
5J	ABANDON EXISTING SANITARY SEWER MAINS	110 LF
5K	ABANDON EXISTING SANITARY SEWER MANHOLE	1 UN
7	SANITARY SEWER BRANCH CONNECTIONS (ALL SIZES)	8 UN
8	SANITARY SEWER LATERALS (ALL SIZES)	8 UN
9	SANITARY SEWER LATERAL - CONNECTION TO EXISTING LATERAL	8 UN
10A	SANITARY SEWER MANHOLES - 4' DIAMETER, <12' DEEP	4 UN
10F	SANITARY SEWER MANHOLES - DROP MANHOLE CONNECTION	3 VF
15A	BORROW EXCAVATION - DENSE GRADED AGGREGATE	815 CY
17A	BEDDING - NJDOT NO. 57 STONE - BEDDING UNDER AND AROUND PIPING, MANHOLES AND OTHER STRUCTURES	288 CY
19	TEMPORARY PAVEMENT RESTORATION	739 SY
20	PERMANENT PAVEMENT TRENCH REPAIRS - 7" HMA 19M64 BASE COURSE	290 TON
21A	FINAL SURFACE COURSE PAVING WORK - 2" MILLING	2157 SY
21B	FINAL SURFACE COURSE PAVING WORK - 2" HMA 9.5M64 SURFACE COURSE	2157 SY
21C	FINAL SURFACE COURSE PAVING WORK - TACK COAT	250 GAL.
21D	FINAL SURFACE COURSE - FURNISH AND INSTALL BICYCLE SAFETY GRATE	5 UN.
22A	SEWER FINAL TESTING - CCTV INSPECTION (ALL SIZES)	662 LF
22B	SEWER FINAL TESTING - DEFLECTION TESTING (ALL SIZES)	662 LF
23A	CURB RESTORATION - CONCRETE CURB (9" X 20" VERTICAL CURB)	1260 LF
23B	CURB RESTORATION - BELGIAN BLOCK CURB	200 LF

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8	5/09/25	REVISED PER NJDEP REVIEW COMMENTS	DJI

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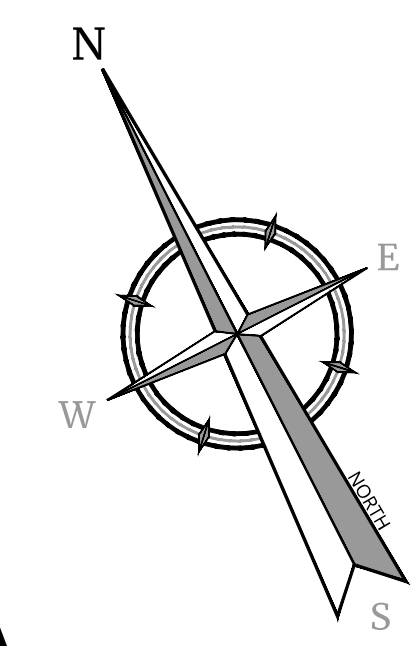
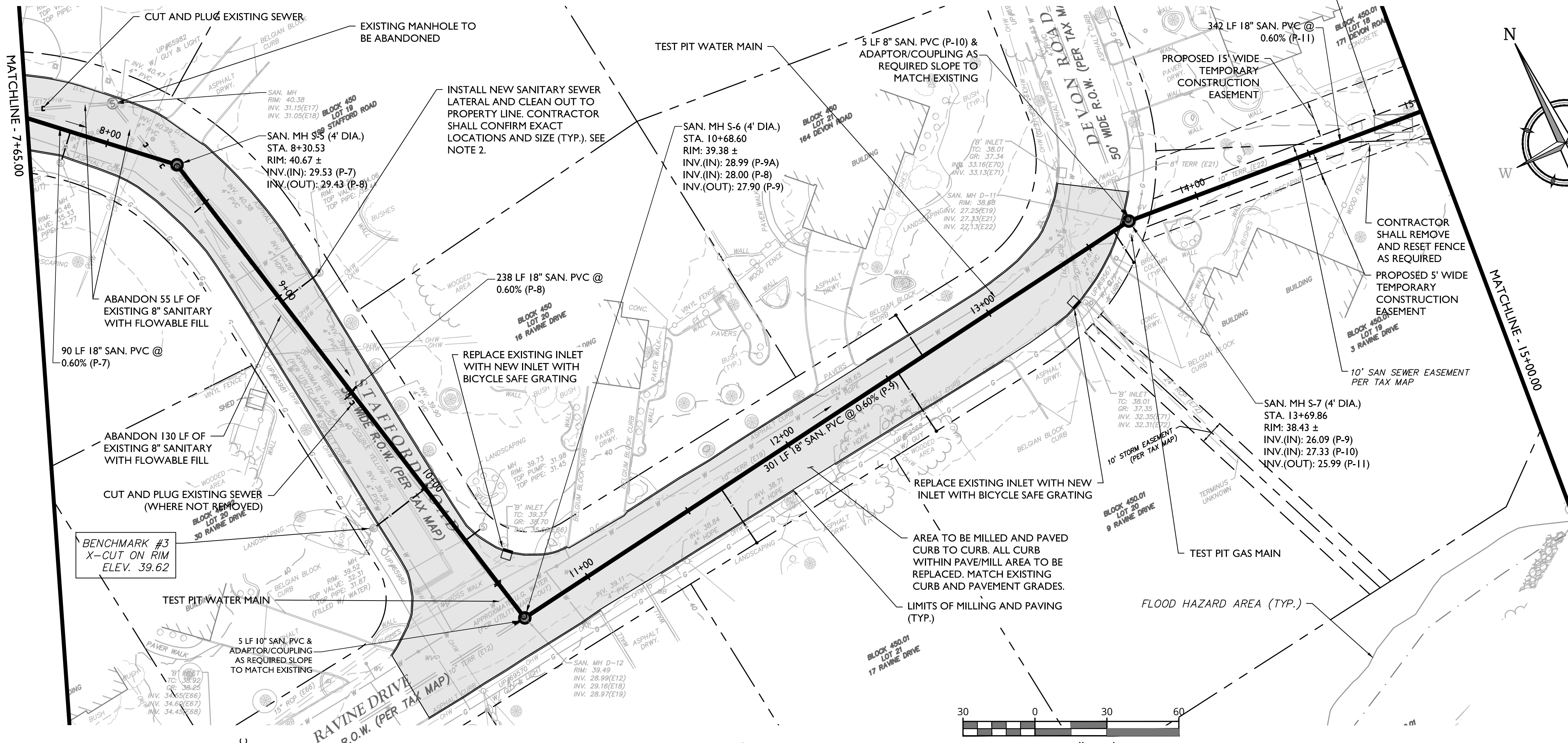
CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
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COLLIERS ENGINEERING & DESIGN, INC. DOES BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN DATE: 02/21/24 DRAWN BY: DJI CHECKED BY: RAP
PROJECT NUMBER: 220052298 DRAWING NUMBER: W-PROF-ALT

SHEET TITLE: SANITARY SEWER PLAN & PROFILE (STA. 1+00-STA. 7+65)
SHEET NUMBER: 6 of 24



ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
3A	CONSTRUCTION SIGNS	20 SF
3B	BREAK AWAY BARRICADE	3 UN
3C	DRUMS	5 UN
3D	TRAFFIC CONES	20 UN
3E	VARIABLE MESSAGE SIGN (VMS)	1 UN
3F	YELLOW FLASHING LIGHTS	15 UN
3G	BARRICADES TYPE I	5 UN
3H	BARRICADES TYPE II	10 UN
4	UTILITY TEST PITS	9 CY
5B	SANITARY SEWER MAINS - 8" PIPE, <12' DEEP	5 LF
5D	SANITARY SEWER MAINS - 10" PIPE, <12' DEEP	5 LF
5F	SANITARY SEWER MAINS - 18" PIPE, <12' DEEP	455 LF
5G	SANITARY SEWER MAINS - 18" PIPE, >12' DEEP	280 LF
5J	ABANDON EXISTING SANITARY SEWER MAINS	185 LF
5K	ABANDON EXISTING SANITARY SEWER MANHOLE	1 UN
7	SANITARY SEWER BRANCH CONNECTIONS (ALL SIZES)	8 UN
8	SANITARY SEWER LATERALS (ALL SIZES)	8 UN
9	SANITARY SEWER LATERAL - CONNECTION TO EXISTING LATERAL	8 UN
10A	SANITARY SEWER MANHOLES - 4' DIAMETER, <12' DEEP	2 UN
10B	SANITARY SEWER MANHOLES - 4' DIAMETER, >12' DEEP	1 UN
15A	BORROW EXCAVATION - DENSE GRADED AGGREGATE	1076 CY
17A	BEDDING - NJDOT NO. 57 STONE - BEDDING UNDER AND AROUND PIPING, MANHOLES AND OTHER STRUCTURES	327 CY
19	TEMPORARY PAVEMENT RESTORATION	526 SY
20	PERMANENT PAVEMENT TRENCH REPAIRS - 7" HMA 19M64 BASE COURSE	210 TON
21A	FINAL SURFACE COURSE PAVING WORK - 2" MILLING	2450 SY
21B	FINAL SURFACE COURSE PAVING WORK - 2" HMA 9.5M64 SURFACE COARSE	2450 SY
21C	FINAL SURFACE COURSE PAVING WORK - TACK COAT	250 GAL
21D	FINAL SURFACE COURSE - FURNISH AND INSTALL BICYCLE SAFETY GRATE	2 UN
22A	SEWER FINAL TESTING - CCTV INSPECTION (ALL SIZES)	745 LF
22B	SEWER FINAL TESTING - DEFLECTION TESTING (ALL SIZES)	745 LF
23A	CURB RESTORATION - CONCRETE CURB (9" X 20" VERTICAL CURB)	1260 LF
23B	CURB RESTORATION - BELGIAN BLOCK CURB	100 LF
28	TOPSOILING, SEEDING AND FERTILIZATION	437 SY

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1	5/14/24	REVISED PER NHP COMPLIANCE ITEMS	DJI
2	5/20/24	REVISED PER NHP COMPLIANCE ITEMS	JL
3	6/20/24	REVISED PER NHP COMPLIANCE ITEMS	DJI
4	6/20/24	REVISED PER NHP COMPLIANCE ITEMS	DJI
5	8/27/24	REVISED PER NHP COMMENTS	DJI
6	9/26/24	REVISED PER NHP COMMENTS	DJI
7	1/20/25	REVISED PER NHP COMMENTS	DJI
8	5/9/25	REVISED PER NHP COMMENTS	DJI

STATE OF NEW JERSEY
Professional Engineer
John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
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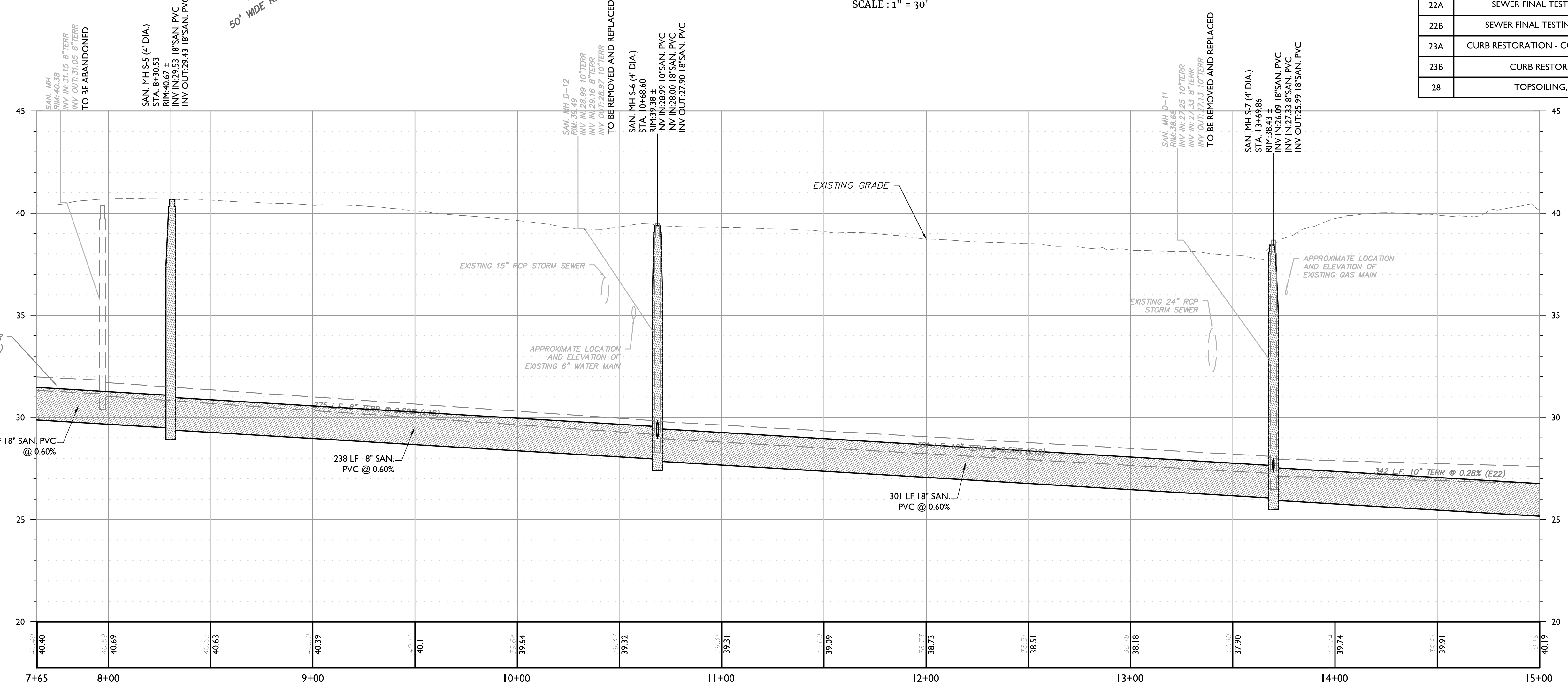
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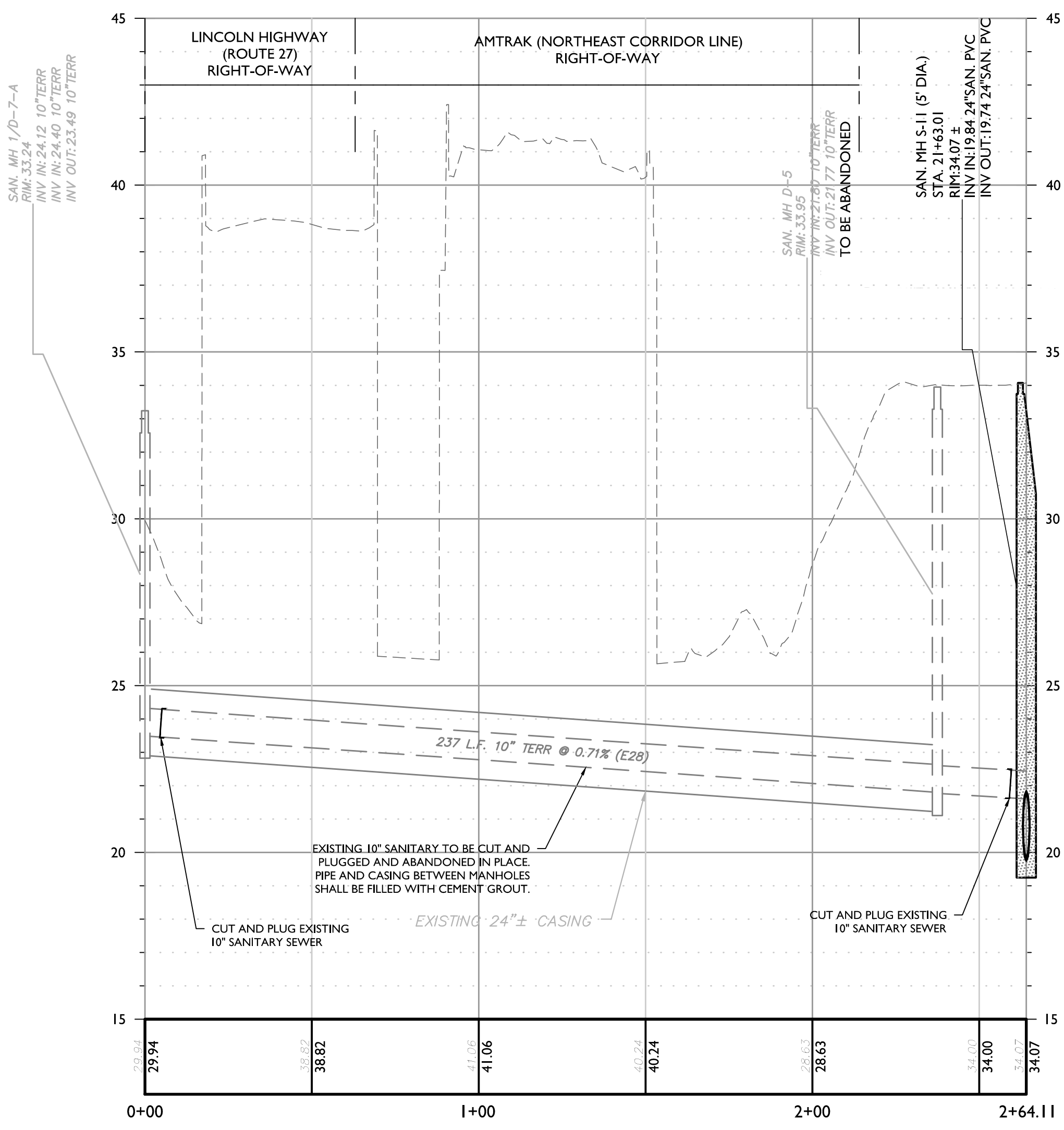
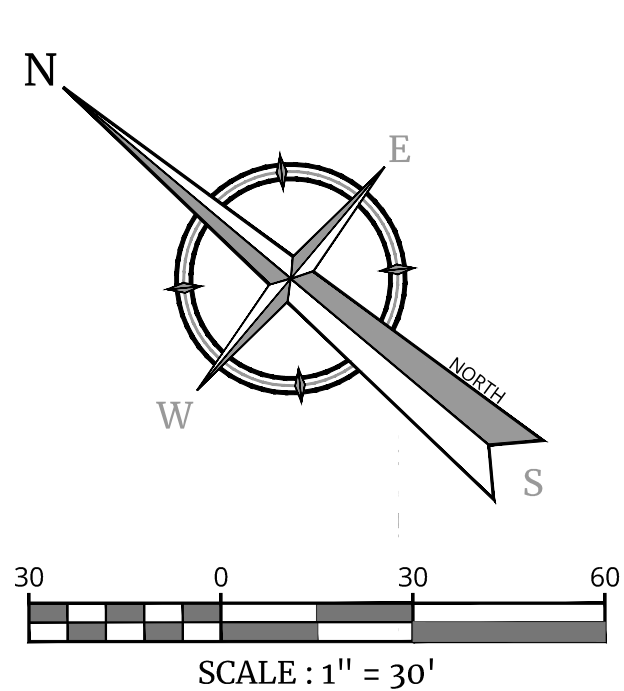
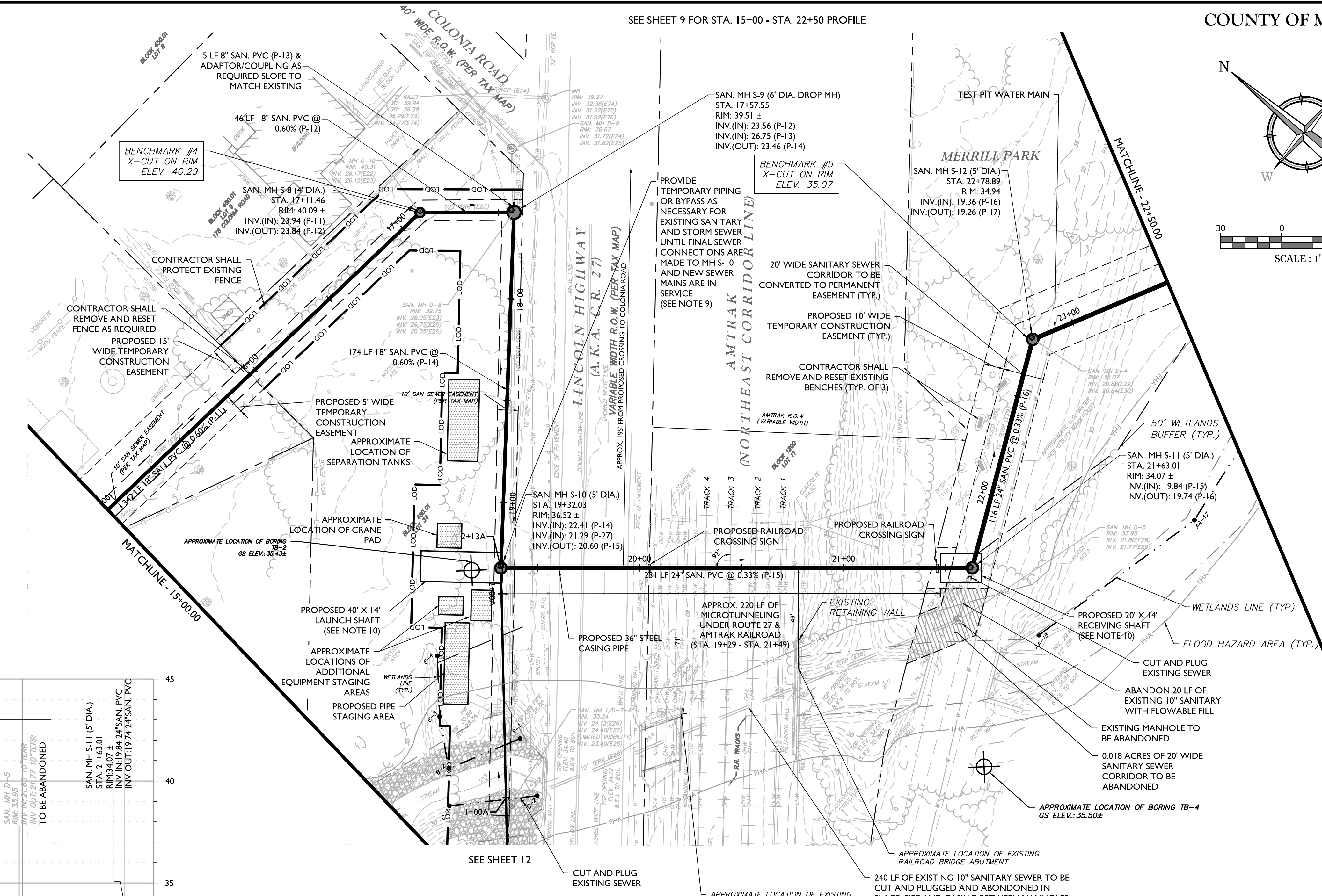
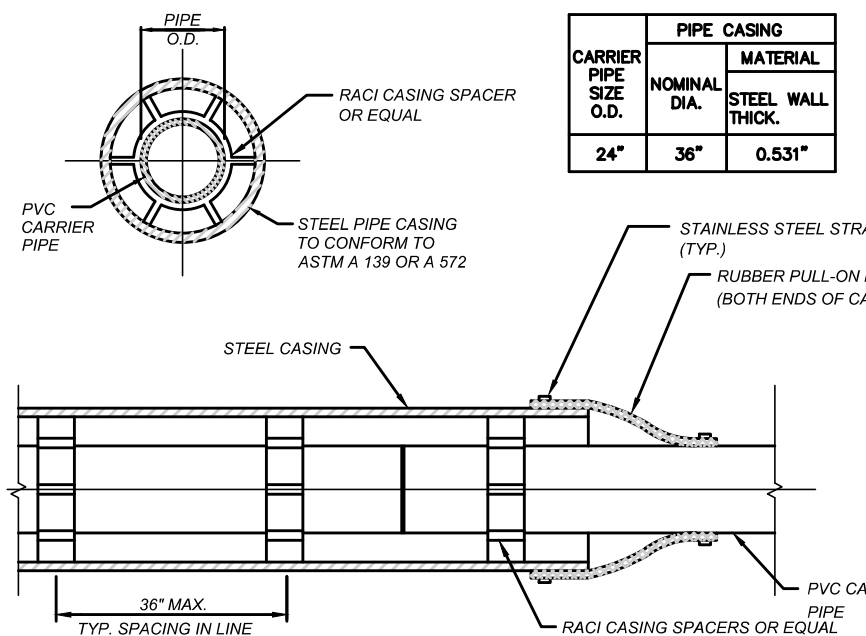
SHEET NUMBER: 7 of 24



- NOTES:
- CONTRACTOR SHALL PROTECT ALL EXISTING MAILBOXES, TREES, FENCING, RETAINING WALLS, LANDSCAPED AREAS FLAG POLES, SIGNS, CURBS AND STEPS UNLESS SPECIFIED OTHERWISE ON THE PLANS THROUGHOUT THE COURSE OF THE WORK.
 - CONTRACTOR SHALL REPLACE ALL SANITARY SEWER LATERAL CONNECTIONS TO THE PROPERTY LINE OR AS SHOWN AND RECONNECT TO THE EXISTING LATERAL CONNECTION WITH THE APPROPRIATE FITTINGS/COUPLINGS. CONTRACTOR IS ADVISED EXISTING LATERAL MAY BE 4" OR 6".
 - CONTRACTOR SHALL CALL FOR UTILITY MARKOUT AND PROTECT ALL UNDERGROUND UTILITIES.
 - FOR PROPERTIES WITH A CHECK VALVE INSTALLED ON THE SANITARY SEWER LATERAL, THE NEW SEWER LATERAL SHALL BE INSTALLED UP TO THE DOWNSTREAM SIDE OF THE CHECK VALVE STRUCTURE AND RECONNECTED TO THE LATERAL AT THAT LOCATION. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR VARIOUS SANITARY SEWER LATERAL ITEMS.

FINAL

- NOTES:
- CONTRACTOR SHALL PROTECT ALL EXISTING MAILBOXES, TREES, FENCING, RETAINING WALLS, LANDSCAPED AREAS FLAG POLES, SIGNS, CURBS AND STEPS UNLESS SPECIFIED OTHERWISE ON THE PLANS THROUGHOUT THE COURSE OF THE WORK.
 - CONTRACTOR SHALL RESTORE ALL DISTURBANCE WITHIN MERRILL PARK IN KIND AND COORDINATE WITH MIDDLESEX COUNTY PARKS DEPARTMENT AS REQUIRED PRIOR TO REMOVING AND RESTORING PARK FEATURES.
 - CONTRACTOR SHALL REPLACE ALL SANITARY SEWER LATERAL CONNECTIONS TO THE PROPERTY LINE OR AS SHOWN AND RECONNECT TO THE EXISTING LATERAL CONNECTION WITH THE APPROPRIATE FITTINGS/COUPLINGS. CONTRACTOR IS ADVISED EXISTING LATERAL MAY BE 4" OR 6".
 - CONTRACTOR SHALL CALL FOR UTILITY MARKOUT AND PROTECT ALL UNDERGROUND UTILITIES.
 - ALL OR PORTION OF THIS SITE LIES IN A FLOOD HAZARD AREA AND/OR WETLANDS/WETLANDS TRANSITION AREAS. CERTAIN ACTIVITIES IN THESE AREAS ARE REGULATED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SOME ACTIVITIES MAY BE PROHIBITED ON THIS SITE OR MAY FIRST REQUIRE A PERMIT.
 - THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT A BYPASS PLAN FOR REVIEW AND APPROVAL PRIOR TO THE START OF CONSTRUCTION. NO BYPASS ACTIVITIES WILL BE PERFORMED ON OR BELOW THE AMTRAK RIGHT-OF-WAY.
 - THE CONTRACTOR SHALL SUBMIT A TRACK MONITORING PLAN THAT COMPLIES WITH AMTRAK EP 2031 "TRACK MONITORING FOR WORKS DISTURBING ROADBED" PER TECHNICAL SPECIFICATION SECTION 02441 - MICROTUNNELING. THE TRACK MONITORING PLAN SHALL BE SUBMITTED A MINIMUM OF 4 WEEKS PRIOR TO THE START OF CONSTRUCTION FOR REVIEW AND APPROVAL.
 - THE COST FOR WORK TO MAINTAIN EXISTING SANITARY AND STORM SEWER SERVICE SHALL BE INCLUDED IN THE BID PRICE FOR VARIOUS SANITARY SEWER MAIN ITEMS. REFER TO SPECIFICATION SECTION 02734 SANITARY SEWER REPLACEMENT FOR MORE DETAIL.
 - CONTRACTOR SHALL CONSTRUCT TUNNEL SHAFTS UTILIZING WATERTIGHT SUPPORT OF EXCAVATION TO MINIMIZE GROUNDWATER INFILTRATION INTO THE SHAFTS AND TUNNEL.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AN AMTRAK PERMIT TO ENTER (PTE). THE CONTRACTOR SHALL BEAR ANY COST ASSOCIATED WITH THE PERMIT. THE COST FOR THE PERMIT SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 24" PIPE VIA MICROTUNNEL.



- AMTRAK RAILROAD CROSSING NOTES:**
- ALL WORK ON OR ADJACENT TO RAILROAD PROPERTY MUST COMPLY WITH AMTRAK ENGINEERING PRACTICES EP3014 - MAINTENANCE AND PROTECTION OF RAILROAD TRAFFIC DURING CONTRACTOR OPERATIONS.
 - DESIGN AND CONSTRUCTION MUST COMPLY WITH AMTRAK ENGINEERING PRACTICES EP3005 - PIPELINE OCCUPANCY. PRIOR TO CONSTRUCTION OPERATIONS, CONTRACTOR MUST SUBMIT, AT A MINIMUM, THE FOLLOWING TO AMTRAK FOR REVIEW AND APPROVAL: CONSTRUCTION PROCEDURE MEANS AND METHODS, SCHEDULE, DEWATERING SYSTEM (IF ANY), AND CALCULATIONS, AS APPLICABLE. ALL CALCULATIONS MUST BE SIGNED AND STAMPED/SEALED BY A LICENSED ENGINEER REGISTERED IN THE STATE.
 - ALL UNDERGROUND UTILITIES, CABLES, AND FACILITIES MUST BE LOCATED AND PROTECTED BEFORE ANY EXCAVATING, DRILLING, BORING/DIRECTIONAL DRILLING, GROUND PENETRATING ACTIVITIES, OR CONSTRUCTION TAKES PLACE. THIS INCLUDES RAILROAD AND COMMERCIAL UTILITIES, CABLES, DUCT LINES, AND FACILITIES. THESE ACTIVITIES WILL NOT BE PERFORMED IN CLOSE PROXIMITY TO THE RAILROAD DUCT LINES UNLESS MONITORED BY ON-SITE AMTRAK COMMUNICATIONS AND SIGNAL (C&S) DEPARTMENT PERSONNEL. HAND DIGGING MAY BE REQUIRED, AS DIRECTED BY AMTRAK THROUGH THE ON-SITE AMTRAK C&S SUPPORT PERSONNEL. AMTRAK MAINTAINS THE RIGHT TO ACCESS ALL EXISTING CABLES AND CONDUITS THROUGHOUT CONSTRUCTION. AMTRAK ALSO RESERVES THE RIGHT TO UPGRADE AND INSTALL NEW CABLES AND CONDUITS IN THE AFFECTED AREA. THE "ONE-CALL" PROCESS MUST BE FOLLOWED. BE AWARE THAT AMTRAK IS NOT PART OF THE ONE-CALL PROCESS. CONTACT AMTRAK ENGINEERING TO HAVE ALL RAILROAD UNDERGROUND UTILITIES AND ASSETS LOCATED. IF REQUESTED BY AMTRAK, EXISTING DEPTHS OF UTILITIES BEING CROSSED MUST BE VERIFIED THROUGH TEST PITS PERFORMED BY THE CONTRACTOR AS DIRECTED BY AND UNDER THE DIRECT SUPERVISION OF AMTRAK C&S SUPPORT PERSONNEL. PRECAUTIONS MUST BE TAKEN TO PREVENT ANY INTERRUPTION TO RAILROAD OPERATION.
 - ANY WORK (OR EQUIPMENT BEING STAGED ON-SITE DURING CONSTRUCTION) PERFORMED AT OR NEAR A RAILROAD CROSSING MUST NOT OBSTRUCT THE VIEW OF FLASHING LIGHT UNITS OR GATES TO ONCOMING TRAFFIC.
 - PRIOR TO ENTERING AMTRAK'S PROPERTY FOR ANY WORK, THE CONTRACTOR MUST EXECUTE AMTRAK'S STANDARD TEMPORARY PERMIT TO ENTER UPON PROPERTY (PTE). THE FULLY EXECUTED PTE, WRITTEN NOTICE TO PROCEED FROM AMTRAK THAT ALL REQUIREMENTS OF THE PTE HAVE BEEN MET AND PROOF OF SAFETY TRAINING MUST, AT ALL TIMES, BE FURNISHED BY THE CONTRACTOR AT THE PROJECT SITE.
 - ALL PERSONS THAT ARE ON OR ADJACENT TO THE RAILROAD PROPERTY MUST SUCCESSFULLY COMPLETE THE CONTRACTOR ORIENTATION TRAINING. ALL CONTRACTORS MUST CARRY THEIR "AMTRAK CONTRACTOR ROADWAY WORKER PROTECTION" CARD WITH THEM AT ALL TIMES WHILE ON OR ADJACENT TO RAILROAD PROPERTY.
 - ANY DEBRIS OR DAMAGE RESULTING FROM WORK SHALL BE IMMEDIATELY REPORTED TO THE RAILROAD. RAILROAD SHALL BE REPAIRED BY RAILROAD FORCES AT PROJECT EXPENSE.
 - EXCAVATED MATERIALS ORIGINATING FROM AMTRAK ROW ARE NOT PERMITTED TO LEAVE AMTRAK ROW. ALL EXCAVATED MATERIAL SHALL BE RETURNED TO ITS PLACE OF ORIGIN OR SPREAD EVENLY ACROSS THE AMTRAK ROW AT A LOCATION(S) APPROVED BY AMTRAK.
 - BORING OPERATIONS SHALL BE PROGRESSED ON A 24-HOUR BASIS ONCE ENTERING AMTRAK ROW (OR CROSSING THE THEORETICAL RAILROAD EMBANKMENT LINE, WHICHEVER POINT IS A GREATER DISTANCE FROM THE NEAREST TRACK) WITHOUT STOPPAGE, EXCEPT FOR ADDING LENGTHS OF PIPE AND THE PASSING OF TRAINS, UNTIL THE LEADING EDGE OF THE PIPE HAS REACHED THE RECEIVING PIT. TRACK MONITORING SHALL COMMENCE AFTER ENCROACHMENT INTO THE THEORETICAL RAILROAD EMBANKMENT LINE (TREL) AND BE CONTINUOUS THROUGH COMPLETION OF THE INSTALLATION. MONITORING MAY ALSO BE REQUIRED AFTER COMPLETION FOR A PERIOD OF TIME AND FREQUENCY DETERMINED BY AMTRAK.
 - UPON ABANDONMENT, THE CARRIER PIPE SHALL BE REMOVED AND THE CASING SHALL BE COMPLETELY FILLED WITH CEMENT GROUT, COMPACTED SAND OR OTHER MATERIALS APPROVED BY AMTRAK, USING METHODS APPROVED BY AMTRAK. IF IT IS IMPRACTICABLE TO REMOVE THE CARRIER PIPE, THEN THE CARRIER MUST BE FILLED ALONG WITH THE ANNULAR SPACE BETWEEN THE CASING AND THE CARRIER.

- NJDOT PERMIT**
- CONTRACTOR SHALL REFER TO THE SPECIAL PROVISIONS OF THE CONTRACT SPECIFICATIONS REGARDING THE FEES ASSOCIATED WITH THE NJDOT PERMIT.
- THE CONTRACTOR IS ADVISED THAT THE NJDOT HAS JURISDICTION OVER LINCOLN HIGHWAY (A.K.A. NJSH RT.27). CONTRACTOR SHALL VERIFY ALL APPLICABLE PERMITS HAVE BEEN OBTAINED THROUGH THE NJDOT PRIOR TO PERFORMING WORK ASSOCIATED WITH THE SAME.
- AMTRAK PERMIT**
- CONTRACTOR SHALL REFER TO THE SPECIAL PROVISIONS OF THE CONTRACT SPECIFICATIONS REGARDING THE FEES ASSOCIATED WITH THE AMTRAK PERMIT.
- WORK TIME RESTRICTIONS**
- ANY GRADING, EXCAVATION OR CONSTRUCTION ACTIVITIES WITHIN THE STREAMS OR THE BANKS OF THE STREAMS ARE PROHIBITED FROM MAY 1 THROUGH JULY 31 OF EACH CALENDAR YEAR.
- CLEARING OF ALL WOODY VEGETATION ON SITE IS PROHIBITED FROM APRIL 1 THROUGH SEPTEMBER 30 OF EACH CALENDAR YEAR.

ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
4	UTILITY TEST PITS	3 CY
5C	SANITARY SEWER MAINS - 8" PIPE, >12' DEEP	5 LF
5G	SANITARY SEWER MAINS - 18" PIPE, >12' DEEP	432 LF
5H	SANITARY SEWER MAINS - 24" PIPE, <12' DEEP	23 LF
5I	SANITARY SEWER MAINS - 24" PIPE, >12' DEEP	175 LF
5J	ABANDON EXISTING SANITARY SEWER MAIN	260 LF
5K	ABANDON EXISTING SANITARY SEWER MANHOLE	1 UN
6	24" PIPE VIA MICROTUNNEL	220 LF
10B	SANITARY SEWER MANHOLES - 4' DIAMETER, >12' DEEP	1 UN
10D	SANITARY SEWER MANHOLES - 5' DIAMETER, >12' DEEP	3 UN
10E	SANITARY SEWER MANHOLES - 6' DIAMETER, >12' DEEP	1 UN
10F	DROP MANHOLE CONNECTION	4 VF
10G	WATERTIGHT MANHOLE FRAME/COVER	2 UN
17A	BEDDING - CLASS I EMBEDMENT MATERIALS - BEDDING UNDER AND AROUND PIPING, MANHOLES AND OTHER STRUCTURES	202 CY
21A	SEWER FINAL TESTING - CCTV INSPECTION (ALL SIZES)	855 LF
21B	SEWER FINAL TESTING - DEFLECTION TESTING (ALL SIZES)	855 LF
26	TOPSOILING, SEEDING AND FERTILIZATION	2639 SY

FINAL

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REV.	DATE	DESCRIPTION
1	5/14/24	ISSUED PER AMTRAK COMMENTS
2	5/20/24	REVISED FOR NJDOT COMPLIANCE ITEMS
3	6/03/24	REVISED FOR AMTRAK REVIEW COMMENTS
4	6/04/24	REVISED FOR NJDOT REVIEW COMMENTS
5	8/27/24	REVISED PER NJDOT PVA COMMENTS
6	9/26/24	REVISED PER NJDOT COMMENTS
7	10/20/24	REVISED PER NJDOT COMMENTS
8	5/09/25	REVISED PER TOWNSHIP COMMENTS

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 2462A2798650

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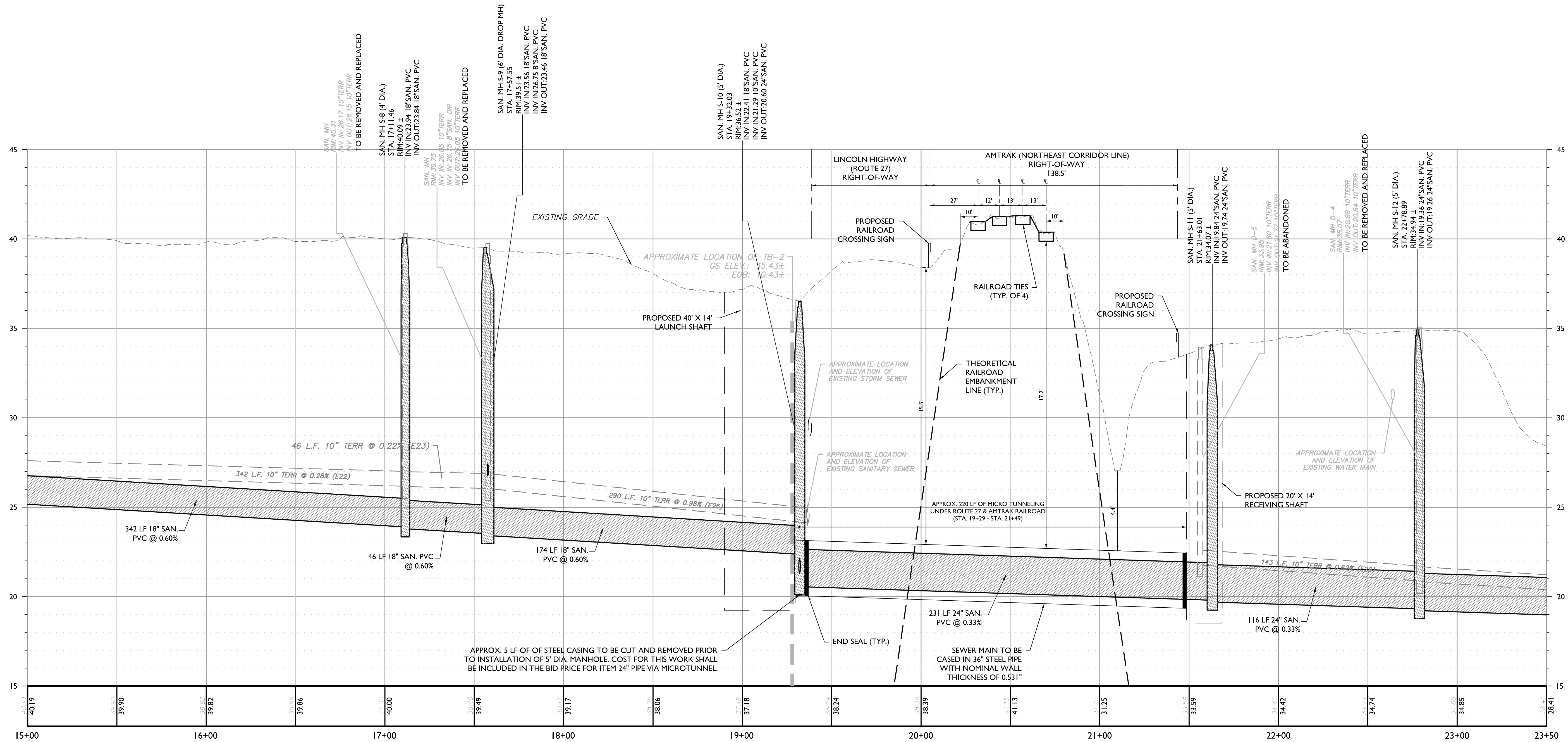
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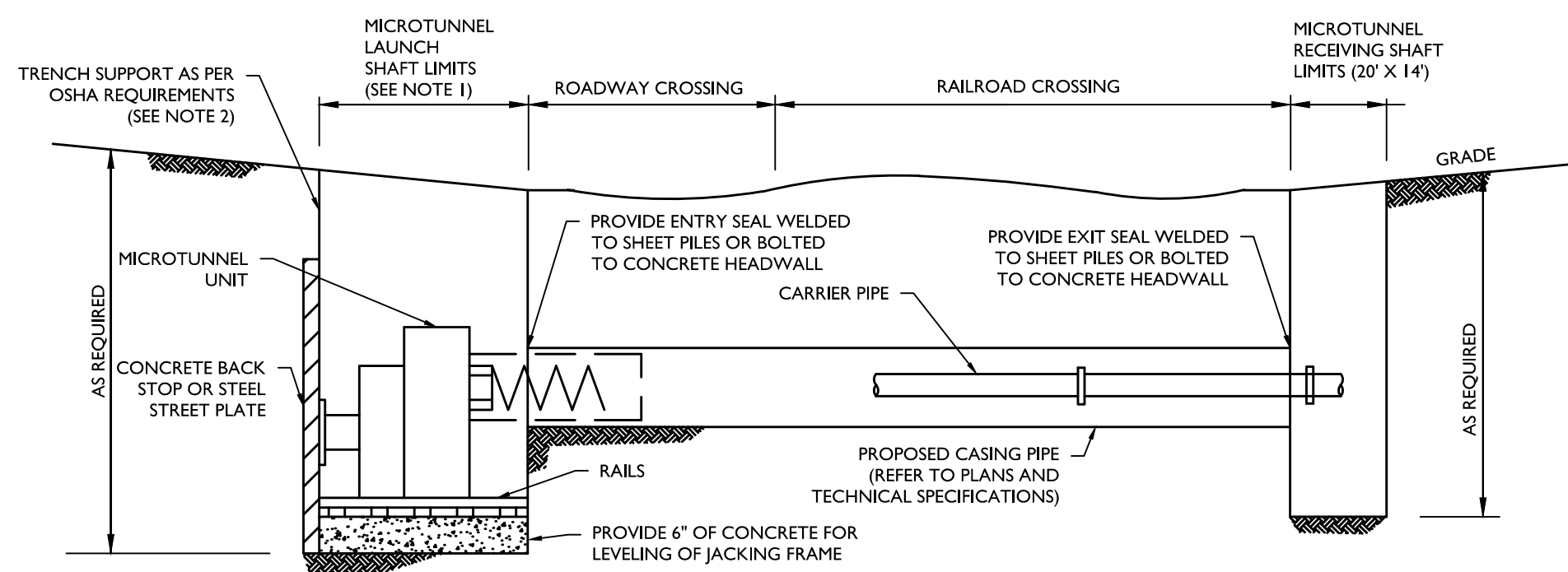
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PROJECT NUMBER: 220052298 DRAWING NAME: W-PROF-ALT

SHEET TITLE: **SANITARY SEWER PLAN (STA. 15+00-STA. 22+50)**

SHEET NUMBER: **8 of 24**



PROFILE OF PROPOSED SANITARY SEWER
HORIZONTAL : 1" = 30'
VERTICAL : 1" = 3'
SEE SHEET 8 FOR PLAN



NOTES:

- MICROTUNNELING SHAFT LIMITS DEPEND ON EQUIPMENT AND LENGTH OF CASING PIPE UNIT BEING USED. LAUNCH SHAFT SHALL BE 40'X14'W2.
- EXCAVATIONS WITH A DEPTH GREATER THAN 20' SHALL REQUIRE SUBMISSION OF A DETAILED DESIGN SIGNED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER.
- ANY EXCAVATION DEEPER THAN FOUR FEET IS CONSIDERED A CONFINED SPACE. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACTORS OSHA APPROVED CONFINED SPACE PLAN.
- SEE CARRIER PIPE PLAN & PROFILE FOR UTILITIES BEING CROSSED, CASING PIPE INVERTS AND ANY RESTRICTIONS FOR THE PROPOSED MICROTUNNEL INSTALLATION.

MICROTUNNEL DETAIL
N.T.S.

PIPE CROSSING DATA SHEET		
IN ADDITION TO PLAN AND PROFILE OF CROSSING, DRAWINGS SUBMITTED FOR AMTRAK APPROVAL SHALL CONTAIN THE FOLLOWING INFORMATION:		
	CARRIER PIPE	CASING PIPE
CONCRETE TO BE INSTALLED	SANITARY SEWAGE	CARRIER PIPE
NORMAL OPERATING PRESSURE	GRAVITY	N/A
NORMAL SIZE OF PIPE	18"	30"
OUTSIDE DIAMETER	20.40" (BELL)	30"
INSIDE DIAMETER	18.200"	28.75"
WALL THICKNESS	0.489"	0.625"
WEIGHT PER FOOT	21.43 LB/FT	196.1 LB/FT
MATERIAL	PVC	STEEL
PROCESS OF MANUFACTURE		
SPECIFICATION	ASTM D3034	ASTM A 139 OR ASTM A 572
GRADE OR CLASS	SDR 35	GRADE E OR GRADE 50
TEST PRESSURE	5 PSI	N/A
TYPE OF JOINT	BELL & SPIGOT	WELDED
TYPE OF COATING	N/A	UNCOATED
DETAILS OF CORROSION PROTECTION	N/A	N/A
DETAILS OF SEAL OR PROTECTION AT ENDS OF CASING	N/A	END SEAL
METHOD OF INSTALLATION	MANUALLY INSERTED WITH SPACERS	MICROTUNNEL
CHARACTER OF SUBSURFACE MATERIAL AT THE CROSSING LOCATION (UNIFIED SOIL CLASS)	N/A	N/A
APPROXIMATE ELEVATION OF GROUND WATER (27.5-28.0 FEET)	VARIABLE GLACIAL DEPOSIT (CLM, SC, SM, SW, GP)	VARIABLE GLACIAL DEPOSIT (CLM, SC, SM, SW, GP)
SOURCE OF INFORMATION OF SUBSURFACE CONDITIONS (REFER TO TEST PITS OR OTHER)		

PIPE CROSSING DATA SHEET		
EXISTING 10" SANITARY SEWER CROSSING AMTRAK R.O.W. UNKNOWN DATE OF INSTALLATION		
	CARRIER PIPE	CASING PIPE
CONCRETE TO BE INSTALLED	SANITARY SEWAGE	CARRIER PIPE
NORMAL OPERATING PRESSURE	GRAVITY	N/A
NORMAL SIZE OF PIPE	10"	ASSUMED 15"
OUTSIDE DIAMETER	10"	15"
INSIDE DIAMETER		
WALL THICKNESS		
WEIGHT PER FOOT		
MATERIAL	CLAY	STEEL
PROCESS OF MANUFACTURE		
SPECIFICATION		
GRADE OR CLASS		
TEST PRESSURE		
TYPE OF JOINT		
TYPE OF COATING		
DETAILS OF CORROSION PROTECTION		
DETAILS OF SEAL OR PROTECTION AT ENDS OF CASING		
METHOD OF INSTALLATION		
CHARACTER OF SUBSURFACE MATERIAL AT THE CROSSING LOCATION (UNIFIED SOIL CLASS)		
APPROXIMATE ELEVATION OF GROUND WATER (27.5-28.0 FEET)	VARIABLE GLACIAL DEPOSIT (CLM, SC, SM, SW, GP)	VARIABLE GLACIAL DEPOSIT (CLM, SC, SM, SW, GP)
SOURCE OF INFORMATION OF SUBSURFACE CONDITIONS (REFER TO TEST PITS OR OTHER)		

Amtrak Office of Chief Engineer Structures
SKETCH 6
EP3005 SPECIFICATION
SK-B

Amtrak Office of Chief Engineer Structures
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3	6/20/24	REVISED FOR AMTRAK REVIEW COMMENTS
4	6/24/24	REVISED FOR NDEP REVIEW COMMENTS
5	8/27/24	REVISED PER NDEP TWA COMMENTS
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7	10/20/24	REVISED PER NDEP COMMENTS
8	5/9/25	REVISED PER TOWNSHIP COMMENTS

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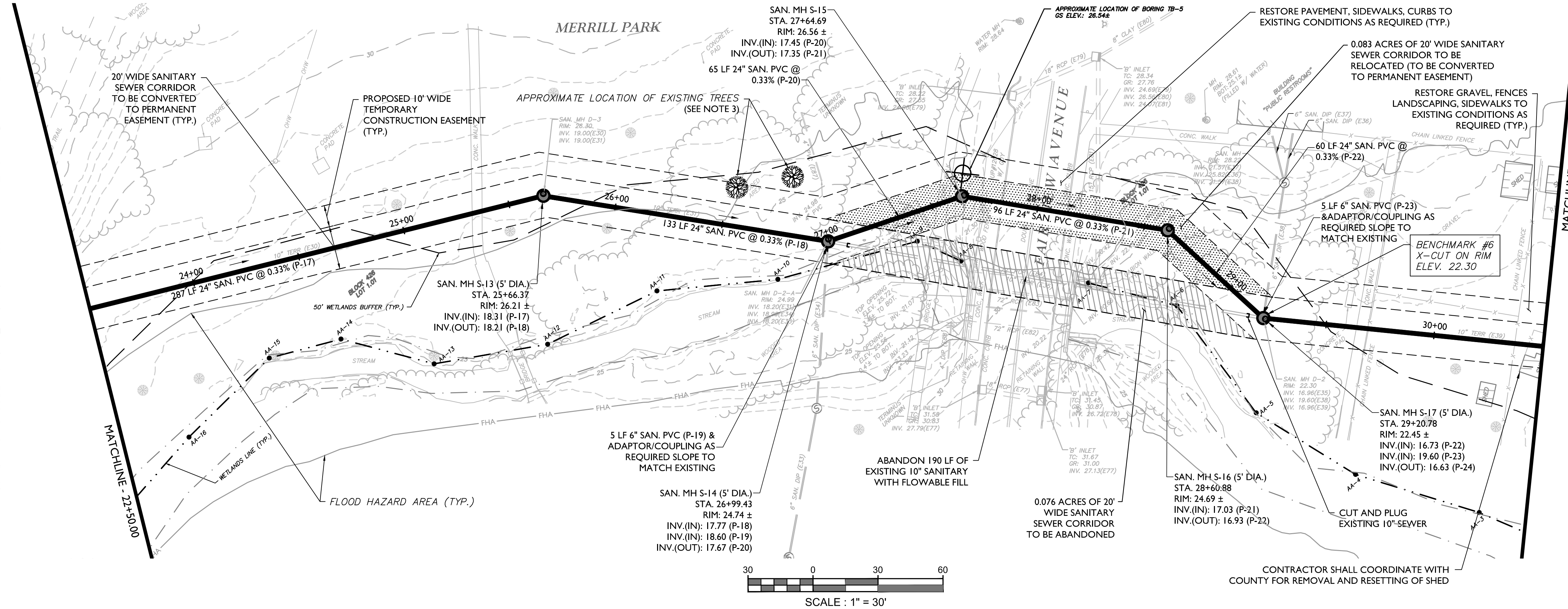
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PROJECT NUMBER: 220052296	DRAWING NUMBER: W-PROP-ALT		

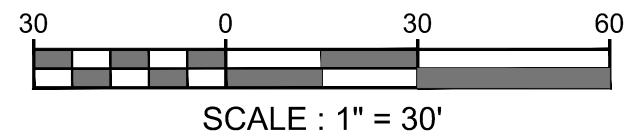
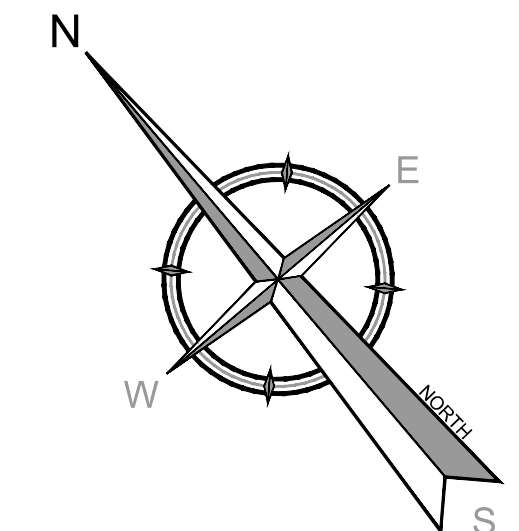
SHEET TITLE: SANITARY SEWER PROFILE (STA. 15+00-STA. 22+50)

SHEET NUMBER: 9 of 24

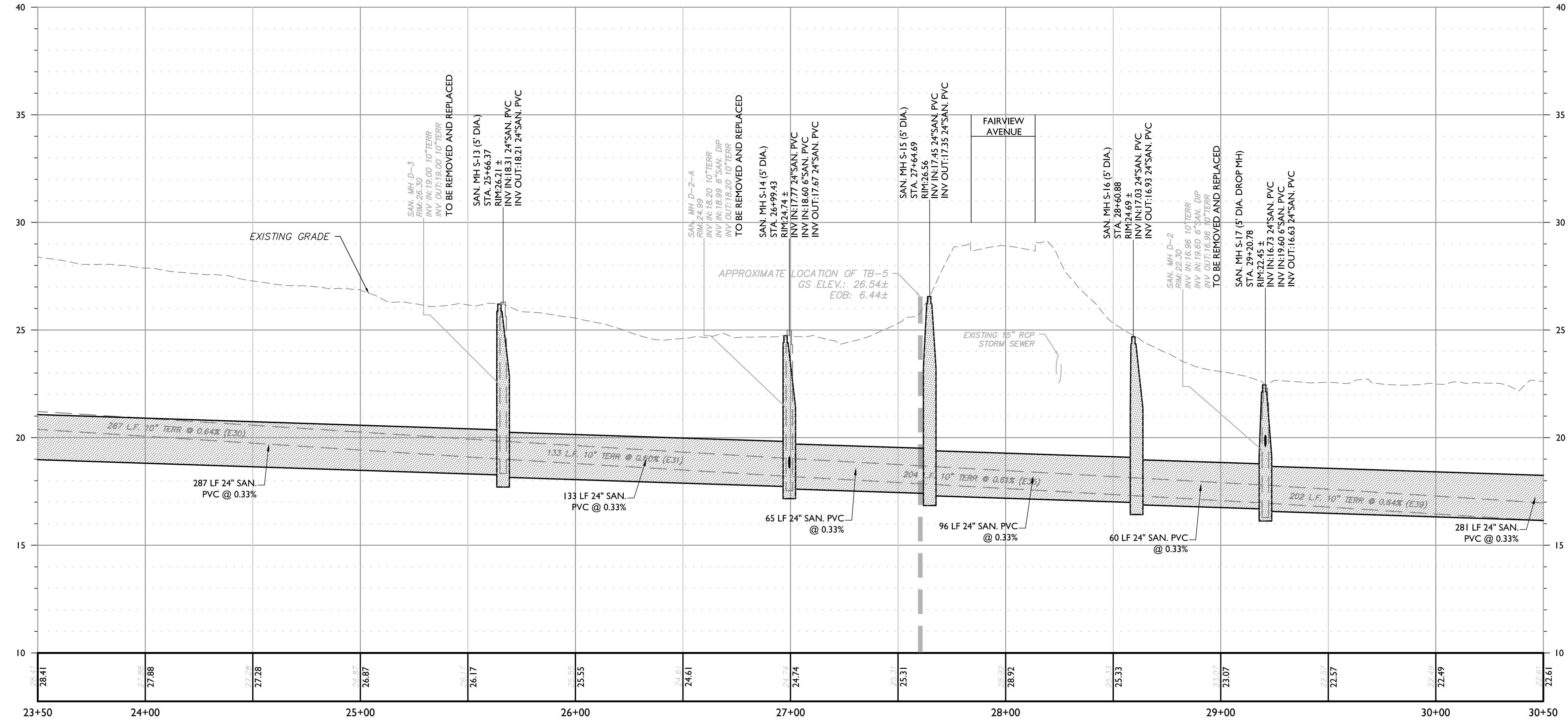
FINAL



MATCHLINE - 30+00.00



- NOTES:**
- CONTRACTOR SHALL PROTECT ALL EXISTING MAILBOXES, TREES, FENCING, RETAINING WALLS, LANDSCAPED AREAS FLAG POLES, SIGNS, CURBS AND STEPS UNLESS SPECIFIED OTHERWISE ON THE PLANS THROUGHOUT THE COURSE OF THE WORK.
 - CONTRACTOR SHALL RESTORE ALL DISTURBANCES WITHIN MERRILL PARK IN KIND AND COORDINATE WITH MIDDLESEX COUNTY PARKS DEPARTMENT AS REQUIRED PRIOR TO REMOVING AND RESTORING PARK FEATURES.
 - EXISTING TREES TO BE PROTECTED TO PRACTICABLE EXTENT. CONTRACTOR SHALL TAKE EXTRA CARE WHILE EXCAVATING WITHIN TREE ROOT AREAS.
 - CONTRACTOR SHALL REPLACE ALL SANITARY SEWER LATERAL CONNECTIONS TO THE PROPERTY LINE OR AS SHOWN AND RECONNECT TO THE EXISTING LATERAL CONNECTION WITH THE APPROPRIATE FITTINGS/COUPLINGS. CONTRACTOR IS ADVISED EXISTING LATERAL MAY BE 4" OR 6".
 - CONTRACTOR SHALL CALL FOR UTILITY MARKOUT AND PROTECT ALL UNDERGROUND UTILITIES.
 - ALL OR PORTION OF THIS SITE LIES IN A FLOOD HAZARD AREA AND/OR WETLANDS/WETLANDS TRANSITION AREAS. CERTAIN ACTIVITIES IN THESE AREAS ARE REGULATED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND SOME ACTIVITIES MAY BE PROHIBITED ON THIS SITE OR MAY FIRST REQUIRE A PERMIT.



PROFILE OF PROPOSED SANITARY SEWER
HORIZONTAL : 1" = 30'
VERTICAL : 1" = 3'

ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
5A	SANITARY SEWER MAINS - 6" PIPE, <12' DEEP	10 LF
5H	SANITARY SEWER MAINS - 24" PIPE, <12' DEEP	700 LF
5J	ABANDON EXISTING SANITARY SEWER MAINS	190 LF
10D	SANITARY SEWER MANHOLES - 5' DIAMETER, <12' DEEP	5 UN
10F	DROP MANHOLE CONNECTION	4 VF
10G	WATERTIGHT MANHOLE FRAME AND COVER	5 UT
15A	BORROW EXCAVATION - DENSE GRADED AGGREGATE	48 CY
17A	BEDDING - NJDOT NO. 57 STONE - BEDDING UNDER AND AROUND PIPING, MANHOLES AND OTHER STRUCTURES	350 CY
19	PERMANENT PAVEMENT TRENCH REPAIRS - 7" HMA 19M64 BASE COURSE	35 SY
20A	FINAL SURFACE COURSE PAVING WORK - 2" MILLING	103 SY
20B	FINAL SURFACE COURSE PAVING WORK - 2" 9.5 M64 SURFACE COURSE	103 SY
21A	SEWER FINAL TESTING - CCTV INSPECTION (ALL SIZES)	710 LF
21B	SEWER FINAL TESTING - DEFLECTION TESTING (ALL SIZES)	710 LF
22A	CURB RESTORATION - CONCRETE CURB	80 LF
27	TOPSOILING, SEEDING AND FERTILIZATION	2233 SY

WORK TIME RESTRICTIONS
ANY GRADING, EXCAVATION OR CONSTRUCTION ACTIVITIES WITHIN THE STREAMS OR THE BANKS OF THE STREAMS ARE PROHIBITED FROM MAY 1 THROUGH JULY 31 OF EACH CALENDAR YEAR.

CLEARING OF ALL WOODY VEGETATION ON SITE IS PROHIBITED FROM APRIL 1 THROUGH SEPTEMBER 30 OF EACH CALENDAR YEAR.

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REV.	DATE	DESCRIPTION	DRAWN BY
1	5/14/24	REVISED PER MATRAX COMMENTS	DJI
2	5/20/24	REVISED FOR NJDOT COMPLIANCE ITEMS	JL
3	6/20/24	REVISED PER MATRAX REVIEW COMMENTS	DJI
4	6/24/24	REVISED PER NJDOT REVIEW COMMENTS	DJI
5	8/27/24	REVISED PER NJDOT TWA COMMENTS	DJI
6	9/26/24	REVISED PER NJDOT COMMENTS	DJI
7	10/28/24	REVISED PER NJDOT COMMENTS	DJI
8	5/9/25	REVISED PER TOWNSHIP COMMENTS	DJI

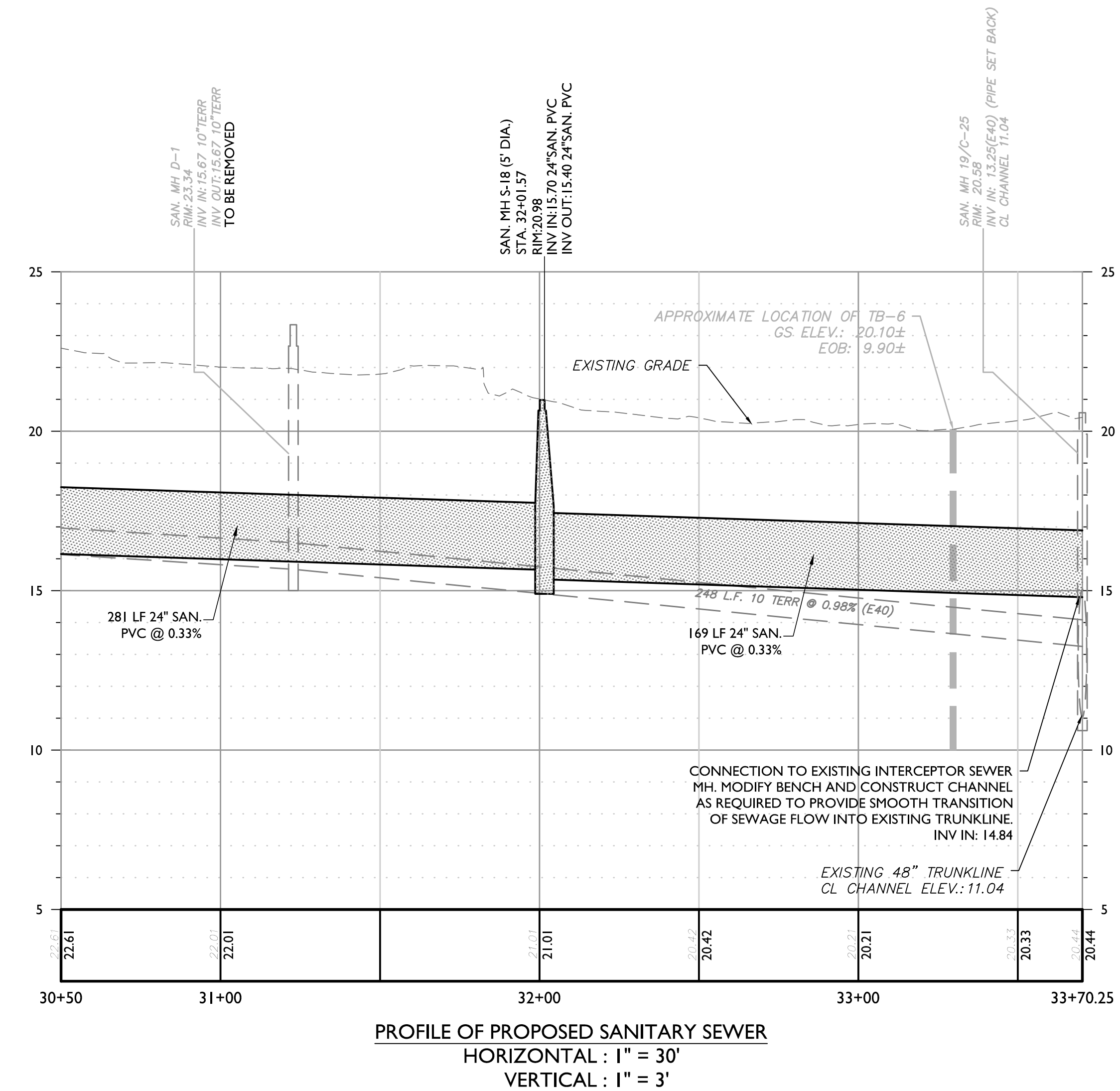
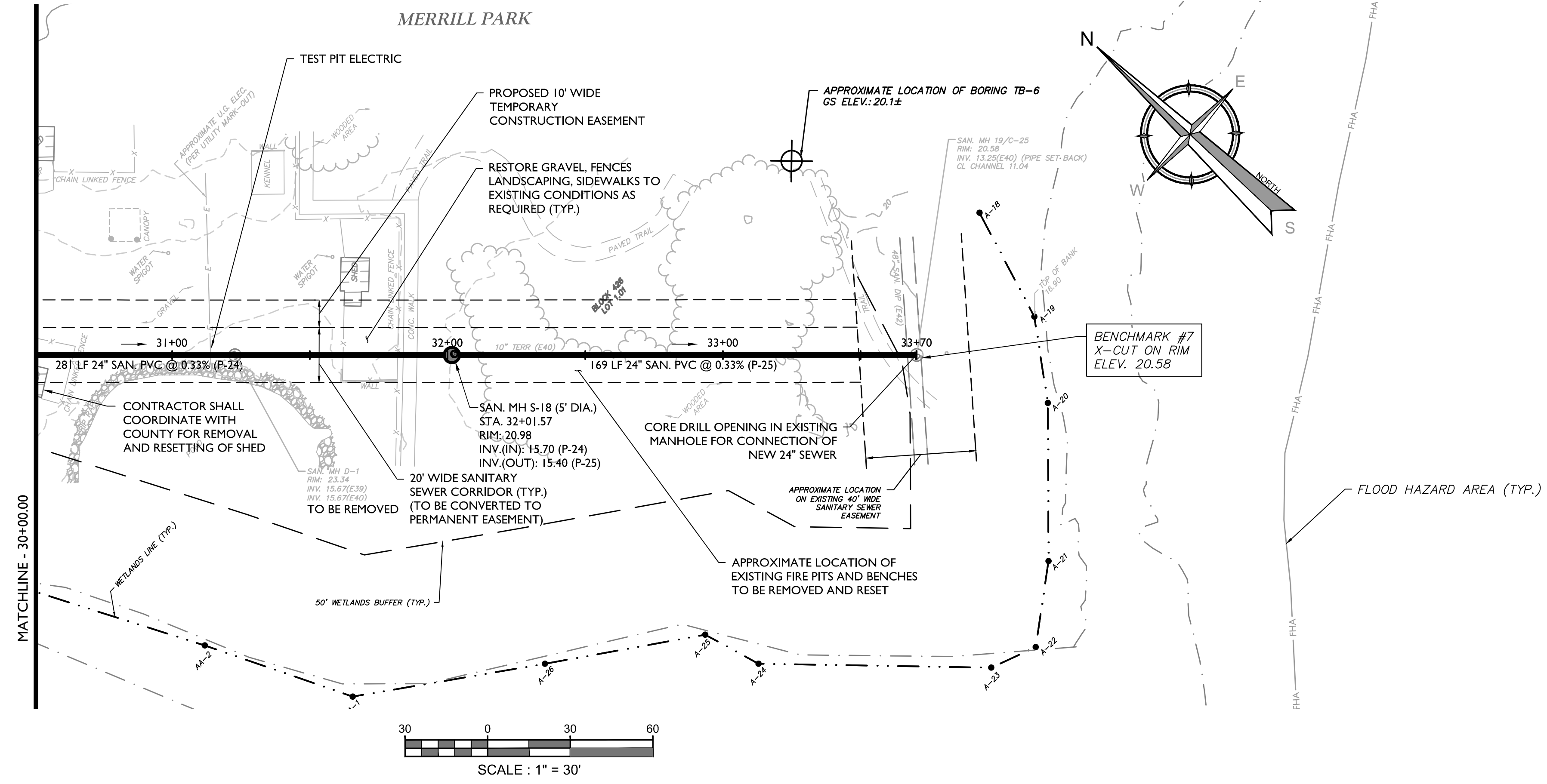
STATE OF NEW JERSEY
Professional Engineer
John J. McKelvey
John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. # 24GA27986500

CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
HOLMDEL (Headquarters)
101 Crawford Corner Road, Suite 3400
Holmdel, NJ 07733
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTANTS
SCALE: AS SHOWN DATE: 02/21/24 DRAWN BY: DJI CHECKED BY: RAP
PROJECT NUMBER: 220052296 DRAWING NAME: W-PROF-ALT
SHEET TITLE: SANITARY SEWER PLAN & PROFILE (STA. 22+50-STA. 30+00)
SHEET NUMBER: 10 of 24

FINAL



- NOTES:
- CONTRACTOR SHALL PROTECT ALL EXISTING MAILBOXES, TREES, FENCING, RETAINING WALLS, LANDSCAPED AREAS FLAG POLES, SIGNS, CURBS AND STEPS UNLESS SPECIFIED OTHERWISE ON THE PLANS THROUGHOUT THE COURSE OF THE WORK.
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 - CONTRACTOR SHALL CALL FOR UTILITY MARKOUT AND PROTECT ALL UNDERGROUND UTILITIES.
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ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
4	UTILITY TEST PITS	3 CY
5H	SANITARY SEWER MAINS - 24" PIPE, <12' DEEP	320 LF
10D	SANITARY SEWER MANHOLES - 5' DIAMETER, <12' DEEP	1 UN
10G	WATERTIGHT MANHOLE FRAME AND COVER	1 UN
17A	BEDDING - NJDOT NO. 57 STONE - BEDDING UNDER AND AROUND PIPING, MANHOLES AND OTHER STRUCTURES	142 CY
21A	SEWER FINAL TESTING - CCTV INSPECTION (ALL SIZES)	320 LF
21B	SEWER FINAL TESTING - DEFLECTION TESTING (ALL SIZES)	320 LF
27	TOPSOILING, SEEDING AND FERTILIZATION	711 SY

WORK TIME RESTRICTIONS

ANY GRADING, EXCAVATION OR CONSTRUCTION ACTIVITIES WITHIN THE STREAMS OR THE BANKS OF THE STREAMS ARE PROHIBITED FROM MAY 1 THROUGH JULY 31 OF EACH CALENDAR YEAR.

CLEARING OF ALL WOODY VEGETATION ON SITE IS PROHIBITED FROM APRIL 1 THROUGH SEPTEMBER 30 OF EACH CALENDAR YEAR.

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REV	DATE	DRAWN BY	DESCRIPTION
1	5/14/24	DJI	REVISED PER MATHEK COMMENTS
2	5/20/24	JL	REVISED FOR ALDFP COMPLIANCE ITEMS
3	6/23/24	DJI	REVISED PER MATHEK REVIEW COMMENTS
4	6/24/24	DJI	REVISED PER HODDY REVIEW COMMENTS
5	8/27/24	DJI	REVISED PER NUDEF TWA COMMENTS
6	9/26/24	DJI	REVISED PER NUDEF COMMENTS
7	10/28/24	DJI	REVISED PER NUDEF COMMENTS
8	5/9/25	DJI	REVISED PER TOWNSHIP COMMENTS

Professional Engineer Seal for John J. McKelvey, License No. GE31599.

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31599
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

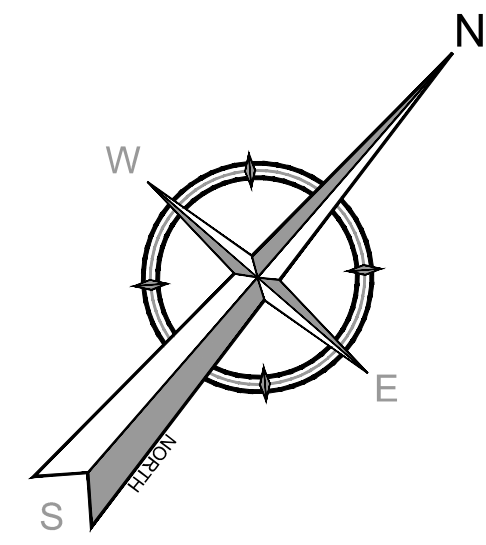
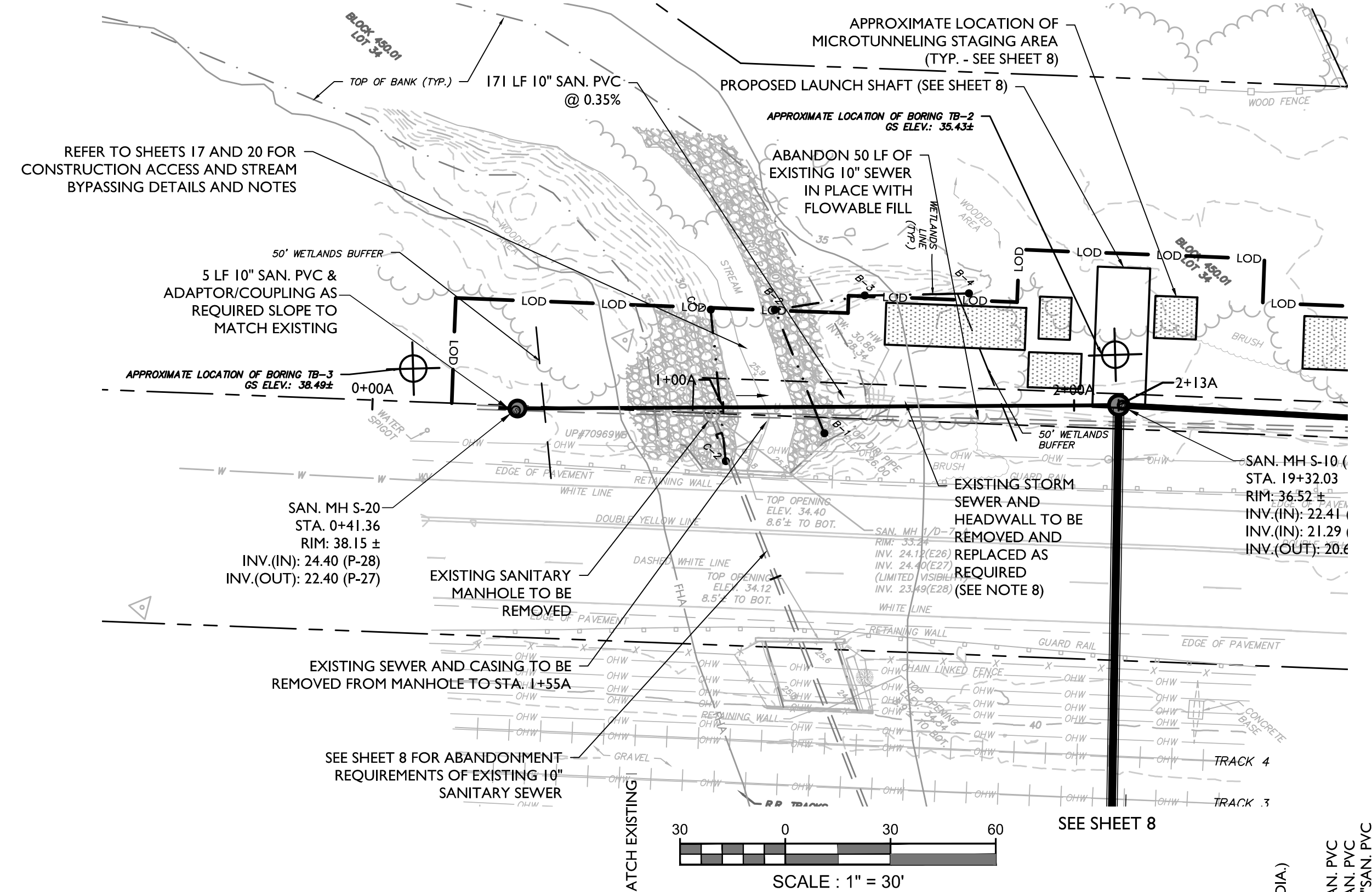
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HOLMDEL (Headquarters)
101 Crawford's Corner Road, Suite 3400
Holmdel, NJ 07733
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC.
DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN DATE: 02/21/24 DRAWN BY: DJI CHECKED BY: RAP
PROJECT NUMBER: 220052296 DRAWING NAME: W-PROF-ALT

SHEET TITLE: SANITARY SEWER PLAN & PROFILE (STA. 30+00-STA. 33+70)
SHEET NUMBER: 11 of 24

FINAL



- NOTES:**
- CONTRACTOR SHALL PROTECT ALL EXISTING MAILBOXES, TREES, FENCING, RETAINING WALLS, LANDSCAPED AREAS FLAG POLES, SIGNS, CURBS AND STEPS UNLESS SPECIFIED OTHERWISE ON THE PLANS THROUGHOUT THE COURSE OF THE WORK.
 - CONTRACTOR SHALL RESTORE STREAM BANK, SLOPE AND RIP-RAP TO PREEXISTING CONDITIONS.
 - EXISTING TREES TO BE PROTECTED TO PRACTICABLE EXTENT. CONTRACTOR SHALL TAKE EXTRA CARE WHILE EXCAVATING WITHIN TREE ROOT AREAS.
 - CONTRACTOR SHALL REPLACE ALL SANITARY SEWER LATERAL CONNECTIONS TO THE PROPERTY LINE OR AS SHOWN AND RECONNECT TO THE EXISTING LATERAL CONNECTION WITH THE APPROPRIATE FITTINGS/COUPLINGS.
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 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING STORM SEWER FLOWS AT ALL TIMES. THE COST FOR REMOVING AND REPLACING EXISTING STORM SEWER AND HEADWALL AND MAINTAINING STORM FLOWS SHALL BE INCLUDED IN THE UNIT PRICE FOR VARIOUS SEWER MAIN ITEMS.
 - THE PROPOSED SANITARY SEWER MAIN SHALL BE SEALED TO ENSURE THERE WILL BE NO LEAKAGE OR DISCHARGE.

NJDOT PERMIT

CONTRACTOR SHALL REFER TO THE SPECIAL PROVISIONS OF THE CONTRACT SPECIFICATIONS REGARDING THE FEES ASSOCIATED WITH THE NJDOT PERMIT.

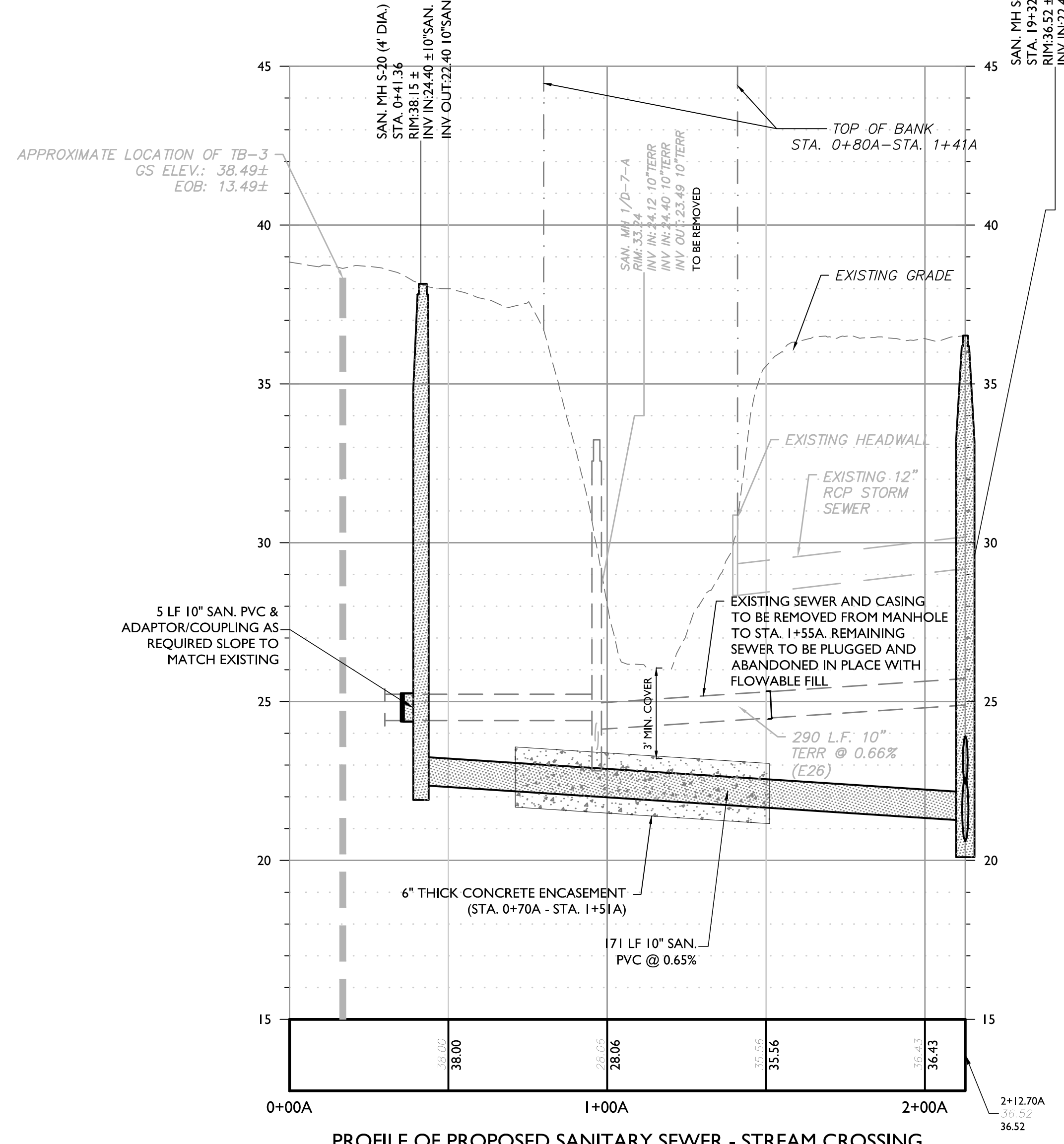
THE CONTRACTOR IS ADVISED THAT THE NJDOT HAS JURISDICTION OVER LINCOLN HIGHWAY (A.K.A. NJSH RT 27). CONTRACTOR SHALL VERIFY ALL APPLICABLE PERMITS HAVE BEEN OBTAINED THROUGH THE NJDOT PRIOR TO PERFORMING WORK ASSOCIATED WITH THE SAME.

ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
5D	SANITARY SEWER MAINS - 10" PIPE, < 12' DEEP	60 LF
5E	SANITARY SEWER MAINS - 10" PIPE, > 12' DEEP	111 LF
5J	ABANDON EXISTING SANITARY SEWER MAINS	50 LF
10B	SANITARY SEWER MANHOLES - 4' DIAMETER MANHOLE, > 12' DEEP	1 UN
10G	SANITARY SEWER MANHOLES - WATERTIGHT MANHOLE COVER/FRAME	1 UN
17A	BEDDING - NJDOT NO. 57 STONE - BEDDING UNDER AND AROUND PIPING, MANHOLES AND OTHER STRUCTURES	76 CY
18	CONCRETE ENCASEMENT	15 CY
21A	SEWER FINAL TESTING - CCTV INSPECTION (ALL SIZES)	171 LF
21B	SEWER FINAL TESTING - DEFLECTION TESTING (ALL SIZES)	171 LF
27	TOPSOILING, SEEDING AND FERTILIZATION	327 SY

WORK TIME RESTRICTIONS

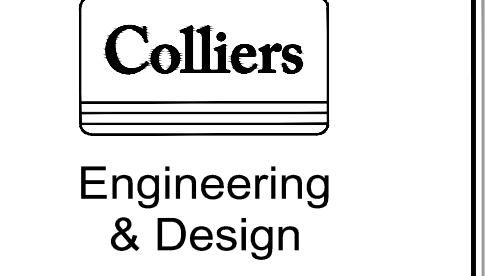
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CLEARING OF ALL WOODY VEGETATION ON SITE IS PROHIBITED FROM APRIL 1 THROUGH SEPTEMBER 30 OF EACH CALENDAR YEAR.



PROFILE OF PROPOSED SANITARY SEWER - STREAM CROSSING
 HORIZONTAL : 1" = 30'
 VERTICAL : 1" = 3'

FINAL



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REV	DATE	DESCRIPTION	DRAWN BY	DATE	DESCRIPTION
1	5/14/24	REVISED PER MATRAX COMMENTS	DJI		
2	5/20/24	REVISED FOR NJDEP COMPLIANCE ITEMS	JL		
3	6/25/24	REVISED PER MATRAX REVIEW COMMENTS	DJI		
4	6/26/24	REVISED PER NJDOT REVIEW COMMENTS	DJI		
5	8/27/24	REVISED PER NJDEP TWA COMMENTS	DJI		
6	8/28/24	REVISED PER NJDEP COMMENTS	DJI		
7	10/28/24	REVISED PER NJDEP COMMENTS	DJI		
8	5/2/25	REVISED PER TOWNSHIP COMMENTS	DJI		

STATE OF NEW JERSEY
 JOHN J. MCKELVEY
 No. GE31596
 LICENSED PROFESSIONAL ENGINEER
 JOHN J. MCKELVEY
 JOHN J. MCKELVEY
 NEW JERSEY LICENSED PROFESSIONAL ENGINEER
 LICENSE NUMBER: GE31596
 COLLIER'S ENGINEERING & DESIGN, INC.
 N.J. C.O.A. #: 24GA27886500

CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I

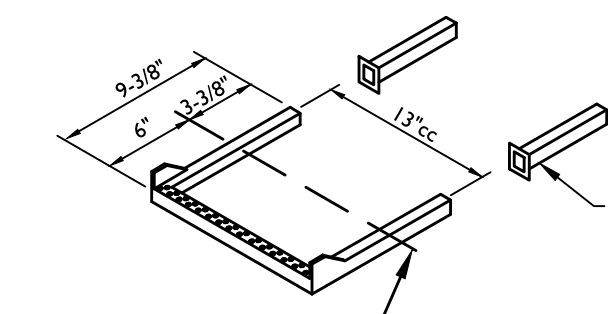
TOWNSHIP OF WOODBRIDGE
 MIDDLESEX COUNTY
 NEW JERSEY

Colliers Engineering & Design
 HOLMDEL (Headquarters)
 101 Crawford Corner Road,
 Suite 5400
 Holmdel, NJ 07733
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 COLLIER'S ENGINEERING & DESIGN, INC.
 DOING BUSINESS AS MASER CONSULTANTS

SCALE: AS SHOWN DATE: 02/21/24 DRAWN BY: DJI CHECKED BY: RAP
 PROJECT NUMBER: 220052296 DRAWING NAME: W-PROF-ALT

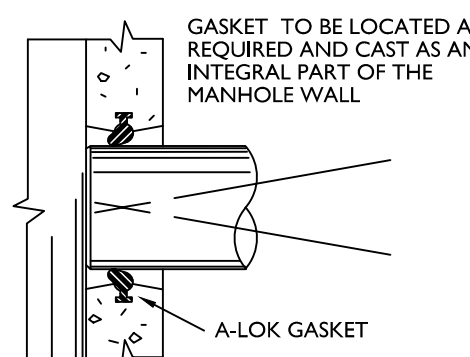
SANITARY SEWER PLAN & PROFILE - STREAM CROSSING (STA. 0+00A - STA. 2+13A)

SHEET NUMBER: 12 of 24

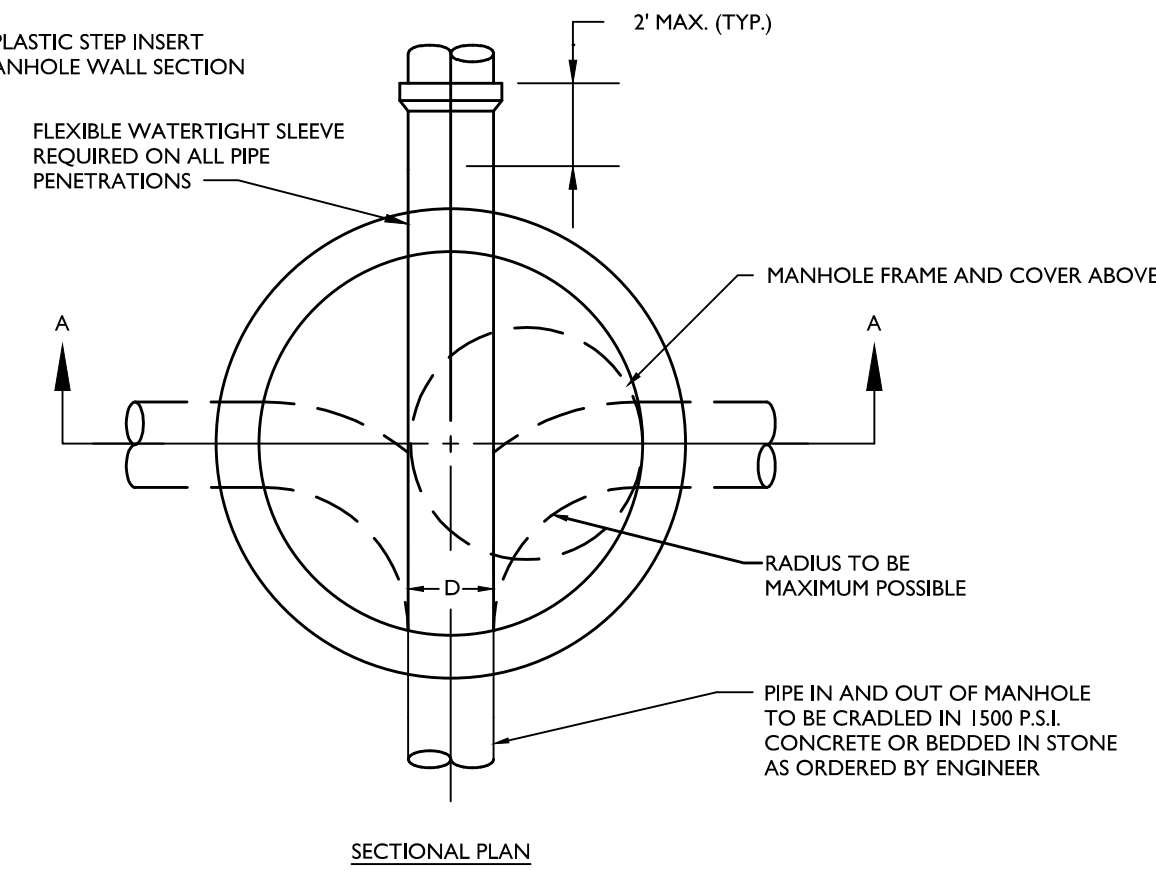


NOTES:
1. COPOLYMER POLYPROPYLENE MANHOLE STEPS W/ STEEL CORE AND PLASTIC INSERTS SHALL BE AS MANUFACTURED BY A-LOK PRODUCTS INC. OR APPROVED EQUAL.

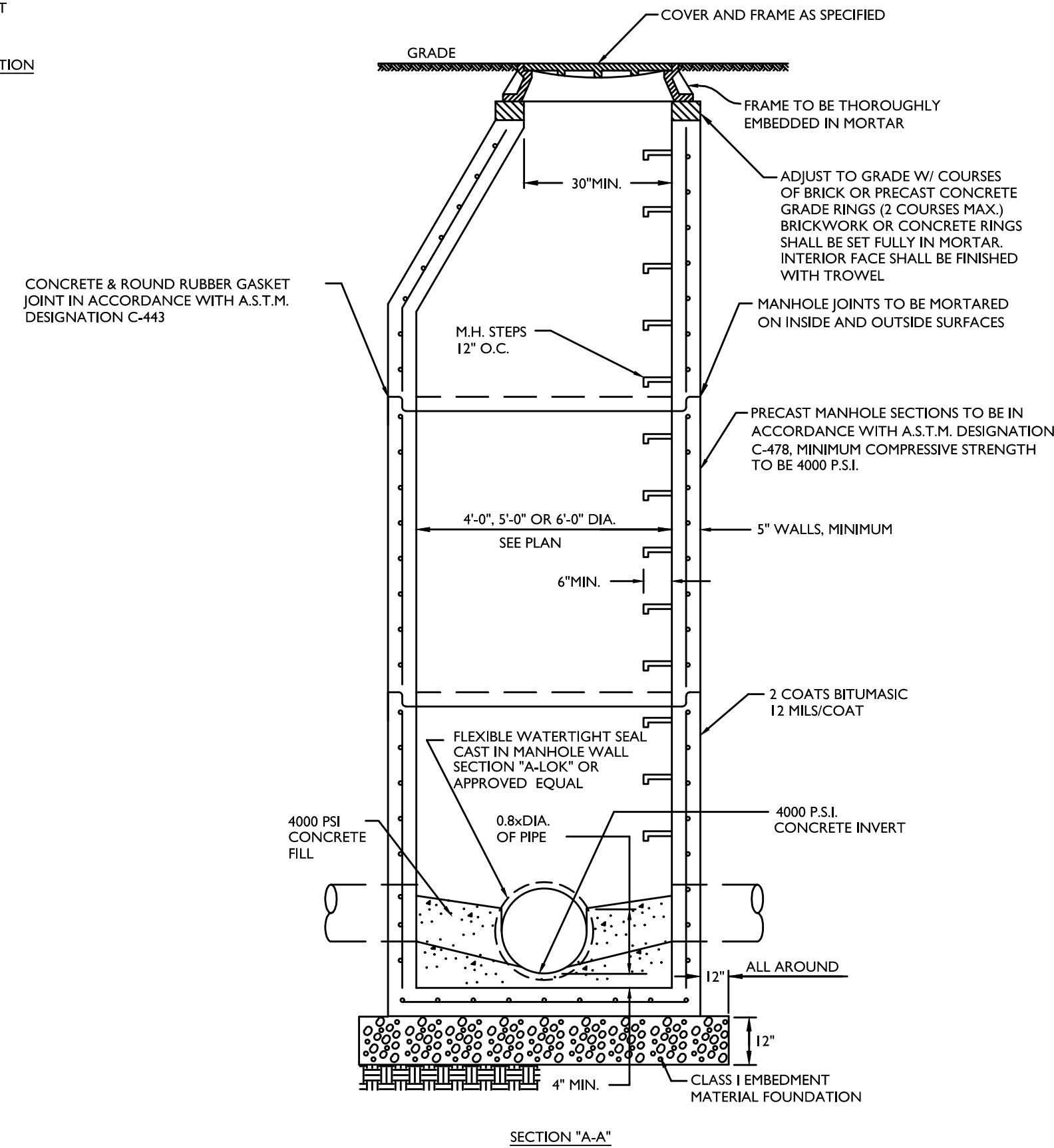
POLYPROPYLENE MANHOLE STEPS



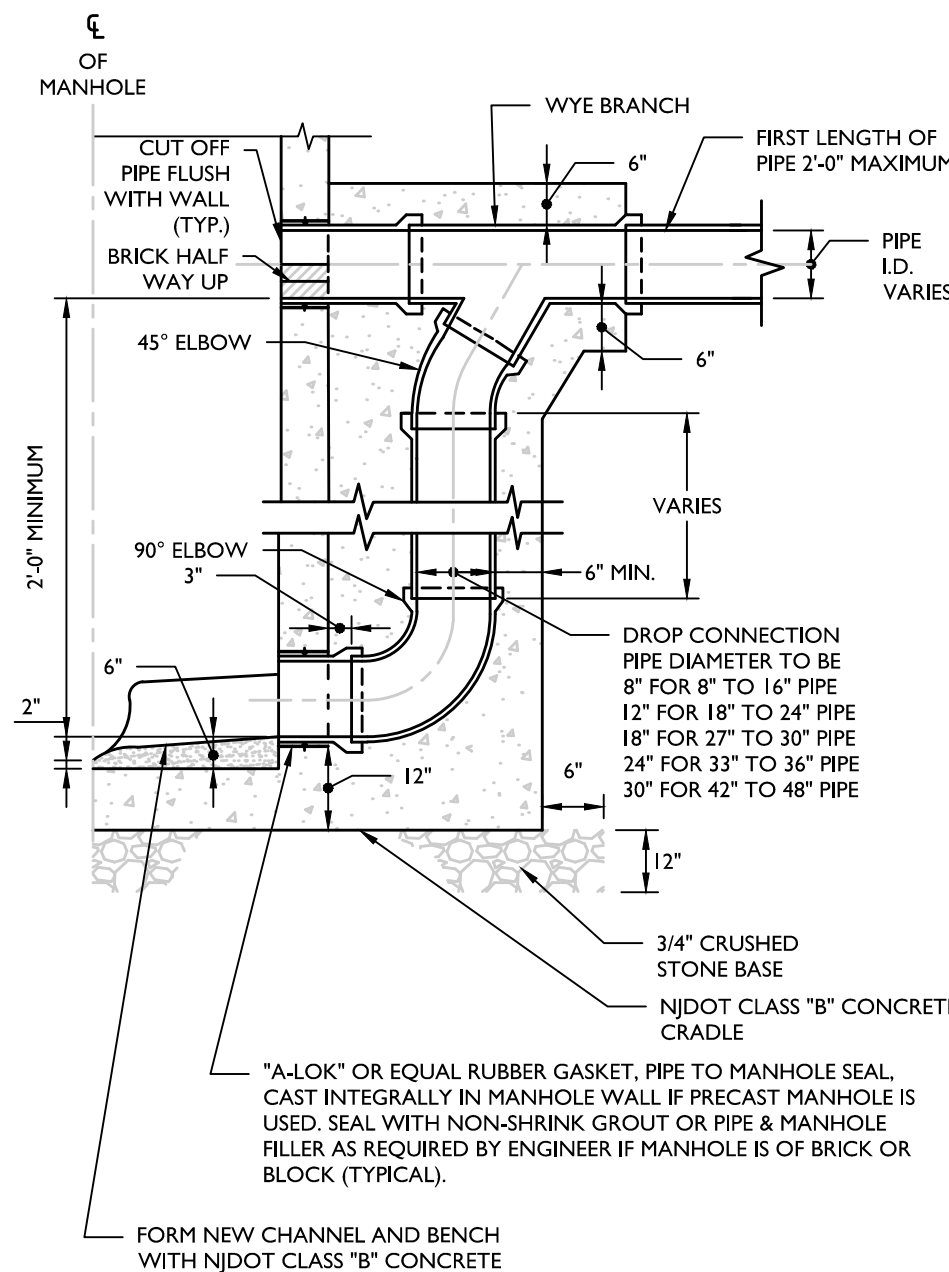
TYPICAL A-LOK SECTION



SECTIONAL PLAN

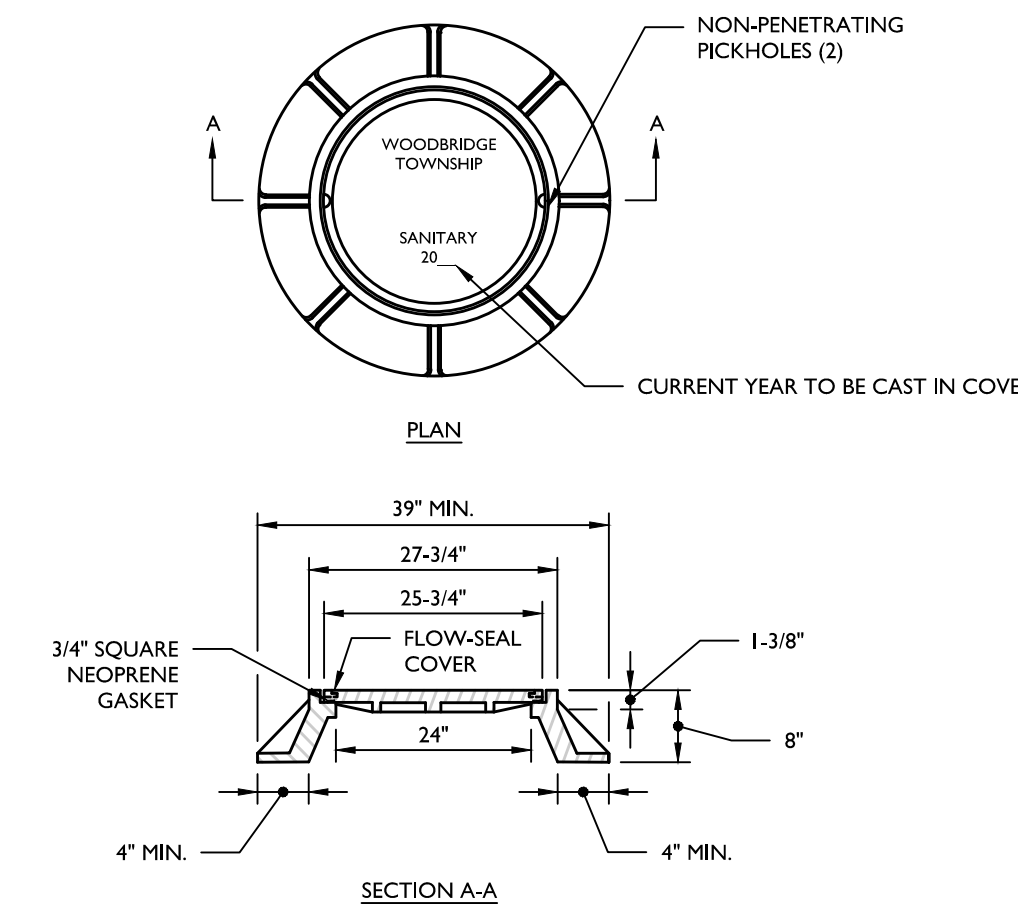


STANDARD PRECAST MANHOLE DETAIL



NOTES:
1. PRECAST MANHOLE BASE WITH INTEGRAL DROP SECTION AND U-SHAPED COLLAR SECTIONS ARE RECOMMENDED FOR ALL NEW EXTERNAL DROP MANHOLE INSTALLATIONS.

SANITARY DROP MANHOLE CONNECTION (EXTERNAL) DETAIL

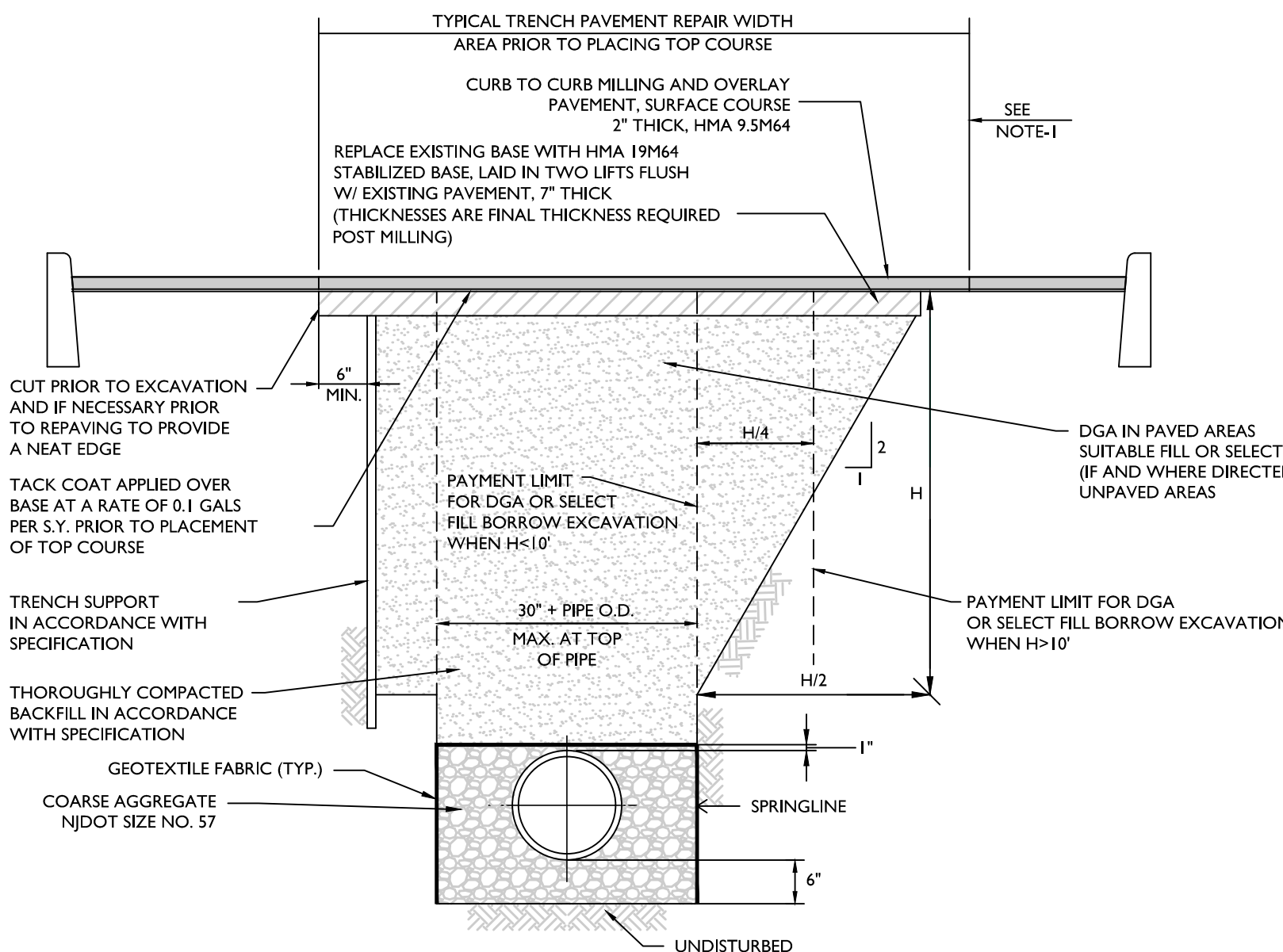


SECTION A-A

NOTES:
1. MANHOLE FRAME AND COVER SHALL BE CAMPBELL FOUNDRY PATTERN # 12028 WITH FLOW-SEAL COVER OR APPROVED EQUAL OR AS OTHERWISE REQUIRED BY JURISDICTIONAL AUTHORITY.
2. MANHOLE FRAME AND COVER TO BE HEAVY DUTY, CONFORMING TO ASTM SPECIFICATION A-48 CLASS 30-B WITH SHOP COAT OF ASPHALTIC PITCH.
3. IN EASEMENTS AND REMOTE AREAS, COVER LOCKING DEVICES OF BRONZE AND KEY SHALL BE PROVIDED.
4. WATERTIGHT MANHOLE FRAME AND COVERS SHALL BE REQUIRED IN FLOOD HAZARD AREAS WATERTIGHT MANHOLE FRAME AND COVER SHALL BE PATTERN # 6847 AS MANUFACTURED BY CAMPBELL FOUNDRY COMPANY OR APPROVED EQUAL. MANHOLES REQUIRING WATERTIGHT FRAME AND COVERS TO INCLUDE: MH S-11, MH S-12, MH S-13, MH S-14, MH S-15, MH S-16, MH S-17, MH S-18 AND MH S-20

SANITARY MANHOLE FRAME AND COVER DETAIL

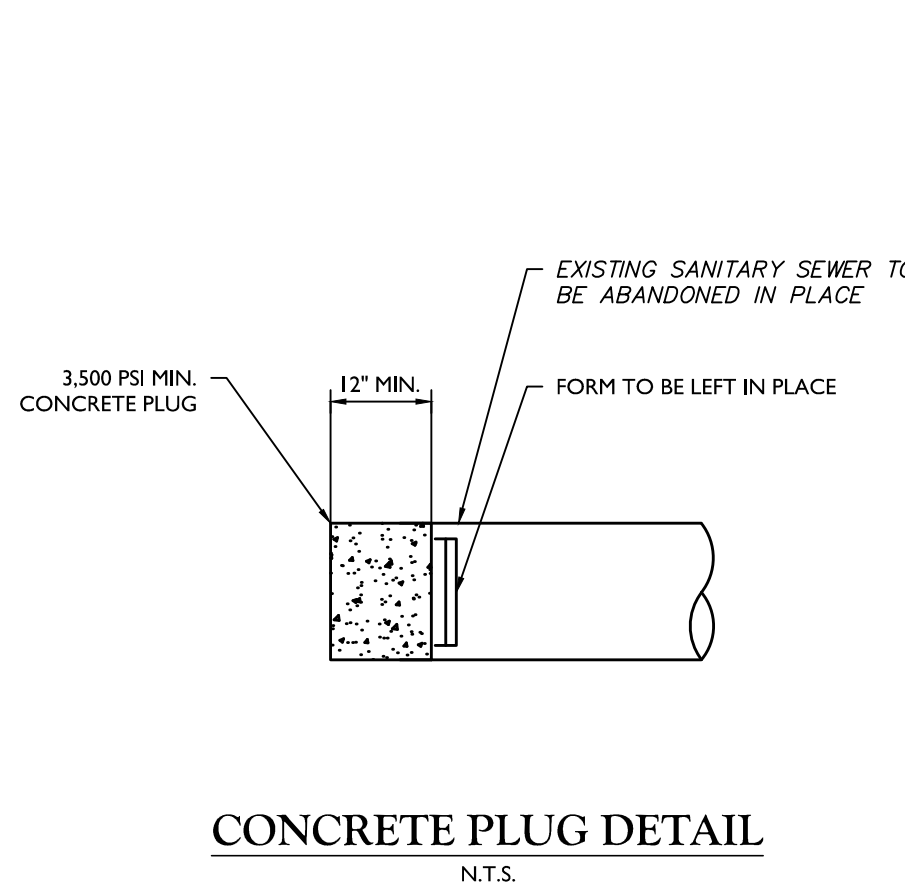
N.T.S.



NOTES:
1. LIMIT OF PAYMENT FOR TRENCH PAVING AND ADDITIONAL PAVEMENT EXCAVATION AND REPAIR.
2. MAXIMUM PAYMENT WIDTH FOR BORROW EXCAVATION SHALL BE 30\"/>

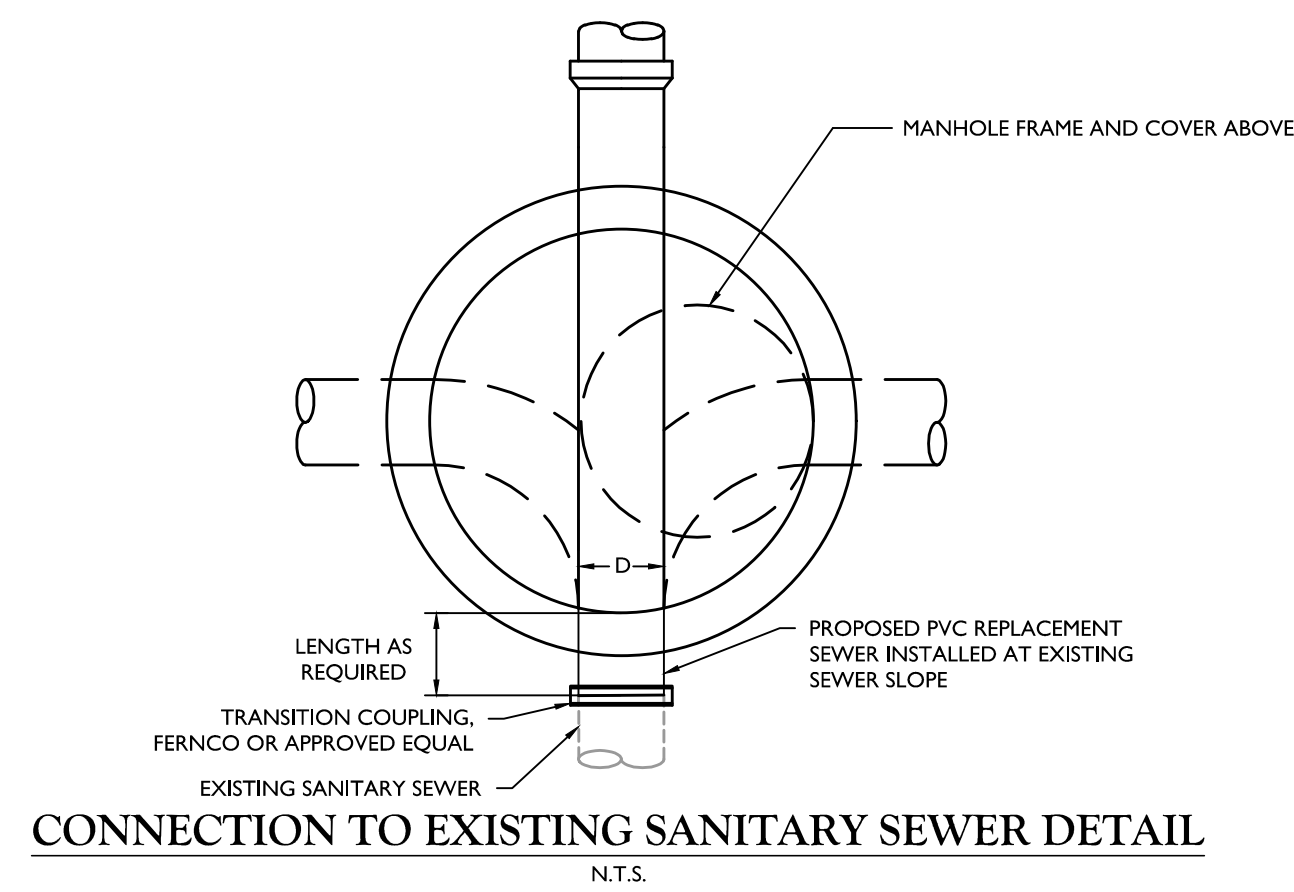
PIPE BEDDING AND TRENCH /PAVEMENT REPAIR DETAIL

N.T.S.



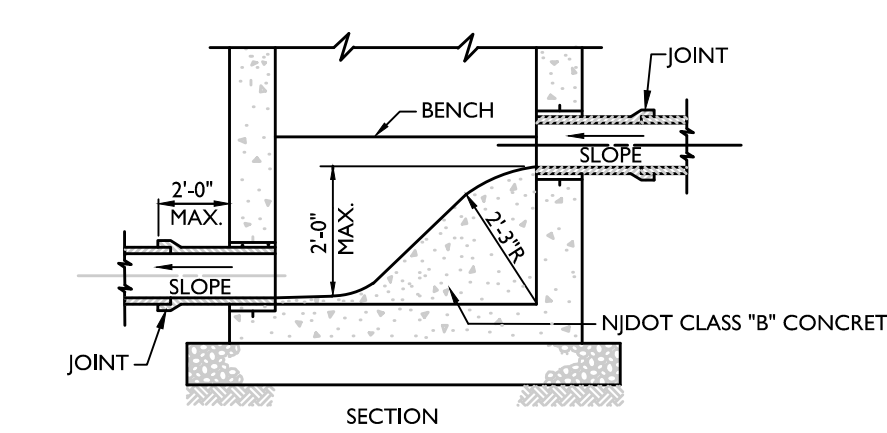
CONCRETE PLUG DETAIL

N.T.S.



CONNECTION TO EXISTING SANITARY SEWER DETAIL

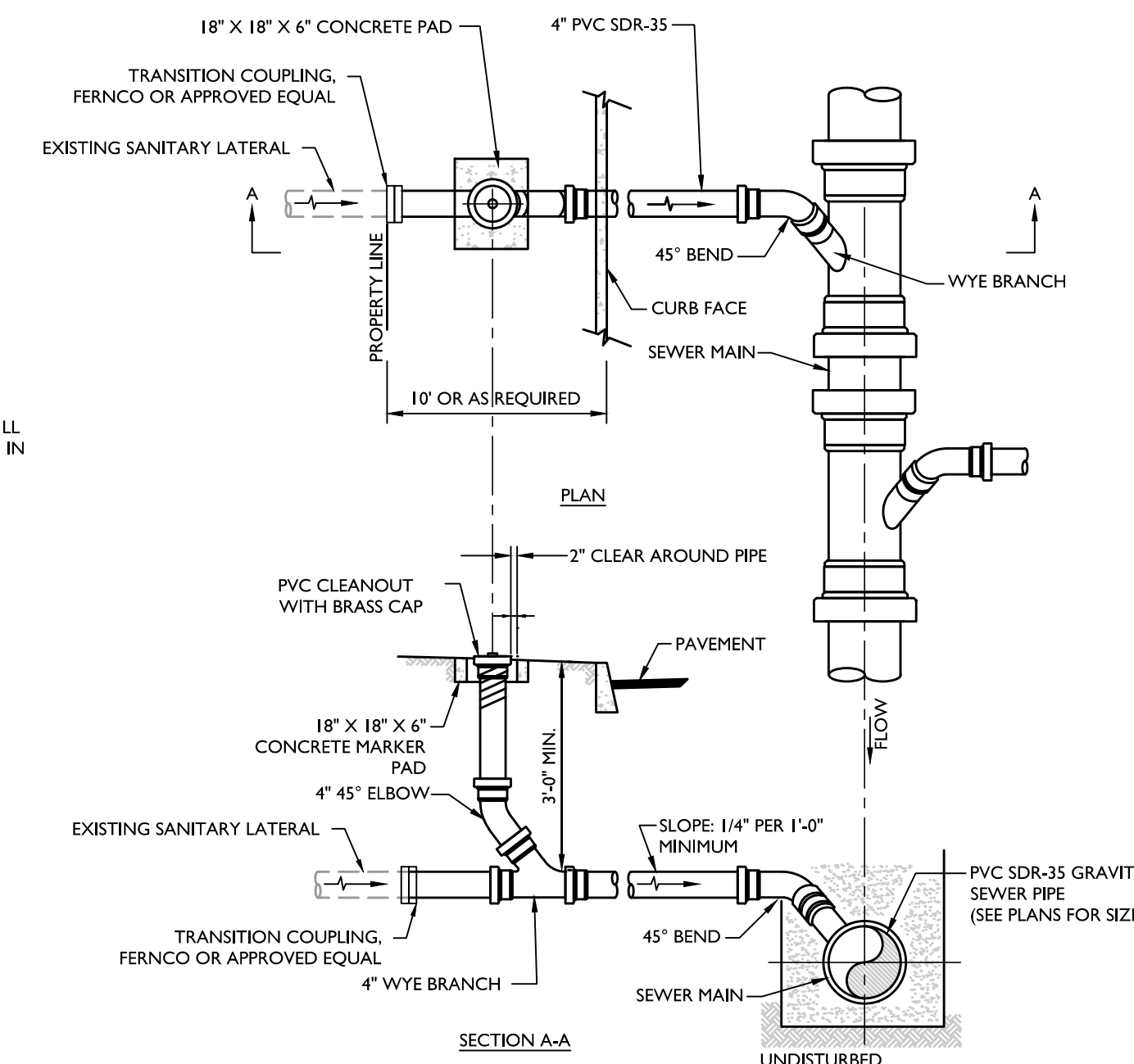
N.T.S.



NOTE:
1. MANHOLE CHUTE IS TO BE USED WHERE DIFFERENCE IN INVERT ELEVATIONS BETWEEN INCOMING PIPE AND OUTGOING PIPE IS LESS THAN 2'-0\"/>

MANHOLE CHUTE DETAIL

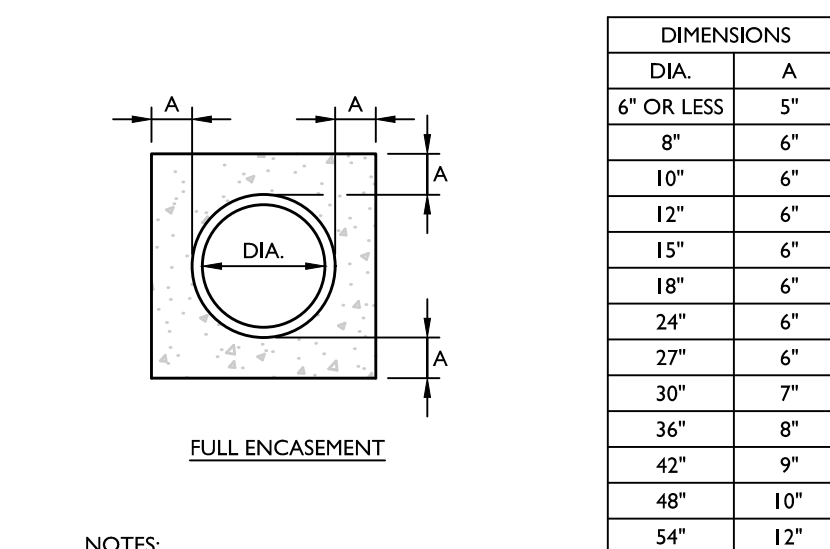
N.T.S.



SECTION A-A

SANITARY SEWER LATERAL & CLEANOUT DETAIL

N.T.S.



NOTES:
1. TO BE CONSTRUCTED WHERE SHOWN ON-SITE AND OFF-SITE UTILITY PLANS OR AS DIRECTED BY THE ENGINEER. IN GENERAL, THE VERTICAL SEPARATION AT A CROSSING OF SEWER AND WATER SHALL BE AT LEAST 18\"/>

2. CONCRETE TO BE NJDOT CLASS 'B'.

CONCRETE ENCASEMENT DETAIL

N.T.S.

FINAL

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REV	DATE	DESCRIPTION	DRAWN BY
1	5/14/24	REVISED PER N.J.P.E.P. COMPLIANCE ITEMS	JL
2	5/30/24	REVISED PER N.J.P.E.P. COMPLIANCE ITEMS	JL
3	6/03/24	REVISED PER N.J.P.E.P. COMPLIANCE ITEMS	JL
4	6/04/24	REVISED PER N.J.P.E.P. COMPLIANCE ITEMS	JL
5	8/27/24	REVISED PER N.J.P.E.P. COMPLIANCE ITEMS	JL
6	9/26/24	REVISED PER N.J.P.E.P. COMPLIANCE ITEMS	JL
7	10/20/24	REVISED PER TOWNSHIP COMMENTS	JL
8	5/09/25	REVISED PER TOWNSHIP COMMENTS	JL

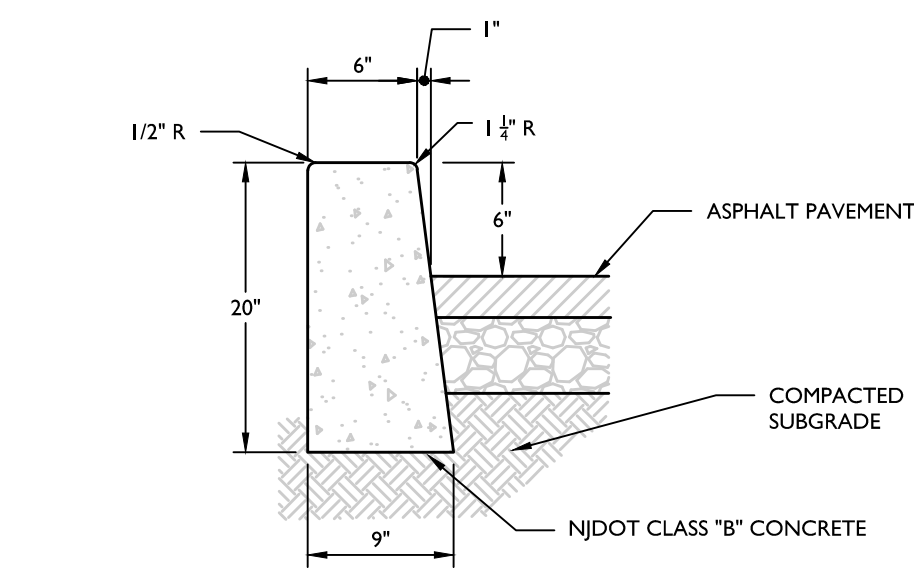
John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
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N.J. C.O.A. #: 2462A2798650

CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I
TOWNSHIP OF WOODBRIDGE COUNTY MIDDLESEX COUNTY NEW JERSEY

HOLMDEL (Headquarters)
101 Crawford's Corner Road, Suite 3400
Holmdel, NJ 07733
Phone: 732.383.1950
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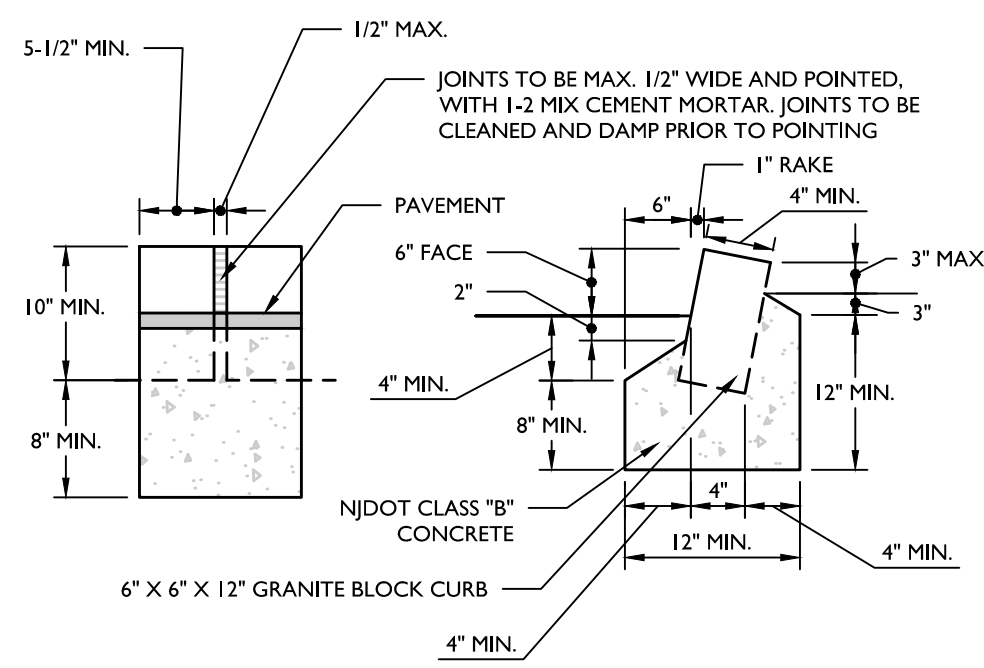
SCALE: AS SHOWN DATE: 02/21/24 DRAWN BY: DJI CHECKED BY: RAP
PROJECT NUMBER: 220052298 DRAWING NUMBER: WJ-DTLS

SHEET TITLE: CONSTRUCTION DETAILS
SHEET NUMBER: 13 of 24

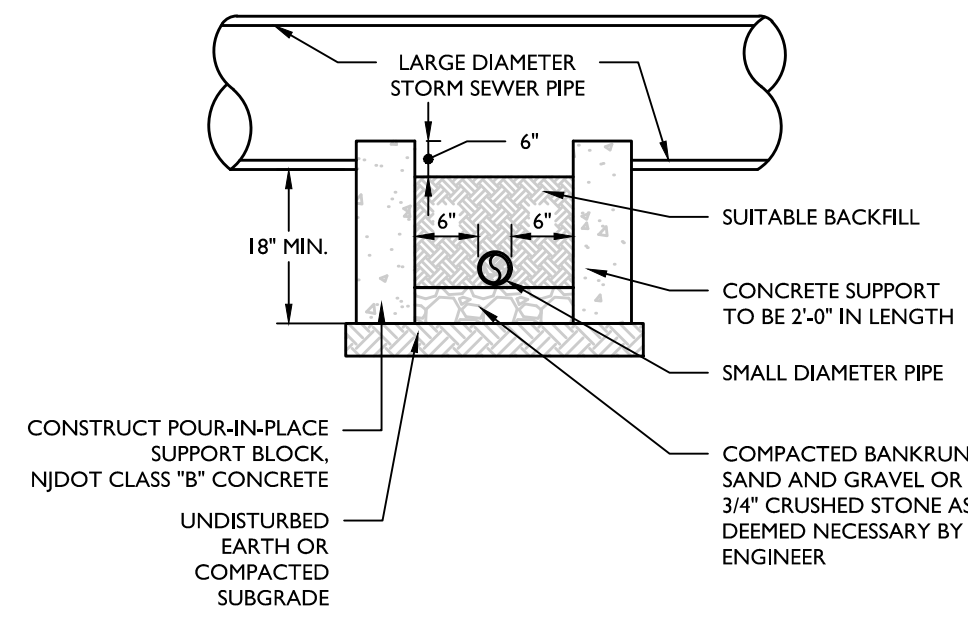


NOTES:
1. PREFORMED BITUMINOUS FIBER TRAVERSE JOINTS, 1/2" THICK AT 20' MAX. INTERVALS ALONG THE CURB.

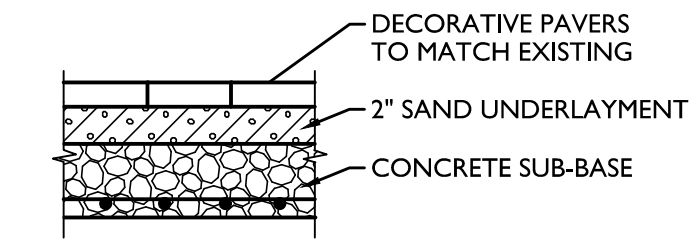
NJDOT VERTICAL CURB DETAIL
N.T.S.



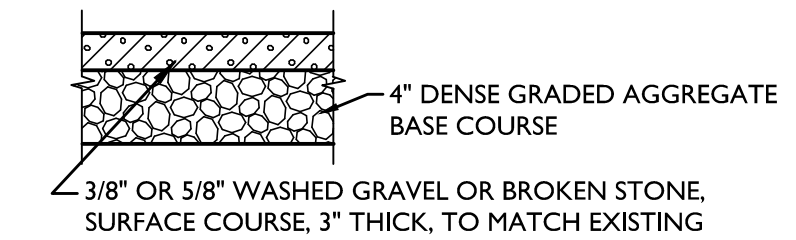
BELGIAN BLOCK CURB (RSIS) DETAIL
N.T.S.



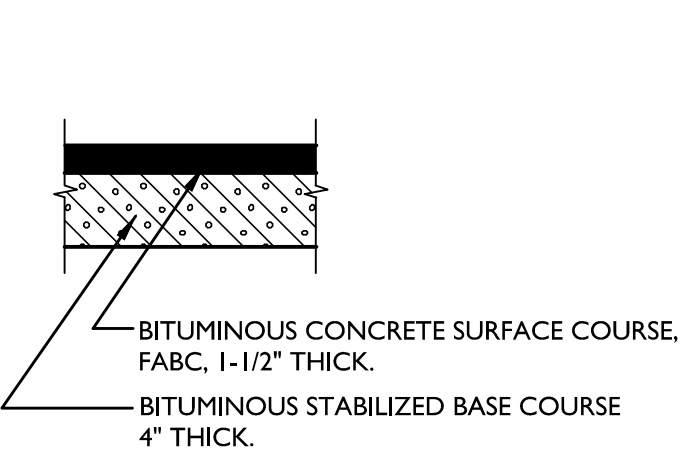
CONCRETE CRADLE BLOCK DETAIL
N.T.S.



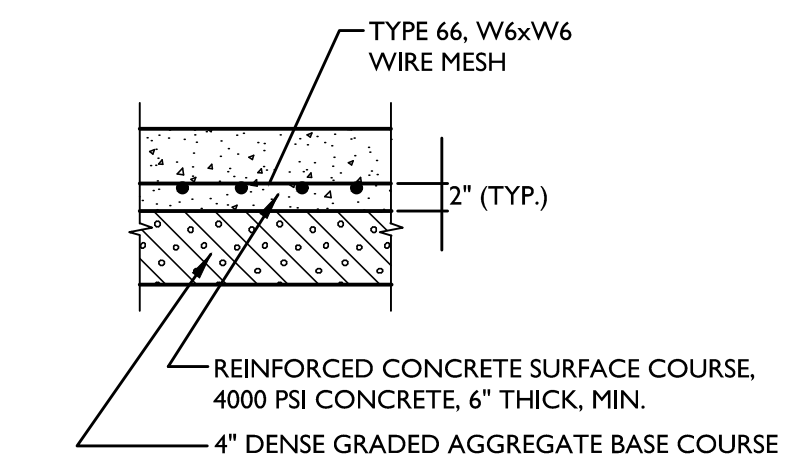
DECORATIVE PAVEMENT DRIVEWAY RESTORATION



DECORATIVE GRAVEL OR STONE DRIVEWAY RESTORATION

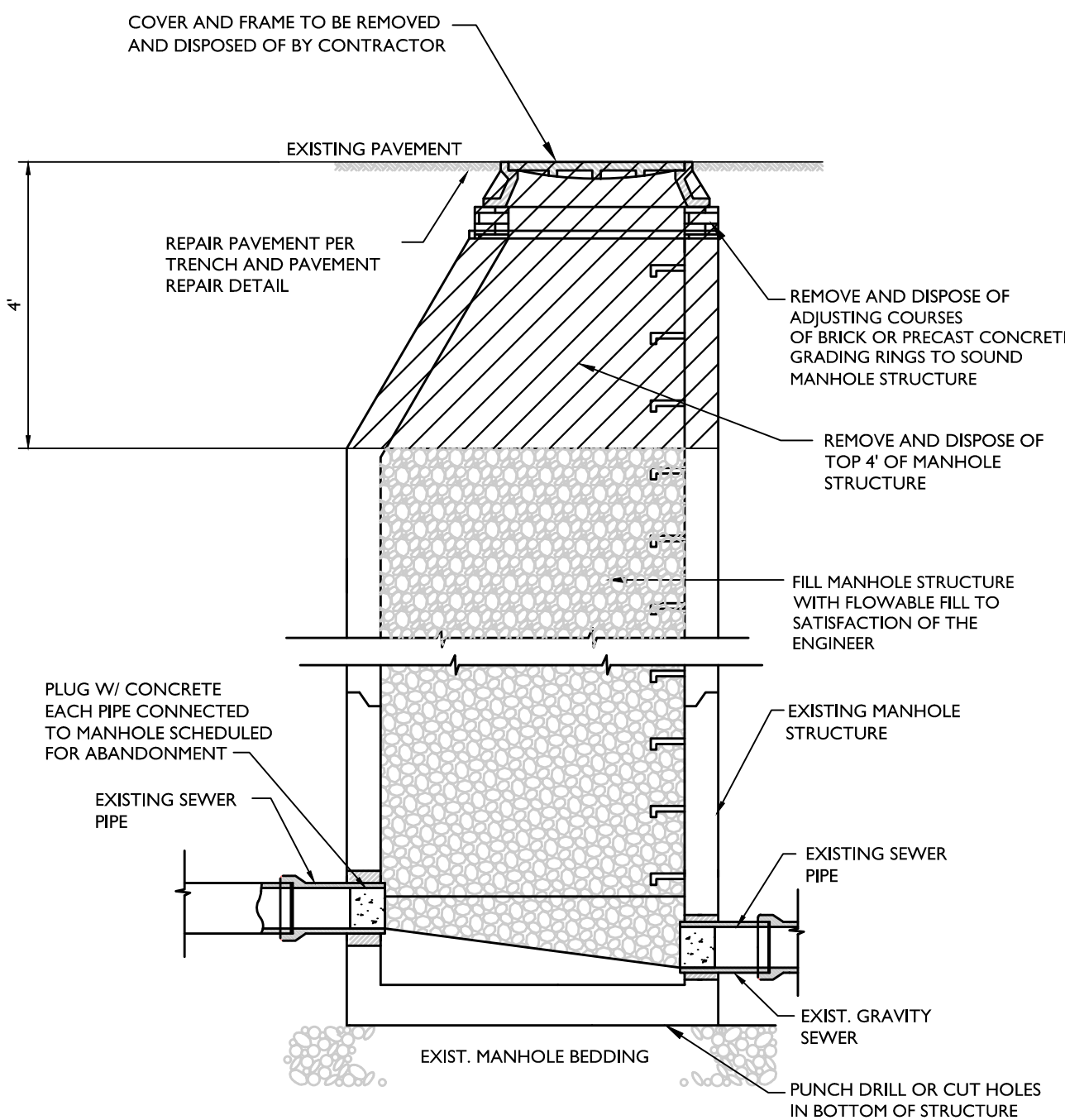


BITUMINOUS CONCRETE DRIVEWAY RESTORATION

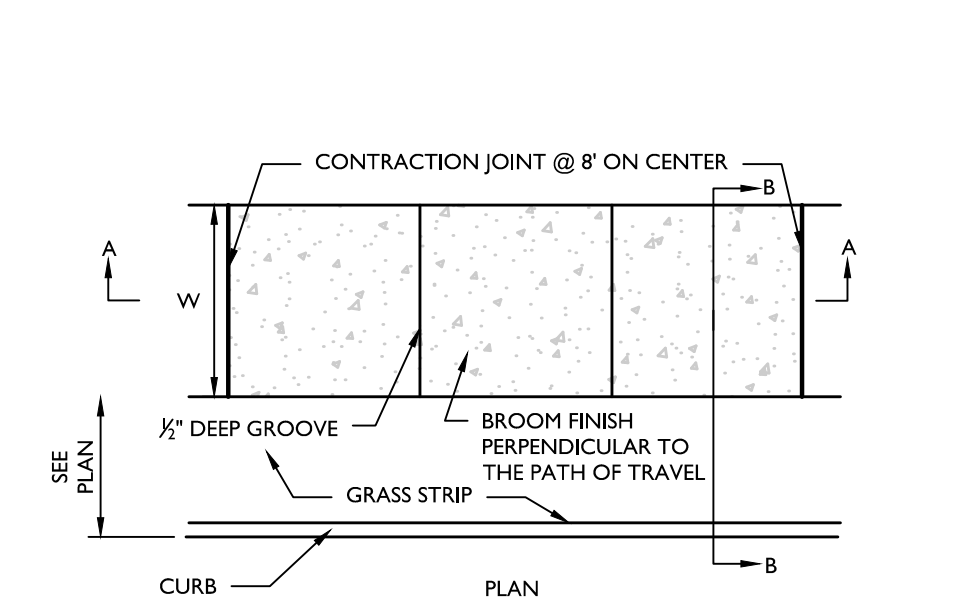


CONCRETE DRIVEWAY RESTORATION

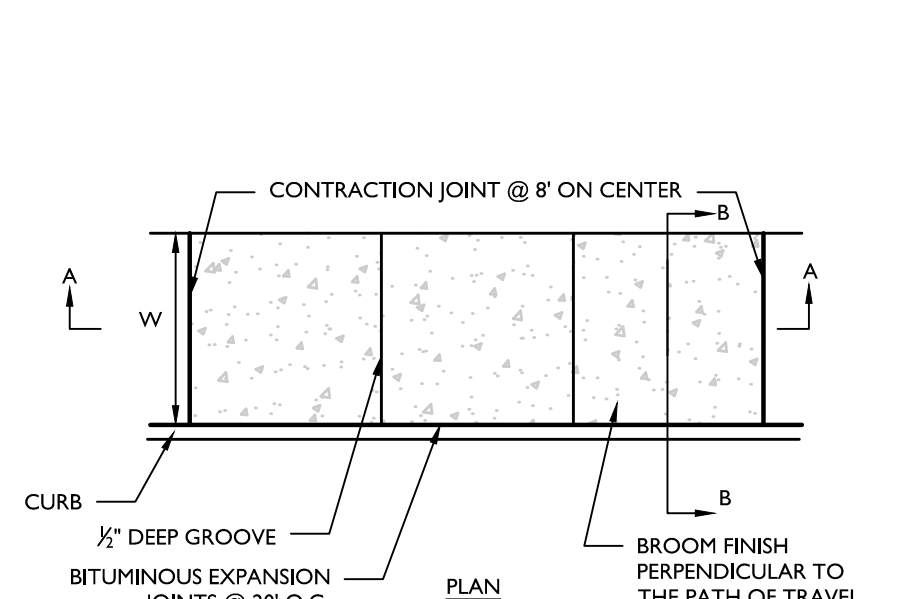
DRIVEWAY RESTORATION DETAILS
N.T.S.



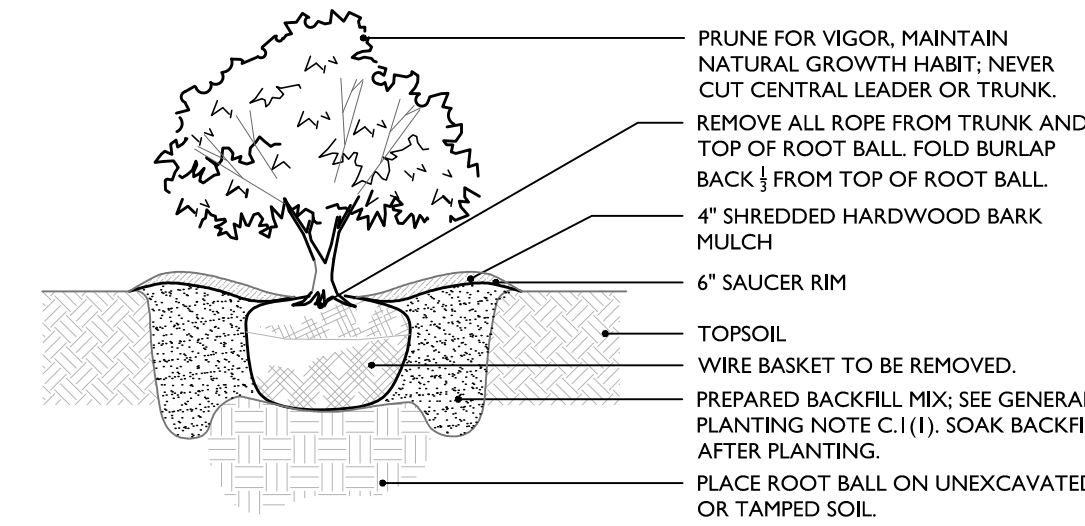
MANHOLE ABANDONMENT DETAIL
N.T.S.



CONCRETE SIDEWALK (NEXT TO GRASS) DETAIL
N.T.S.

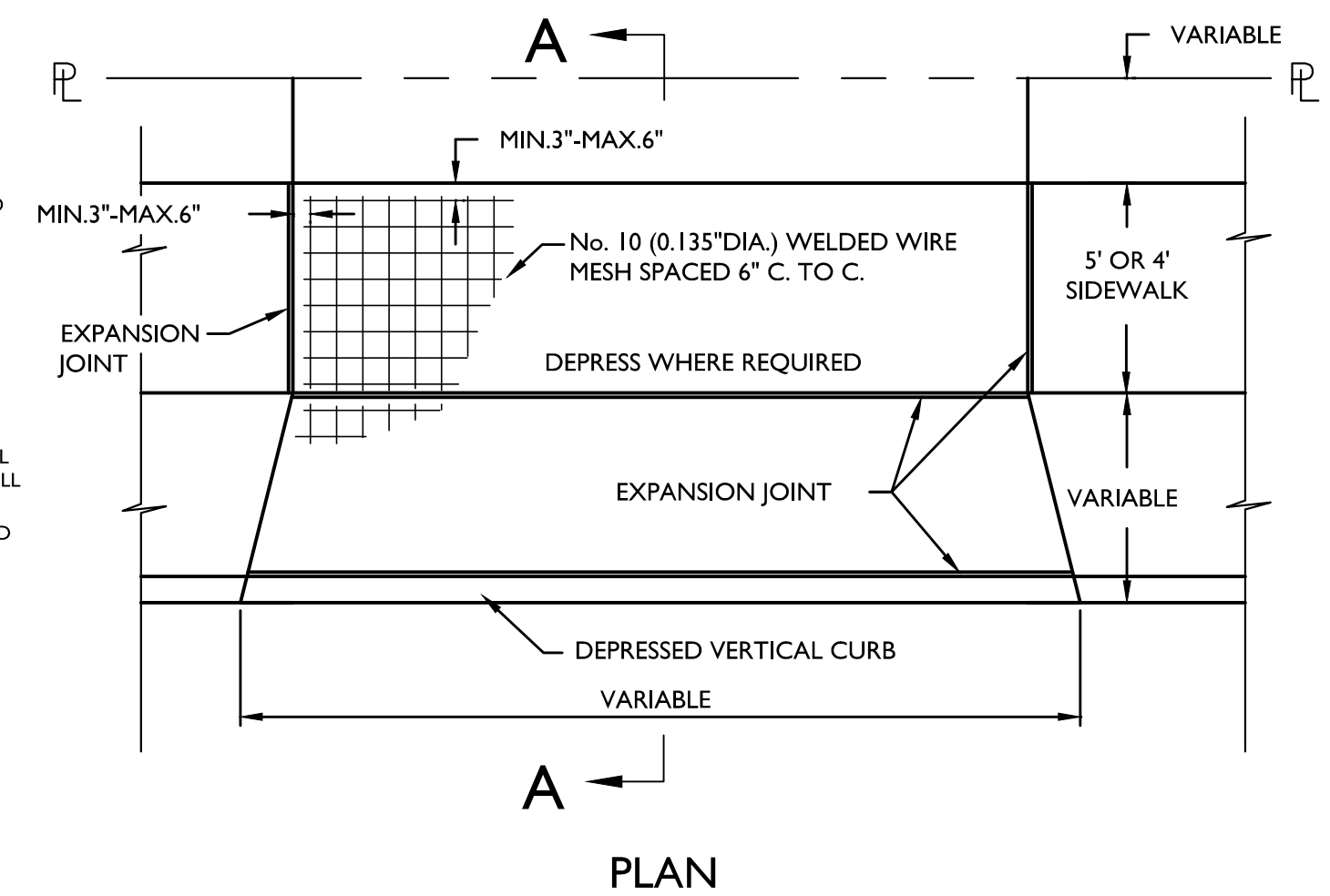


CONCRETE SIDEWALK (NEXT TO CURB) DETAIL
N.T.S.

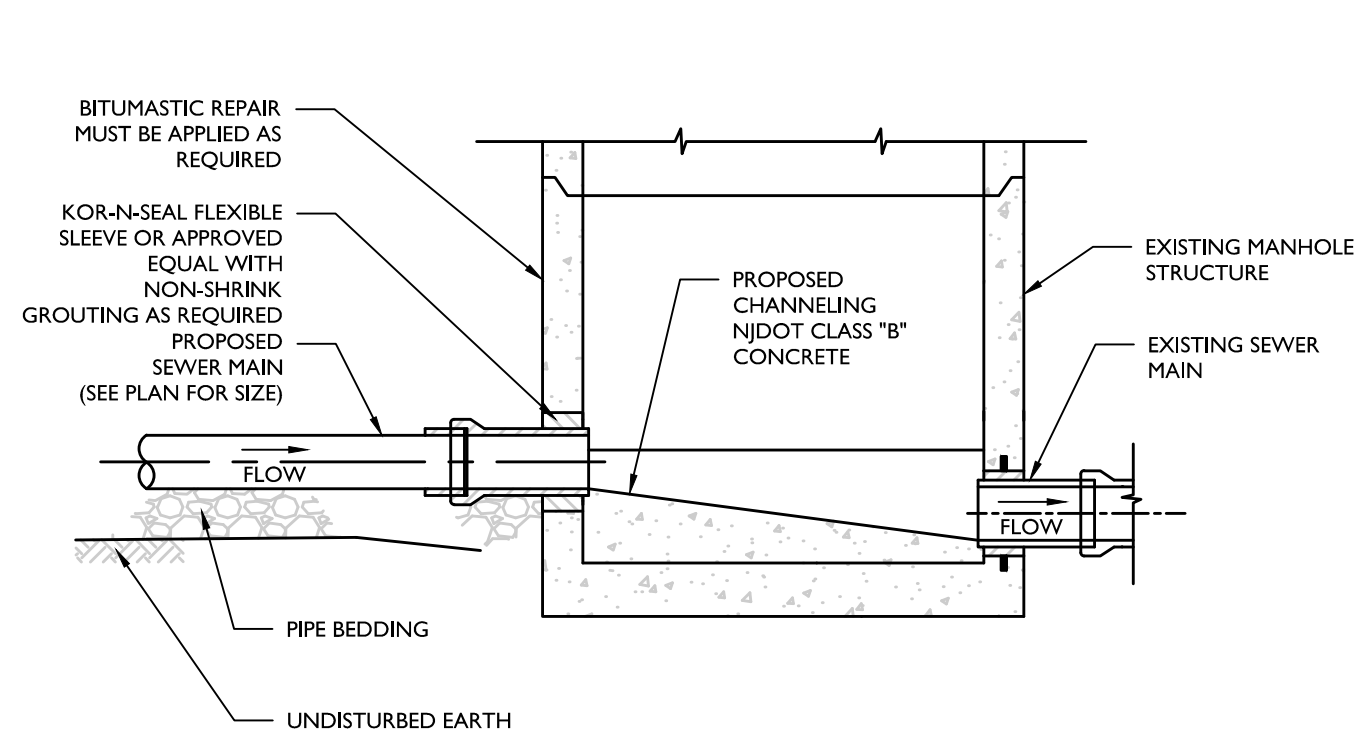


SHRUB PLANTING DETAIL

NOTES:
1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

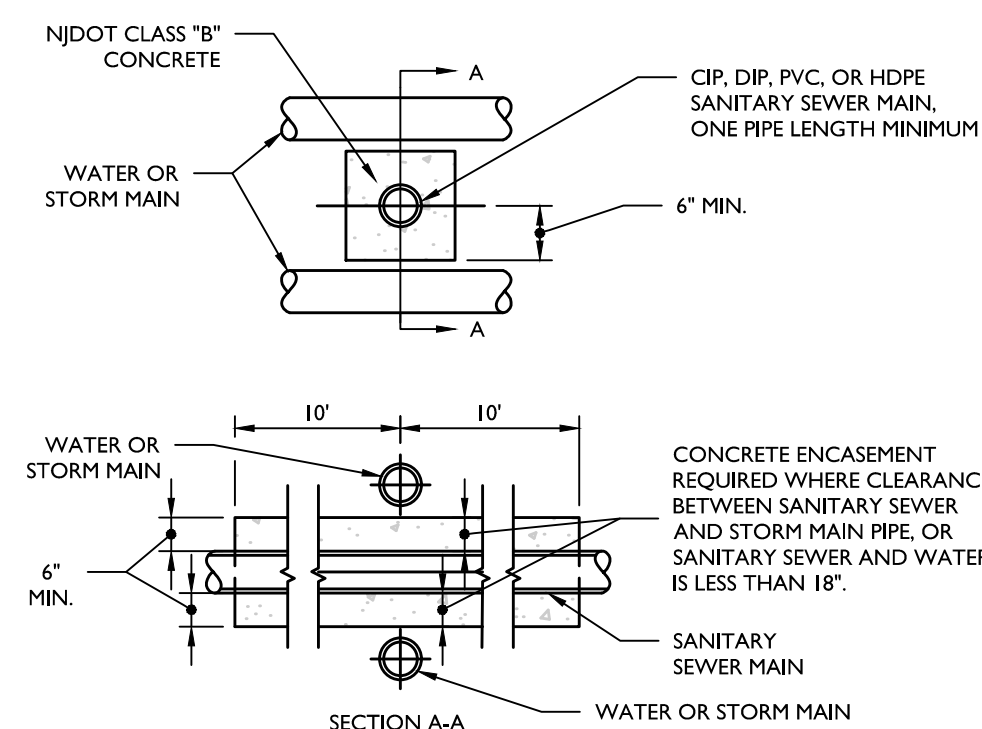


DRIVEWAY APRON DETAIL
N.T.S.



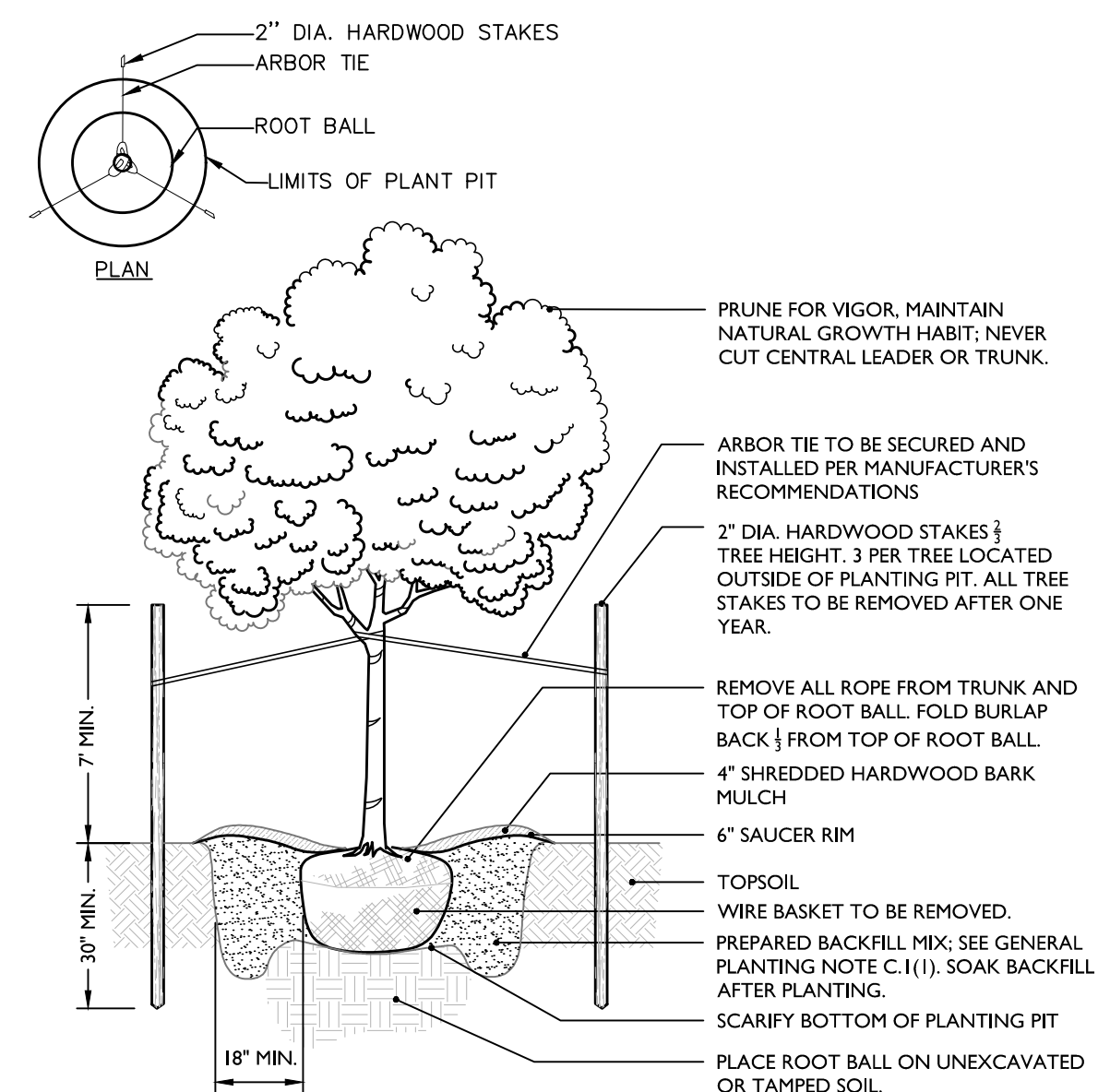
CONNECTION TO EXISTING MANHOLE DETAIL
N.T.S.

NOTES:
1. CONSTRUCTION OF THE NEW SEWER MAIN SHALL NOT IMPEDE THE OPERATION OF THE EXISTING SEWER.
2. WHERE NEW PIPE IS TO BE CONNECTED INTO AN EXISTING MANHOLE, THE CONTRACTOR SHALL CORE DRILL ALL HOLES INTO MANHOLE AND SHALL PERFORM ALL CUTTING AND PATCHING NECESSARY FOR CHANNEL AND BENCH RECONSTRUCTION TO CHANNEL FLOW INTO EXISTING SEWER.
3. PIPE SHALL BE SEALED USING KOR-N-SEAL MANHOLE ADAPTERS OR APPROVED EQUAL AND NON-SHRINK GROUT.
4. EXISTING BENCH SHALL BE CHIPPED AND CUT AWAY TO ALLOW FOR NEW CHANNEL TO BE CONSTRUCTED AND TO PROVIDE GOOD, SOUND SURFACE FOR BONDING WITH NEW CONCRETE CHANNEL AND BENCH. REMOVE ALL LOOSE MATERIALS AND CLEAN INSIDE OF THE STRUCTURE.
5. THE CONCRETE USED TO CONSTRUCT BENCHES AND CHANNELS SHALL BE NJDOT CLASS 'B' CONCRETE APPLY EPOXY BONDING AGENT PRIOR TO POURING CONCRETE.
6. ANY DAMAGE TO THE EXISTING MANHOLE CAUSED BY THE CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR.



SANITARY MAIN ENCASEMENT DETAIL
N.T.S.

NOTES:
1. SEE CONCRETE ENCASEMENT SCHEDULE FOR THE CONCRETE THICKNESS AROUND THE PIPE.
2. SET THE PIPE JOINT AS FAR AWAY FROM THE CROSSING AS POSSIBLE.



TREE PLANTING DETAIL

NOTES:
1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.
3. WHEN TAGGING TREES AT THE NURSERY MARK THE NORTH SIDE OF THE TREE AND WHEN INSTALLING ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE.

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REV	DATE	DESCRIPTION	DRAWN BY	DATE	DESCRIPTION
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2	5/20/24	REVISED FOR NJDEP COMPLIANCE ITEMS	DJI		
3	6/20/24	REVISED PER AIRTRAC REVISION COMMENTS	DJI		
4	6/24/24	REVISED PER NJDOT REVIEW COMMENTS	DJI		
5	8/27/24	REVISED PER NJDEP TWA COMMENTS	DJI		
6	9/26/24	REVISED PER NJDEP COMMENTS	DJI		
7	10/20/24	REVISED PER NJDEP COMMENTS	DJI		
8	5/29/25	REVISED PER TOWNSHIP COMMENTS	DJI		

John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. # 246A2798650

CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I
TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

Colliers Engineering & Design
HOLMDEL (Headquarters)
101 Crawford's Corner Road, Suite 3400
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COLLIERS ENGINEERING & DESIGN, INC. DOES BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN DATE: 02/21/24 DRAWN BY: DJI CHECKED BY: RAP
PROJECT NUMBER: 220052298 DRAWING NAME: W-DTLS

SHEET TITLE: CONSTRUCTION DETAILS
SHEET NUMBER: 14 of 24

FINAL

TOWNSHIP OF WOODBRIDGE

FREEHOLD SOIL CONSERVATION DISTRICT NOTES

MCNJ-SOIL-NOTE-1005 05/01/17

- 1. THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY.
2. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO SOIL DISTURBANCE...
3. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION...

- 7. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS...
8. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE...

- 9. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT-OF-WAYS WILL BE REMOVED IMMEDIATELY.
10. PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.

- 11. AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER...

- 12. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS/ACRE...
13. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.

- 14. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
15. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.

- 16. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
17. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.

- 18. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

FREEHOLD SOIL CONSERVATION DISTRICT
4000 KOZLOSKI ROAD, FREEHOLD, NJ 07728-5033.
PHONE (732) 683-8500, FAX (732) 683-9140.
EMAIL: INFO@FREEHOLDSCD.ORG.

MITIGATION NOTES FOR ACIDIC SOIL

MCNJ-SOIL-NOTE-1700 05/01/17

- 1. LIMIT THE EXCAVATION AREA AND EXPOSURE TIME WHEN HIGH-ACID PRODUCING SOILS ARE ENCOUNTERED.
2. TOPSOIL STRIPPED FROM THE SITE SHALL BE STORED SEPARATELY FROM TEMPORARILY STOCKPILED HIGH-ACID PRODUCING SOILS.
3. STOCKPILES OF HIGH-ACID-PRODUCING SOIL SHOULD BE LOCATED ON LEVEL LAND TO MINIMIZE ITS MOVEMENT...
4. TEMPORARILY STOCKPILED HIGH ACID-PRODUCING SOIL MATERIAL TO BE STORED MORE THAN 48 HOURS SHOULD BE COVERED WITH PROPERLY ANCHORED, HEAVY GRADE SHEETS OF POLYETHYLENE WHERE POSSIBLE...
5. HIGH ACID PRODUCING SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDES (INCLUDING BORROW FROM CUTS OR DREDGED SEDIMENT) SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS PER ACRE...

STABILIZATION WITH MULCH ONLY

MCNJ-SOIL-NOTE-1301 05/01/17

- 1. SITE PREPARATION
A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION SEEDING, MULCH APPLICATION, AND MULCH ANCHORING...
2. PROTECTIVE MATERIALS
A. UNROTTEN SMALL-GRAIN STRAW, AT 2.0 TO 2.5 TONS PER ACRE, IS SPREAD UNIFORMLY AT 90 TO 115 POUNDS PER 1,000 SQUARE FEET AND ANCHORED WITH A MULCH ANCHORING TOOL...
3. MULCH ANCHORING - SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT OF HAY OR STRAW MULCH TO MINIMIZE LOSS BY WIND OR WATER...
4. PEDESTAL TWINE - DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS...

- 1. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.
2. USE ONE OF THE FOLLOWING:
a. ORGANIC AND VEGETABLE BASED BINDERS - NATURALLY OCCURRING, POWDER BASED, HYDROPHILIC MATERIALS THAT MIXED WITH WATER FORMULATES A GEL AND WHEN APPLIED TO MULCH UNDER SATISFACTORY CURING CONDITIONS WILL FORM MEMBRANE NETWORKS OF INSOLUBLE POLYMERS...
b. SYNTHETIC BINDERS - HIGH POLYMERS SYNTHETIC EMULSION, MISCIBLE WITH WATER WHEN DILUTED AND FOLLOWING APPLICATION TO MULCH, DRYING AND CURING SHALL NO LONGER BE SOLUBLE OR DISPERSIBLE IN WATER...

TEMPORARY SEEDING SPECIFICATIONS

GNRL-NOTE-STND-GRID 05/01/17

- I. SEEDING
A. SELECT MIXTURE FROM THOSE LISTED BELOW OR AN APPROVED EQUAL AS SPECIFIED IN TABLE 7.2 OF THE STANDARD AND APPLY AS NOTED BELOW.
B. SITE PREPARATION, SEEDBED PREPARATION, SEEDING AND MULCHING ARE TO BE AS SPECIFIED FOR PERMANENT SEEDING.

PERMANENT SEEDING SPECIFICATIONS

GNRL-NOTE-STND-GRID 05/01/17

- 1. SITE PREPARATION
A. APPLY A UNIFORM 3 INCHES (UNSETTLED) OF TOPSOIL IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING OVER ALL DISTURBED AREAS...
2. SEEDBED PREPARATION
A. APPLY A UNIFORM 3 INCHES (UNSETTLED) OF TOPSOIL IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING OVER ALL DISTURBED AREAS...
3. SEEDING
A. SELECT AN APPROVED MIXTURE FROM THOSE LISTED BELOW OR AN APPROVED EQUAL AS SPECIFIED IN TABLE 4.3 OF THE STANDARD AND APPLY AS NOTED BELOW WITHIN THE DATES SPECIFIED IN THE STANDARD.

LOCATION ACCEPTABLE SEED MIXES

Table with 2 columns: LOCATION and ACCEPTABLE SEED MIXES. Rows include LAWN, MIX #15 - HARD FESCUE 120 LBS/ACRE, PERENNIAL RYE GRASS 30 LBS/ACRE, KENTUCKY BLUE GRASS (BLEND) 40 LBS/ACRE, and MIX #16 - TALL FESCUE (TURF TYPE) 160 LBS/ACRE.

- B. CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL, OR CULTIPACKER SEEDER...
C. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED...
D. AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY AND IMPROVE SEEDLING EMERGENCE...

STANDARD FOR TOPSOILING - METHODS AND MATERIALS

GNRL-NOTE-STND-GRID 05/01/17

- 1. MATERIALS
A. TOPSOIL SHOULD BE FRIABLE, LOAMY, FREE OF DEBRIS, OBJECTIONABLE WEEDS AND STONES, AND CONTAIN NO TOXIC SUBSTANCE OR ADVERSE CHEMICAL OR PHYSICAL CONDITION THAT MAY BE HARMFUL TO PLANT GROWTH...
2. STRIPPING AND STOCKPILING
A. FIELD EXPLORATION SHOULD BE MADE TO DETERMINE WHETHER QUANTITY AND OR QUALITY OF SURFACE SOIL JUSTIFIES STRIPPING...
3. SITE PREPARATION
A. GRADE AT THE ONSET OF THE OPTIMAL SEEDING PERIOD SO AS TO MINIMIZE THE DURATION AND AREA OF EXPOSURE OF DISTURBED SOIL TO EROSION...

DUST CONTROL

MCNJ-SOIL-NOTE-1400 05/01/17

- DUST CONTROL METHODS:
1. APPLY MULCHES OR VEGETATIVE COVER AS PER NJ SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
2. TILL AND ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS...
3. SPRINKLE THE SITE UNTIL THE SURFACE IS WET.
4. ERECT BARRIERS SUCH AS SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL TO CONTROL AIR CURRENTS AND SOIL BLOWING...

Table with 4 columns: MATERIAL, WATER DILUTION, TYPE OF NOZZLE, APPLY GALLONS/ACRE. Rows include ANIONIC ASPHALT EMULSION, LATEX EMULSION, RESIN IN WATER, POLYACRYLAMIDE (PAM) - DRY SPREAD, and ACIDULATED SOY BEAN SOAP STICK.

SEQUENCE OF CONSTRUCTION

MCNJ-SOIL-NOTE-1500 05/01/18

- 1. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS BEFORE COMMENCEMENT OF CONSTRUCTION.
2. CLEARING SITE AND MOBILIZATION.
3. ALL EROSION CONTROL STRUCTURAL MEASURES, INCLUDING BUT NOT LIMITED TO TREE PROTECTION AND SILT FENCE SHALL BE IN PLACE PRIOR TO THE BEGINNING OF DISTURBANCE...
4. APPLYING TOPSOIL
A. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE...
B. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS RECOMMENDED...

COUNTY OF MIDDLESEX



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Professional Engineer seal for John J. McKelevy, No. GE31599, State of New Jersey.

John J. McKelevy
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A.#: 2462A2798650

CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

HOLMDEL (Headquarters)
101 Crawford's Corner Road, Suite 3400
Holmdel, NJ 07733
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC. DESIGN AND ENGINEERING CONSULTING

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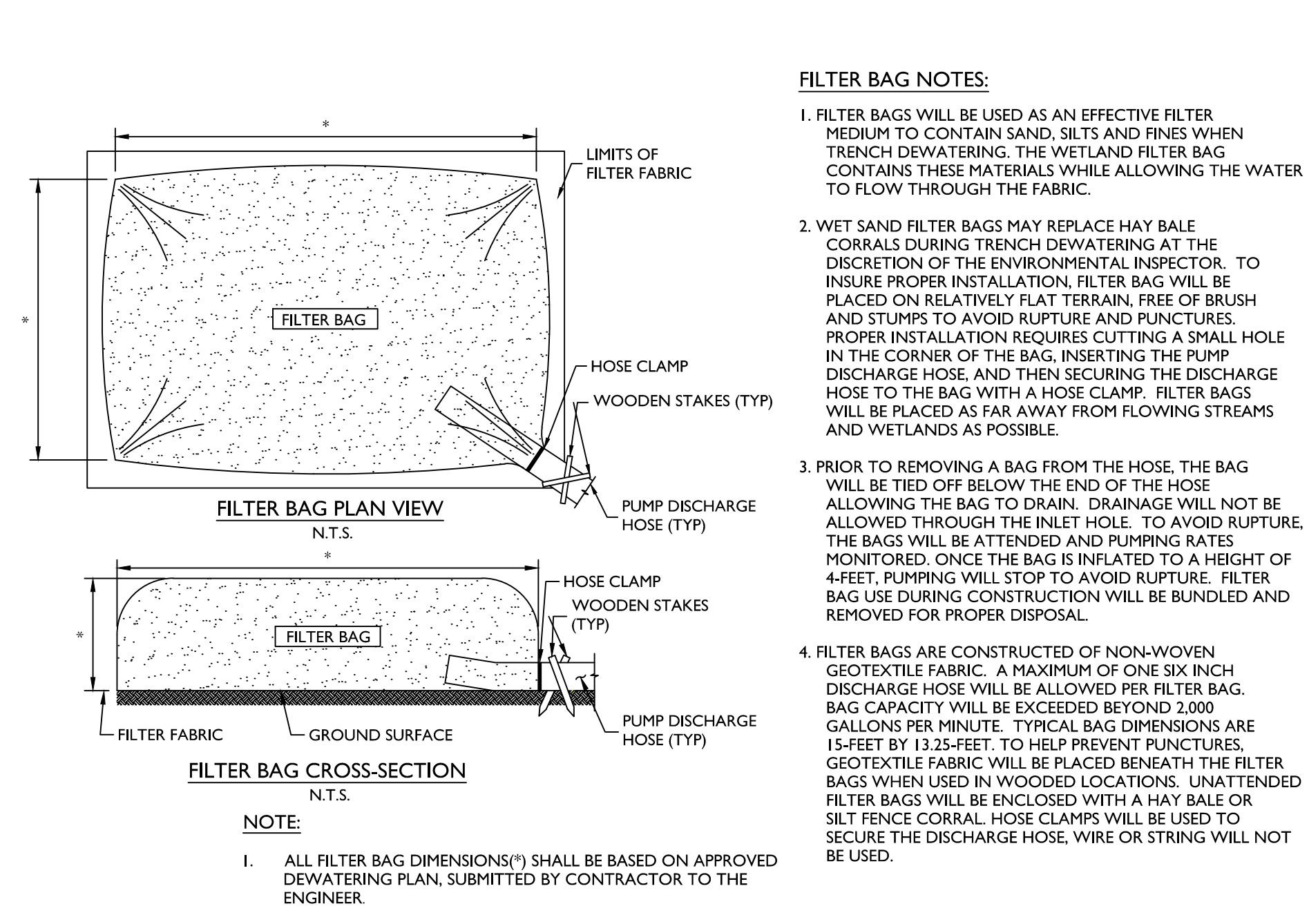
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SOIL EROSION AND SEDIMENT CONTROL NOTES

Table with 2 columns: SHEET NUMBER, TOTAL SHEETS. Rows include 15 of 24.

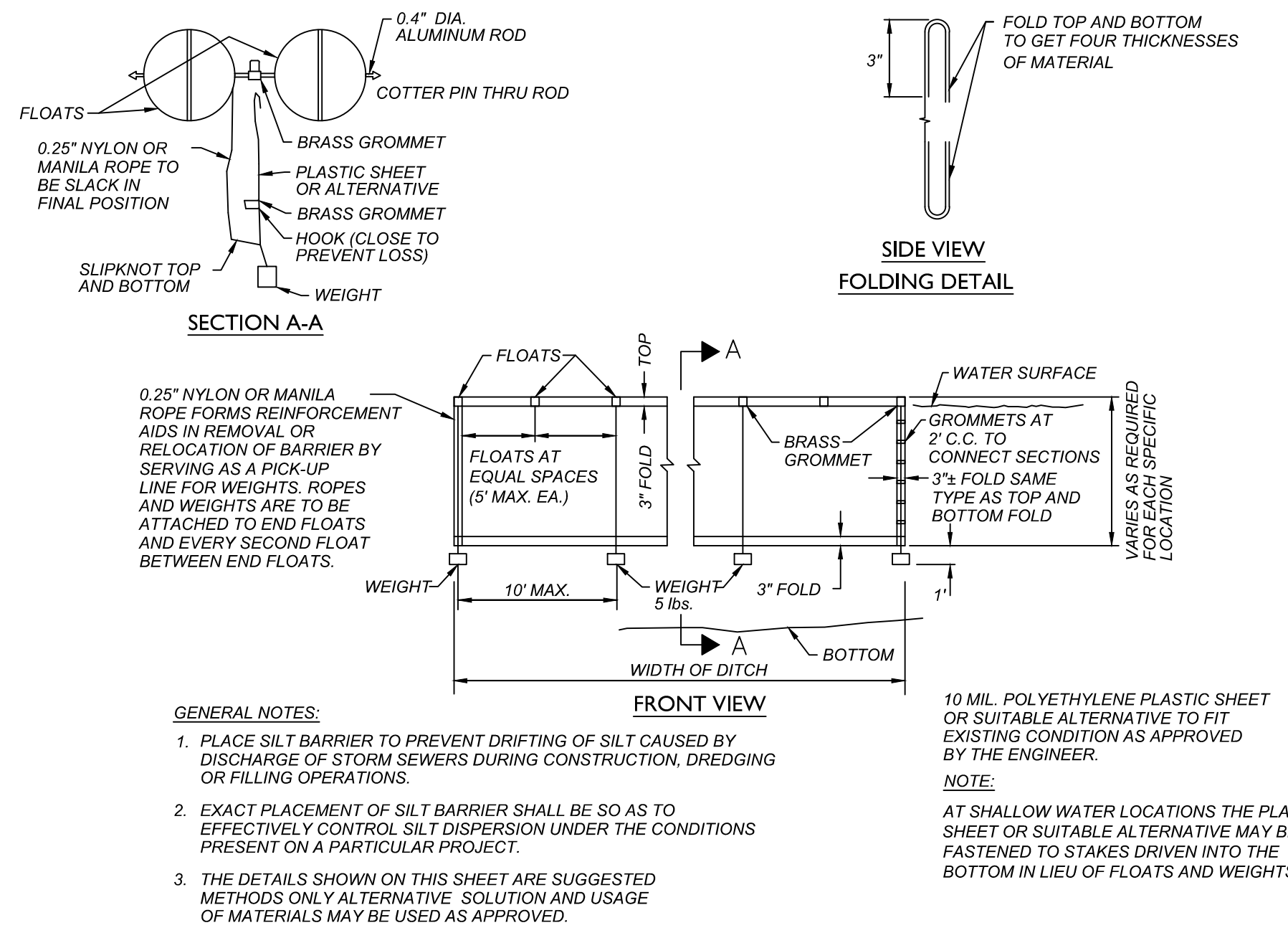
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TOWNSHIP OF WOODBRIDGE



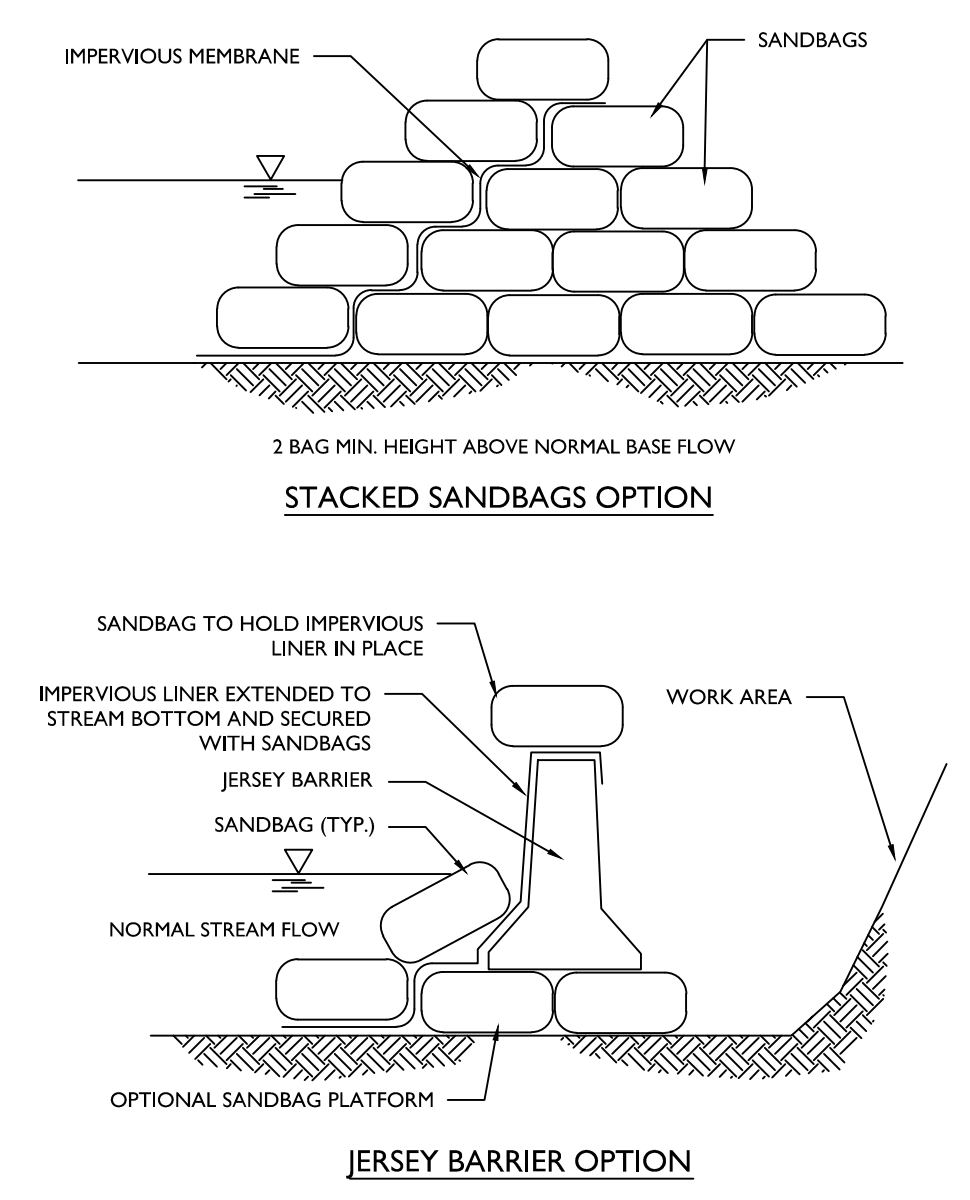
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NOT TO SCALE GNRL-DTLS-STND-GRID 05/30/24



FLOATING TURBIDITY BARRIER

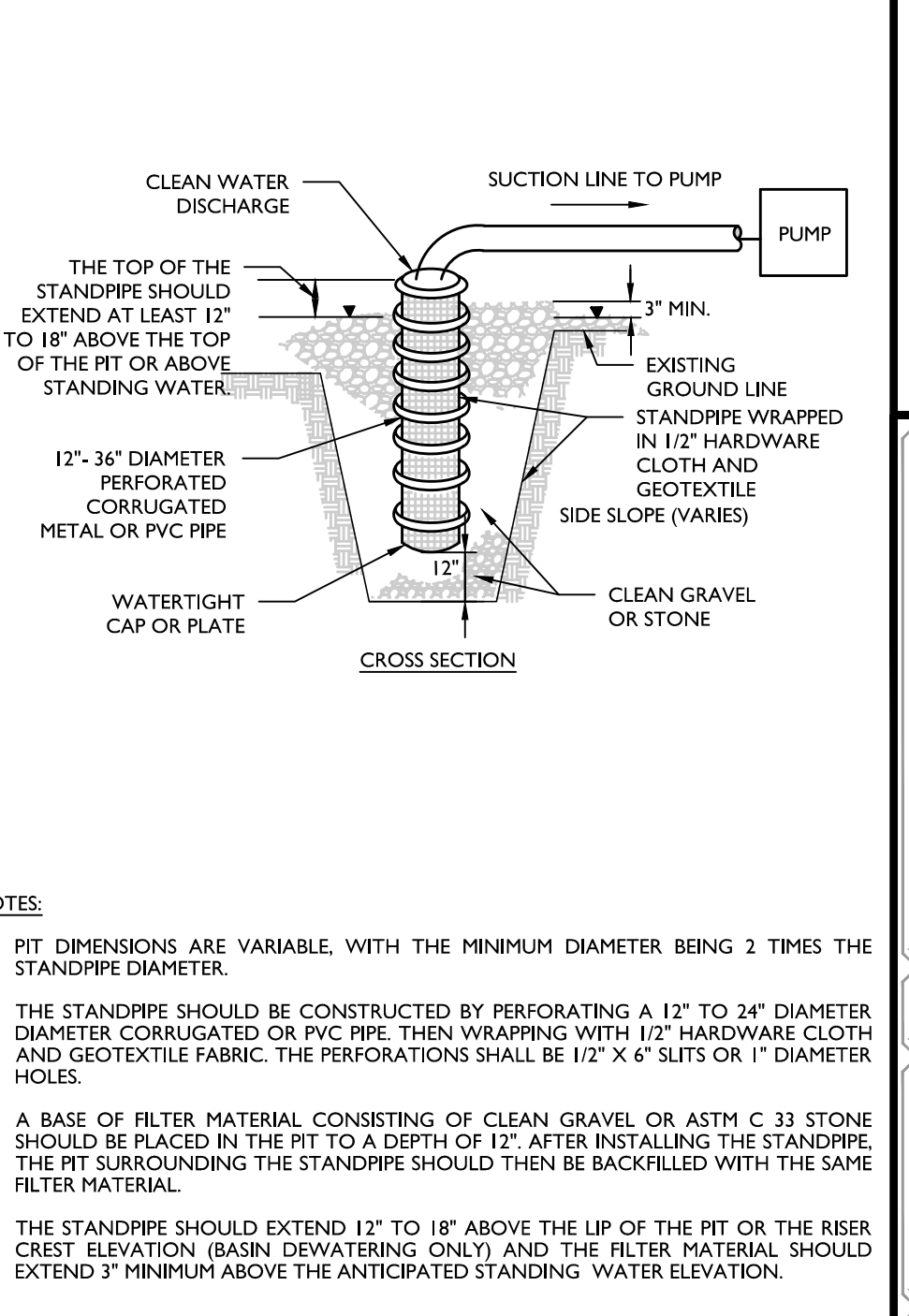
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SANDBAG DIVERSION OR COFFERDAM DETAIL

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COUNTY OF MIDDLESEX



SUMP PIT DETAIL

NOT TO SCALE MCNI-SOIL-EROS-1900 05/01/17

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2	5/30/24	JL	REVISED PER NJDEP COMPLIANCE ITEMS
3	6/03/24	DJI	REVISED PER AIRTRAC REVIEW COMMENTS
4	6/04/24	DJI	REVISED PER NJDEP REVIEW COMMENTS
5	8/27/24	DJI	REVISED PER NJDEP TWA COMMENTS
6	9/26/24	DJI	REVISED PER NJDEP COMMENTS
7	1/20/25	DJI	REVISED PER NJDEP COMMENTS
8	5/09/25	DJI	REVISED PER TOWNSHIP COMMENTS

STATE OF NEW JERSEY
Professional Engineer
John J. McKelvey
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS FOR STAFFORD ROAD SANITARY SEWER REPLACEMENT AND REHABILITATION PHASE I

TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

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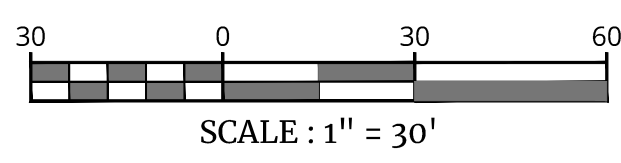
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PROJECT NUMBER: 220052296	DRAWING NAME: W-SESC		

SHEET TITLE: SOIL EROSION AND SEDIMENT CONTROL DETAILS

SHEET NUMBER: 17 of 24



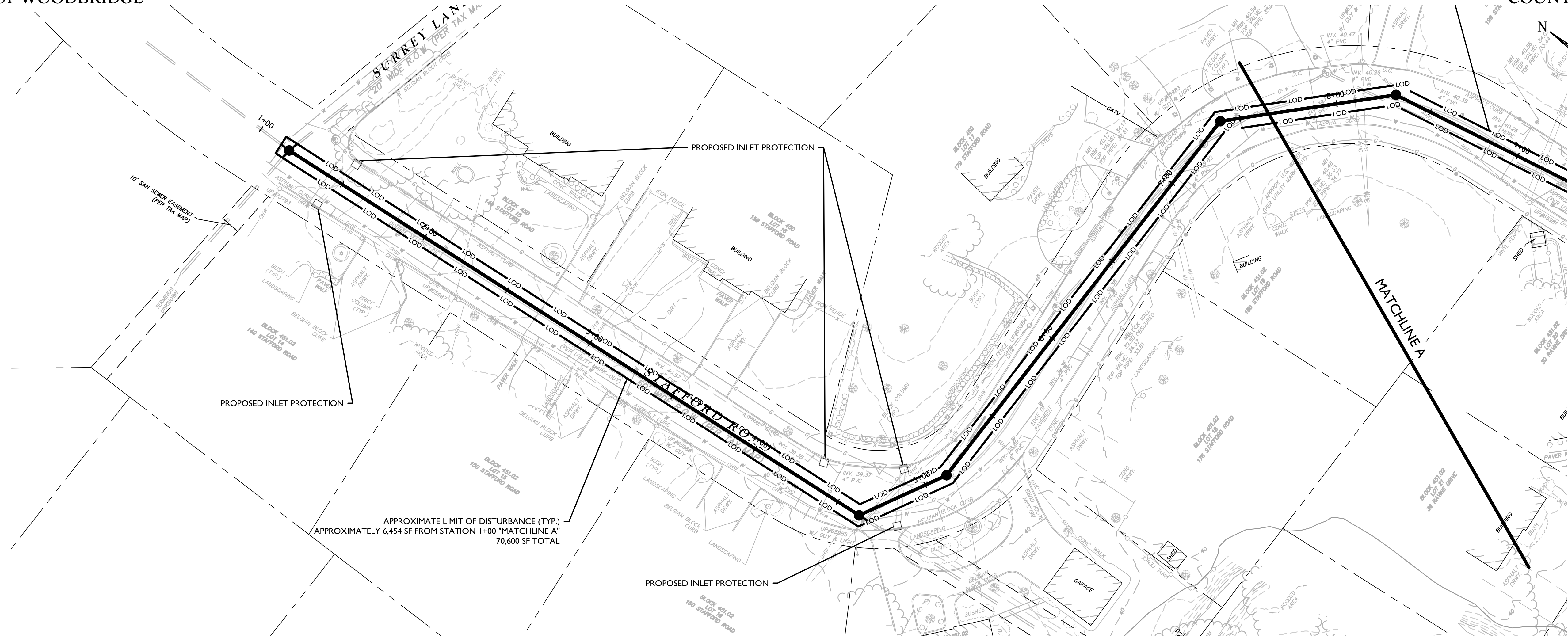
ADDITIONAL STABILIZED CONSTRUCTION ACCESS AREA DETAIL



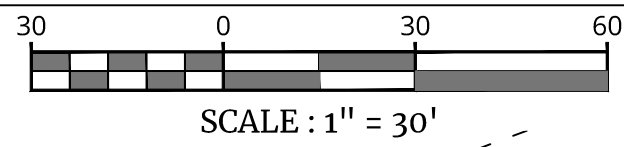
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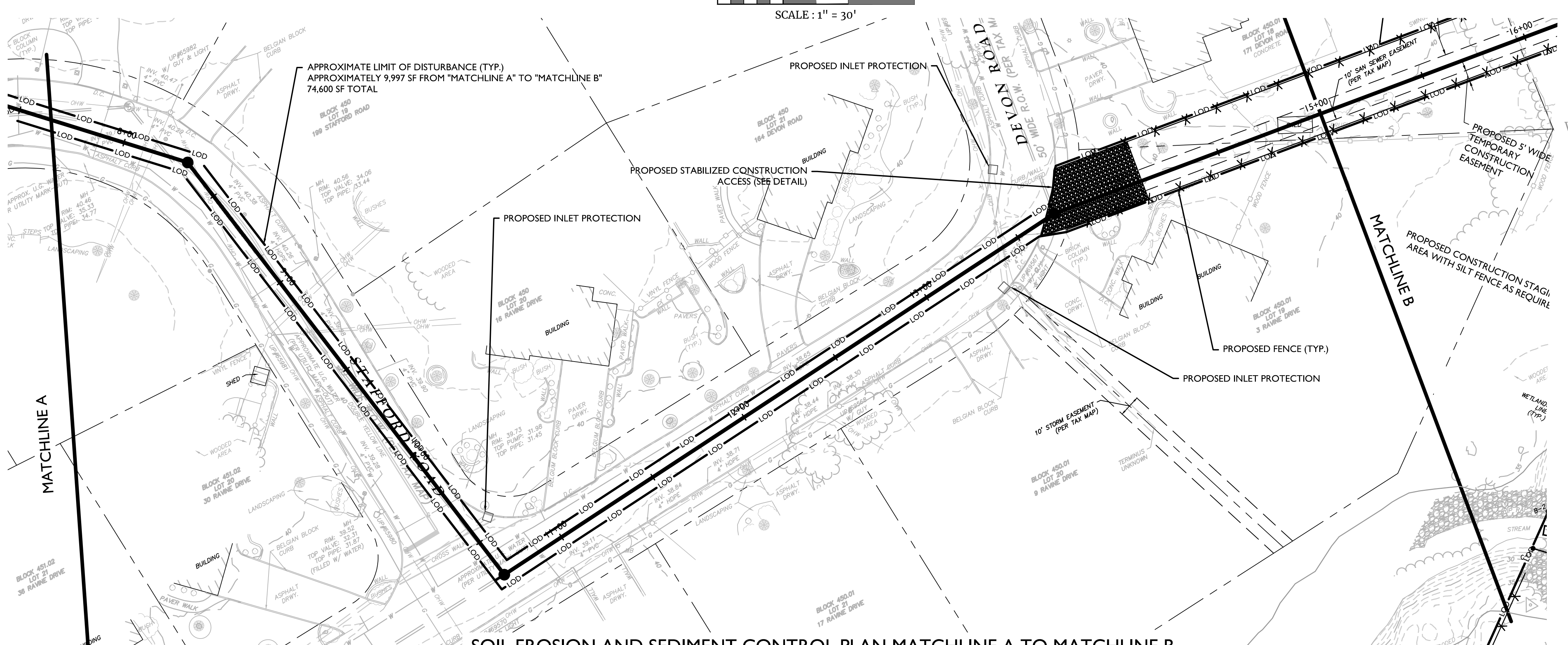
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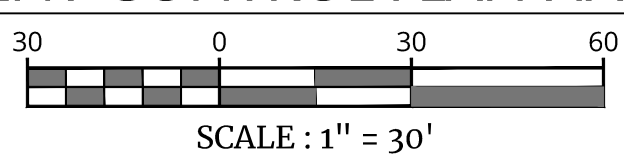
SOIL EROSION AND SEDIMENT CONTROL PLAN STA. 1+00 TO MATCHLINE A



- NOTES:
1. SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE PLANS OR AS OTHERWISE REQUIRED.
 2. ERNST SEED MIX "RIPARIAN BUFFER MIX, ERNMX-178" SHALL BE USED WITHIN ALL NON-ACTIVELY DISTURBED AREAS.



SOIL EROSION AND SEDIMENT CONTROL PLAN MATCHLINE A TO MATCHLINE B



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3	6/03/24	DJI	REVISED PER NJDEP REVIEW COMMENTS
4	6/04/24	DJI	REVISED PER NJDEP REVIEW COMMENTS
5	8/27/24	DJI	REVISED PER NJDEP TWA COMMENTS
6	9/26/24	DJI	REVISED PER NJDEP COMMENTS
7	1/20/25	DJI	REVISED PER NJDEP COMMENTS
8	5/09/25	DJI	REVISED PER NJDEP COMMENTS

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TOWNSHIP OF WOODBRIDGE
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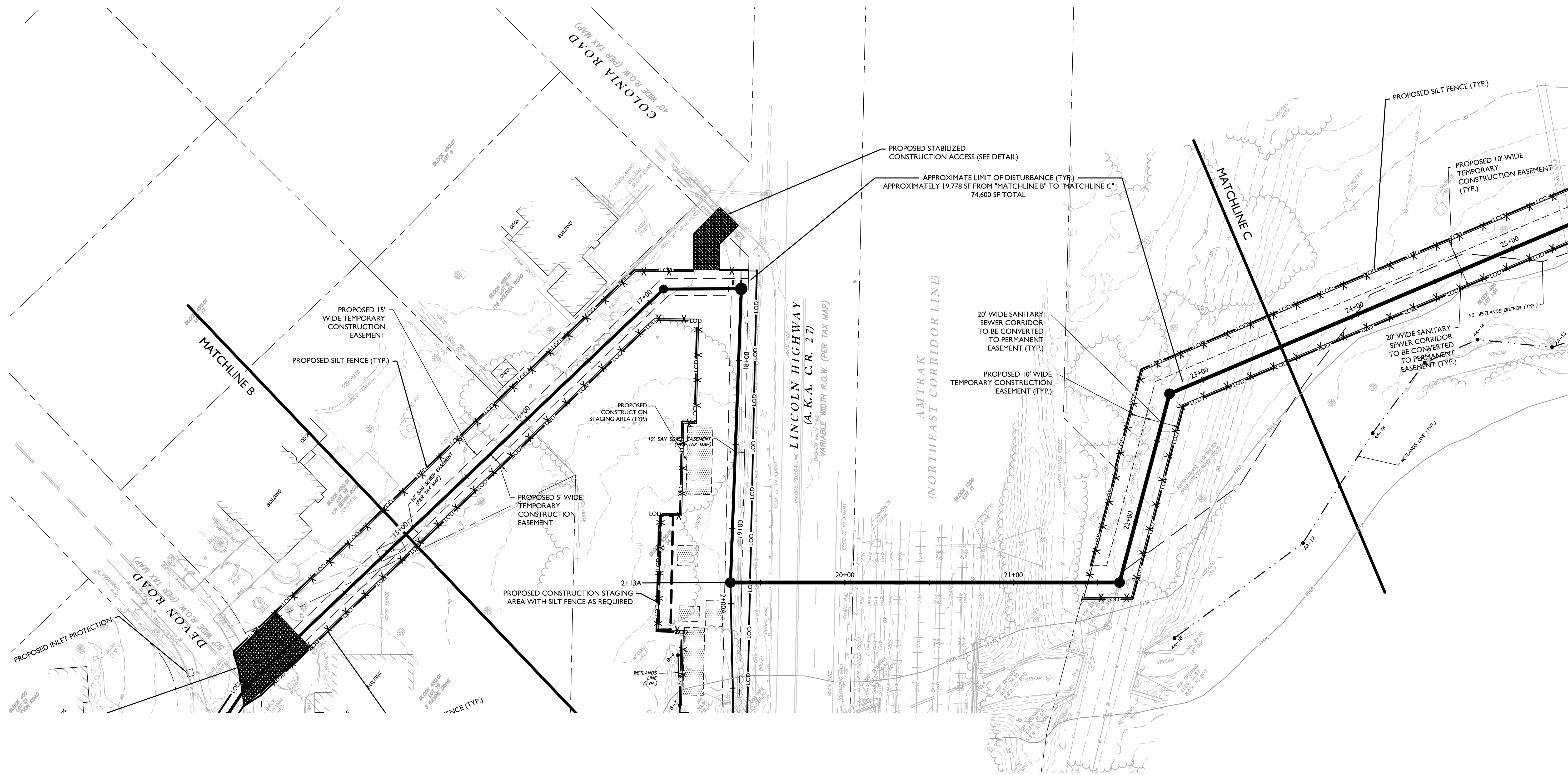
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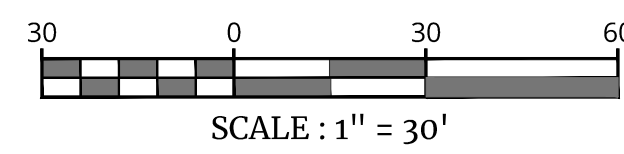
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PROJECT NUMBER: 220052298	DRAWING NAME: W-SESC		

SHEET TITLE:
SOIL EROSION & SEDIMENT CONTROL PLAN

SHEET NUMBER:
18 of 24



SOIL EROSION AND SEDIMENT CONTROL PLAN MATCHLINE B TO MATCHLINE C



NOTES:

- SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE PLANS OR AS OTHERWISE REQUIRED.
- ERANT SEED MIX "PARAPARIAN BUFFER MIX, ERNPMX-178" SHALL BE USED WITHIN ALL NON-ACTIVELY DISTURBED AREAS.

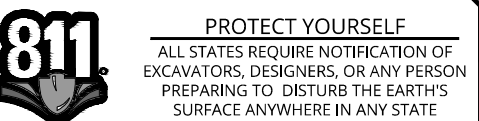
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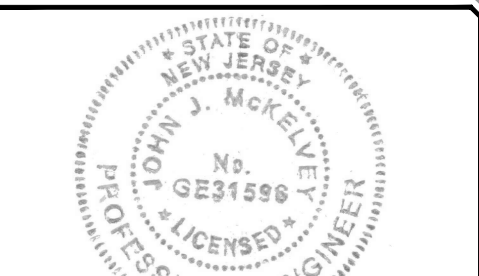
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3	6/20/24	REVISED PER NYPE REVIEW COMMENTS	DJI
4	6/24/24	REVISED PER NYPE REVIEW COMMENTS	DJI
5	8/27/24	REVISED PER NYPE TWA COMMENTS	DJI
6	9/26/24	REVISED PER NYPE COMMENTS	DJI
7	1/20/25	REVISED PER NYPE COMMENTS	DJI
8	5/09/25	REVISED PER TOWNSHIP COMMENTS	DJI



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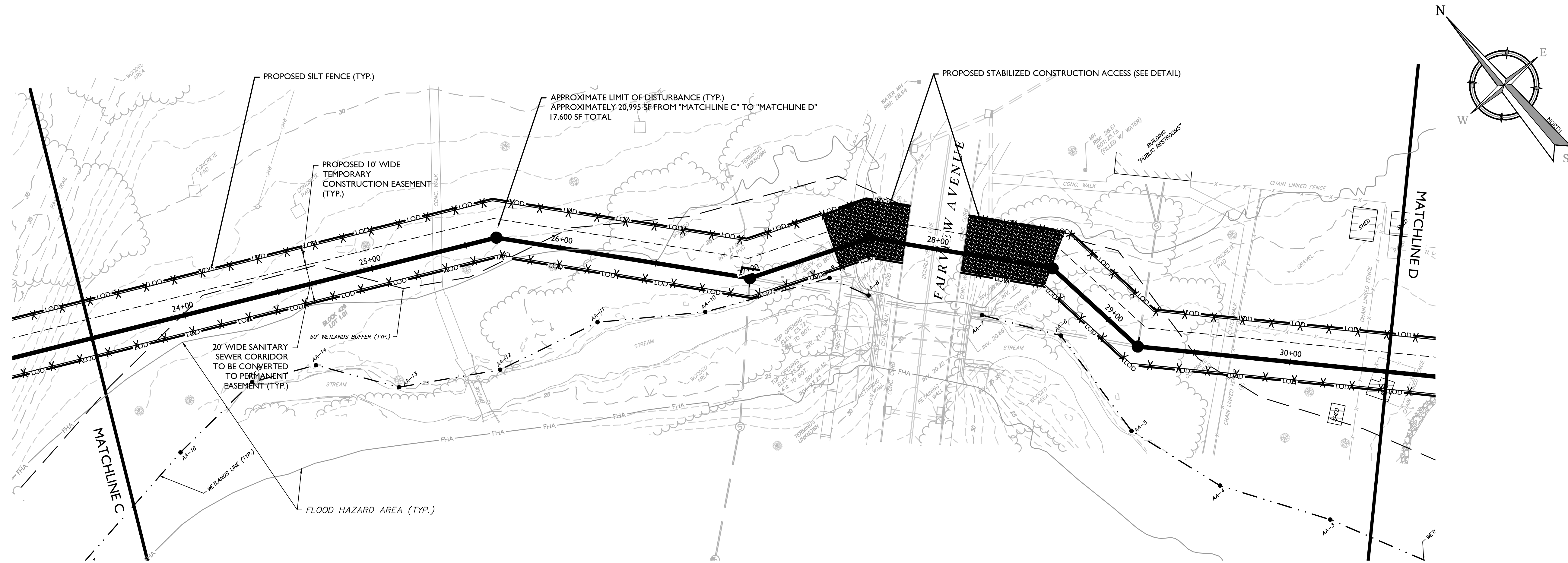
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PROJECT NUMBER: 220052298	DRAWING NAME: W-SESC		

SHEET TITLE: SOIL EROSION & SEDIMENT CONTROL PLAN

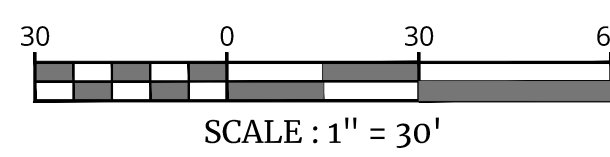
SHEET NUMBER: 19 of 24

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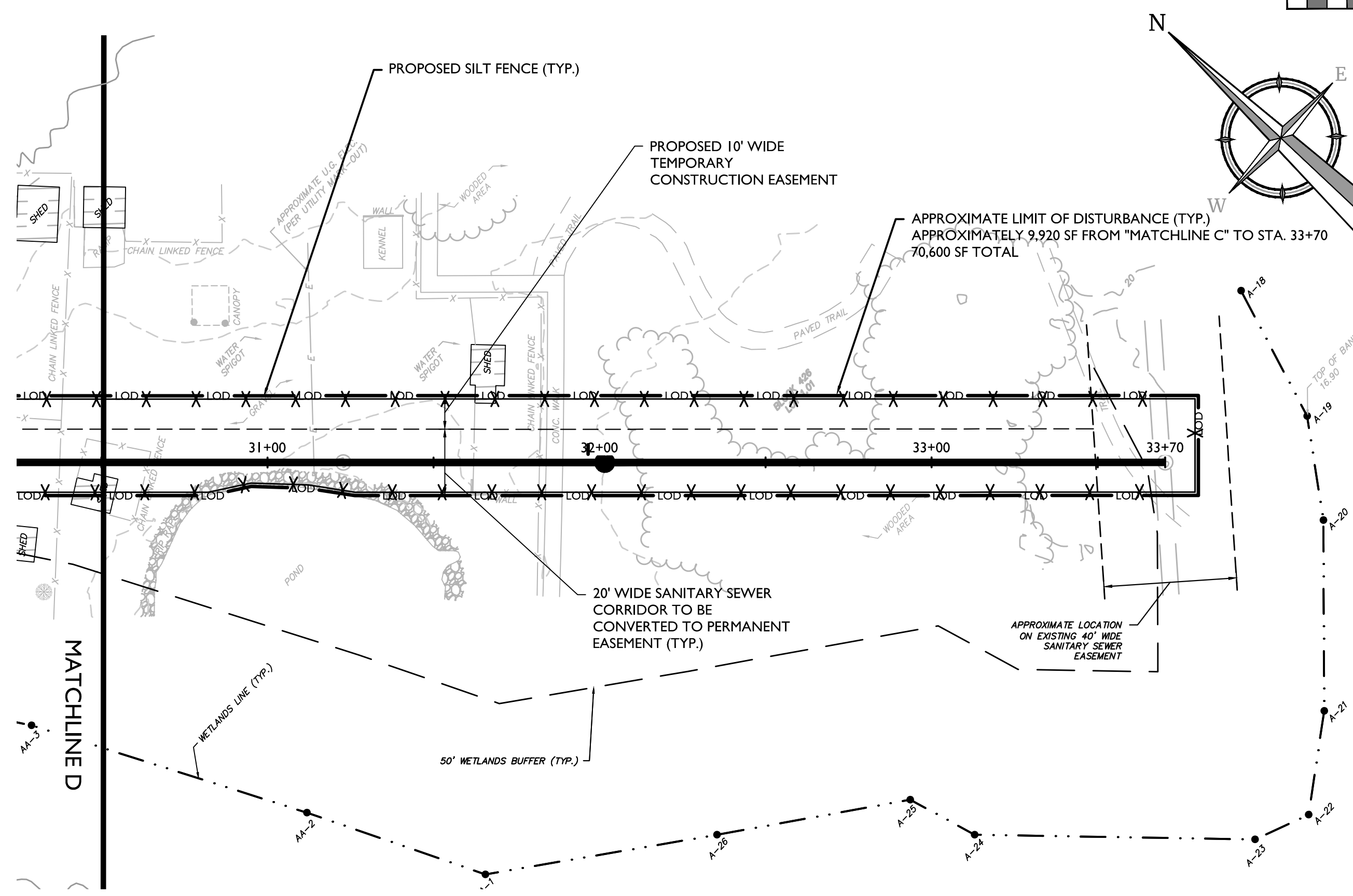
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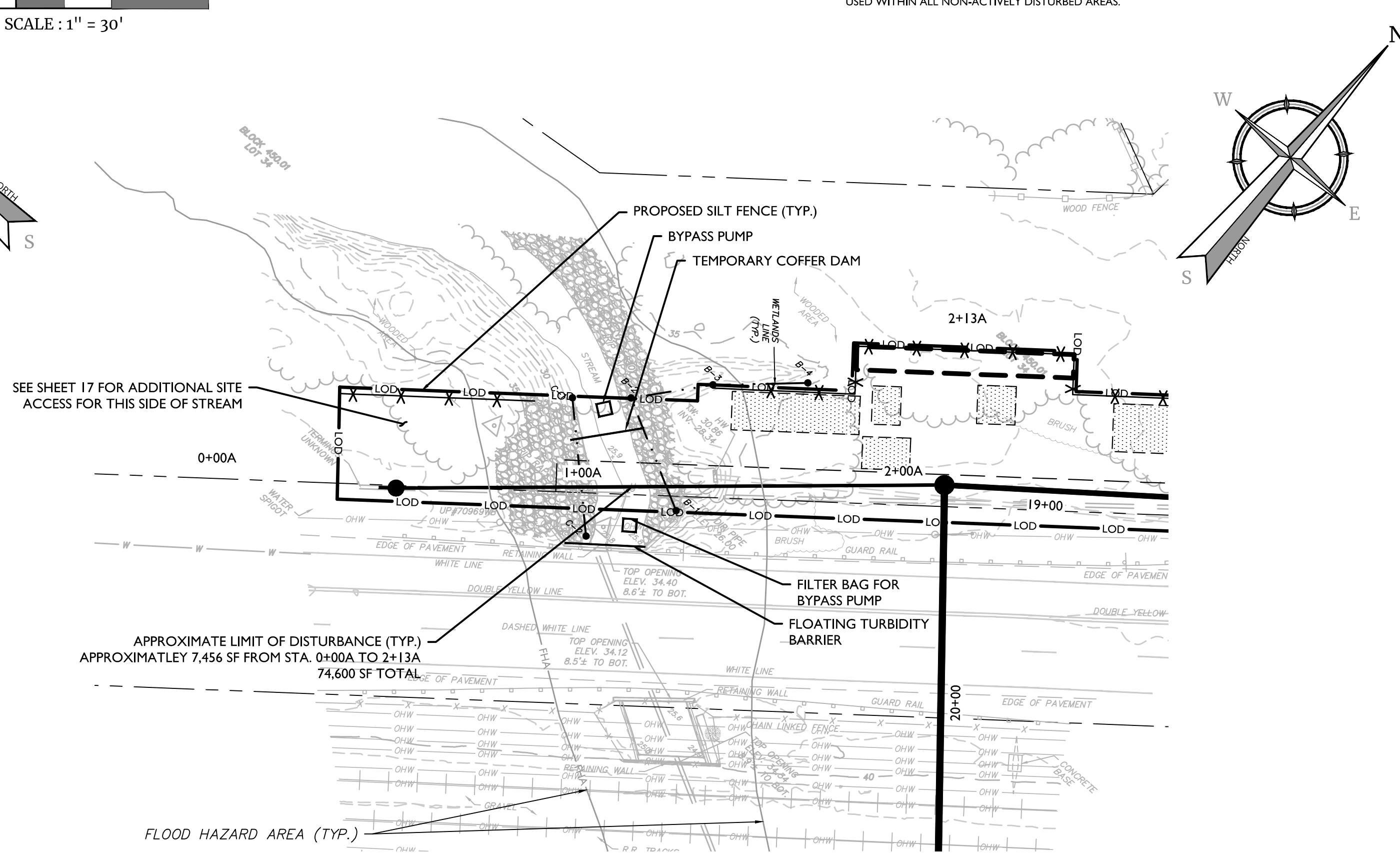
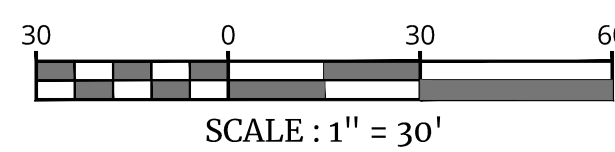
SOIL EROSION AND SEDIMENT CONTROL PLAN MATCHLINE C TO MATCHLINE D



- NOTES:
- SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE PLANS OR AS OTHERWISE REQUIRED.
 - ERNST SEED MIX "RIPARIAN BUFFER MIX, ERNMX-178" SHALL BE USED WITHIN ALL NON-ACTIVELY DISTURBED AREAS.



SOIL EROSION AND SEDIMENT CONTROL PLAN MATCHLINE D TO MATCHLINE STA. 33+70



SOIL EROSION AND SEDIMENT CONTROL PLAN STA. 0+00A TO STA. 2+31A



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4	6/04/24	REVISED PER NYPE COMMENTS	DJI
5	8/27/24	REVISED PER NYPE COMMENTS	DJI
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8	5/09/25	REVISED PER NYPE COMMENTS	DJI

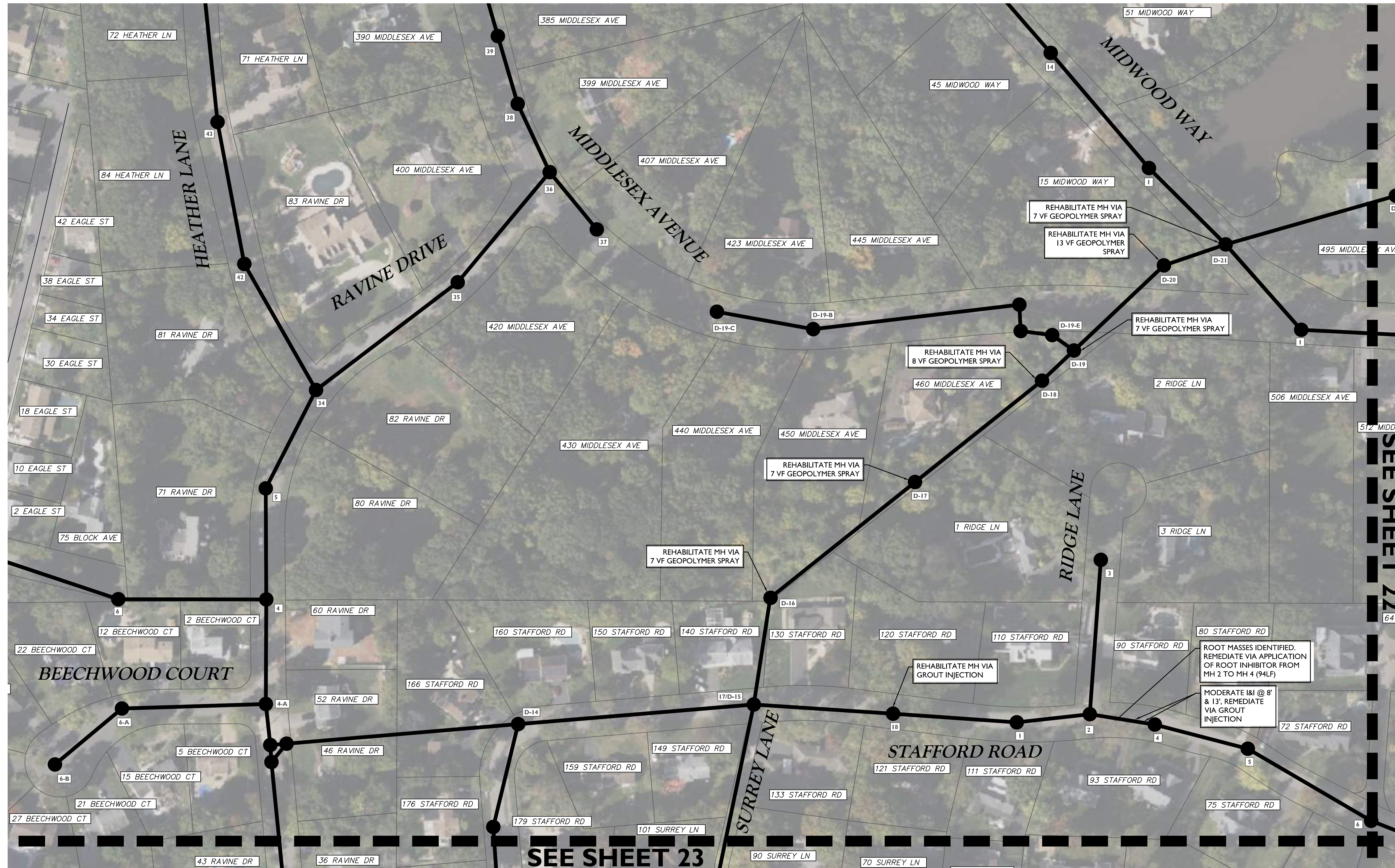
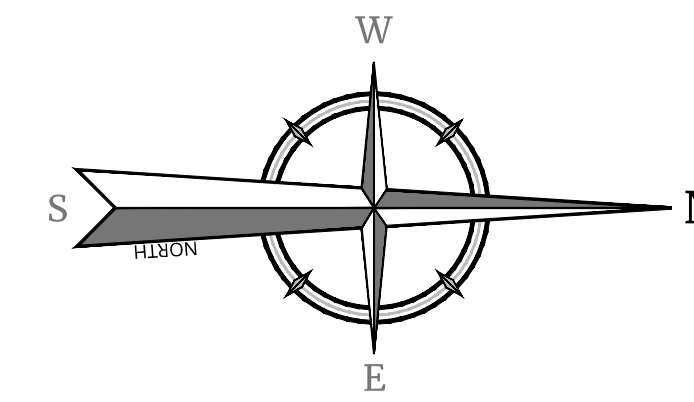
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TOWNSHIP OF WOODBRIDGE
MIDDLESEX COUNTY
NEW JERSEY

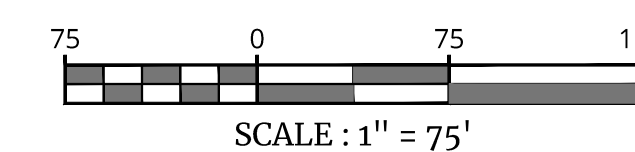
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SHEET TITLE:
SOIL EROSION & SEDIMENT CONTROL PLAN



ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
11A	GROUT INJECTION - SANITARY GRAVITY SEWER PIPE	5 GAL
11B	GROUT INJECTION - SANITARY MANHOLE	5 GAL
12	GEOPOLYMER SPRAY - MANHOLE INTERIOR WALLS	47 VF
17	APPLICATION OF ROOT INHIBITOR / ROOT KILLER	94 LF



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2	5/30/24	REVISED PER NISP COMPLIANCE ITEMS	DJI
3	6/02/24	REVISED PER NISP COMPLIANCE ITEMS	DJI
4	6/04/24	REVISED PER NISP COMPLIANCE ITEMS	DJI
5	8/27/24	REVISED PER NISP COMMENTS	DJI
6	9/26/24	REVISED PER NISP COMMENTS	DJI
7	1/20/25	REVISED PER TOWNSHIP COMMENTS	DJI
8	5/09/25	REVISED PER TOWNSHIP COMMENTS	DJI

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REPLACEMENT AND
REHABILITATION
PHASE I**

TOWNSHIP OF
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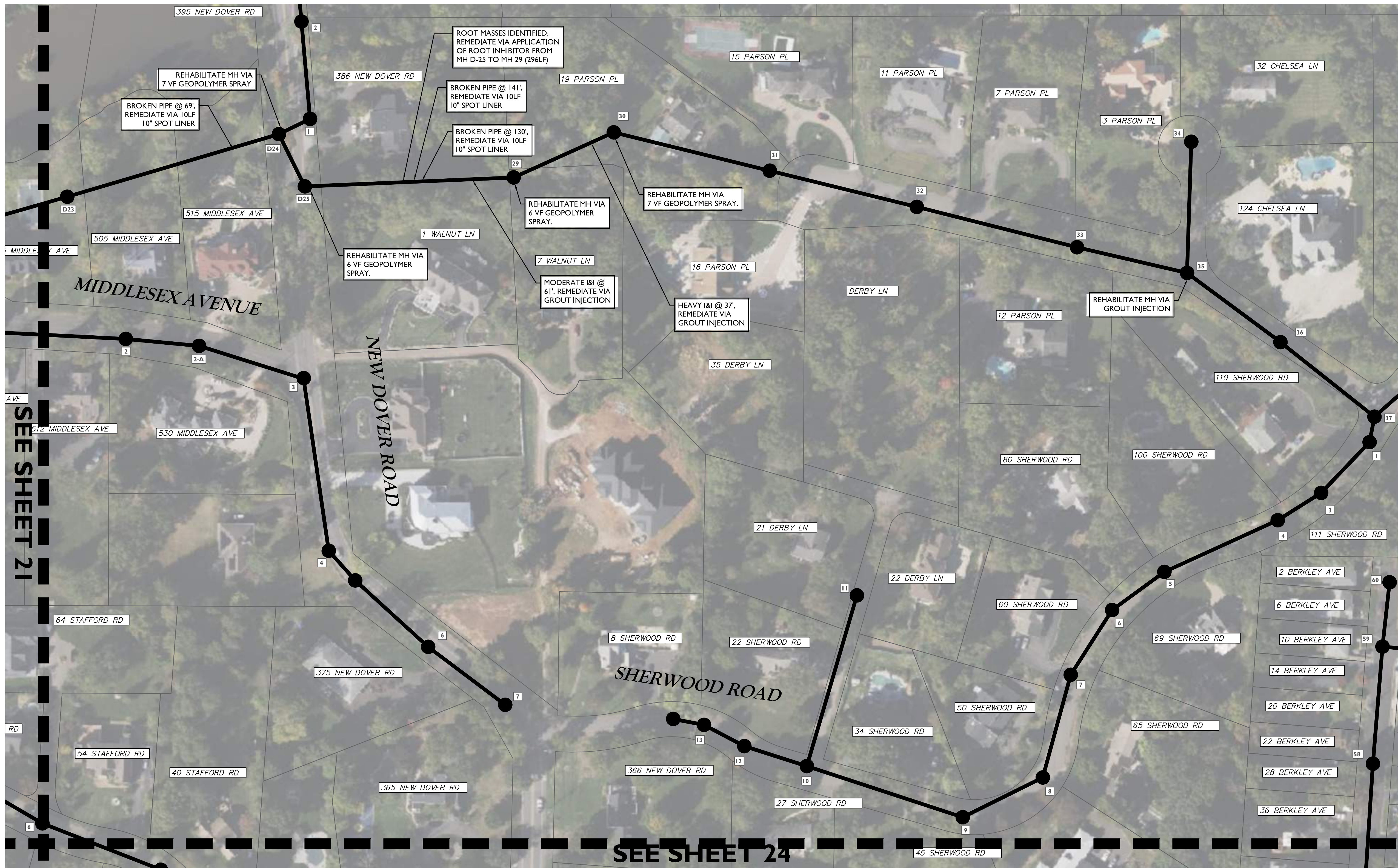
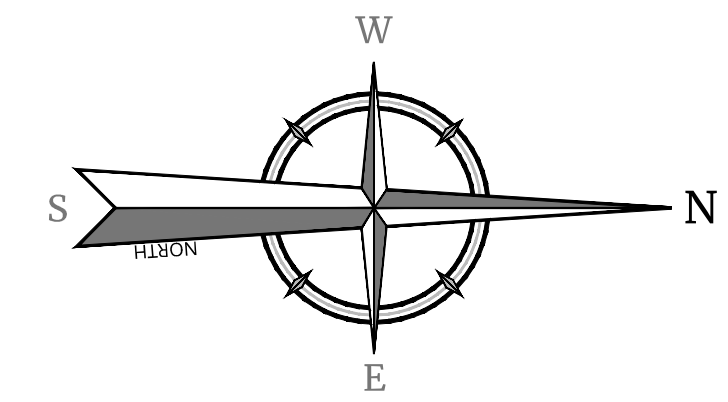
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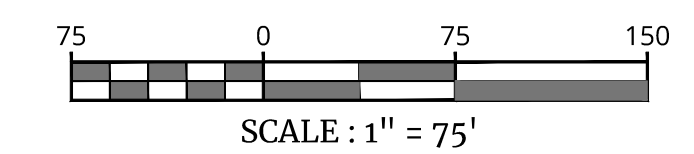
SHEET TITLE:
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IMPROVEMENTS PLAN**

SHEET NUMBER:
21 of 24

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ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
10B	GRAVITY SEWER SPOT LINER - 10" (10' LENGTH)	3 UT
11A	GROUT INJECTION - SANITARY GRAVITY SEWER PIPE	5 GAL
11B	GROUT INJECTION - SANITARY MANHOLE	5 GAL
12	GEOPLYMER SPRAY - MANHOLE INTERIOR WALLS	26 VF
17	APPLICATION OF ROOT INHIBITOR / ROOT KILLER	296 LF



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5	8/27/24	DJI	REVISED PER NDEP TWA COMMENTS
6	9/26/24	DJI	REVISED PER NDEP COMMENTS
7	1/20/25	DJI	REVISED PER TOWNSHIP COMMENTS
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PHASE I

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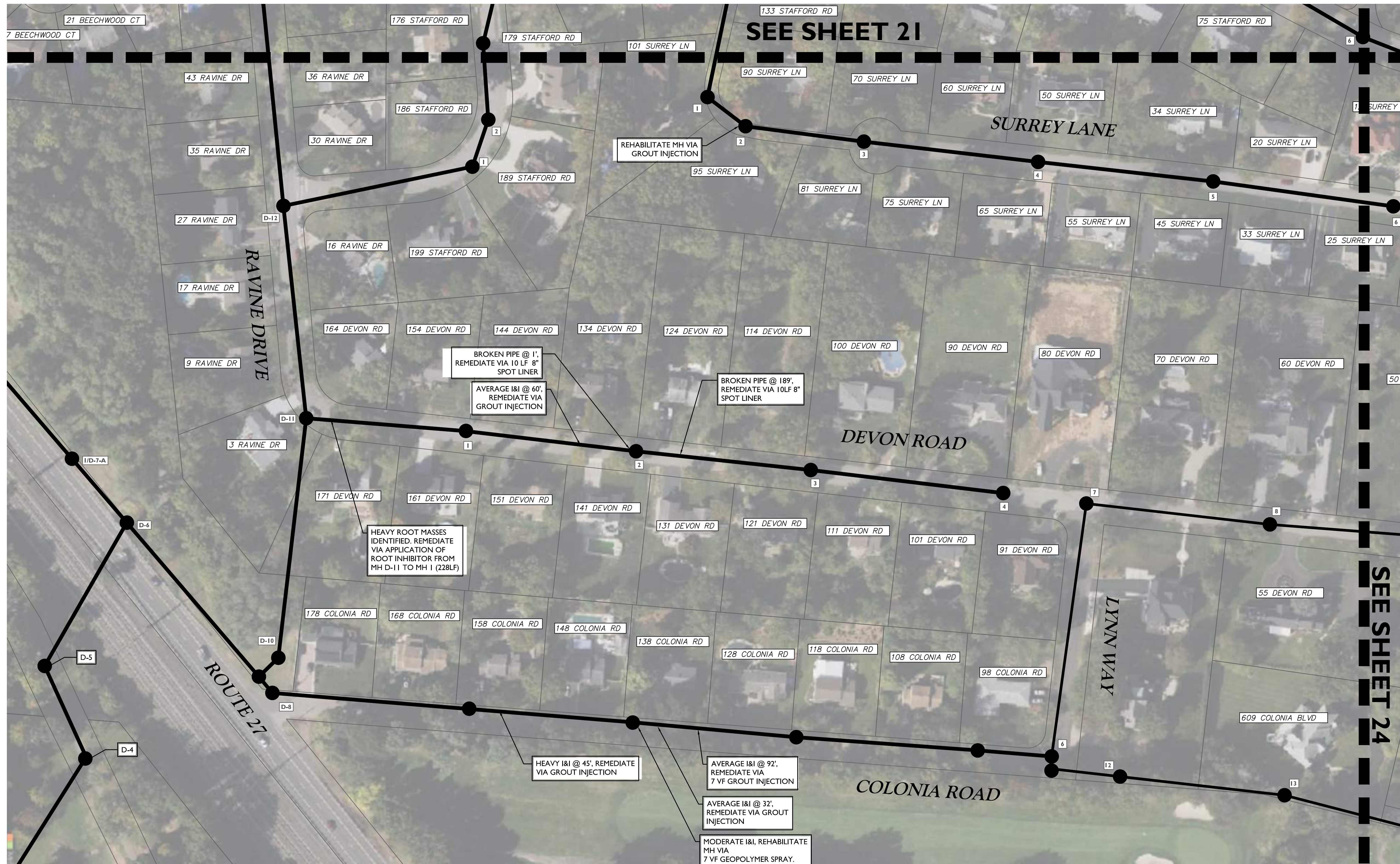
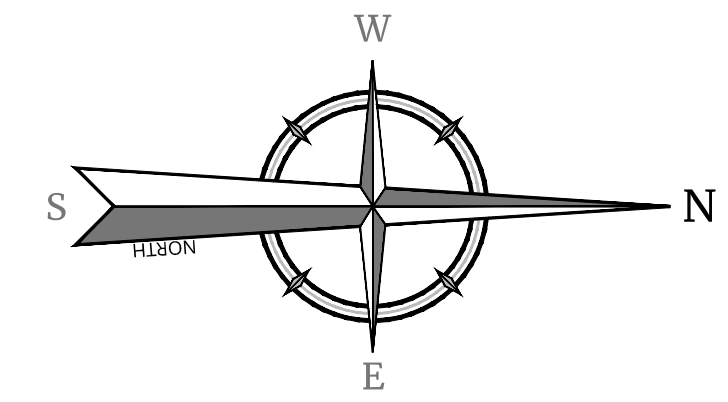
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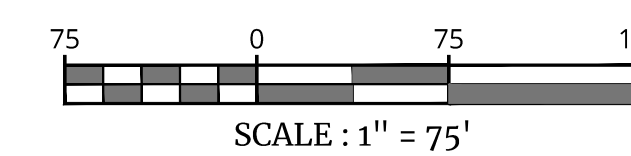
SHEET TITLE:
INFLOW AND INFILTRATION IMPROVEMENTS PLAN

SHEET NUMBER:
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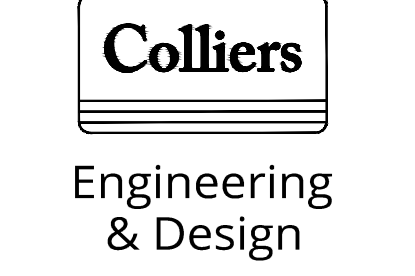
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ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
10A	GRAVITY SEWER SPOT LINER - 8" (10' LENGTH)	2 UT
11A	GROUT INJECTION - SANITARY GRAVITY SEWER PIPE	25 GAL
11B	GROUT INJECTION - SANITARY MANHOLE	5 GAL
12	GEOPOLYMER SPRAY - MANHOLE INTERIOR WALLS	7 VF
17	APPLICATION OF ROOT INHIBITOR / ROOT KILLER	228 LF



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3	6/20/24	DR	REVISED PER AERTRAC REVIEW COMMENTS
4	6/24/24	DR	REVISED PER NDEP REVIEW COMMENTS
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6	9/26/24	DR	REVISED PER NDEP COMMENTS
7	1/20/25	DR	REVISED PER TOWNSHIP COMMENTS
8	5/9/25	DR	REVISED PER TOWNSHIP COMMENTS

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CONSTRUCTION PLANS
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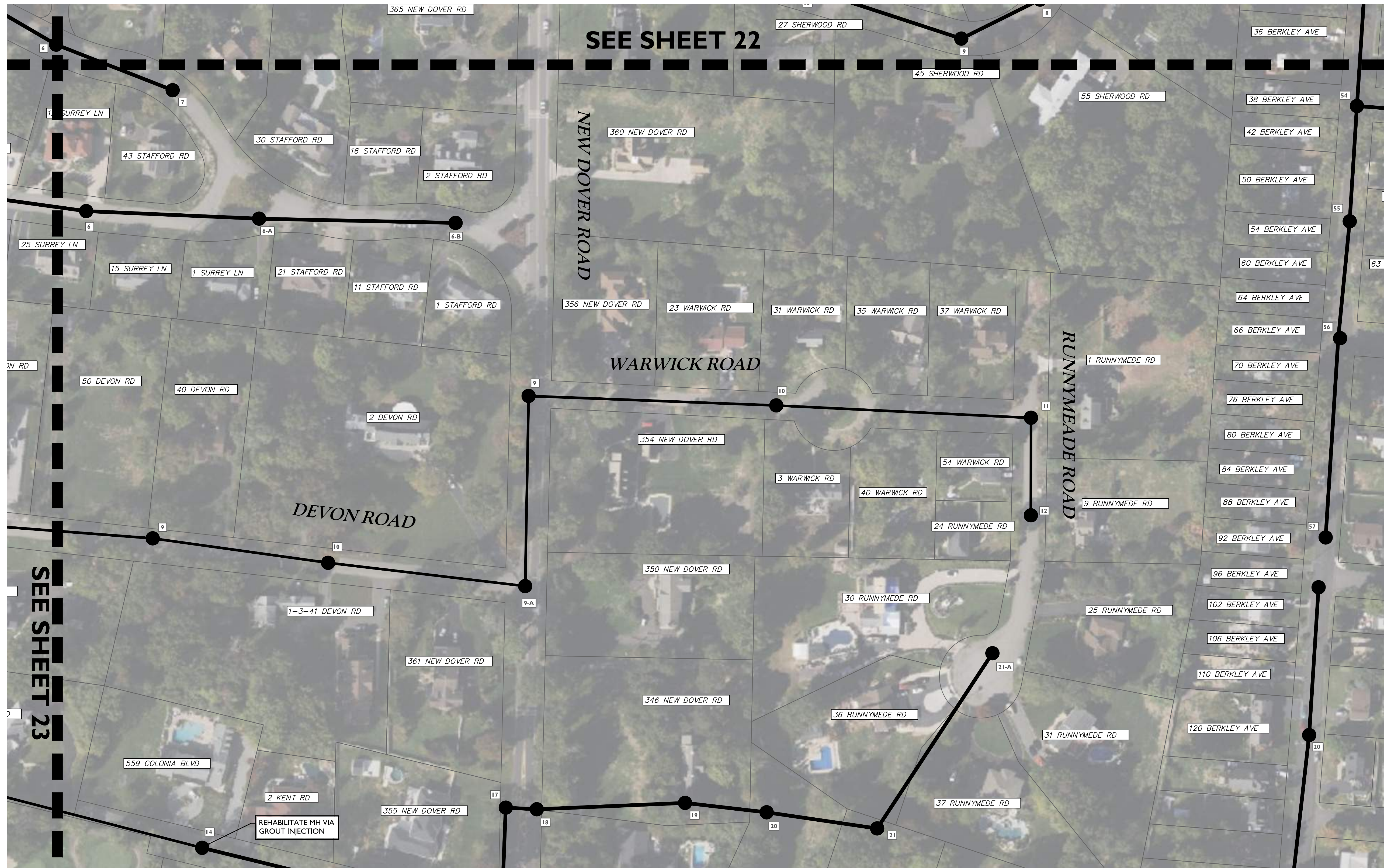
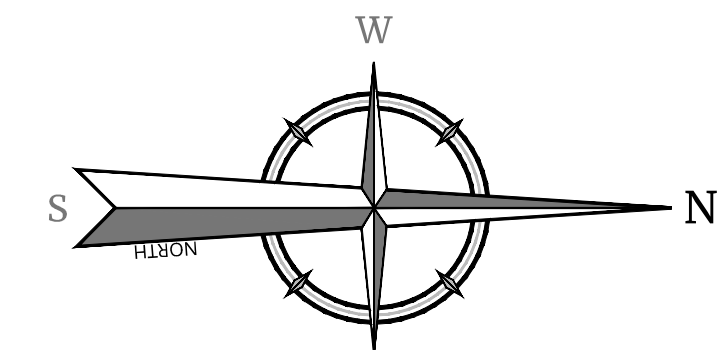
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PROJECT NUMBER: 220052298	DRAWING NAME: W-UTIL		

SHEET TITLE:
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SHEET NUMBER:
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ITEM NO.	TO BE CONSTRUCTED	CONTRACT QUANTITY
118	GROUT INJECTION - SANITARY MAN-HOLE	5 GAL

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2	5/30/24	REVISED PER NJDEP COMPLIANCE ITEMS	JL
3	6/03/24	REVISED PER AIRTRAK REVISION COMMENTS	DJI
4	6/04/24	REVISED PER NJDEP TWA COMMENTS	DJI
5	8/27/24	REVISED PER NJDEP TWA COMMENTS	DJI
6	9/26/24	REVISED PER NJDEP COMMENTS	DJI
7	1/20/25	REVISED PER TOWNSHIP COMMENTS	DJI
8	5/09/25	REVISED PER TOWNSHIP COMMENTS	DJI

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Professional Engineer
John J. McKelvey
John J. McKelvey
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LICENSE NUMBER: GE31596
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. # 246A27986500

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