

SECTION A-A

NOTES:

1. MANHOLE BASE SHALL BE CONCRETE CHanneled PER THE ENGINEERING SPECIFICATIONS. SLOPE SHALL BE A MINIMUM OF 0.1' ACROSS THE INVERT CHANNEL.
2. MARKER POSTS MAY BE REQUIRED IN EASEMENTS.
3. FOR MANHOLES LESS THAN 5' IN DEPTH, SEE STANDARD SEWER DETAIL #3, SHALLOW MANHOLE.
4. ALL PICK HOLES AND JOINTS SHALL BE GROUTED ON THE INSIDE AND OUTSIDE OF MANHOLE. GROUT SHALL HAVE A SMOOTH FINISH.
5. MANHOLE LID SHALL BE ORIENTED PER THE DISTRICT'S DIRECTION.

PRECAST MANHOLE

NOT TO SCALE

DETAIL APPROVALS

EDITOR *TMC*

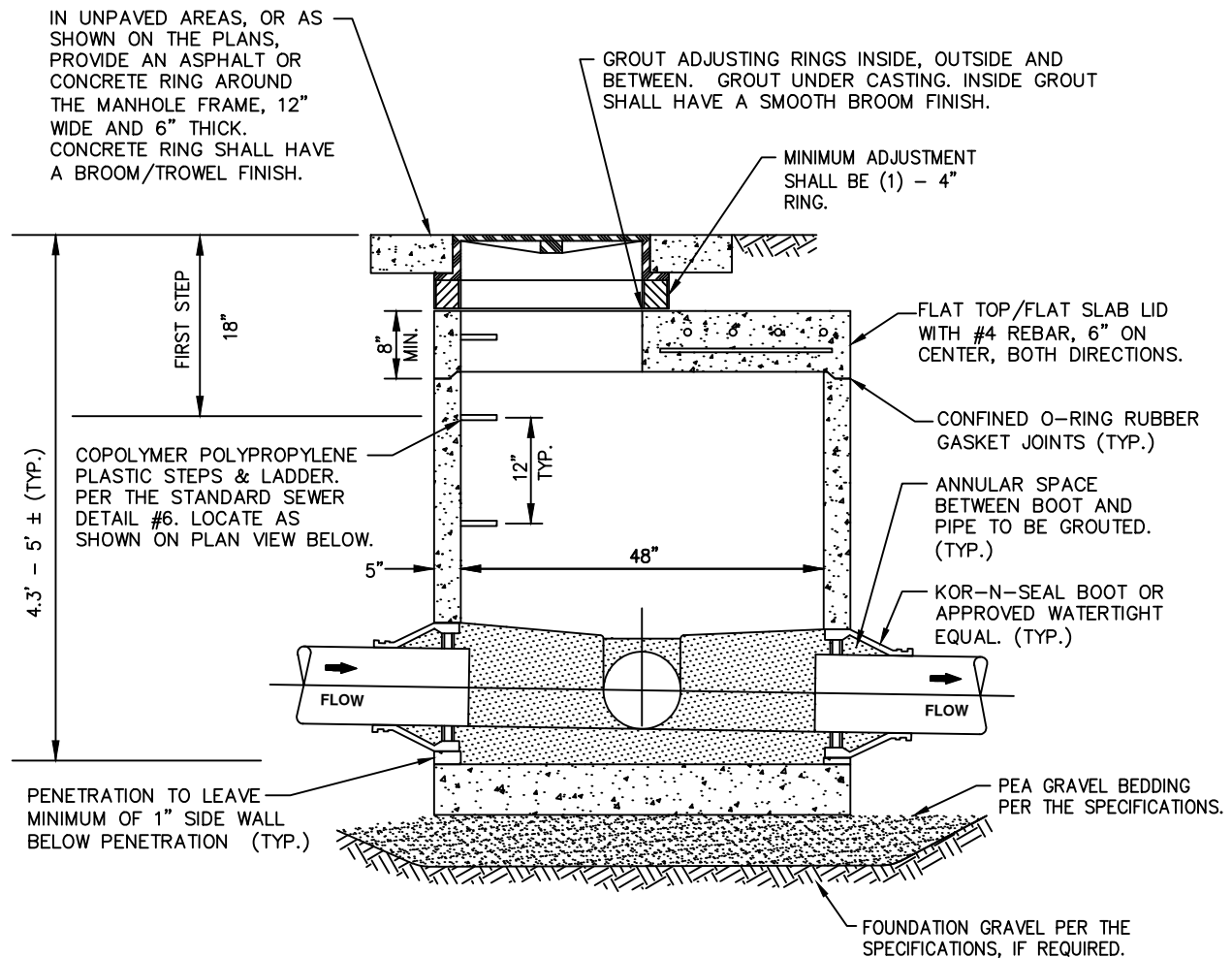
ENG. DIR. *CF*

NORTHSHORE UTILITY DISTRICT

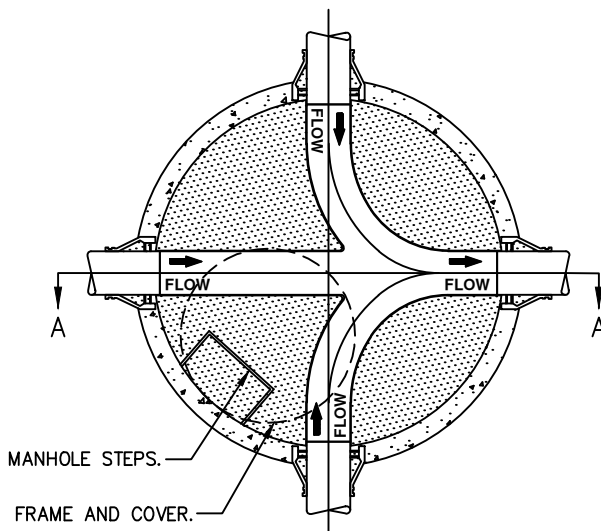
2025 STANDARD SEWER DETAILS

1

LAST UPDATED
MAY 2025



SECTION A-A



PLAN

PRECAST SHALLOW MANHOLE

NOT TO SCALE

NOTES:

1. MANHOLE BASE SHALL BE CONCRETE CHANNELED PER THE ENGINEERING SPECIFICATIONS. SLOPE SHALL BE A MINIMUM OF 0.1' ACROSS THE INVERT CHANNEL.
2. USE 18" ECCENTRIC CONE, OR APPROVED 24" CONE, AND 2' BASE FOR SHALLOW MANHOLE APPLICATION.
3. MARKER POSTS MAY BE REQUIRED IN EASEMENTS.
4. ALL PICK HOLES AND JOINTS SHALL BE GROUTED ON THE INSIDE AND OUTSIDE OF MANHOLE. GROUT SHALL HAVE A SMOOTH FINISH.
5. MANHOLE LID SHALL BE ORIENTED PER THE DISTRICT'S DIRECTION.

DETAIL APPROVALS

EDITOR TMC

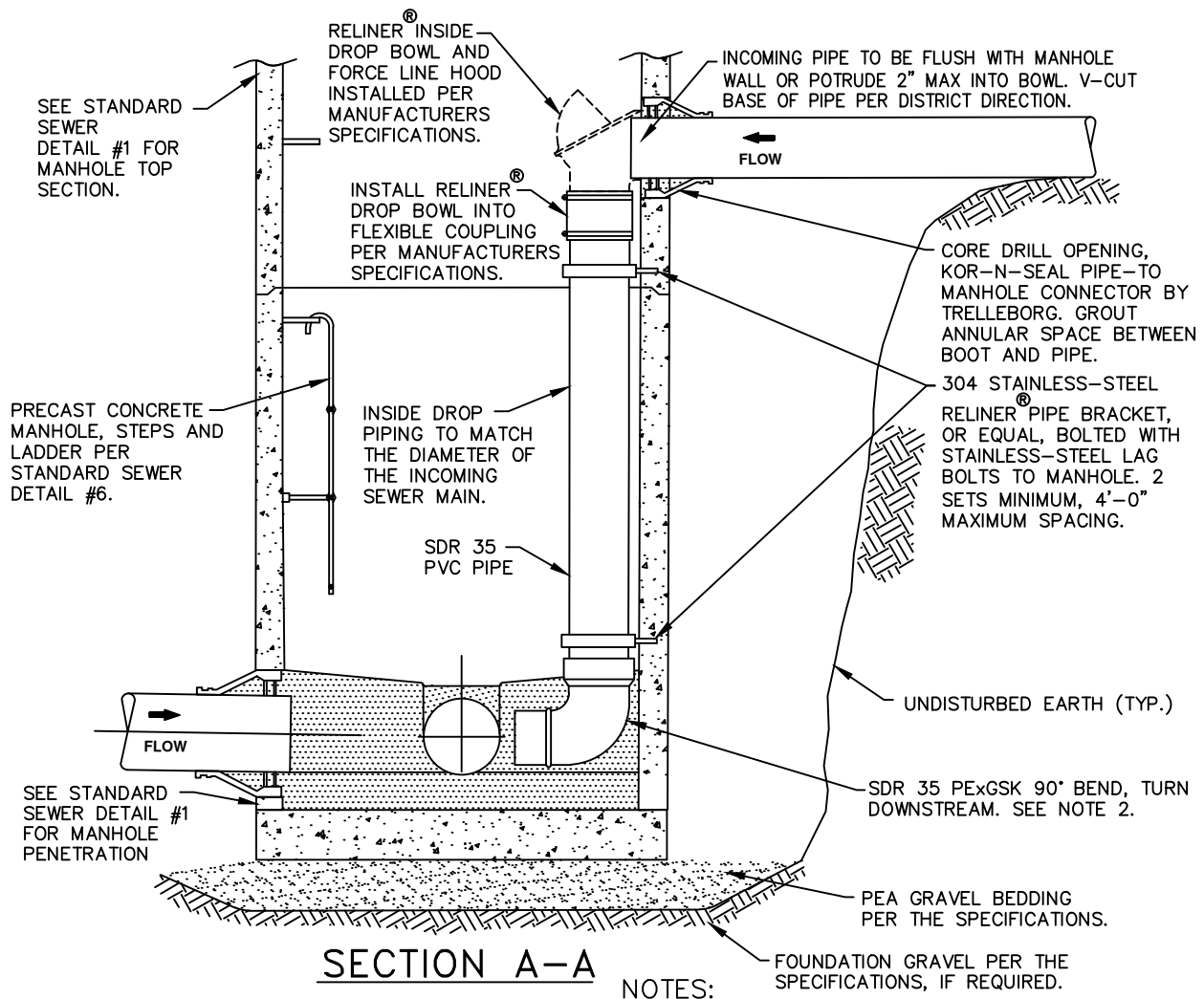
ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

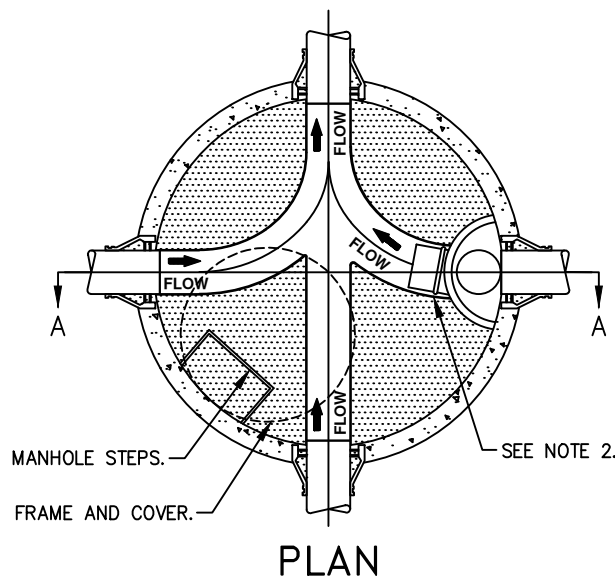
3

LAST UPDATED
MAY 2025



NOTES:

1. DROP MANHOLES ARE ONLY ALLOWED WITH DISTRICT APPROVAL.
2. THE MANHOLE BASE SHALL BE CONCRETE CHanneled PER THE ENGINEERING SPECIFICATIONS. SLOPE SHALL BE A MINIMUM OF 0.1' ACROSS THE INVERT CHANNEL.
3. CHANNEL RECEIVING THE INSIDE DROP FLOW SHALL BE SIZED ONE PIPE SIZE LARGER THAN THE INCOMING PIPE TO ACCOMMODATE THE 90° BEND. BEND TO REST FLUSH IN THE CHANNEL.
4. EXISTING MANHOLES SHALL HAVE THE BEND SET ON TOP OF THE EXISTING BENCH OR WITHIN A NEW CHANNEL PER DISTRICT DIRECTION. BENDS SET ON TOP OF AN EXISTING BENCH ARE TO BE ORIENTED TOWARDS THE DOWNSTREAM OUTLET, AND GROUTED IN-PLACE. ADDITIONAL PVC PIPE MAY BE REQUIRED TO DIRECT FLOW TO THE DOWNSTREAM OUTLET.
5. MARKER POSTS MAY BE REQUIRED IN EASEMENTS.
6. ALL PICK HOLES AND JOINTS SHALL BE GROUTED ON THE INSIDE AND OUTSIDE OF MANHOLE. GROUT SHALL HAVE A SMOOTH FINISH.
7. MANHOLE LID SHALL BE ORIENTED PER THE DISTRICT'S DIRECTION.



INSIDE DROP MANHOLE

NOT TO SCALE

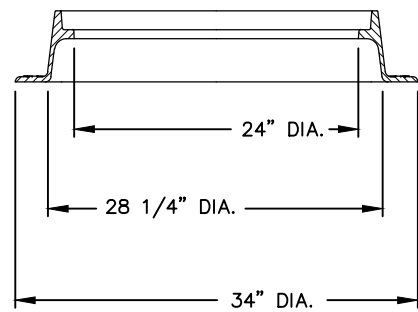
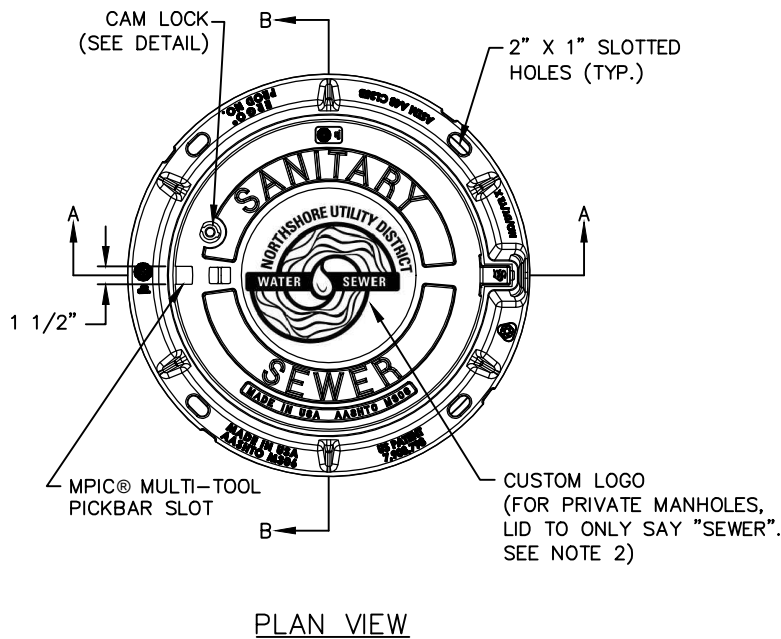
DETAIL APPROVALS	
EDITOR	TMC
ENG. DIR.	CF

NORTHSHORE UTILITY DISTRICT

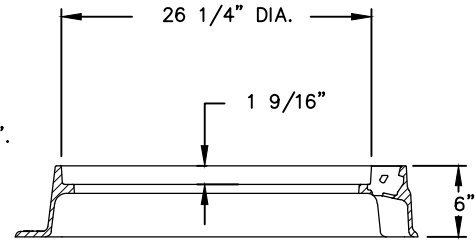
2025 STANDARD SEWER DETAILS

4

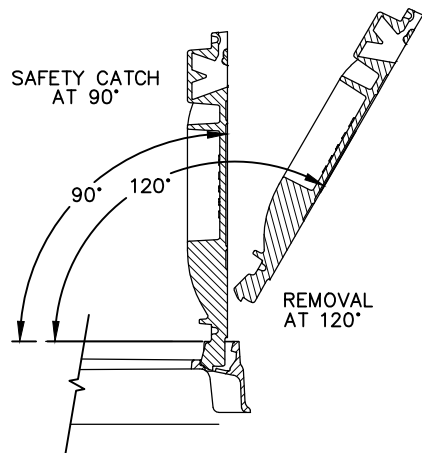
LAST UPDATED
MAY 2025



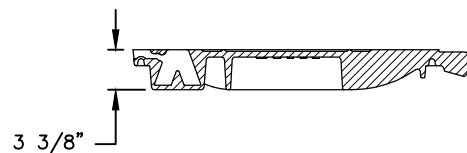
FRAME SECTION B-B



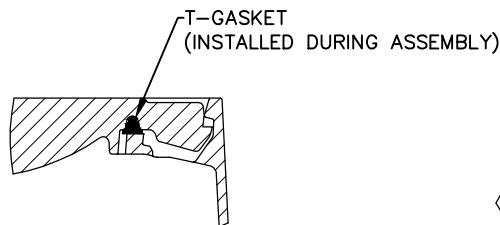
FRAME SECTION A-A



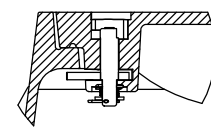
HINGE POSITIONS



COVER SECTION



HINGE & GASKET VIEW



CAM LOCK VIEW

NOTE:

1. MANHOLE FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS ERGO ASSEMBLY, PART NUMBER 001040105L01.
2. FOR PRIVATE MANHOLES, FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS ERGO ASSEMBLY, PART NUMBER 00104043L01. MANHOLE LID TO SAY "SEWER". MANHOLE LID NOT TO INCLUDE NUD LOGO OR NAME.

MANHOLE LOCKING FRAME AND COVER

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

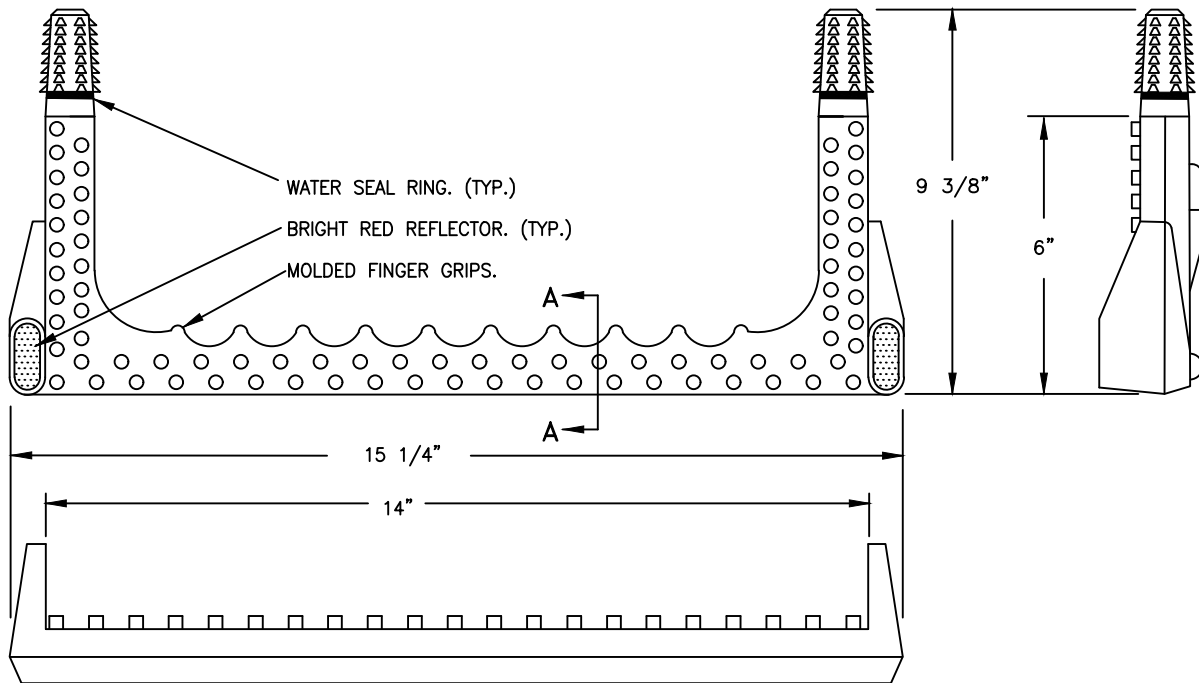
ENG. DIR. SJD

NORTHSHORE UTILITY DISTRICT

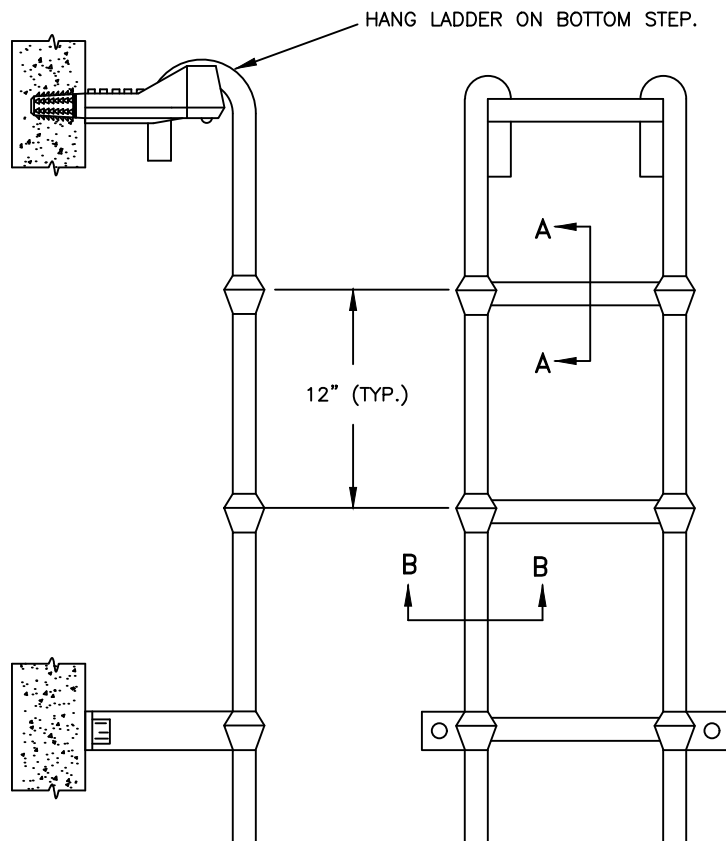
2025 STANDARD SEWER DETAILS

5

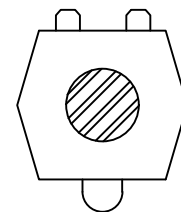
LAST UPDATED
FEBRUARY 2020



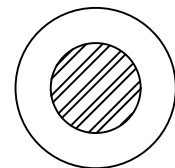
STEP



HANGING LADDER



SECTION A-A



SECTION B-B

NOTES :

1. STEPS TO BE LANE INTERNATIONAL #P-14938 OR DISTRICT APPROVED EQUAL.
2. FASTEN LADDER TO MH STRUCTURE WITH STAINLESS STEEL LAG SCREWS INTO LEAD ANCHORS, OR SET LADDER BASE INTO MH SHELF PRIOR TO CURING.
3. IF REQUIRED IN NECK/ADJUSTING RINGS, HAND HOLD TO BE LANE INTERNATIONAL #HAND HOLD.

MANHOLE STEPS AND LADDER

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

ENG. DIR. SJD

NORTHSHORE UTILITY DISTRICT

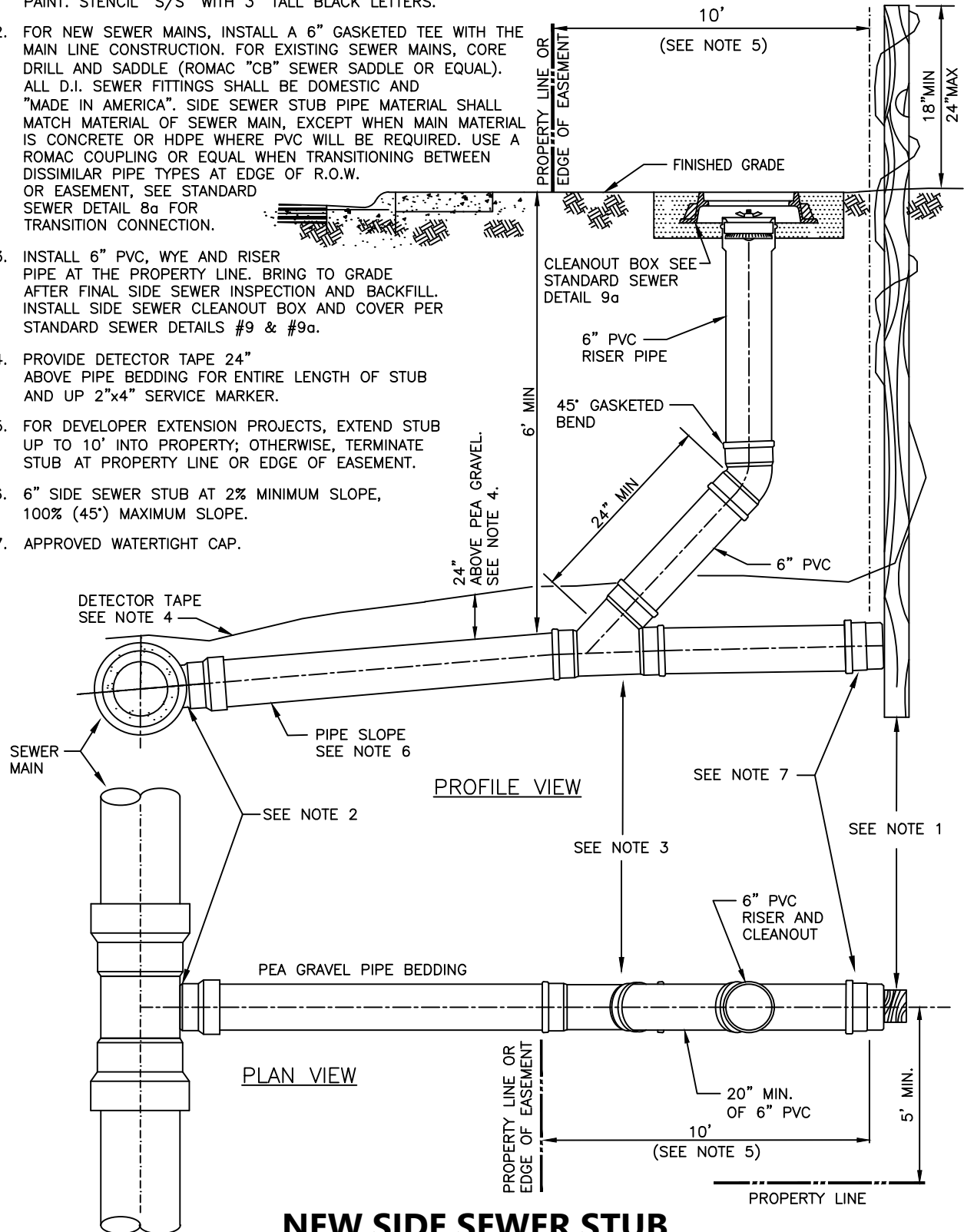
2025 STANDARD SEWER DETAILS

6

LAST UPDATED
FEBRUARY 2022

NOTES:

1. 2"x4" SERVICE MARKER, LENGTH AS REQUIRED. PAINT PORTION OF SERVICE MARKER THAT IS ABOVE GRADE WITH WHITE PAINT. STENCIL "S/S" WITH 3" TALL BLACK LETTERS.
2. FOR NEW SEWER MAINS, INSTALL A 6" GASKETED TEE WITH THE MAIN LINE CONSTRUCTION. FOR EXISTING SEWER MAINS, CORE DRILL AND SADDLE (ROMAC "CB" SEWER SADDLE OR EQUAL). ALL D.I. SEWER FITTINGS SHALL BE DOMESTIC AND "MADE IN AMERICA". SIDE SEWER STUB PIPE MATERIAL SHALL MATCH MATERIAL OF SEWER MAIN, EXCEPT WHEN MAIN MATERIAL IS CONCRETE OR HDPE WHERE PVC WILL BE REQUIRED. USE A ROMAC COUPLING OR EQUAL WHEN TRANSITIONING BETWEEN DISSIMILAR PIPE TYPES AT EDGE OF R.O.W. OR EASEMENT, SEE STANDARD SEWER DETAIL 8a FOR TRANSITION CONNECTION.
3. INSTALL 6" PVC, WYE AND RISER PIPE AT THE PROPERTY LINE. BRING TO GRADE AFTER FINAL SIDE SEWER INSPECTION AND BACKFILL. INSTALL SIDE SEWER CLEANOUT BOX AND COVER PER STANDARD SEWER DETAILS #9 & #9a.
4. PROVIDE DETECTOR TAPE 24" ABOVE PIPE BEDDING FOR ENTIRE LENGTH OF STUB AND UP 2"x4" SERVICE MARKER.
5. FOR DEVELOPER EXTENSION PROJECTS, EXTEND STUB UP TO 10' INTO PROPERTY; OTHERWISE, TERMINATE STUB AT PROPERTY LINE OR EDGE OF EASEMENT.
6. 6" SIDE SEWER STUB AT 2% MINIMUM SLOPE, 100% (45°) MAXIMUM SLOPE.
7. APPROVED WATERTIGHT CAP.



NEW SIDE SEWER STUB CONNECTION TO EXISTING OR NEW MAIN

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

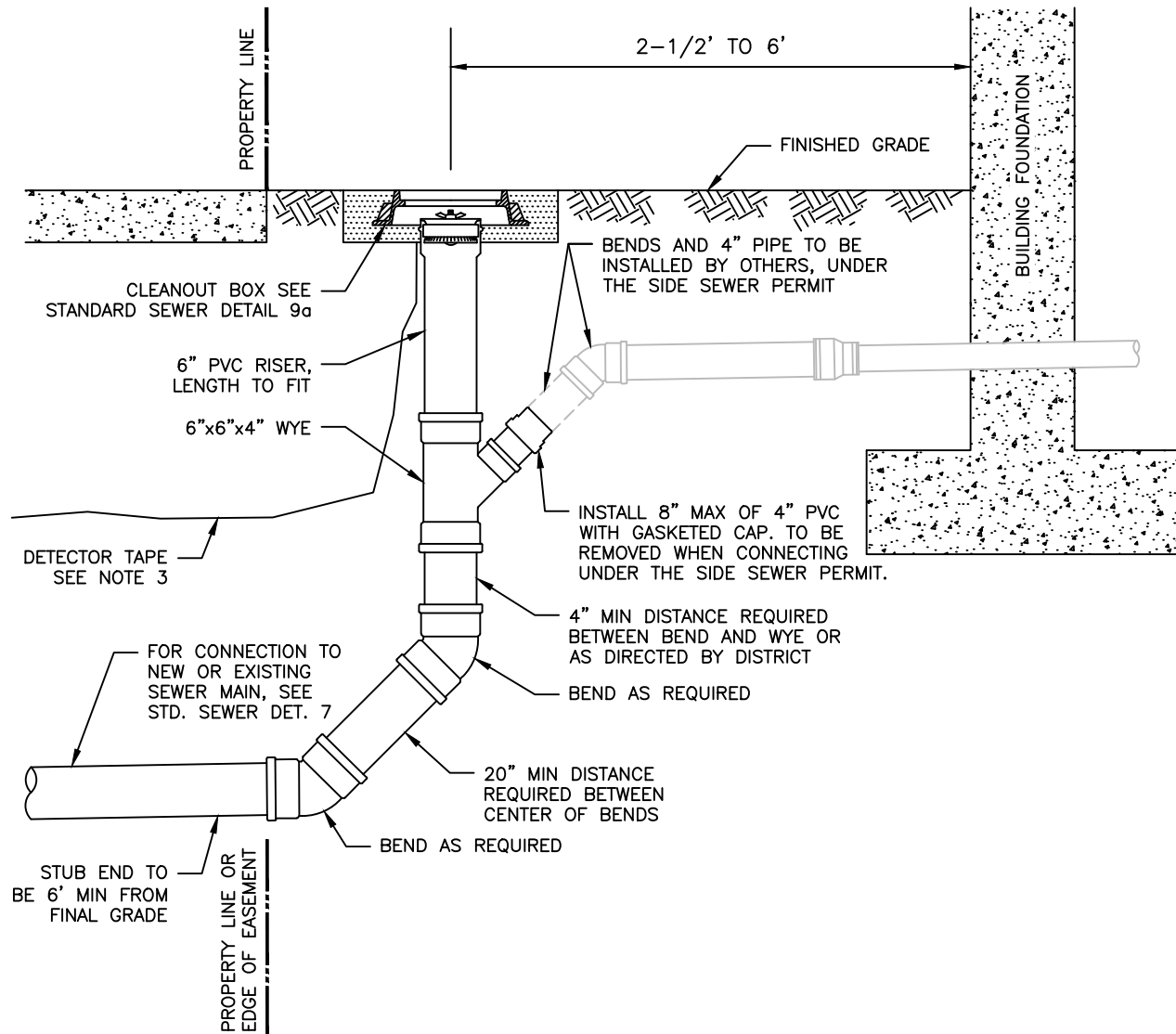
ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

7

LAST UPDATED
MAY 2025



PROFILE VIEW
(CONNECTION ONLY ALLOWED
WITH PRIOR DISTRICT APPROVAL)

NOTES:

1. THIS SIDE SEWER CONNECTION IS ONLY ALLOWED FOR CONSTRAINED SITES AS DETERMINED BY THE DISTRICT. FOR ALL OTHER SIDE SEWER CONNECTIONS, SEE STANDARD SEWER DETAIL 7.
2. A SIDE SEWER PERMIT MUST BE OBTAINED FOR SIDE SEWER CONNECTION FROM WYE TO BUILDING FOUNDATION.
3. PROVIDE DETECTOR TAPE 24" ABOVE PIPE BEDDING FOR ENTIRE LENGTH OF STUB AND INTO THE CLEANOUT BOX.
4. PIPE BEDDING TO BE PEA GRAVEL PER STANDARD SEWER DETAIL 11.
5. ALL PIPE TO BE AT 2% MINIMUM SLOPE.

SIDE SEWER STUB CONNECTION FOR CONSTRAINED SITES

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

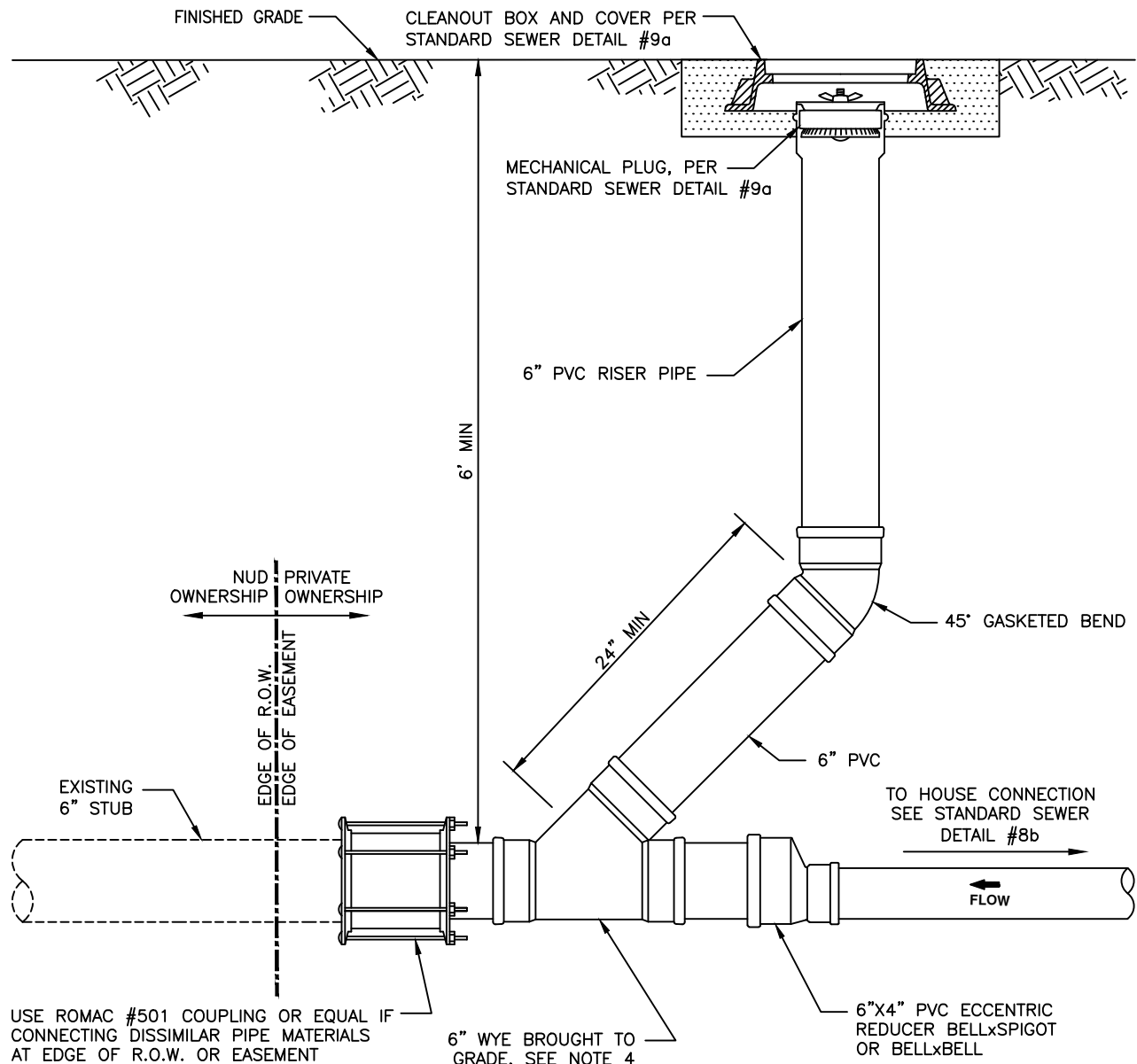
ENG. DIR. SJD

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

7a

LAST UPDATED
JANUARY 2023



PROFILE

NOTES:

1. ALL NEW SIDE SEWER PIPE SHALL BE GASKETED PVC PIPE, SDR 35, ASTM 3034.
2. THERE SHALL BE A MINIMUM 2' OF SEPARATION BETWEEN BENDS.
3. EXISTING SIDE SEWER STUBS ON DEVELOPER EXTENSION PROJECTS MAY HAVE BEEN INSTALLED 5'-10' ONTO THE PROPERTY, AND MAY HAVE INCLUDED A CLEANOUT, RISER PIPE & BOX. CONTRACTORS ARE TO CONFIRM REQUIREMENTS PRIOR TO CONSTRUCTION.
4. INSTALL 6" PVC WYE CLEANOUT, AS INDICATED ABOVE. BRING TO GRADE AFTER FINAL SIDE SEWER INSPECTION AND BACKFILL. INSTALL SIDE SEWER CLEANOUT BOX AND COVER PER STANDARD SEWER DETAIL #9a.
5. SURFACE CLEANOUTS ARE REQUIRED EVERY 100' AND AT THE HOUSE CONNECTION, OR AS DIRECTED.

SIDE SEWER CONNECTION TO EXISTING STUB

NOT TO SCALE

DETAIL APPROVALS

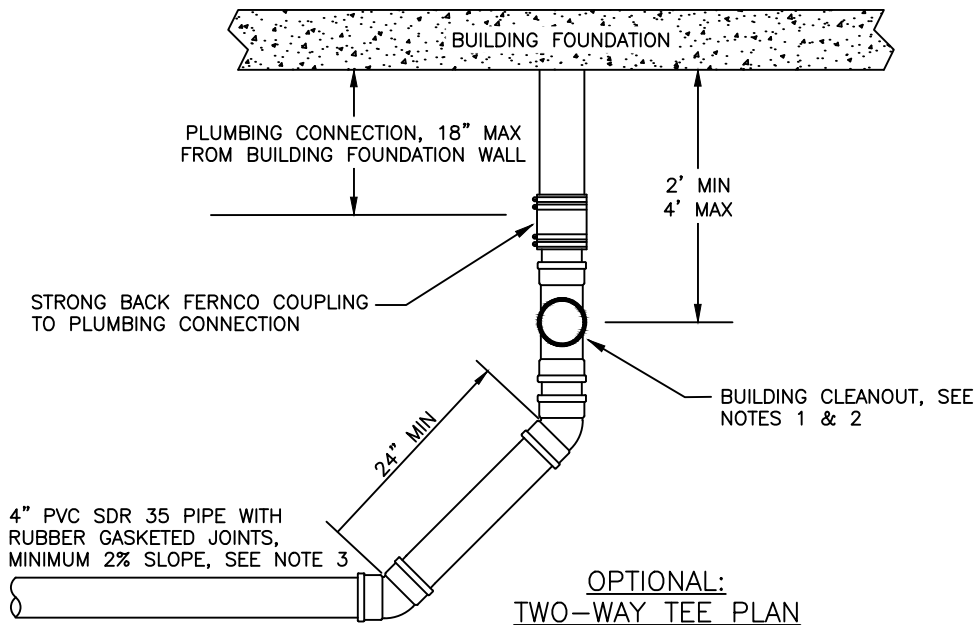
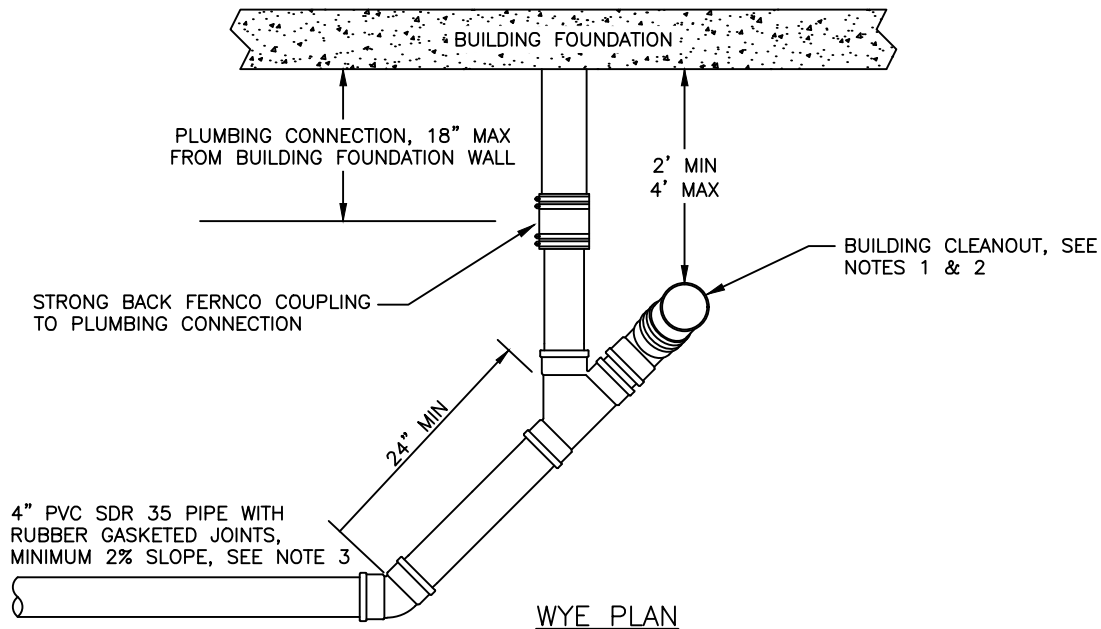
EDITOR TMC

ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT
2025 STANDARD SEWER DETAILS

8a

LAST UPDATED
MAY 2025



NOTES:

1. ALL CLEANOUTS SHALL BE BROUGHT TO GRADE AND INSTALLED IN A CLEANOUT BOX AND PLUGGED WATERTIGHT WITH A MECHANICAL PLUG, PER STANDARD SEWER DETAIL #9 AND #9a. A 4" 2-WAY TEST TEE MAY BE USED AT THE HOUSE CONNECTION IN LIEU OF A WYE.
2. CLEANOUTS IN HARDSCAPE (SUCH AS SIDEWALKS, DRIVEWAYS, AND PATIOS) AND AT EDGE OF R.O.W. OR EASEMENT REQUIRE A CAST IRON CLEANOUT BOX. FOR CLEANOUTS NOT IN HARDSCAPE AREAS, THE CLEANOUT CAN BE INSTALLED IN A LANDSCAPE/IRRIGATION BOX. SEE STANDARD SEWER DETAIL #9a FOR CLEANOUT BOX REQUIREMENTS.
3. ALL PIPE MATERIAL SHALL BE BELL & SPIGOT TYPE WITH RUBBER GASKET JOINT AND SHALL BE IN CONFORMANCE WITH ASTM D3034 (SDR-35).

SIDE SEWER HOUSE CONNECTION

NOT TO SCALE

DETAIL APPROVALS

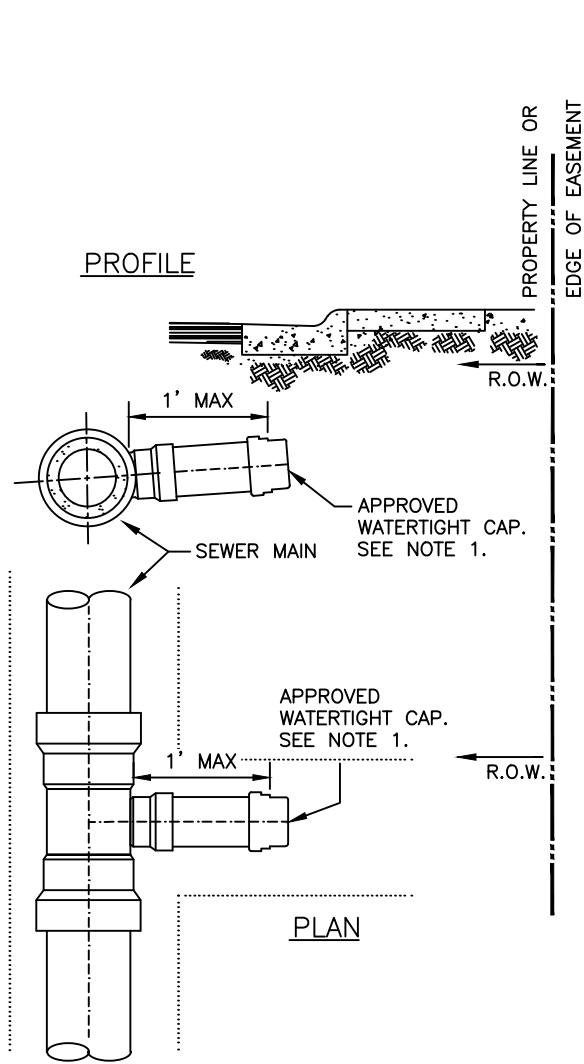
EDITOR TMC

ENG. DIR. CF

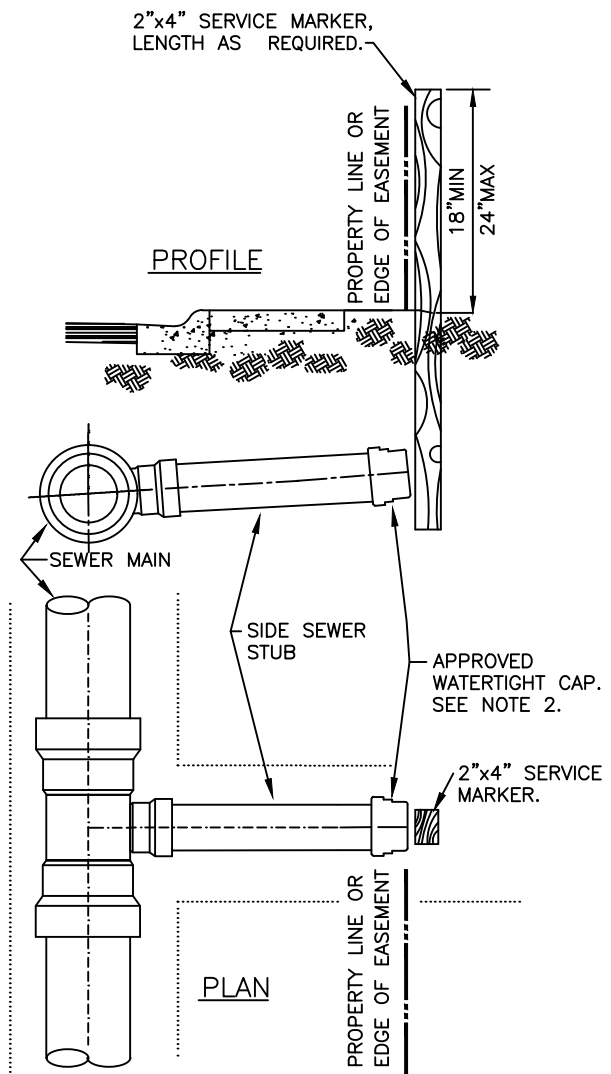
NORTHSHORE UTILITY DISTRICT
2025 STANDARD SEWER DETAILS

8b

LAST UPDATED
MAY 2025



PERMANENT ABANDONMENT



TEMPORARY ABANDONMENT

NOTES:

1. SIDE SEWERS THAT WILL NOT BE REUSED SHALL BE ABANDONED PERMANENTLY AT THE MAIN AND CAPPED WITH AN APPROVED WATERTIGHT, GASKETED CAP. FOR SIDE SEWERS OTHER THAN PVC OR DUCTILE IRON, AN END OF PIPE CHERNE PLUG (#270261 FOR 6", 270270 FOR 8") FOLLOWED BY NON-SHRINK GROUTING AS DIRECTED BY DISTRICT WILL BE REQUIRED.
2. SIDE SEWERS THAT WILL BE REUSED SHALL BE ABANDONED TEMPORARILY WITH AN APPROVED WATERTIGHT, GASKETED CAP AT THE END OF THE 6" STUB AT THE PROPERTY LINE. INSTALL A 2"x4" MARKER AT THE END OF THE STUB.
3. PAINT PORTION OF SERVICE MARKER THAT IS ABOVE GRADE WITH WHITE PAINT. STENCIL "S/S" WITH 3" TALL BLACK LETTERS.

SIDE SEWER CAPPING

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

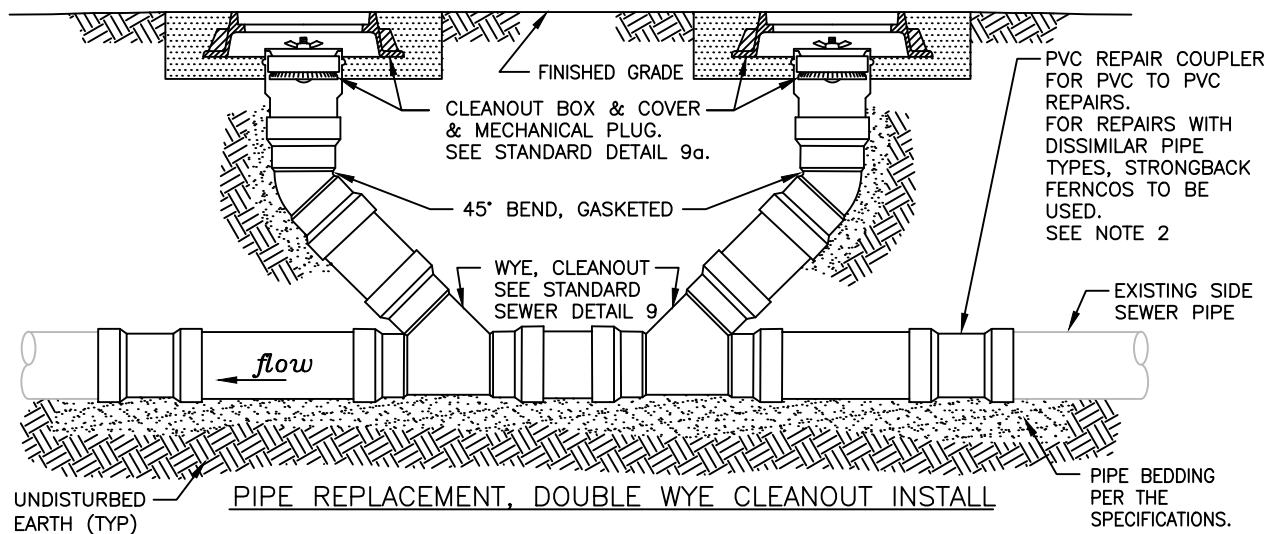
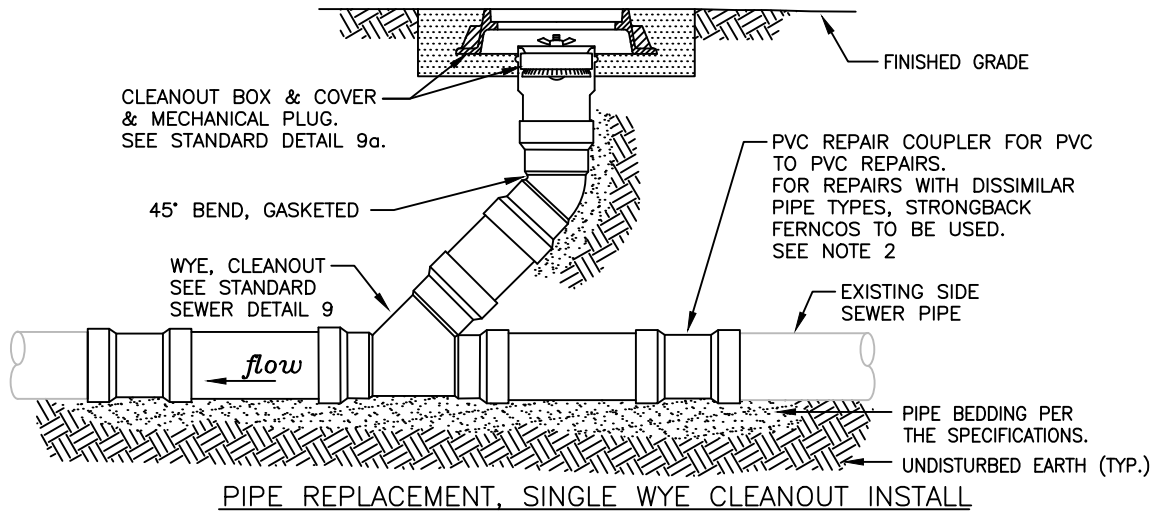
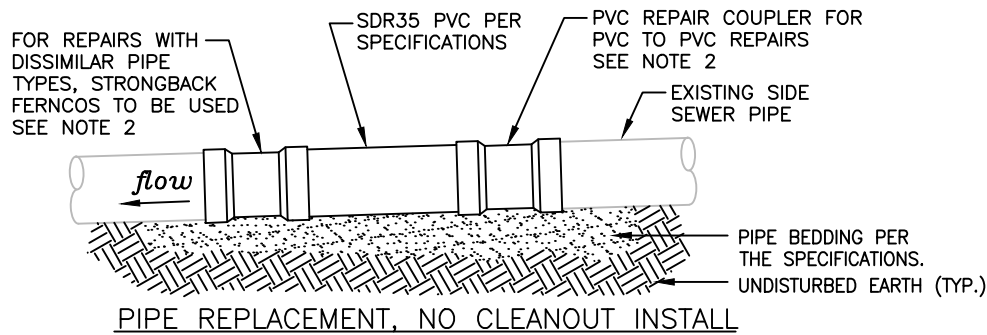
MANAGER CF

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS



LAST UPDATED
MAY 2025



NOTES:

1. ANY MODIFICATION OR REPAIR TO A SIDE SEWER REQUIRES A PERMIT. PERMIT APPLICATIONS AND HOW TO APPLY CAN BE FOUND ON NORTHSORE UTILITY DISTRICT'S WEBSITE, [HTTPS://WWW.NUD.NET/PERMITS-CONSTRUCTION/PERMIT-SERVICES-INSPECTIONS/](https://www.nud.net/permits-construction/permit-services-inspections/)
2. REPAIRS ON EXISTING PVC SIDE SEWER PIPE REQUIRE THE USE OF GASKETED PVC REPAIR COUPLERS. SIDE SEWER REPAIRS THAT CONNECT PVC TO DISSIMILAR PIPE (E.G. CONCRETE, DUCTILE IRON, CLAY) TO USE STRONGBACK RC 1000 SERIES FERNCOS. A ROMAC COUPLER IS REQUIRED WHEN CONNECTING TO THE DISTRICT OWNED 6" STUB PER STANDARD SEWER DETAIL 8a.

TYPICAL PRIVATE SIDE SEWER REPAIR

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

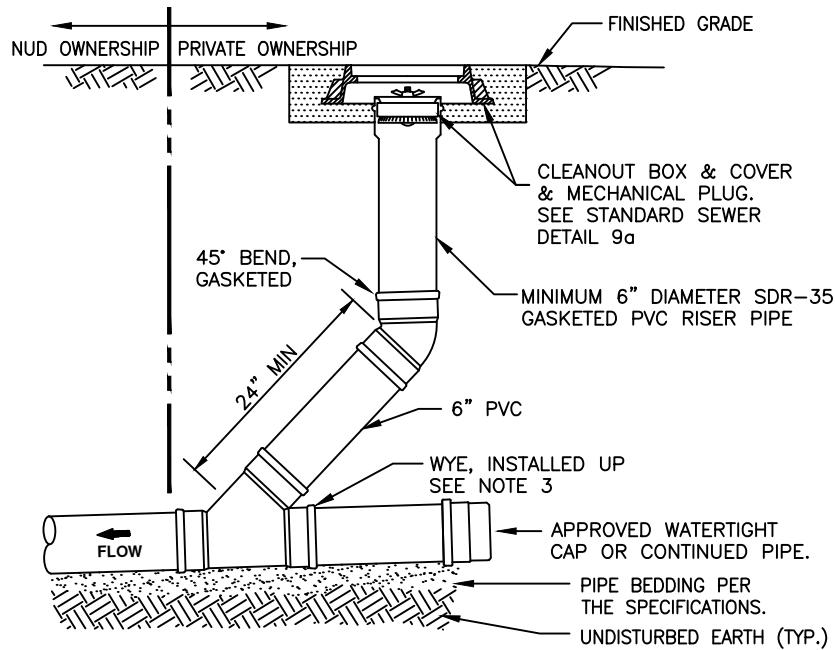
ENG. DIR. CF

NORTHSORE UTILITY DISTRICT

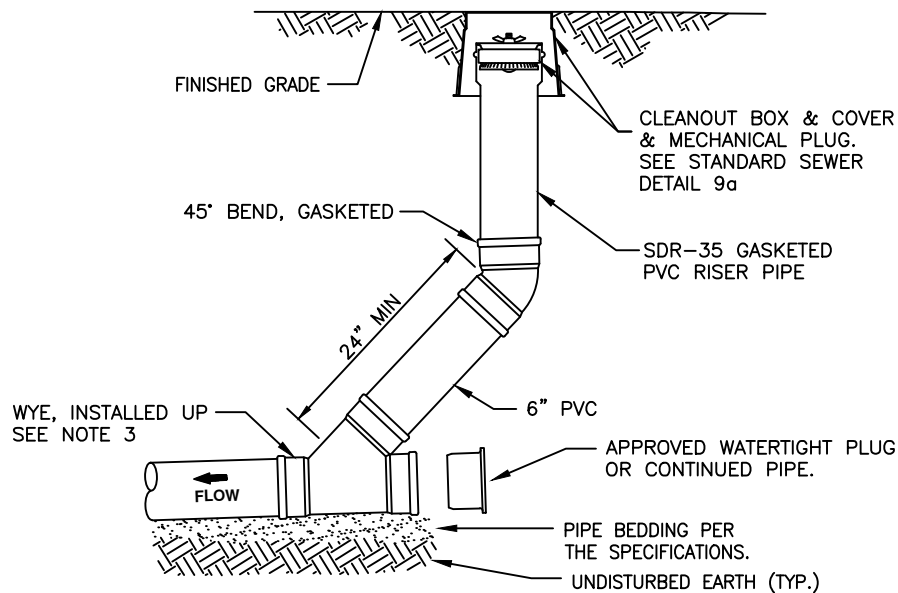
2025 STANDARD SEWER DETAILS

8d

LAST UPDATED
MAY 2025



WYE CLEANOUT AT EDGE OF R.O.W. OR EASEMENT



NOTES:

WYE CLEANOUT ON PROPERTY

1. ALL CLEANOUTS SHALL BE BROUGHT TO THE SURFACE. CLEANOUTS ARE REQUIRED AT THE EDGE OF R.O.W. OR EASEMENT, AT THE BUILDING, AND EVERY 100 FEET.
2. CLEANOUTS LOCATED IN HARDSCAPE AND AT THE EDGE OF R.O.W. OR EASEMENT REQUIRE A CAST IRON CLEANOUT BOX PER STANDARD SEWER DETAIL 9a.
3. THE SIDE SEWER CONNECTION AT THE MAIN LINE STUB SHALL BE PER STANDARD SEWER DETAILS 7 & 8a. PIPE SIZE SHALL REMAIN 6" UNTIL UPSTREAM OF THE WYE CLEANOUT AT EDGE OF R.O.W. OR EASEMENT.
4. RISER PIPE SHALL BE PERPENDICULAR TO CLEANOUT BOX COVER AND CENTERED WITHIN CLEANOUT BOX. RISER PIPE FOR CLEANOUTS AT EDGE OF R.O.W. OR EASEMENT SHALL MATCH THE SIZE OF THE DISTRICT OWNED STUB. RISER PIPE FOR CLEANOUTS WITHIN PROPERTY ARE TO BE MINIMUM 4".
5. ALL PIPE MATERIAL SHALL BE BELL & SPIGOT TYPE WITH RUBBER GASKET JOINT AND SHALL BE IN CONFORMANCE WITH ASTM D3034 (SDR-35).

SIDE SEWER SURFACE CLEANOUT

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

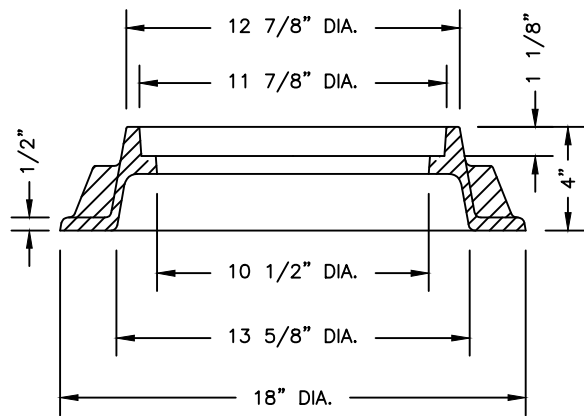
ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

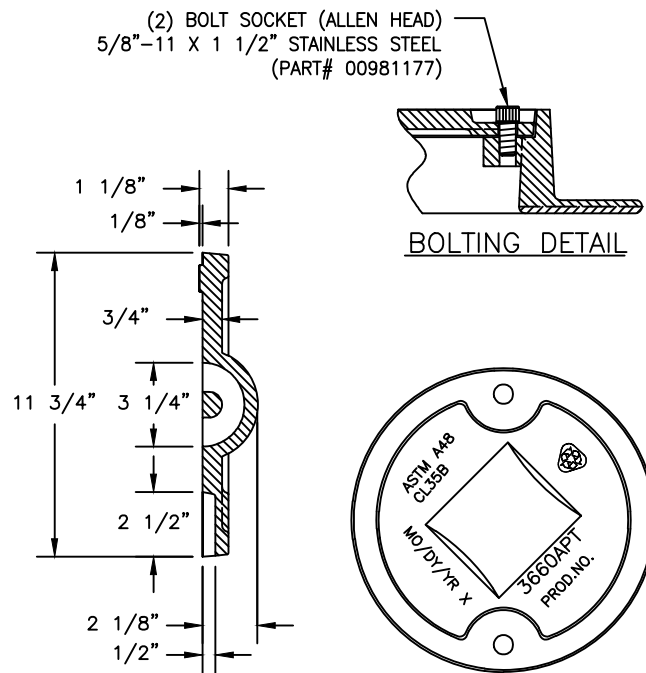
2025 STANDARD SEWER DETAILS

9

LAST UPDATED
MAY 2025



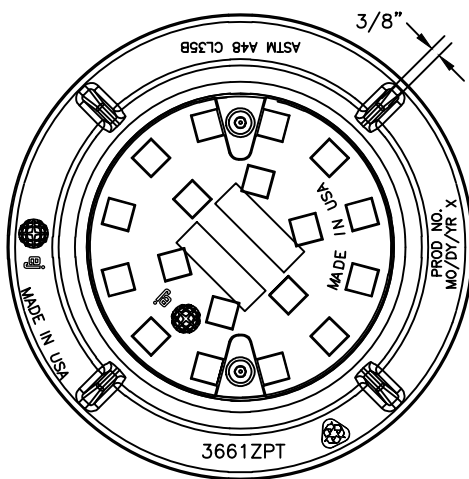
FRAME SECTION



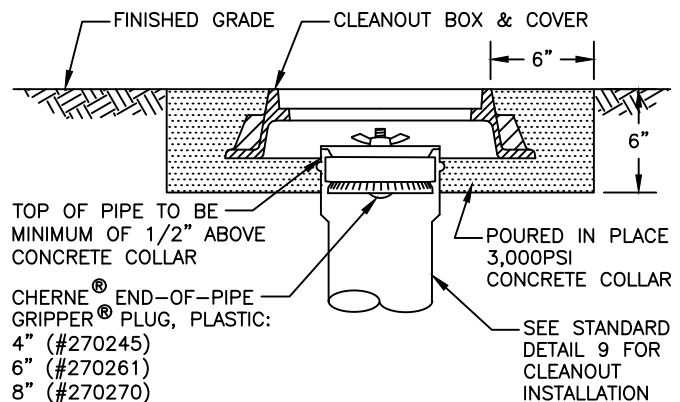
BOLTING DETAIL

COVER SECTION

COVER BACK



COVER AND FRAME PLAN



INSTALLATION PROFILE

NOTES:

1. ALL CLEANOUTS SHALL BE BROUGHT TO THE SURFACE. CLEANOUTS ARE REQUIRED AT THE EDGE OF R.O.W. OR EASEMENT, AT THE BUILDING, AND EVERY 100 FEET.
2. CLEANOUT BOXES AND COVERS LOCATED AT THE PROPERTY LINE, OR EDGE OF EASEMENT, AND IN HARDSCAPES SHALL BE EAST JORDAN IRONWORKS GRAY IRON ASSEMBLY, PART #00366107, HEAVY DUTY RATED WITH STAINLESS STEEL ALLEN HEAD SOCKET BOLTS.
3. CLEANOUT BOXES AND COVERS LOCATED IN LANDSCAPE AREA'S WITHIN THE PROPERTY MAY BE A MINIMUM 6" ROUND OR 6" SQUARE LANDSCAPE/IRRIGATION BOX EQUIVALENT TO A CARSON TRUSST 708, NDS 107BC, OR NDS D1000-SG.
4. WOOD SHIMS ARE NOT ALLOWED. PLASTIC OR CONCRETE SHIMS ARE TO BE USED FOR PLACING CLEANOUT BOX WHILE CONCRETE COLLAR IS POURED.

SURFACE CLEANOUT BOX

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

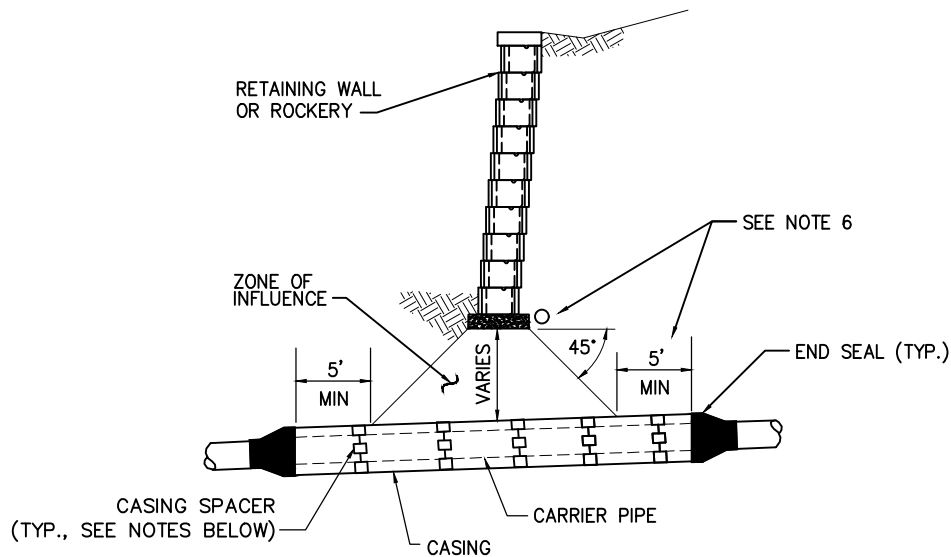
ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

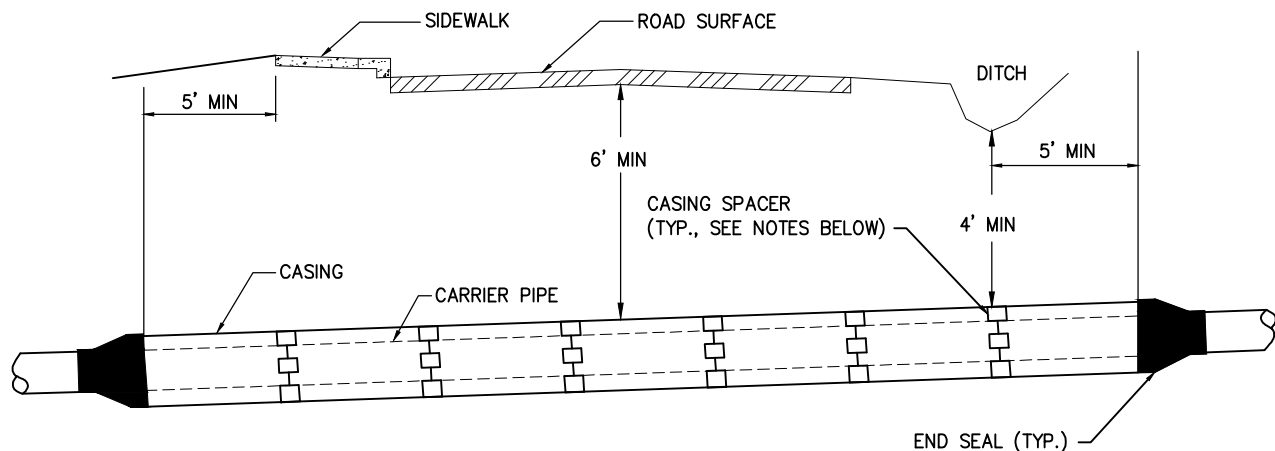
2025 STANDARD SEWER DETAILS

9a

LAST UPDATED
MAY 2025



ROCKERY OR WALL SECTION



ROADWAY SECTION

NOTES:

1. CASING LENGTH, TYPE, LOCATION AND SIZE SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE DISTRICT AND SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
2. CASING SPACERS SHALL INCLUDE POLYETHYLENE RUNNERS WITH STAINLESS STEEL BANDS PER THE SPECIFICATIONS.
3. CASING SPACERS SHALL BE INSTALLED AT A MAXIMUM 10' SPACING, WITH A SPACER LOCATED BEHIND EACH PIPE BELL AND WITH SPACERS LOCATED WITHIN 2' OF CASING ENDS.
4. CARRIER PIPE SHALL BE CL 52 DUCTILE IRON RESTRAINED JOINT PIPE UNLESS OTHERWISE SPECIFIED.
5. OUTSIDE OF CASING WILL REQUIRE GROUT FOR ANY VOIDS FOUND AFTER CASING PIPE IS INSTALLED. INSIDE OF CASING PIPE MAY BE REQUIRED TO BE FILLED WITH SAND OR GROUT AS DIRECTED BY DISTRICT.
6. TRENCH DAM MAY BE REQUIRED IF POTENTIAL FOR GROUND OR SURFACE WATER WILL FOLLOW CASING PIPE. SEE STANDARD SEWER DETAIL 16 FOR TRENCH DAM REQUIREMENTS.

CASING PIPE

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

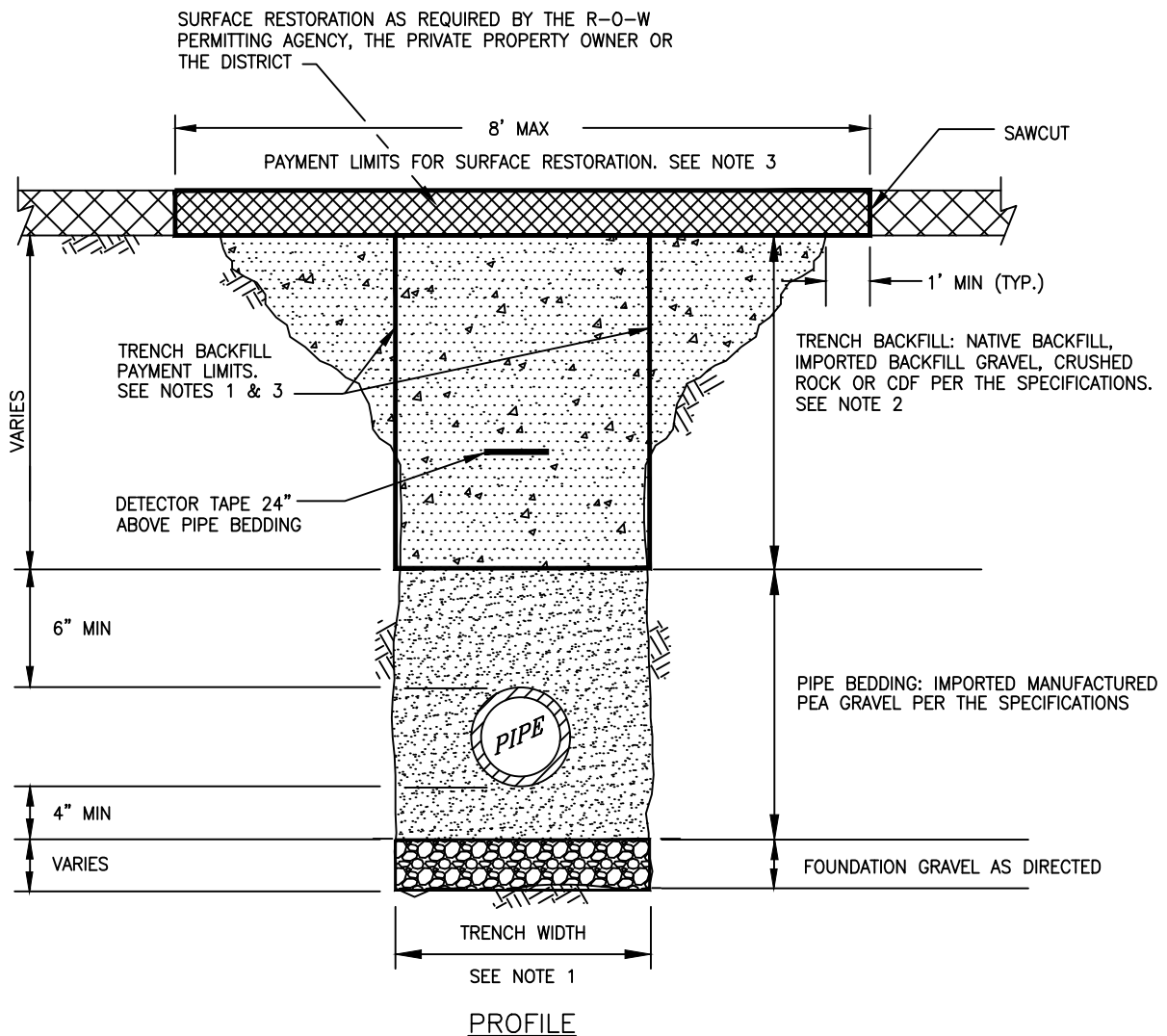
ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

10

LAST UPDATED
MAY 2025



NOTES:

1. TRENCH WIDTH:
 MINIMUM: PIPE O.D. + 24" (12" EACH SIDE OF PIPE).
 MAXIMUM: 36" FOR 12"Ø PIPE AND SMALLER.
 48" FOR PIPE LARGER THAN 12"Ø.
 THE NEAT-LINE PAYMENT LIMITS FOR TRENCH BACKFILL MATERIALS SHALL BE BASED UPON THE ACTUAL TRENCH WIDTH WITHIN THE MAXIMUM ALLOWED.
2. NATIVE MATERIAL, IF ALLOWED FOR TRENCH BACKFILL, SHALL MEET THE REQUIREMENTS OF SELECT BORROW PER THE SPECIFICATIONS. TRENCH BACKFILL SHALL BE COMPACTED TO A MINIMUM OF NINETY-FIVE PERCENT (95%) OF MODIFIED PROCTOR IN THE RIGHT-OF-WAY AND IMPROVED EASEMENTS AND TO NINETY PERCENT (90%) IN UNIMPROVED EASEMENT AREAS. SEE THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. THE NEAT-LINE LIMITS SHOWN WILL BE USED TO CALCULATE THE MAXIMUM QUANTITY OF TRENCH BACKFILL AND SURFACE RESTORATION MATERIALS ALLOWED. PAYMENT FOR BEDDING GRAVEL WILL BE CONSIDERED INCIDENTAL TO PAYMENT MADE FOR PIPE. PAYMENT FOR FOUNDATION ROCK WILL BE BASED UPON THE QUANTITIES USED AS DIRECTED BY THE DISTRICT. ADDITIONAL TRENCH WIDTH IS ALLOWED AT FITTINGS. SEE THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.
4. RECYCLED CONCRETE WILL NOT BE ALLOWED AS PIPE BEDDING OR TRENCH BACKFILL FOR D.I. PIPE.
5. D.I. PIPE MAY REQUIRE CATHODIC PROTECTION DUE TO SOIL AND SITE CONDITIONS AS DETERMINED BY THE DISTRICT.

TYPICAL TRENCH SECTION & PAYMENT LIMITS

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

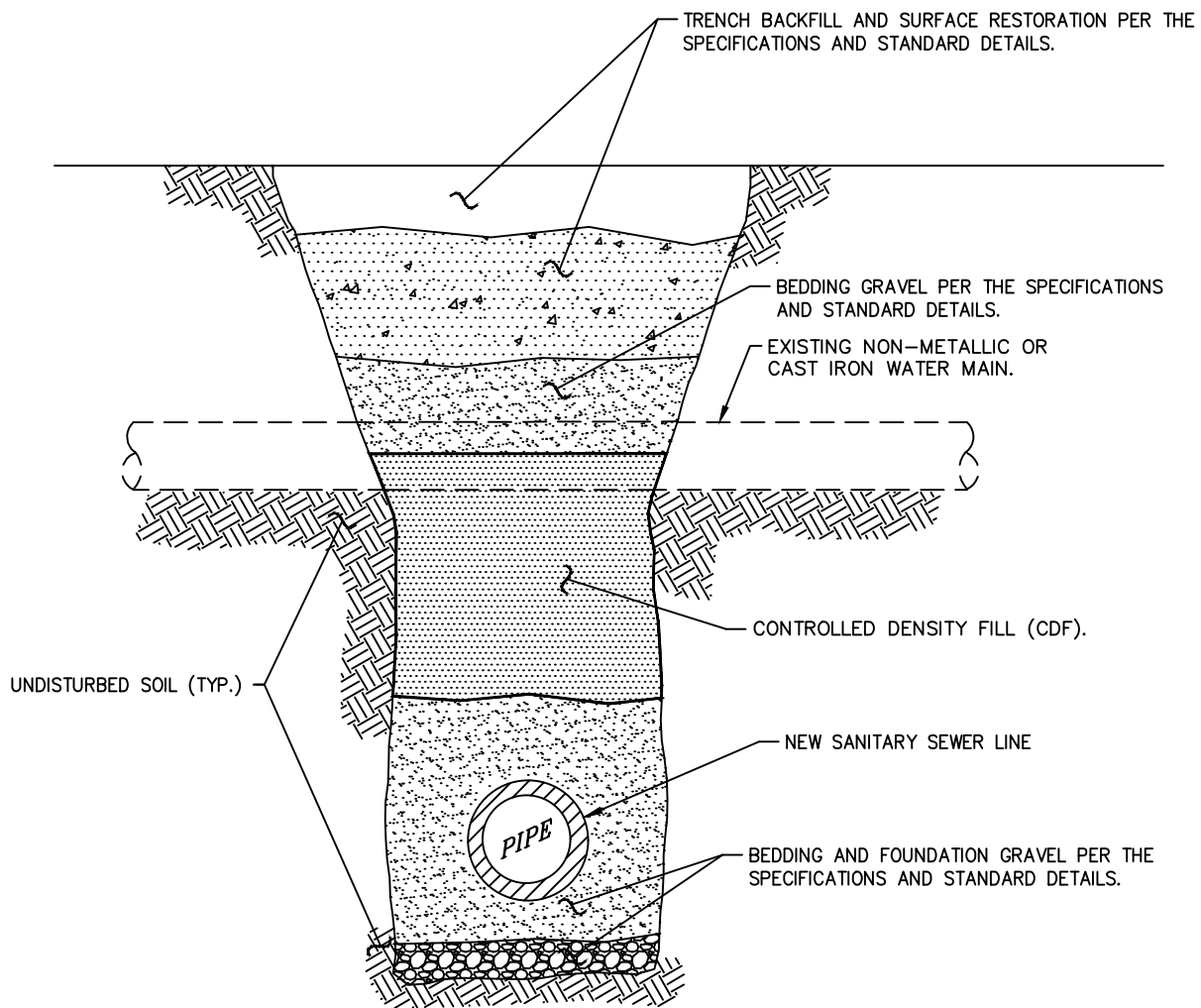
ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

11

LAST UPDATED
MAY 2025



PROFILE

NOTES:

1. WHERE UTILITY LINES CROSS UNDER EXISTING NON-METALLIC WATER MAIN, SUCH AS ASBESTOS CEMENT, PERMASTRAN, OR CLASS 200 PVC, OR CAST IRON WATER MAIN, BACKFILL WITH CONTROLLED DENSITY FILL (CDF) BETWEEN THE BEDDING MATERIAL AND THE SPRING LINE (MID-POINT) OF THE NON-METALLIC OR CAST IRON PIPE. FOR CAST IRON PIPE, WRAP THE PIPE WITH 8 MIL VISQUEEN WHERE THE CDF WILL BE PLACED. THE NON-METALLIC OR CAST IRON WATER MAIN SHALL THEN BE BEDDED, PER THE SPECIFICATIONS, ABOVE THE CDF. TRENCH BACKFILL CAN THEN BE USED ABOVE THE BEDDING, UP TO THE FINAL GRADE.
2. IF NON-METALLIC PIPE MUST BE REMOVED, AS DETERMINED BY THE DISTRICT, REPLACE WITH CL. 52 DUCTILE IRON PIPE, SIZED TO MATCH. D.I. PIPE TO EXTEND A MINIMUM OF 18" INTO UNDISTURBED SOIL (ALL APPLICABLE ENVIRONMENTAL PROTECTION AGENCY, PUGET SOUND AIR POLLUTION CONTROL AGENCY, AND LABOR AND INDUSTRY REQUIREMENTS AND REGULATIONS SHALL BE MET IN CUTTING, HANDLING OR DISPOSING OF ASBESTOS CEMENT PIPE).

NON-METALLIC PIPE CROSSING

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

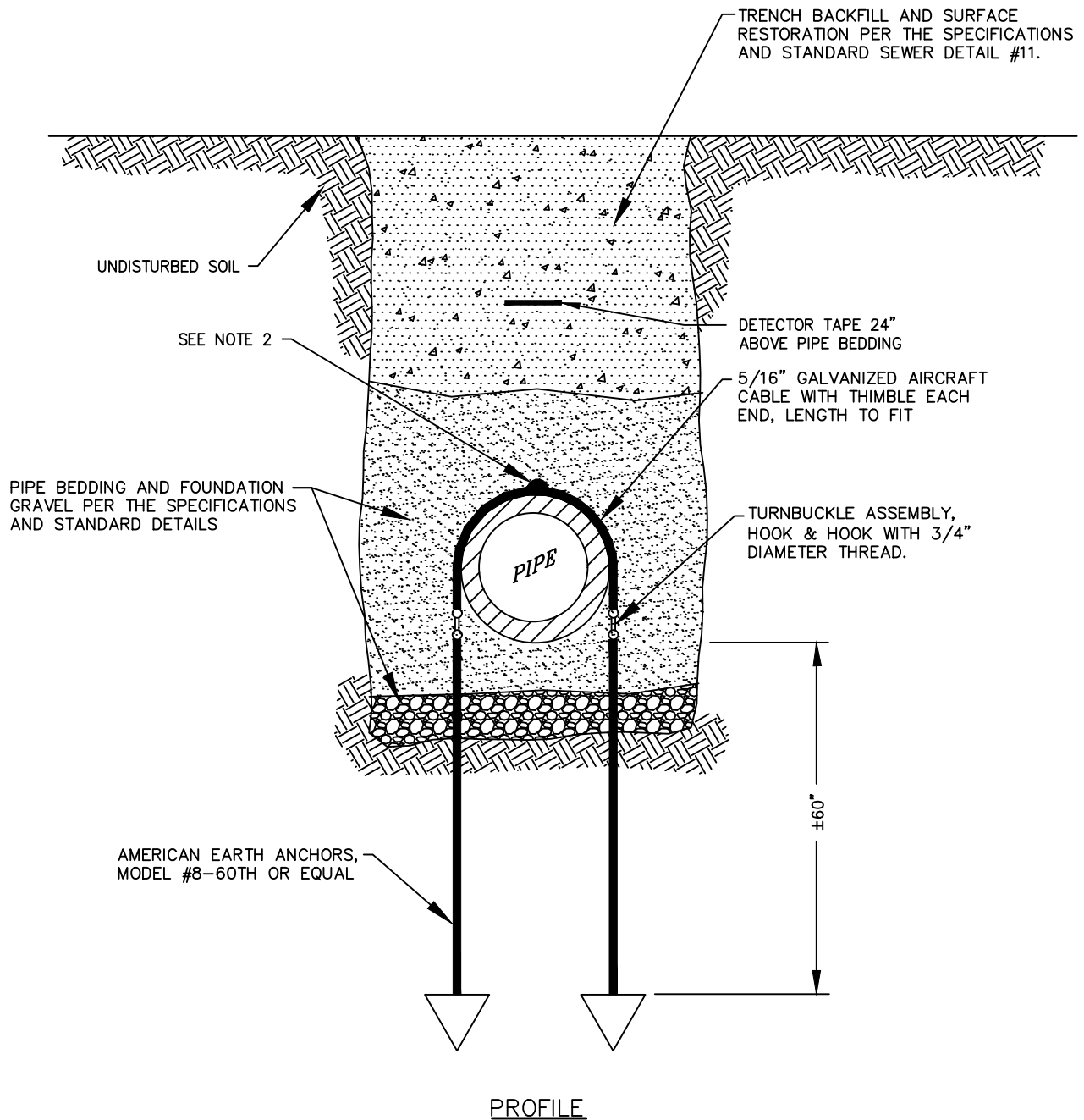
ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

12

LAST UPDATED
MAY 2025



NOTES:

1. PIPE ANCHORS SHALL BE INSTALLED ON ALL SLOPES GREATER THAN 20% WITH SPACING AS FOLLOWS:
 - A. NOT GREATER THAN 36 FT. ON GRADES FROM 20% TO 35%.
 - B. NOT GREATER THAN 24 FT. ON GRADES FROM 35% TO 50%.
 - C. NOT GREATER THAN 16 FT. ON GRADES GREATER THAN 50%.
2. IF CARRIER PIPE IS INSTALLED IN CASING PIPE, INSTALL FLANGE OR BRACKET TO SECURE PIPE ANCHOR TO CASING PIPE.

PIPE ANCHOR

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

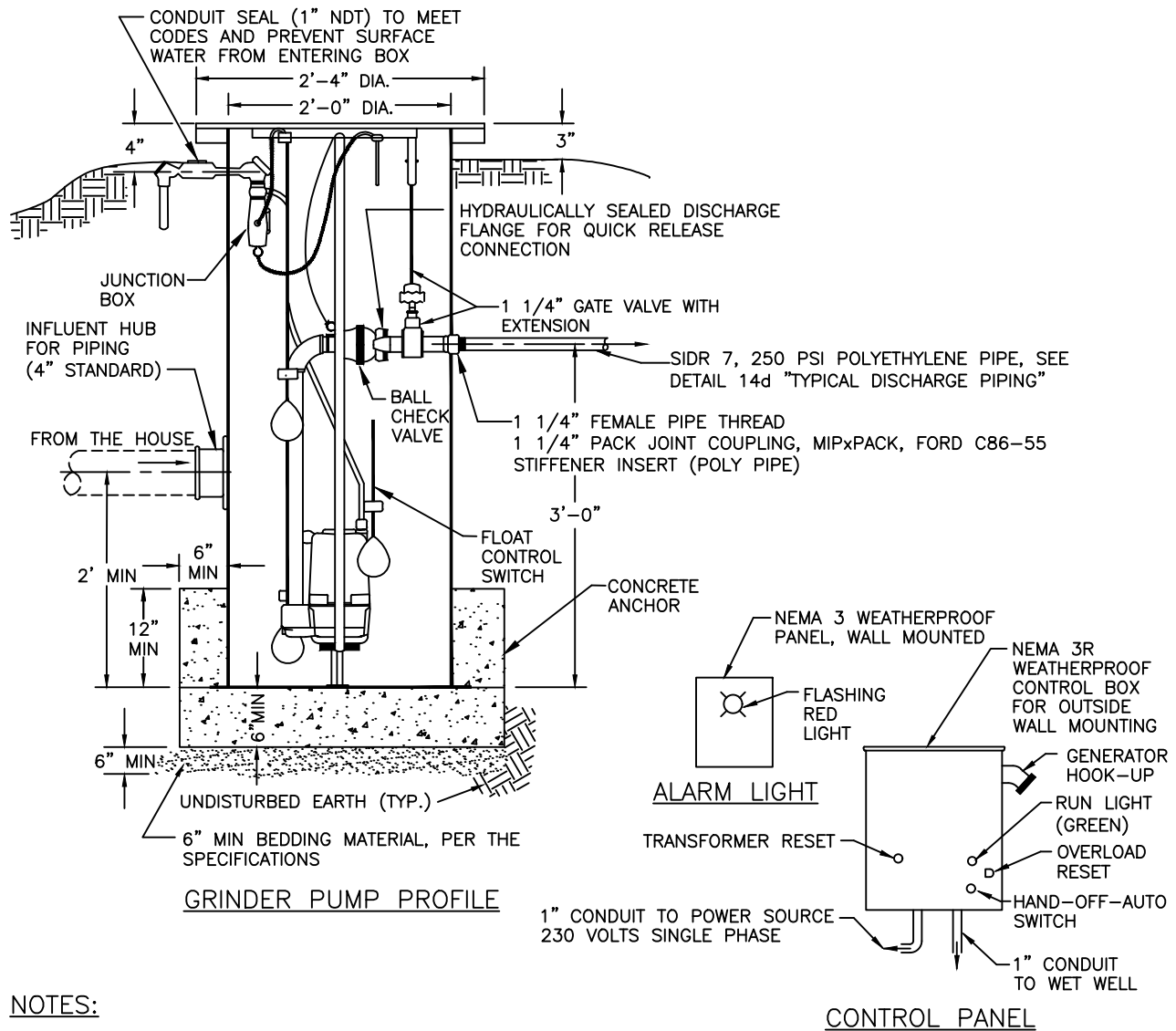
ENG. DIR. SJD

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

13

LAST UPDATED
FEBRUARY 2020



NOTES:

HYDRAMATIC HPG-200 COMPLETE PACKAGED SEWER GRINDER LIFT STATION (EQUAL TO THE TG-PRO SYSTEM) TO INCLUDE THE FOLLOWING:

1. GRINDER PUMP WITH 2HP SUBMERSIBLE SINGLE PHASE MOTOR (ADEQUATE FOR SINGLE RESIDENCE UP TO 100' HEAD AT 5" IMPELLER DIA.)
2. TWO SEALED FLOAT TYPE MERCURY SWITCHES FOR LEVEL CONTROL
3. ONE FLOAT SWITCH FOR ALARM CONTROL
4. 1" NPT MALE CONDUIT OUTSIDE OF SUMP FOR CONTROL WIRING
5. DISCHARGE PIPING SHALL INCLUDE A CHECK VALVE, A GATE VALVE AND NPT FEMALE CONNECTION OUTSIDE OF SUMP (DIA. PER PRESSURE PIPE DIA.)
6. INFLUENT PIPING SHALL PROVIDE HUB FOR PVC PIPE OUTSIDE OF SUMP (DIA. PER SEWERSIDE DIA.)
7. FIBERGLASS SUMP BASIN 24" I.D. x 5'-0" HIGH (PER BULLETIN SPG-604 (HYDRAMATIC OR EQUAL))
8. NEMA 3R LOCKING CONTROL PANEL WITH GENERATOR HOOK-UP, MOUNTED OUTSIDE ON HOUSE WALL
9. RED ALARM LIGHT PANEL, MOUNTED OUTSIDE ON HOUSE WALL
10. SEE ADDITIONAL INFORMATION PER STANDARD SEWER DETAIL 14c GENERAL NOTES

SINGLE FAMILY GRINDER PUMP STATION HYDRAMATIC

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

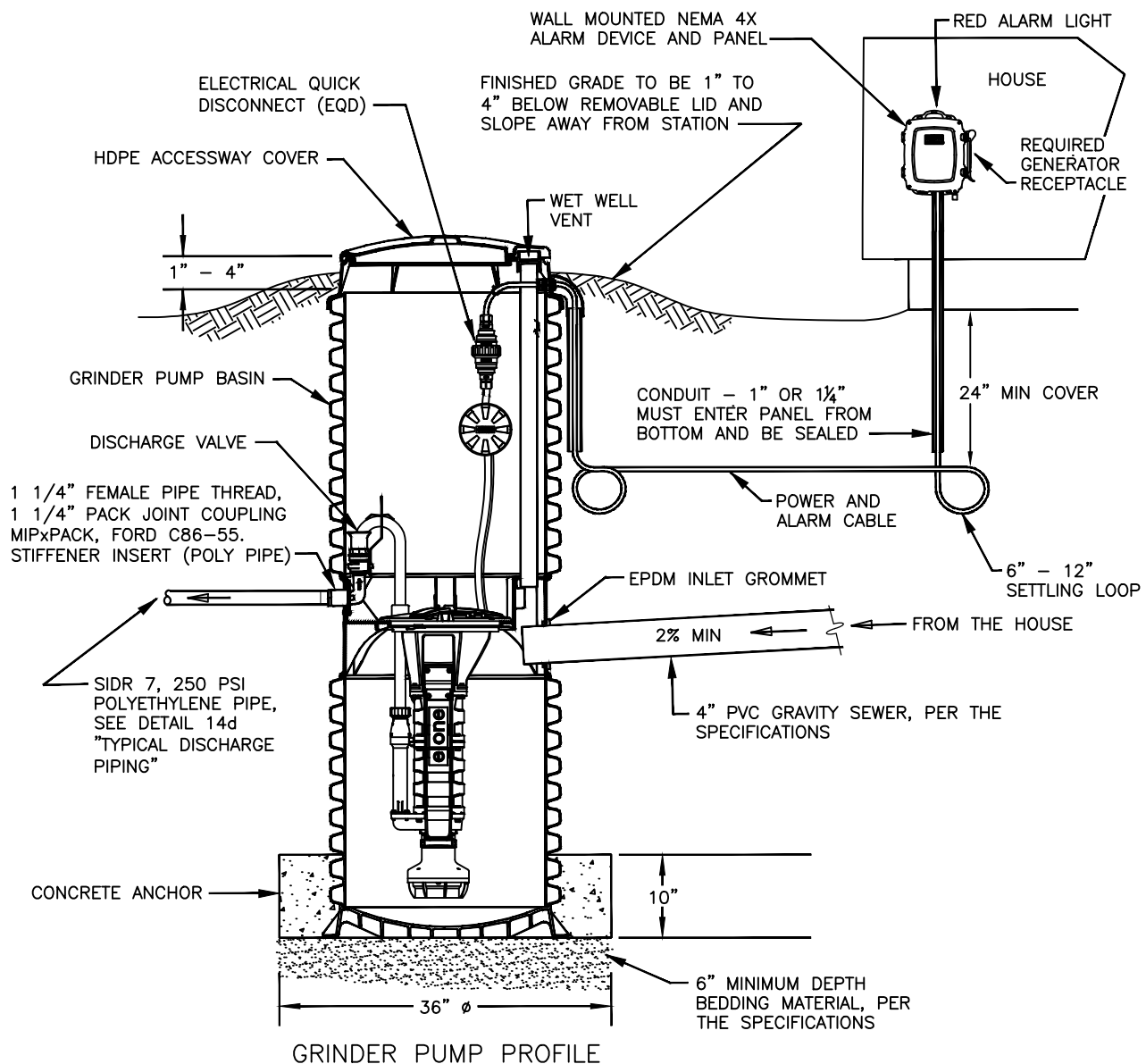
ENG. DIR. SJD

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

14a

LAST UPDATED
APRIL 2021



NOTES:

ENVIRONMENTAL ONE (E-ONE) DH071 COMPLETE PACKAGED SEWAGE GRINDER PUMP STATION TO INCLUDE THE FOLLOWING:

1. ONE SIMPLEX GRINDER PUMP WITH 70 GAL CAPACITY AND HDPE BASIN (ADEQUATE FOR SINGLE RESIDENCE)
2. ASSEMBLED IN THE BASIN - NEMA 6P ELECTRICAL QUICK DISCONNECT, PUMP REMOVAL SYSTEM, STAINLESS STEEL DISCHARGE ASSEMBLY/SHUT-OFF VALVE, AND ANTI-SIPHON VALVE/CHECK VALVE
3. NEMA 4X ALARM PANEL EQUIPPED WITH CIRCUIT BREAKERS AND NECESSARY INTERNAL WIRING CONTROLS
4. DISCHARGE PIPING SHALL INCLUDE FEMALE PIPE THREAD FOR PRESSURE PIPE CONNECTION (DIA. PER PRESSURE PIPE DIA, 1 1/4" MIN)
5. INFLUENT PIPING SHALL PROVIDE INLET GROMMET FOR SDR 35 PVC PIPE (DIA. PER SIDESEWER DIA.)
6. ALARM PANEL, INCLUDING RED ALARM LIGHT AND GENERATOR RECEPTACLE, MOUNTED OUTSIDE ON HOUSE WALL
7. SEE ADDITIONAL INFORMATION PER STANDARD SEWER DETAIL 14c GENERAL NOTES

SINGLE FAMILY GRINDER PUMP STATION E-ONE

NOT TO SCALE

DETAIL APPROVALS

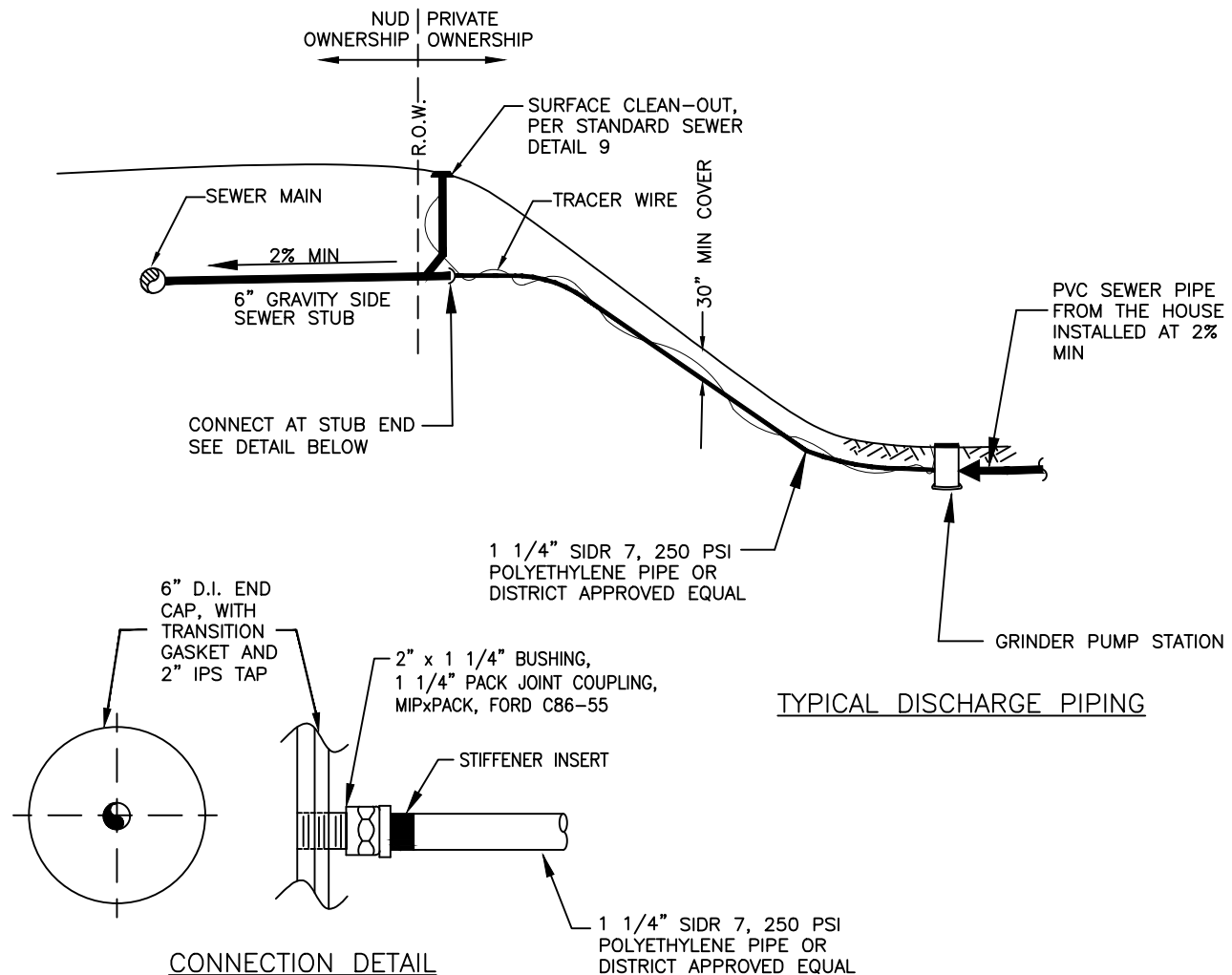
EDITOR TMC

ENG. DIR. SJD

NORTHSHORE UTILITY DISTRICT
2025 STANDARD SEWER DETAILS

14b

LAST UPDATED
APRIL 2021



NOTES:

1. THE MINIMUM REQUIREMENTS FOR A RESIDENTIAL SEWAGE PUMPING SYSTEM CONNECTING A SINGLE RESIDENCE TO THE DISTRICT'S SYSTEM ARE SPECIFIED AS FOLLOWS. THE DISTRICT ACCEPTS NO RESPONSIBILITY FOR THE DESIGN, OPERATION AND MAINTENANCE OF SUCH PRIVATELY OWNED AND OPERATED SYSTEMS. INSTALLATION OF GRINDER PUMP SYSTEMS MUST BE PREAPPROVED BY THE DISTRICT.
2. ALL EQUIPMENT AND ACCESSORIES SHALL BE STANDARD MANUFACTURED ITEMS AND THOSE COMING IN DIRECT CONTACT WITH SEWAGE SHALL BE SPECIFICALLY MANUFACTURED FOR SEWAGE USE.
3. LIFT STATION MUST BE LOCATED OUTSIDE THE BUILDING. IF THE STATION IS COMPLETELY BURIED, INSTALL 48" I.D. MANHOLE WITH FRAME AND COVER OVER STATION FOR ACCESS.
4. THE PUMP SHALL BE E-ONE DH071 OR HYDROMATIC HPG-200, AS SPECIFIED HEREIN. NO OTHER PUMP TYPES SHALL BE PERMISSIBLE.
5. A 14 GAUGE TRACER WIRE, CONTINUOUS POLYETHYLENE INSULATED COPPER, SHALL BE WRAPPED AROUND THE ENTIRE COURSE OF THE POLY PRESSURE PIPE AND BROUGHT TO THE SURFACE IN THE CLEAN-OUT BOX AND AT THE STATION.
6. POLY PRESSURE PIPE TO BE 1 1/4" MIN. SIDR 7, 250 PSI POLYETHYLENE PIPE, OR DISTRICT APPROVED EQUAL.
7. POLY PRESSURE PIPE TO BE INSTALLED AT A CONTINUOUS UPHILL GRADE WITH NO JOINTS OR COUPLINGS IF PIPE RUN IS UNDER 300 FEET.
8. DETECTOR TAPE REQUIRED 1'-0" ABOVE PIPING WHEN POLY PRESSURE PIPE CROSSES OTHER PROPERTIES OR IS LOCATED ALONG COMMON ACCESS ROADS.
9. EVERY INSTALLATION SHALL BE EQUIPPED WITH AN ALARM PANEL, INCLUDING RED ALARM LIGHT AND GENERATOR RECEPTACLE, MOUNTED OUTSIDE ON HOUSE WALL.

SINGLE FAMILY GRINDER PUMP STATION DISCHARGE PIPING/GENERAL NOTES

NOT TO SCALE

DETAIL APPROVALS

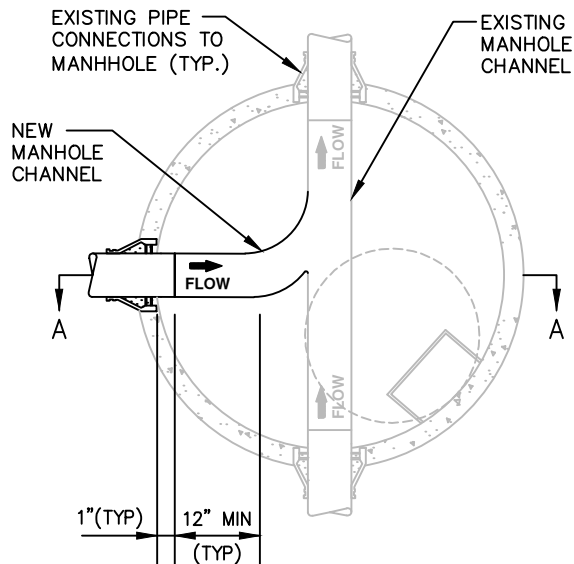
EDITOR *TMC*

ENG. DIR. *CF*

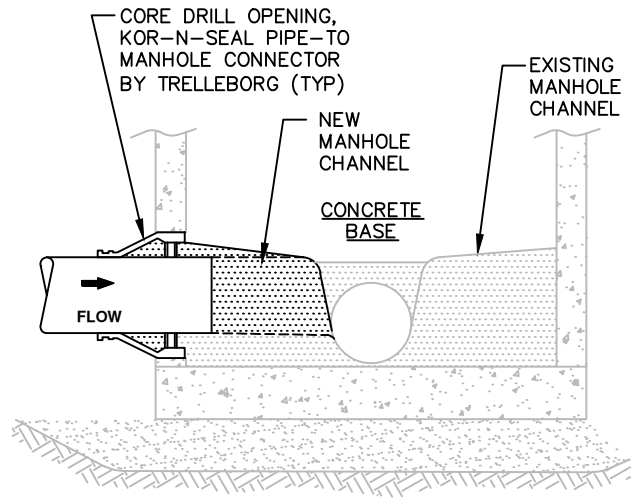
NORTHSHORE UTILITY DISTRICT 2025 STANDARD SEWER DETAILS

14c

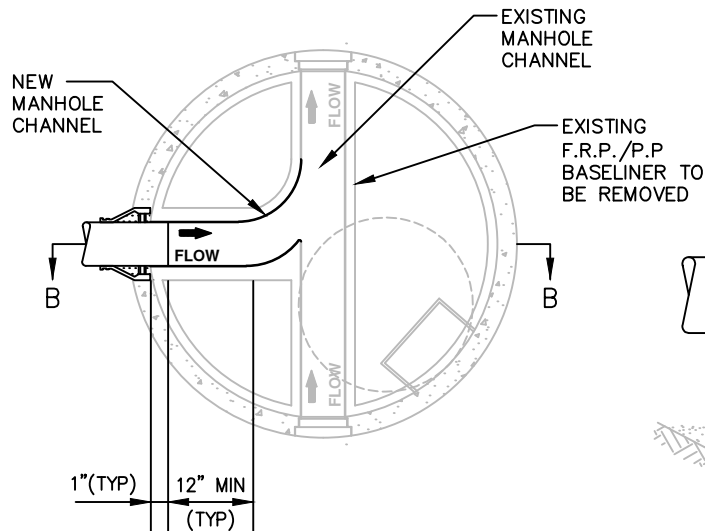
LAST UPDATED
MAY 2025



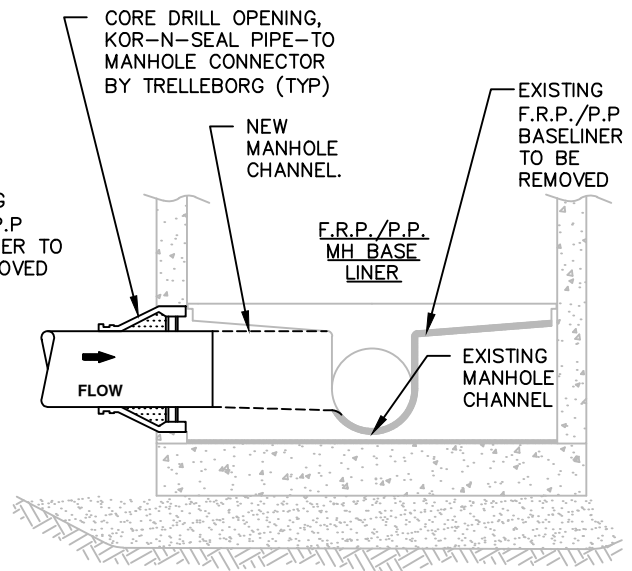
EXISTING CONCRETE BASE PLAN



SECTION A-A



EXISTING F.R.P./P.P. LINER PLAN



SECTION B-B

NOTES:

1. THE DISTRICT STANDARD MINIMUM SLOPE OF 0.1' ACROSS THE INVERT CHANNEL IS REQUIRED FOR ALL RE-CHANNELED MANHOLES.
2. THE NEW CHANNEL SHALL HAVE NO SHARP EDGES AND SHALL DIRECT FLOW TOWARDS EXISTING FLOW DIRECTION. NO 90° BENDS IN THE CHANNELING.
3. CONCRETE BASES SHALL BE RE-CHANNELED USING MINIMUM 3,000 PSI STRUCTURAL CONCRETE.
4. FIBER REINFORCED PLASTIC (F.R.P.) AND POLYPROPYLENE (P.P.) BASE LINERS SHALL BE REMOVED PER DISTRICT DIRECTION. PLEASE CONTACT NORTHSORE UTILITY DISTRICT FOR REMOVAL REQUIREMENTS. IF RE-CHANNELING IS REQUIRED AFTER REMOVAL, CHANNEL SHALL BE MINIMUM 3,000 PSI STRUCTURAL CONCRETE.
5. SEE NUD SEWER DETAIL #1 FOR PRECAST CONCRETE MANHOLE, TOP SECTION, LADDER, AND STEPS.
6. CROWN OF NEW PIPE CONNECTION SHALL MATCH EXISTING CHANNEL'S CROWN OR AS APPROVED BY DISTRICT.

NEW CONNECTION TO EXISTING MANHOLE

NOT TO SCALE

DETAIL APPROVALS

ENGINEER TMC

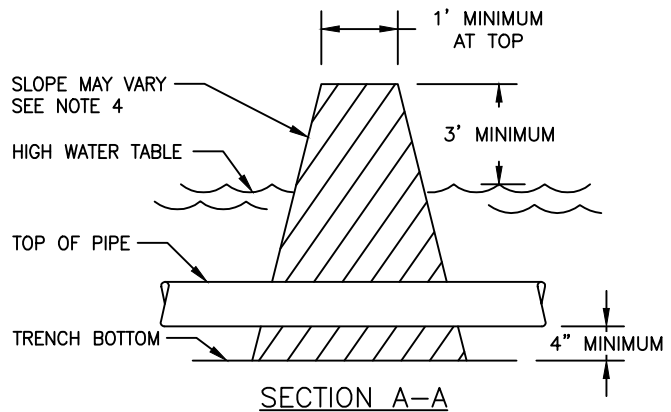
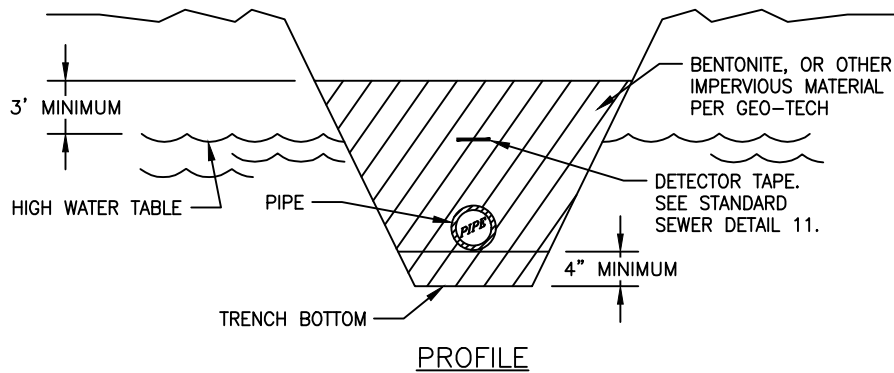
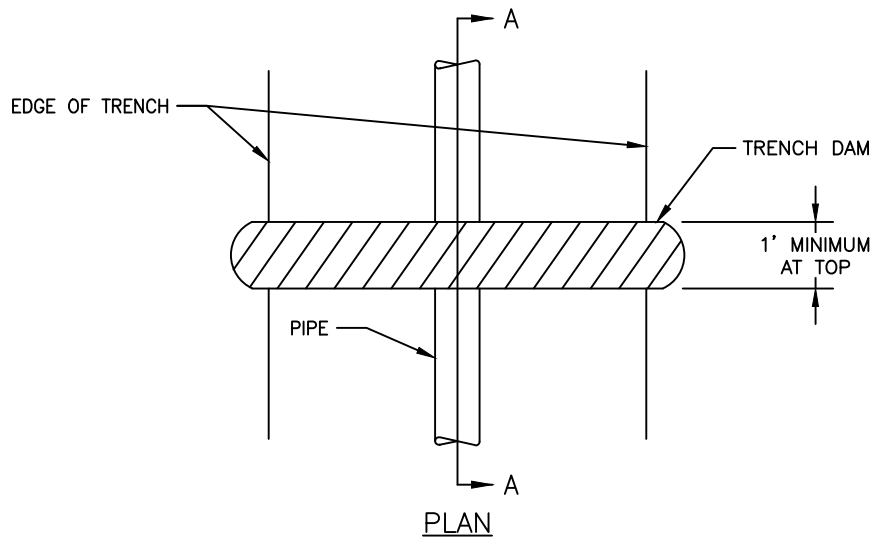
ENG. DIR. CF

NORTHSORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

15

LAST UPDATED
MAY 2025



NOTES:

1. TRENCH DAMS ARE TO BE INSTALLED IN HIGH GROUND WATER AREAS SUCH AS ADJACENT TO WETLANDS, STREAMS, AS SHOWN ON APPROVED PLANS, OR AS DIRECTED BY THE DISTRICT.
2. TRENCH DAMS ARE TO BE PLACED 5' UPSTREAM FROM MANHOLES AND AS DIRECTED BY THE DISTRICT.
3. ELEVATION AT TOP OF TRENCH DAM TO VARY BASED ON WATER TABLE.
4. SLOPE OF THE TRENCH DAM IS TYPICALLY 3:1.

TRENCH DAM

NOT TO SCALE

DETAIL APPROVALS

EDITOR *TMC*

ENG. DIR. *CF*

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

16

LAST UPDATED
MAY 2025

RESERVED

DETAIL APPROVALS

EDITOR TMC

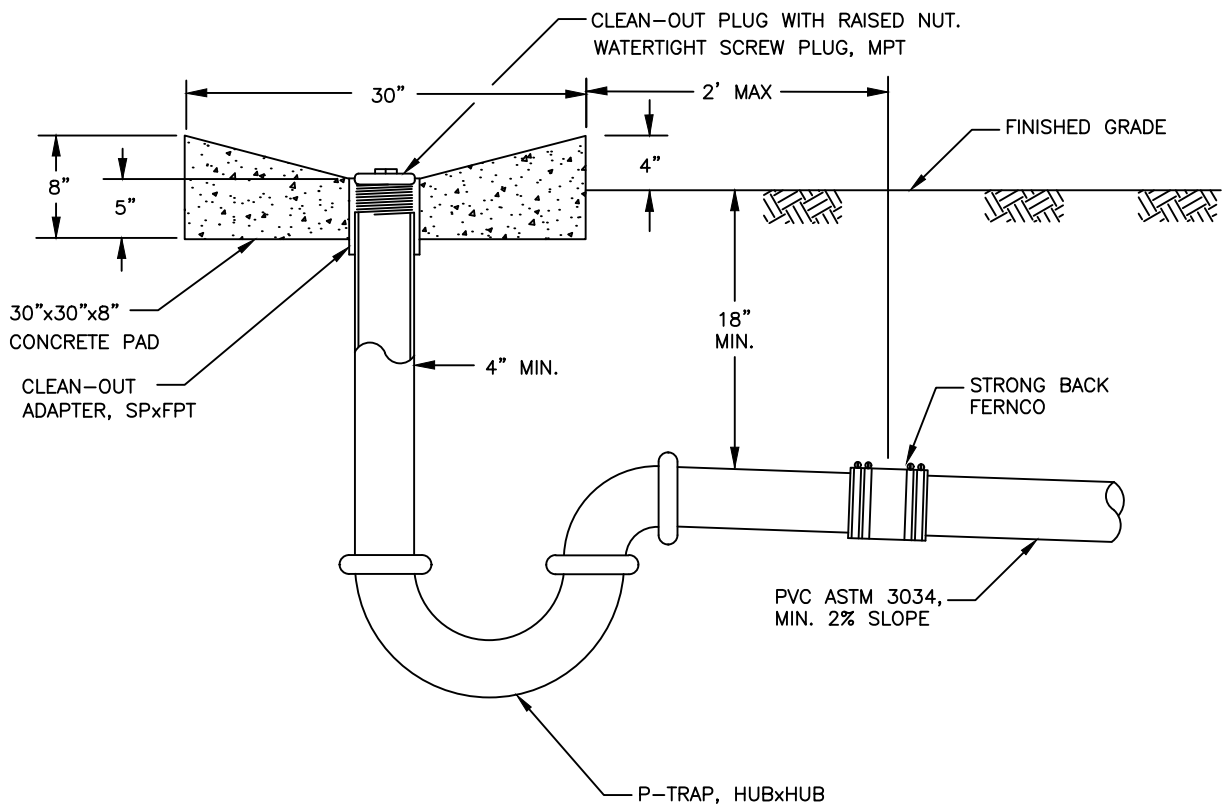
ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

17

LAST UPDATED
MAY 2025



PROFILE

NOTES:

1. TRAILER DUMP CONNECTION ONLY ALLOWED WHEN AUTHORIZED AND PERMITTED BY THE DISTRICT. CONTACT PERMITS@NUD.NET TO OBTAIN AUTHORIZATION AND FOR PERMITTING.
2. ALL PIPE SHALL BE ABS, SCHEDULE 40, SOLVENT WELD UNLESS OTHERWISE NOTED.
2. ALL FITTINGS SHALL BE ABS, HUBxHUB.
3. TRANSITION FROM ABS PIPE TO PVC PIPE SHALL BE MADE WITH A STRONG BACK FERNCO COUPLING ADAPTER.

TRAILER DUMP

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

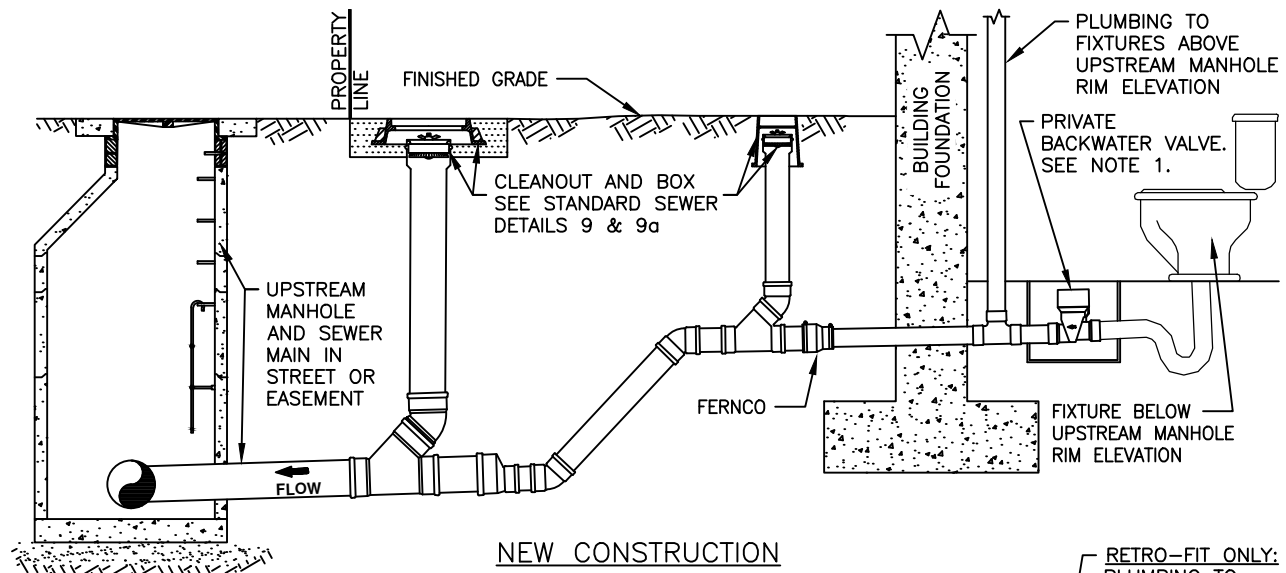
ENG. DIR. EM

NORTHSHORE UTILITY DISTRICT

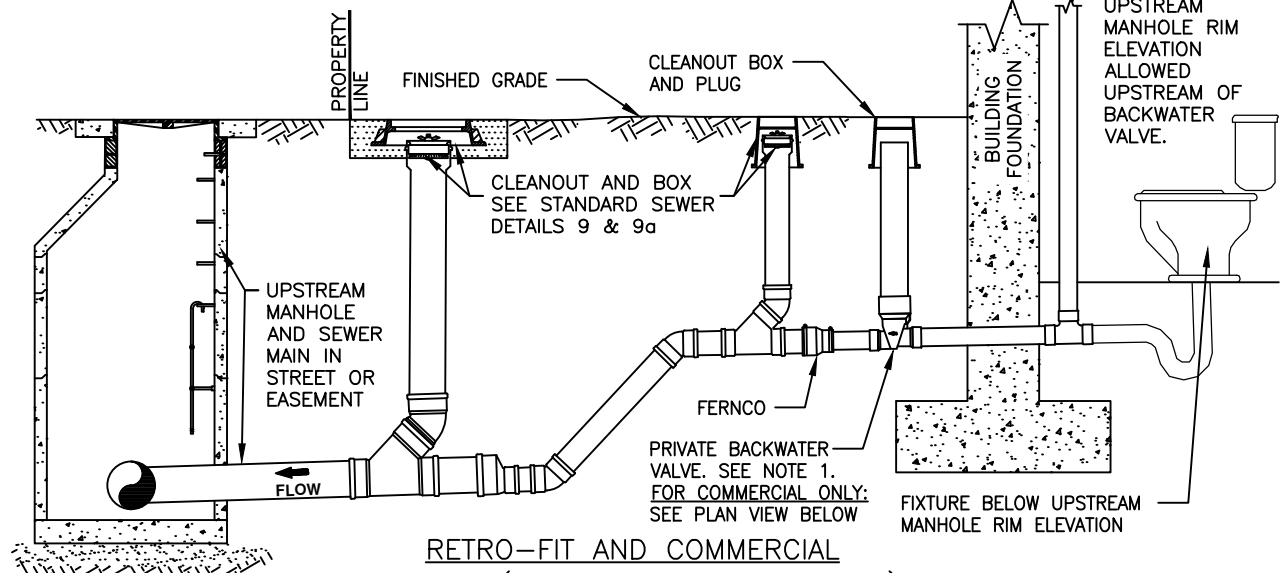
2025 STANDARD SEWER DETAILS

18

LAST UPDATED
MARCH 2024



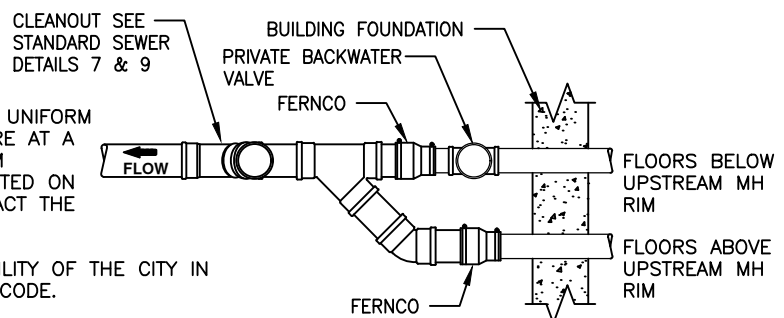
**NEW CONSTRUCTION
PROFILE (INSIDE BACKFLOW VALVE)**



**RETRO-FIT AND COMMERCIAL
PROFILE (OUTSIDE BACKFLOW VALVE)**

NOTES:

1. BACKWATER VALVES ARE REQUIRED PER THE UNIFORM PLUMBING CODE FOR ANY FIXTURES THAT ARE AT A LOWER ELEVATION THAN THE NEXT UPSTREAM MANHOLE. BACKWATER VALVE IS TO BE LOCATED ON THE PLUMBING SIDE OF THE FERNCO, CONTACT THE CITY FOR EXACT LOCATION REQUIREMENTS.
2. PLUMBING INSPECTIONS ARE THE RESPONSIBILITY OF THE CITY IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE.
3. SIDE SEWER CLEANOUTS SHALL BE BROUGHT TO THE SURFACE WITHIN A CLEANOUT BOX PER STANDARD SEWER DETAILS #9 AND #9a.
4. ALL SIDE SEWER PIPE MATERIAL SHALL BE BELL & SPIGOT TYPE WITH RUBBER GASKET JOINT AND SHALL BE IN CONFORMANCE WITH ASTM D3034 (SDR-35).



**COMMERCIAL PLAN (FOR
OUTSIDE BACKWATER VALVE)**

PRIVATE BACKWATER VALVE

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

MANAGER CF

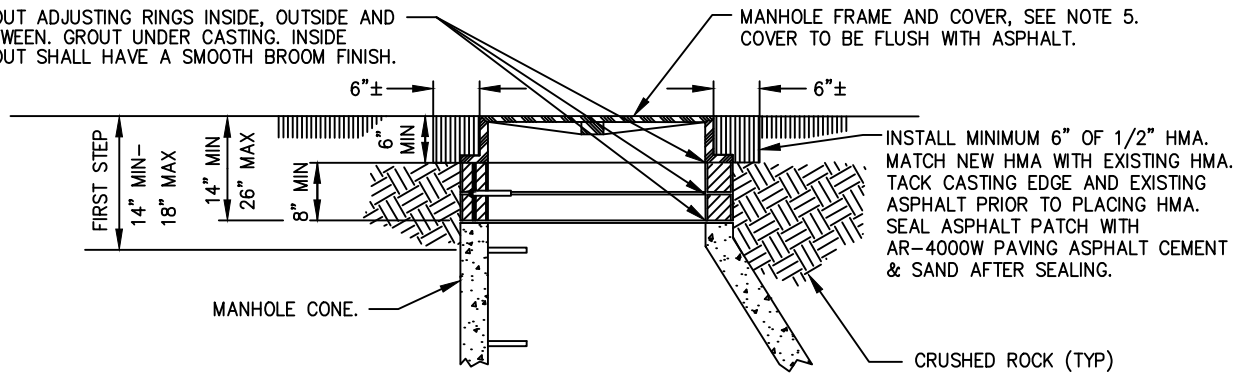
NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAILS

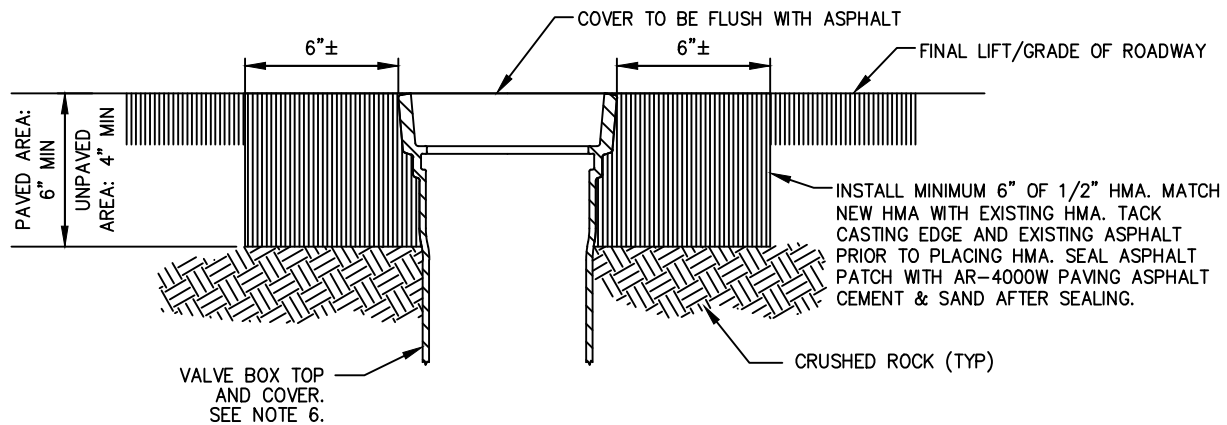
19

LAST UPDATED
MAY 2025

GROUT ADJUSTING RINGS INSIDE, OUTSIDE AND BETWEEN. GROUT UNDER CASTING. INSIDE GROUT SHALL HAVE A SMOOTH BROOM FINISH.



MANHOLE FRAME & COVER



VALVE BOX

NOTES:

1. PRIOR TO CASTING ADJUSTMENT, CONTRACTOR TO PROTECT EXISTING FACILITIES. FOR SEWER MANHOLES, COVER THE BASE AND CHANNEL TO PREVENT DEBRIS FROM ENTERING THE SEWER SYSTEM. FOR WATER VALVE BOXES, PROTECT WATER VALVE TO PREVENT DEBRIS FROM IMPACTING THE OPERATING NUT. WHEN REMOVAL AND REPLACEMENT OF VALVE BOX TOP IS REQUIRED, ALL DIRT AND DEBRIS IS TO BE REMOVED FROM AROUND OPERATING NUT BEFORE PLACING NEW VALVE BOX TOP.
2. SEE STANDARDS FOR INSTALLATION, "ADJUSTMENT OF NEW AND EXISTING UTILITY STRUCTURES TO GRADE", FOR ADDITIONAL INFORMATION REGARDING RAISING CASTINGS TO GRADE.
3. AN ASPHALT COLLAR IS REQUIRED ON ALL INSTALLATIONS IN PAVED AREAS. THICKNESS OF COLLAR TO BE 6" FOR ALL NUD CASTINGS.
4. AN ASPHALT OR CONCRETE COLLAR IS REQUIRED ON ALL INSTALLATIONS IN UNIMPROVED OR UNPAVED AREAS. CONCRETE SHALL HAVE A BROOM OR TROWEL FINISH. THICKNESS OF COLLAR SHALL BE 6" FOR MANHOLE FRAME AND COVERS, AND 4" FOR VALVE BOX TOPS.
5. MANHOLE FRAME AND COVER SHALL BE EAST JORDAN IRONWORKS ERGO ASSEMBLY, PART #001040105L01.
6. CAST IRON VALVE BOX TOP AND COVER SHALL BE EAST JORDAN IRONWORKS: VALVE BOX COVER, PART #06800209, AND VALVE BOX TOP, PART #85557016U.
7. DURING CONSTRUCTION, UTILITIES MUST BE IDENTIFIED AND REMAIN ACCESSIBLE AT ALL TIMES.

CASTING ADJUSTMENT

NOT TO SCALE

DETAIL APPROVALS

EDITOR TMC

ENG. DIR. CF

NORTHSHORE UTILITY DISTRICT

2025 STANDARD SEWER DETAIL

20

LAST UPDATED
MAY 2025