

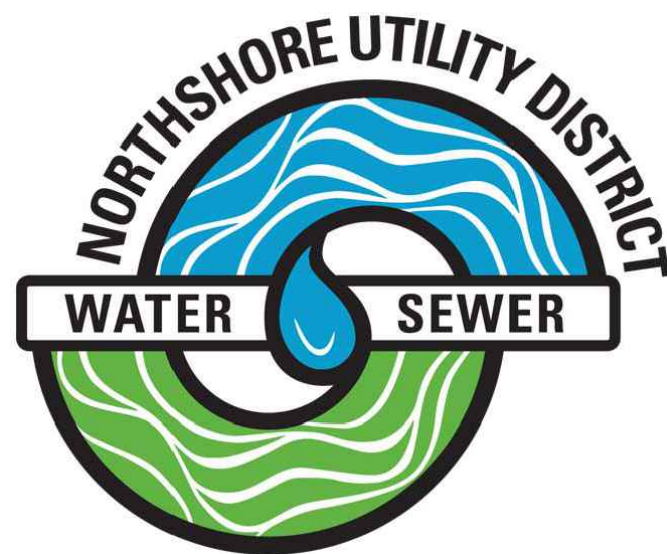
NORTHSHORE UTILITY DISTRICT

King County, Washington

CONTRACT C0948

LAKEWOOD VILLA WATER AND SEWER

JUNE 2025



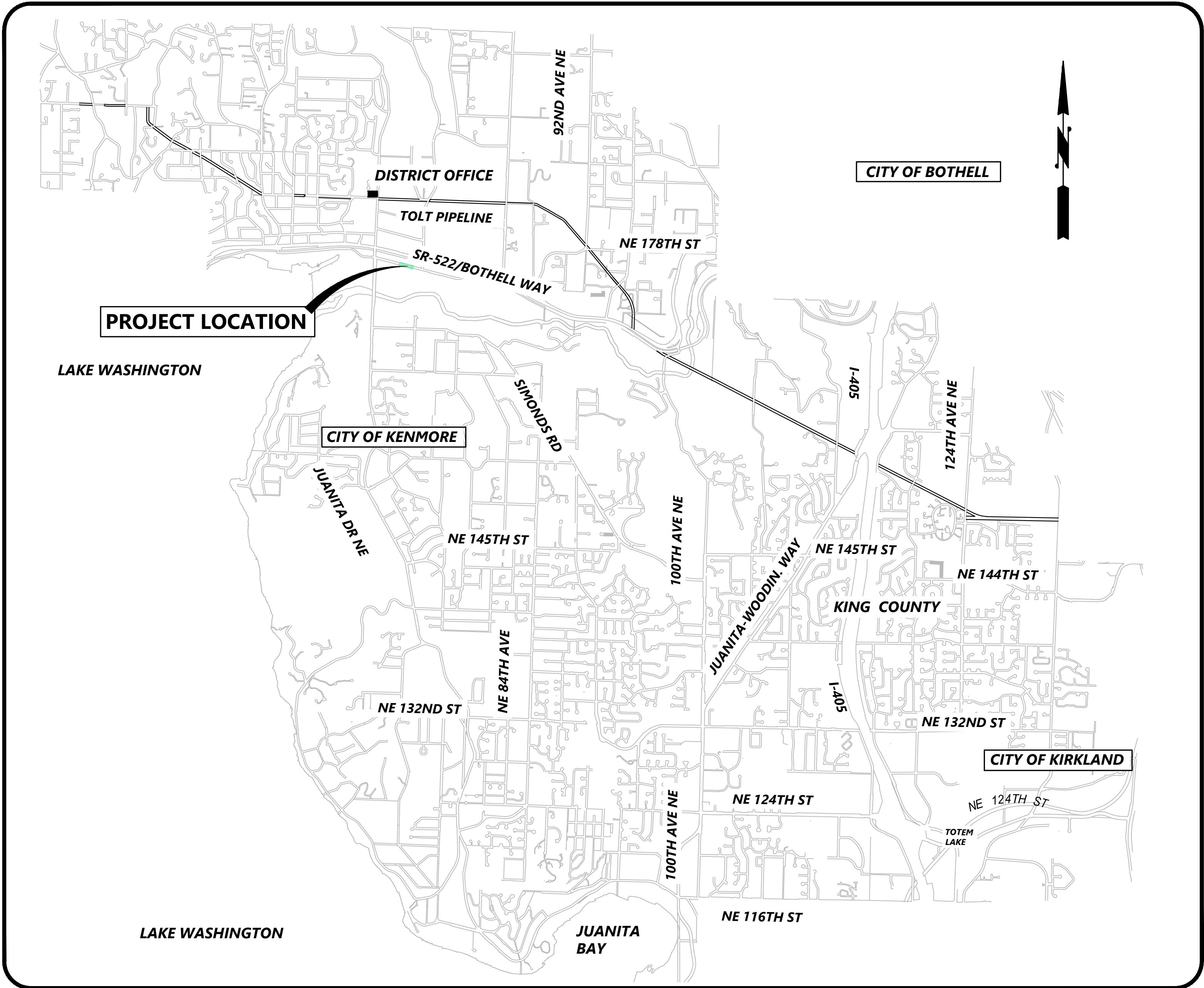
Gray & Osborne, Inc.
CONSULTING ENGINEERS

THOMAS D. MORTIMER
MATT BREYSSE
D. BRUCE GARDINER
TRUDY C. ROLLA
SUZANNE GREATHOUSE
ETHAN MAIEFSKI

President of the Board
Secretary of the Board
Commissioner
Commissioner
Commissioner
General Manager

SHEET INDEX

SHEET NO.	DESCRIPTION
1	COVER
2	SURVEY CONTROL & MONUMENTATION
3	LEGEND, TESC DETAILS, & NOTES
SCHEDULE A - WATER IMPROVEMENTS	
4	WATER MAIN PLAN AND PROFILE STA 20+00 - 22+50
5	WATER MAIN PLAN AND PROFILE STA 22+50 - 25+40
6	WATER DETAILS
7	WATER DETAILS
8	WATER DETAILS
SCHEDULE B - SEWER IMPROVEMENTS	
9	SEWER MANHOLE PLAN
10	SEWER DETAILS
11	SEWER DETAILS
12	RESTORATION PLAN
13	RESTORATION DETAILS
14	RESTORATION DETAILS
15	TRAFFIC CONTROL PLAN
16	TRAFFIC CONTROL PLAN



VICINITY MAP

NOT TO SCALE


DWG: NUD COVER

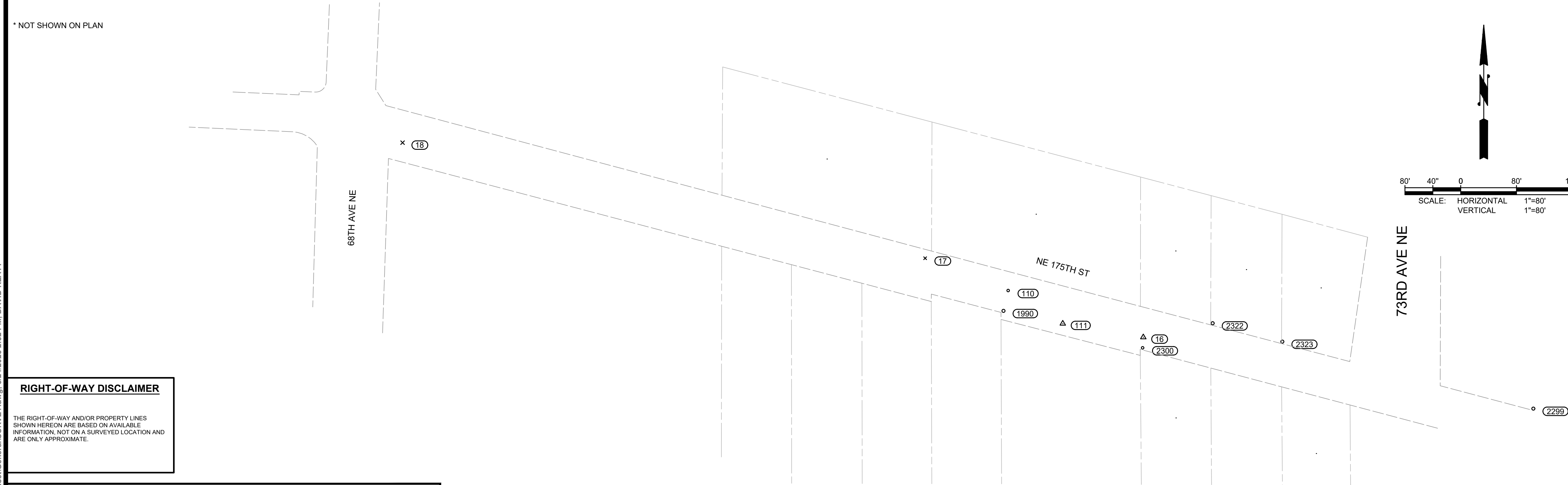
C0948

SHEET

1 OF 16

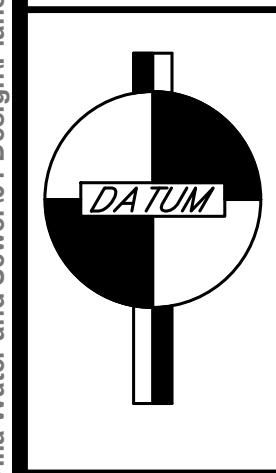
M:\Northshore\232626 00 Lakewood Villa Water and Sewer\01 Design\Plinset\General\Survey.dwg, 6/24/2025 2:52 PM, DAVID KLATT

SURVEY CONTROL & MONUMENTATION				
HORIZONTAL DATUM:	NAD83/2011 WASHINGTON PLANE COORDINATE SYSTEM, NORTH ZONE, GRID NORTH MODIFIED GROUND COORDINATES, SCALED TO GROUND USING AVG. CGF OF 0.99996408756 AT BASE POINT G&O #13			
	NAVD88 HOLDING WSDOT PUBLISHED ELEVATION FOR WSDOT "GP17405-329" (G&O #13)			
	LAKEWOOD VILLA WATER AND SEWER			
POINT	NORTHING	EASTING	ELEV	DESCRIPTION
13*	279820.06	1288997.66	59.72	SFM= SURFACE MONUMENT. 1" ALUMINUM CAP W/ PUNCH. "WSDOT CAT3" MON ID: 9021.
14*	278755.45	1295772.33	29.87	SFMC= FOUND MONUMENT IN CASE, 3/4" BRASS DISC W/ PUNCH SET IN CONC. DOWN 0.85' IN CASE. 3' N OF CENTERLINE OF NE 175TH ST. W OF 80TH AVE NE EXTENDED. W OF BRIDGE. 9' E OF N END OF CHAINLINK FENCE LINE 7911 NE 175TH ST.
15*	278779.59	1295642.30	30.31	SFMC, 3/4" IRON PIPE W/ TACK, DOWN 1.4' IN CASE. 5' S OF NE 175TH ST CENTERLINE. 31' W OF N END OF W CHAINLINK FENCE LINE OF 7911 NE 175TH ST.
16	279232.52	1293168.08	36.80	SSNT= SET MAG NAIL W/ "G&O CONTROL" TAG, 4' N OF S CURB FLOW LINE OF NE 175TH ST. 6' NE OF CENTER OF CATCH BASIN. E OF E FENCE LINE EXTENDED N FROM "LAKEWOOD VILLA."
17	279345.90	1292855.09	40.35	SFNT= FOUND NAIL W/ TAG, NAIL W/ "DHA" TAG. 5' N OF N CURB FLOW LINE OF NE 175TH ST. 15' SW OF FIRE HYDRANT AT SW CORNER OF "PLYWOOD SUPPLY" PARKING LOT. 36' E OF "PLYWOOD SUPPLY" TRUCK LOT EASTERLY EXIT.
18	279511.82	1292105.41	34.63	SSC= SCRIBED "X" IN CONCRETE, SE QUADRANT INTX NE 175TH ST & 63RD AVE NE. 1.6' S OF S BACK OF CURB. 2' N OF CENTER OF CATCH BASIN W/ SOLID LID E OF ADA RAMP. E SIDE OF SEAM.
110	279299.54	1292974.20	39.76	SFS= FOUND SPIKE, RAILROAD SPIKE AT CENTERLINE OF NE 175TH ST.
111	279252.13	1293052.56	38.42	SSNT, NW QUADRANT DRIVEWAY ENTRANCE TO "LAKEWOOD VILLA." 0.8' S OF S BACK OF WALK OF NE 175TH ST. 2' ESE OF W EDGE OF ASPHALT ANGLE POINT IN BACK OF WALK.
1990	279270.36	1292967.48	39.81	SFRC= FOUND REBAR W/ CAP, NO DESCRIPTION.
2299	279130.03	1293727.67	34.51	SFRC, 5/8" REBAR W/ YELLOW PLASTIC "SSM 43612" CAP.
2300	279217.30	1293167.12	36.82	SFR= FOUND REBAR, 3/4" ROD W/ FLAGGING.
2322	279252.59	1293267.59	38.19	SFRC, 5/8" REBAR W/ ORANGE PLASTIC "APS SURVEY WA 29293" CAP.
2323	279226.22	1293367.54	34.44	SFRC, 5/8" REBAR W/ ORANGE PLASTIC "APS SURVEY WA 29293" CAP.



RIGHT-OF-WAY DISCLAIMER

THE RIGHT-OF-WAY AND/OR PROPERTY LINES SHOWN HEREON ARE BASED ON AVAILABLE INFORMATION, NOT ON A SURVEYED LOCATION AND ARE ONLY APPROXIMATE.



DATUM

VERTICAL: VERTICAL DATUM - NAVD88

HORIZONTAL: HORIZONTAL DATUM - NAD83/2011
W.S.P.C.S. N. ZONE

NO	BY	APPD	REVISION	DATE

WARNING



IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE



1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	RAB
DRAWN BY	BPH
CHECKED BY	RAB
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

SURVEY CONTROL & MONUMENTATION

DWG: SURVEY
C0948

SHEET
2 OF 16

M:\northshore\236226 00 Lakewood Villa Water and Sewer\01 Design\Plans\General\ILL EGEN.Dwg, 6/24/2025 2:52 PM, DAVID KLATT

ABBREVIATIONS

AC	ASBESTOS CEMENT PIPE	REQD	REQUIRED
ADJ	ADJUST	RET	RETAINING
ALT	ALTERNATE	RJ	RESTRAINED JOINT
ALUM	ALUMINUM	RR	RAILROAD
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	S	SOUTH
AP	ANGLE POINT	SCH	SCHEDULE
APWA	AMERICAN PUBLIC WORKS ASSOCIATION	SF	SQUARE FEET
ASPH	ASPHALT	SHT	SHEET
ASSY	ASSEMBLY	SL	SLOPE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	SPECS	SPECIFICATIONS
ATB	ASPHALT TREATED BASE	SQ	SQUARE
AVE	AVENUE	SS	STAINLESS STEEL
AWWA	AMERICAN WATER WORKS ASSOCIATION	ST	STREET
BF	BLIND FLANGE	STA	STATION
BLDG	BUILDING	STD	STANDARD
BLK	BLOCK	TB	THRUST BLOCK
BLVD	BOULEVARD	TC	TOP OF CURB
BO	BLOW OFF	TEL	TELEPHONE
BOP	BEGINNING OF PROJECT	TEMP	TEMPORARY
BVCE	BEGIN VERTICAL CURVE ELEVATION	TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
BVCS	BEGIN VERTICAL CURVE STATION	THRD	THREADED
C	CONDUIT	THRU	THROUGH
CAP	CORRUGATED ALUMINUM PIPE	TYP	TYPICAL
CB	CATCH BASIN	VERT	VERTICAL
CF	CUBIC FEET	W	WEST
CFS	CUBIC FEET PER SECOND	W/O	WITHOUT
CI	CAST IRON	WM	WATER MAIN
CL	CLASS	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
CLR	CLEARANCE		
CMP	CORRUGATED METAL PIPE		
CO	CLEANOUT		
CONC	CONCRETE		
CONN	CONNECTION		
CONT	CONTINUED/CONTINUOUS		
CPEP	CORRUGATED POLYETHYLENE PIPE		
CPLG	COUPLING		
CTB	CEMENT TREATED BASE		
CTR	CENTER		
CY	CUBIC YARD		
ç	CENTER LINE		
D	DRAIN		
DC	DEGREE OF CURVATURE		
DI	DUCTILE IRON		
DIA	DIAMETER		
DIM	DIMENSION		
DOT	DEPARTMENT OF TRANSPORTATION		
DR	DRIVE		
DWGS	DRAWING(S)		
E	EAST		
EA	EACH		
EL	ELEVATION		
ELEC	ELECTRICAL		
EOA	EDGE OF ASPHALT		
EOP	END OF PROJECT		
EVCE	END VERTICAL CURVE ELEVATION		
EVCS	END VERTICAL CURVE STATION		
EXIST	EXISTING		
FG	FINISHED GRADE		
FH	FIRE HYDRANT		
FIG	FIGURE		
FIN	FINISHED		
FL	FLANGE		
FT	FEET		
GA	GAUGE		
GALV	GALVANIZED		
	GALVANIZED IRON		
GV	GATE VALVE		
HDPE	HIGH DENSITY POLYETHYLENE PIPE		
HYD	HYDRANT		
ID	INSIDE DIAMETER		
IE	INVERT ELEVATION		
IN	INCH		
INV	INVERT		
L	LENGTH		
LB	POUND		
LF	LINEAR FEET		
MAX	MAXIMUM		
MFR	MANUFACTURER		
MH	MANHOLE		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
MJ	MECHANICAL JOINT		
N	NORTH		
NO	NUMBER		
NTS	NOT TO SCALE		
OC	ON CENTER		
OD	OUTSIDE DIAMETER		
PC	POINT OF CURVATURE		
PE	PLAIN END		
PERF	PERFORATED		
P1	POINT OF INTERSECTION		
PL	PLACE		
PP	POWER POLE		
PROP	PROPOSED		
PT	POINT OF TANGENCY		
PVC	POLYVINYL CHLORIDE		
PVI	POINT OF VERTICAL INTERSECTION		
PVMT	PAVEMENT		
PVT	POINT OF VERTICAL TANGENT		
QTY	QUANTITY		
R	RADIUS		
R/W	RIGHT-OF-WAY		
RED	REDUCER		
REINF	REINFORCE		

GENERAL NOTES :

- IN GENERAL, EXISTING STRUCTURES AND FACILITIES ARE NOTED AS "EXISTING" AND ARE SHOWN IN LIGHT LINE WEIGHTS OR AS SCREENED BACKGROUND. NEW CONSTRUCTION, STRUCTURES, FACILITIES, AND FEATURES ARE SHOWN IN HEAVY LINE WEIGHTS.
- MANY OF THE SYMBOLS SHOWN ON THIS LEGEND ARE USED ONLY WHERE THEY PROVIDE CLARITY AND ARE NOT NECESSARILY USED IN ALL APPLICATIONS. SOME CONTRACT DRAWINGS MAY HAVE ADDITIONAL LEGENDS APPLICABLE FOR THAT SPECIFIC DRAWING. SYMBOLS SHOWN ON SPECIFIC DRAWINGS GOVERN.
- THE CONTRACTOR SHALL VERIFY ALL PLANIMETRIC FEATURES AND DIMENSIONS PRIOR TO STARTING WORK AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES
- ALL DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS REFER TO THE HORIZONTAL AND VERTICAL PROJECTED PLANES, UNLESS OTHERWISE INDICATED.
- ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE CONTRACT SPECIFICATIONS.
- THE APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE SHOWN ON THE PLANS FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF UTILITY LOCATIONS SHOWN, FOR THE PROTECTION AND REPAIR OF DAMAGED UTILITIES, AND FOR THE DISCOVERY OF POSSIBLE ADDITIONAL UTILITIES NOT SHOWN ON THE PLANS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND UTILITIES LOCATED BY THE APPROPRIATE UTILITY PURVEYORS PRIOR TO BEGINNING CONSTRUCTION. ANY DISCREPANCIES FOUND IN THE FIELD FROM THOSE SHOWN HEREIN SHALL BE REPORTED TO THE OWNER PRIOR TO COMMENCING WORK. FOR UTILITY LOCATES IN KING COUNTY, CALL 1-800-424-5555 (811) PRIOR TO DIGGING.
- ALL RIGHT-OF-WAY AND PROPERTY LINES SHOWN WITHIN THE CONTRACT DRAWINGS ARE BASED UPON AVAILABLE DATA AND ARE SHOWN AS APPROXIMATE.
- A PRE-CONSTRUCTION CONFERENCE WILL BE HELD AT THE DISTRICT OFFICE PRIOR TO START OF CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY NORTHSORE UTILITY DISTRICT A MINIMUM OF FIVE (5) DAYS IN ADVANCE OF BEGINNING CONSTRUCTION. CONSTRUCTION SHALL NOT BEGIN WITHOUT PRIOR WRITTEN NOTICE TO PROCEED BY THE DISTRICT.

GENERAL WATER NOTES :

- ALL WATER MAIN AND FITTINGS SHALL BE RESTRAINED JOINT (RJ) PER SPECIFICATIONS.
- ALL BURIED DUCTILE IRON PIPE SHALL BE ENCASED WITH POLYETHYLENE ENCASEMENT PER SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY EXACT SIZE, LOCATION, DEPTH, AND MATERIAL OF EXISTING WATER MAIN PRIOR TO FINAL CONNECTION.
- AFTER NEW WATER MAIN HAS BEEN CONNECTED TO THE EXISTING SYSTEM, THE EXISTING WATER MAIN AND APPURTENANCES SHALL BE ABANDONED IN PLACE. OPEN ENDS SHALL BE CAPPED WITH WATERTIGHT FITTING AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH THE SPECIFICATIONS.
- CLOSE ALL VALVES TO BE ABANDONED, REMOVE AND WASTEHAUL EXISTING VALVE BOXES, AND BACKFILL WITH WITH CRUSHED ROCK.
- THE CONTRACTOR SHALL NOT OPERATE ANY VALVES OR MAKE ANY CONNECTIONS TO THE EXISTING SYSTEM WITHOUT PRIOR APPROVAL FROM THE DISTRICT.

NW 1/4, SEC 45, T26N, R4E, WM

LINETYPES

EXISTING	PROPOSED	DESCRIPTION
SURFACE FEATURES		
		CURB (TYPE AS NOTED)
		CURB & GUTTER
		ASPHALT PAVEMENT
		GRAVEL SURFACING
		CONCRETE SURFACING
		CEMENT CONC. SIDEWALK
SURVEY		
		RIGHT-OF-WAY LINE
		CENTERLINE OF RIGHT-OF-WAY
		CENTERLINE OF CONSTRUCTION
		PROPERTY LINE
		PERMANENT EASEMENT LINE
		CONTOUR LINE
		SAWCUT LINE (APPROXIMATE LOCATION)

UTILITIES

	OH	OVERHEAD UTILITIES
	E	BURIED ELECTRICAL
	T	BURIED TELEPHONE/COMMUNICATIONS
	FO	BURIED FIBER-OPTIC LINE
	G	GAS MAIN (SIZE AS NOTED)
	W	WATER MAIN (SIZE AS NOTED)
	S	SANITARY SEWER MAIN (SIZE AS NOTED)
	FM	SANITARY SEWER FORCE MAIN (SIZE AS NOTED)
	D	STORM DRAIN (SIZE AS NOTED)
	D	CULVERT (SIZE & TYPE AS NOTED)
	D	DITCH CENTERLINE/THALWEG

GENERAL RESTORATION NOTES :

- FINAL PLACEMENT OF HMA WEARING COURSE FOR ROAD RECONSTRUCTION SHALL BE PLACED TOGETHER IN A SINGULAR OPERATION WITH THE 2-INCH OVERLAY IN ORDER TO REDUCE JOINTS.
- PROVIDE SMOOTH TRANSITIONS AT ALL PAVEMENT JOINTS.
- PROTECT ALL EXISTING CURB, CURB AND GUTTER, SIDEWALK, DRIVEWAYS, LUMINAIRES, UTILITY POLES, WALLS, VAULTS, TREES, SHRUBS, VEGETATION, LANDSCAPING, MONUMENTS, SURVEY CONTROL POINTS, PROPERTY CORNERS, UTILITIES, UTILITY STRUCTURES, IRRIGATION, MAILBOXES, AND ALL OTHER EXISTING FEATURES UNLESS OTHERWISE NOTED ON THE PLANS.
- RESTORE ALL LANDSCAPING AND SURFACE FEATURES TO PRE-CONSTRUCTION CONDITION OR BETTER.

SANITARY/STORM SEWER SYMBOLS

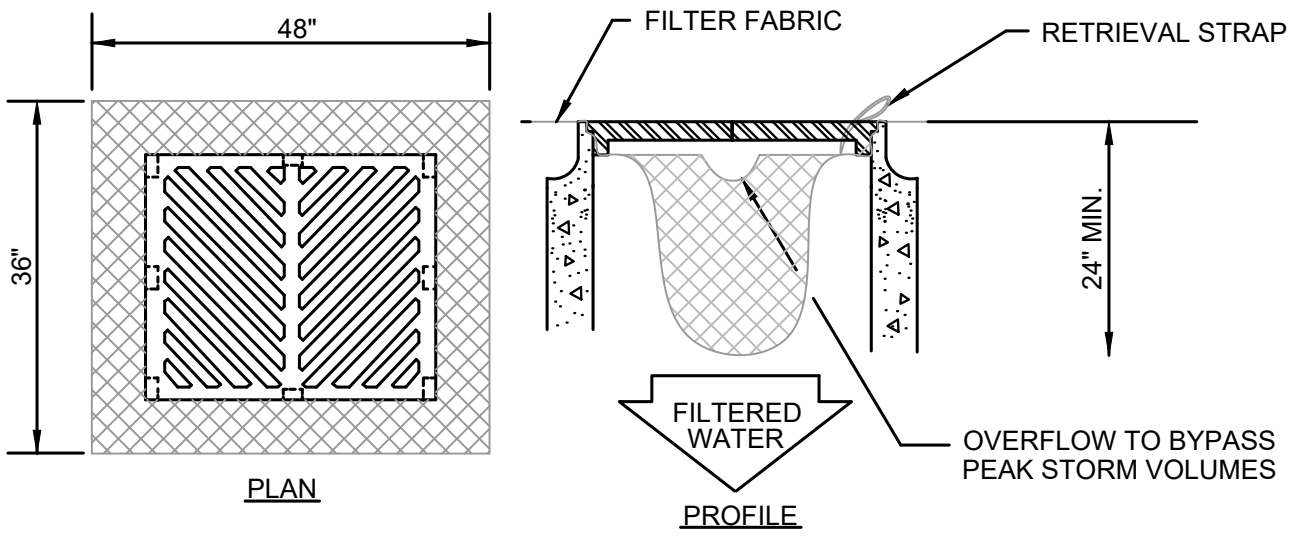
EXISTING	PROPOSED	DESCRIPTION
		STORM DRAIN MANHOLE/TYPE 2 CATCH BASIN (ACTUAL DIMENSION SHOWN FOR PROPOSED)
		STORM DRAIN CATCH BASIN, CONCRETE INLET, OR YARD/AREA DRAIN (ACTUAL DIMENSION SHOWN FOR PROPOSED)
		SANITARY SEWER MANHOLE (ACTUAL DIMENSION SHOWN FOR PROPOSED)
		CLEAN OUT (SAN. SEWER OR STORM)

WATER SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CAP/PLUG
		COUPLING/ADAPTER
		45° BEND
		22.5° BEND
		TEE
		THRUST BLOCK
		WATER METER
		FIRE HYDRANT (3-NOZZLE)
JOINTS		
		FLANGE/BLIND FLANGE
		MECHANICAL JOINT
VALVES		
		BUTTERFLY VALVE
		GATE VALVE

GAS/POWER/TELEPHONE SYMBOLS

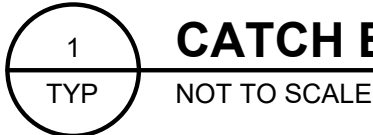
EXISTING	PROPOSED	DESCRIPTION
		GAS METER
		GAS VALVE
		PAD MOUNT TRANSFORMER
		POWER VAULT (SIZE VARIES)
		UTILITY POLE
		UTILITY POLE ANCHOR
		UTILITY PEDESTAL
		JUNCTION BOX (TYPE I, II, VIII)
		LIGHT/LUMINAIRE POLE W/ARM
		POLE MOUNTED LIGHT



NOTES:

- REMOVE CATCH BASIN GRATING.
- CLEAN DIRT AND DEBRIS FROM GRATING LEDGE.
- LAY THE CATCH BASIN INSERT INSIDE THE BASIN.
- REPLACE THE GRATING, PINCHING THE INSERT FABRIC BETWEEN THE GRATING AND THE CATCH BASIN FRAME.
- A 3 TO 5 INCH WIDE STRIP OF FABRIC SHOULD BE LEFT AROUND THE OUTSIDE OF THE GRATING IF THE INSERT IS TO BE USED MORE THAN ONCE.

FILTER FABRIC CATCH BASIN INSERT

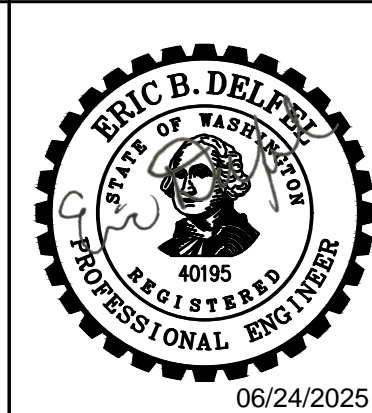


SURFACE FEATURES/LANDSCAPING

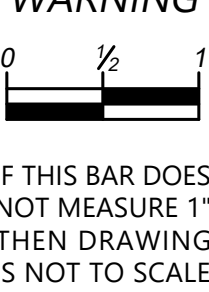
EXISTING	PROPOSED	DESCRIPTION
		MAIL BOX
		SIGN
		ROCK WALL
		SHRUB
		TREE (CONIFER)
		TREE (DECIDUOUS)
SURVEY SYMBOLS		
		MONUMENT (IN CASE)
		BENCH MARK
		BOUNDARY/PROPERTY CORNER
		IRON PIPE

TEMPORARY EROSION AND SEDIMENTATION CONTROL NOTES

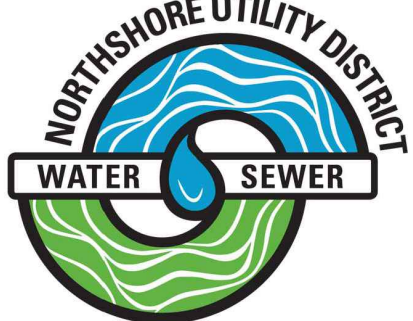
- THE TEMPORARY EROSION AND SEDIMENTATION CONTROL (TESC) FACILITIES SHALL BE IMPLEMENTED PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT WATER DOES NOT ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE TESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
- THE STORM DRAIN INLET PROTECTION DEVICE SHALL BE SILT SACK OR EQUAL. ALL CATCH BASINS WITHIN THE VICINITY OF THE CONSTRUCTION SHALL HAVE INLET PROTECTION MEASURES.
- CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE CHANNELS, CULVERTS, SWALES AND STRUCTURES. WHENEVER EXISTING DRAINAGE FACILITIES ARE DISTURBED, THE CONTRACTOR SHALL PROVIDE SUITABLE MEANS FOR DIVERTING AND MAINTAINING ALL FLOWS DURING CONSTRUCTION IN THAT AREA AT ITS EXPENSE. AFTER CONSTRUCTION HAS BEEN COMPLETED, ALL DRAINAGE CHANNELS, CULVERTS, SWALES AND STRUCTURES DISTURBED SHALL BE RETURNED TO THEIR ORIGINAL CONDITIONS.
- THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, TESC FACILITIES SHALL BE MAINTAINED AND UPGRADED AS NECESSARY BY THE CONTRACTOR.
- CONTRACTOR SHALL INSPECT THE TESC FACILITIES AT THE END OF EACH WORKING DAY TO ASSURE ITSELF THAT THEY ARE IN GOOD CONDITIONS. IF TESC FACILITIES REQUIRE REPAIR/MAINTENANCE, IT SHALL BE PERFORMED PRIOR TO THE END OF THE WORKING DAY. ALL DISTURBED AREAS SHALL BE PROMPTLY AND THOROUGHLY STABILIZED AGAINST EROSION DURING PERIODS OF WET WEATHER WHEN WORK IS NOT BEING PERFORMED AT THE SITE.
- ALL UNSUITABLE OR SURPLUS EXCAVATED OR CLEARED MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN AN APPROVED, LEGAL FILL SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ACCEPTABLE DISPOSAL SITES AND ASSURE THAT ALL SURPLUS MATERIAL IS DISPOSED OF IN SAME.
- CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL APPROPRIATE MEASURES NEEDED (STREET SWEEPERS, WATER TRUCKS, ETC.) TO KEEP STREETS AND ROADS USED AS HAUL ROUTES FOR EXPORT OR IMPORT OF MATERIAL CLEAN AND FREE FROM DEBRIS, MUD, ETC.. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.



NO	BY	APPD	REVISION	DATE



DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



NORTHSORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

LEGEND, TESC DETAILS, & NOTES

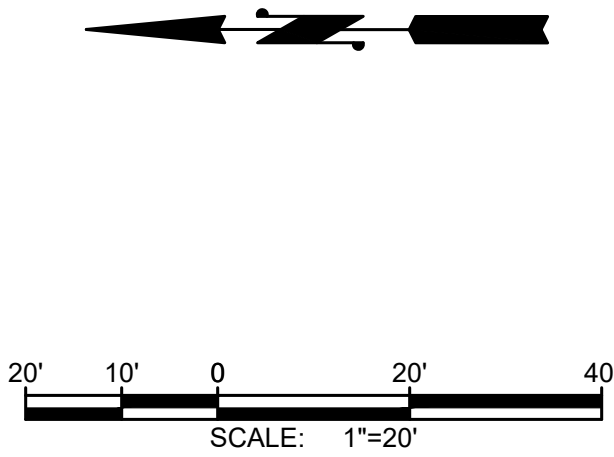
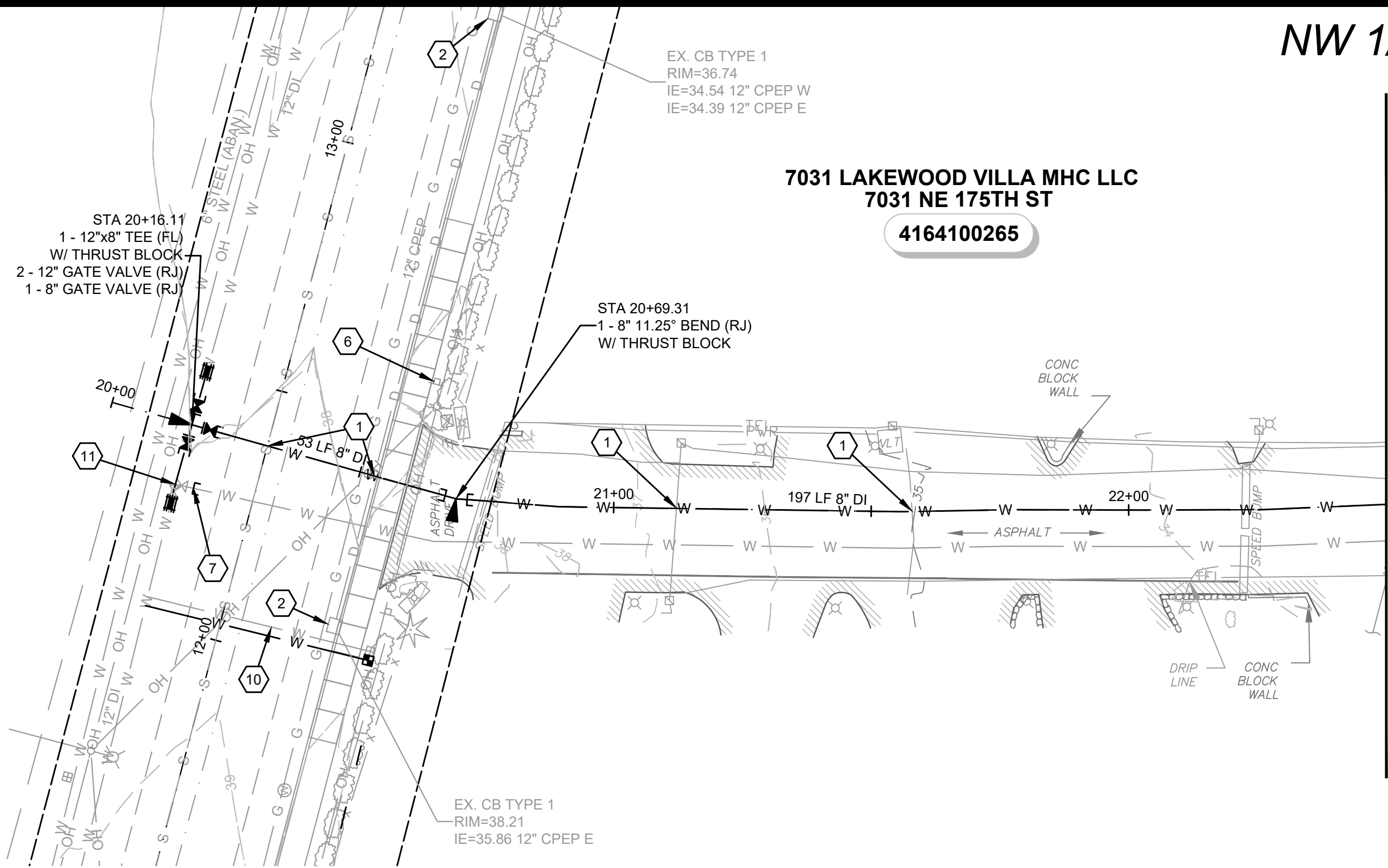
DWG: LEGEND

C0948

SHEET

3 OF 16

NW 1/4, SEC 45, T26N, R4E, WM

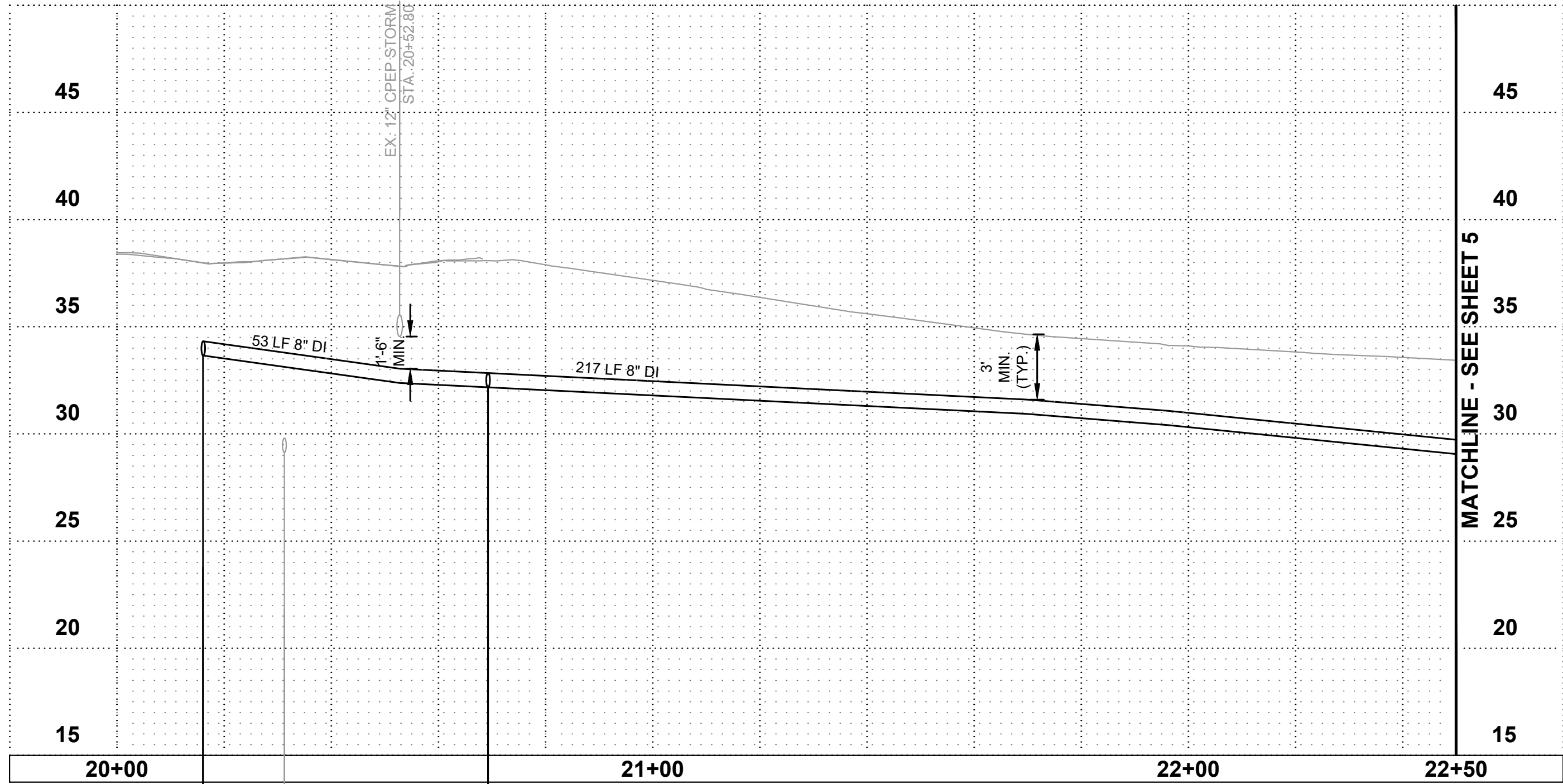


GENERAL NOTES:

- ALL WATER MAIN AND FITTINGS SHALL BE RESTRAINED JOINT. ALL MECHANICAL JOINTS ON VALVES AND FITTINGS SHALL BE FURNISHED AND INSTALLED WITH MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL. ALL OTHER RESTRAINED JOINT PIPE SHALL BE FURNISHED AND INSTALLED WITH FIELD LOK GASKET JOINT RESTRAINTS OR APPROVED EQUAL.
- THE EXISTING STATIC WATER PRESSURE IS APPROXIMATELY 130 PSI.
- ABANDON EXISTING WATER MAIN IN PLACE BY FILLING WITH LOW DENSITY CELLULAR CONCRETE AFTER NEW DUCTILE WATER MAIN CONNECTIONS HAVE BEEN CONSTRUCTED.
- WATER MAIN TRENCH PER DETAIL 12, SHEET 7.
- SEE EROSION CONTROL DETAILS AND NOTES, SHEET 3.
- CONTRACTOR SHALL NOTIFY DISTRICT A MINIMUM OF 72 HOURS IN ADVANCE OF ALL WATER SHUT DOWNS.
- CONTRACTOR SHALL LIMIT DEFLECTION OF PIPE TO MANUFACTURERS STANDARDS.

CONSTRUCTION NOTES:

- CAUTION: POTENTIAL UTILITY CONFLICT. CONTRACTOR TO POTHOLE AND FIELD VERIFY EXACT LOCATION AND DEPTH OF EXISTING UTILITY BEFORE INSTALLING ANY NEW WATER MAIN.
- CONTRACTOR SHALL INSTALL STORM DRAIN PROTECTION PER DETAIL 1, SHEET 3.
- PROTECT STREET SIGN OR MAIL BOX AS REQUIRED.
- OPEN ENDS OF THE ABANDONED WATER MAIN SHALL BE FILLED WITH LOW DENSITY CELLULAR CONCRETE AND ABANDONED IN PLACE. INSTALL ROMAC EC501 CAP OR MJ CAP WITH 2" IPS TAP/PLUG AT OPEN ENDS OF WATER MAIN.
- REMOVE AND DISPOSE OF EXISTING 1-1/2" WATER SERVICE LINE, METER SETTER, AND METER BOX. REPLACE WITH 2" WATER SERVICE LINE, 1-1/2" METER SETTER, METER BOX, AND CORP. STOP PER DETAILS 5 AND 9, SHEET 6. SALVAGE THE EXISTING 1.5" METER AND COORDINATE WITH THE DISTRICT FOR INSTALLATION INTO THE NEW 1-1/2" METER SETTER. LOCATE AND RECONNECT THE EXISTING SERVICE LINE ON THE BACKSIDE OF THE METER.
- REMOVE AND WASTEHAUL EXISTING TEE AND VALVES.



NO	BY	APPD	REVISION	DATE

WARNING

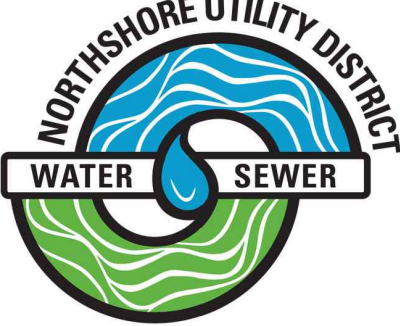
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS

1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

WATER MAIN PLAN AND PROFILE
STA 20+00 - 22+50

DWG: C_WATR-PLAN

C0948

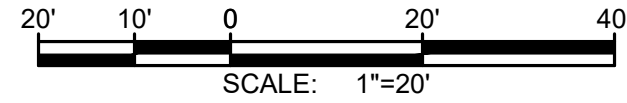
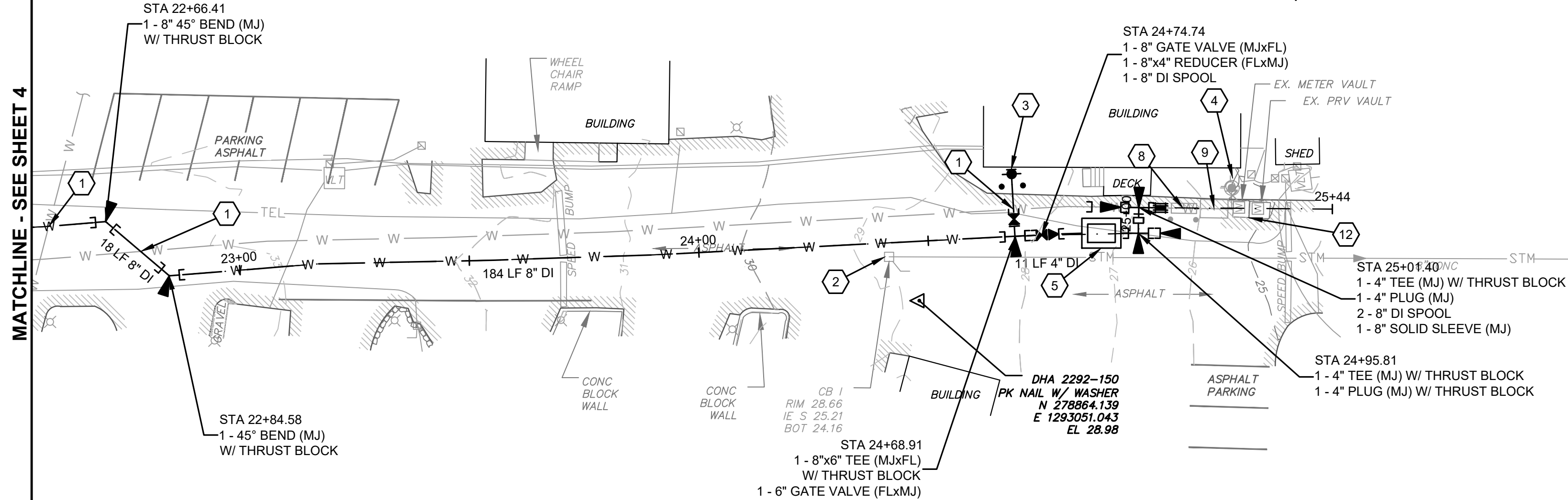
SHEET

4 OF 16

NW 1/4, SEC 45, T26N, R4E, WM

7031 LAKEWOOD VILLA MHC LLC
7031 NE 175TH ST

4164100265



GENERAL NOTES:

- ALL WATER MAIN AND FITTINGS SHALL BE RESTRAINED JOINT. ALL MECHANICAL JOINTS ON VALVES AND FITTINGS SHALL BE FURNISHED AND INSTALLED WITH MEGALUG JOINT RESTRAINTS OR APPROVED EQUAL. ALL OTHER RESTRAINED JOINT PIPE SHALL BE FURNISHED AND INSTALLED WITH FIELD LOK GASKET JOINT RESTRAINTS OR APPROVED EQUAL.
- THE EXISTING STATIC WATER PRESSURE IS APPROXIMATELY 130 PSI.
- ABANDON EXISTING WATER MAIN IN PLACE BY FILLING WITH LOW DENSITY CELLULAR CONCRETE AFTER NEW DUCTILE WATER MAIN CONNECTIONS HAVE BEEN CONSTRUCTED.
- WATER MAIN TRENCH PER DETAIL 12, SHEET 7.
- SEE EROSION CONTROL DETAILS AND NOTES, SHEET 3.
- CONTRACTOR SHALL NOTIFY DISTRICT A MINIMUM OF 72 HOURS IN ADVANCE OF ALL WATER SHUT DOWNS.
- CONTRACTOR SHALL LIMIT DEFLECTION OF PIPE TO MANUFACTURERS STANDARDS.

CONSTRUCTION NOTES:

- CAUTION: POTENTIAL UTILITY CONFLICT. CONTRACTOR TO POTHOLE AND FIELD VERIFY EXACT LOCATION AND DEPTH OF EXISTING UTILITY BEFORE INSTALLING ANY NEW WATER MAIN.
- CONTRACTOR SHALL INSTALL STORM DRAIN PROTECTION PER DETAIL 1, SHEET 3.
- CONTRACTOR SHALL FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY PER DETAIL 3, SHEET 6. INSTALL FIRE HYDRANT BOLLARDS PER DETAIL CK-W.13, SHEET 8
- CONTRACTOR SHALL REMOVE AND WASTEHAUL EXISTING HYDRANT, VALVE, AND BOLLARDS. CONTRACTOR SHALL INSTALL BLIND FLANGE/RESTRAINED PLUG ON EX. TEE.
- CONTRACTOR SHALL FURNISH AND INSTALL METER VAULT AND PIPING PER DETAIL 6 & 6a, SHEET 7 AND DETAILS 16 & 16a, SHEET 8.
- INSTALL REDUCED PRESSURE BACKFLOW ASSEMBLY, BY OTHERS.
- INSTALL PRESSURE REDUCING VALVE AND VAULT, BY OTHERS.
- DEMOLISH EXISTING METER VAULT. SALVAGE EXISTING METER TO DISTRICT AND INSTALL 4" DI SPOOL. CONTRACTOR TO VERIFY DIMENSIONS.



FIRE HYDRANT ASSEMBLY
STA. 24+68.91
GATE VALVE (MJ)
STA. 24+74.74
8"x4" REDUCER (MJ)
STA. 24+77.01
4" METER VAULT
STA. 24+87.74
TEE (MJ)
STA. 24+95.81
TEE (MJ)
STA. 25+01.40
RPBA BOX
STA. 25+11.08
PRV VAULT
STA. 25+17.80
CONN. TO EX. SYSTEM

NO	BY	APPD	REVISION	DATE

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH, SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

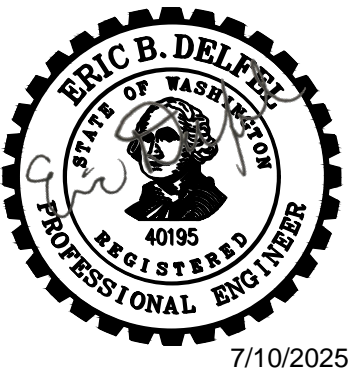
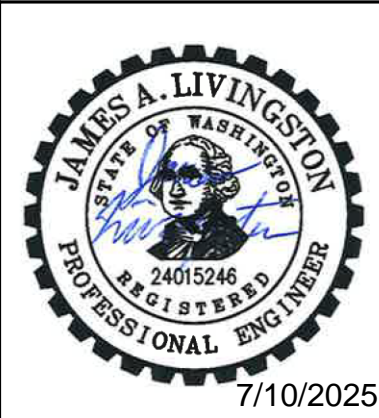
DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



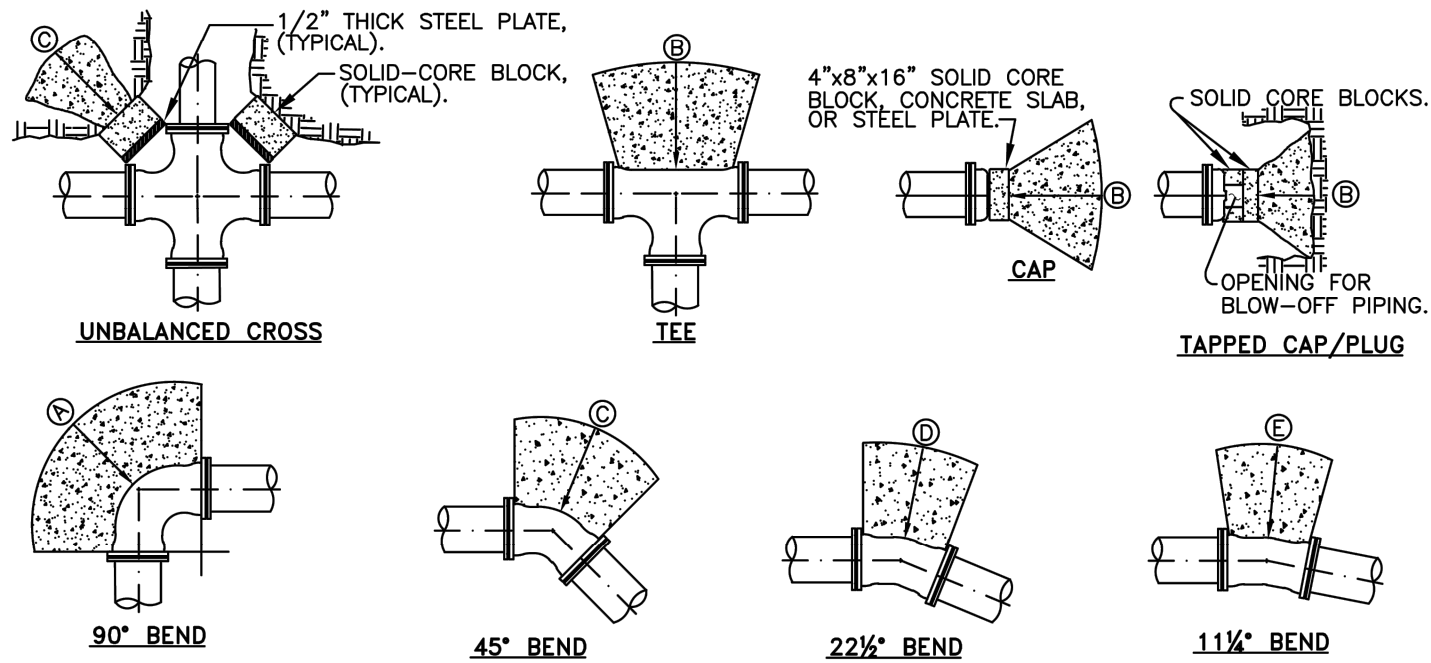
NORTHSHORE UTILITY DISTRICT
6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684
Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS
WATER MAIN PLAN AND PROFILE
STA 22+50 - 25+40

DWG: C_WATR-PLAN
C0948
SHEET
5 OF 16



M:\Northshore\232625 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\DET-WATER.dwg, 6/24/2025 2:52 PM, DAVID KLATT



**THRUST BLOCK SIZING FOR
250 PSI PRESSURE**

MIN. BEARING AREA AGAINST UNDISTURBED SOIL IN
SQUARE FEET.

PIPE SIZE	A	B	C	D	E
4"	3	2	2	1	1
6"	6	4	3	2	1
8"	10	7	5	3	2
10"	15	11	8	4	2
12"	22	15	12	6	3
14"	29	21	16	8	4
16"	38	27	21	11	5
18"	48	34	26	13	7
20"	60	42	32	17	8
24"	86	61	47	24	12

SAFE BEARING LOADS IN LBS./SQ. FT.
THE SAFE BEARING LOADS GIVEN IN THE
FOLLOWING TABLE ARE FOR HORIZONTAL
THRUSTS WHEN THE DEPTH OF COVER
OVER THE PIPE EXCEEDS 2 FEET.

SOIL	SAFE SOIL BEARING LOAD
*MUCK, PEAT, ETC.	SEE GENERAL NOTE #7
SOFT CLAY	1,000
SAND	2,000
SAND AND GRAVEL	3,000
SAND AND GRAVEL CEMENTED W/CLAY	4,000
HARD SHALE	10,000

NOTES:

1. CONCRETE BLOCKING AREA IS BASED ON 250 PSI WATER PRESSURE AND 2500 PSI CONCRETE STRENGTH.
2. HARDWARE NOT EMBEDDED IN CONCRETE SHALL BE CLEANED AND COATED WITH COAL TAR EPOXY.
3. IN-LINE VALVE SHALL BE M.J.xM.J. AND BE RESTRAINED WITH MEGA-LUGS, OR EQUAL.
4. REBAR HAIRPINS TO BE GREEN EPOXY COATED REBAR, BENT AS SPECIFIED ABOVE. CARE IS TO BE TAKEN DURING BENDING TO PROTECT THE EPOXY COATING. TOUGH-UP EPOXY TO BE CURED FOR 24HRS BEFORE USE.

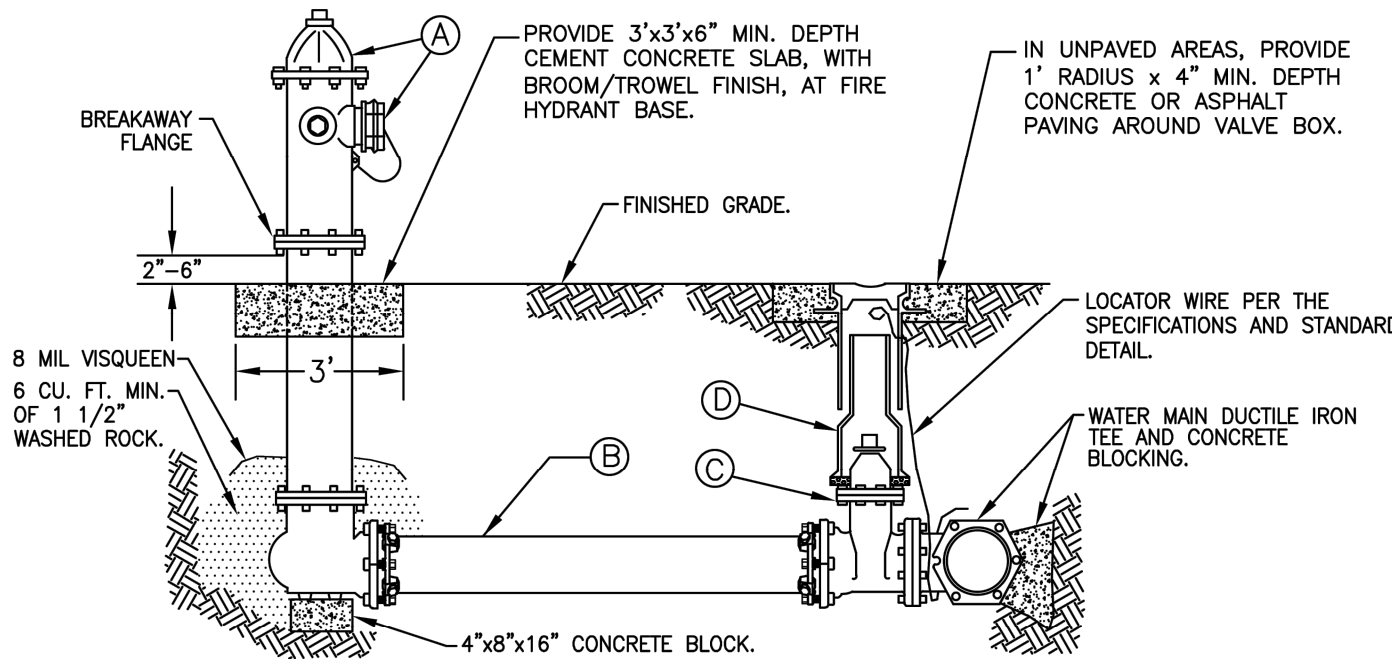
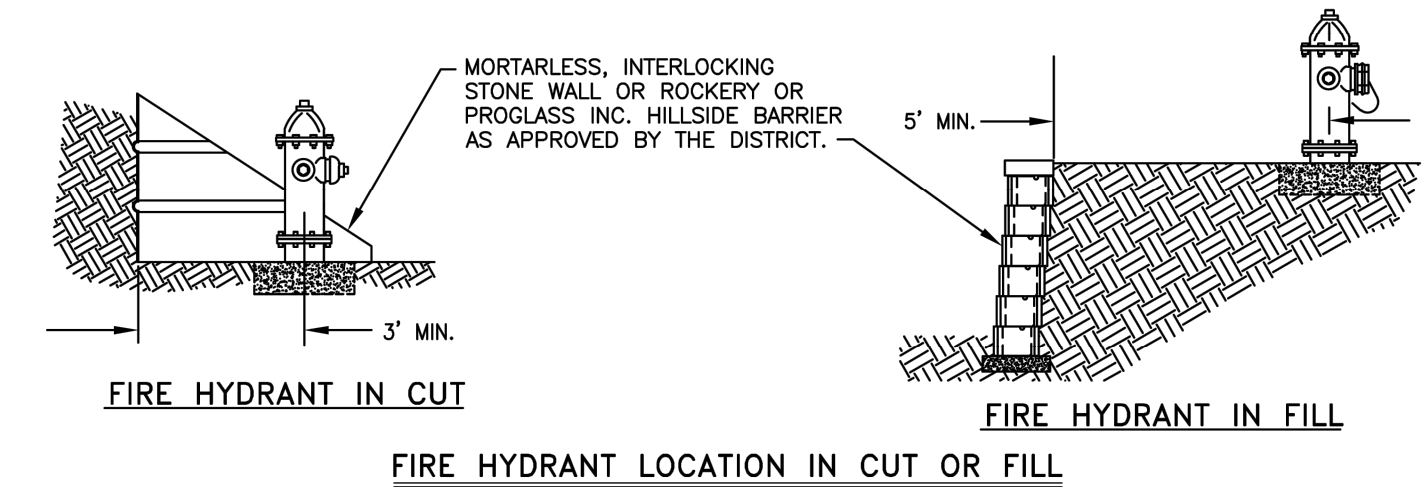
CONCRETE BLOCKING - HORIZONTAL

NOT TO SCALE

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

1

LAST UPDATED
MARCH 2024



MATERIALS LIST

ITEM	DESCRIPTION
A	HYDRANT: SHALL BE MUELLER SUPER CENTURION, AMERICAN DARLING B-62-B, CLOW MEDALLION, M&H 129S, OR EAST JORDAN IRON WORKS WATERMASTER SCD250 IN CONFORMANCE WITH AWWA STANDARD SPECIFICATION C-502. PROVIDE STORZ ADAPTERS (INTEGRAL OR NON-INTEGRAL) AS FOLLOWS: 4" FOR ALL LOCATIONS, EXCEPT FOR WITHIN KIRKLAND WHERE 5" IS REQUIRED. HYDRANT SHALL BE FACTORY PRIME COATED. TOP COAT SHALL BE TWO BRUSH COATS OF SHERWIN WILLIAMS WHITE INDUSTRIAL ENAMEL #B54W101.
B	6" CL. 52 D.J. PIPE, 3' MIN. AND 50' MAX. WITH RESTRAINED JOINTS.
C	6" R.W. GATE VALVE, F.L.xR.J.: SHALL BE PER THE SPECIFICATIONS. FOR VALVE OPERATING NUT DEPTHS, SEE STANDARD WATER DETAIL #11
D	TWO-PIECE VALVE BOX AND ETHAFOAM RING PER THE SPECIFICATIONS AND STANDARD WATER DETAIL #11.

NOTES:

1. HYDRANT SHALL BE ORIENTED PER FIRE MARSHALL AND HAVE 3' MIN. CLEARANCE AROUND CENTERLINE.
2. BOLLARDS REQUIRED AS DETERMINED BY DISTRICT.
3. IF HYDRANT RUN IS LONGER THAN 50', PIPE SIZE WILL BE DETERMINED BY DISTRICT.
4. HYDRANT EXTENSIONS ARE NOT ALLOWED.

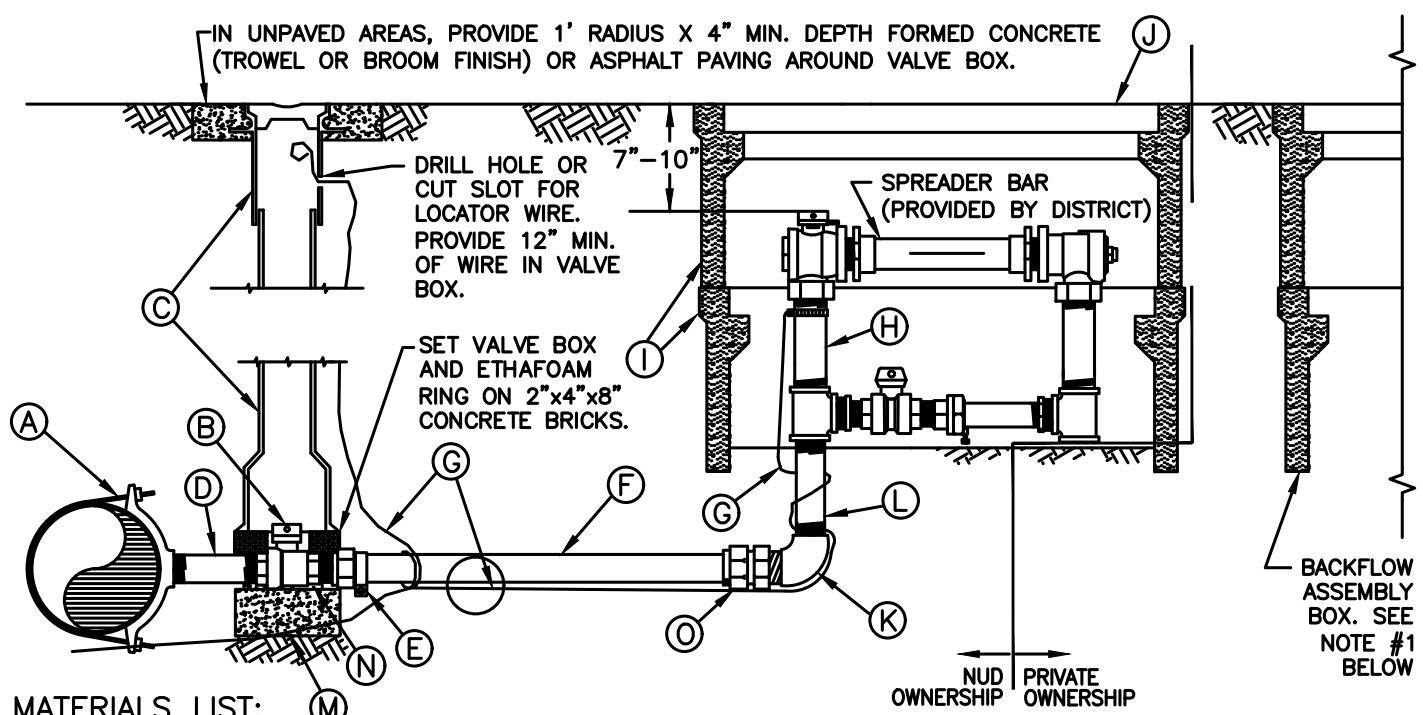
FIRE HYDRANT ASSEMBLY

NOT TO SCALE

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

3

LAST UPDATED
MARCH 2024



MATERIALS LIST:

ITEM	DESCRIPTION
A	SADDLE: ALL SADDLES SHALL BE DUCTILE IRON CASTING WITH IP THREADS. FOR ALL PIPE MATERIAL OTHER THAN PVC PIPE, SADDLES SHALL BE SINGLE STRAP TYPE EQUAL TO FORD FC101, ROMAC 101NS, MUELLER DR1S, OR DISTRICT APPROVED EQUAL. FOR PVC PIPE, SADDLES SHALL BE DOUBLE STRAP TYPE EQUAL TO MUELLER DR2S, FORD FCD202, OR ROMAC 202NS. ANY SERVICE CONNECTION TO LIVE WATER MAINS SHALL BE INSTALLED BY DISTRICT CREWS AT THE EXPENSE OF THE OWNER.
B	BALL VALVE, FIPxPIP: FORD #B11-777-NL WITH 2" OPERATING NUT, FORD #QT-67. FOR VALVE OPERATING NUT DEPTHS, SEE STANDARD WATER DETAIL #11.
C	TWO-PIECE CAST IRON VALVE BOX AND ETHAFOAM RING PER THE SPECIFICATIONS AND STANDARD WATER DETAIL #11.
D	BRASS CLOSE NIPPLE, MIPxMIP.
E	ADAPTER, MIPxPACK JOINT, FORD #C84-77-NL WITH STIFFENER, FORD INSERT-55, OR MUELLER 528707.
F	2" REHAU MUNICIPEX PEXg 3306, COPPER TUBE SIZE (CTS), SDR 9, AWWA C904, PER THE SPECIFICATIONS. PIPE SHALL BE CONTINUOUS FROM BALL VALVE TO METER SETTER. ALL PEXg PIPE INSTALLED BY OPEN-CUT CONSTRUCTION SHALL BE BEDDED IN SAND, 4" OVER AND UNDER. NATIVE MATERIAL WILL NOT BE ACCEPTED FOR BEDDING.
G	TRACER WIRE: BLUE 14 GAUGE COPPER, CONTINUOUS, SOLID CORE, POLYETHYLENE INSULATED PER THE SPECIFICATIONS. CONNECTION AT THE METER SETTER SHALL BE MADE WITH AN ALL STAINLESS STEEL HOSE CLAMP. CONNECTION AT THE MAIN LINE WIRE SHALL BE MADE WITH A SPLIT-BOLT CONNECTOR. STRIP COATING PRIOR TO CONNECTION.
H	1-1/2" METER SETTER: FORD VBH86-12B-11-66-NL 2" METER SETTER: FORD VBH87-12B-11-77-NL.
I	METER BOX: ARMORCAST, A6001640PCX12-NUD (2 BOXES STACKED, NO "MOUSE HOLES").
J	COVER: ARMORCAST, A6001947T-H10-NUD.
K	90° BRASS ELBOW, FIPxPIP. SIZE TO MATCH SETTER.
L	BRASS NIPPLE, LENGTH TO FIT. MIPxMIP. SIZE TO MATCH SETTER.
M	4"x8"x16" CONCRETE BLOCK.
N	TWO 2"x4"x8" CONCRETE BRICKS, ONE ON EITHER SIDE OF THE BALL VALVE TO SUPPORT ETHAFOAM RING.
O	ADAPTER, MIPxPACK JOINT, FORD #C84-67-NL WITH STIFFENER FOR 1 1/2" SETTER AND FORD #C84-77-NL WITH STIFFENER FOR 2" SETTER. STIFFENER, FORD INSERT-55 OR MUELLER 528707.

NOTE:

1. FOR PREMISE ISOLATION, AN APPROVED BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER PER DISTRICT STANDARD WATER DETAILS #13, #14a, AND #14b.
2. ALL PEXg PIPE TO PACK JOINT CONNECTIONS REQUIRE A STIFFENER INSERT.

1-1/2" & 2" WATER SERVICE

NOT TO SCALE

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

5

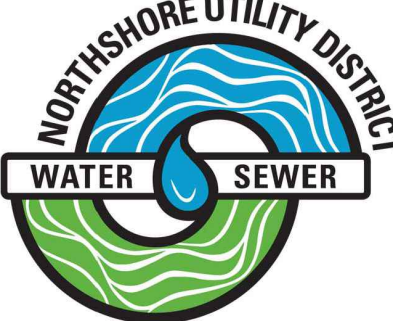
LAST UPDATED
MARCH 2024

NO	BY	APPD	REVISION	DATE

WARNING
0 1/2 1
IF THIS BAR DOES
NOT MEASURE 1"
THEN DRAWING
IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



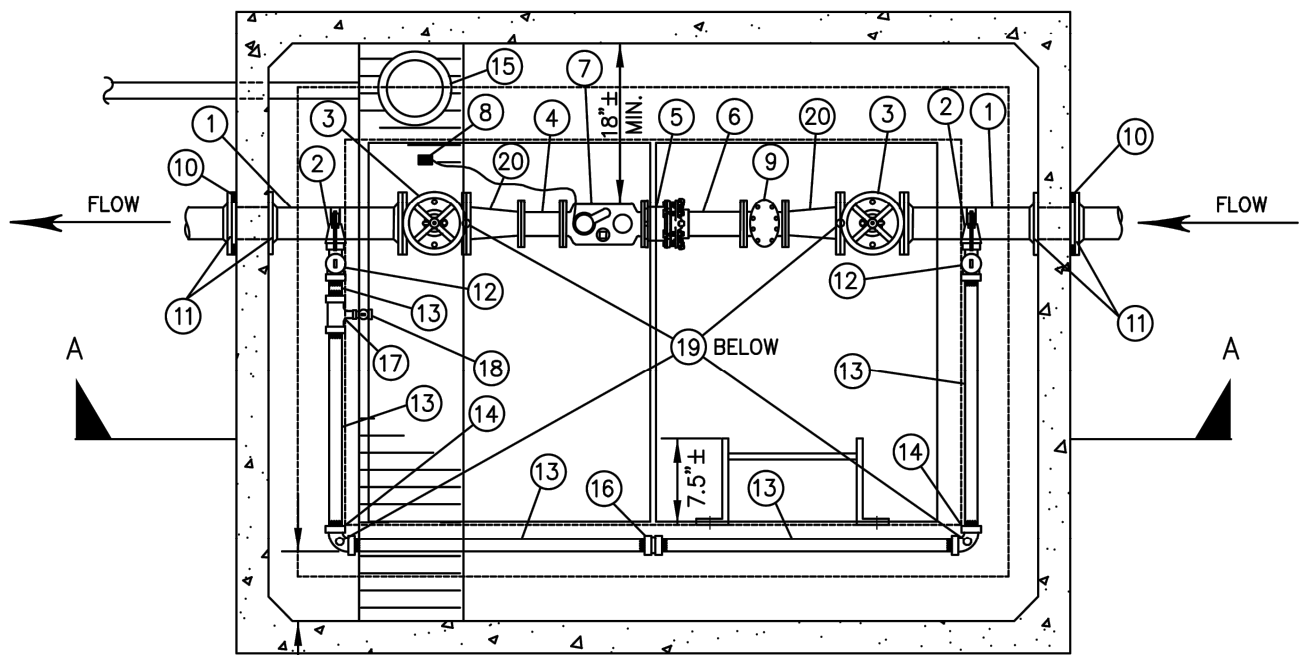
NORTHSHORE UTILITY DISTRICT
6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684
Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS
WATER DETAILS

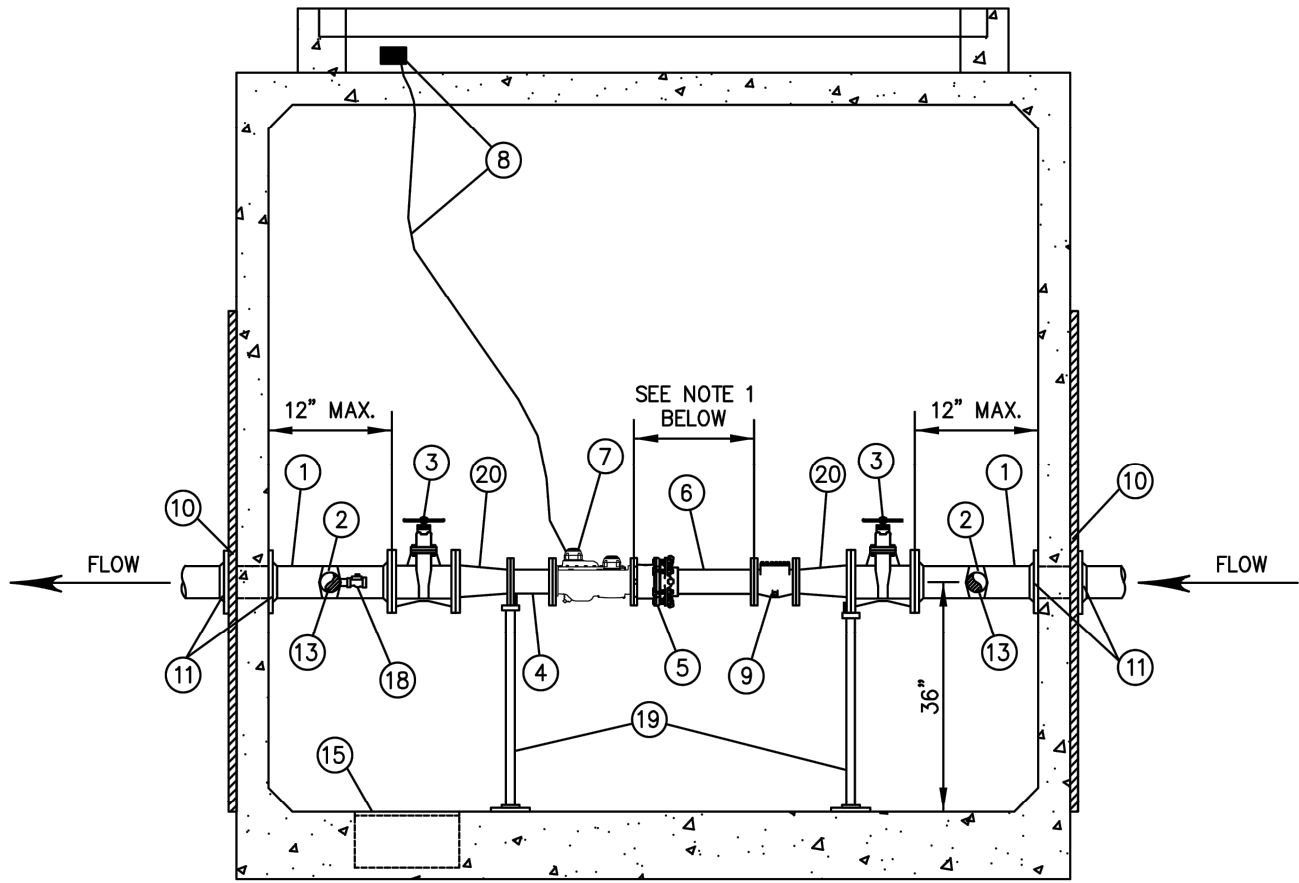
DWG: DET-WATER
C0948
SHEET
6 OF 16



M:\nshore\236226 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\DET-WATER.dwg, 6/24/2025 2:52 PM, DAVID KLATT



PLAN VIEW
NOT TO SCALE



SECTION A-A
NOT TO SCALE

NOTES:

- DISTANCE BETWEEN METER AND STRAINER SHALL BE A MINIMUM OF 15" FOR 3" SERVICE LINES AND MINIMUM 20" FOR 4" SERVICE LINES. FOR 3" WATER SERVICE INSTALLATION, SEE NOTES ON ITEM 20 ON DETAIL #6a.
- SEE NUD STANDARD WATER DETAIL #6a FOR MATERIALS LIST AND ADDITIONAL NOTES.
- SEE NUD STANDARD WATER DETAIL #16 AND #16a FOR VAULT DETAILS.

3" & 4" WATER SERVICE

NOT TO SCALE

DETAIL APPROVALS
EDITOR TMC
MANAGER SJD

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

6
LAST UPDATED
APRIL 2021

MATERIALS LIST

ITEM QTY DESCRIPTION

- 2 D.I. ADAPTER, FLXPE, 3'± LONG.
- 2 SADDLE WITH STAINLESS STEEL STRAP, ROMAC 202NS, FORD FCD202, OR MUELLER DR2S; WITH 2" IP TAP.
- 2 RESILIENT SEAT GATE VALVE, NRS, FL, O-RING PACKING WITH HANDWHEEL. VALVE TO BE AMERICAN, MUELLER, M&H, OR CLOW MEETING AWWA C515.
- 1 D.I. SPOOL, FLxFL, LENGTH TO FIT
- 1 FLANGED COUPLING ADAPTER TO BE ROMAC FLANGED COUPLING ADAPTER, STYLE RFCA.
- 1 D.I. ADAPTER, FLXPE, LENGTH TO BE A MINIMUM OF 15" FOR 3" SERVICES AND 20" FOR 4" SERVICES.
- 1 FLANGED SINGLE REGISTER HIGH PERFORMANCE COMPOUND METER, TO BE PROVIDED BY DISTRICT AND INSTALLED BY CONTRACTOR.
- 1 METER ENDPOINT AND MOUNTING BRACKET, TO BE PROVIDED AND INSTALLED BY DISTRICT ON HATCH RISER.
- 1 FLANGED STRAINER, TO BE PROVIDED BY DISTRICT AND INSTALLED BY CONTRACTOR.
- 2 2"x2"x1/4" MIN. WALL THICKNESS SQUARE STAINLESS STEEL TUBING, 6' MIN. LENGTH. BOLT TO VAULT WALL IN FOUR PLACES WITH STAINLESS STEEL ANCHOR BOLTS.
- 4 UNI-FLANGE ADAPTER.
- 2 2" MIPxFIP LOCKABLE BALL VALVE.
- 5 2" BRASS NIPPLE, LENGTH TO FIT.
- 2 2" BRASS 90° BEND.
- 1 SUMP PUMP OR GRAVITY DRAIN AS REQUIRED BY SITE CONDITIONS, TO BE DETERMINED BY THE DEVELOPER AND CONTRACTOR AND REVIEWED AND APPROVED BY THE DISTRICT.

FOR GRAVITY: SUMP DRAIN, ZURN Z-551, THREADED, WITH ZURNZ-1099 BACKWATER VALVE, THREADED x NO-HUB, WITH 4" D.I. PIPE TO 12" MIN. BEYOND VAULT WALL AND 4" D.I., MIN. 1% SLOPE TO DAYLIGHT OR C.B.

FOR SUMP PUMP: 16" DIAM. x 8" DEEP SUMP WITH ZOELLER MODEL 57 SUMP PUMP WITH SOLID BUOYANT POLYPROPYLENE FLOAT. PROVIDE ELECTRICAL POWER WITHIN 4' MIN.-6' MAX. VERTICAL DISTANCE AND 1' MAX. HORIZONTAL DISTANCE TO SUMP PUMP PER ALL APPLICABLE CODES. CONSTRUCT 1-1/4" SCH. 80 PVC DISCHARGE PIPING, WITH LOCATE WIRE, TO NEAREST CATCH BASIN OR APPROVED LOCATION. DISCHARGE PIPING SHALL BE ATTACHED TO THE INTERIOR VAULT WALL WITH APPROVED FASTENERS AT 3' SPACING. INSTALL A QUICK DISCONNECT COUPLING, CHECK VALVE, AND ISOLATION BALL VALVE ON DISCHARGE PIPING IMMEDIATELY AFTER SUMP PUMP. SEE STANDARD WATER DETAIL #16a FOR PUMP AND PIPING DETAIL.

- 2" DIAPHRAGM VALVE FOR PUMP AND PIPING DETAIL.
- 2"x1" BRASS TEE.
- 3/4" HOSE BIB.
- 4 ADJUSTABLE PIPING SUPPORT, STANDON MODEL #S89, OR EQUAL, SET ON CONCRETE. STANDON MODEL #S92, OR EQUAL, SHALL ONLY BE USED FOR 2" BYPASS.
- 2 FOR 3" WATER SERVICES: 4"x3" CONCENTRIC REDUCER, FLxFL PIPE AND FITTING SIZES BETWEEN GATE VALVES (ITEM NUMBERS 4, 5, 6, 7, AND 9) SHALL MATCH METER SIZE.

NOTES:

- PROVIDE SHOP DRAWINGS AND SUBMITTALS FOR ALL MATERIALS TO THE DISTRICT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- VAULT SHALL BE UTILITY VAULT 687-LA (8'Lx6'Wx7'D; INSIDE DIMENSION). SEE DISTRICT STANDARD DETAIL #S 16 AND 16a FOR VAULT DETAIL.
- ALL PIPE AND CONDUIT PENETRATIONS SHALL BE CORE-DRILLED ON-SITE AND SHALL BE SEALED WATERTIGHT. PROVIDE "LINK-SEAL" FITTINGS AT ALL PENETRATIONS.
- ALL PIPING AND APPURTENANCES OUTSIDE THE VAULT SHALL BE RESTRAINED JOINT. IN ADDITION TO THE RESTRAINED JOINTS, THRUST BLOCKING AT ALL TEES AND BENDS PER DISTRICT STANDARD WATER DETAIL #S 1 AND 2 SHALL BE REQUIRED.
- THE CONTRACTOR IS RESPONSIBLE FOR ELECTRICAL PERMITS AND APPROVALS FOR SUMP PUMP INSTALLATIONS.
- FOR PREMISE ISOLATION, AN APPROVED BACKFLOW ASSEMBLY SHALL BE INSTALLED IMMEDIATELY BEHIND THE WATER METER PER DISTRICT STANDARD WATER DETAIL #14a OR #14b.
- NUD'S OWNERSHIP WILL BE TO THE DOWNSTREAM OUTSIDE EDGE OF THE VAULT.

3" & 4" WATER SERVICE

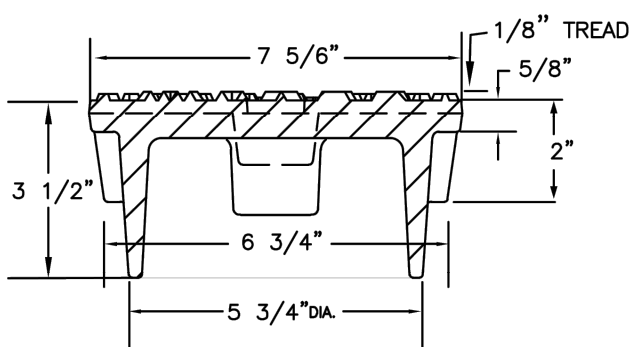
NOT TO SCALE

DETAIL APPROVALS
EDITOR TMC
MANAGER SJD

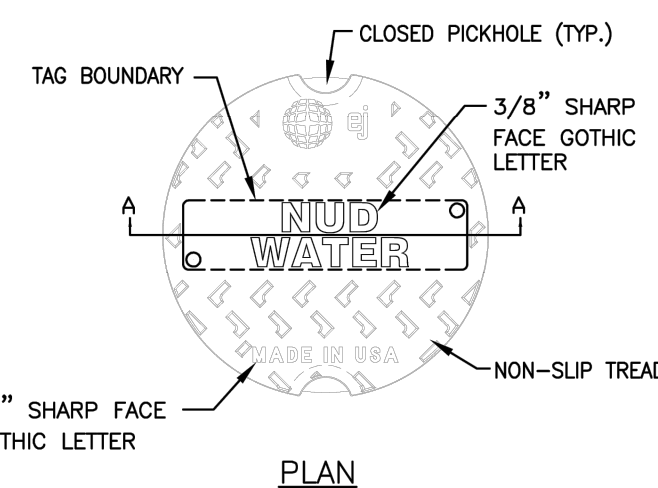
NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

6a
LAST UPDATED
FEBRUARY 2022

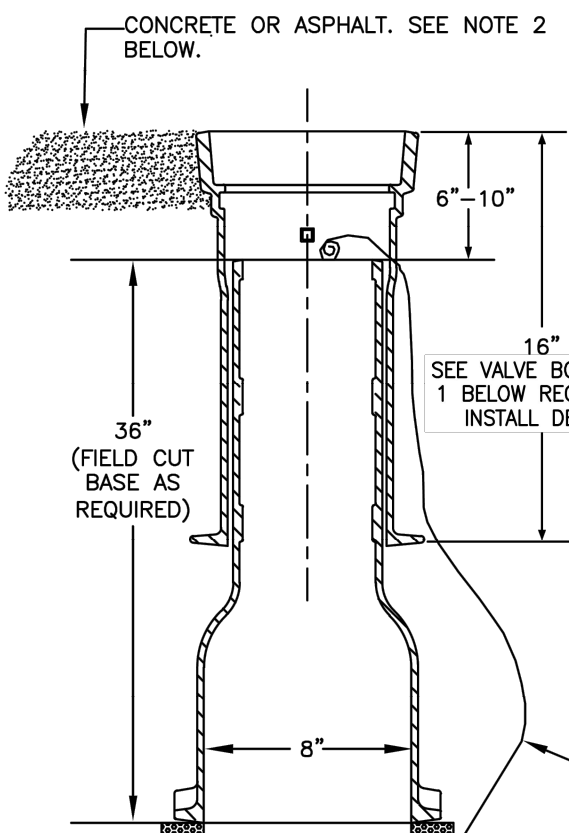
VALVE BOX COVER



SECTION A-A



PLAN



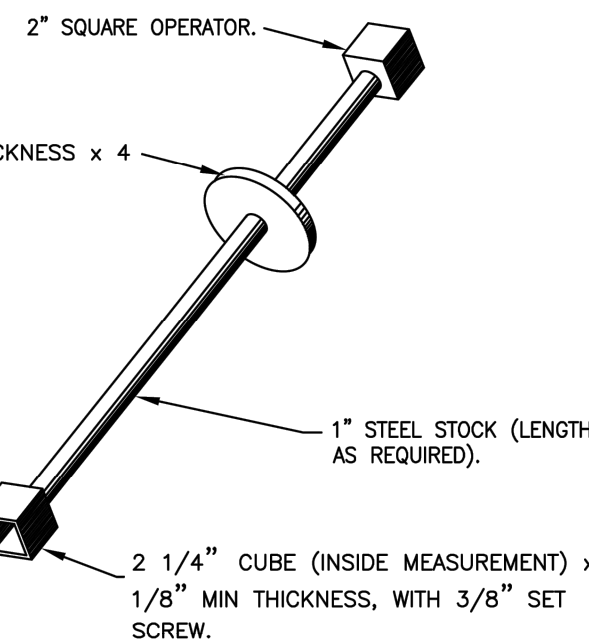
VALVE BOX

VALVE BOX NOTES:

- CAST-IRON VALVE BOX AND COVER SHALL BE EAST JORDAN IRON WORKS: VALVE BOX COVER 06800209, VALVE BOX TOP 85557016U, AND VALVE BOX BOTTOM 85556036U. FOR SHALLOW OR DEEP INSTALLS, VALVE BOX TOP SHALL BE DETERMINED BY THE DISTRICT.
- IF VALVE BOX IS IN AN UNPAVED AREA, PROVIDE 1' RADIUS x 4" MINIMUM DEPTH CONCRETE OR ASPHALT PAVING AROUND VALVE BOX. CONCRETE SHALL HAVE A BROOM/TROWEL FINISH.
- INSTALL ETHAFOAM RING BETWEEN BASE OF VALVE BOX AND GATE VALVES OR ON CONCRETE BRICKS FOR BALL VALVES. ETHAFOAM RING TO BE 2" IN THICKNESS.

VALVE BOX & OPERATING NUT EXTENSION

NOT TO SCALE



VALVE OPERATING NUT EXTENSION

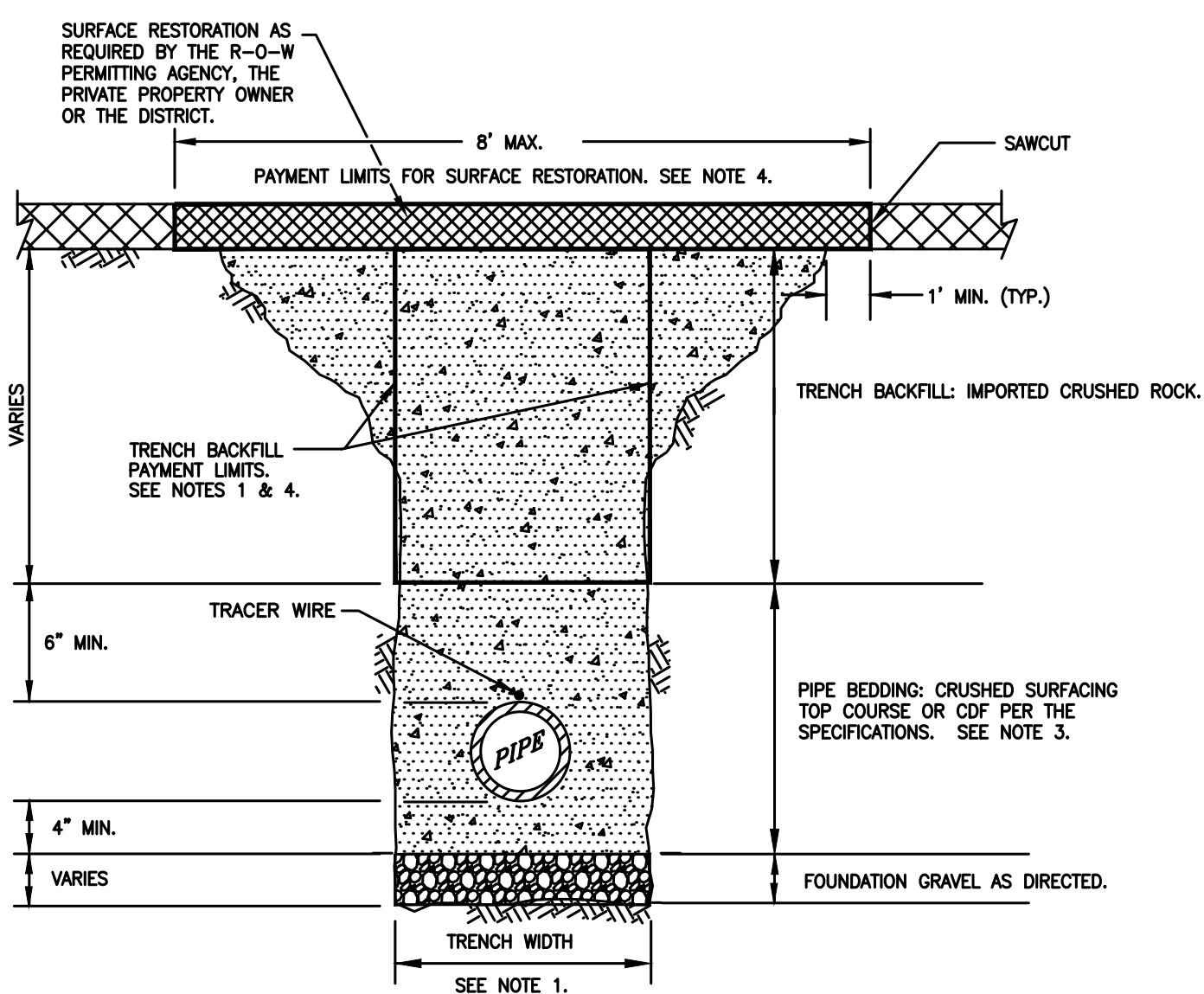
VALVE OPERATING NUT EXTENSION NOTES:

- VALVE OPERATING NUT EXTENSIONS ARE REQUIRED WHEN VALVE NUT IS MORE THAN 5' BELOW FINISHED GRADE.
- LENGTH AS REQUIRED TO PUT OPERATING NUT TWO (2) FEET FROM FINISHED GRADE.
- EXTENSIONS TO BE A MINIMUM OF TWO (2) FEET LONG.
- ONE (1) EXTENSION PER VALVE.
- NO ADJUSTABLE VALVE EXTENSIONS ALLOWED.
- WHEN AN EXTENSION IS REQUIRED, USE A SOILS PIPE BETWEEN VALVE BOX TOP AND VALVE BOX BOTTOM. LENGTH TO FIT.

DETAIL APPROVALS
EDITOR TMC
MANAGER SJD

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

11
LAST UPDATED
FEBRUARY 2022



NOTES:

- TRENCH WIDTH:
MINIMUM: PIPE O.D. + 24" (12" EACH SIDE OF PIPE).
MAXIMUM: 40" FOR 15" PIPE AND SMALLER.
(1 1/2" X I.D.) + 18" FOR 18" PIPE AND LARGER.
THE NEAT-LINE PAYMENT LIMITS FOR TRENCH BACKFILL MATERIALS SHALL BE BASED UPON THE MAXIMUM ALLOWABLE TRENCH WIDTH AS SHOWN ABOVE.
- NATIVE MATERIAL WILL NOT BE ALLOWED AS PIPE BEDDING.
- 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. SEE THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.
- RECYCLED CONCRETE WILL NOT BE ALLOWED AS PIPE BEDDING OR TRENCH BACKFILL.
- ALL DUCTILE IRON PIPE REQUIRES POLYETHYLENE ENCASEMENT. SEE THE DISTRICTS MATERIALS OF CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.

TYPICAL TRENCH SECTION & PAYMENT LIMITS

NOT TO SCALE

DETAIL APPROVALS
EDITOR TMC
MANAGER SJD

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

12
LAST UPDATED
JANUARY 2023

NO	BY	APPD	REVISION	DATE

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

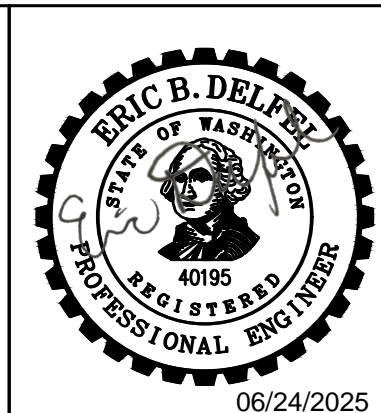
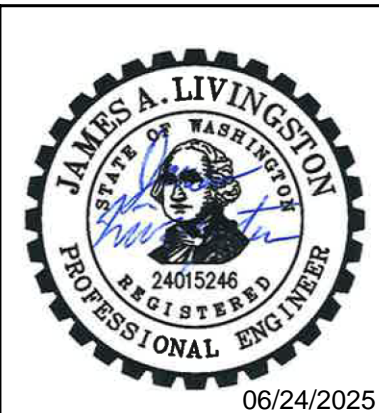
DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



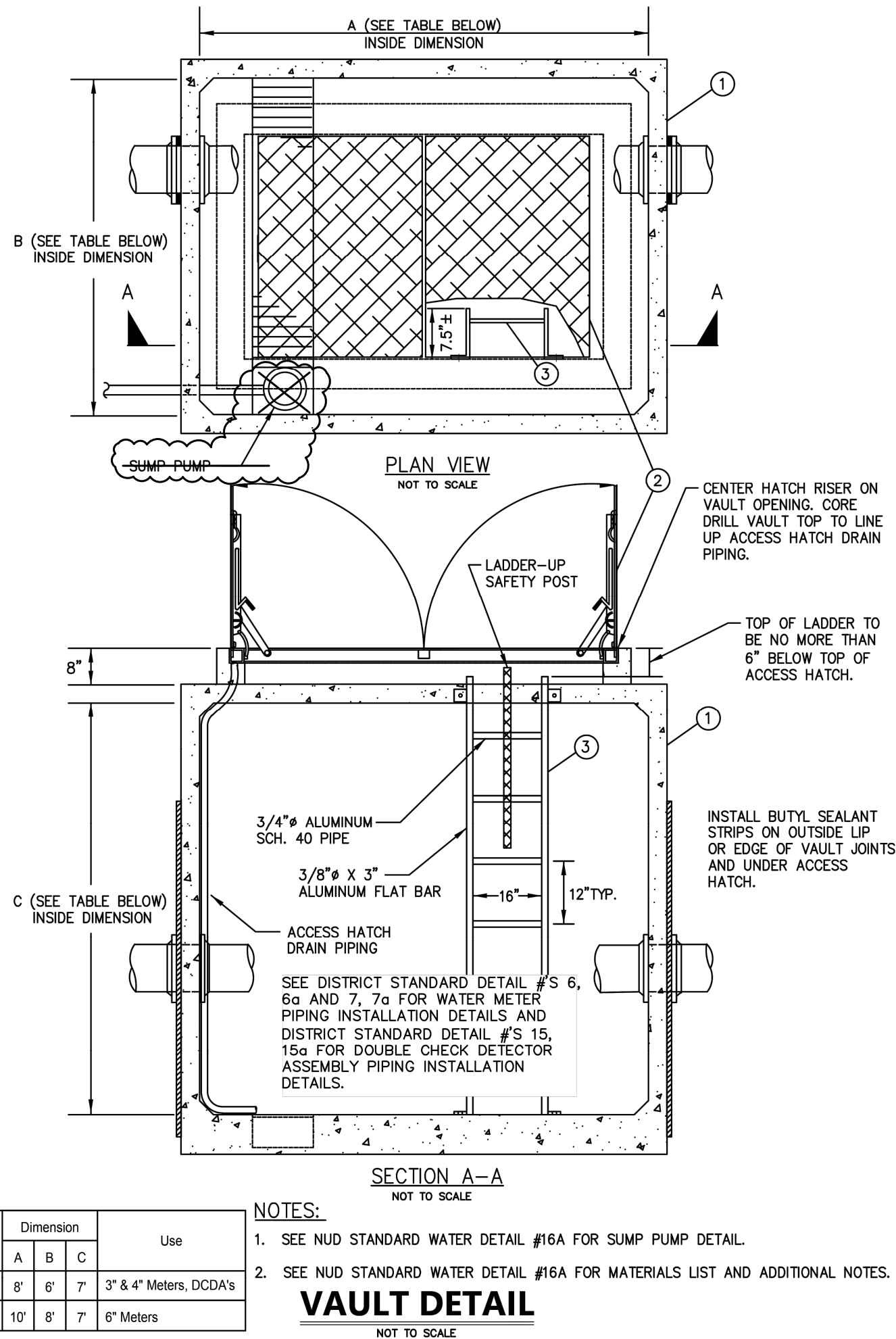
NORTHSHORE UTILITY DISTRICT
6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684
Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS
WATER DETAILS

DWG: DET-WATER
C0948
SHEET
7 OF 16



M:\Northshore\232625 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\DET-WATER.dwg, 6/24/2025 2:52 PM, DAVID KLATT

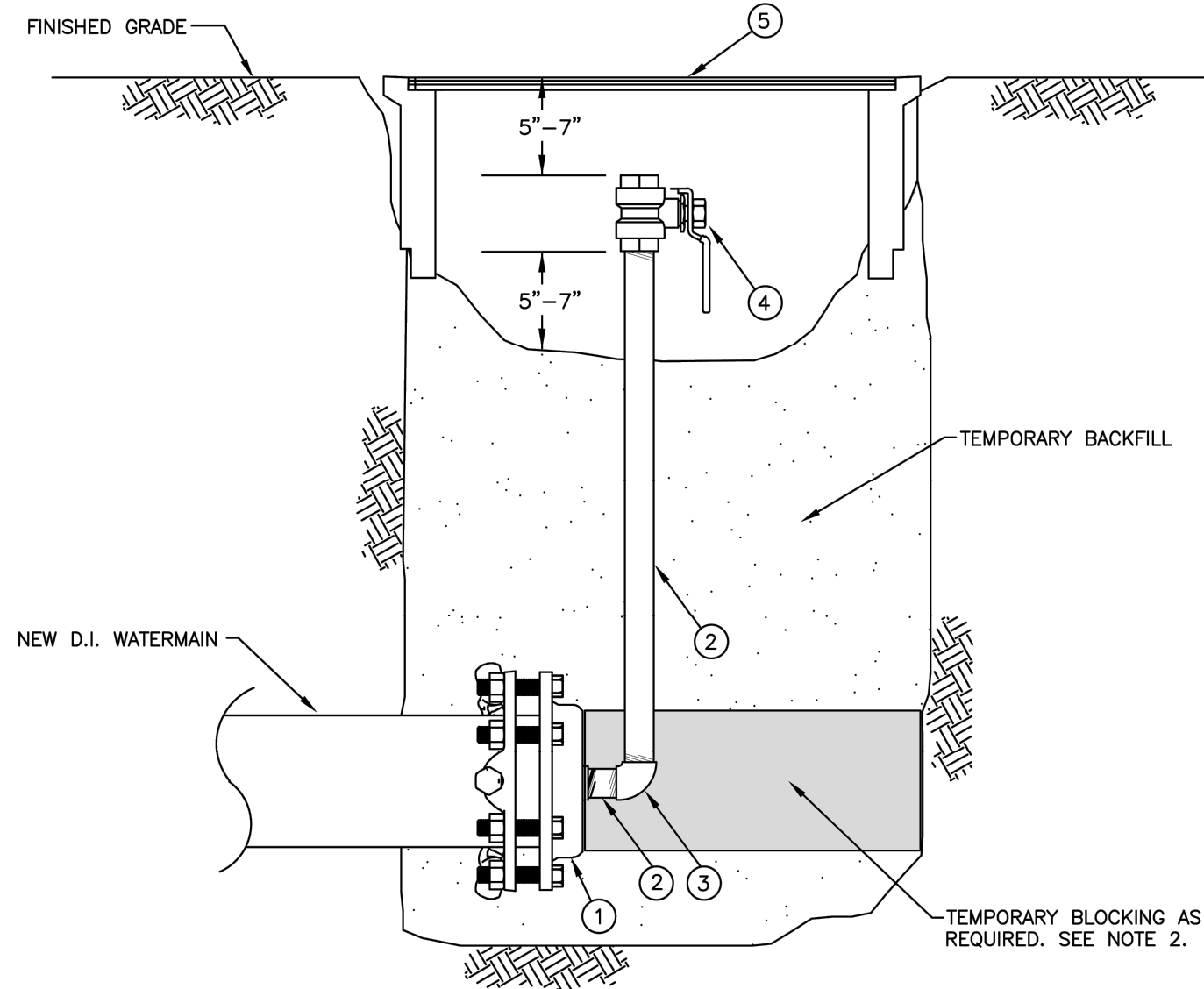
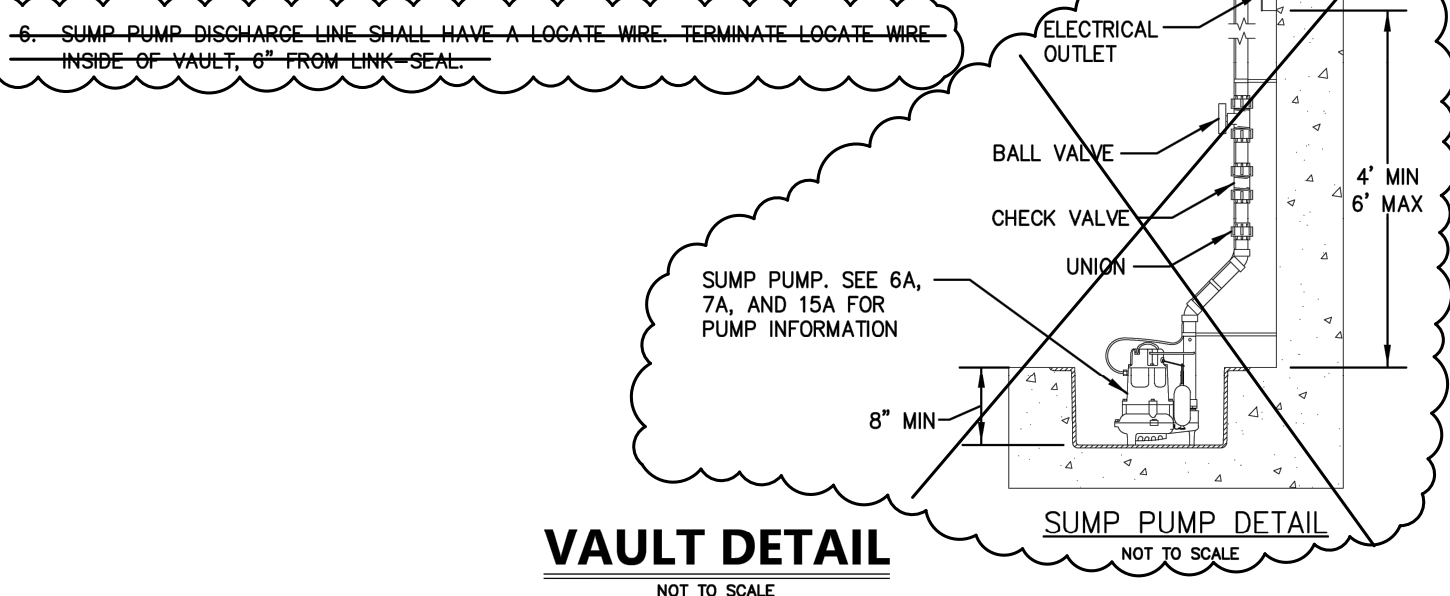


MATERIALS LIST:
ITEM DESCRIPTION

- ① PRECAST CONCRETE UNDERGROUND VAULT SHALL BE 687-LA FOR 3" AND 4" METERS AND DCD's, OR 810-LA FOR 6" METERS, MANUFACTURED BY "UTILITY VAULT COMPANY/OLDCASTLE PRECAST".
BASE SECTION: 687-BL OR 810-SB WITH FULL-WIDTH SUMP AND GRATE.
CENTER SECTION: 687-MC OR 810-MC.
TOP SECTION: 687 OR 810 WITH 48"x72" HATCH OPENINGS LOCATED AS SHOWN TO ACCOMMODATE THE CONCRETE COVER, NO. 57 CLX 42S, AND THE 48"x72" DOUBLE LEAF HATCH. CORE DRILL CONCRETE TOP SECTION OF VAULT TO ALIGN WITH ACCESS HATCH DRAIN AND INSTALLATION OF 1-1/2" ACCESS HATCH DRAIN PIPING.
- ALL VAULT WALLS SHALL BE SOLID FULL WIDTH WITH NO KNOCK-OUTS OR CHANNELS. THE VAULT MANUFACTURER SHALL ENSURE THAT NO VAULT JOINTS ARE LOCATED WITHIN 6" OF THE EDGE OF CORE-DRILLED PENETRATIONS. SEE NOTES BELOW.
- INSTALL BUTYL SEALANT STRIPS BETWEEN VAULT SECTIONS AND UNDER ACCESS HATCH PER MANUFACTURER'S RECOMMENDATIONS AND ENSURE THAT SEALANT IS NOT SQUEEZED INTO VAULT.
- PAINTING:
CONCRETE TO DRY FOR 9 DAYS PRIOR TO COATING APPLICATION. SURFACE IS TO BE CLEAN, DRY AND FREE OF CONTAMINANTS.
- THE INTERIOR OF THE CONCRETE VAULT SHALL BE PAINTED AT THE VAULT MANUFACTURER WITH ONE COAT OF TNE MEC SERIES N69 HI-BUILD EPOXOLINE II, APPLIED AT 6-8 MILS DFT, COLOR TO BE WHITE.
- EXTERIOR BELOW GRADE OF THE CONCRETE VAULT SHALL BE PAINTED WITH ONE COAT TNE MEC SERIES 46H-413 HI-BUILD TNE-ME-TAR COAL TAR EPOXY, APPLIED AT 16 TO 20 MILS DFT.
- TO FIELD REPAIR ANY DAMAGED COATING, CONTRACTOR SHALL LIGHTLY SAND SURFACE WITH 150 GRIT SAND PAPER TO DEGLOSS AREA TO BE RE-COATED. REAPPLY PAINT PER THE DATA SHEET FOR THE SPECIFIED MATERIAL.
- ② ACCESS HATCH: "UTILITY VAULT" CONCRETE COVER NO. 57 CLX 42S WITH "LW PRODUCTS" 48"x72" DOUBLE LEAF HATCH, H-20, PROVIDE 1-1/2" SCH. 80 CONDUIT FROM HATCH CUTTER TO VAULT SUMP SECURED TO VAULT WALL WITH APPROVED FASTENERS AT 3' SPACING.
- ③ ALUMINUM LADDER BOLTED TO VAULT BASE AND HATCH RISER WITH SS HARDWARE. LADDER TO INCLUDE BILCO "LADDER-UP" SAFETY POST.

NOTES:

- PROVIDE SHOP DRAWINGS AND SUBMITTALS FOR ALL MATERIALS TO THE DISTRICT FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- VAULTS FOR WATER METERS AND DOUBLE CHECK DETECTOR ASSEMBLIES 8" AND LARGER WILL BE DETERMINED BY THE DISTRICT AT THE TIME OF PLAN REVIEW.
- PIPE AND CONDUIT PENETRATIONS SHALL BE CORE-DRILLED ON-SITE AND SHALL BE SEALED WATERTIGHT. PROVIDE "LINK-SEAL" FITTINGS AT ALL PENETRATIONS.
- SEE DISTRICT STANDARD DETAIL #'S 6, 6a AND 7, 7a FOR WATER METER PIPING INSTALLATION DETAILS AND DISTRICT STANDARD DETAIL #S 15, 15a FOR DOUBLE CHECK DETECTOR ASSEMBLY PIPING INSTALLATION DETAILS.
- TRACER WIRE ON MAINLINE SHALL ENTER THE VAULT THROUGH THE "LINK-SEAL" AND TERMINATE 6" INSIDE VAULT.

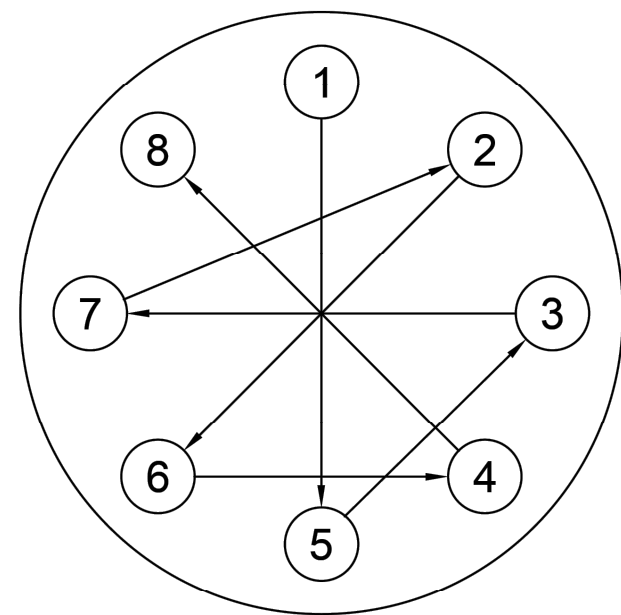


MATERIALS LIST
ITEM QTY. DESCRIPTION

- ① 1 TAPPED & THREADED D.I. CAP, RJ WITH 2" IP TAP.
- ② 2 2" GALVANIZED PIPE, LENGTH TO FIT.
- ③ 1 2" 90° GALVANIZED ELBOW, FIPxPIP.
- ④ 1 2" BALL VALVE, FIPxPIP, MATCO 757T0BLF OR EQUAL.
- ⑤ 1 TRAFFIC RATED BOX AND COVER, OR EQUAL.

NOTES:

- NUMBER AND LOCATION OF THE TEMPORARY BLOW-OFFS WILL BE AS SHOWN ON THE DESIGN PLANS OR AS DIRECTED BY THE DISTRICT IN THE FIELD.
- PROVIDE TEMPORARY BLOCKING FOR BLOW-OFFS TO RESIST TEST PRESSURES.



NO OF BOLTS	NOMINAL FLG SIZE	BOLT NUT TIGHTENING SEQUENCE
8	4", 6", 8"	1, 5, 3, 7, 2, 6, 4, 8
12	10", 12"	1, 7, 4, 10, 2, 8, 5, 11, 3, 9, 6, 12

NOTES:

- BOLTS AND NUTS SHALL BE CLEAN AND DRY (UNLUBRICATED).
 - HAND TIGHTEN ALL NUTS.
 - CONSECUTIVELY NUMBER THE BOLTS AROUND THE FLANGE.
- TIGHTEN BOLTS AND NUTS IN THE SEQUENCE GIVEN IN THE TABLE ABOVE.
 - FIRST: TIGHTEN BOLTS AND NUTS TO ONE-THIRD OF MANUFACTURER'S RECOMMENDED TARGET TORQUE.
 - SECOND: TIGHTEN BOLTS AND NUTS TO TWO-THIRDS OF MANUFACTURER'S RECOMMENDED TARGET TORQUE.
 - LAST: TIGHTEN BOLTS AND NUTS TO FULL MANUFACTURER'S RECOMMENDED TARGET TORQUE.
- SEQUENCE GIVEN IS FOR AWWA C110, AND ANSI CLASS 125 AND 150 FLANGES.

BOLT TIGHTENING SEQUENCE

NOT TO SCALE

DETAIL APPROVALS
EDITOR TMC
MANAGER DPK

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

16
LAST UPDATED
FEBRUARY 2019

DETAIL APPROVALS
EDITOR TMC
MANAGER SJD

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

16a
LAST UPDATED
FEBRUARY 2020

DETAIL APPROVALS
EDITOR TMC
MANAGER SJD

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

17
LAST UPDATED
FEBRUARY 2020

DETAIL APPROVALS
EDITOR TMC
MANAGER SJD

NORTHSHORE UTILITY DISTRICT
2024 STANDARD WATER DETAILS

19
LAST UPDATED
APRIL 2021

NO	BY	APPD	REVISION	DATE

WARNING

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS

1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

WATER DETAILS

DWG: DET-WATER

C0948

SHEET

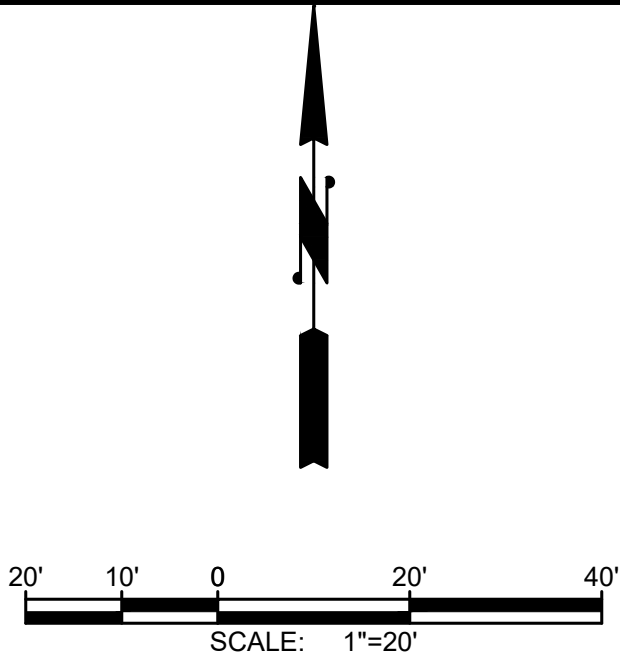
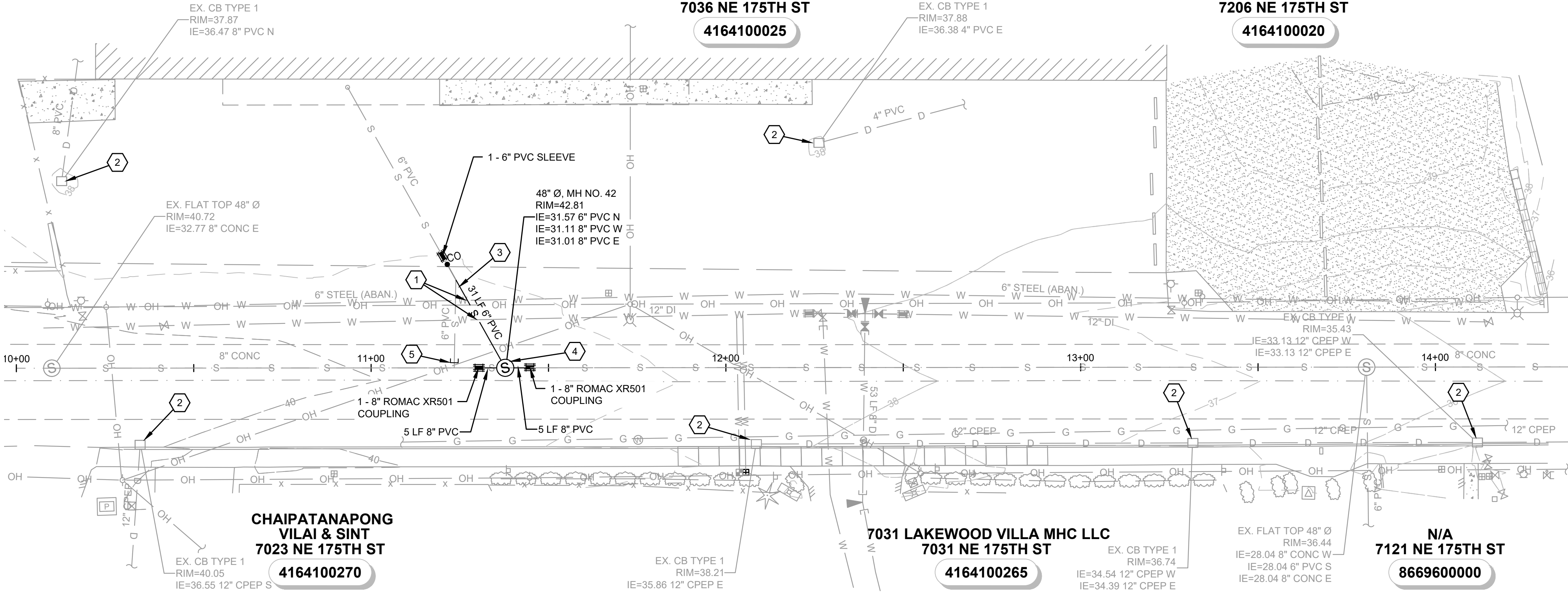
8 OF 16



NW 1/4, SEC 45, T26N, R4E, WM

RL SWANSON
ASSOCIATES LLC
7036 NE 175TH ST
4164100025

RL SWANSON
ASSOCIATES LLC
7206 NE 175TH ST
4164100020



GENERAL NOTES:

- EXISTING SIDE SEWER PIPE LOCATIONS SHOWN ON THE CONTRACT DOCUMENTS ARE ONLY APPROXIMATE. POTHOLE THE EXISTING SIDE SEWER FIRST AT THE MAIN LINE OR AT CLEANOUT AND THEN CONTINUE TO POTHOLE AS NECESSARY TO LOCATE THE SIDE SEWER AT THE POINT OF CONNECTION.
- MAINTAIN CONTINUOUS SEWER SERVICE TO ALL PROPERTIES DURING CONSTRUCTION, INSTALLATION, AND TESTING OF PROPOSED SEWER MAIN. PROVIDE TEMPORARY SEWAGE PUMPING AT CLEANOUT ASSEMBLIES AND MANHOLES AS REQUIRED.

CONSTRUCTION NOTES:

- CAUTION: POTENTIAL UTILITY CONFLICT. CONTRACTOR TO POTHOLE AND FIELD VERIFY EXACT LOCATION AND DEPTH OF EXISTING UTILITY.
- CONTRACTOR SHALL INSTALL STORM DRAIN PROTECTION PER DETAIL 1, SHEET 3.
- INSTALL SIDE SEWER CLEANOUT ASSEMBLY PER DETAIL 9, SHEET 10. ALL WORK SHALL BE COORDINATED WITH PROPERTY OWNER AND ENGINEER A MINIMUM OF 7 DAYS BEFORE STARTING INSTALLATION OF CLEANOUT. VERIFY EXISTING SIDE SEWER LOCATION, SIZE, MATERIAL, AND ELEVATION PRIOR TO STARTING WORK.
- INSTALL NEW MANHOLE PER DETAILS 1 AND 5, SHEET 10.
- CAP/PLUG EXISTING SIDE SEWER TEE.

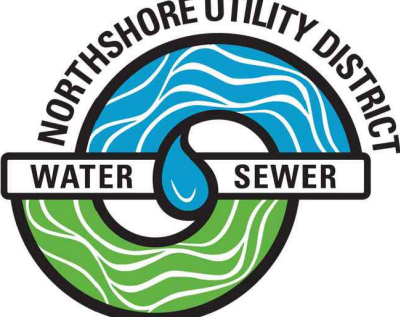
M:\Northshore\232625 00 Lakewood Villa Water and Sewer\01 Design\Plan\Set\Civil\C_SEWR-PLAN.dwg, 6/24/2025 2:52 PM, DAVID KLATT

NO	BY	APPD	REVISION	DATE

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE


Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

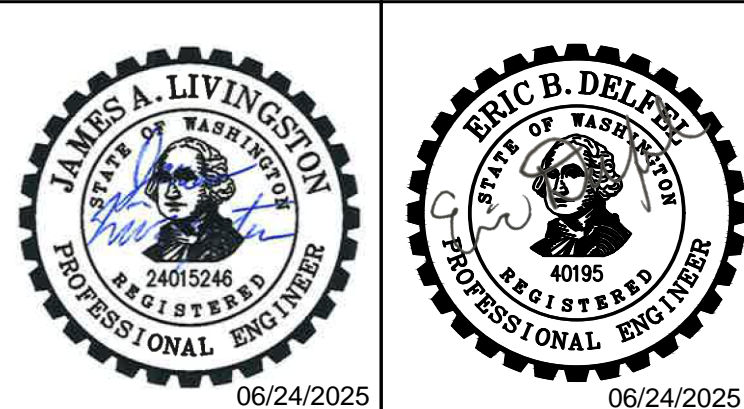
SEWER MANHOLE PLAN

DWG: C_SEWR-PLAN

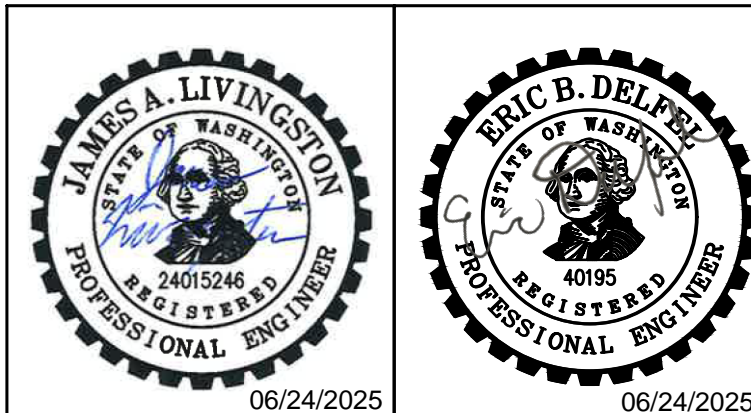
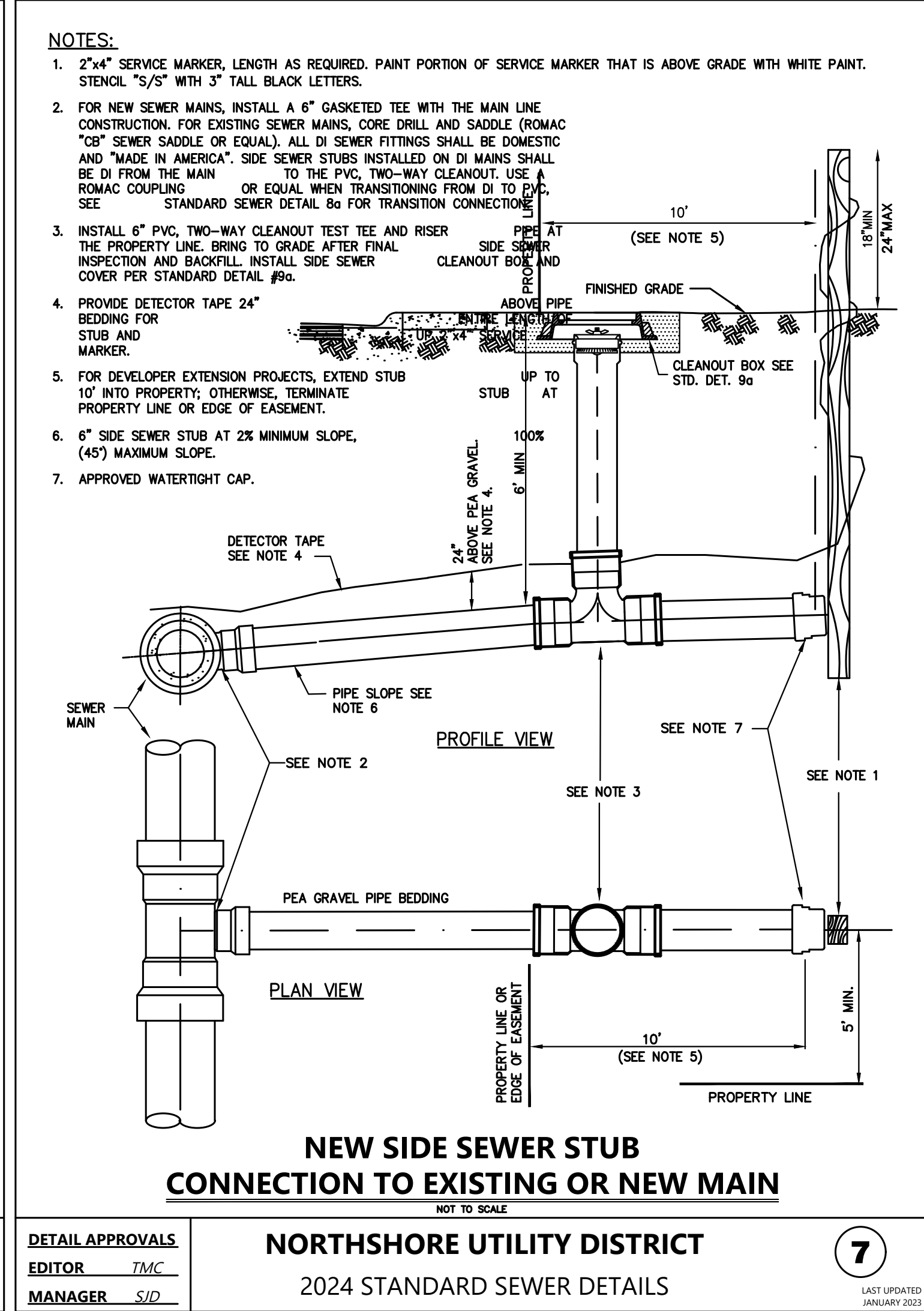
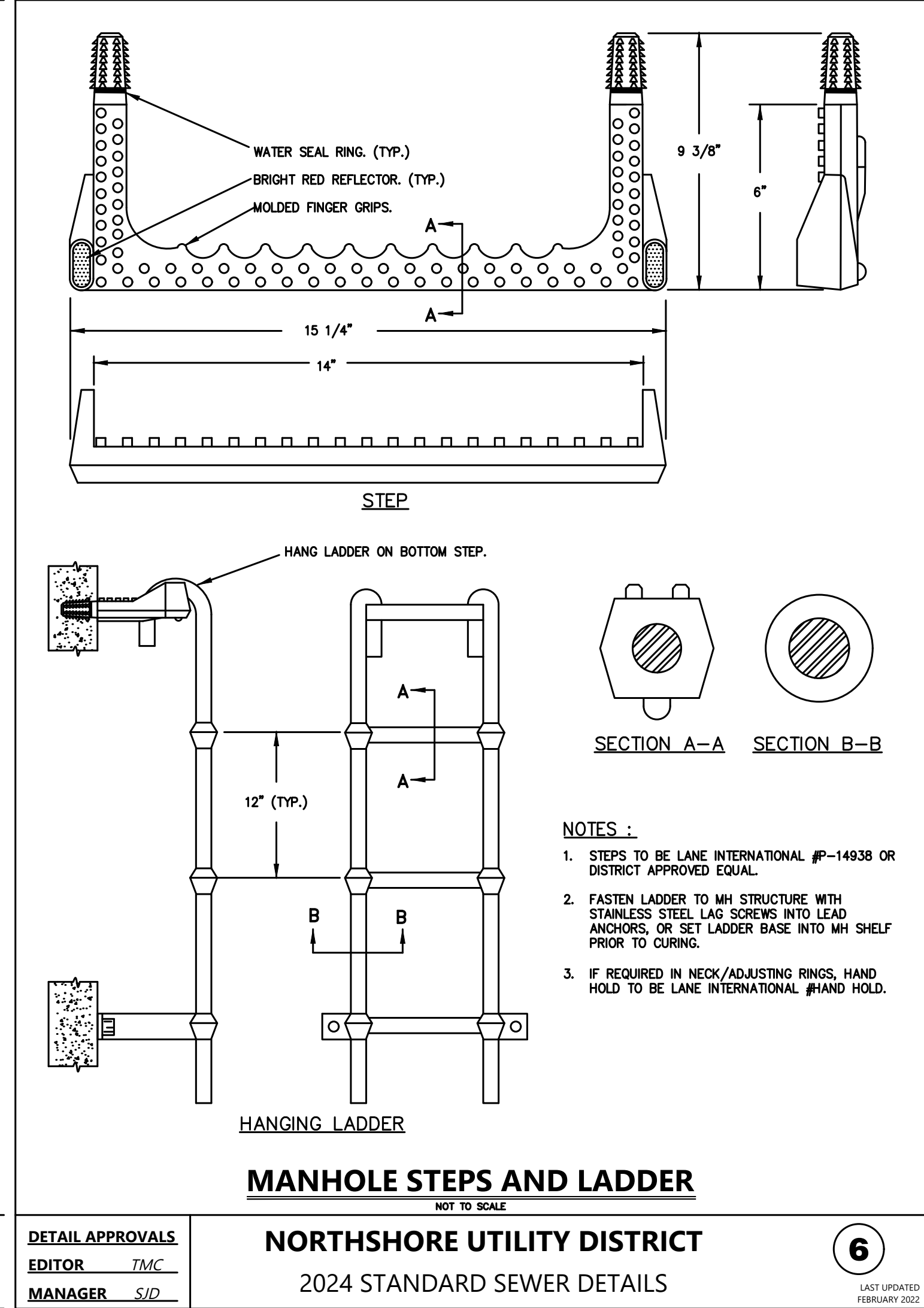
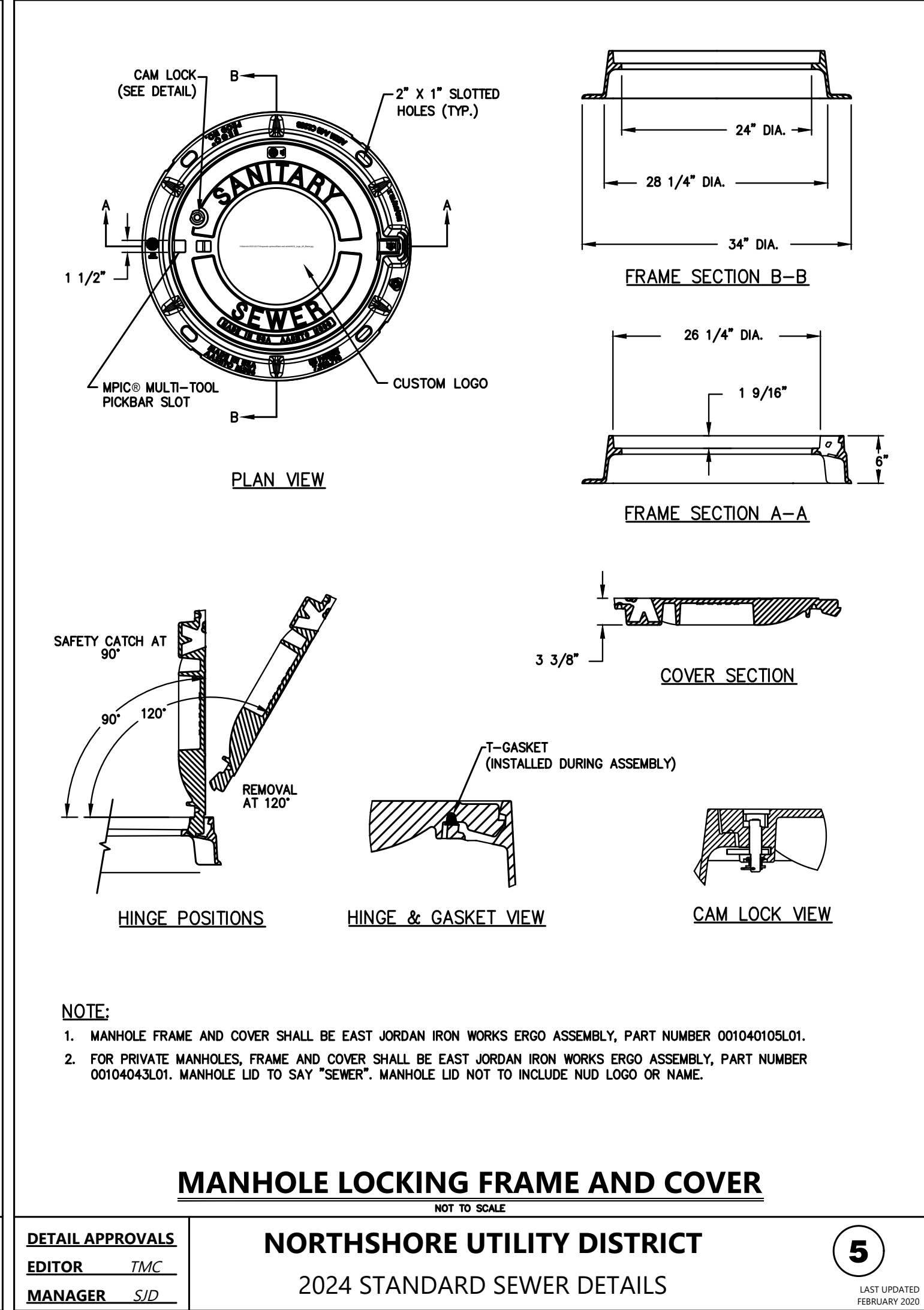
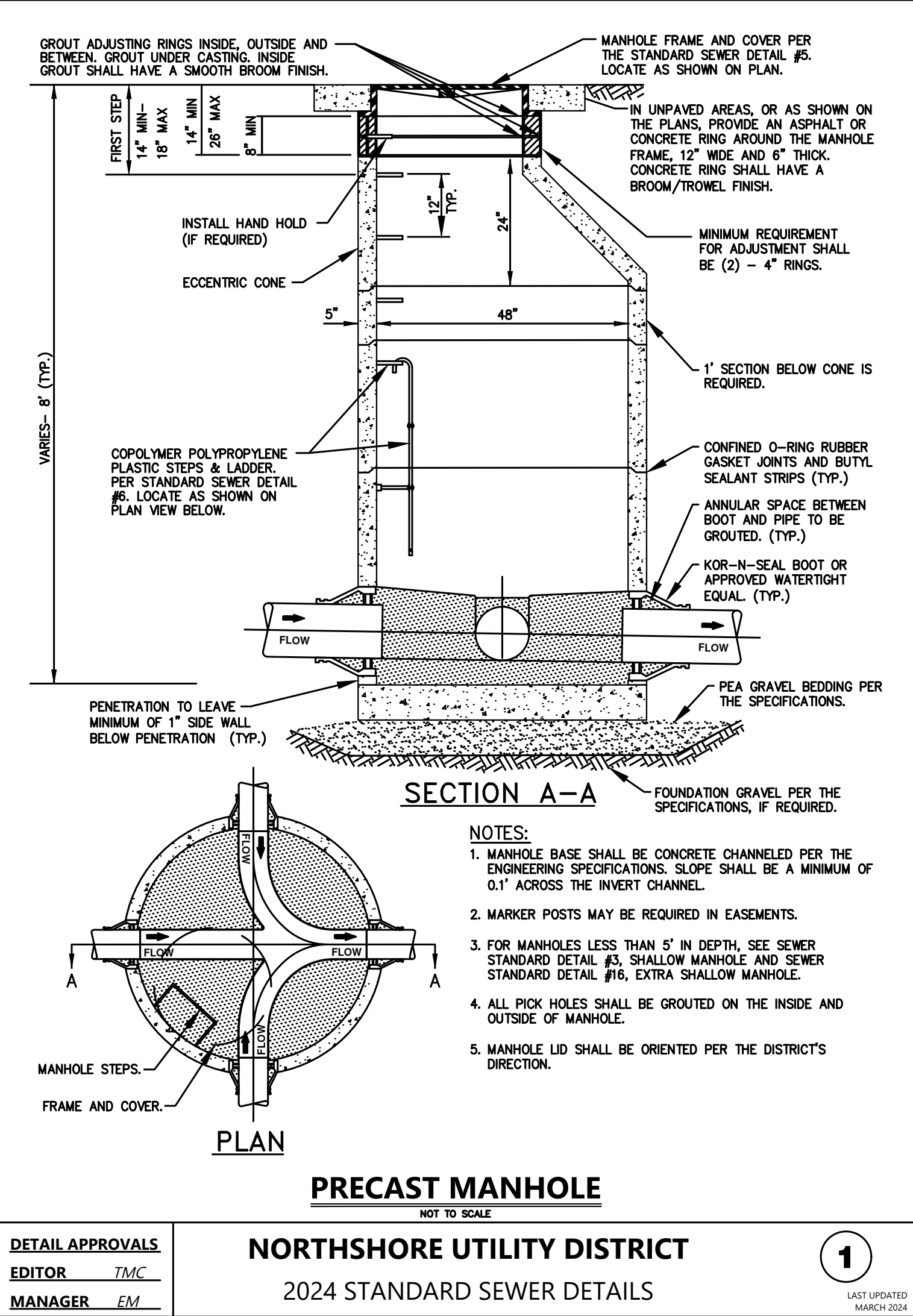
C0948

SHEET

9 OF 16



M:\Northshore\232626 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\DET-SEWER.dwg, 6/24/2025 2:52 PM, DAVID KLATT



NO	BY	APPD	REVISION	DATE

WARNING

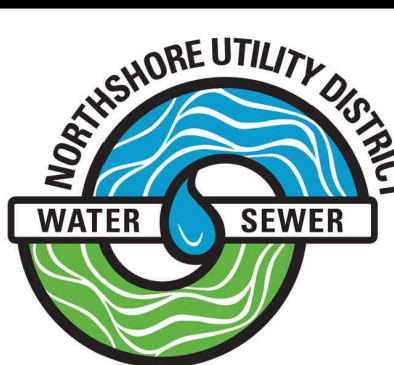
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS

1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

SEWER DETAILS

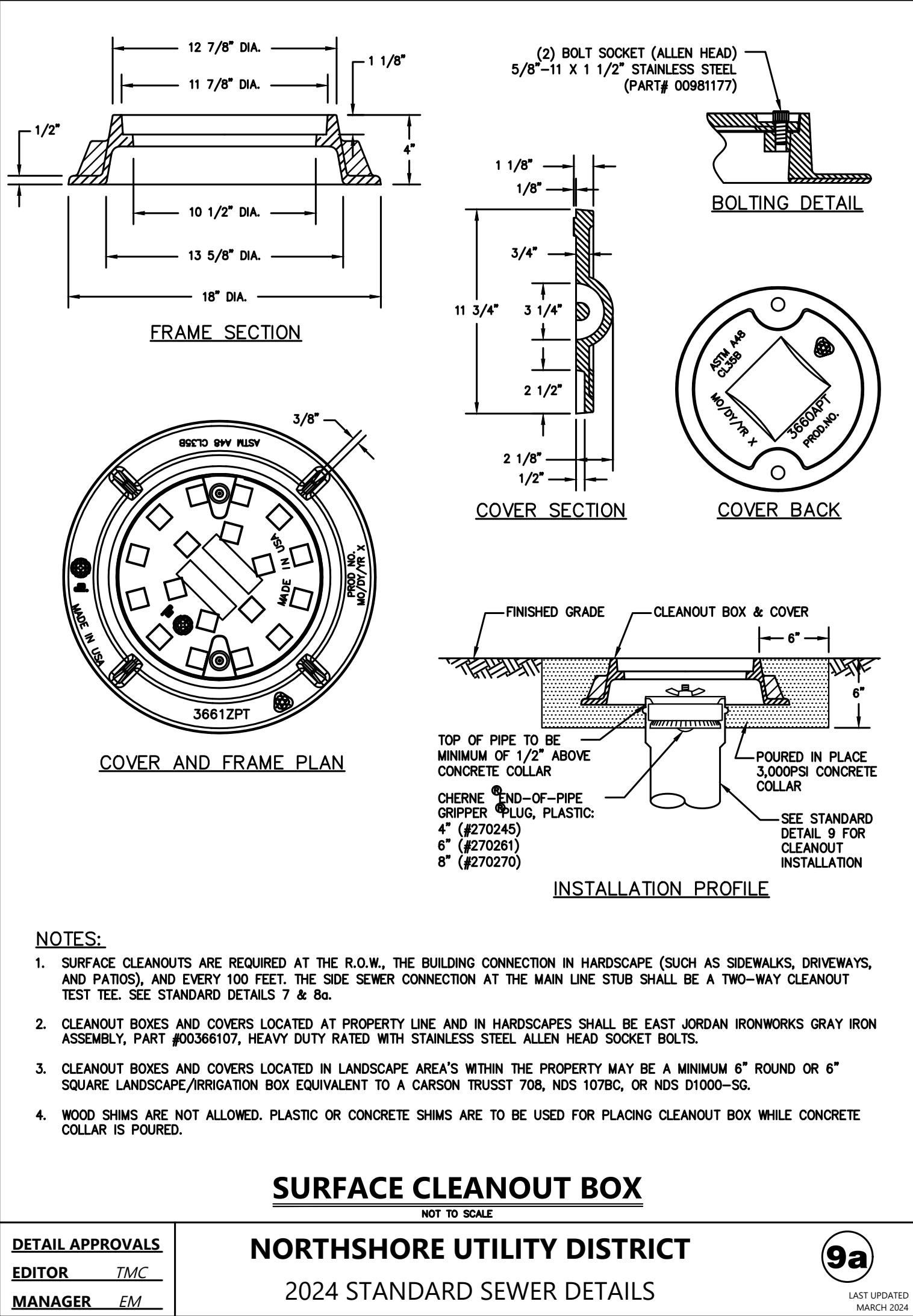
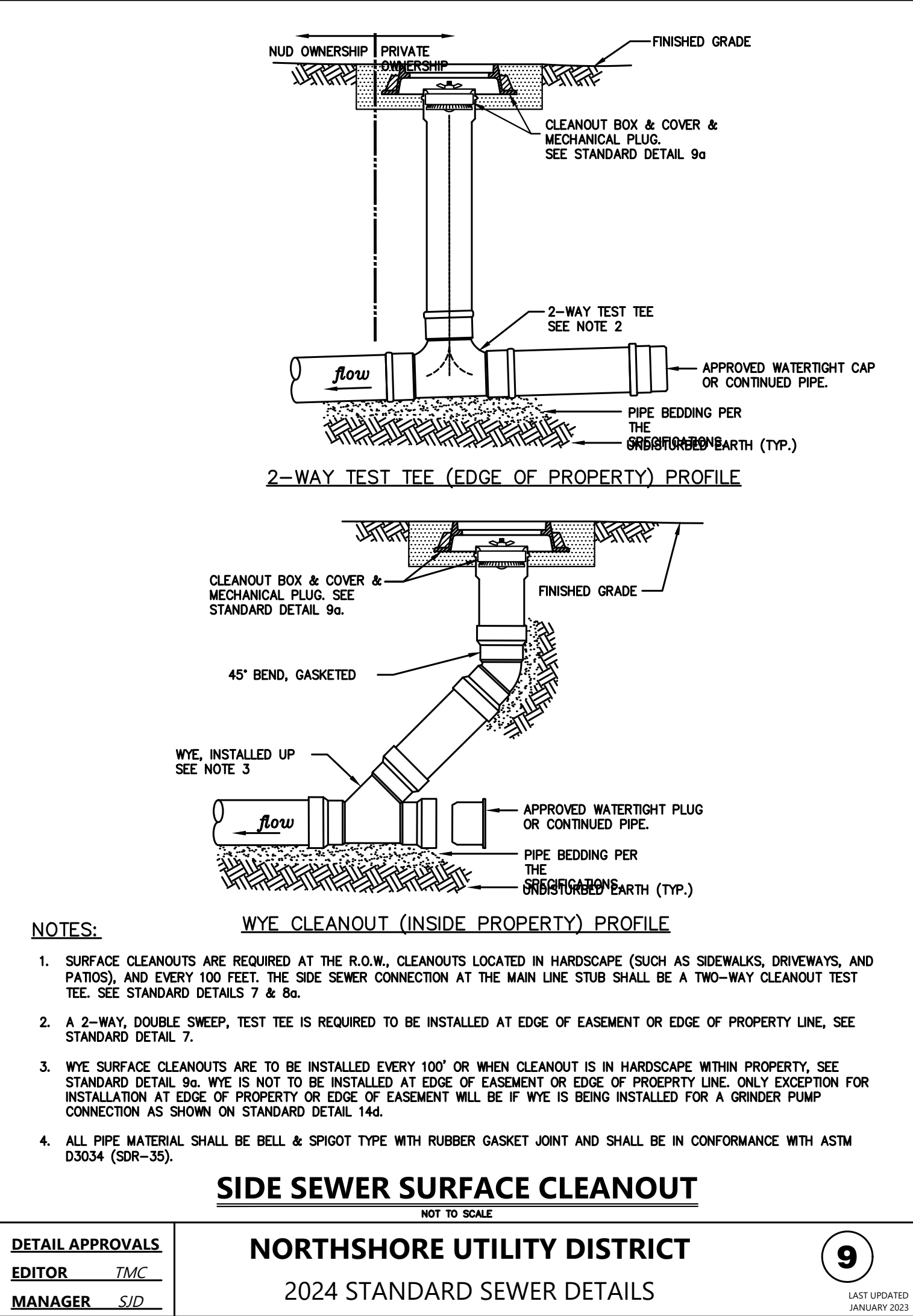
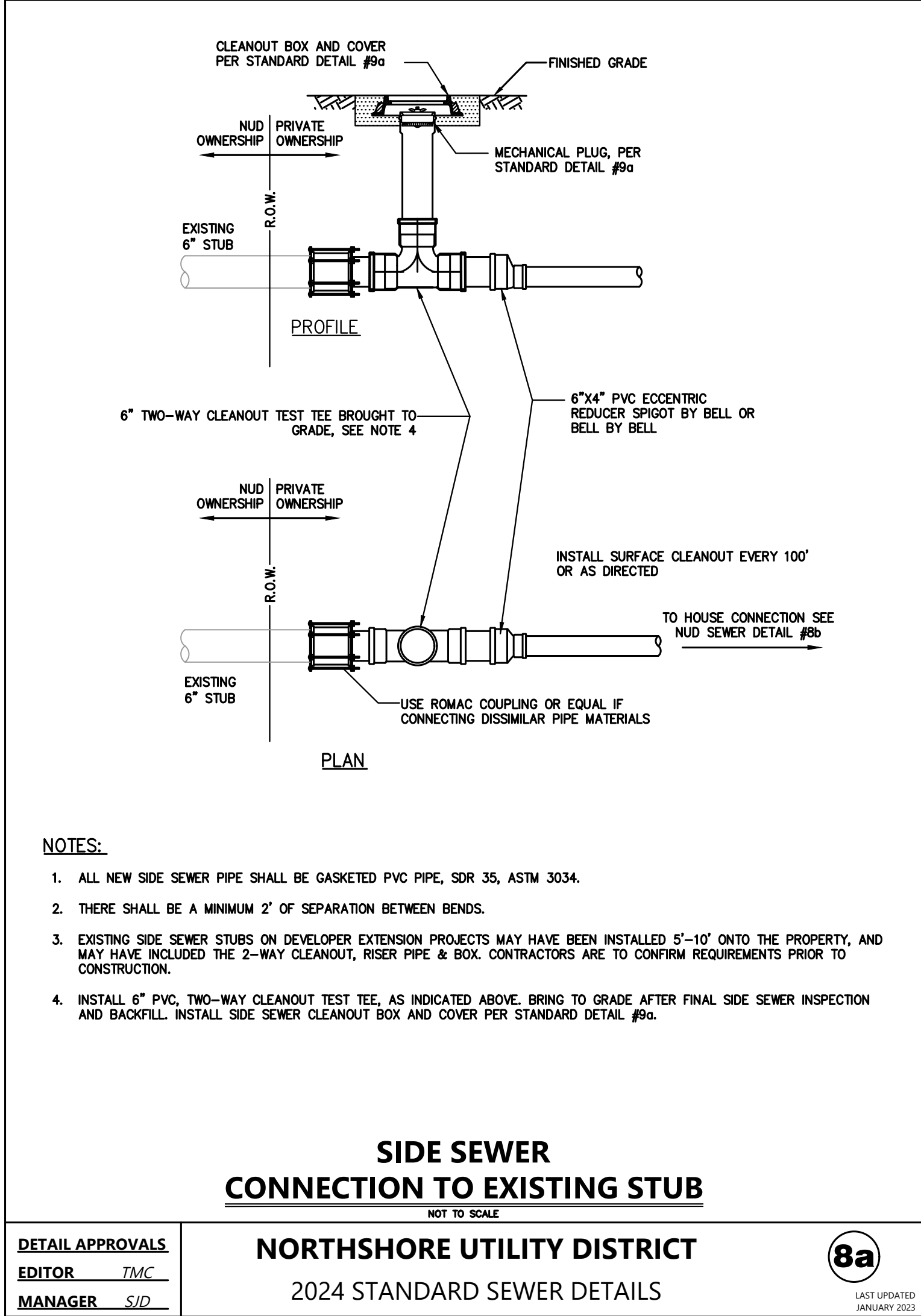
DWG: DET-SEWER

C0948

SHEET

10 OF 16

M:\Northshore\236225 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\DET-SEWER.dwg, 6/24/2025 2:52 PM, DAVID KLATT



NO	BY	APPD	REVISION	DATE

WARNING

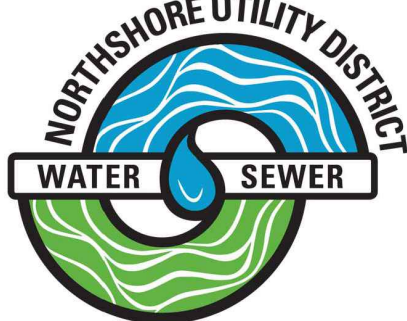
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS

1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

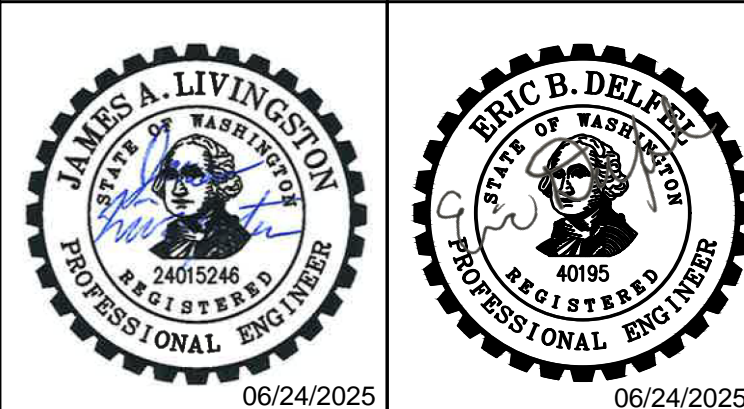
SEWER DETAILS

DWG: DET-SEWER

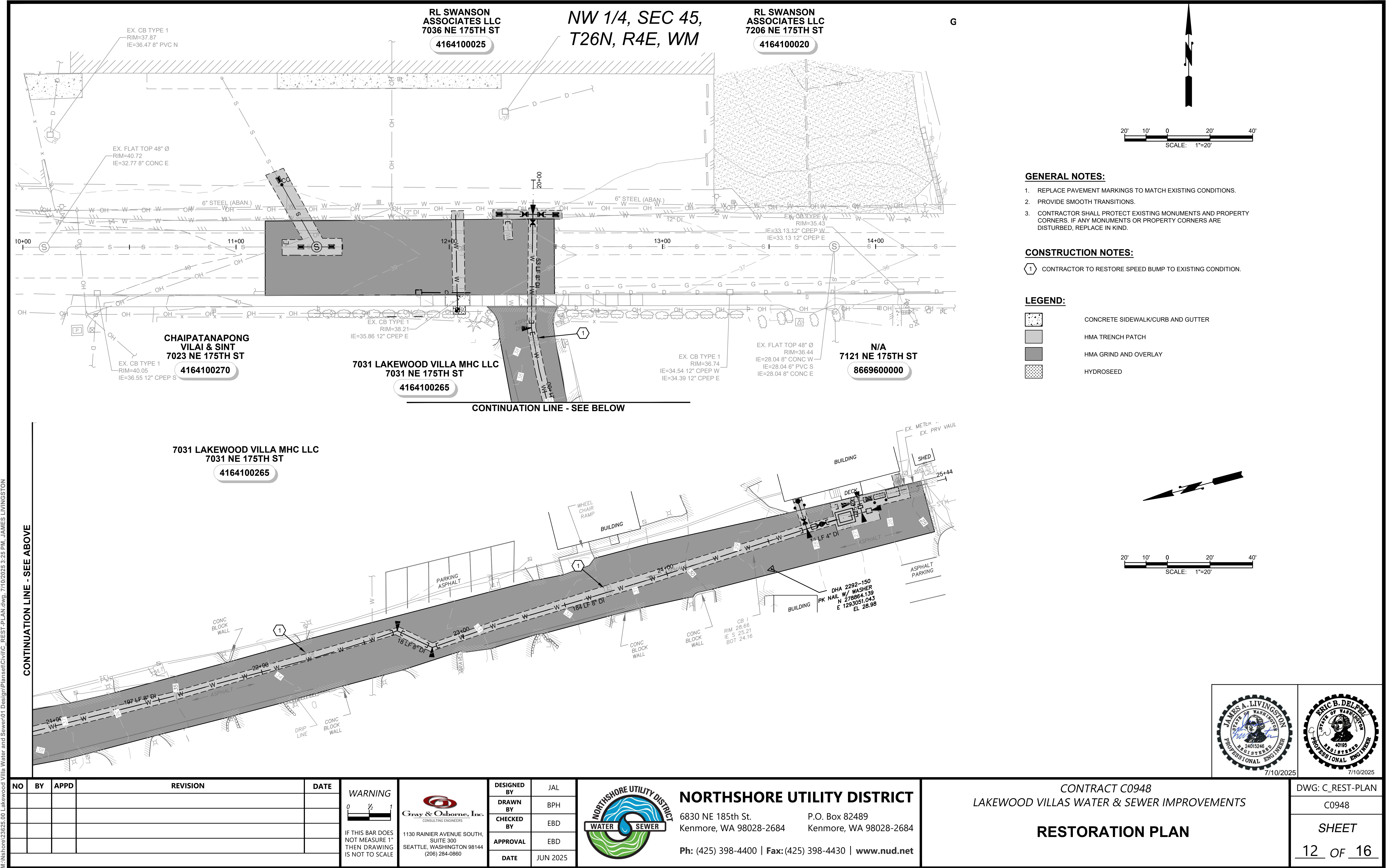
C0948

SHEET

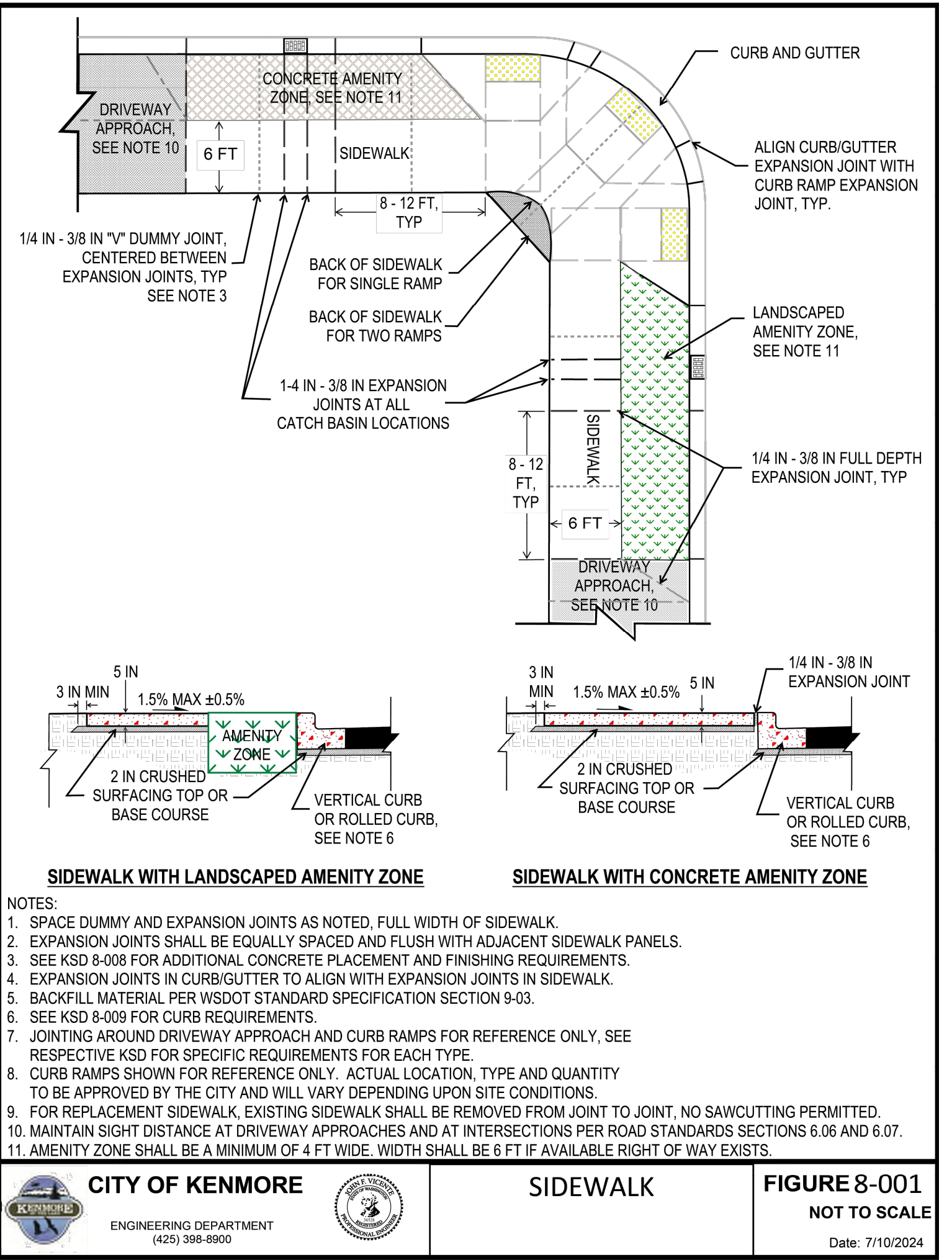
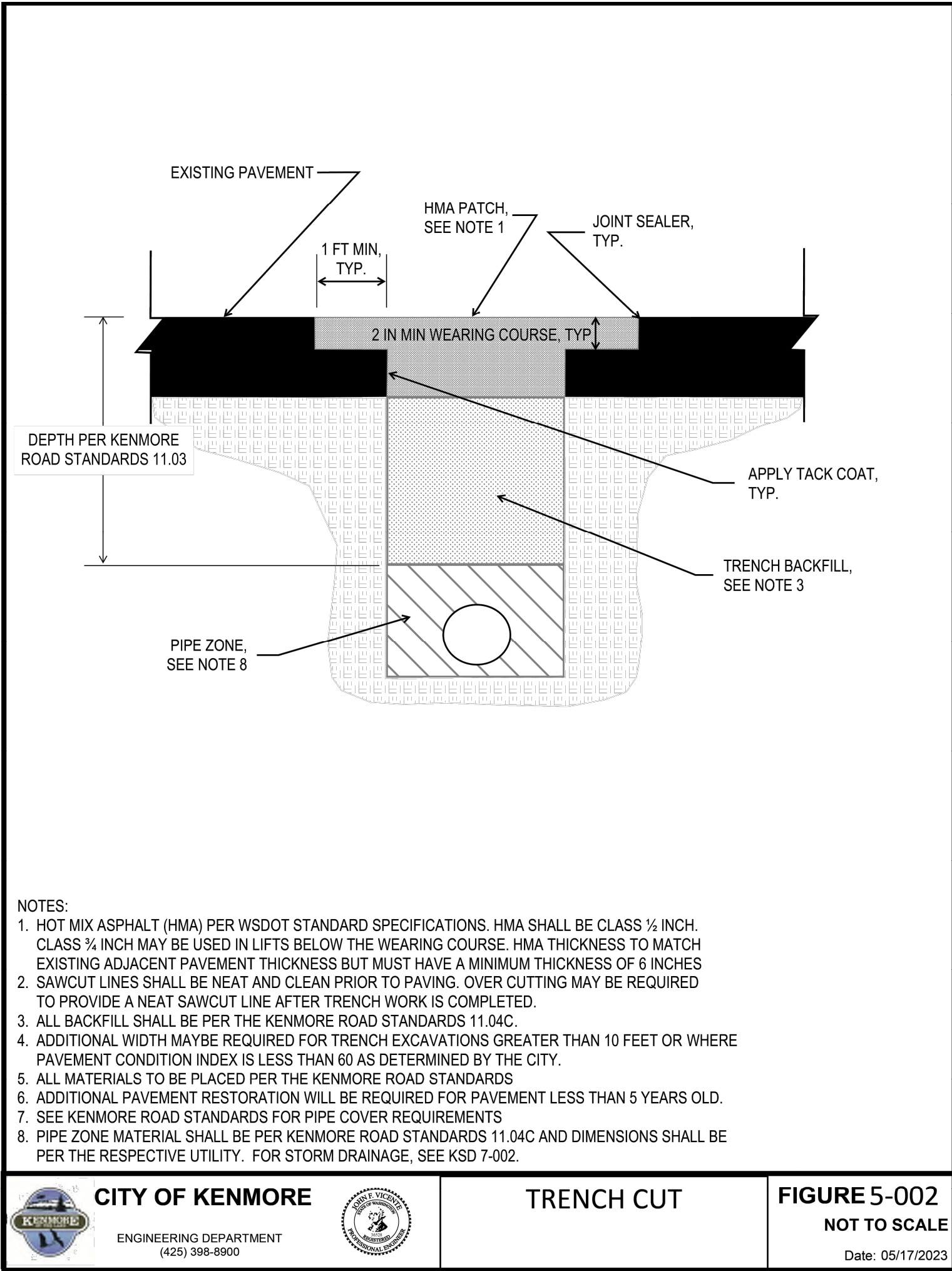
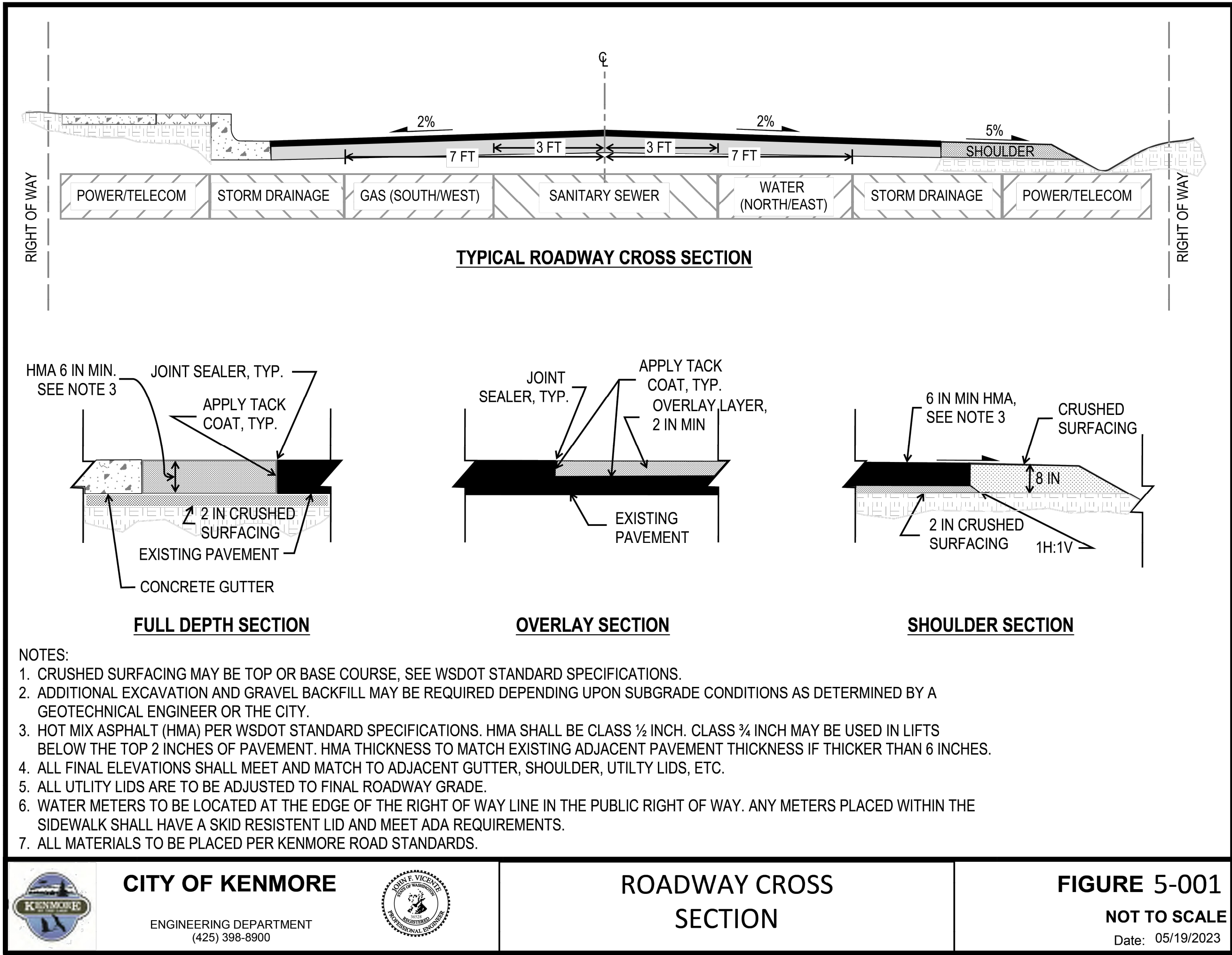
11 OF 16



M:\Northshore\230225 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\1.C. REST-PLAN.dwg, 7/10/2025 3:25 PM, JAMES LIVINGSTON



M:\Northshore\230225 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\DET-REST.dwg, 6/24/2025 2:52 PM, DAVID KLATT



NO	BY	APPD	REVISION	DATE

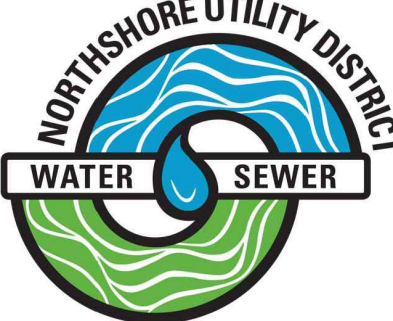
WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS

1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

RESTORATION DETAILS

DWG: DET-REST

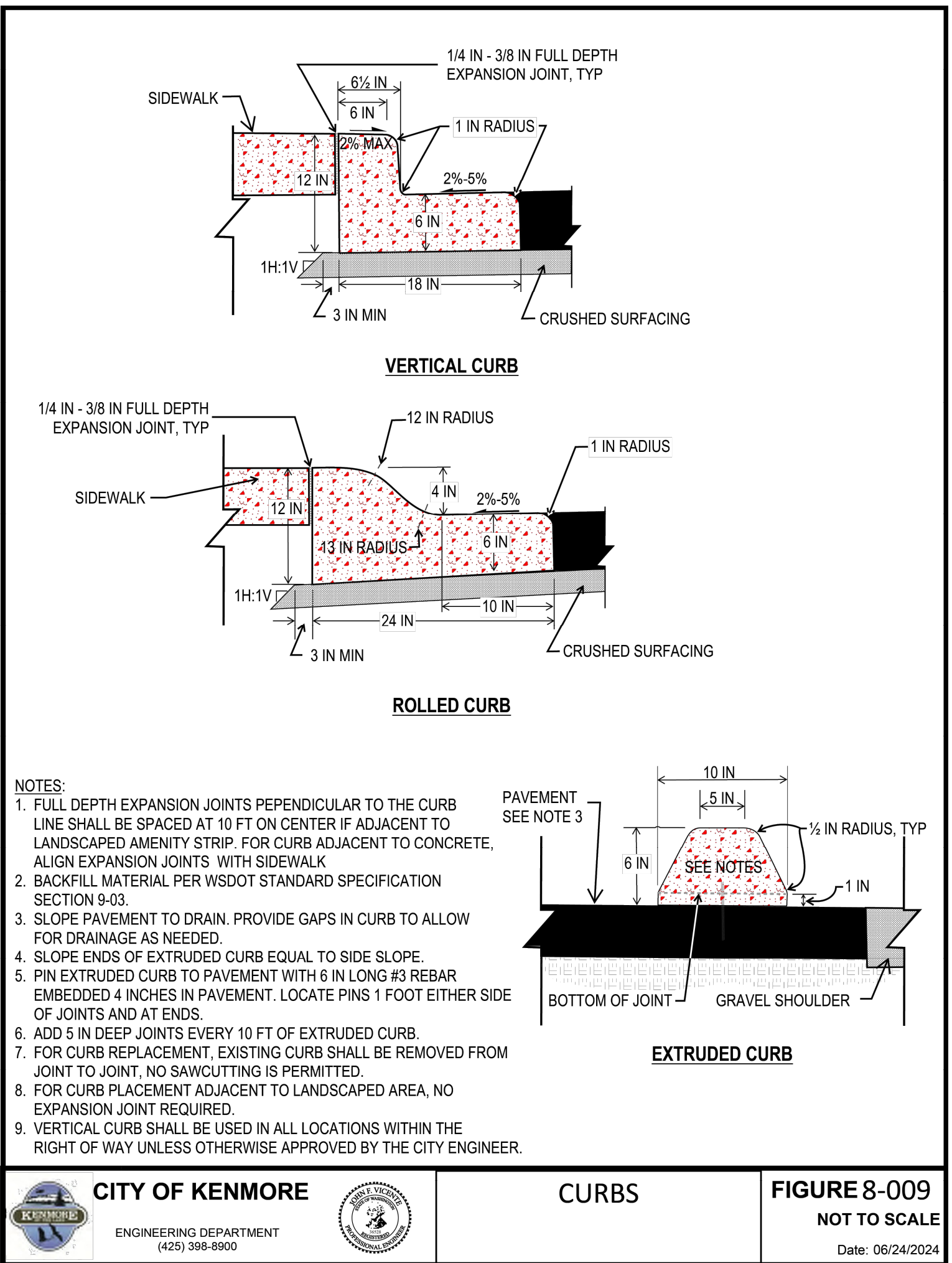
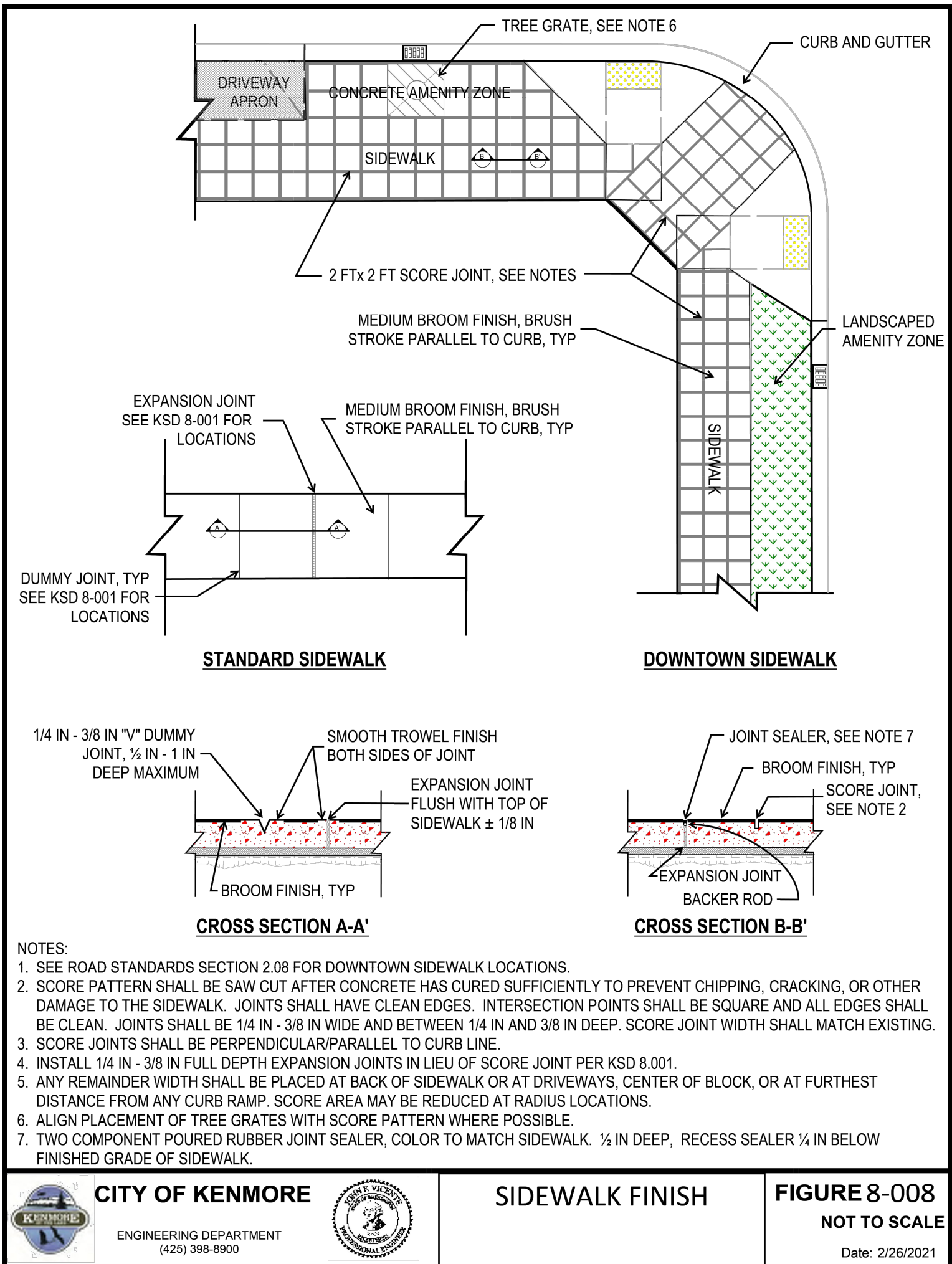
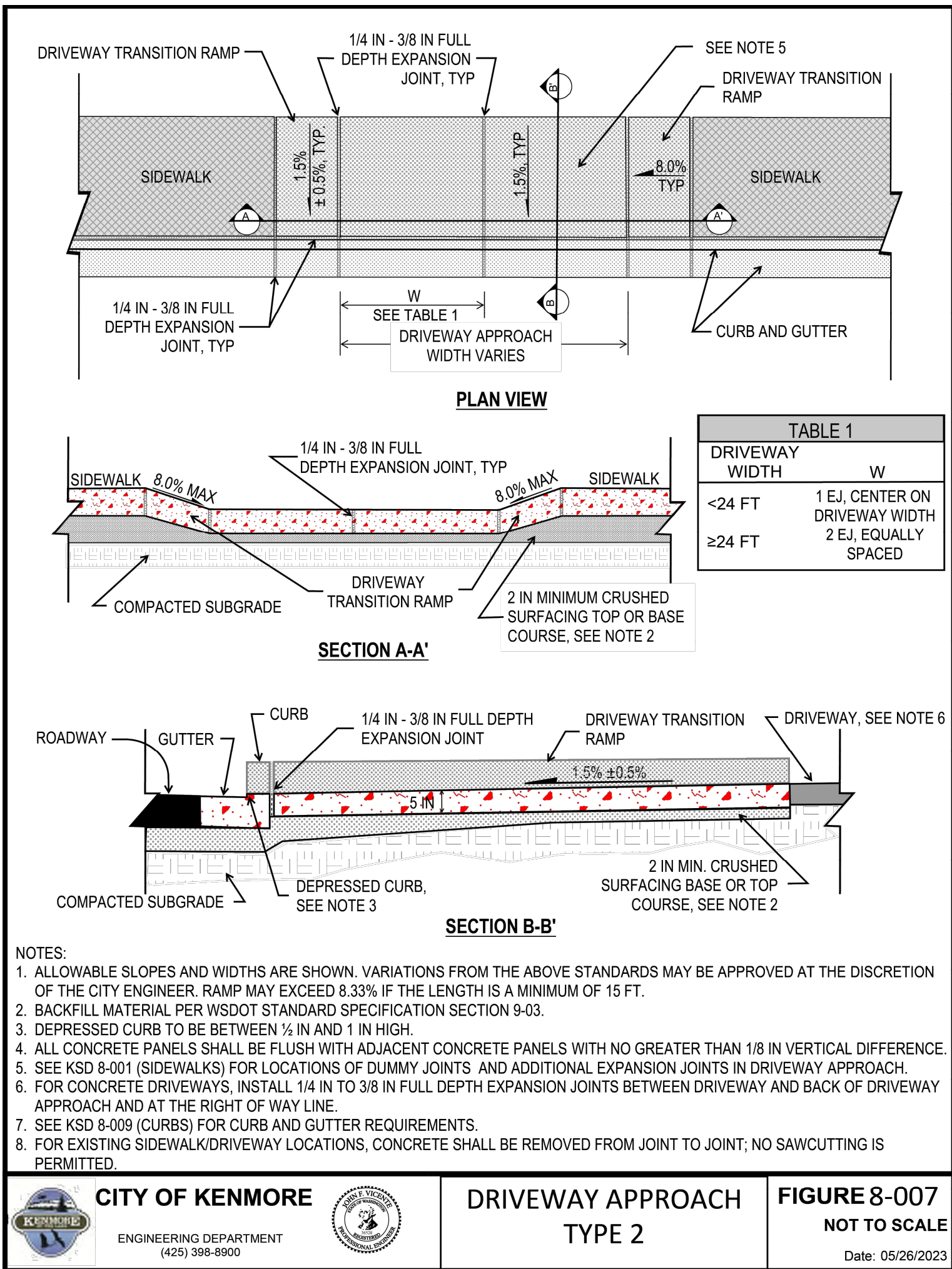
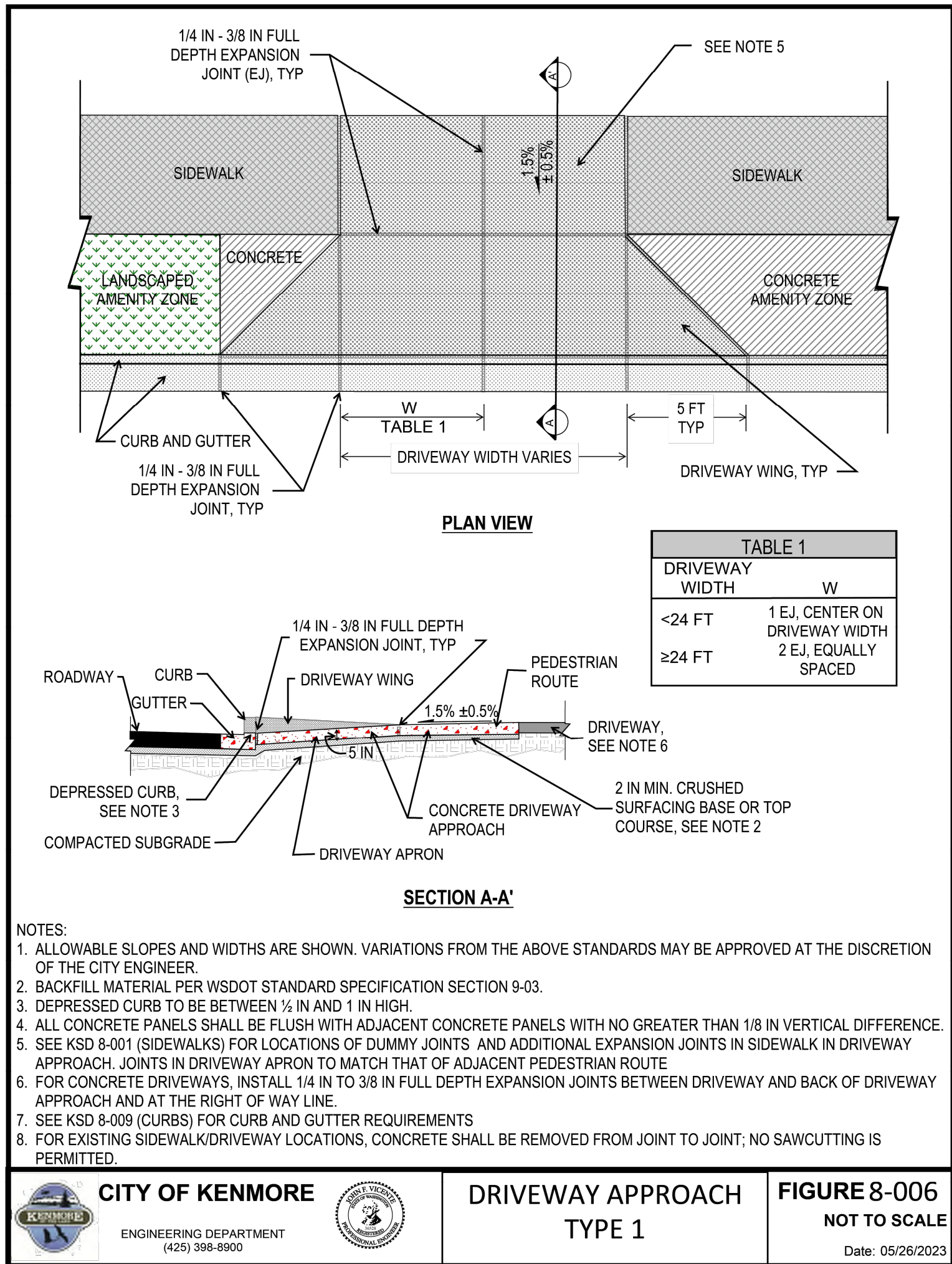
C0948

SHEET

13 OF 16



M:\Northshore\232625 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\DET-REST.dwg, 6/24/2025 2:53 PM, DAVID KLATT



NO	BY	APPD	REVISION	DATE

WARNING

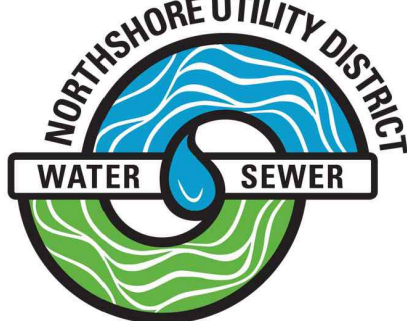
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS

1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	JAL
DRAWN BY	BPH
CHECKED BY	EBD
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

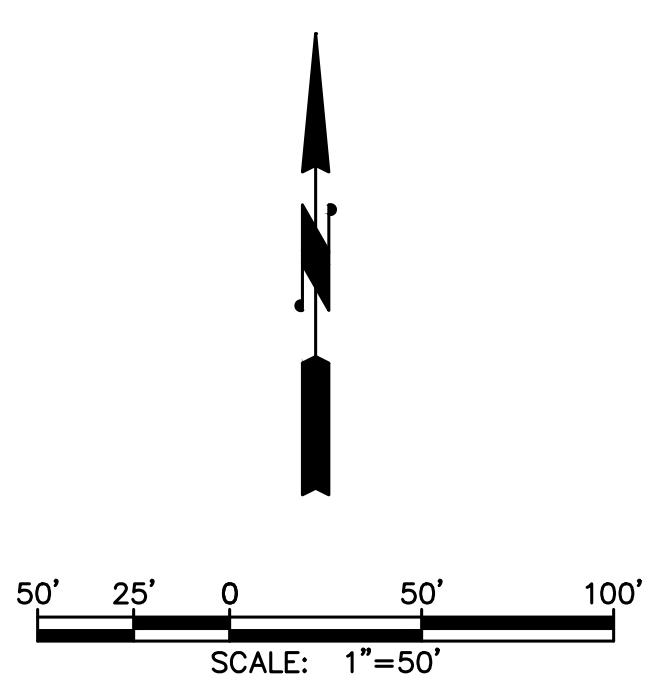
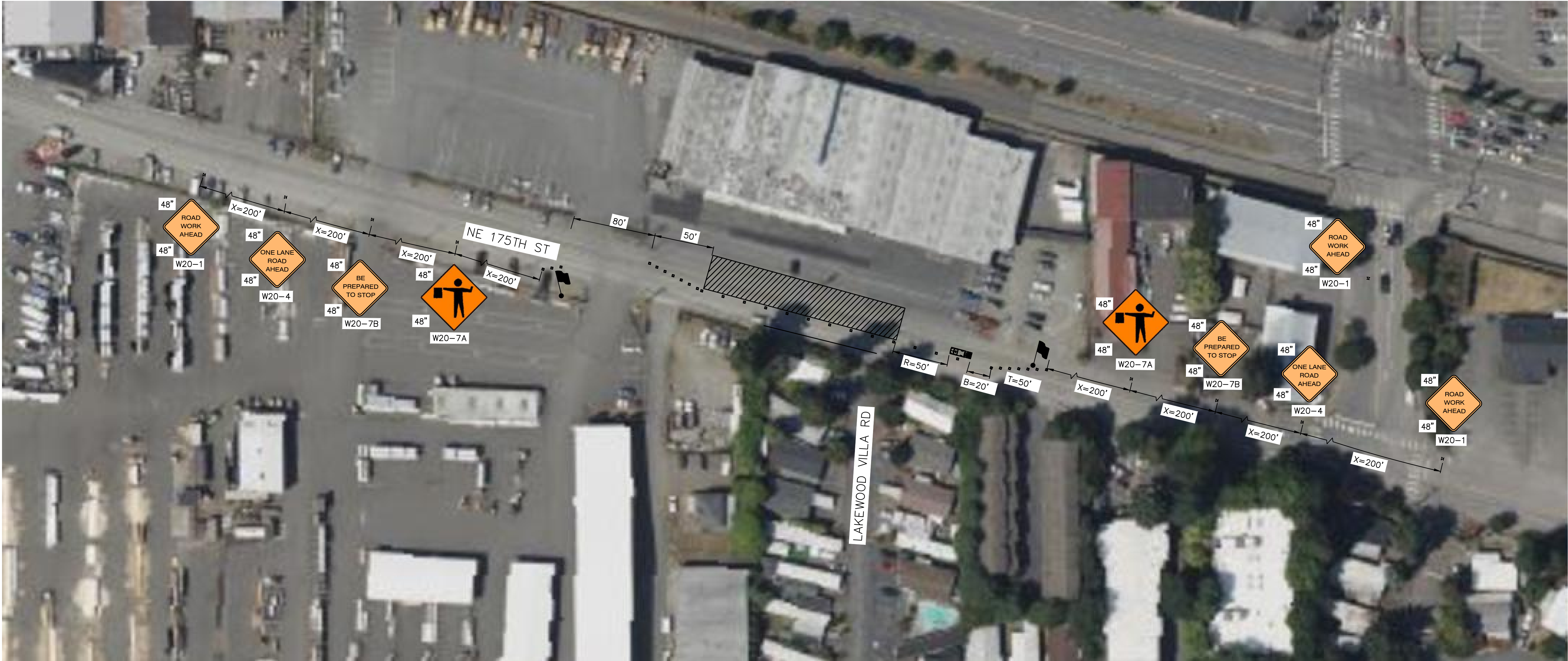
RESTORATION DETAILS

JAMES A. LIVINGSTON
STATE OF WASHINGTON
24015246
REGISTERED PROFESSIONAL ENGINEER
06/24/2025

ERIC B. DELFWA
STATE OF WASHINGTON
40195
REGISTERED PROFESSIONAL ENGINEER
06/24/2025

DWG: DET-REST
C0948
SHEET
14 OF 16

M:\Northshore\230225 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\ITC PLAN.dwg, 6/24/2025 2:53 PM, DAVID KLATT



RECOMMENDED SIGN SPACING = X (1)			
RURAL ROADS & URBAN ARTERIALS	35-40 MPH	350'+/-	
RURAL ROADS & BUSINESS DISTRICTS	25-30 MPH	200'+/-	
URBAN STREETS	25 MPH OR LESS	100'+/-	

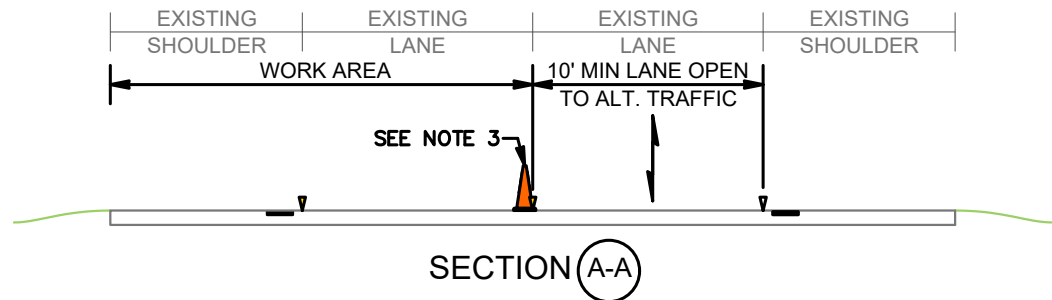
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

OPTIONAL LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	20	25	30	35	40
B (feet)	115	155	200	250	305

Buffer space may be adjusted (+/-) based on field conditions.

LEGEND:	
	TEMPORARY SIGN LOCATION
	28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
	PROTECTIVE VEHICLE (SEE NOTE 2)
	FLAGGER

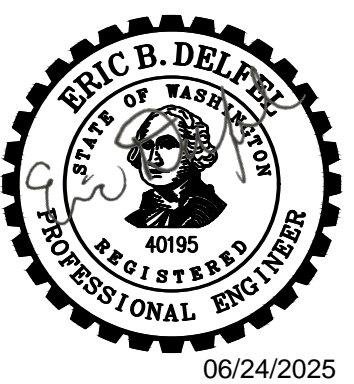
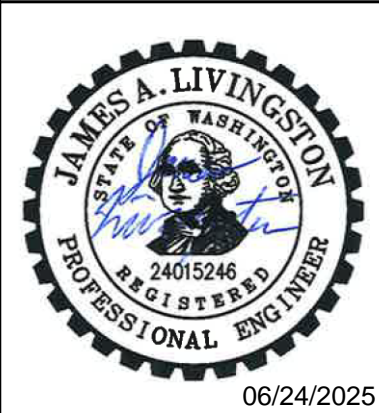
MAXIMUM CHANNELIZATION DEVICE SPACING (feet)			
MPH	TAPER	TANGENT	
35 - 40	10-20	60	
20 - 30	10-20	40	



PROTECTIVE VEHICLE ROLL AHEAD DISTANCE = R
STRATEGICALLY POSITION WORK VEHICLE TO PROTECT WORK CREW.
40' - 80' RECOMMENDED.

NOTES:

1. AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER SPACE.
2. PROTECTIVE VEHICLE MAY ALWAYS BE USED ON ROADWAYS 40 MPH OR LESS, EVEN IF THE LONGITUDINAL BUFFER SPACE IS REDUCED OR ELIMINATED. ADDITIONAL PVs MAY BE ADDED AT SEPARATE WORK CREWS.
3. MAY SHIFT Laterally. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
4. PEDESTRIAN & BICYCLIST ACCOMMODATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES):
(A) ALLOW PEDESTRIANS TO USE THE PAVED SHOULDER OR ADJACENT PATH OPPOSITE THE WORK AREA
(B) COMBINE BIKES & VEHICULAR TRAFFIC. BIKES TO CLEAR PRIOR TO RELEASING ONCOMING TRAFFIC
(C) PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS MAY BE USED)
5. SEE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS:
1-07.8(1) HIGH-VISIBILITY APPAREL
1-10.3(1)A FLAGGERS AND NIGHTTIME ILLUMINATION
1-10.3(2)A TRAFFIC CONTROL PROCEDURES
9-35.1 24-INCH STOP/SLOW PADDLE SIZE
6. FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
7. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
8. ACTUAL CENTERLINE PAVEMENT MARKINGS MAY VARY.



ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED
(40 MPH OR LESS)
NOT TO SCALE

NO	BY	APPD	REVISION	DATE

WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	BJB
DRAWN BY	BJB
CHECKED BY	JAL
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT

6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684

Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS

TRAFFIC CONTROL PLAN

DWG: TC PLAN

C0948

SHEET

15 OF 16

M:\Northshore\238225 00 Lakewood Villa Water and Sewer\01 Design\Plan\set\Civil\TC PLAN 2.dwg, 6/24/2025 2:53 PM, DAVID KLATT

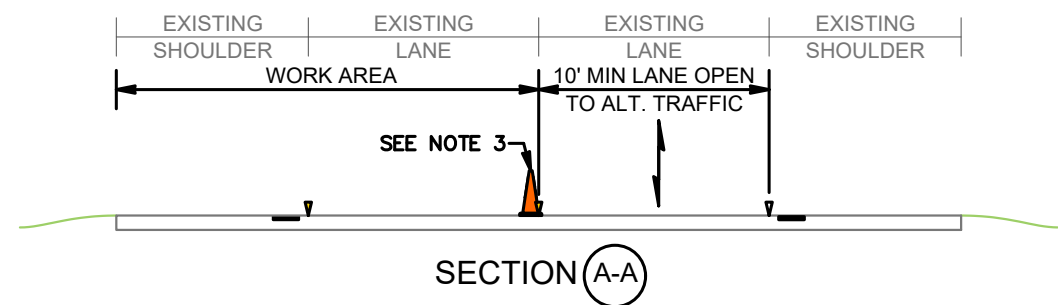


RECOMMENDED SIGN SPACING = X (1)		
RURAL ROADS & URBAN ARTERIALS	35-40 MPH	350'+/-
RURAL ROADS & BUSINESS DISTRICTS	25-30 MPH	200'+/-
URBAN STREETS	25 MPH OR LESS	100'+/-
(1) ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERCHANGE RAMP, AT-GRADE INTERSECTIONS AND DRIVEWAYS.		
(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.		

OPTIONAL LONGITUDINAL BUFFER SPACE = B					
SPEED (MPH)	20	25	30	35	40
B (feet)	115	155	200	250	305
Buffer space may be adjusted (+/-) based on field conditions.					

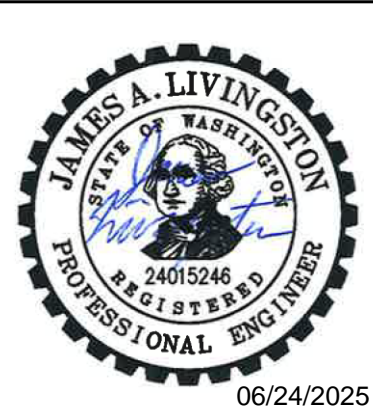
LEGEND:	
	TEMPORARY SIGN LOCATION
	28" REFLECTIVE TRAFFIC CONE (SEE NOTE 3)
	PROTECTIVE VEHICLE (SEE NOTE 2)
	FLAGGER

MAXIMUM CHANNELIZATION DEVICE SPACING (feet)		
MPH	TAPER	TANGENT
35 - 40	10-20	60
20 - 30	10-20	40



PROTECTIVE VEHICLE ROLL AHEAD DISTANCE = R
STRATEGICALLY POSITION WORK VEHICLE TO PROTECT WORK CREW.
40' - 80" RECOMMENDED.

- NOTES:
1. AVOID PLACING LANE CLOSURE TAPERS WITHIN OR IMMEDIATELY FOLLOWING HORIZONTAL & VERTICAL CURVES BY ADJUSTING LONGITUDINAL BUFFER SPACE.
 2. PROTECTIVE VEHICLE MAY ALWAYS BE USED ON ROADWAYS 40 MPH OR LESS, EVEN IF THE LONGITUDINAL BUFFER SPACE IS REDUCED OR ELIMINATED. ADDITIONAL PVs MAY BE ADDED AT SEPARATE WORK CREWS.
 3. MAY SHIFT Laterally. 36" TRAFFIC CONES, 42" TALL CHANNELIZATION DEVICES, OR TRAFFIC SAFETY DRUMS OK.
 4. PEDESTRIAN & BICYCLIST ACCOMMODATIONS (ENGINEER TO ACCEPT ANY ALTERNATIVE STRATEGIES):
(A) ALLOW PEDESTRIANS TO USE THE PAVED SHOULDER OR ADJACENT PATH OPPOSITE THE WORK AREA
(B) COMBINE BIKES & VEHICULAR TRAFFIC. BIKES TO CLEAR PRIOR TO RELEASING ONCOMING TRAFFIC
(C) PROVIDE FREE SHUTTLE (WORK TRUCK, VAN, OR BUS MAY BE USED)
 5. SEE STANDARD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS:
1-07.8(1) HIGH-VISIBILITY APPAREL
1-10.3(1)A FLAGGERS AND NIGHTTIME ILLUMINATION
1-10.3(2)A TRAFFIC CONTROL PROCEDURES
9-35.1 24-INCH STOP/SLOW PADDLE SIZE
 6. FOR PROJECT-SPECIFIC REQUIREMENTS, SEE SPECIAL PROVISIONS.
 7. SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE INDICATED.
 8. ACTUAL CENTERLINE PAVEMENT MARKINGS MAY VARY.



ALTERNATING 1-LANE, 2-WAY TRAFFIC: FLAGGER-CONTROLLED
(HIGHWAYS, 40 MPH OR LESS)
NOT TO SCALE

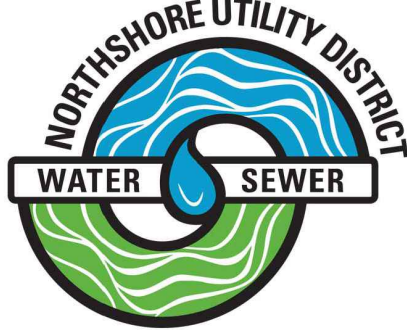
NO	BY	APPD	REVISION	DATE

WARNING

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Gray & Osborne, Inc.
CONSULTING ENGINEERS
1130 RAINIER AVENUE SOUTH,
SUITE 300
SEATTLE, WASHINGTON 98144
(206) 284-0860

DESIGNED BY	BJB
DRAWN BY	BJB
CHECKED BY	JAL
APPROVAL	EBD
DATE	JUN 2025



NORTHSHORE UTILITY DISTRICT
6830 NE 185th St. P.O. Box 82489
Kenmore, WA 98028-2684 Kenmore, WA 98028-2684
Ph: (425) 398-4400 | Fax: (425) 398-4430 | www.nud.net

CONTRACT C0948
LAKEWOOD VILLAS WATER & SEWER IMPROVEMENTS
TRAFFIC CONTROL PLAN

DWG: TC PLAN 2
C0948
SHEET
16 OF 16