

IN SECTION 31, TOWNSHIP 51 NORTH, RANGE 4 WEST, B.M., KOOTENAI COUNTY, IDAHO.

INSTALL PVC
CASING AGAINST
EXTREME EDGE
OF PUMP PIT TO
ALLOW ROOM FOR
PUMP LAPS

- NOTE. CONCRETE SHALL
BE 5M SACK WITH
ENTRAINED AIR $\frac{1}{2}$ 4"
SLUMP. ALL CONCRETE
SHALL BE THOROUGHLY
RODDED OR VIBRATED
IN FORMS SUCH THAT
NO HONEY COMBING
WILL OCCUR. SMOOTH
TROWELL FINISH
RESERVOIR FLOOR SLA

6" C.I. WALL CASTING
4' LONG WITH BLIND
FLANGE EACH SIDE
CENTER 6" ABOVE
FLOOR SLAB

NOTE: PROVIDE WALL
CASTINGS ON ALL
PIPES THROUGH
RESERVOIR WALL

45-0

SCALE $\frac{1}{2}" = 1'-0"$

INSTALL PUMP DOWN CONTROLS
FOR THE RESERVOIR PUMPS
IN THE 4" STILLING TUBE.
SET "OFF" PROBE 3" ABOVE
THE RESERVOIR FLOOR AND
"RESET" PROBE 6" HIGHER.

COMPACT BACKFILL AROUND
CONCRETE PIPE TO 100%
OF ORIGINAL GROUND
DENSITY

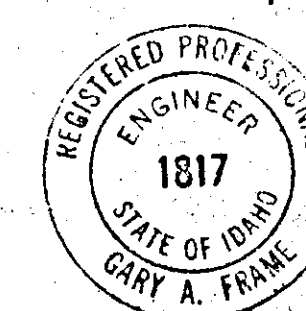
24" ID. x 7'-6" REINFORCED
CONCRETE PIPE

18" CONCRETE PILE
PLACE 8" VC CASINGS IN
WET CONCRETE TO ANCHOR.
ENTIRE 8" VC CASINGS MAY
BE INSTALLED IN A SINGLE
12' LENGTH (R) ABOVE TOP
PILE & 4" INTO CONCRETE
PILE OR IN TWO PILES
WITH A COUPLING IF
DESIGED

40 PERFORATIONS 3/4"
IN DIAMETER UNIFORMLY
SPACED AROUND LASING
CIRCUMFERENCE FROM
6 TO 18" ABOVE TOP
OF CONCRETE PLUG

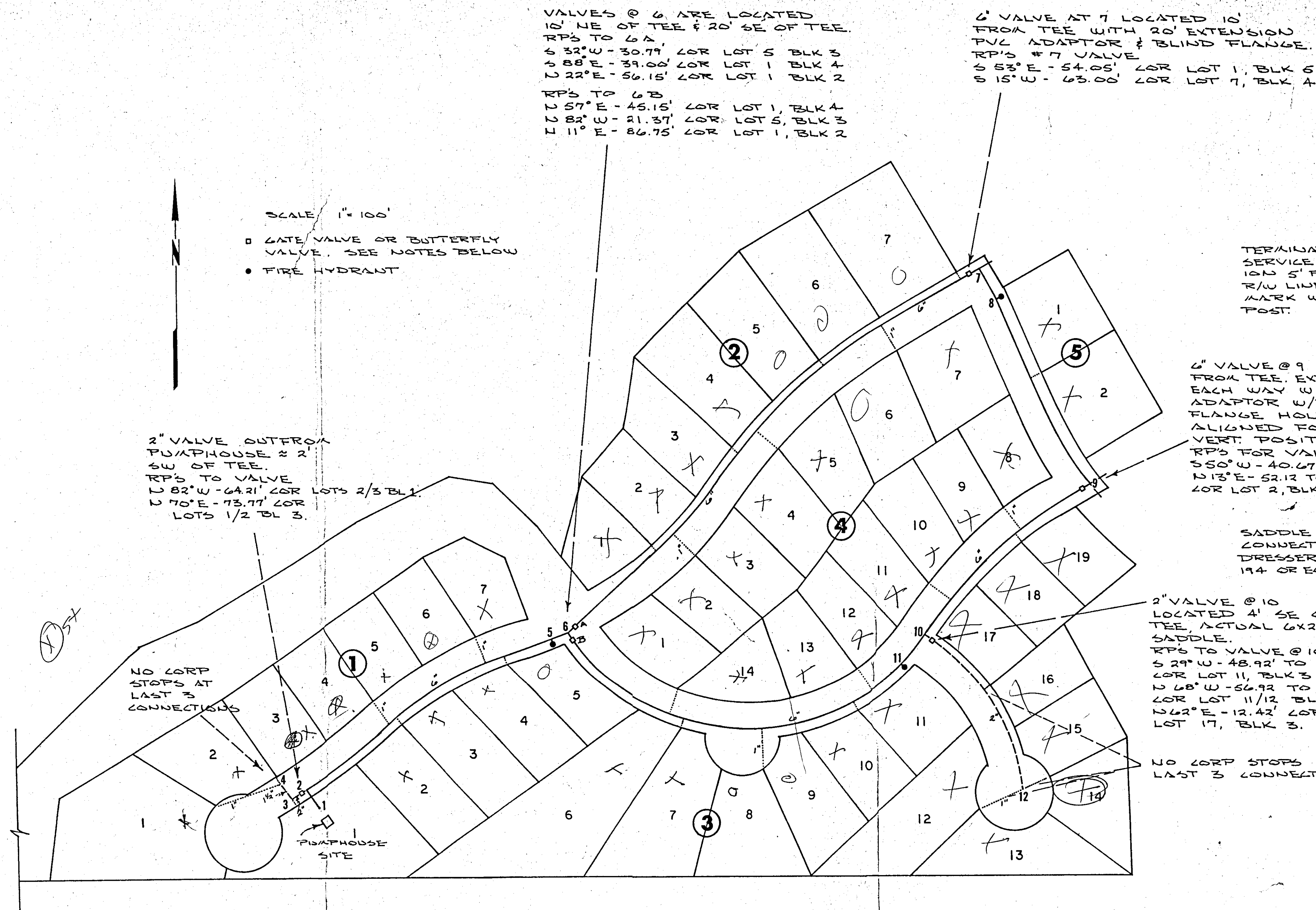
TWO RED JACKET 3 WIRE
6" ROPE-E-4, 1/2 HP, 3 PHASE
460 VOLT, 3450 RPM,
6" SUBMERSIBLE PUMPS OR
EQUAL. SET BOTTOM OF
MOTOR 6" ABOVE CONCRETE
PLUG. USE 3" COLUMN
TO 3" PITLESS ADAPTOR.
(EACH PUMP 200 GPM @ 50 PSI,
TO PSI JUST OFF HEAD)

- A. Existing 4" tee - reverse direction of stem.
- B. Reinstall existing non-slam check valve.
- C. Reinstall existing meter.
- D. Install 4" galvanized or cast iron line through new floor slab and into reservoir.
- E. Existing 4" flanged spool & Dresser. Cut as necessary.
- F. 4" flanged cast iron tee with commercial pipe support.
- G. 4" to 3" flanged reducing els.
- H. 3" flanged gate valves.
- I. 3" Apco flanged non-slam check valves.
- J. 3" flanged spools with Dressers.
- K. Install 3" galvanized or cast iron lines through new floor and to reservoir pumps.
- L. Construct new well house and add floor slab similar to existing structure.
- M. ELECTRICAL: Install the reservoir pump starters equipped with an alternator. Install pump disconnects and liquid level controls (for both the well and reservoir pumps). Set "OFF" probe for well pump 3" below overflow invert and "ON" probe 6" lower. Convert well pump to start from reservoir probes and reservoir pump to start from pressure switches on the distribution line. Set one switch at 45-65 psi and the other switch at 40-65 psi. Use existing phase failure protection to protect reservoir pumps. Install 350 watt probe heater in stilling tube.

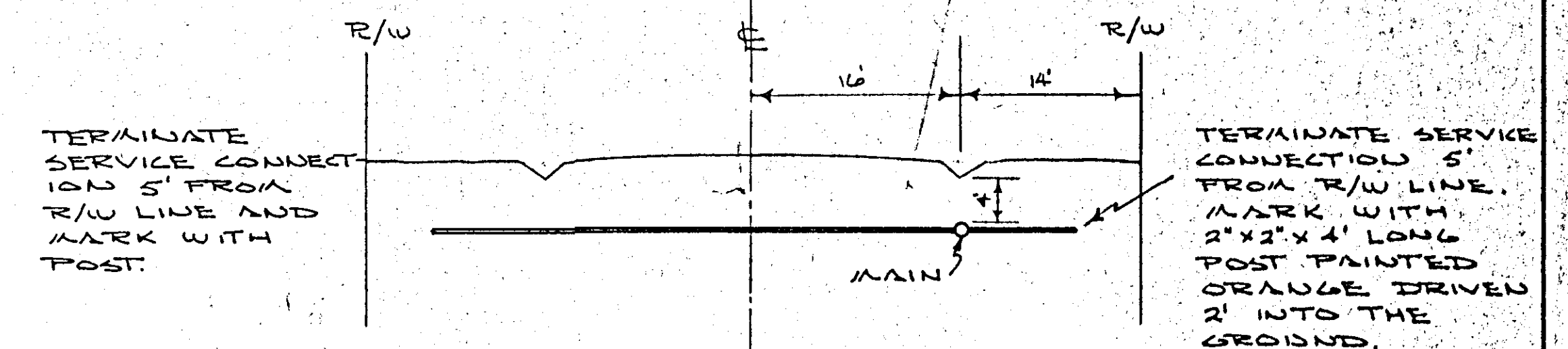


30,000 GAL. RESERVOIR FOR ROYAL HIGHLAND 1ST ADDN		
SCALE: $\frac{1}{2}" = 10'$	KOOTENAI CO.	DRAWN BY E/M
DATE: 3/17	DAWG	REVISED

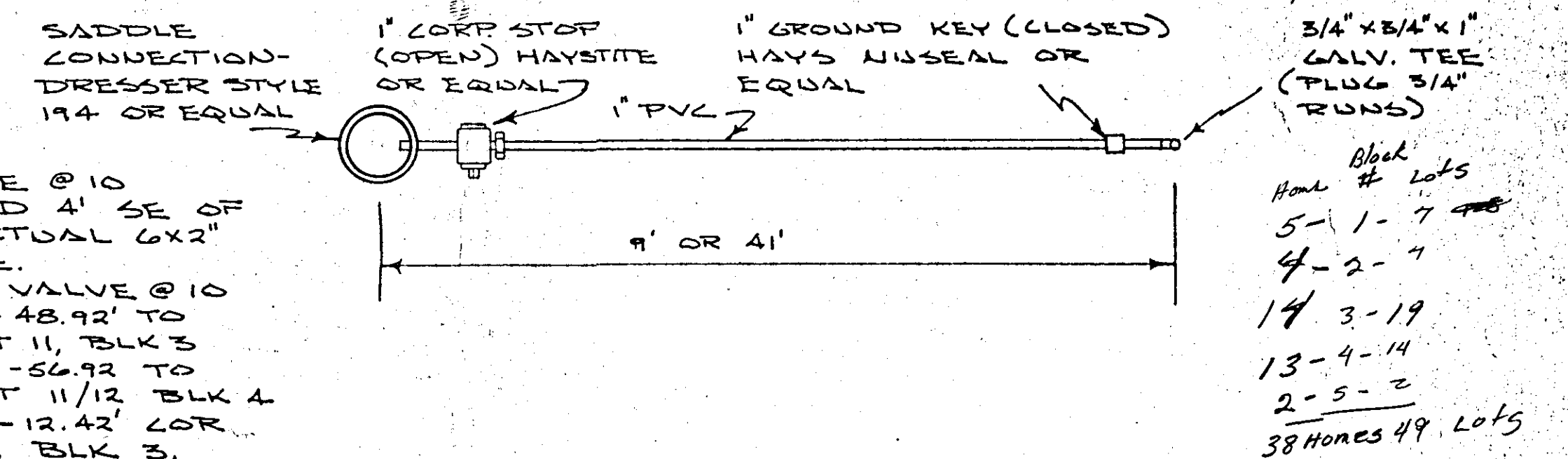
LE PARD & FRAME SHEET /
Consulting Engineers OF 2
Coeur d'Alene, Idaho LF



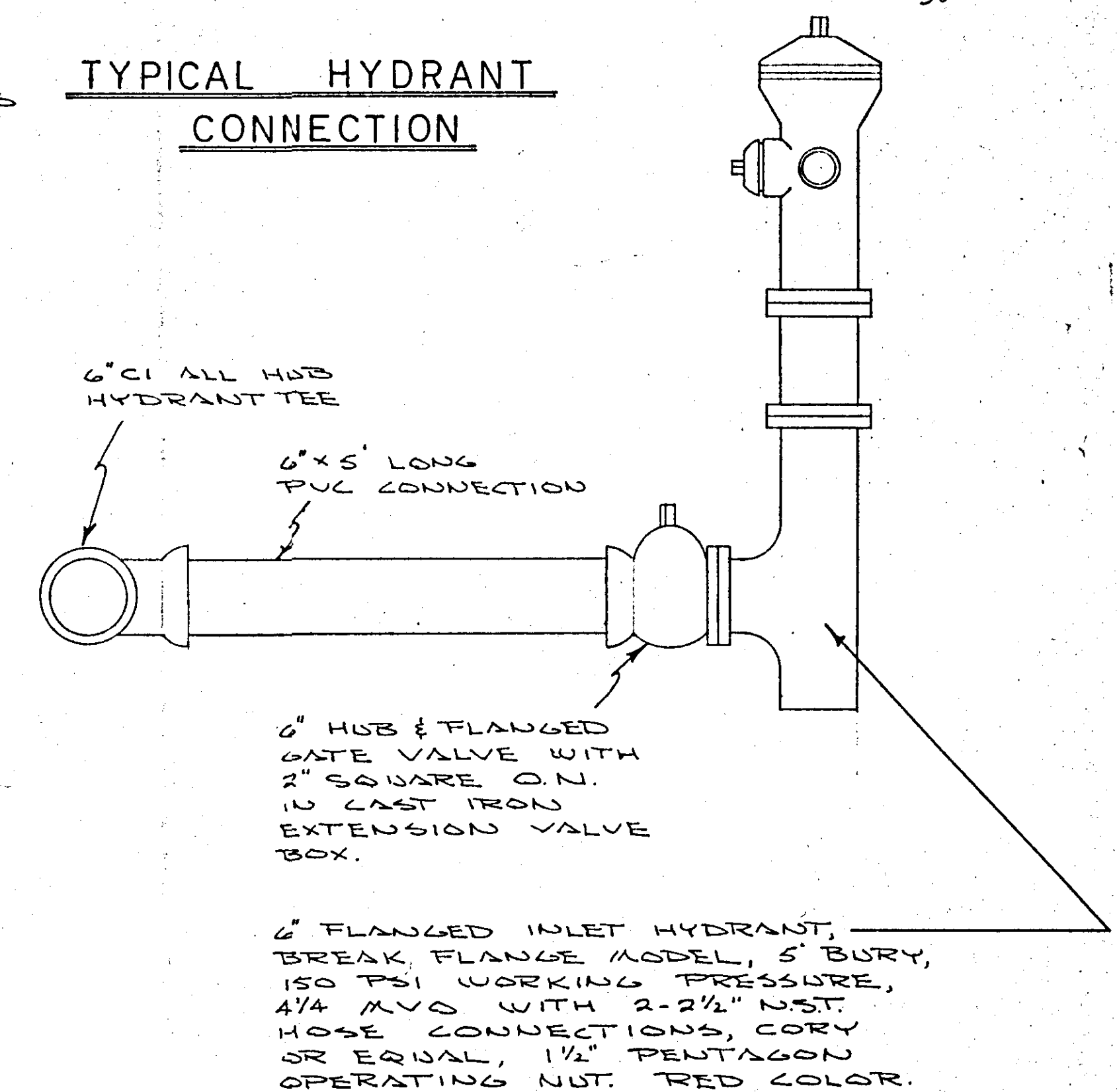
TYPICAL CROSS SECTION



TYPICAL SERVICE CONNECTION



TYPICAL HYDRANT CONNECTION



1. 6" FLANGED PVC ADAPTOR
2. 6" X 6" X 6" PVC ALL HUB TEE. REDUCE SW RUN TO 2" & INSTALL 2" GATE VALVE IN CI EXTENSION VALVE BOX.
3. 1 1/2" X 1" X 2" TEE
4. 1 1/2" X 1" X 1" TEE
5. 6" HYDRANT - LOCATE ON MAIN 10' SW OF NORTHERNMOST CORNER OF LOT 5.
6. 6" PVC TEE - ALL HUB - INSTALL 6" GATE VALVES ON NE RUN AND SW OF TEE. INSTALL CAST IRON EXTENSION VALVE BOXES.

7. 6" PVC TEE - ALL HUB - PLUG NE RUN - INSTALL 6" BUTTERFLY VALVE IN CI EXTENSION VALVE BOX SW RUN OF TEE.
8. 6" HYDRANT - LOCATE ON MAIN 10' SE OF WESTERNMOST CORNER LOT 1.
9. 6" PVC - 2 TEES - ALL HUB - PLUG NE & SE RUN. INSTALL 6" GATE VALVES IN CI EXTENSION VALVE BOX SW RUN OF CROSS.
10. INSTALL SADDLE & 2" GATE VALVE IN EXTENSION CI VALVE BOX.
11. 6" HYDRANT - LOCATE 10' SW OF NORTHERNMOST CORNER LOT 11.
12. 1" X 1" X 2" TEE

SEE SHEET 3 OF 3 FOR GENERAL NOTES

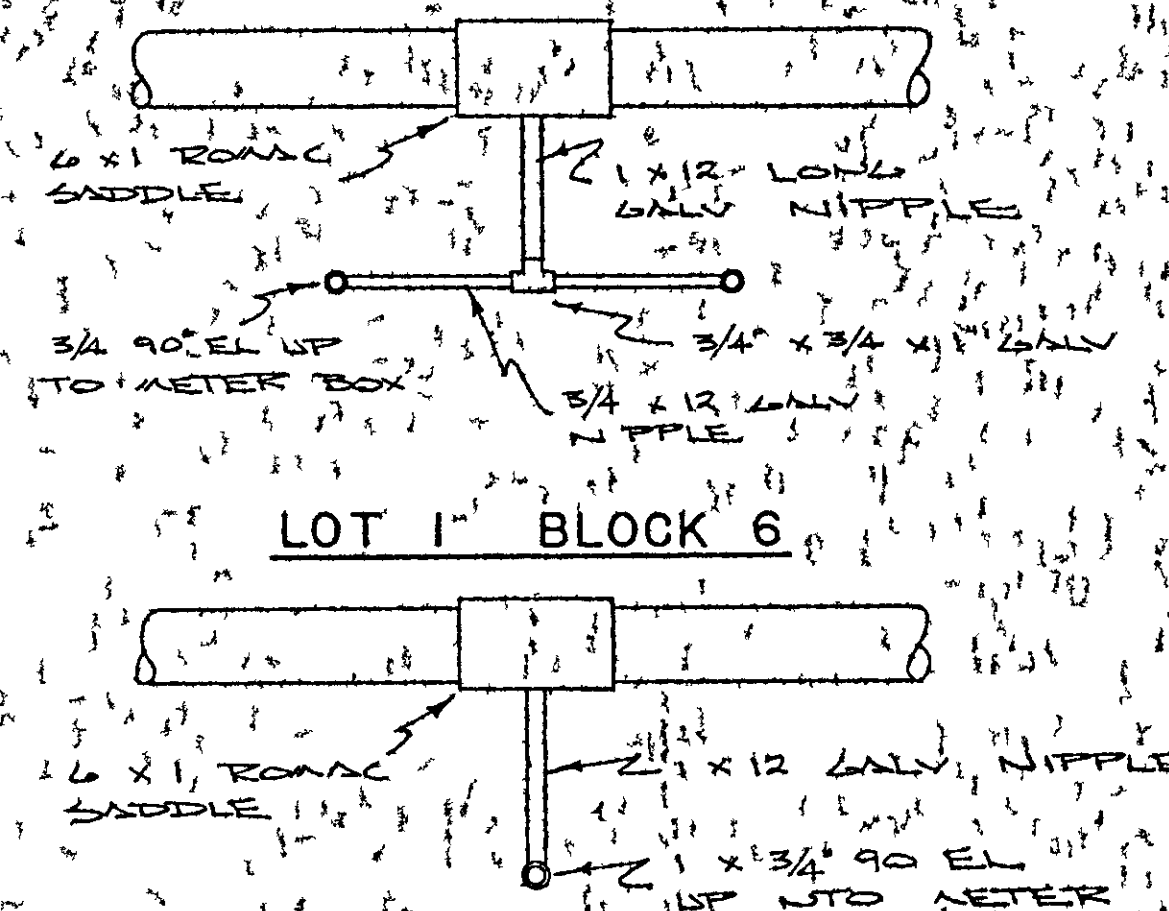
WATER DISTRIBUTION SYSTEM FOR ROYAL HIGHLAND FIRST ADDITION

PART OF THE SOUTH 1/2, SECTION 31, TOWNSHIP 51 NORTH, RANGE 4 WEST, BM
KOOTENAI COUNTY, IDAHO

SCALE 1" = 100'

VICINITY MAP
SCALE 1" = 2600'

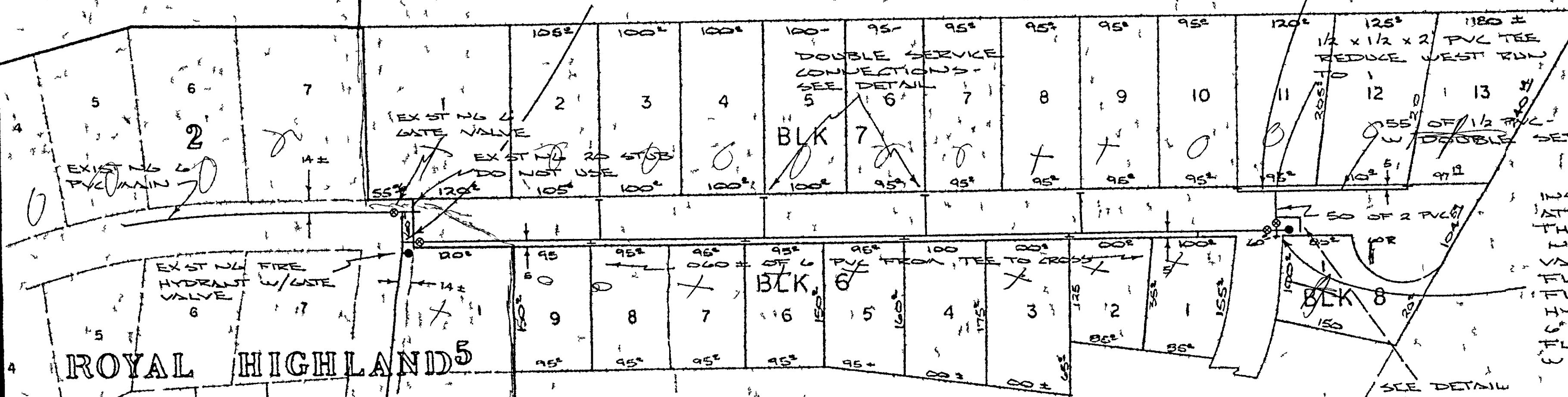
SHORT SERVICE



LOT 1 BLOCK 6

INSTALL 6 HUB CAST IRON TEE IN EXISTING MAIN AT A POINT 15' NORTH OF THE NORTH LINE OF BLOCK 6. USE 1/2" NIPPLE & DRESSER COUPLING ON ONE RUN. INSTALL 20' LENGTH OF 6" PVC ON STEEL OF TEE. THEN INSTALL 6" PVC x PVC GATE VALVE W/BOX.

50' OF PVC TERMINATE W/ DOUBLE SERVICE



INSTALL 6 CAST IRON FLANGED CROSS AT A POINT 5' NORTH & 5' WEST OF THE NW CORNER OF LOT 1, BLOCK 6. INSTALL 6 FLANGE x PVC GATE VALVE ON WEST LEG 6. BLIND FLANGE ON SOUTH LEG 6. FLG GATE VALVE W/BOX AND HYDRANT ON EAST LEG 6 AND 6" TO 2" REDUCER OR 6" BLIND FLANGE W/2 TAP ON NORTH LEG WITH 2 FLG x PVC GATE VALVE.

SEE DETAIL SHEET 2

GENERAL All materials shall be new, NSF approved and installed to State standards. The Contractor shall guarantee all materials and workmanship for a period of one year following final approval by the engineer.

PIPE All mains shall be Class 160 PVC with rubber ring joints. Service connections shall be Class 200 PVC. All pipe shall meet the latest applicable ASTM standards. The minimum depth of bury shall be 4'-6" to the top of the pipe. The pipe shall be bedded with a 6" layer of hand compacted select fill material both above and below the pipe that contains no rock larger than 1" in greatest dimension. At those locations where the mains or service lines cross the road right-of-way the trench backfill shall be either water settled or mechanically compacted to 100% of original ground density. All backfill shall be smoothed to original ground contours.

FITTINGS PVC fittings shall be GSR Schedule 40 PVC or equal. Cast iron fittings shall be Tif Tec or equal. All fittings shall be thrust blocked to the size shown on the plans.

VALVES Valves shall be AWWA Class "C" NRS with a 2" square operating nut. M & H gate valve or equal. Working pressure shall be 175 psi. Water. All valves shall be equipped with a cast iron valve box two-piece slip-type for a 5' trench marked "Water". Boxes shall be M & H or equal. The contractor shall provide the owner with a valve tool that will fit all valves and shall provide to the owner or engineer references to each valve installed. References shall be to a minimum of two lot corners to the nearest 0.1 feet.

SERVICE CONNECTIONS Service connections shall be dual connections installed at the locations shown on the Plans. All connections shall terminate 5' from the common lot corner which they serve. See Detail. Each curb stop shall be marked with a four foot long 2x4 buried two feet into the ground. The exposed two feet shall be painted "Hunter's Orange". Those lots that have the main shall not have service connections installed at this time, but shall connect in the future at the desired location using a style 291 Dresser Quick Tap Connector.

TESTING AND DISINFECTION: Upon completion of the project the contractor will be required to pressure test the mains and service lines to 150 psi to the satisfaction of the engineer. All couplings and fittings shall be left exposed until a satisfactory test is obtained. A 50 ppm chlorine solution will then be introduced into the mains and distributed through the new system. This solution shall be allowed to stand for 24 hours and then be thoroughly flushed through each service connection.

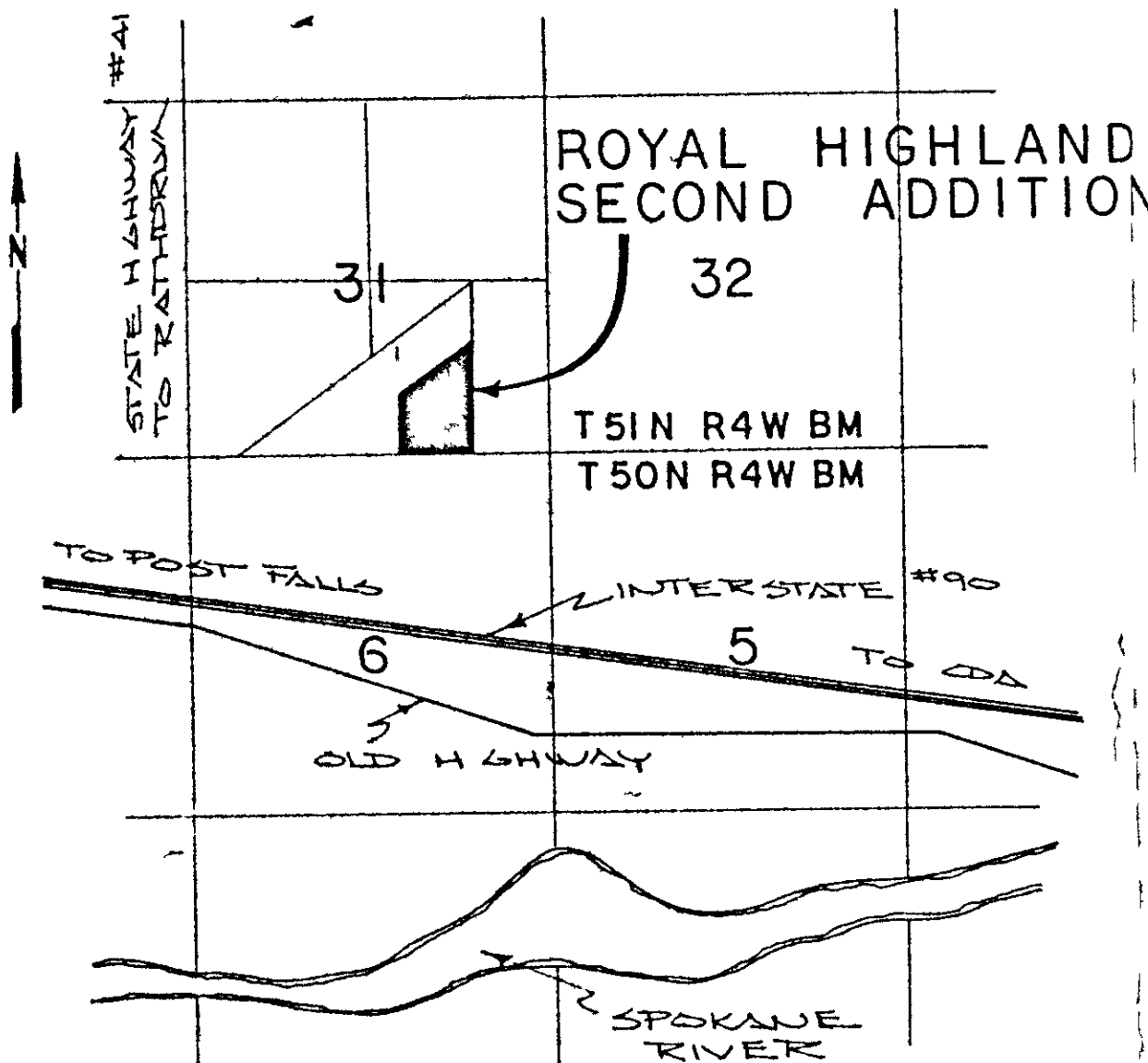
Homes, Block Lots
6 = 6-9
4 = 7-13
10 = 22
Homes 8, 8 = 49 lots
38 = 185 = 49 homes
10 = 8
Homes 82 lots
49

APPROVED FOR THE CITY OF IDAHO
JAN 1-97
CITY ENGINEER

WATER DISTRIBUTION SYSTEM FOR ROYAL HIGHLAND SECOND ADDITION

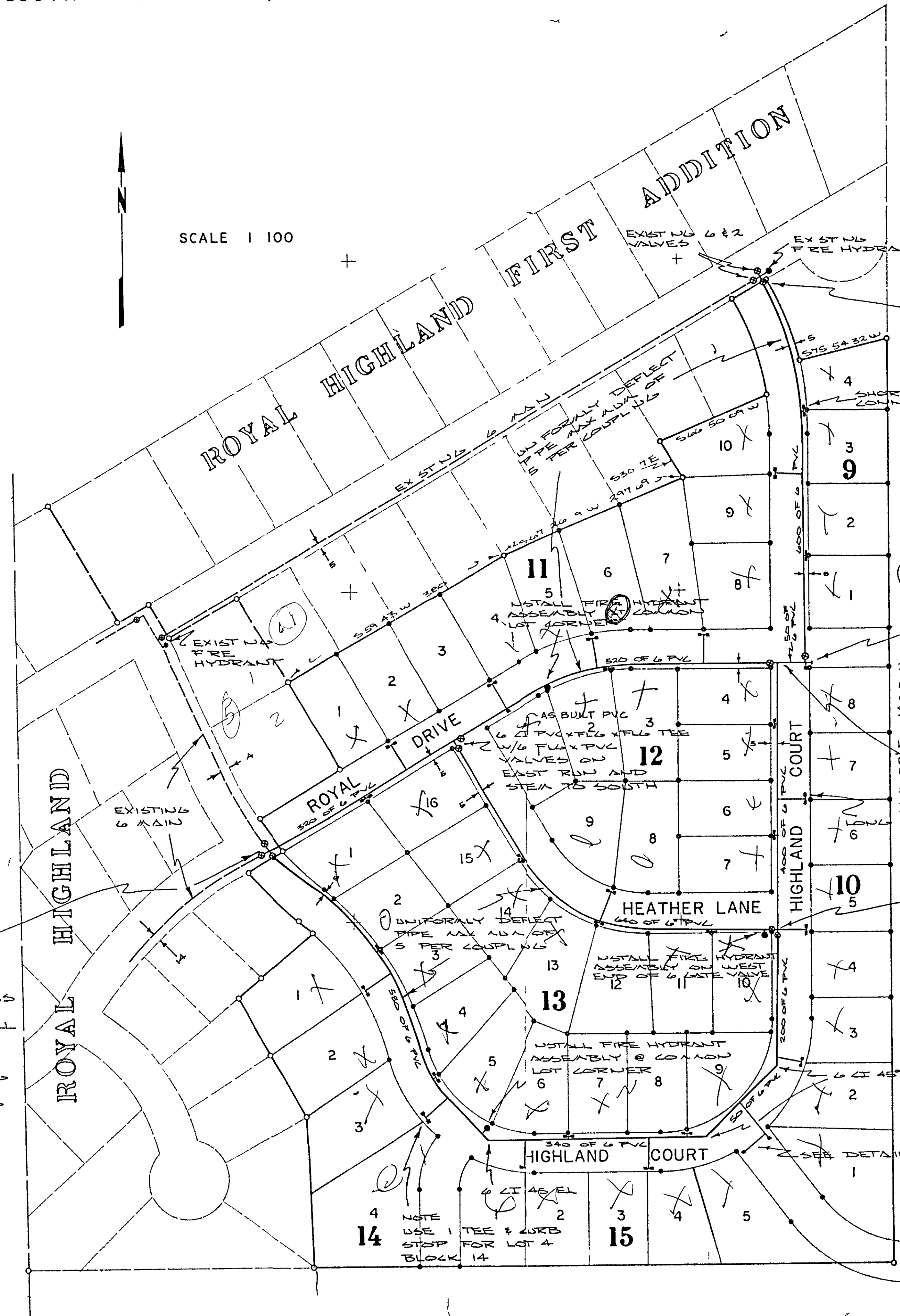
PART OF THE SOUTH SECTION 31, TOWNSHIP 51 NORTH, RANGE 4 WEST, BM KOOTENAI COUNTY, IDA

VICINITY MAP
SCALE 1 2600



SCALE 1 100

EXISTING DOUBLE 6 TEE WITH EXISTING 6 VALVE ON WEST RUN 6 FROM TEE AND EXISTING FLANGED END 20 LENGTHS OF 6 PVC ON EAST RUN AND SOUTH STEAM. INSTALL 6 FLG X PVC VALVE & BOX ON SOUTH STEAM. INSTALL 6 PVC X PVC VALVE & BOX IN EXISTING LINE ON NORTH STEAM USING DRESSER COUPLING.



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PIPE All mains shall be Class 160 PVC with rubber ring joints. Service connections shall be Class 200 PVC. All pipe shall meet the latest applicable ASTM standards. The minimum depth of bury shall be 4'-6" to the top of the pipe. The pipe shall be bedded with a 6" layer of hand compacted select fill material both above and below the pipe that contains no rock larger than 1" in greatest dimension. At those locations where the mains or service lines cross the road right-of-way the trench backfill shall be either water settled or mechanically compacted to 100% of original ground density. All backfill shall be smoothed to original ground contours. At those locations shown where the mains are to be uniformly deflected around curves the maximum deflection shall not exceed 5" per coupling (1-2' for a 20' length of pipe). 20' lengths of plain end pipe shall be used around these curves with a separate rubber ring coupling that will accommodate a deflection of 2 1/2" on either side of the coupling.

FITTINGS PVC fittings shall be GSR Schedule 40 PVC or equal. Cast iron fittings shall be Tef Tec or equal. All fittings shall be thrust blocked to the size shown on the plans.

VALVES Valves shall be AWWA Class C NRS with a 2" square operating nut. M & H gate valve or equal. Working pressure shall be 175 psi. Water. All valves shall be equipped with a cast iron valve box, two-piece, slip-type for a 5' trench, marked Water. Boxes shall be M & H or equal. The contractor shall provide the owner with a valve tool that will fit all valves and shall provide to the owner or engineer references to each valve installed. References shall be to a minimum of two lot corners to the nearest 0.1 foot.

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TESTING AND DISINFECTION Upon completion of the project, the contractor will be required to pressure test the mains and service lines to 150 psi to the satisfaction of the engineer. All couplings and fittings shall be left exposed until a satisfactory test is obtained. A 50 ppm chlorine solution will then be introduced into the mains and distributed through the new system. This solution shall be allowed to stand for 24 hours and then be thoroughly flushed through each service connection.

AS BUILT VALVE REFERENCES

WEST INTEX ROYAL DRIVE & HIGHLAND COURT

NORTH VALVE
SW 42' TO CATCH BASIN
SE 21' TO STREET MARKER SIGN
SE 6' TO TEE

WEST VALVE
WEST 32' TO CATCH BASIN
EAST 22' TO STREET MARKER SIGN

SOUTH VALVE
WEST 39' TO CATCH BASIN
EAST 12' TO STREET MARKER SIGN
NW 20' TO TEE

ROYAL DRIVE & HEATHER LANE
VALVE ON ROYAL DRIVE
EAST 45' TO NW COR LOT 1, BLK 12
NW 530' TO SW COR POWER BOX
SW 4' TO TEE

VALVE ON HEATHER LANE
NE 515' TO NW COR LOT 1, BLK 12
NW 605' TO SW COR POWER BOX
NW 7' TO TEE

EAST INTEX ROYAL DRIVE & HIGHLAND COURT
WEST VALVE
NORTH 54' TO SE COR LOT 8, BLK 11
EAST 61' TO NW COR LOT 8, BLK 10
EAST 7' TO TEE

EAST VALVE
NW 67' TO SE COR LOT 8, BLK 11
SW 545' TO NW COR LOT 4, BLK 12
SOUTH 3' TO TEE

INTEX HIGHLAND COURT & HEATHER LANE
VALVE ON HEATHER LANE
SW 45' TO FIRE HYDRANT
EAST 55' TO NW COR LOT 4, BLK 10
EAST 12' TO TEE

VALVE ON HIGHLAND COURT
SOUTH 92' TO ELECT METER BOX
EAST 44' TO NW COR LOT 4, BLK 10
NORTH 15' TO TEE

NOTE
DISTRIBUTION MAIN LOCATED 5 TO 10' FROM LOT LINES INSTEAD OF UNIFORM 5' AS SHOWN

AS BUILT PVC
6" CI PVC X FLG X FLG TEE W/ 6" FLG X PVC GATE VALVE & BOX ON SOUTH RUN & 6" FLG X FLG GATE VALVE & BOX ON WEST STEAM

Homes 81 K5 Lots
49 - 1 - 8 - 82 Lots
4 = 9 4
8 = 10 8
8 = 11 - 10 9
7 = 12 - 14
13 = 13 - 14
3 = 14 4
5 = 15 - 5
97 Homes 138 Lots
4154bs