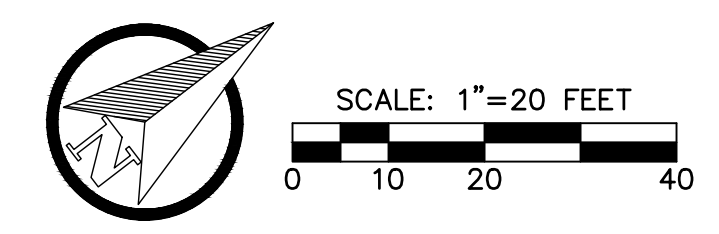
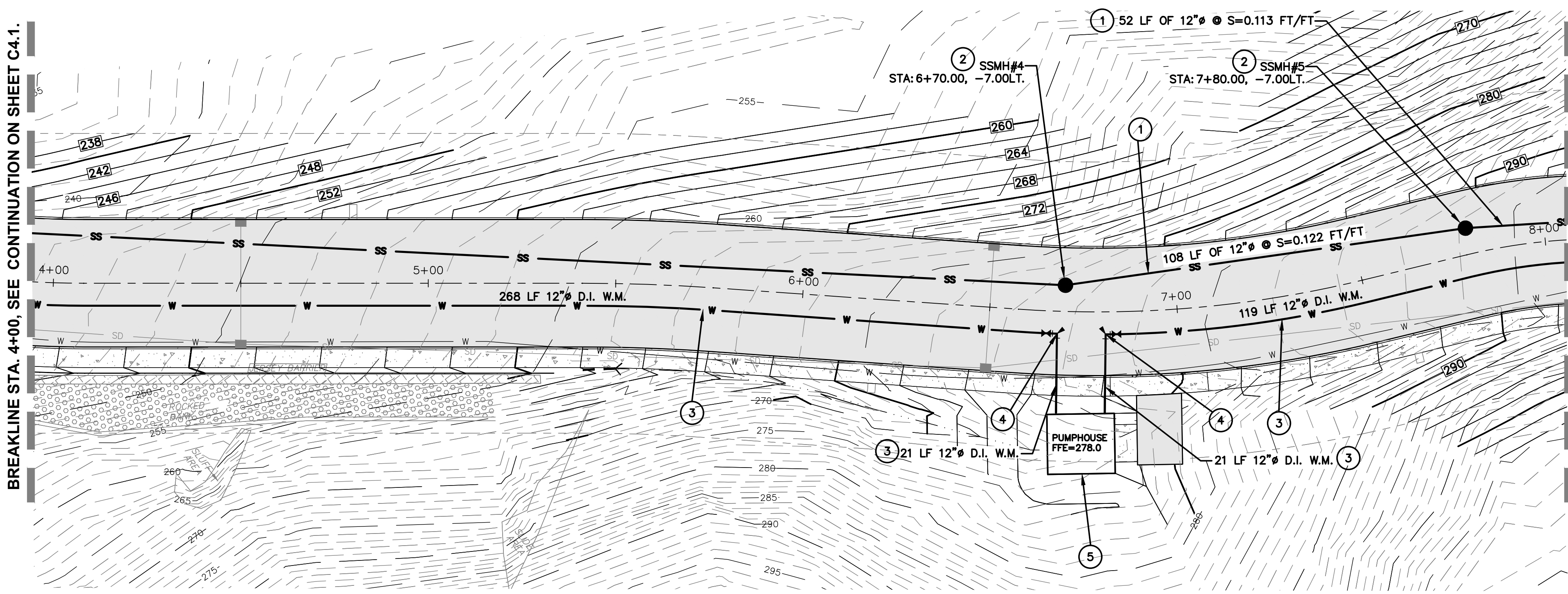


BREAKLINE STA. 4+00, SEE CONTINUATION ON SHEET C4.1.

BREAKLINE STA. 8+00, SEE CONTINUATION ON SHEET C4.3.



SEWER CONSTRUCTION NOTES:

- INSTALL NEW SDR 35 PVC SEWER MAIN PER PLAN AND PROFILE. BACKFILL TRENCH PER STD. DETAIL ON SHEET C4.6.
- INSTALL NEW SSMH PER PLAN AND PROFILE. SEE STD. DETAILS ON SHEET C4.5.

GENERAL SEWER NOTES:

ALL NEW SANITARY SEWER MANHOLES SHALL BE VACUUM TESTED PER REVIEW AGENCY STANDARDS.

ALL NEW GRAVITY SEWER MAINS SHALL BE FLUSHED VIA JETTING, PRESSURE TESTED AND TVD PER REVIEW AGENCY STANDARDS. PROVIDE AGENCY AND ENGINEER WITH TV RESULTS.

SEPARATION NOTE:

MAINTAIN 18" MINIMUM VERTICAL SEPARATION BETWEEN WATER LINES AND SANITARY SEWER LINES.

WHERE VERTICAL SEPARATION IS LESS THAN 18" BETWEEN WATER LINES AND SEWER LINES, SLEEVE WATER LINES WITH A 20' LENGTH OF DUCTILE IRON PIPE WITH ENDS EQUAL DISTANCE FROM CROSSING.

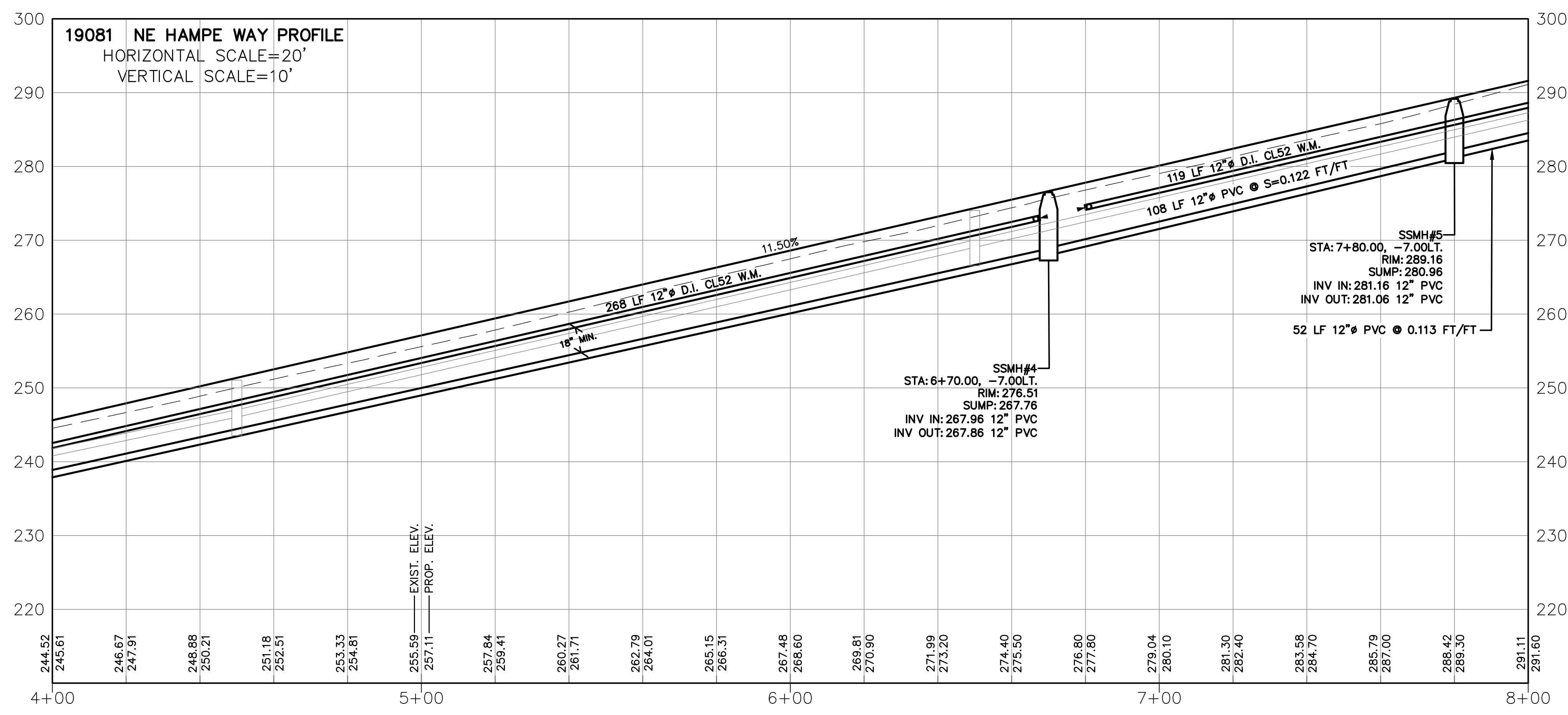
PROVIDE SAND CUSHION BETWEEN PIPES THAT HAVE LESS THAN 8" OF SEPARATION.

WATER CONSTRUCTION NOTES:

- INSTALL NEW 12" DUCTILE IRON CLASS 52 WATER MAIN PER PLAN AND PROFILE. BACKFILL TRENCH PER DETAIL ON C4.6.
- STA. 6+68, 6' RT
STA. 6+81, 6' RT
INSTALL NEW WATER MAIN FITTING.
1-12" 90° BEND (MJ)
1-12" GATE VALVE AND BOX
1-CONC. THRUST BLOCK
- STA. 6+75, 35' RT
CONSTRUCT NEW BOOSTER PUMP.
SEE DESIGN SPECIFICATIONS BY OTHERS.

WATER GENERAL NOTES:

ALL WATER MAIN SHALL BE INSTALLED WITH TRACER TAPE AND LOCATE WIRE.



NO.	DATE	REVISION

DESIGNED BY: RWB
DRAWN BY: ALE
CHECKED BY: RWB
DATE: 08/29/2023
SCALE: 1" = 20'

HAMPE WAY ROAD AND UTILITY

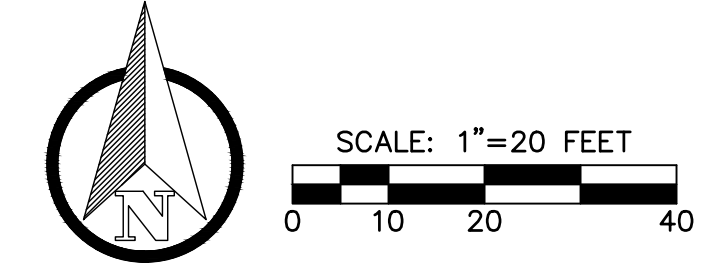
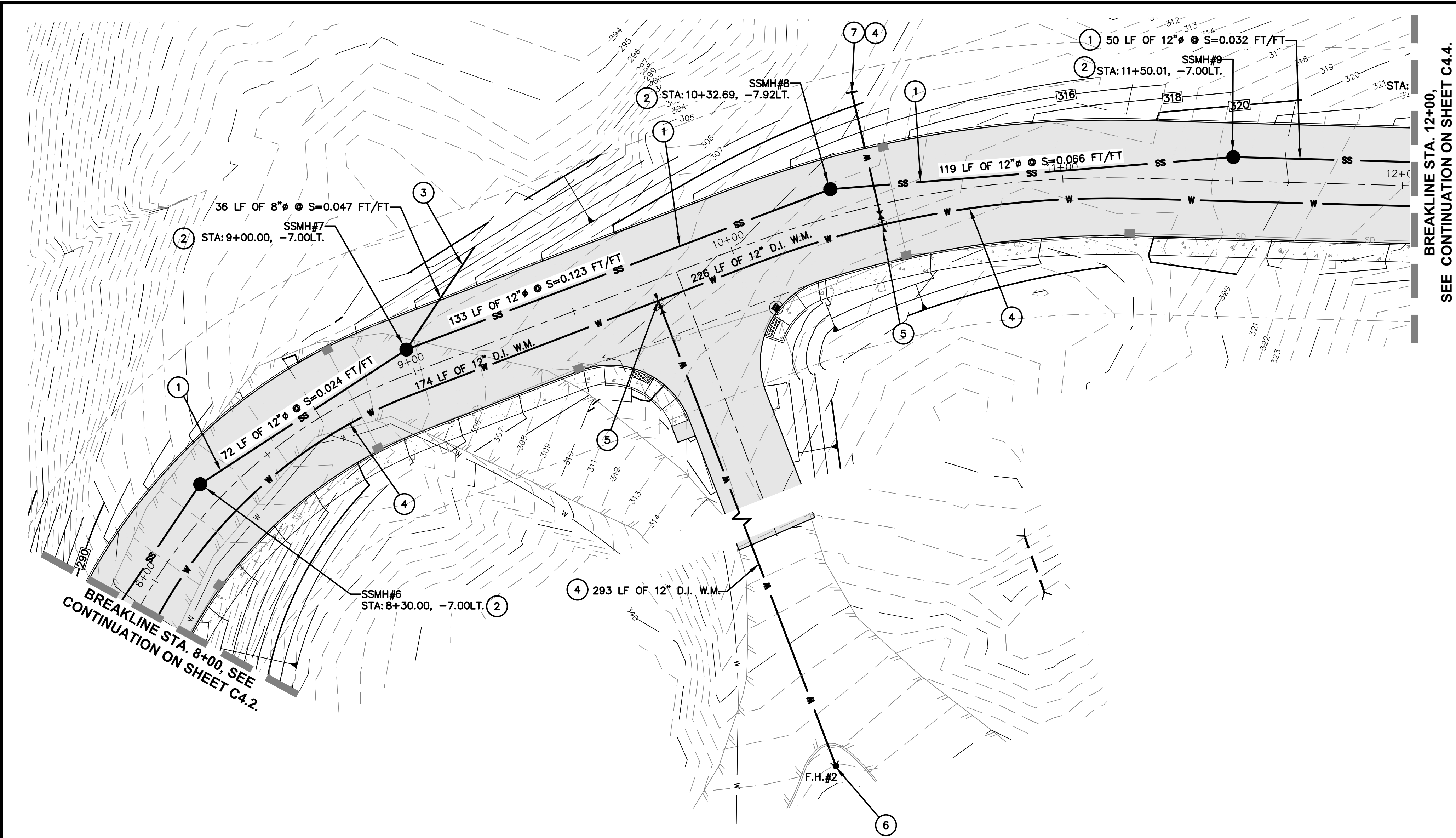
SEWER AND WATER MAIN PLAN AND PROFILE

CHEHALIS WA.

RB Engineering
DESIGN → PERMIT → MANAGE
P.O. Box 923
CHEHALIS, WA 98532
OFF: (360) 740-8819
EMAIL: info@rbengineers.com

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JOB NUMBER: 19081
DRAWING NAME: 19081_4.2_SWPP2
C4.2
17 OF 24



SEWER CONSTRUCTION NOTES:

- 1 INSTALL NEW SDR 35 PVC SEWER MAIN PER PLAN AND PROFILE. BACKFILL TRENCH PER STD. DETAIL ON SHEET C4.6.
- 2 INSTALL NEW SSMH PER PLAN AND PROFILE. SEE STD. DETAIL ON SHEET C4.5.
- 3 INSTALL SEWER STUB AND CAP FOR FUTURE DEVELOPMENT PER PLAN AND PROFILE.

GENERAL SEWER NOTES:

ALL NEW SANITARY SEWER MANHOLES SHALL BE VACUUM TESTED PER REVIEW AGENCY STANDARDS.

ALL NEW GRAVITY SEWER MAINS SHALL BE FLUSHED VIA JETTING, PRESSURE TESTED AND TV'D PER REVIEW AGENCY STANDARDS. PROVIDE AGENCY AND ENGINEER WITH TV RESULTS.

SEPARATION NOTE:

MAINTAIN 18" MINIMUM VERTICAL SEPARATION BETWEEN WATER LINES AND SANITARY SEWER LINES.

WHERE VERTICAL SEPARATION IS LESS THAN 18" BETWEEN WATER LINES AND SEWER LINES, SLEEVE WATER LINES WITH A 20' LENGTH OF DUCTILE IRON PIPE WITH ENDS EQUAL DISTANCE FROM CROSSING.

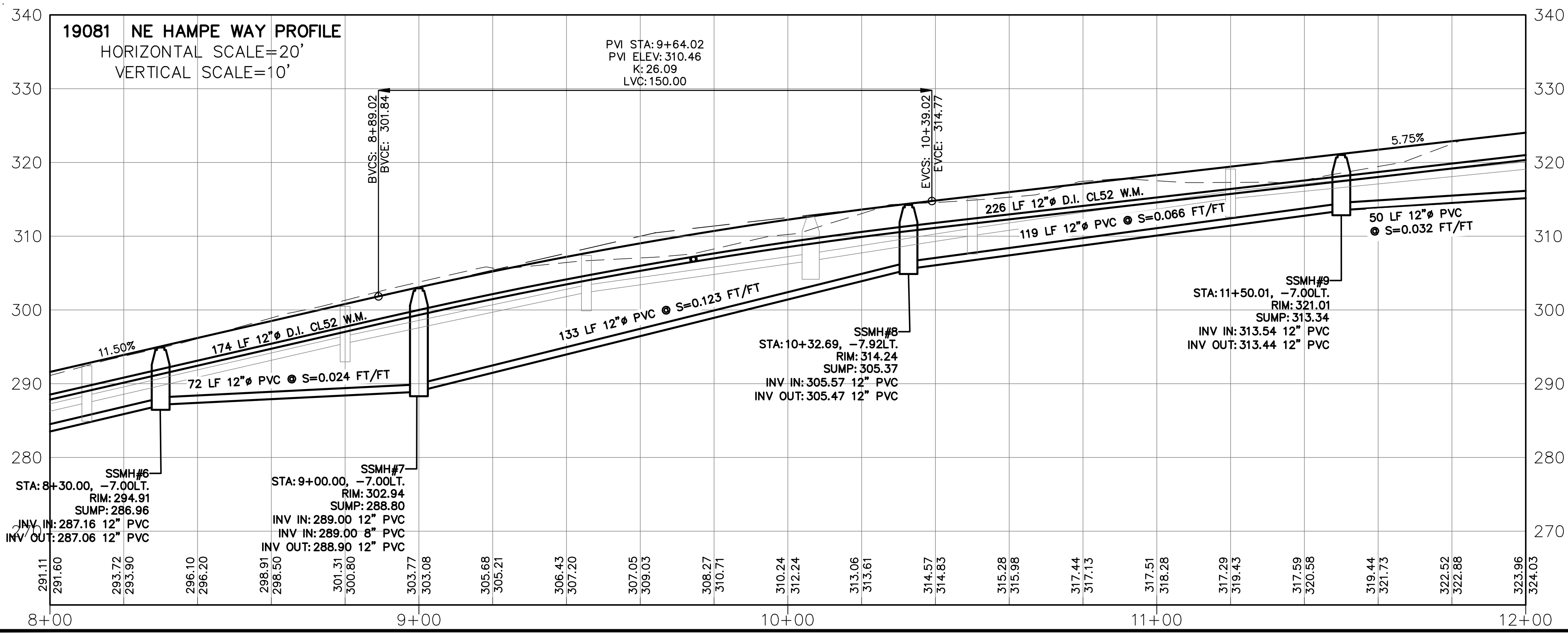
PROVIDE SAND CUSHION BETWEEN PIPES THAT HAVE LESS THAN 8" OF SEPARATION.

WATER CONSTRUCTION NOTES:

- 4 INSTALL NEW 12" DUCTILE IRON CLASS 52 WATER MAIN PER PLAN AND PROFILE. BACKFILL TRENCH PER DETAIL ON C4.6.
- 5 STA. 9+74.40, 6' RT
STA. 10+45, 6' RT
INSTALL NEW WATER MAIN TEE AND GATE VALVE. PER DETAIL ON SHEET C4.6.
1-12" GATE VALVE AND BOX (MJXFL)
1-12" TEE (MJXFLXFL)
1-CONC. THRUST BLOCK
- 6 STA. 9+74.40, 299' RT FH#2
INSTALL NEW FIRE HYDRANT ASSEMBLY PER PLAN AND STD. DETAIL ON SHEET C4.6.
1-FIRE HYDRANT ASSEMBLY
1-CONC. THRUST BLOCK
- 7 PROVIDE 40 LF OF 12" PIPE STUB-OUT FOR FUTURE DEVELOPMENT.

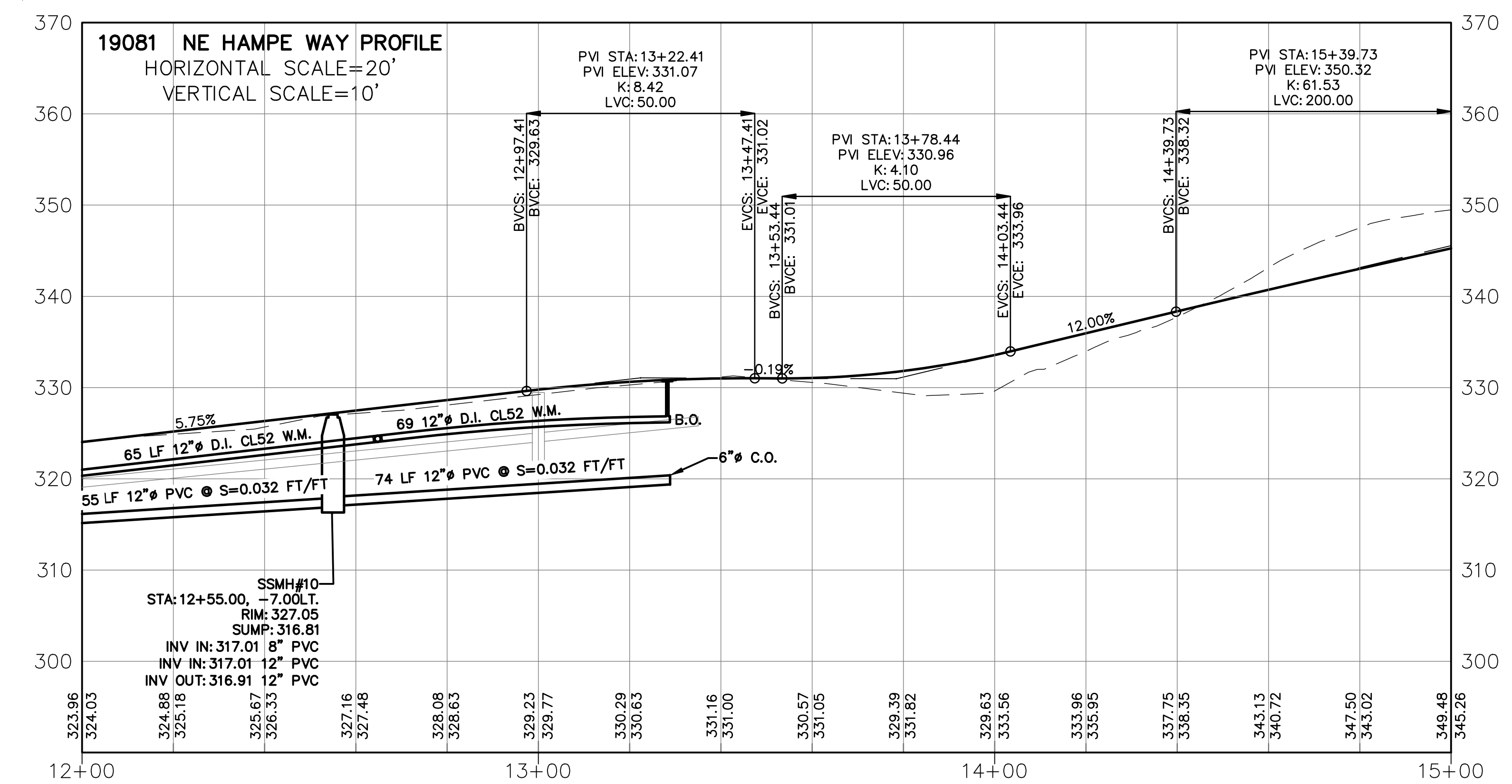
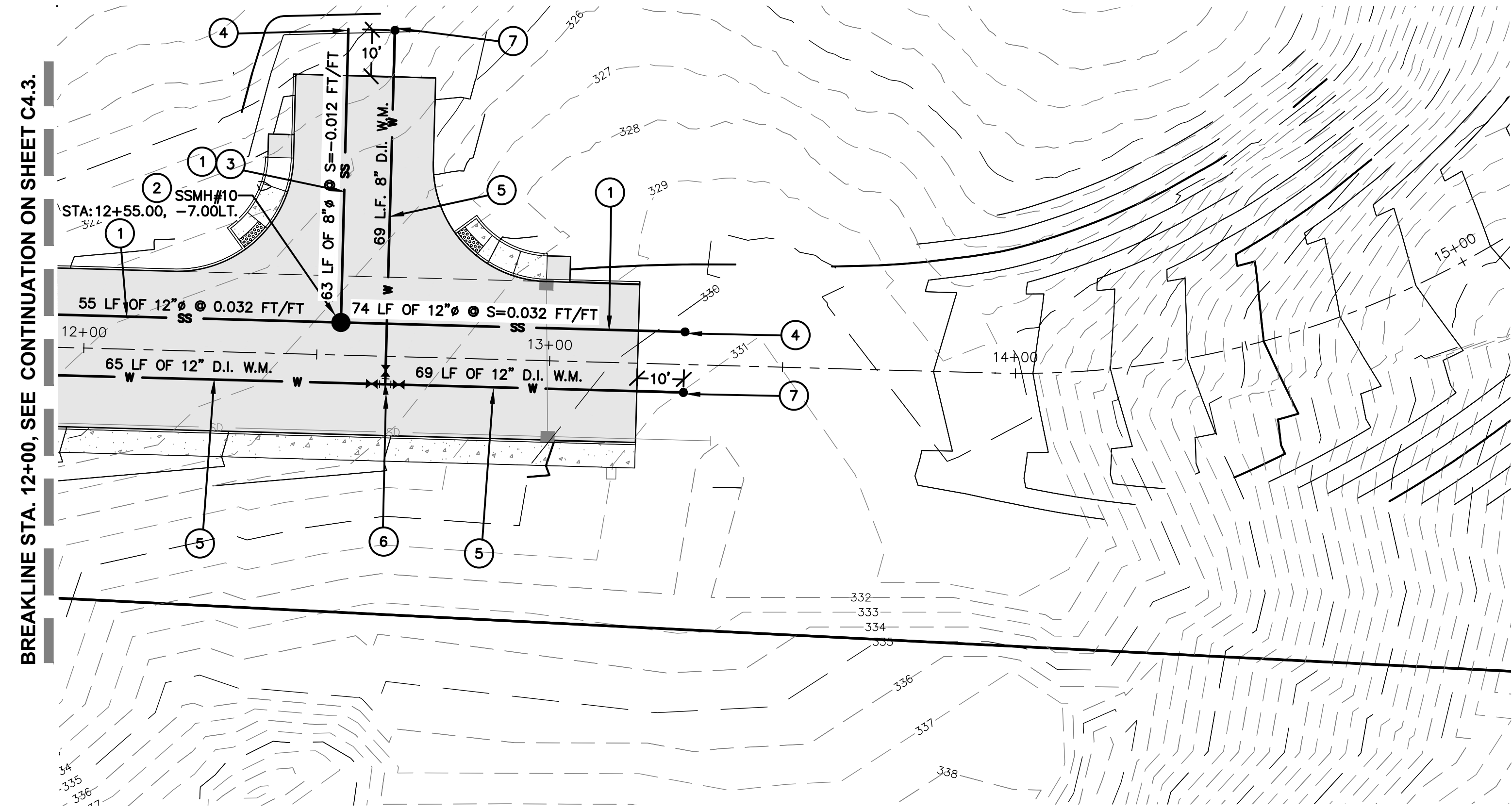
WATER GENERAL NOTES:

ALL WATER MAIN SHALL BE INSTALLED WITH TRACER TAPE AND LOCATE WIRE.



NO.	DATE	REVISION
DESIGNED BY: RWB		
DRAWN BY: ALE		
CHECKED BY: RWB		
DATE: 08/29/2023		
SCALE: 1" = 20'		

WA.
CHEHALIS
HAMPE WAY ROAD AND UTILITY
SEWER AND WATER MAIN PLAN AND PROFILE
ROBERT W. BAUMANN
REGISTERED PROFESSIONAL ENGINEER
RB Engineering
DESIGN → PERMIT → MANAGE
OFF: (360) 740-8819
EMAIL: CnrPro@RBEEngineers.com
P.O. Box 923
CHEHALIS, WA 98532
811 Know what's below. Call 811 before you dig.
JOB NUMBER 19081
DRAWING NAME 19081_4.3_WPP3
C4.3
18 OF 24



SEWER CONSTRUCTION NOTES:

- 1 INSTALL NEW 12" SDR 35 PVC SEWER MAIN PER PLAN AND PROFILE. BACKFILL TRENCH PER STD. DETAIL ON SHEET C4.6.
- 2 INSTALL NEW SSMH PER PLAN AND PROFILE. SEE STD. DETAILS ON SHEET C4.5.
- 3 INSTALL NEW 12" SDR 35 PVC SEWER MAIN STUBOUT PER PLAN. MARK END OF SEWER WITH 10 FOOT 2X4 PAINTED GREEN.
- 4 STA. 12+55, 70' LT
STA. 13+29, 7' LT
INSTALL NEW SEWER CLEANOUT PER PLAN AND PROFILE. SEE STD. DETAIL ON SHEET C4.5.

GENERAL SEWER NOTES:

ALL NEW SANITARY SEWER MANHOLES SHALL BE VACUUM TESTED PER REVIEW AGENCY STANDARDS.

ALL NEW GRAVITY SEWER MAINS SHALL BE FLUSHED VIA JETTING, PRESSURE TESTED AND TV'D PER REVIEW AGENCY STANDARDS. PROVIDE AGENCY AND ENGINEER WITH TV RESULTS.

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PROVIDE SAND CUSHION BETWEEN PIPES THAT HAVE LESS THAN 8" OF SEPARATION.

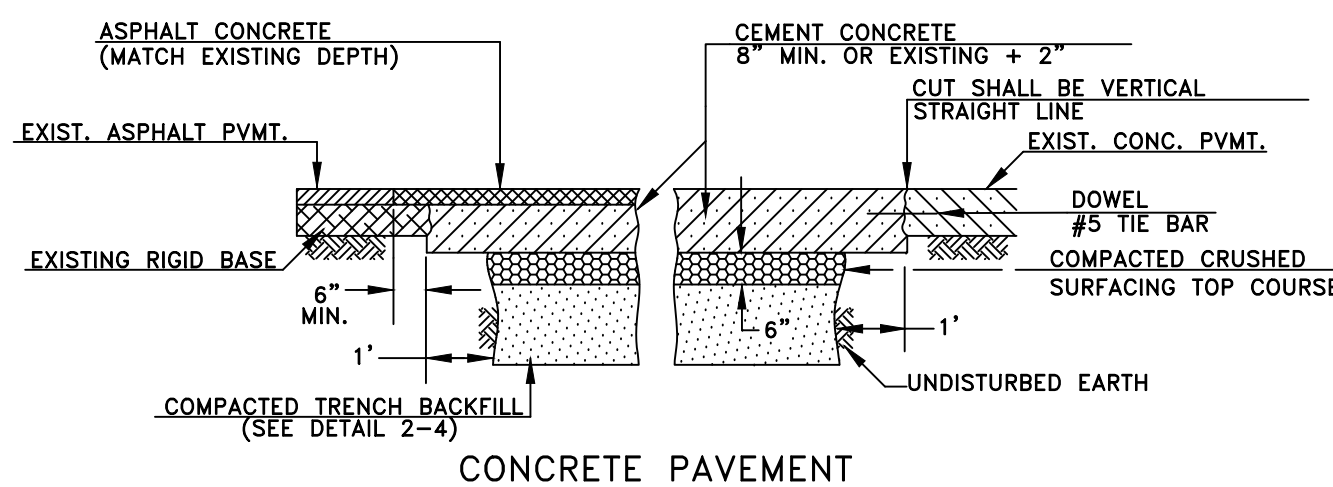
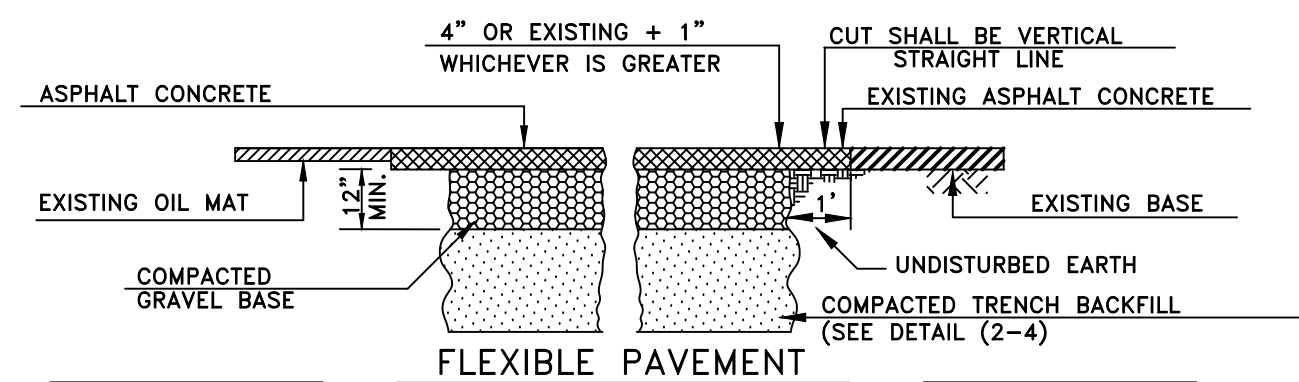
WATER CONSTRUCTION NOTES:

- 5 INSTALL NEW 12" DUCTILE IRON CLASS 52 WATER MAIN PER PLAN AND PROFILE. BACKFILL TRENCH PER DETAIL ON SHEET C4.6.
- 6 STA 12+65, 6' RT
INSTALL NEW WATER MAIN TEE AND GATE VALVES PER DETAIL ON SHEET C4.6.
3-12" GATE VALVE AND BOX (MJXFL)
1-12"x8"x12" TEE (MJXFL)
1-CONC. THRUST BLOCK
- 7 STA. 12+65, 70' LT
STA 13+29 6' RT
INSTALL TEMPORARY BLOWOFF ASSEMBLY PER STD. DETAIL ON SHEET C4.7.
1-12" GATE VALVE AND BOX.
1-STRADDLE BLOCK
1-BLOWOFF ASSEMBLY

WATER GENERAL NOTES:

ALL WATER MAIN SHALL BE INSTALLED WITH TRACER TAPE AND LOCATE WIRE.

NO.	DATE	DESIGNED BY: RWB	DRAWN BY: ALE	CHECKED BY: RWB	DATE: 08/29/2023	SCALE: 1" = 20'
HAMPE WAY ROAD AND UTILITY						
SEWER AND WATER MAIN PLAN AND PROFILE						
RB Engineering DESIGN → PERMIT → MANAGE P.O. Box 923 CHEHALIS, WA 98532 OFF: (360) 740-8819 EMAIL: info@rbengineering.com						
811 Know what's below. Call 811 before you dig.						
JOB NUMBER: 19081 DRAWING NAME: 19081_C4.4_SWPP4 C4.4 19 OF 24						



CEMENT CONCRETE REPLACEMENT WIDTH	DOWEL BAR LENGTH	SPACING
LESS THAN 4'	16"	18" O.C.
4' - 6'	24"	18" O.C.
GREATER THAN 6'	30"	18" O.C.

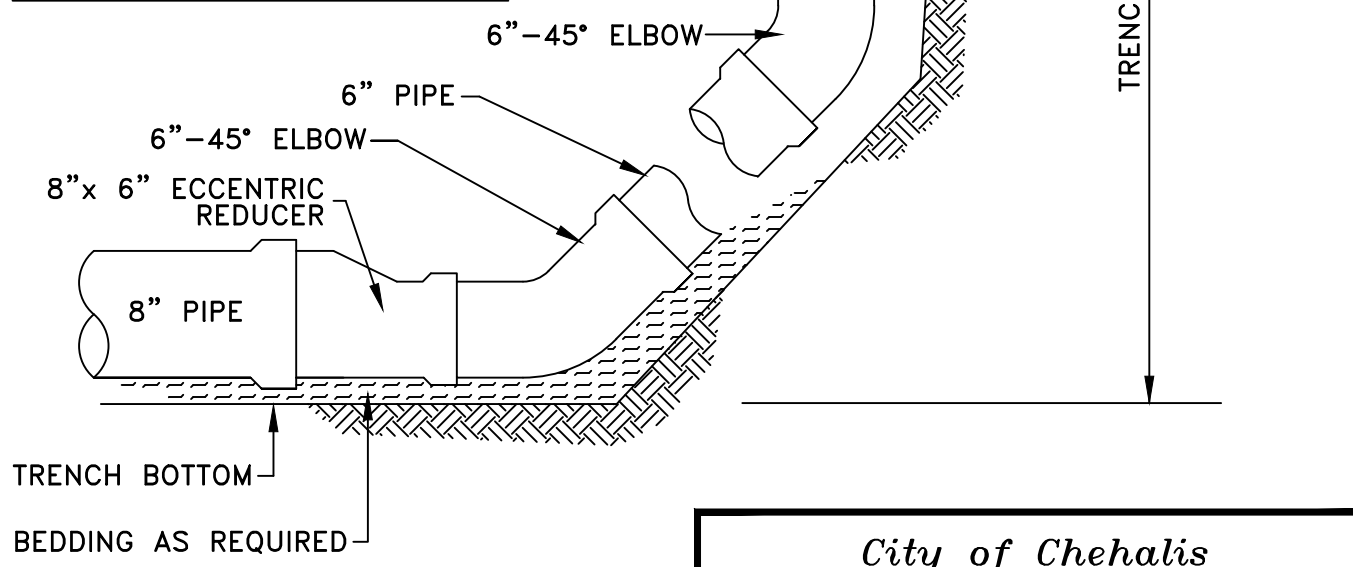
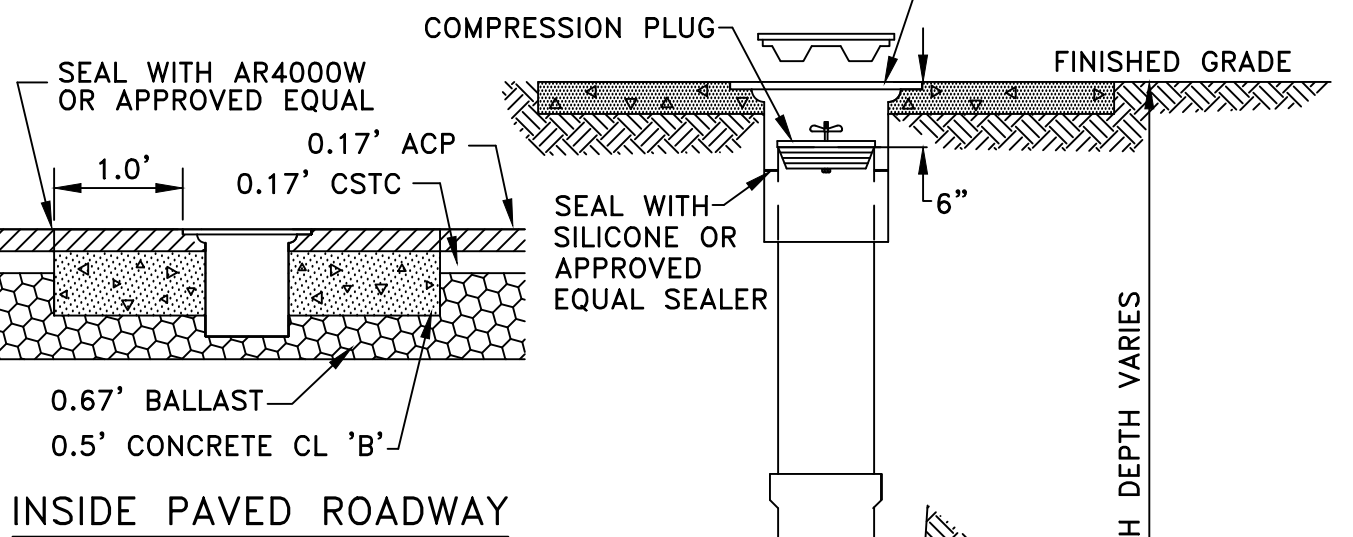
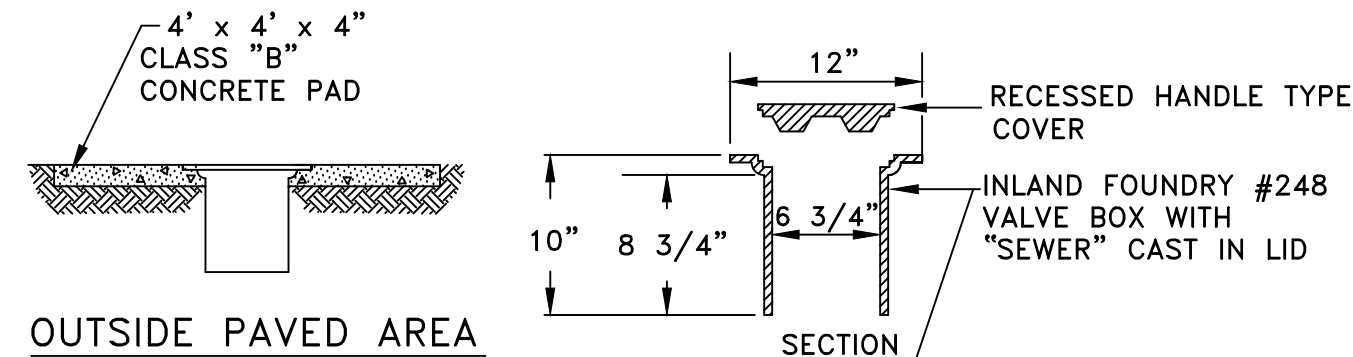
- NOTES:
- CONCRETE MIX SHALL BE CLASS 3000 CEMENT CONCRETE.
 - WHEN CUT LINE IS LESS THAN 3' FROM ANOTHER CUTLINE, CURB, OR PAVEMENT EDGE, THE EXISTING PAVEMENT SHALL BE REMOVED TO THE CUTLINES, CURB, OR EDGE.
 - DOWELS ARE NOT REQUIRED ON THE SIDE BORDERING CURBS, LONGITUDINAL EXPANSION JOINTS, OR TRAVERSE CONSTRUCTION JOINTS.
 - DOWELS ARE TO BE INSTALLED A MINIMUM OF 6" INTO EXISTING CONCRETE PAVEMENT.
 - ALL EXISTING PAVEMENT & CONCRETE LOOSENED DURING CONSTRUCTION SHALL BE REMOVED BEFORE PATCH IS INSTALLED.

Drawing Not to Scale

City of Chehalis

PAVEMENT PATCH

APPROVED BY	DWG. NO.
	2-6
	REVISED DATE
CITY ENGINEER	1/02/2003



NOTES:

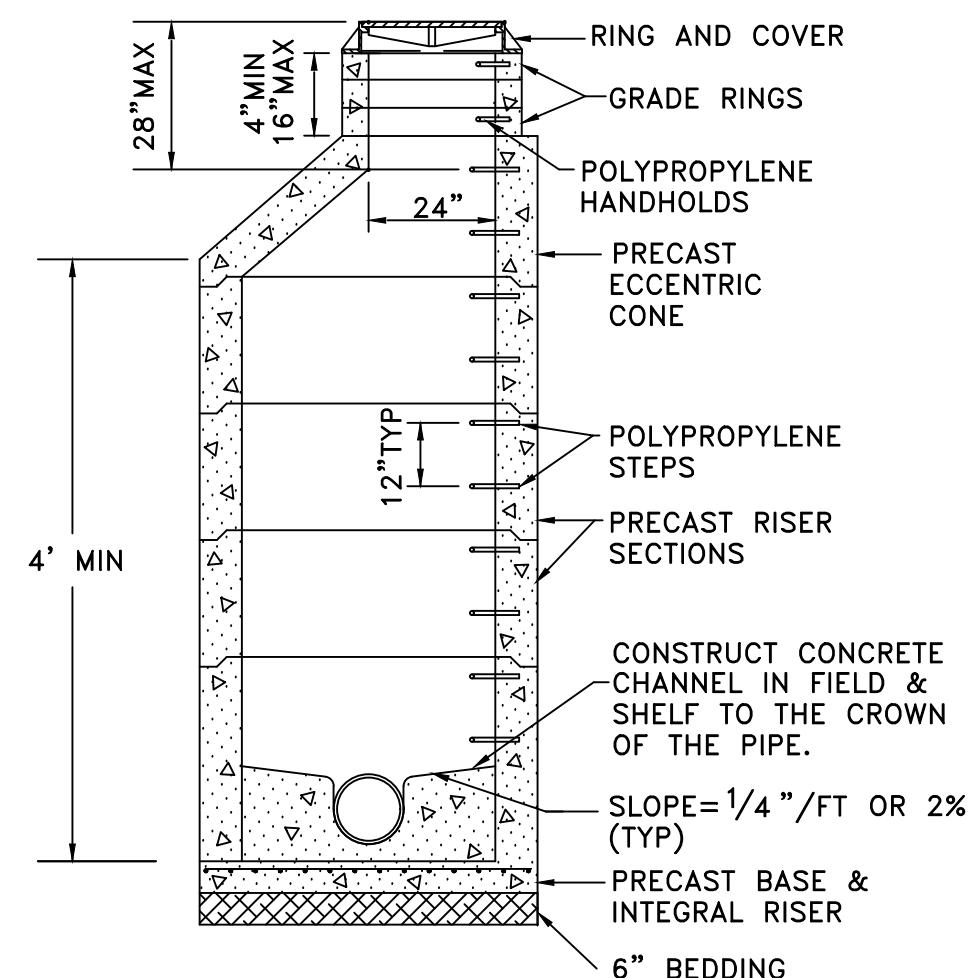
- ALL SEWER PIPE SHALL BE ASTM 3034 SDR 35.
- SILICONE SEALANT SHALL NOT INTERFERE WITH REMOVAL OF THE PLUG.

DRAWING NOT TO SCALE

City of Chehalis

CLEANOUT

APPROVED BY	DWG. NO.
	5-5
	REVISED DATE
CITY ENGINEER	1/02/2003



NOTES:

- PRECAST MANHOLES SHALL MEET THE REQUIREMENTS OF ASTM C478. JOINTS SHALL BE RUBBER GASKETED CONFORMING TO ASTM C443 AND SHALL BE GROUTED FROM THE INSIDE & OUTSIDE. LIFT HOLES SHALL BE GROUTED FROM THE OUTSIDE & INSIDE OF THE MANHOLE.
- STEPS IN MANHOLE SHALL HAVE 6" MINIMUM CLEARANCE. HANDHOLES IN ADJUSTMENT SECTION SHALL HAVE 3" MINIMUM CLEARANCE. THE FIRST STEP OR HANDHOLD SHALL BE A MAXIMUM OF 12" FROM THE TOP OF THE COVER.
- CONNECTION TO MANHOLE SHALL BE MADE BY KOR-N-SEAL BOOT, UNLESS AN ALTERNATIVE CONNECTION METHOD IS SPECIFICALLY APPROVED AND AUTHORIZED BY THE PUBLIC WORKS DIRECTOR.
- NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000.
- SEE DETAIL 5-3 FOR MANHOLE COLLAR INSTALLATION.
- A SEWER GUARD SHALL BE INSTALLED IN ANY MANHOLE SUBJECT TO FLOODING.

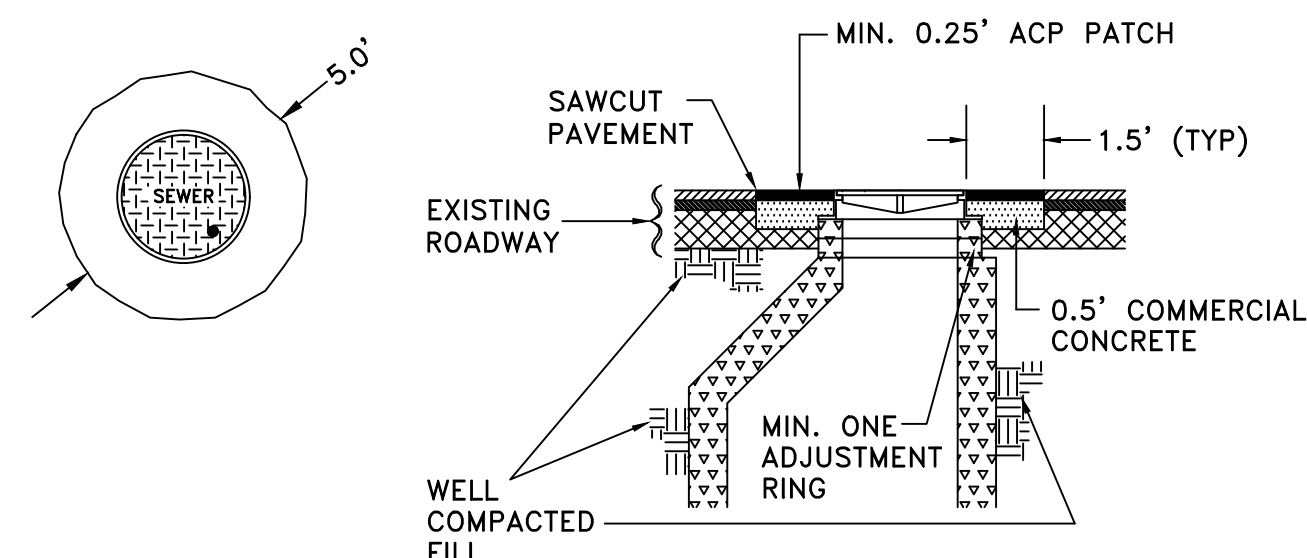
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City of Chehalis

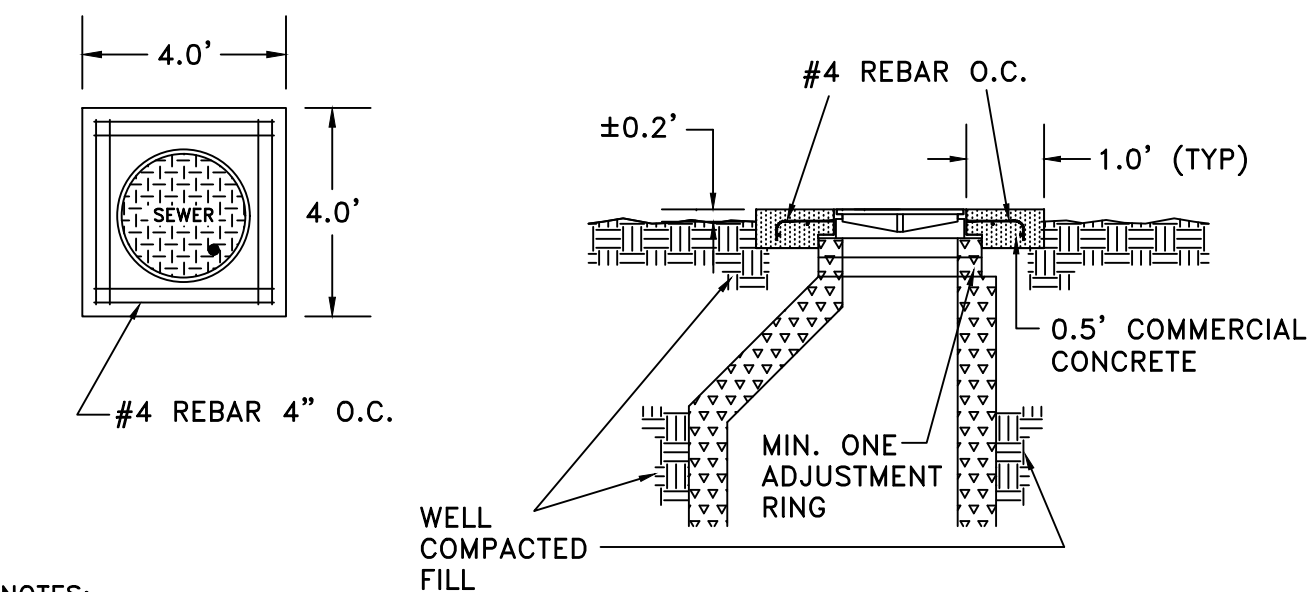
TYPICAL MANHOLE

APPROVED BY	DWG. NO.
	5-1
	REVISED DATE
CITY ENGINEER	1/02/2003

MANHOLE IN ASPHALT



MANHOLE OUTSIDE ASPHALT



NOTES:

- ON MANHOLE OUTSIDE ASPHALT ADD REINFORCING STEEL AS SHOWN ABOVE. DEFORMED BAR TO MEET ASTM A615 GRADE 60 FY=60,000 P.S.I.
- SINGLE OPENING IN LID FOR USE OF MANHOLE HOOK IS REQUIRED.
- JOINTS BETWEEN EACH ADJUSTMENT RING INCLUDING WHERE FRAME & MH CONE MEET RINGS, SHALL INCLUDE ACTIVATED OAKUM OR APPROVED EQUAL.

DRAWING NOT TO SCALE

City of Chehalis

MANHOLE COLLAR

APPROVED BY	DWG. NO.
	5-3
	REVISED DATE
CITY ENGINEER	1/02/2003

GENERAL NOTES (SANITARY SEWER INSTALLATION):

- ALL WORKMANSHIP AND MATERIALS WILL BE IN ACCORDANCE WITH CITY OF CHEHALIS STANDARDS AND THE MOST RECENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA).
- CITY OF CHEHALIS DATUM WILL BE USED FOR ALL VERTICAL CONTROL. A LIST OF BENCHMARKS IS AVAILABLE AT THE PUBLIC WORKS DEPARTMENT.
- ALL APPROVALS AND PERMITS REQUIRED BY THE CITY OF CHEHALIS, WILL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
- IF CONSTRUCTION IS TO TAKE PLACE IN THE COUNTY RIGHT-OF-WAY, THE CONTRACTOR WILL NOTIFY THE COUNTY AND OBTAIN ALL THE REQUIRED APPROVALS AND PERMITS.
- A PRE-CONSTRUCTION MEETING WILL BE HELD WITH A PUBLIC WORKS DEPARTMENT REPRESENTATIVE PRIOR TO THE START OF CONSTRUCTION.
- THE PUBLIC WORKS DEPARTMENT WILL BE NOTIFIED A MINIMUM OF TWO (2) BUSINESS DAYS IN ADVANCE OF A TAP CONNECTION TO AN EXISTING MAIN. A PUBLIC WORKS REPRESENTATIVE WILL BE PRESENT AT THE TIME OF THE TAP.
- THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR WILL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UTILITIES UNDERGROUND LOCATION CENTER AT 1-800-424-5555 A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO ANY EXCAVATION.
- ALL SEWER MAINS WILL BE FIELD STAKED FOR GRADES AND ALIGNMENT BY A LICENSED ENGINEERING OR SURVEYING FIRM QUALIFIED TO PERFORM SUCH WORK. STAKING WILL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- ALL PIPE AND SERVICES WILL BE INSTALLED WITH CONTINUOUS TRACER TAPE PLACED TWELVE (12) TO EIGHTEEN (18) INCHES UNDER THE PROPOSED FINISHED SUBGRADE. THE MARKER WILL BE OF PLASTIC NON-BIODEGRADABLE, METAL CORE OR BACKING MARKED "SEWER" THAT CAN BE DETECTED BY A STANDARD METAL DETECTOR. IF VISIBILITY CANNOT BE MAINTAINED BETWEEN STRUCTURES ALONG THE STRAIGHT ALIGNMENT OF A SEWER, TONING WIRE WILL BE INSTALLED ABOVE THE SEWER LINE AT A DEPTH NO GREATER THAN 48 INCHES. TAPE WILL BE TERRA TAPE "D" OR AN APPROVED EQUAL. IN ADDITION, STEP MAINS, FORCE MAINS, AND CURVILINEAR SEWERS WILL BE INSTALLED WITH TONING WIRE TAPED TO THE TOP OF THE PIPE TO PREVENT MOVEMENT DURING BACKFILL.

IF TONING WIRE IS REQUIRED, IT WILL BE UL LISTED, TYPE UF, 14-GAUGE COPPER. THE WIRE WILL BE LAID LOOSELY ENOUGH TO PREVENT STRETCHING AND DAMAGE. THE WIRE WILL BE WRAPPED TO A MANHOLE OR CLEANOUT RINGS ON GRAVITY SEWER OR VALVE BODY ON STEP MAINS. A 1-LB MAGNESIUM ANODE WILL BE BURIED WITH THE PIPE EVERY 1,000 LINEAR FEET MAXIMUM FOR CATHODIC PROTECTION OF THE WIRE. TONING WIRE SPLICES AND CONNECTIONS TO ANODES WILL JOIN WIRES BOTH MECHANICALLY AND ELECTRICALLY AND WILL EMPLOY EPOXY RESIN OR HEAT-SHRINK TAPE INSULATION. TONING WIRE WILL BE TESTED PRIOR TO ACCEPTANCE OF THE PIPE SYSTEM. A WRITTEN NOTICE FROM THE CONTRACTOR TO THE CITY TWO (2) BUSINESS DAYS PRIOR TO TESTING IS REQUIRED. ON A CURVILINEAR SEWER, THE WIRE WILL BE BROUGHT UP, BARED AND WRAPPED THREE (3) TIMES AROUND THE MANHOLE RING. THE TAPE AND WIRE WILL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

- BEDDING OF THE SEWER MAIN AND COMPACTION OF THE BACKFILL MATERIAL WILL BE REQUIRED IN ACCORDANCE WITH THE ABOVE SPECIFICATION. (SEE GENERAL NOTE 1)
- ALL MANHOLES AND CLEANOUTS OUTSIDE THE PAVED AREA WILL BE INSTALLED IN ACCORDANCE WITH STANDARD DRAWINGS 5.3 AND 5.5.

12. WHEN TEMPORARY STREET PATCHING IS ALLOWED BY THE CITY, COLD MIX ASPHALT WILL BE PLACED TO A MAXIMUM DEPTH OF ONE (1) INCH. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE AS REQUIRED BY THE CITY.

13. EROSION CONTROL MEASURES CONFORMING TO THE MOST RECENT VERSION OF THE CITY OF CHEHALIS STORMWATER MANAGEMENT PLAN AND CHAPTER 3 OF THESE STANDARDS WILL BE TAKEN BY THE CONTRACTOR DURING CONSTRUCTION TO PREVENT INFILTRATION OF EXISTING AND PROPOSED STORM DRAINAGE FACILITIES AND ROADWAYS.

14. PROVIDE TRAFFIC CONTROL PLAN(S) IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS REQUIRED.

15. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A COPY OF THE APPROVED CONSTRUCTION PLANS ON-SITE AT ALL TIMES. "APPROVED" PLANS, ARE TYPICALLY SIGNIFIED BY THE SIGNATURE OF THE DIRECTOR OF PUBLIC WORKS.

16. ANY CHANGES TO THE DESIGN WILL FIRST BE REVIEWED AND APPROVED BY THE DEVELOPER'S PROJECT ENGINEER AND THEN THE DIRECTOR OF PUBLIC WORKS PRIOR TO IMPLEMENTATION.

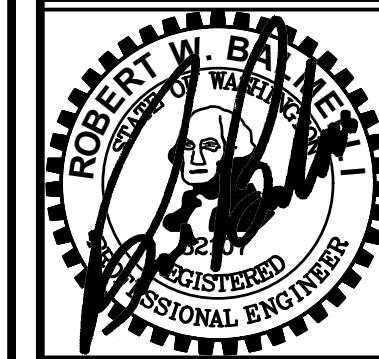
17. PRIOR TO BACKFILL, ALL MAINS AND APPURTENANCES WILL BE INSPECTED AND APPROVED BY A PUBLIC WORKS REPRESENTATIVE. APPROVAL DOES CONSTITUTE FINAL ACCEPTANCE OF THE SEWER LINE. THE CONTRACTOR WILL RETAIN RESPONSIBILITY TO REPAIR ALL DEFICIENCIES AND FAILURES REVEALED DURING ALL REQUIRED TESTING FOR ACCEPTANCE AND THROUGHOUT THE DURATION OF THE WARRANTY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PUBLIC WORKS DEPARTMENT IN ADVANCE OF ALL REQUIRED INSPECTIONS. ANY MAIN OR APPURTENANCE BACKFILLED PRIOR TO INSPECTION WILL BE RE-EXCAVATED FOR INSPECTION AT NO COST TO THE CITY.

NO.	DATE	REVISION

DESIGNED BY: RWB	DATE: 08/29/2003
DRAWN BY: ALE	SCALE: N.T.S.
CHECKED BY: RWB	

DESIGNED BY: RWB
DRAWN BY: ALE
CHECKED BY: RWB
DATE: 08/29/2003
SCALE: N.T.S.

HAMPE WAY ROAD AND UTILITY
SEWER DETAILS AND NOTES
CHEHALIS



RB Engineering
DESIGN → PERMIT → MANAGE
OFF: (360) 740-8819
EMAIL: rwbarber@rbengineers.com
P.O. Box 923
CHEHALIS, WA 98532

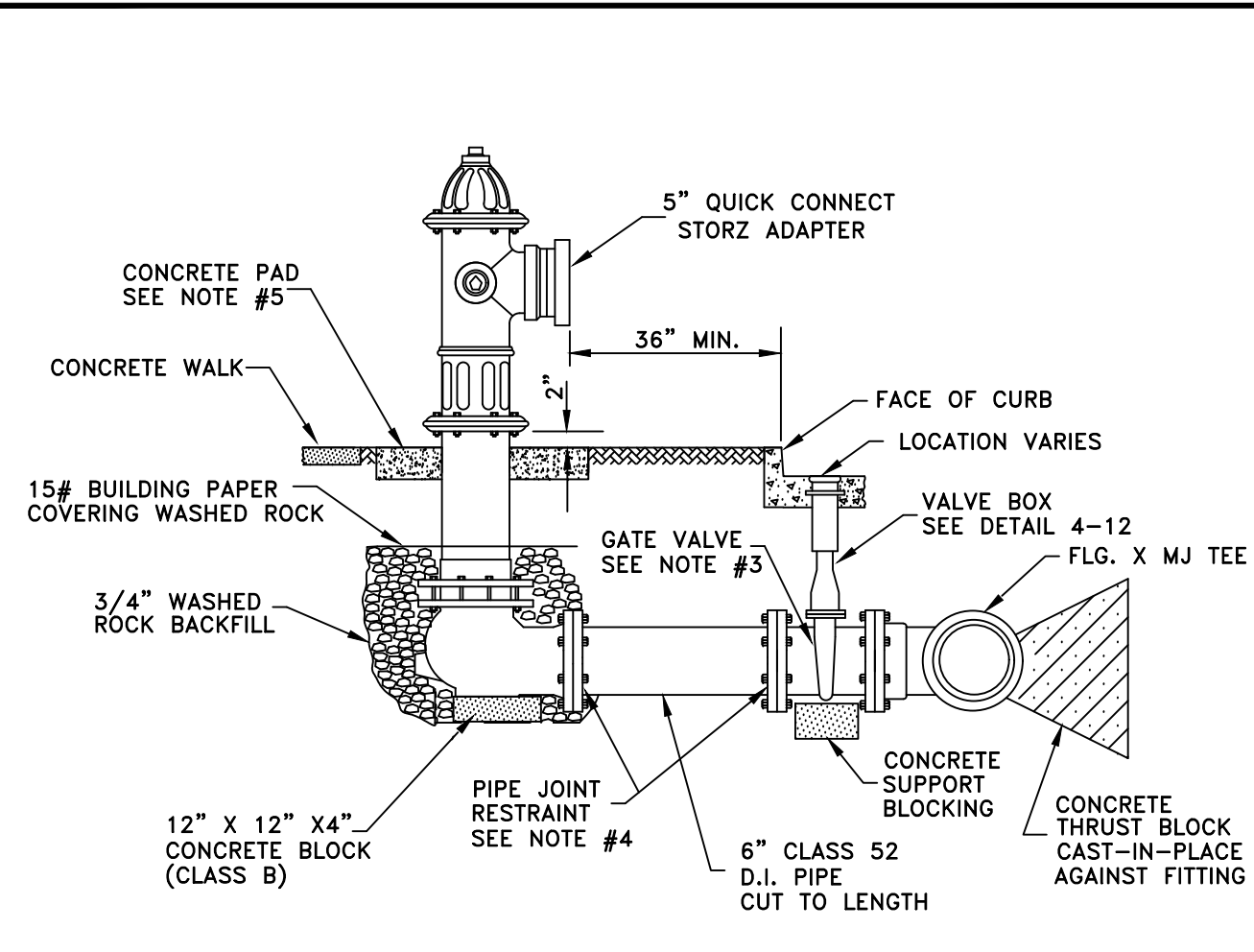
811 Know what's below. Call 811 before you dig.
JOB NUMBER: 19081
DRAWING NAME: 19081_C4.5_WDN
C4.5
20 OF 24

General Notes (Watermain Installation)

- All workmanship and material will be in accordance with City of Chehalis Standards and the most recent copy of the WSDOT/APWA Standard Specifications for Road, Bridge and Municipal Construction, American Water Works Association (AWWA) Standards and ANSI/NSF Standard 60 or 61.
- A pre-construction meeting will be held with the Public Works Department and the Engineering Division prior to the start of construction.
- All watermains will be ductile iron cement mortar lined thickness Class 52.
- Gate valves will be resilient wedge, NRS (non-rising stem) with O rings seals. Valve ends will be mechanical joint or ANSI flanges. Valves will conform to AWWA 509-80. Valves will be Mueller, M & H, Kennedy, Clow R/W or American Flow Control Series 2500. Existing valves and all valves installed directly to and connected to a portion of the active water system are to be operated by city employees only.
- Fire hydrants will be Mueller Centurion A-423, M & H Reliant style 29, Clow Medallion, or Kennedy Guardian K81D, Watrous Pacer Model WB-67-250 or AVK 2780. Hydrants will be installed in accordance with the most recent version of the Uniform Fire Code. Hydrants will be bagged and the connecting gate valves left closed until the system has been approved. Hydrants must be painted with sunburst yellow high-grade enamel after installation.
- All lines will be chlorinated and tested in conformance with the above referenced specifications. (see Note 1)
- All pipes and services will be installed with continuous tracer tape placed twelve (12) to eighteen (18) inches under the proposed finished subgrade. The marker will be of plastic non-biodegradable, metal core, or backing marked "water" that can be detected by a standard metal detector. Tape will be Terra Tape "D" or approved equal. In addition to tracer tape, toning wire will be installed over all pipe and services. Toning wire will be UL listed, type UF, fourteen (14) gauge solid coated copper wire, taped to the top of the pipe to prevent movement during backfilling and laid loose enough to prevent stretching and damage before being brought up and tied off at the valve operating nut or valve box. If the operating nut is not easily accessible from the ground surface, the copper wire will be tied off at the valve box in such a way that the wire is easily accessible from the ground surface. Two (2) feet of slack will be provided to allow for connection to the locator.

General Notes (Watermain Installation cont.)

- (cont.) A 1-lb magnesium anode will be buried with the pipe every 1,000 linear feet maximum for cathodic protection of the toning wire. Toning wire splices and connections to anodes will join wires both mechanically and electrically and will employ epoxy resin or heat shrink tape insulation. Toning wire will be tested prior to acceptance of the pipe system. A written notice from the contractor to the city must be received two (2) business days prior to when testing is required.
- The contractor will provide traffic control plan(s) as required in accordance with MUTCD.
- All watermains will be staked for grades and alignment by an engineering or surveying firm capable of performing such work. Staking will be maintained throughout construction.
- All service line and water valve locations will be marked on the face of the adjacent curb with a "W" or "WV" embossed 1/4-inch into the concrete.
- All water system connections serving buildings or properties with domestic potable water, fire sprinkler or irrigations systems will comply with the minimum backflow prevention requirements established by the Department of Health (DOH) and the City of Chehalis Cross-Connection Control Program.
- Call Utilities Underground Location Center at 1-800-424-5555 a minimum of two (2) business days prior to any excavations.
- The city will be notified five (5) business days prior to scheduling a water system shutdown. The city's Water Division will perform all water system shutdowns. When connections require "field verification," connection points will be exposed by the contractor and fittings verified by the city two (2) business days prior to the distribution of shutdown notices. Customers involved with or affected by water service interruptions will be notified at least forty-eight (48) hours in advance. Shutdowns will not be permitted on Fridays, weekends, or holidays without written authorization from the Director of Public Works.
- When connecting to an existing waterline where a new valve is not to be installed, the existing valve must be pressure tested to these Standards by the contractor prior to connection. If an existing valve fails to pass the test, the contractor will make the necessary additional provisions to test the new line prior to connecting to the existing system or will install a new valve. New lines will not be connected to the existing system until all required tests have been passed.

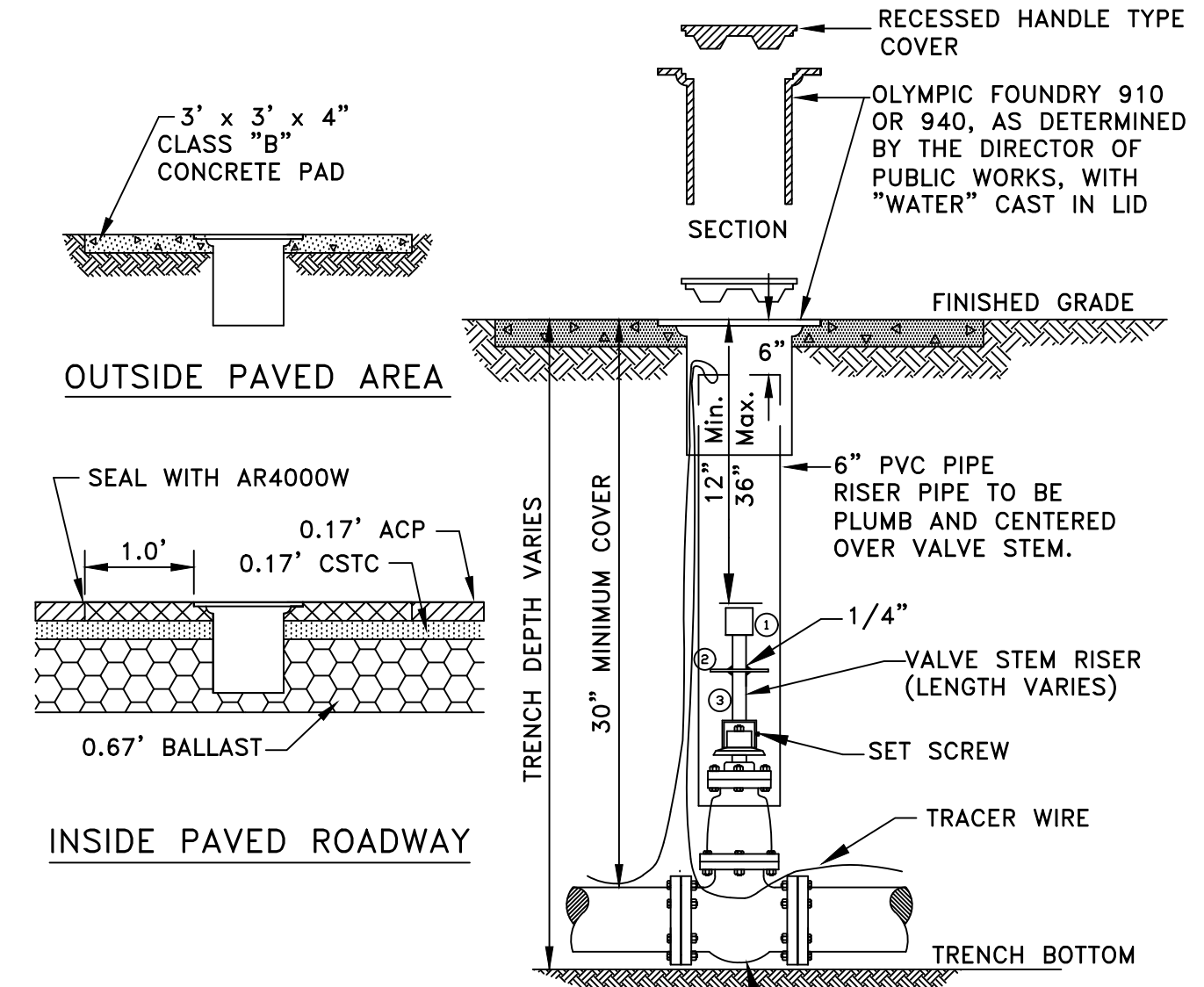


NOTES

- HYDRANTS SHALL BE LOCATED WITHIN THE STREET RIGHT-OF-WAY, WITH A MINIMUM THREE-FOOT RADIUS UNOBSTRUCTED WORKING AREA.
- HYDRANT SHALL BE MUELLER CENTURION A423, AVK 2780, M & H RELIANT STYLE 929, KENNEDY GUARDIAN K81D, CLOW MEDALLION, OR WATROUS PACER MODEL WB-67-250.
- GATE VALVES SHALL BE RESILIENT WEDGE NRS WITH O-RING SEALS. VALVE ENDS SHALL BE MECHANICAL JOINT BY ANSI FLANGES. VALVES SHALL CONFORM TO AWWA 509-80. VALVES SHALL BE MUELLER, M&H, AMERICAN FLOW CONTROL SERIES 2500, CLOW R/W, KENNEDY, OR AVK.
- EACH MECHANICAL PIPE JOINT SHALL BE RESTRAINED USING ROMAC GRIP RINGS, MEGALUG SERIES 1106 JOINT RESTRAINT, OR 3/4" DIA. GALVANIZED OR COATED STEEL RESTRAINING RODS.
- A 4' X 4' X 8" DEEP CONCRETE PAD WILL BE POURED AROUND THE HYDRANT.
- HYDRANT SHALL BE PAINTED SUNBURST YELLOW HIGH-GRADE ENAMEL AFTER INSTALLATION.
- MINIMUM HYDRANT BURF SHALL BE 30".

DRAWING NOT TO SCALE

City of Chehalis	
FIRE HYDRANT	
APPROVED BY	DWG. NO.
	4-8
	REVISED DATE
CITY ENGINEER	3/14/2005



VALVE STEM EXTENSION LEGEND

- WELD ALL AROUND, AS SPECIFIED ABOVE.
- IN TRAFFIC LANES, OLYMPIC FOUNDRY 940 VALVE BOX SHALL BE REQUIRED.
- ALL VALVES MUST HAVE 14 GAUGE COATED COPPER TRACER WIRE TIED OFF @ VALVE BODY, EXTENDED WITHIN ONE FOOT OF THE SURFACE, AS SHOWN.

DRAWING NOT TO SCALE

City of Chehalis	
VALVE BOX	
APPROVED BY	DWG. NO.
	4-12
	REVISED DATE
CITY ENGINEER	1/02/2003

City of Chehalis
GENERAL NOTES (WATERMAIN INSTALLATION)

Labels include: TOP VIEW, SIDE VIEW, CROSS, GATE VALVE, HORIZ. BEND, TEE WITH PLUG, CROSS WITH PLUG, CROSS WITH PLUGS, 45° - 90° VERTICAL BEND, PLUG OR CAP, LOCKING RETAINER GLAND, ALTERNATIVE STRADDLE BLOCK, DEAD-MAN THRUST BLOCKING.

NOTES:

- CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
- PLASTIC BARRIER SHALL BE PLACED BETWEEN ALL THRUST BLOCKS AND PIPE AND/OR FITTINGS.
- ANCHOR REBAR SHALL BE #5 MINIMUM. DEPTH OF IMBEDMENT SHALL BE 30" MIN FOR PIPE UP TO 12" DIAMETER, AND 36" FOR PIPE GREATER THAN 12" DIAMETER.
- ALL STANDARD BLOCKING AND THRUST CRITERIA, AS LISTED ON DETAIL 4-14, SHALL APPLY.
- PLUGS TO BE LOCATED A MINIMUM OF 5' FROM TEE, WYE, OR CROSS ON VALVE.

City of Chehalis	
STANDARD BLOCKING DETAIL	
APPROVED BY	DWG. NO.
	4-13
	REVISED DATE
CITY ENGINEER	1/02/2003

DRAWING NOT TO SCALE

City of Chehalis
GENERAL NOTES (WATERMAIN INSTALLATION cont.)

THRUST LOADS

THRUST AT FITTINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE

PIPE DIAMETER	90° BEND	45° BEND	22-1/2° BEND	11-1/4° BEND	DEAD END OR TEE
4"	3,600	2,000	1,000	500	2,600
6"	8,000	4,400	2,300	1,200	5,700
8"	14,300	7,700	4,000	2,000	10,100
10"	22,300	12,100	6,200	3,100	15,800
12"	32,000	17,400	8,900	4,500	22,700
14"	43,600	23,600	12,100	6,100	30,800
16"	57,000	30,800	15,700	7,900	40,300

NOTES:

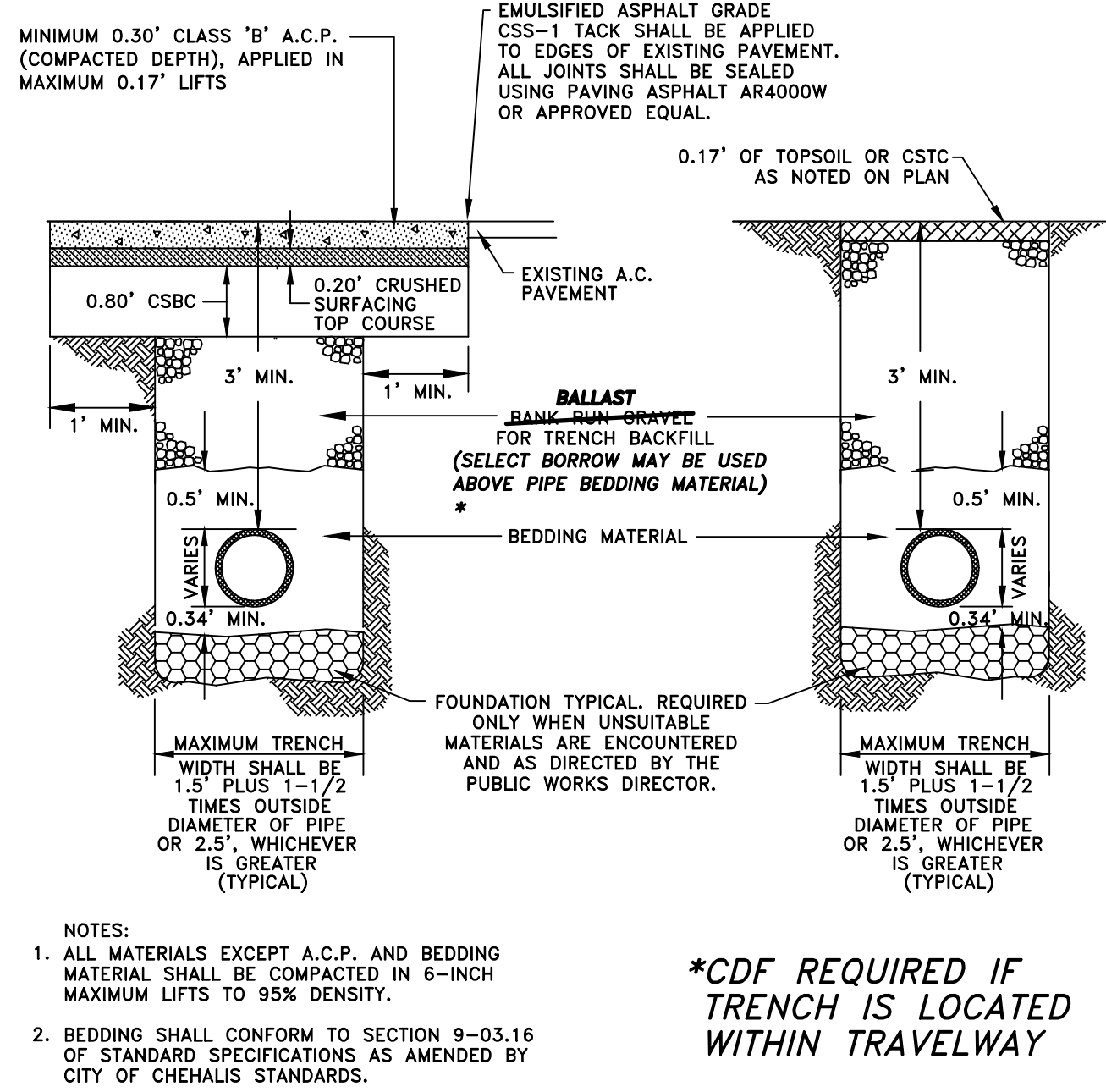
- BLOCKING SHALL BE CEMENT CONCRETE CLASS "B" POURED IN PLACE AGAINST UNDISTURBED EARTH. FITTINGS & PIPE SHALL BE ISOLATED FROM CONCRETE THRUST BLOCK WITH PLASTIC OR SIMILAR MATERIAL.
- TO DETERMINE THE BEARING AREA OF THE THRUST BLOCK IN SQUARE FEET (S.F.):
EXAMPLE : 12" - 90° BEND IN SAND AND GRAVEL
 $32,000 \text{ LBS} \div 3000 \text{ LB/S.F.} = 10.7 \text{ S.F. OF AREA}$
- AREAS MUST BE ADJUSTED FOR OTHER PIPE SIZE, PRESSURES AND SOIL CONDITIONS.
- BLOCKING SHALL BE ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.

SAFE SOIL BEARING LOADS

FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER THE PIPE EXCEEDS 2 FEET

SOIL	POUNDS PER SQUARE FOOT
MUCK, PEAT	0
SOFT CLAY	1,000
SAND	2,000
SAND & GRAVEL	3,000
SAND & GRAVEL CEMENTED WITH CLAY	4,000
HARD SHALE	10,000

City of Chehalis	
THRUST LOADS	
APPROVED BY	DWG. NO.
	4-14
	REVISED DATE
CITY ENGINEER	1/02/2003



TRIM BACK TO FURTHEST POINT OF SURFACE BREAK
ROAD CUT RESTORATION STANDARD FOR ALL BITUMINOUS SURFACE, ASPHALT CONCRETE PAVEMENT OR PORTLAND CEMENT ROADS IN LEWIS COUNTY.

EDGES MUST BE CUT TO ATTAIN SQUARE EDGE FOR PATCHING

MINIMUM TO CUT LINE BEYOND TRENCH AREA

TRIM BACK TO FURTHEST POINT OF SURFACE BREAK

TACK COAT EDGES OF PATCH AREA

SEAL EDGE WITH AR-4000

CONTROLLED DENSITY FILL

FOR LONGITUDINAL CUT OR MULTIPLE CUTS FULL WIDTH ASPHALT CONCRETE PAVEMENT OVERLAY REQUIRED. 0.10' MINIMUM COMPACTED CLASS 'A' OR 'G' ASPHALT

GENERAL NOTES:

- ASPHALT CONCRETE PAVEMENT SHALL BE CLASS 'A' OR 'G'.
- ALL UTILITIES SHALL HAVE 36" MIN COVER UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER.
- ROADWAY PUSHES & BORES SHALL HAVE 48" MIN COVER.
- SEAL EDGE WITH AR-4000.
- IF ROAD CLOSURES OR DETOURS ARE ANTICIPATED A TRAFFIC PLAN INCLUDING SPECIFIC DATES AND DURATION OF SUCH ACTIONS SHALL BE FILED IN ADVANCE WITH THE DEPARTMENT OF PUBLIC WORKS.
- THE APPLICANT IS RESPONSIBLE FOR ALL TEMPORARY AND PERMANENT PATCHING.
- NO OPEN TRENCHES LEFT OVERNIGHT.
- HALF STREET ASPHALT OVERLAY MAY BE CONSIDERED IF PAVEMENT GRINDING IS INCLUDED AND RESULTS IN A MATCHED, FINISHED GRADE AT CROWN.

Lewis County	STANDARD TRENCH AND PAVEMENT RESTORATION	5-1
DEPARTMENT OF PUBLIC WORKS		Revision Date 09-04-03

REVISION

NO.	DATE

DESIGNED BY: RWB
DRAWN BY: ALE
CHECKED BY: RWB
DATE: 08/29/2023
SCALE: N.T.S.

WA.

CHEHALIS

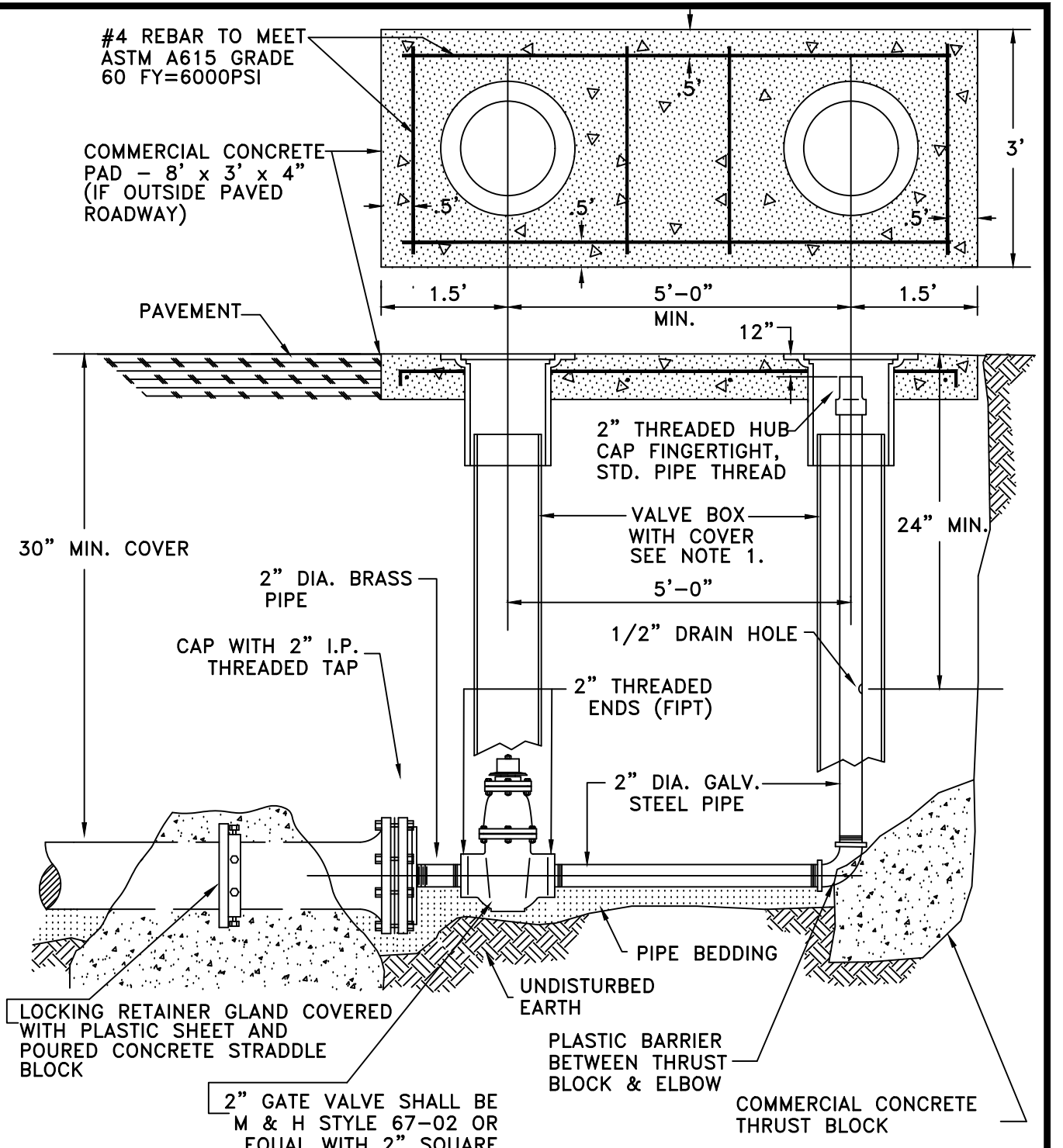
WATER DETAILS AND NOTES

ROBERT W. BAUER
REGISTERED PROFESSIONAL ENGINEER

RB Engineering
DESIGN - PERMIT - MANAGE
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EMAIL: Cw@Prose@RBEngineers.com
P.O. Box 923
CHEHALIS, WA 98532

811 Know what's below. Call 811 before you dig.

JOB NUMBER 19081
DRAWING NAME 19081_C4.6_WADN
C4.6
21 OF 24



NOTES:

1. VALVE BOX AND COVER SHALL BE PER DETAIL 4-12.
2. ON WATERMANS WHICH MAY BE EXTENDED IN THE FUTURE, THE VALVE WHICH OPERATES THE BLOWOFF ASSEMBLY SHALL BE THE SAME SIZE AS THE MAIN AND PROVIDED WITH A CONCRETE THRUST BLOCK AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS.

DRAWING NOT TO SCALE

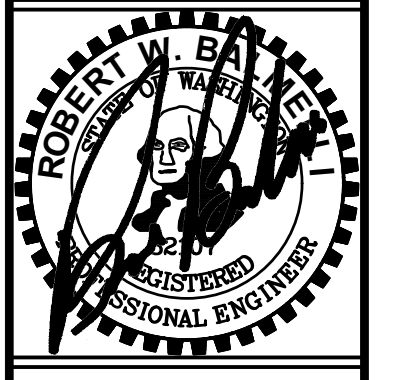
<i>City of Chehalis</i>	
2" BLOWOFF ASSEMBLY	
APPROVED BY	DWG. NO.
	4-10
	REVISED DATE
CITY ENGINEER	1/02/2003

NO.	DATE	REVISION

DESIGNED BY: RWB
 DRAWN BY: ALE
 CHECKED BY: RWB
 DATE: 08/29/2023
 SCALE: N.T.S.

WA.
**HAMPE WAY ROAD
 AND UTILITY**
 CHEHALIS

WATER DETAILS



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 CHEHALIS, WA 98532
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811 Know what's below. Call 811 before you dig.

JOB NUMBER
 19081
 DRAWING NAME
 19081_C4.7_WADT
C4.7
 22 OF 24

STREET LIGHT CONSTRUCTION NOTES:

- 1 STA 0+62, 25.50' RT. INSTALL NEW SERVICE CABINET DISCONNECT PER CITY STANDARD DETAIL. CABINET SHALL BE TESCO, SINGLE METER, CATALOG #26-100, WITH PHOTO CELL. MOUNT ON 2' X 2' CONCRETE PAD PER MANUFACTURERS RECOMMENDATIONS.
- 2 INSTALL STREETLIGHT FOUNDATION, STANDARD, LUMINARIES AND ASSOCIATED HARDWARE PER STREET LIGHTING REQUIREMENTS ON THIS SHEET AND DETAIL ON SHEET C5.2. SEE STREETLIGHT SCHEDULE THIS SHEET FOR STREETLIGHT PLACEMENT. (TYP)
- 3 INSTALL TYPE 1 JUNCTION BOXES WITHIN 6' OF POLE. SEE WSDOT STANDARD PLAN J-11A.
- 4 INSTALL LIGHTING CONDUIT PER WIRE SCHEDULE THIS SHEET.
- 5 FOUNDATION SHALL BE MINIMUM 2 FOOT DIAMETER BY 4 FEET DEEP.

LEGEND

- WIRE NOTE
- CONSTRUCTION NOTE
- TYPE 1 JUNCTION BOX, J-40.10-03
- STREET LIGHT STANDARD

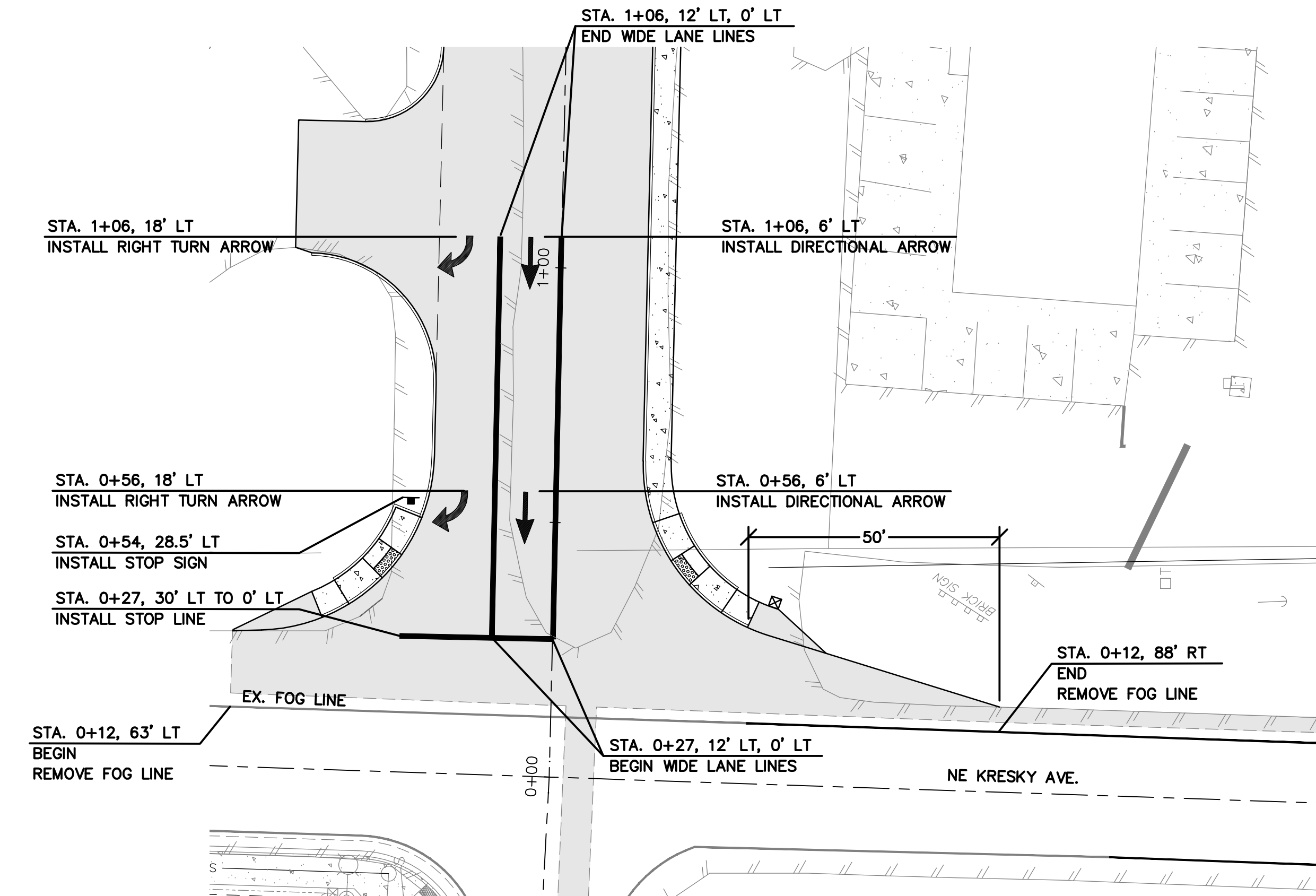
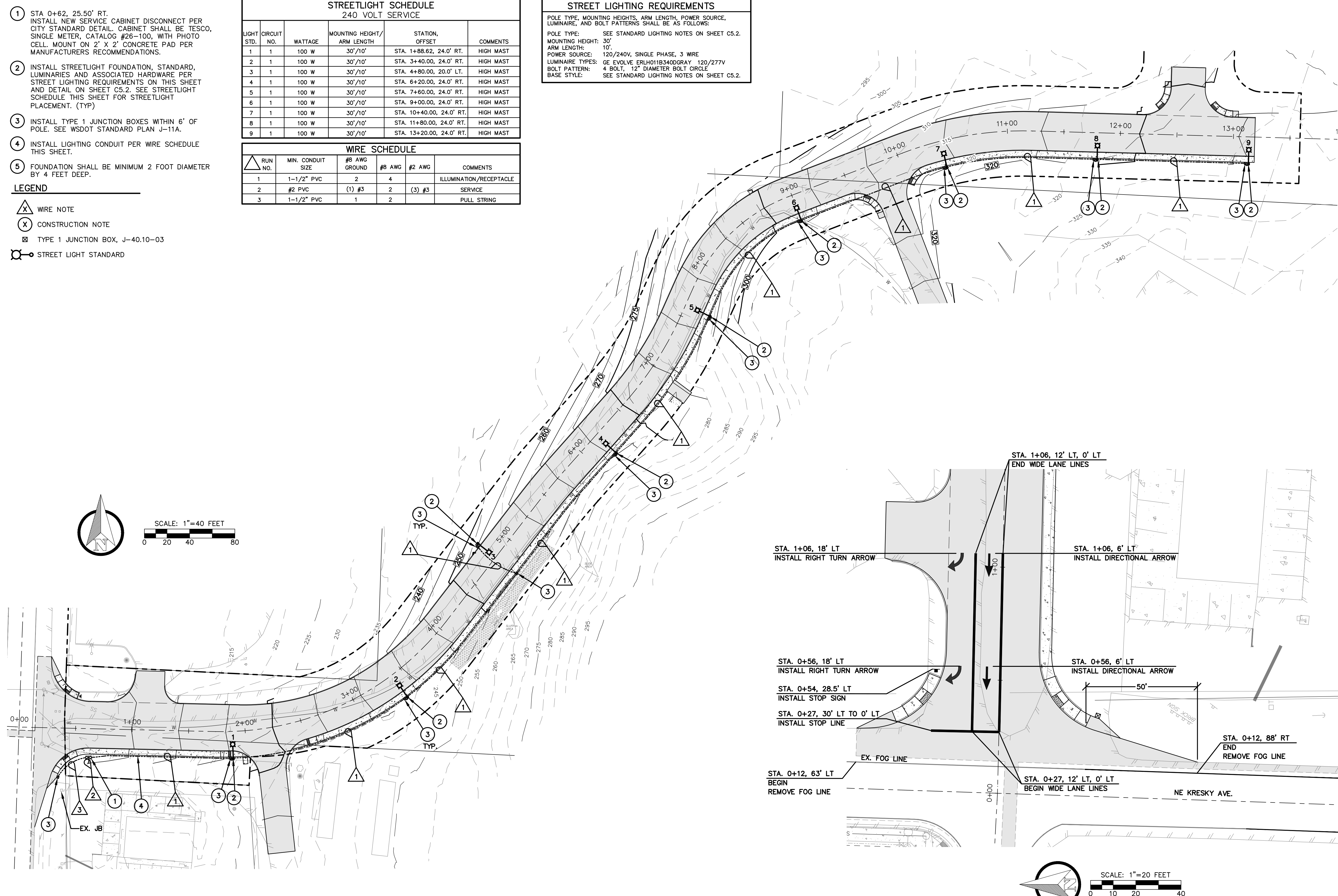
STREETLIGHT SCHEDULE 240 VOLT SERVICE					
LIGHT STD.	CIRCUIT NO.	WATTAGE	MOUNTING HEIGHT/ ARM LENGTH	STATION, OFFSET	COMMENTS
1	1	100 W	30'/10'	STA. 1+88.62, 24.0' RT.	HIGH MAST
2	1	100 W	30'/10'	STA. 3+40.00, 24.0' RT.	HIGH MAST
3	1	100 W	30'/10'	STA. 4+80.00, 20.0' LT.	HIGH MAST
4	1	100 W	30'/10'	STA. 6+20.00, 24.0' RT.	HIGH MAST
5	1	100 W	30'/10'	STA. 7+60.00, 24.0' RT.	HIGH MAST
6	1	100 W	30'/10'	STA. 9+00.00, 24.0' RT.	HIGH MAST
7	1	100 W	30'/10'	STA. 10+40.00, 24.0' RT.	HIGH MAST
8	1	100 W	30'/10'	STA. 11+80.00, 24.0' RT.	HIGH MAST
9	1	100 W	30'/10'	STA. 13+20.00, 24.0' RT.	HIGH MAST

WIRE SCHEDULE					
RUN NO.	MIN. CONDUIT SIZE	#8 AWG GROUND	#8 AWG	#2 AWG	COMMENTS
1	1-1/2" PVC	2	4		ILLUMINATION/RECEPTACLE
2	#2 PVC	(1) #3	2	(3) #3	SERVICE
3	1-1/2" PVC	1	2		PULL STRING

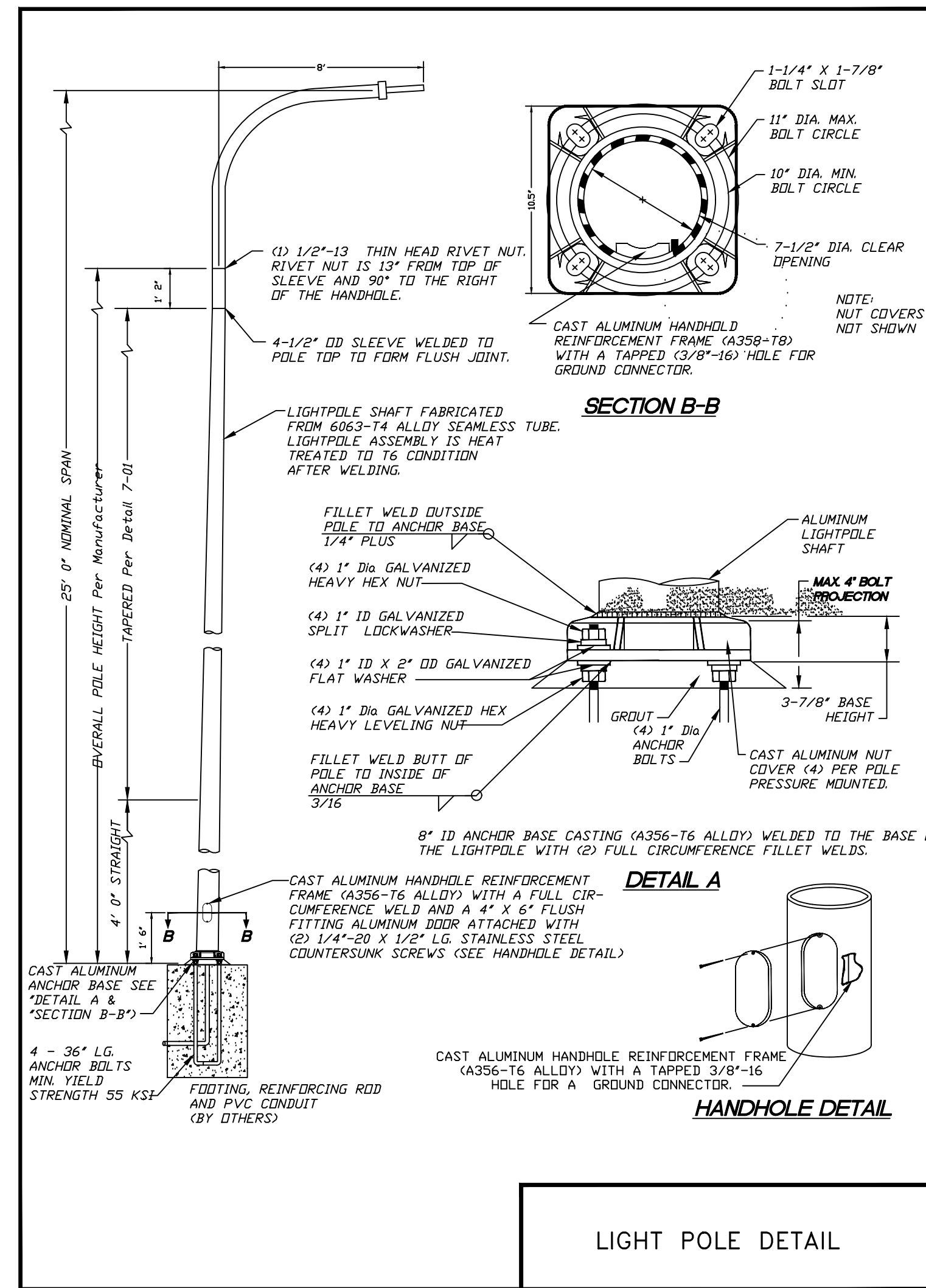
STREET LIGHTING REQUIREMENTS

POLE TYPE, MOUNTING HEIGHTS, ARM LENGTH, POWER SOURCE, LUMINAIRE, AND BOLT PATTERNS SHALL BE AS FOLLOWS:

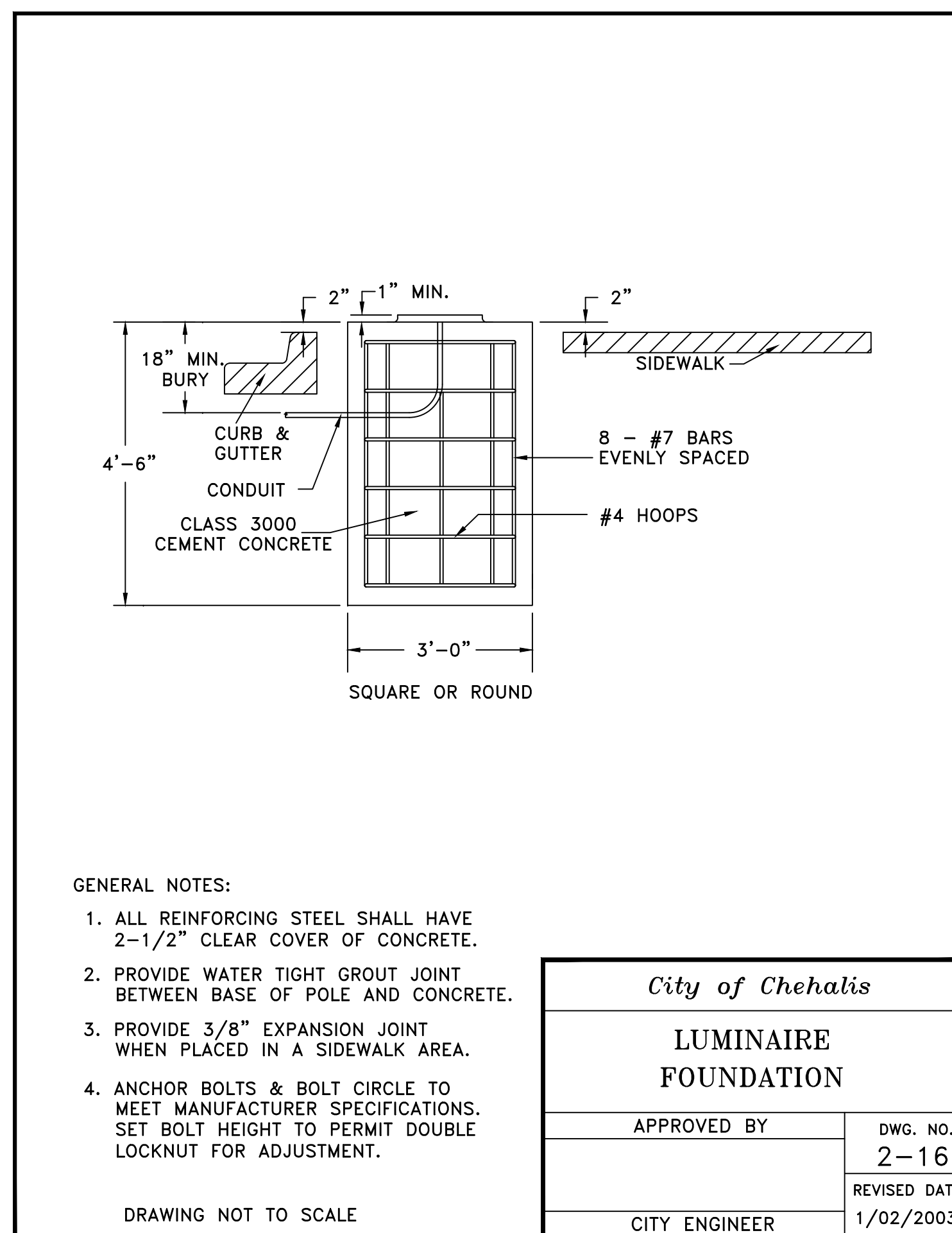
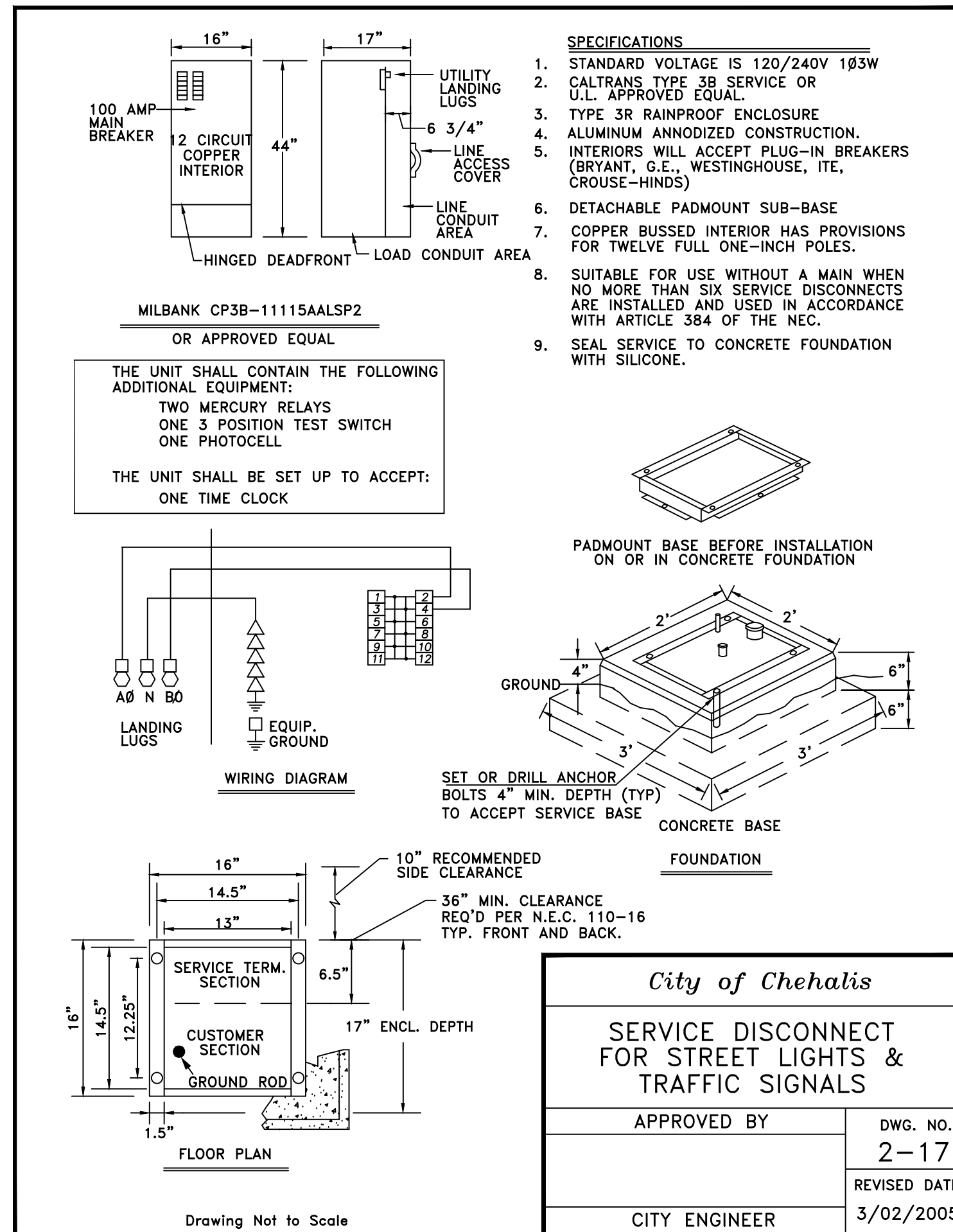
POLE TYPE: SEE STANDARD LIGHTING NOTES ON SHEET C5.2.
 MOUNTING HEIGHT: 30'
 ARM LENGTH: 10'
 POWER SOURCE: 120/240V, SINGLE PHASE, 3 WIRE
 LUMINAIRE TYPE: GE EVOLVE ERLH01B3400GRAY 120/277V
 BOLT PATTERN: 4 BOLT, 12" DIAMETER BOLT CIRCLE
 BASE STYLE: SEE STANDARD LIGHTING NOTES ON SHEET C5.2.



NO.	DATE	DESIGNED BY: <u>RWB</u>	DRAWN BY: <u>ALE</u>	CHECKED BY: <u>RWB</u>	DATE: <u>08/29/2023</u>	SCALE: <u>VARIABLES</u>
HAMPE WAY ROAD AND UTILITY						
STREET LIGHT PLAN AND NOTES						
RB Engineering DESIGN → PERMIT → MANAGE P.O. Box 923 CHEHALIS, WA 98532 OFF: (360) 740-8819 EMAIL: info@rbengineers.com						
811 Know what's below. Call 811 before you dig.						
JOB NUMBER: 19081 DRAWING NAME: 19081_5.1_SLPL C5.1 23 OF 24						



LIGHT POLE DETAIL



- GENERAL NOTES:
1. ALL REINFORCING STEEL SHALL HAVE 2-1/2" CLEAR COVER OF CONCRETE.
 2. PROVIDE WATER TIGHT GROUT JOINT BETWEEN BASE OF POLE AND CONCRETE.
 3. PROVIDE 3/8" EXPANSION JOINT WHEN PLACED IN A SIDEWALK AREA.
 4. ANCHOR BOLTS & BOLT CIRCLE TO MEET MANUFACTURER SPECIFICATIONS. SET BOLT HEIGHT TO PERMIT DOUBLE LOCKNUT FOR ADJUSTMENT.

DRAWING NOT TO SCALE

- GENERAL NOTES (STREET LIGHT CONSTRUCTION)
1. ALL WORKMANSHIP, MATERIALS AND TESTING WILL BE IN ACCORDANCE WITH WSDOT/APWA, MUTCD, NEC OR CITY OF CHEHALIS PUBLIC WORKS STANDARDS UNLESS OTHERWISE SPECIFIED BELOW. IN CASES OF CONFLICT, THE MOST STRINGENT GUIDELINE WILL APPLY.
 2. WASHINGTON STATE ELECTRICAL PERMITS AND INSPECTIONS ARE REQUIRED FOR ALL STREET LIGHTING INSTALLATIONS WITHIN THE CITY OF CHEHALIS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING SAID PERMITS PRIOR TO ANY TYPE OF ACTUAL CONSTRUCTION.
 3. A CLEARLY MARKED SERVICE DISCONNECT WILL BE PROVIDED FOR EVERY LIGHTING CIRCUIT. THE LOCATION AND INSTALLATION OF THE DISCONNECT WILL CONFORM TO NATIONAL ELECTRICAL CODE (NEC) AND THESE STANDARDS. THE PHOTO CONTROLS WINDOW WILL FACE NORTH UNLESS OTHERWISE DIRECTED BY THE CITY. THE SERVICE DISCONNECT WILL NOT BE MOUNTED ON THE LUMINAIRE POLE. THE SERVICE DISCONNECT WILL BE OF A TYPE EQUAL TO A MILBANK CP3B-11115 AALSP2 SERVICE, 120/240 VAC, 10/3W, CALTRANS TYPE 3B WITH CONTACTORS, PHOTO CONTROLS AND TEST SWITCH. ALL SERVICE DISCONNECTS WILL BE USED TO FULLEST CAPACITY, I.E., MAXIMUM NUMBER OF LUMINAIRES PER CIRCUIT.
 4. ALL LIGHTING WIRE WILL BE COPPER WITH A MINIMUM SIZE OF #8. ALL WIRE WILL BE SUITABLE FOR WET LOCATIONS. ALL WIRE WILL BE INSTALLED IN SCHEDULE 80 PVC CONDUIT WITH A MINIMUM DIAMETER OF 1 1/4 INCHES. A BUSHING OR BELL-END WILL BE USED AT THE END OF A CONDUIT THAT TERMINATES AT A JUNCTION BOX OR LUMINAIRE POLE. CONDUCTOR IDENTIFICATION WILL BE AN INTEGRAL PART OF THE INSULATION OF THE CONDUCTORS THROUGHOUT THE SYSTEM I.E., COLOR-CODED WIRE. EQUIPMENT GROUNDING CONDUCTOR WILL BE #8 COPPER. ALL SPLICES OR TAPS WILL BE MADE BY APPROVED METHODS UTILIZING EPOXY KITS RATED AT 600 VOLTS, MINIMUM (I.E., 3-M 82-A2). ALL SPLICES WILL BE MADE WITH PRESSURE TYPICAL CONNECTORS (WIRE NUTS WILL NOT BE ALLOWED). DIRECT BURIAL WIRE WILL NOT BE ALLOWED. ALL OTHER INSTALLATION WILL CONFORM TO NEC, WSDOT/APWA, AND MUTCD STANDARDS.
 5. EACH LUMINAIRE POLE WILL HAVE AN IN-LINE, FUSED, WATER TIGHT ELECTRICAL DISCONNECT LOCATED AT THE BASE OF THE POLE. ACCESS TO THESE FUSED DISCONNECTS WILL BE THROUGH THE HAND-HOLE ON THE POLE. THE HAND-HOLE WILL BE FACING AWAY FROM ON-COMING TRAFFIC. ADDITIONAL CONDUCTOR LENGTH WILL BE LEFT INSIDE THE POLE AND PULL OR JUNCTION BOX EQUAL TO A LOOP HAVING A DIAMETER OF ONE FOOT. LOAD SIDE OF IN-LINE FUSE TO LUMINAIRE HEAD WILL BE CABLE AND POLE BRACKET WIRE, 2 CONDUCTOR, 19-STRAND COPPER #10 AND WILL BE SUPPORTED AT THE END OF THE LUMINAIRE ARM BY AN APPROVED MEANS. FUSE SIZE, DISCONNECT INSTALLATION AND GROUNDING IN POLE WILL CONFORM TO NEC STANDARDS.
 6. APPROVED PULL BOXES OR JUNCTION BOXES WILL BE INSTALLED WHEN CONDUIT RUNS ARE MORE THAN 200 FEET. IN ADDITION, A PULL BOX OR JUNCTION BOX WILL BE LOCATED WITHIN 10 FEET OF EACH LUMINAIRE POLE AND AT EVERY ROAD CROSSING. BOXES WILL BE CLEARLY AND INDELIBLY MARKED AS LIGHTING BOXES BY THE LEGEND, "L.T." OR "LIGHTING". SEE WSDOT STANDARD PLAN J-11A.
 7. ALL LIGHTING POLES WILL HAVE TAPERED ROUND SHAFTS WITH A LINEAR TAPER OF BETWEEN 0.125 AND 0.14 INCHES PER FOOT. IN EXISTING DEVELOPED AREAS, THE CITY MAY REQUIRE A SPECIFIC POLE TYPE TO MAINTAIN CONSISTENCY WITHIN THE DEVELOPED AREA.
 8. CEMENT CONCRETE BASES WILL FOLLOW WSDOT STANDARD PLAN J-1B, SHEET 1, FOUNDATION DETAIL. CONDUIT WILL EXTEND BETWEEN THREE (3) AND SIX (6) INCHES ABOVE THE CONCRETE BASE.
 9. ALL STREETLIGHTS WILL INCLUDE A RECESSED 120V WEATHERPROOF RECEPTACLE THAT MEETS ALL APPLICABLE GUIDELINES AND STANDARDS. THE RECEPTACLE WILL BE LOCATED THIRTEEN (13) FEET ABOVE THE BASE OF THE POLE.
 10. ANY MODIFICATION TO APPROVED PLANS WILL BE REVIEWED AND APPROVED BY THE DIRECTOR OF PUBLIC WORKS PRIOR TO INSTALLATION.

NO.	DATE	DESIGNED BY: RWB	DRAWN BY: ALE	CHECKED BY: RWB	DATE: 08/29/2023	SCALE: N.T.S.
HAMPE WAY ROAD AND UTILITY						
STREET LIGHT DETAILS AND NOTES						
RB Engineering DESIGN → PERMIT → MANAGE P.O. Box 923 CHEHALIS, WA 98532 OFF: (360) 740-8819 EMAIL: info@rbengineers.com						
JOB NUMBER 19081 DRAWING NAME 19081_C.5.2_SLOT C5.2 24 OF 24						